SLMA NEWS+

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To minimize the possible risk of spreading the Corona virus in the country, public are advised to adhere in to good health practices

- Frequently clean hands by using soap and water or alcohol-based hand rub.

- When coughing and sneezing cover mouth and nose with tissue or handkerchief or with the flexed elbow. Used facial tissues to be discarded properly.
- Avoid frequent touching of face, nose, eyes and mouth.

- Avoid close contact with anyone who has fever and cough.
- If you have fever, cough and difficulty in breathing seek medical care at earliest from a government hospital and share recent travel history.

According to the current situation, it is not necessary to wear surgical face masks by the normal healthy public routinely.

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EPIDEMIOLOGY UNIT
MINISTRY OF HEALTH

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"Wijerama House"
No. 6, Wijerama Mawatha,
Colombo 07.
Telephone: +94 112 693 324
Email: office@slma.lk

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IN THIS ISSUE

Editorial

The Patient or the Public: Ethical considerations during a pandemic

The current COVID-19 pandemic and its consequences have shaken all aspects of our existence to the core. It has made us re-examine our healthcare systems, our governing bodies and our societal structures. It has made us question our life choices; forced us to rethink how we live. Similarly, for those of us whose primary duty has been to care for the sick and to prevent illness, it has compelled us to reassess our modus operandi.

With the prevailing island-wide curfew and with the available resources being diverted to curtail the spread of COVID-19 in the country, our routine care has got disrupted. Although primary care units, emergency services and in-ward care in hospitals are still functioning, most out-patient clinics have been restricted to repeating prescriptions based on a directive by the Ministry of Health. Practices of most general practitioners have been closed. Out-patient consultations in private hospitals have also been severely restricted. Although remote consultations by telephone are offered, that cannot possibly compensate for the services we have suspended. It may appear that we have abandoned our usual strongholds and gone to battle valiantly in a new and strange frontier; the war against COVID-19. Here we fight with unprecedented intensity and commitment; we impose mandatory quarantining of returnees from abroad as well as local contacts of those found to be positive for the infection, admit and aggressively manage all patients who are suspected or confirmed of having COVID-19, with or without symptoms, we trace contacts with such vigour that intelligence services too are being brought in to investigate a person's whereabouts.

The above transformation has raised many questions regarding our duty to patients, the society at large and the ethical principles of medical practice; autonomy, justice, beneficence, and non-maleficence. At ordinary times, physicians' primary ethical obligation is to their individual patients. However, these are extraordinary times. Now we have an enormous public health responsibility as well, which has been a long-recognized duty, but now made even more relevant due to a contagion that can potentially kill millions. These two sometimes, if not often, may even contradict each the other.

In the context of a rapidly spreading infectious disease, measures to protect the health of the public take centre stage in the country's response. This may include the use of quarantine and isolation, contact tracing, physical distancing, reducing movement of people within and into the country and strict enforcement of regulations of all kinds, from routine services to methods of disposal of the bodies of the deceased. In such a milieu, what becomes of the autonomy of a patient who is suspected or confirmed of having COVID-19 and does not want to be admitted to a designated hospital? What about the privacy of a patient whose whereabouts and contacts are being investigated without their consent by the intelligence services? How about the patients who are denied the comfort of being with the near and dear at the last moments of life? What becomes of the autonomy and justice for a deceased whose religious rites are denied as they are not in keeping with the local regulations in force? Furthermore, what of the thousands of patients who are suffering from many other non-COVID ailments that are denied optimal care due to disruption of routine services? Is it fair to overlook these ethical obligations we have to individual patients for the probable benefit it may confer in terms of safeguarding the public?

It is important that we approach this issue with a holistic view. These ethical principles appear to be interconnected with each other. The key factor that defines both beneficence and non-maleficence is the intention of the doer. For example, the right to privacy and autonomy are being overlooked not with the intention of causing harm to the individual, but for the greater good of the public. The doctors have withdrawn certain services based on directives from authorities not due to any malicious intent on their part or for personal gain, but with the intention of protecting the public. Physicians have a further responsibility to ensure that they remain able to provide care by protecting their own health.

These responsibilities may conflict with a physician's duty to safeguard the best interests of an individual patient and the patient's right to self-determination. However, these trying times call upon us physicians to be the most sensible we could be, and to bear in mind that it is our intentions that matter the most. We have a duty to safeguard patient's right to privacy and to maintain confidentiality. Yet, we should not appear to be unduly thwarting the public health response in the country. We have a moral and ethical obligation to follow evidence-based best practices and to complement and contribute to the country's concerted efforts to protect the public. Then again, we must also serve each individual patient to the best of our ability and capacity.

Our choices today will define who we are tomorrow; the choices which are guided by our internal moral compass and shaped by the ethics of our practice. There is no single race, religion, cast, creed or profession that takes precedence over the other in this joint effort. They are all equally important. Our nation is only as strong as its weakest citizen. So, let us stand together in this fight against COVID-19.

President's Message

Dear Members of the Sri Lanka Medical Association,

For all Sri Lankans, the month of April is a period of happiness and celebration. While the novel coronavirus is casting a shadow over Sri Lanka and the whole world, we as Sri Lankan step into this auspicious period with hope and determination. Let us celebrate the courage of our nation which has so far successfully managed to control the spread of this disease.

We express our heartfelt gratitude to all of you, the doctors and the healthcare professionals who are combatting COVID -19 in the frontline at this very moment. You are real heroes! The SLMA is in the process of implementing a reward programme for the health heroes of Sri Lanka. We also wish to thank all the Sri Lankans for the immense sacrifices made to adhere to the instructions of health authorities and hope that this storm too will pass in due course.

As the apex medical association in the country, the SLMA has a responsibility to the medical profession and the general public to contribute in its maximum capacity in this fight against COVID-19. In that light, the SLMA has been relentlessly working with the government authorities, other professional colleges and other sectors to plan and implement many initiatives during this period. These activities are discussed in more detail elsewhere in this issue of SLMA NEWS.

We must recognise that these difficult times are marred with many uncertainties in terms of social, health and financial security. Uncertainties lead to fear. Excessive fear leads to chaos. Amidst a global health crisis, we as doctors have a responsibility to alleviate such fear in the medical community as well as the general public. Our responses must be evidence-based and adjusted according new emerging data. No one in this word has ever fought this battle before. Everyone is leaning on the go. I urge all my fellow doctors to come together in close collaboration with one another leaving aside any political or personal agendas in this hour of need. Let us work together, sharing knowledge and experience, complementing, adjusting and improving the efforts of Sri Lanka's fight against COVID-19.

I wish all my fellow doctors a healthy and a prosperous year ahead.

Professor Indika Karunathilake
President, Sri Lanka Medical Association

The SLMA's response to COVID-19

Professor Indika Karunathilake
President, SLMA

Only four months have passed since COVID-19 came into international notice. The virus has now spread to every continent, affecting over 2 million and has caused more than 140,000 deaths so far. More and more cases are detected and confirmed in Sri Lanka. The number of active cases as of the time of writing (18th April 2020) is 164 and seven deaths have been reported. In Sri Lanka, the spread of the disease is still limited to small clusters or groups of people (stage 3 of the epidemic). Still we cannot afford to be complacent. If we are to learn by Korean example where one mass gathering triggered off an epidemic, one mistake is enough.

The strength of the Sri Lankan health system is in disease prevention. However, we have limited resources in the curative sector to optimally mange the critically ill during an epidemic. We must capitalise on the unique strengths of our health system and focus even strongly on preventive measures such as sanitation, health education, disease monitoring, and quarantine measures, as well as isolation of proven or suspected cases. The Sri Lankan health system has long experience in implementing these basic preventive approaches. Coupled with stringent preventive strategies and strict enforcement of regulations, Sri Lanka can contain the spread of this epidemic.

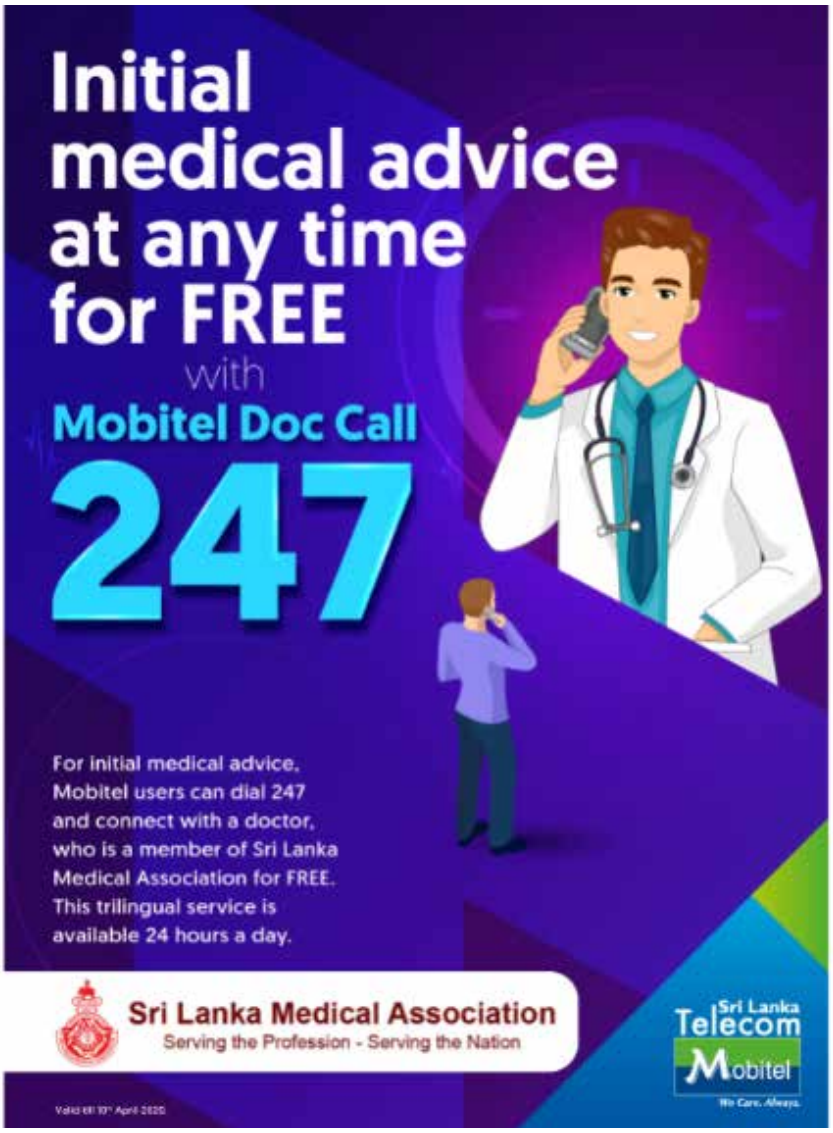
The Role of SLMA

As the apex medical professional body in the country, the SLMA has been working with close collaboration with the Ministry of Health, other professional colleges and the World Health Organization (WHO) on many fronts in combating COVID-19. So far, the steps taken by the government, Ministry of Health and UN agencies are commendable. The SLMA's role, as it should be, has been one of collaboration and working in partnership.

SLMA Webinars and online platforms

A symposium on the Coronavirus outbreak titled "Novel Coronavirus Infection (nCoV), Wuhan, China: are we ready to face it?" took place at the Sri Lanka Medical Association (SLMA) Auditorium on the 30th of January 2020. It was attended in person by over 300 participants and over 200 registered and participated in the webinar. Several newspaper articles were published based on the seminar. The WHO has identified SLMA and National Infectious Disease Hospital (NIDH) as the two common dialing locations from Sri Lanka for webinars. This seminar was followed by a series of weekly webinars held every Friday of the week, providing a platform for experts to discuss timely issues related to the epidemic.

Furthermore, we have been maximally utilizing SLMA online platforms and social media (CPD platform, Facebook, twitter, you tube, newsletter) for awareness building and capacity building.



Doc Call 247

As routine out-patient consultations were suspended due to the prevailing situation in the country, the SLMA has taken leadership in establishing remote consultations via telephone calls.

The SLMA health advice call service, conducted free of change in collaboration with Mobitel (Doc Call 247) has now received for over 10, 000 calls.

Establishing the SLMA Inter-Collegiate Committee.

Medical Professional Colleges and Associations have made significant contributions so far in their efforts in disseminating their expert knowledge and recommendations in their relevant field. However, despite these efforts there has been a lack of visibility and recognition leading to dilution of the efforts of the individual professional bodies.

Taking the above into consideration, the Sri Lanka Medical Association has taken the initiative to establish a forum for all professional bodies (colleges and associations) of medical practitioners in Sri Lanka named the SLMA Inter-Collegiate Committee.

The objectives of the SLMA Inter-Collegiate Committee are as follows:

- To provide a common platform for all professional bodies to communicate allowing a candid and transparent dialogue
- To establish national level consensus among all medical professional bodies with regards to national level guidance and recommendations
- To allow the relevant stake holders (content experts) to contribute to national level guidance and recommendations
- To prevent duplication of already established guidelines and consensus.
- To add value, validity and weight to the work done by the individual colleges and associations
- To advocate evidence-based best practices among the medical community

With the above objectives in mind all presidents of all invited professional colleges and associations were appointed as members of this committee. This committee is chaired by the President of SLMA and the convenor is Dr. Anada Wijewickrama, President of the Ceylon College of Physicians. Committee members include Dr. BVSH Beneragama, Dr. Shirani Chandrasiri, Professor Thashi Chang-Neurology, Dr. Manjula Dissanayaka, Professor Vasantha Devasiri, Dr. Jayaindra Fernando, Dr. Shanika Fernandopulle, Dr. Padma Gunaratne, Dr. Romesh Gunasekera, Dr. Asoka Gunaratne, Dr. Nandika Harischandra, Dr. C Hathurusinghe, Dr.

Pandula Hettiarachchi, Professor Thilak Jayalath, Dr. Jayantha Jayatissa, Dr. Indira Kahawita, Dr. Kaushalya Kasturiarachchi, Dr. Ananda Lamahewage, Dr. DKD Mathew, Dr. Asela Mendis, Dr. Duminda Munidasa, Dr. Namantha Nandasena, Dr. UDP Ratnasiri, Dr. Duminda Samarasinghe, Dr. Nipunika Senadheera, Dr. Ranmini Seneviratne, Professor Mandika Wijeyaratne, Professor Shehan Williams and Dr. Saman Yasawardene. A few other professional colleges and associations are expected to join this committee in the future.

Since its establishment, the intercollegiate committee has worked on producing several consensus documents and recommendations (e.g. Sri Lanka Medical Association Intercollegiate Committee recommendations for maintaining essential Medical Services).

The SLMA Prediction Model

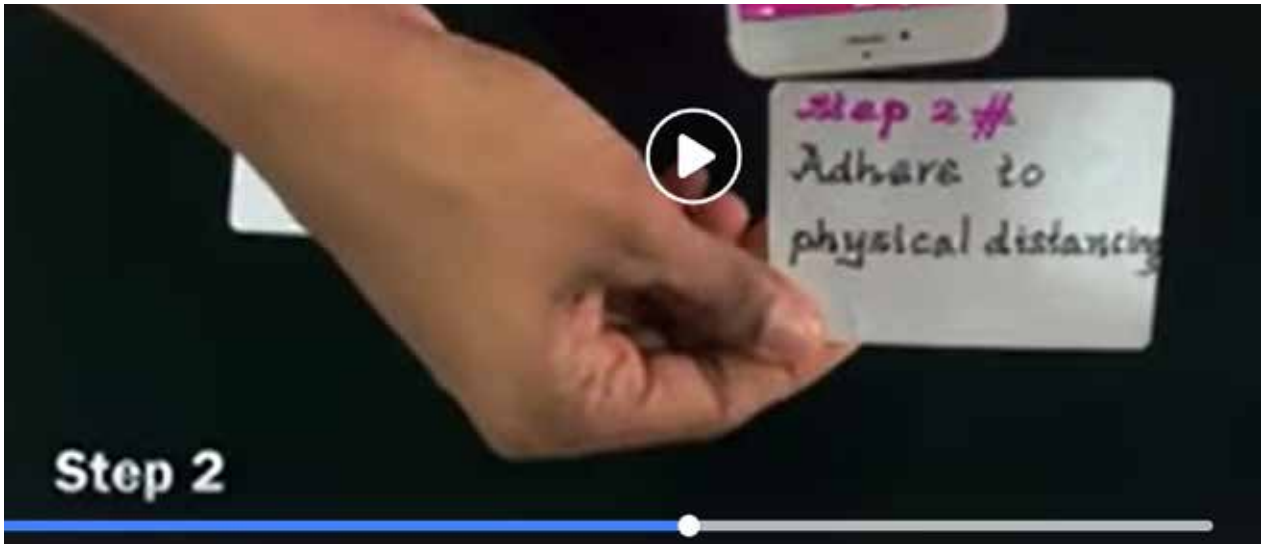
A mathematical prediction model for spread of COVID-19 has been developed under SLMA by Professor Manuj Weerasinghe, Professor in Community Medicine and Dr. Nishantha Perera, Department of Mathematics, University of Colombo. This is a voluntary activity carried out under the long-term agreement between the SLMA and the WHO. Technical support and inputs for the project has been given by the Epidemiology Unit, Ministry of Health, and Dr. Padmal De Silva and Dr. Nalika Gunawardena from the WHO country office.

Welfare of Healthcare professionals during the COVID-19 epidemic

The SLMA has taken leadership in ensuring the welfare of the healthcare workers during this crisis as well. Several council members negotiated with major supermarket chains to ensure that these provide services to healthcare staff during the curfew. The SLMA also initiated distribution of dry rations to healthcare staff at hospitals and the first of these took place at the Lady Ridgeway Hospital in Colombo.

Moreover, the SLMA is currently working on establishing a reward system to offer cash discounts, additional points and store privileges in retails and other services to healthcare workers in recognition of the immense service rendered by them during this time.

Advocacy and increasing awareness of the public



The SLMA has worked tirelessly to educate the public, to clarify doubts, clear misconceptions and bring clarity during these confusing times. Office bearers and members of the SLMA council have made numerous appearances and published many articles on national media to this effect. The posters and videos produced by the SLMA to educate the public are also being widely circulated.

Furthermore, the SLMA has strongly advocated strengthening the supply chain on food and other essential consumables close to households to minimize movement of people.

Public awareness and compliance to physical distancing measures, hand hygiene and early identification of infected individuals with stringent contact tracing will become vital in the coming weeks, as the country tries to slowly relax the restrictions and resume work. Recognizing this major role of the public, the SLMA plans to conduct further programmes and campaigns to increase public awareness through mainstream and social media.

COVID-19: Cluster epidemic and Public Health Response in Sri Lanka

Professor Manuj C Weerasinghe
Professor in Community Medicine, Department of Community Medicine, University of Colombo.

Background

The world is currently witnessing the worst epidemic in a hundred years and the World Health Organization upgraded the proclamation of a public health emergency of international concern to a pandemic status1 in March 2020. By the time of writing, the reported cases of COVID-19 had reached 2 million with 120, 000 deaths worldwide[2]. The epicentre of the epidemic has now shifted from the Wuhan city in China to Western Europe and to the United States. According to the statistics on 15th April 2020, four countries in Europe and the United States had surpassed one hundred thousand cases in each country and several others were rapidly approaching this mark[3]. While, health authorities battle to mitigate the epidemic through preventive and curative interventions, researchers supplement their work generating evidence to support timely and crucial decisions [4,5,6,7]. The pandemic

The Sri Lankan situation

Sri Lanka detected the first case of COVID-19 on 27th of January 2020, a Chinese national visiting Sri Lanka as a tourist. Although the first COVID-19 patient had travelled to certain parts of the country before detection and had potential contacts among Sri Lankans, it did not introduce local transmission. The second case was only detected six weeks later on 11th March 2020. Since the second case we are finding new cases almost on a daily basis. As per 15th April, Sri Lanka has recorded 235 cases and 7 deaths[8].

Analysis of the epidemiology COVID-19 confirmed cases in Sri Lanka presents a unique picture. All the cases detected up to now can be categorised into three groups: (1) those who returned from overseas, (2) immediate family or close associates of overseas returnees, (3) extended contacts of known cases. Thus, a clear link between newly infected and the established cases can be still established. This is an encouraging sign in Sri Lanka which indicates that the epidemic is contained within few clusters, without spilling into the community. Further, the evidence from the analysis of cases and occurrence of new cases show that most of the early clusters that were observed are no longer active. New cases are not reported from the clusters that were identified three weeks ago (one and half incubation periods). Few of the early clusters were relatively large clusters that had potential for extended transmission. However, the risk of transmission in those clusters have now reduced to a minimum. At present (as of 15th April), there are only three active clusters that could be observed. However, most of the potential contacts of those three clusters are under institutional or home quarantine with minimal risk of spill over into the community. Therefore, the epidemic in the country at the end of the 5th week could be considered under control.

" All the cases detected up to now can be categorised into three groups: those who returned from overseas, immediate family or close associates of overseas returnees, extended contacts of known cases. Thus, a clear link between newly infected and the established cases can be still established."

Public health response

The Sri Lankan response to COVID-19 needs to be understood within the structure and function of the health system of the country. The preventive arm of the Sri Lankan health system is relatively strong, highly organized and has delivered encouraging results throughout the last century against public health emergencies. The Medical Officer of Health (MOH) network across the country is basically assigned the task of preventing health issues and promoting positive health. Surveillance and rapid action against communicable diseases is one of the prime tasks of an MOH. The field staff of the MOH is geared to respond to such challenges as one of their key responsibilities. The Epidemiology Unit of the Ministry of Health, supported by the rest of the health-related agencies work on mitigation of communicable diseases throughout the year, even in the absence of epidemic situations. The COVID-19 public health response was initiated on this strong foundation.

"The preventive arm of the Sri Lankan health system is relatively strong, highly organized and has delivered encouraging results throughout the last century against public health emergencies. The Medical Officer of Health (MOH) network across the country is basically assigned the task of preventing health issues and promoting positive health"

Sri Lanka initiated the public health response even before the first case was detected in late January establishing a task force to work on it and issuing the first management protocol [9]. The country was already prepared to face the challenge by the time of detecting the second case in mid-March. Establishing screening at entry points to the country, guidance on self-quarantine, and mandatory institutional quarantine for travellers from high risk destinations, closure of educational institutions and work from home to enforce physical distancing, closing of sea and airports to stop imported cases and imposing island-wide curfew to enhance physical distancing were some of the key measures taken. Those measures were implemented along with an awareness campaign to obtain the support of the general public.

Sri Lankan public Health response is thus based on preparedness, timely decisions and regular review of the situation for prompt action. In addition to the mobilization of health staff, obtaining support of the tri forces and the police department at the correct time for correct interventions flagged the extent of the response at the ground level. The mobilization of resources and the personnel from the military to support the response has enhanced the capacity of the health department to contain the epidemic to a cluster level till now. Supporting contact tracing at the ground level, setting up and maintaining quarantine centres, imposing geographical restrictions for movement in high risk areas and maintaining supply chains were the main tasks carried out by the military. These are essential components of the public health response that needed additional support.

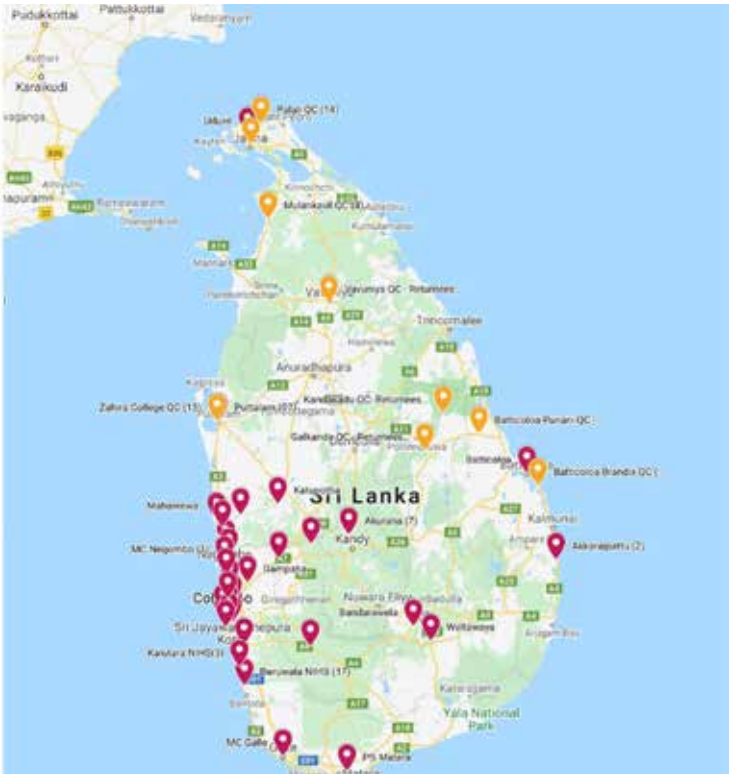
In addition to containing the epidemic, testing and treatment facilities are being improved in parallel to that. The case definition for testing has been modified regularly based on the epidemiological data and the ground situation to allow flexibility in the decision making while controlling for potential wastage of scared resources.[10]

The elements of the public health response in Sri Lanka is not much different to the prescribed measures at global level [7]. However, the difference is in the timing of those measures and the intensity with which they were applied. The success in mitigating the epidemic in the country up to now could be mainly attributed to this factor.

"Sri Lanka initiated the public health response even before the first case was detected in late January establishing a task force to work on it and issuing the first management protocol 9. The country was already prepared to face the challenge by the time of detecting the second case in mid-March"

Way forward

Sri Lanka is approaching the third incubation period sincethe enforcement of strict measures of physical distancing and the discussion is now on of lifting the restrictions. While acknowledging the need for transition to normalcy to initiate economic activities, it is of prime importance to remain focused on the objective of controlling the epidemic within the clusters and not losing the grip.11 Thus, learning from the evidence, a staggered, slow and scientific exit strategy needs to be adapted without compromising the present public health achievements.



Distribution of COVID - 19 patients in SL
Source:http://www.epid.gov.lk/web/images/pdf/Circulars/Corona_virus/google_maps/2020-04-18.pdf

References

1. World Health Organization. Virtual press conference on COVID-19 - 11 March 2020. Retrieved on 15/04/2020. https://www.who.int/docs/default-source/coronaviruse/transcripts/who-audio-emergencies-coronavirus-press-conference-full-and-final-11mar2020.pdf?sfvrsn=cb432bb3_2

2. World Health Organization. Coronavirus disease 2019 (COVID-19 Situation Report - 85. Retrieved on 15/04/2020.

3. https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200414-sitrep-85-covid-19.pdf?sfvrsn=7b8629bb_4

4. Worldometer. COVID-19 CORONAVIRUS PANDEMIC. Retrieved on 15/04/2020. https://www.worldometers.info/coronavirus/

5. Prem K, Liu Y, Russell TW, et al. The effect of control strategies to reduce social mixing on outcomes of the COVID-19 epidemic in Wuhan, China: a modelling study. The Lancet Public Health DOI:10.1016/S2468-2667(20)30073-6.

6. Kucharski AJ, Russell TW, Diamond C, et al. Early dynamics of transmission and control of COVID-19: a mathematical modelling study. The Lancet Infectious Diseases DOI:10.1016/S1473-3099(20)30144-4.

7. Liu Y, Gayle AA, Wilder-Smith A, Rocklöv J. The reproductive number of COVID-19 is higher compared to SARS coronavirus. Journal of Travel Medicine 2020; 27. DOI:10.1093/jtm/taaa021.
8. Ebrahim SH, Ahmed QA, Gozzer E, Schlagenhauf P, Memish ZA. Covid-19 and community mitigation strategies in a pandemic. BMJ 2020; 368: m1066.

9. Epidemiology Unit-Ministry of Health. Novel Coronavirus (2019-nCoV) - Situation Report-2020.04.15. 2020. Retrieved on 15/04/2020 http://www.epid.gov.lk/web/images/pdf/corona_virus_report/sitrep-sl-en-15-04_10.pdf

10. Epidemiology Unit-Ministry of Health. Interim Summary Guidelines for Clinical Management of patients with novel coronavirus (2019-nCoV). 2020. Retrieved on 15/04/2020 http://www.epid.gov.lk/web/images/pdf/Circulars/Corona_virus/coronacircular.pdf

11. Epidemiology Unit-Ministry of Health . Strengthening of COVID - 19 Surveillance 2020-04-08. Retrieved on 15/04/2020 http://www.epid.gov.lk/web/images/pdf/Circulars/Corona_virus/scan164.pdf

12. Word Health Organization. COVID-19 virtual press conference - 13 April, 2020. Retrieved on 15/04/2020. https://www.who.int/docs/default-source/coronaviruse/transcripts/who-audio-emergencies-coronavirus-press-conference-13apr2020.pdf?sfvrsn=3d574d9e_2

Tests for the currently prevalent COVID-19: Some timely clarifications

Dr. B. J. C. Perera
Specialist Consultant Paediatrician

There are heaps of different ideas, veiled innuendos, public inquiries, all kinds of varied recommendations and countless queries about the different types of tests that can be done to detect and diagnose SARS-CoV-2 virus that causes the disease COVID-19, the coronavirus pandemic. It is a deadly disease that is relentlessly sweeping through all areas of the planet earth. Some of these enquiries regarding the tests seek information while some others are rather mischievously designed to find fault with someone or the other or to question as to why this test or that test is not being used in our country. It is obvious, especially from media reports and even social media pontifications that many persons of the lay-public ask numerous questions as to why this test or that test is either done or not done. This article is written in good faith to provide some scientific state-of-the-art information for digestion by the general public on the current status of these tests. It is hoped that it would clear the air, at least a little bit.

The very first of these tests for the diagnosis of COVID-19, and definitely the best known, is the RT-PCR test. This acronym stands for the scientific name of Real Time Reverse Transcriptase Polymerase Chain Reaction test. As the name suggests, RT-PCR is a technique used to monitor the progress of a Reverse Transcriptase Polymerase Chain Reaction in Real Time. It is based on the detection and quantification of relatively small amounts of the PCR product such as deoxyribonucleic acid or DNA, ribonucleic acid or RNA, and complementary DNA or cDNA which is double stranded DNA synthesized from single-stranded RNA. In very simplified terms DNA is at the very core of genetic material while RNA is a molecule essential in various biological roles in coding, decoding, regulation and expression of genes. RNA and DNA are nucleic acids, and, along with lipids, proteins and carbohydrates, constitute the major macromolecules essential for all known forms of life. Viruses contain either specific DNA or characteristic RNA. All coronaviruses are RNA viruses. In very simple terms, the RT- PCR is a test which amplifies the nucleic acids. It is of course not necessary for the general public to understand the complicated details of how exactly the test is performed. It should be left to the experts.

The test RT-PCR is a relatively rapid, convenient, sensitive and reliable method for virus detection. The most important thing for people to understand is that in COVID-19, **it detects the presence of the virus itself. It is sensitive and precise for the detection of even small amounts of the virus.** It is performed on nasopharyngeal swabs, oropharyngeal swabs, sputum, washings from the airways of the lungs, faeces and other test ingredients. These materials have to be either processed immediately or transported in viral transport media and immersed in ice during transport. For the test to be positive, the material to be evaluated should contain the virus and therefore it is important to realise that their yield could vary according to the sample that is tested, the stage of the disease and several other variables as well as some confounding factors.

"The test RT-PCR is a relatively rapid, convenient, sensitive and reliable method for virus detection. The most important thing for people to understand is that in COVID-19, it detects the presence of the virus itself".

Currently the RT-PCR is the 'gold standard' for the definitive diagnosis of COVID-19. It is also important to understand and even stress that even those without major symptoms may be positive for the presence of the virus or the virus may still be present even after apparent recovery from the disease. Such individuals could test positive for the virus. These considerations have important implications with regard to the potential spread of the causative organism to other human beings and even to animals. The veracity and reliability of the test depends on scrupulous attention to detail on the part of those who collect the samples, those who transport the samples, those who receive and prepare the samples for testing, those who actually do the testing and those who interpret the results. So far it is to the eternal credit of all these heaps of fantastic personnel who have put their collective shoulder to the wheel, so that the machinery is made to turn nicely without any major technical setbacks.

"Currently the RT-PCR is the 'gold standard' for the definitive diagnosis of COVID-19."

The next test that is generally discussed is the test for antibodies. These could measure either Immunoglobulim M (IgM) or Immunoglobulin G (IgG), which are the specific antibodies against the incriminated coronavirus in question. **It is crucial to understand that these tests DO NOT detect the actual presence of the virus.** They only detect the antibodies produced by the defence mechanisms of the body in its fight against the virus. These antibodies are detectable and measurable in the blood of the patient. IgM antibodies are the ones that are produced by the body as a reasonably rapid reaction to the virus. The IgG antibodies are ones that are produced

as a sustained response to the virus, leading to their persistence in the blood for a longer time. In all these considerations, it is crucial remember that as a well-known phenomenon, all antibodies necessarily take time to be produced by the human body in detectable levels to be noticeable in the blood. Although there is no hard and fast rule, it generally takes some time, sometimes up to one to two weeks for them to be positive. Therefore it is generally recommended that these tests should not be used on their own alone as diagnostic tools. The production of these antibodies may also vary with age, nutritional status of the individual, immune capabilities of the body and the actual viral load. It is also theoretically possible that in very severe infections with extremely heavy viral loads, the antibodies may bind to the antigens of the virus in ever larger quantities so that sufficient amounts may not be left in the blood stream for them to be detectable. These antibodies generally indicate past exposure to SARS-CoV-2. Their real usefulness is in detecting susceptible individuals who are negative for these specific antibodies and at risk as well as identifying individuals who may have antibodies that could neutralise the virus and thereby be immune to further infections by the virus. They may also be used as methods to assess contacts as well as in epidemiological surveillance to detect the immune status of populations. It needs to be understood that antibody tests do have an important role to play in a holistic approach to this pandemic. More scientific research is required to see whether some of these antibodies are truly neutralising in their action or whether there are some of them that could enhance the activity of the virus, if and when there is a second infection. It might... just might, even be similar to what we have seen in, and learnt from, dengue.

The last of the tests that are worth considering are the antigen detection tests. They help to detect, identify and measure the components of the virus that act as antigens to arouse and propagate an immunological defence reaction by the body. Antigens are various components of a foreign substance that are capable of stimulating the protective mechanisms of the body to produce antibodies. Therefore, the presence of such antigens is indirect evidence of the presence of the virus

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in the body. These antigens need to be very specific and sensitive for the unique structure and products of the virus itself. There are many methodological requirements that are necessary, some being quite a bit different from other tests, for the useful performance of these antigen tests. Several of these tests are in their early stages of development although many claims, some quite pre-emptive, are made for their usefulness. These investigations are generally considered to be rapid tests that are easily performed on different materials from the body and the results would be available in a very short time. The great advantage is that they could be easily and rapidly performed at point of care without recourse to very sophisticated equipment. If these antigen tests can be perfected to have a high degree of specificity and sensitivity, they would be a very valuable adjunct and a most helpful agent in the diagnosis of this dreaded disease. The need of the hour is a well-designed research study to evaluate any given antigen test against the RT-PCR tests. If such scientific data hold the antigen tests on par with the RT-PCR, then their utility value would be akin to that of the NS1 antigen test in dengue. As a bonus, some of these rapid antigen tests are cheaper than the RT-PCR tests.

"More scientific research is required to see whether some of these antibodies are truly neutralising in their action or whether there are some of them that could enhance the activity of the virus, if and when there is a second infection. It might.., just might, even be similar to what we have seen in, and learnt from, dengue.. It is crucial to understand that these tests DO NOT detect the actual presence of the virus if and when there is a second infection. It might.., just might, even be similar to what we have seen in, and learnt from, dengue."

The doctors, researchers and scientists, here and abroad, are working very hard to assess and determine the real place for all these tests in the diagnosis and general management of the disease COVID-19. These dedicated and magnificent personnel are those who have put their dedication to their patients before even their own self-preservation. There is quite a way to go before delineating the exact place for some of these tests. As has been said, over and over, again and again, SARS-CoV-2 is a new, fresh or novel virus. All of us are learning on the go, as we traverse the many intricate pathways of the disease. What we should guard against are 'knee-jerk reactions' to prematurely make sweeping statements regarding these tests. Scores of very many medical scientists and clinicians are working day and night, even burning

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the midnight oil, to try and unravel the mysteries and vagaries of this virus that is most definitely a very real threat to humanity. Masses of data have to be gathered together, collated, analysed and compared. Then, and perhaps only then, would it be possible to arrive at definite, worthwhile and tangible conclusions. Now is definitely not the time for frivolous assumptions, blasé pronouncements, irresponsible declarations and even selfish actions to feather one's own nest, in dealing with an enemy that is a tiny particle that has the capability to cause absolute mayhem and chaos in our little pearl of the Indian Ocean.

Finally, this is a fervent appeal to all the people in our beloved Motherland. All that the general public could do, and should do, would be to place their implicit trust in those who are working in our heath, scientific and academic communities towards the unified and determined goal of defeating this little virus that has sprung up from nowhere to herald hitherto unanticipated misery. We do not have to look far and wide, not even outside the shores of our emerald isle, to see what needs to be done. Some of the most brilliant and exquisitely capable minds are at work in our own country. It is left for all of us to let them make the vitally important decisions, which I am quite sure will ultimately end in a decisive and gallant victory against a relentless foe, which is SARS-CoV-2.

"Now is definitely not the time for frivolous assumptions, blasé pronouncements, irresponsible declarations and even selfish actions to feather one's own nest, in dealing with an enemy that is a tiny particle that has the capability to cause absolute mayhem and chaos in our little pearl of the Indian Ocean. could enhance the activity of the virus, if and when there is a second infection. It might.., just might, even be similar to cause absolute mayhem and chaos in our little pearl of the Indian Ocean."

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Exercise during COVID 19 Pandemic - Time to boost your immunity

Dr. Chathuranga Ranasinghe MBBS (Col),D.Sp.Med.(Col),PhD (Aus)
Specialist in Sports and Exercise Medicine
Senior lecturer, Faculty of Medicine, University of Colombo
Convener- Expert Committee on NCD SLMA, Editor- Sri Lanka Sports Medicine Association, Expert committee member - American College of Sports Medicine (ACSM)

The COVID-19 pandemic is rapidly spreading across the world with increasing morbidity and mortality [1] . The key strategies employed worldwide to curtail the spread are social/physical distancing, hand hygiene and cough etiquette, contact tracing, isolation and quarantine, testing and monitoring and promoting general health of the public while vaccination is still at a research level.

The immune responses induced by SARS-CoV-2 virus infection can be clinically explained in 3 stages. Stage 1 and 2 are the asymptomatic incubation period and the symptomatic non-severe stage in which a specific adaptive immune response is required to eliminate the virus and to prevent disease progression[2]. During these stages, the presence of good pre-existing general health and a favourable genetic background (e.g. major-histocompatibility-complex antigen loci /HLA) are needed for an good endogenous protective immune response[3].Strategies to boost immune responses (e.g. experimented anti-sera or Interferon /IFN) at this immune defence-based protective phase may be beneficial. However, in the third inflammation-driven damaging stage, efforts should be made to suppress inflammation and minimize the damage[3].

Enhancing the immune status of individuals before they get infected (before stage 1) by improving general health through increased physical fitness, appropriate nutrition, adequate sleep and improvement of mental health is an important public health intervention at this moment in time. However, this will be a challenge in the background of physical isolation related anxiety and stress, reduced access to food, healthcare and financial constraints. Furthermore, the socioeconomic and behavioural challenges of the individuals, families and societies are also becoming current and future concerns.

This review on physical activity and exercise during the COVID-19 pandemic mainly focuses on the apparently non-infected populations who may include asymptomatic carriers. Clinically suspected and laboratory confirmed patients should follow the government guidelines.

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Immune system and exercise

The profound impact exercise has on the normal functioning of the immune system is well documented [4]. Although no scientific data currently exists regarding the effects of exercise on SARS-CoV-2, there is evidence that exercise can protect the host from many viral infections including influenza ("Flu"), rhinovirus ("common cold") and herpes viruses[5] .

An acute exercise bout of moderate-to-vigorous intensity aerobic exercise of less than 60 minutes compared to being sedentary is known to redeploy highly active immune cell subtypes between the circulation and peripheral tissues (e.g., mucosal surfaces including respiratory and gut epithelia). This leads to increased immune surveillance, strengthening the innate immune response[5].The exercise bout improves the anti-pathogen activity of tissue macrophages in parallel with an enhanced recirculation of immunoglobulins, anti-inflammatory cytokines, neutrophils, immature B cells and leads to a dramatic influx of natural killer(NK) cells, and CD8+ T cells[5].Similar patterns are also seen in different intensities during moderate resistance exercise training[5].

"The profound impact exercise has on the normal functioning of the immune system is well documented. Although no scientific data currently exists regarding the effects of exercise on SARS-CoV-2, there is evidence that exercise can protect the host from many viral infections including influenza ("Flu"), rhinovirus ("common cold") and herpes viruses" .

Furthermore, acute and chronic moderate exercises down-regulates excessive inflammation within the respiratory tract is mediated through multiple pathways. With daily exercise, these acute changes summate to enhance immune defence activity and improves immune regulation and metabolic health[5]. Randomized clinical trials have consistently found an inverse relationship between moderate exercise training and incidence of upper respiratory tract infections (URT). Several epidemiologic studies also suggest that regular physical activity is associated with decreased mortality and incidence rates for influenza and pneumonia[4].

"Furthermore, acute and chronic moderate exercises down-regulates excessive inflammation within the respiratory tract is mediated through multiple pathways."

Chronic exercise over periods of 6 months have shown to prevent age-related immune dysfunction/immuno-senescence, chronic low-grade inflammation and improve the effectiveness of the 'flu' vaccine in elderly populations without harmful side effects [6]. This is especially beneficial for this age group who are being identified as a particularly vulnerable population during this COVID-19 outbreak.

"Chronic exercise over periods of 6 months have shown to prevent age-related immune dysfunction/ immuno-senescence, chronic low-grade inflammation and improve the effectiveness of the 'flu' vaccine in elderly populations without harmful side effects".

What is too much exercise during this period?

Studies conducted in athletes during periods of intensified vigorous training/competition (e.g. running a marathon) for more than 60 minutes have shown reduction in circulating immune cells in peripheral blood in 1-2 hours following the activity, and these return to pre-activity levels after 24 hours [5]. This phenomenon termed "open-window theory of susceptibility to infections", has been attributed to immune suppression and susceptibility to URTI with the increased doses of intense exercise [4]. However, this hypothesis is now being debated due to the unavailability of robust evidence of a dose responses relationship [4] and the presence of other factors which impact the immune competency such as psychological stress and anxiety , nutritional deficiencies ,poor hygiene and organism virulence [4].

Since the behaviour of the SARS-CoV-2 virus is still not fully understood and most people are confined to challenging environments during the current pandemic, it is advisable that general public adhere to the standard World Health Organisation (WHO)/ American College of Sports Medicine (ACSM) recommendations of 150-300 minutes per week with 30-60 minutes per day of moderate-intensity aerobic physical activity and 2 sessions per week of muscle strength training[7].

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Social isolation, anxiety and increased disease risk

Periods of isolation and confinement away from day-to-day work, reduced access to daily requirements, financial constraints and the sense of insecurity can lead to psychological stress and anxiety. This may lead to elevated levels of glucocorticoids which inhibit many critical functions of our immune system, resulting in increased host susceptibility to infections and non-communicable disease (NCD) risk[5].

Exercise can mitigate the negative effects of stress to maintain immune function, particularly during prolonged periods of isolation and confinement. It has been shown that in astronauts in space travel for nearly 6 months with extreme isolation who had a higher pre-flight cardiorespiratory fitness and muscle endurance had a better immune response compared to astronauts who were not fit[8].Numerous meta-analyses show that exercise itself is associated with reduced anxiety via a number of biological, as well as psychological, mechanisms and it is also known to improve health related quality of life[5].

There is a wide evidence base on the benefits of exercise and physical activity in preventing and managing NCDs.

With the high burden of NCDs in Sri Lanka, there is a potential for these conditions to worsen due to the prevailing situation in the country and the effects of confinement (less access to medicine and medical care/ outdoor activity /nutrition, increased stress due to confinement/socio economic reasons/poor coping mechanisms). Sri Lanka's national policy should aim at developing novel health and wellbeing models for the public to stay physically fit during this expected long home stay which can be a benefit even when the restrictions are lifted.

"Exercise can mitigate the negative effects of stress to maintain immune function, particularly during prolonged periods of isolation and confinement".

Recommendations to be physically active inside your home or garden

World Health Organization (WHO) and American College of Sports Medicine (ACSM) [7,9] have laid down advice to follow during this period which could be culturally adapted as per the local requirements.

- All at home should not sit all day and should avoid sedentary behaviour. If watching TV, get up during every commercial break (or periodically) or if working on your computer get up and walk 2-3 minutes every 20 minutes. Walk around the home or do an active chore like sweeping/cleaning the house or gardening. .

- All adults should try to follow the general recommendations of 150-300 minutes per week / 30-60 minutes per day of moderate-intensity aerobic physical activity and 2 sessions per week of muscle strength training[7] (see practical tips below).

- If you have been sedentary before, this is a good time to start doing some activity, while being mindful of not overdoing it. Start with light intensity exercise (e.g. slow walk around the house) starting from about 10-15 minutes per day and gradually increase. Research suggest that it is not advisable to start with unaccustomed exercises but to do functional exercises as one is able to (walking marching ,stepping, sit up from a chair)

- People with chronic conditions (diabetes, heart disease, high blood pressure, lung disease, cancer etc.) who have been previously assessed by a physician and have been active can follow the above recommendations for adults. However, if you have not been active before, it is advised to engage in light intensity activity for 10- 15 minutes daily until you get advice from a doctor. If you are on a weight reduction programme, it is better to maintain your weight without excessive exercise of more than 60 minutes per day.
- Adults over the age of 65 years are advised to follow the same general recommendations as per adults. Those who are unable to do so are advised to be active and avoid sedentary behaviour as functionality allows.

- Already active individuals and athletes If you were following regular exercise or high-intensity high-volume training (>1-2 hours per day) it is good to plan the exercise programme during this period to 'maintain' your fitness with periodization and adequate rest in between sessions. It is advised to limit daily exercise sessions to 60 minutes. Resistance training should be limited to 2-3 days per week with adequate rest in between. Good hydration, proper hygiene, adequate sleep and adequate carbohydrate intake will help maintain the immune state.

- Children and youth should be allowed to be active with moderate to vigorous intensity physical activity/active play of up to 60 minutes per day as time and space allows. For children between 2-5 years, this should be up to 180 minutes per day[9] . Skipping with a skipping rope is an entertaining aerobic exercise which also strengthens bones and muscles, especially if you do not have enough space at home. You can increase quality family times by involving them in a game with the whole family.

Moreover, a public policy that allows routine programmes promoting exercise, nutrition, mental health and health education broadcast periodically on national media will benefit the public in general.

Tips to make the exercise more practical

- First be determined to take care of yourself during this period. You can care for your loved ones only if you stay healthy.
- Identify an 'active space' in the house to do exercise. Find your old gear (yoga mats, dumbbells, resistance bands) if you have any.
- Have a specific time in the morning or evening to do exercise and get into a routine timetable. Try to make each day meaningful with small achievable goals (not only exercise) in the timetable.
- Aerobic exercise
    * Fit in 2, 5, 10 or 20 minute sessions into your daily routine, however and wherever you can. Every active minute will have health benefits. Brisk walking and stationary marching are good exercises. Step-ups on stairs will be a good aerobic exercise and muscle endurance in a limited space.
    * Try to have fun with exercise. Alternate with doing exercises to a TV or online exercise programme (e.g. https://www.youtube.com/watch?v=0ZfY15V0usg) or having active play with kids.
- Find ways to do simple muscle strengthening exercises using your body weight around the house. E.g.
    * Squats or sit-to-stands from a sturdy chair (10 repetitions x 3 times with 30 sec rest in between).
    * Push-ups against a wall, the kitchen counter or the floor depending on ability (10x3). E.g. https://www.youtube.com/watch?v=n9aHZU61z38
    * Plank (hold 15 seconds x 3 times).
    * Do yoga if you can.
- Try to eat healthy. If you are previously fit and exercising up to 60 minutes per day, have some additional carbohydrates (banana etc.).
- Sleep of 7-8 hours is important (children should have more) to maintain your immunity. Try to minimize the time you and your children spend with screens (mobile phones, social media and TV).
- Exercise is a behaviour. If you are new to it, adherence will be difficult initially. Call a friend who does regular exercise for motivation...think of things you have achieved before...Keep going.
- Do some meditation and practice mindfulness during these difficult times.
- If you go outside to buy food, keep physical distance and hand wash after.

Individuals infected with or exposed to COVID- 19

Giving detailed recommendations to COVID-19 patients is beyond the scope of this review due to inadequate evidence. It is advised that all COVID-19 confirmed and suspected patients follow the guidelines of the Ministry of Health, Sri Lanka.

Following advice have been published by the American College of Sports Medicine[7] for exercise guidance of COVID-19 infected and quarantined individuals.

- **A person under quarantine but not infected**

There are no recommendations to limit physical activityif the person does not have any symptoms. If symptoms develop (cough, fever or shortness of breath) you should contact the relevant health care provider.

- **A person under quarantine confirmed infected**

People without symptoms, can continue moderate-intensity activity, but need to use symptoms as a guide. Maintain quarantine and physical distancing to prevent spreading the coronavirus to others. If you develop symptoms, stop physical activity and notify the treating physician. If previously sedentary, please inform the treating physician before starting exercise.

Severe and critically ill patients - Early Rehabilitation Therapy

The Handbook of COVID-19 Prevention and Treatment 2020, developed from the clinical experience in managing COVID-19 in China published by the First Affiliated Hospital, Zhejiang University School of Medicine China recommends, Early Rehabilitation Therapy for severe and critically ill patients. These include position management, respiratory training and physical therapy. The goal of early rehabilitation intervention is to reduce breathing difficulties, relieve symptoms, ease anxiety and depression and to lower the incidence of complications[10].

References

1. Severe Outcomes Among Patients with Coronavirus Disease 2019 (COVID-19) – United States, February 12-March 16, 2020. MMWR Morb Mortal Wkly Rep 2020;69:343-346.

2. Xu, T., et al., Ecdysone controlled cell and tissue deletion. Cell death and differentiation. 27(1): p. 1-14.

3. Shi, Y., et al., COVID-19 infection: the perspectives on immune responses. Cell Death & Differentiation.

4. Campbell, J.P. and J.E. Turner, Debunking the Myth of Exercise-Induced Immune Suppression: Redefining the Impact of Exercise on Immunological Health Across the Lifespan. Frontiers in immunology, 2018. 9: p. 648-648.

5. Nieman, D.C. and L.M. Wentz, The compelling link between physical activity and the body's defense system. Journal of Sport and Health Science, 2019. 8(3): p. 201-217.

6. Cao Dinh, H., et al., Effects of Physical Exercise on Markers of Cellular Immunosenescence: A Systematic Review. Calcif Tissue Int. 2017 Feb;100(2):193-215. doi: 10.1007/s00223-016-0212-9. Epub 2016 Nov 19.

7. (ACSM), A.C.o.S.M., Staying Active During the Coronavirus Pandemic. 2020, March 24, 2020 Exercise is Medicine.

8. Agha, N.H., et al., Exercise as a countermeasure for latent viral reactivation during long duration space flight. The FASEB Journal. 34(2): p. 2869-2881

9. (ACSM), A.C.o.S.M., Keeping Children Active during the Coronavirus Pandemic. 2020, March 30, 2020 Exercise is Medicine.

10. First Affiliated Hospital, Z.U.S.o.M.F., Handbook of COVID-19 Prevention and Treatment., ed. T. LIANG. 2020, China: First Affiliated Hospital, Zhejiang University School of Medicine (FAHZU)

COVID-19: Its Ripple Effect on mental health

Dr Sayuri. R Perera, Senior Lecturer in Psychiatry, Faculty of Medicine, University of Peradeniya
Dr Chathurie Suraweera, Senior Lecturer in Psychiatry, Faculty of Medicine, University of Colombo

Disasters affect millions of people around the globe every year. On average, it is predicted that there occurs at least one disaster every day worldwide. Studies frequently categorize disasters into three types: natural disasters (e.g., floods); human- made, nonintentional technological disasters (e.g., the nuclear accident at Chernobyl); and human- made, intentional acts such as mass violence and terrorism[1]. Some evidence, though debated, indicates that the type of disaster influences the quality of mental health consequences among those affected. In this regard, human- made technological disasters and mass violence tend to have a more pronounced psychological impact than do natural disasters[2]. From the point of view of the health of the population, it is considered more useful to acknowledge the characteristics of the event rather than the precipitant, since different types of disasters can also have much in common[3]

Exposure to and surviving disasters has been linked to a variety of mental health consequences[1]. Although the majority of survivors cope well in the face of a disaster, a significant number experience some form of psychological deterioration, and a smaller proportion will go on to develop significant mental health disorders[5]. While there is some research on the mental health problems that follow natural disasters, there is almost no data on the mental health impact of diseases, which have made as huge an impact as the novel COVID-19 pandemic. It is natural for a global pandemic of this nature to cause significant anxiety and fear among almost all individuals. It has shown little signs of decelerating, as the total number of confirmed cases has exceeded 2 million with more than 134,000 confirmed deaths globally, to date[4].

"Exposure to and surviving disasters has been linked to a variety of mental health consequences. Although the majority of survivors cope well in the face of a disaster, a significant number experience some form of psychological deterioration, and a smaller proportion will go on to develop significant mental health disorders".

For the population at large there is a difficulty in accessing routine mental health care. Previous research on the survivors and health care workers involved in epidemics has shown that they develop psychiatric symptoms, both immediately and long term[5]. Furthermore, although the WHO and Centre for Disease Control have recommended stringent guidelines for the control of the spread, the prominence given to the impact of this disease on mental health is clearly insufficient.

The rights of the mentally ill

The World Health Organisation (WHO) has emphasized to ensure availability of essential, generic psychotropic medications at all levels of healthcare. People living with long-term mental health conditions will need uninterrupted access to their medication, and sudden discontinuation should be avoided. Similarly, while human rights laws guarantee everyone the right to the highest attainable standard of health, it also states that in the context of serious public health threats and public emergencies restrictions on some rights could be justified[4].

"The World Health Organisation (WHO) has emphasized to ensure availability of essential, generic psychotropic medications at all levels of healthcare. People living with long-term mental health conditions will need uninterrupted access to their medication, and sudden discontinuation should be avoided".

In several areas of the country, with many psychiatric units being sacrificed in favor of quarantine centres, there would occur, perhaps inadvertently, violations of the rights to treatment in those with mental illnesses among known patients with mental health issues as well as in those experiencing newly emerging mental health problems.

Mental health of those with preexisting mental health problems

The WHO, among its many recommendations, highlights that the continued care and treatment of people with mental, cognitive and psychosocial disabilities should be a priority[4]. They are vulnerable to relapse during this critical period due to many factors acting alone or in combination.

While they are facing dilemmas in accessing care to their regular out-patient clinics, and their medication, there are also restrictions on routine review and admission, leading to early warning signs of an impending mental health relapse not being recognized in time. Those already receiving in ward management have restricted access to ideal management due to limited staff. With procedures like electro convulsive therapy being limited, it creates an obstruction to providing optimal treatment for those requiring them.

"The WHO, among its many recommendations, highlights that the continued care and treatment of people with mental, cognitive and psychosocial disabilities should be a priority4. They are vulnerable to relapse during this critical period due to many factors acting alone or in combination."

Addressing newly emerging mental health problems

With the COVID-19 being a new disease, it should be appreciated that its emergence and spread is likely to lead to anxiety and fear. There are a variety of claims on social media about the severity of the infection which inculcates further fear and worry among the population at large. This invariably leads to the formation of harmful stereotypes and increased stigma, which has already resulted in a dangerous situation where those with symptoms do not seek immediate health care. Furthermore, there is a risk of this stigma extending to their immediate family, particularly in the event of a death. Bereaved families and the victims of MERS epidemic claimed that the general public avoided them and that they were socially isolated even after being treated or being placed in quarantine and declared disease-free[5].

The right to freedom of movement under international human rights laws protects the right of everyone to leave any country, to enter their own country of nationality, and the right of everyone lawfully in a country to move freely in the whole territory of the country. While lockdown and curfew is violating this right, the restrictions on movement, with some families being physically separated from each other for long periods of time, it is likely to worsen frustration and anxiety. This may even lead to worsen interpersonal conflicts with emotional strains affecting relationships and families.

"With a pandemic of this magnitude, we can only expect similar patterns of psychological distress especially within the high-risk groups. It is recommended that psychological first aid will help reduce emotional distress and will help assess the continued need for mental healthcare, if needed."

Addressing newly emerging mental health problems

Healthcare worker working round the clock during a pandemic of this nature are likely to suffer from moral injury. This is the psychological distress stemming from actions, or lack of actions, which violate ones moral or ethical code. This cultivates shame, guilt and disgust. Whether this progresses to post traumatic grief or other significant psychiatric disorder, will depend on how they are supported before, during and after such challenging incidents[8].

Evidence suggests that team leaders have a vital role in providing early support and preparation, without false reassurances in order to reduce the risk of mental health issues. Recommendations are made to engage in Schwartz rounds, which provide an opportunity for staff to reflect on the emotional aspects of their work. Most claimed that emotional support from seniors and colleagues protected their mental health. It is important to remember that avoidance is a key feature of psychological trauma, so team leaders should reach out to staff who claim to be "too busy" or are frequently "not available" to attend these discussions.

Once the crisis is over, it is vital to make time to reflect and learn from the difficult experiences and create a meaningful narrative. There needs to be active monitoring of staff to ensure that those who develop mental health problems are provided proper access to care[8].

"Healthcare worker working round the clock during a pandemic of this nature are likely to suffer from moral injury. This is the psychological distress stemming from actions, or lack of actions, which violate ones moral or ethical code. This cultivates shame, guilt and disgust. Whether this progresses to post traumatic grief or other significant psychiatric disorder, will depend on how they are supported before, during and after such challenging incidents".

Violation of human rights

The WHO has reinforced the need to protect human rights, particularly where rights are likely to be overlooked or violated. Both globally and in some EU countries, it has been reported that cases of domestic violence rose by a third in the week after lockdown was enforced. At least 16 suspected domestic abuse killings in the UK have been identified since the lockdown restrictions were imposed, far higher than the average rate for the time of year [9].

Victims are trapped with their persecutor, with accessibility to sources of emotional support being severed. While we in Sri Lanka are yet to establish it, several EU countries have enhanced the modes of communication with police, where they report high numbers of calls coming through from women and children in distress[9].

The take home message

There is adequate evidence from previous epidemics that survivors and healthcare workers are more vulnerable to develop psychological manifestations. This is likely to be worse with the pandemic of the nature of the novel COVID-19, which to date has taken away such large numbers of lives. It is therefore an essential requirement that the overall mental health impact is acknowledged, and steps are taken to ensure that those individuals are advised and provided timely care.

References

1. Norris F, Friedman MJ, Watson PJ, Byrne C, Kaniasty K. 2002. 60,000 disaster victims speak: Part I. An empirical review of the empirical literature: 1981-2001. Psychiatry 65:207-39

2. Galea S, Nandi A, Vlahov D. 2005. The epidemiology of post-traumatic stress disorder after disasters. Epidemiol. Rev. 27:78-91

3. Goldmann, Emily & Galea, Sandro. (2013). Mental Health Consequences of Disasters. Annual review of public health. 35. 10.1146/annurev-publhealth-032013-182435

4. World Health Organization - 2020 - apps.who.int

5. Lee SM, Kang WS, Cho AR, Kim T, Park JK: Psychological impact of the 2015 MERS outbreak on hospital workers and quarantined hemodialysis patients. Compr Psychiatry. 2018, 87:123- 127

6. Mohammed A, Sheikh TL, Gidado S, et al.: An evaluation of psychological distress and social support of survivors and contacts of ebola virus disease infection and their relatives in Lagos, Nigeria: a cross sectional study -- 2014. BMC Public Health. 2015, 15:824

7. Cheung YT, Chau PH, Yip PS: A revisit on older adults suicides and severe acute respiratory syndrome (SARS) epidemic in Hong Kong. Int J Geriatr Psychiatry. 2008, 23:1231-12

8. Greenberg Neil, Docherty Mary, Gnanapragasam Sam, Wessely Simon. Managing mental health challenges faced by healthcare workers during covid-19 pandemic BMJ 2020; 368 :m1211

9. http://www.bbc.co.uk/news/uk-28632223 (Accessed: 16 April 2020)

Why do people resist quarantine and what can we do about it?
A psychological perspective

By Dr Santushi Amarasuriya, Clinical Psychologist and Senior Lecturer,
Department of Medical Humanities, Faculty of Medicine, University of Colombo

We have seen people behave in various ways during the COVID 19 crisis. One behavioural pattern in focus has been the resistance of some towards the quarantining process. If we explore the reasons for these behaviours, this could help in identifying strategies to resolve them. Sri Lanka is already using some of these strategies to address these problems

1) Both acceptance and denial have costs

When an individual starts accepting the reality of this situation, along with it comes a sense of uncertainty and uncontrollability. This can lead to high levels of distress, fear and confusion [1]. For example, if asked to go to a quarantine centre, one may be fearful about getting infected in the centre itself and worry about being separated from loved ones and similar difficulties which may be encountered. The associated thoughts and feelings may make the person believe that avoidance of quarantine is better and they may not alert the health authorities, even if they experience symptoms.

Given that accepting the situation can lead to an uncomfortable mental state, some might use protective mechanisms to avoid this discomfort and restore psychological equilibrium. For example, they may use defense mechanisms, such as "denial" of the risk (e.g., saying "I will not get infected"), or "minimisation" (e.g., saying "This is just a flu", "Only certain types and age categories get infected"), which can lead to a calmer state of mind.

To go into quarantine is to accept the existence of the threat and even worse, the possibility of being infected. Therefore, when asking people to break down these defenses, we also need to provide them support to deal with the resultant distress.

Strategies

- At the very outset, adequately inform those quarantined and their families about the support being provided, so that any concerns about individual or family welfare are alleviated and they are reassured of assistance throughout the process.
- Provide a continuous flow of information when they are quarantined so that they remain updated on the situation, thereby removing room for doubt and confusion.
- Establish helplines for them to discuss their worries and fears and to get psychological support.

2) Quarantine may be a difficult experience

Research indicates that quarantine itself can lead to several negative psychological effects from a sense of entrapment and isolation, to a feeling of impending doom, uncertainty and helplessness about one's health status. Individuals could also experience posttraumatic stress symptoms, depression and anxiety [2].

Strategies

- Provide advice on maintaining physical and mental wellbeing during quarantine, including the maintenance of a nutritious diet, healthy sleep patterns and regular exercise.
- Increase one's sense of purpose, meaningfulness and enjoyment through simple methods such as, maintaining a daily routine and engaging in recreational and fulfilling activities.
- Encourage the use of this time for previously neglected activities, which will also help in positively reframing this experience as purposeful, be it reconnecting with friends using social media, sewing an unfinished garment or doing an important assignment.
- As it could be overwhelming to consider the entire period of quarantine as a whole, help individuals to consider it one day at a time, each of which can be lived to its fullest.

- Help to remind them that the quarantine period is not permanent.

- Voluntary quarantine maybe associated with less negative psychological effects[2]. Therefore, help individuals to feel that they are contributing to the common good in which they remain in quarantine voluntarily to reach a shared goal.

3) To lose social support is to lose a key coping mechanism

In crises an individual's social support system can play a vital role as a stress buffer[3]. This can be even more pronounced in collective cultures as in Sri Lanka. When someone is told to go into quarantine, that individual is being asked to actively withdraw from their social support system. This can be difficult for someone who predominantly uses it as a coping resource during stress. Furthermore, in a threatening situation, such as a war, the object to be avoided, or one's "enemy", is clearly discernible. In contrast, here, the object of threat, i.e., a carrier of the infection, could be someone near and dear, and this could lead to discounting the thought that this person, who in other crises would be a source of support, is now a potential threat. This also makes it difficult for the surrounding social network of the quarantined individual to follow the related instructions.

Strategies

- Help to maintain their psychological well-being by maintaining social networks through means not involving physical contact e.g., access or concessions on telecommunications packages.

- Raise awareness that even a loved one is a potential disease vector, and therefore, it is in the best interests of all parties to follow the protocol.

4) Inability to assess risk accurately can lead to resistance to change behaviour

Behaviour change requires the commitment of the individual changing the relevant behaviour. A key determinant of an individual's willingness to make a change can be the degree of importance they attribute to it. Social interactions are part of the daily behavioural repertoire of individuals and their willingness to be quarantined and withdraw from these interactions could be dependent on their perception of the risk involved in the situation. Those who are asked to go into quarantine may feel quite healthy or those infected may even be asymptomatic. When tangible evidence is lacking to indicate that one's wellbeing is at risk, there could be reluctance to be quarantined, as it would seem that suffering the costs related to it is unwarranted [4].

When in doubt about their perception of risk, people are likely to turn to those they consider credible and trustworthy for direction. If mixed messages are communicated, then individuals will pick up on this confusion, which could lead to minimising the importance of these messages. In turn, this could lead to a reduction in perceived risk and non-compliance with the request.
Risk perception could also be affected by weaknesses in our information processing. For example, there is a limit to the chunks of information we can process at any given time. When vast amounts of information are communicated, leading to an information overload, we may not process the essential information, and instead focus on irrelevant details. This could be especially so when there are conflicting messages
.
Furthermore, we need to understand the exponential growth of the infection to understand why quarantining is so important. Although we may easily understand linear growth, the implications of exponential growth can be less intuitive. Similarly, we may predict the more immediate consequences of quarantine, such as "how will I be inconvenienced?", rather than engage in future-broadcasting and project how one's actions might lead to a series of more damaging negative consequences. Another issue could be that the negative consequences of the situation may still not feel close to home, resulting in an inability to relate to these. This may make figures and numbers seem abstract, and cases seem hypothetical and difficult to relate to. All such problems in information processing could lead to an inability to process the actual risk.

Strategies

- Be transparent about the situation, strategy and direction.
- All stakeholders including experts, authorities, and respected community and religious leaders should provide an accurate and consistent message regarding the above.
- Provide a clear justification for actions so that individuals understand

  a) the importance of their actions and their contribution towards the common goal
  and

  b) that the pros of their compliance are greater than the cons, even if they themselves lack tangible evidence.
- Balance the need to keep the public informed while avoiding an information overload. Assess the need for a message by evaluating its objective. This will help wean out unimportant messages transmitted with different objectives, such as sensationalisation.
- Provide information in formats which are clear, easily understandable to varying educational levels, and able to attract attention.
- Research indicates the power of using narratives to convince action[5]. Share the "lived experiences" of those affected, in addition to facts and figures, to help others to connect emotionally with those personal stories. This must be managed sensitively and done voluntarily by those concerned, with care being taken to avoid any negative impact on them.

5) Quarantine raises practical issues that can lead to non-compliance

Quarantine abruptly stops a person's activities and could lead to concerns about seeking food and other essential needs, and about family and childcare responsibilities. If there are concerns about the safety and wellbeing of one's family, a loss of income or work-related issues, people will be reluctant to follow quarantine instructions [4].

Strategies

- Help resolve practical issues due to quarantine and provide necessary financial and work-related relief (e.g., continued pay and leave entitlements).
- Continuously monitor needs and provide the necessary food, medicine and other essential needs of those self-quarantined and their families.
- Ensure the wellbeing and protection of the rest of the family and provide reassurance that things will be under control and not in disarray.

6) Pre-existing legal and personal problems are a deterrent to cooperation

Quarantine could stoke fears that one might come under legal and personal scrutiny, leading to non-compliance [6]. Some may wish to keep their problems under cover and there could be fear that being under quarantine or alerting the authorities about their condition, could expose these problems (e.g., immigration status). Similarly, some might be unwilling to share their illness histories which could be negatively affected due to quarantine (e.g., those with Substance Use Disorders).

Strategies

- Protect the confidentiality and privacy of those in quarantine.
- Provide reassurances to those who fear penalisation due to legal problems that this process will not lead to any negative consequences, e.g., the Government assuring those who had emigrated or immigrated illegally that they will not be penalised if they comply.
- Make those suffering from conditions that they are unwilling to disclose to feel reassured and safe to do so. Provide any necessary assistance while maintaining confidentiality. For example, someone with a Substance Use Disorder may need treatment, but this must be done confidentially.
- Be consistent, responsible and trustworthy in the execution of these tasks to garner the trust and continued cooperation of these different groups.

7) Stigma and discrimination can lead to discouragement

People may fear being harassed, stigmatised and discriminated by society due to their quarantine, leading even to concerns about how it may affect their future prospects. Society must make sure that they have a safe and accepting environment to return to. This also means helping to secure their privacy and not violating and confirming the very concerns that might have made them reluctant to disclose their situations in the first place. We must avoid making a situation that is already difficult, even more so.

Strategies

- Communicate a common message that being infected or quarantined is nothing to be ashamed of.
- Prevent all forms of stigma and discrimination against those quarantined or infected, through actively addressing any occurrences. Pre-emptively discourage and provide knowledge to combat any occurrences.
- The media must be responsible in their reporting and respect privacy. e.g., the objective of covering instances of contact tracing must be considered. This may violate privacy and concerns about being in the public eye could lead to resistance to the quarantine process.

Conclusion

From a moral standpoint, quarantining oneself poses a choice between altruism and restraining oneself from physical contact from others to save them versus self-interest and avoidance of the personal costs of quarantine. If appealing to individuals to make a moral choice and calling out for altruism and service towards one's society, then it is important to ensure that those individuals are in a position to do so, by resolving their basic physiological and security needs. If these are at stake, the need to fulfil these basic needs may take precedence over a tendency to act for the greater good. Therefore, individuals need help and empowerment to willingly make the moral choice themselves and fulfil their duty towards society.

References

1. Taha, S., et al., Intolerance of uncertainty, appraisals, coping, and anxiety: The case of the 2009 H1 N1 pandemic. British Journal of Health Psychology, 2014. 19(3): p. 592-605.

2. Brooks, S.K., et al., The psychological impact of quarantine and how to reduce it: Rapid review of the evidence. Lancet, 2020. 395(10227): p. 912-920.

3. Arnberg, F., et al., Social support moderates posttraumatic stress and general distress after disaster. Journal of Traumatic Stress, 2012(6): p. 721-727.

4. Manuell, M. and Cukor, J., Mother nature versus human nature: Public compliance with evacuation and quarantine. Disasters, 2011. 35(2): p. 417-442.
5. Leslie, J.H. and Matthew, W.K., Using narrative communication as a tool for health behavior change: A conceptual, theoretical, and empirical overview. Health Education & Behavior, 2007. 34(5): p. 777-792.

6. Rothstein, M.A. and C.N. Coughlin, Ensuring compliance with quarantine by undocumented immigrants and other vulnerable groups: Public health versus politics. American Journal of Public Health, 2019. 109(9): p. 1179-1183.

Immunization in Sri Lanka: Challenges, needs and the way forward

Dr. Kanthi Nanayakkara
Consultant Virologist and Vaccinologist, Head / Department of Rabies and Vaccine Quality Control, Medical Research Institute (MRI)

Immunization is the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine. Vaccines stimulate the body's own immune system to protect the person against subsequent infection or disease caused by those specific infectious agents.

The World Health Organization (WHO), designates immunization as a proven tool for controlling and eliminating life-threatening infectious diseases. It is estimated to avert between 2 and 3 million deaths each year. Immunization saves lives. It protects the immunized person, their families and community. It helps to protect future generations by eradicating diseases. Many infectious diseases are rare or eradicated now as a result of immunization programmes, but new infectious diseases are appearing around the world, which is a huge challenge. Vaccination is considered as only second to having safe drinking water for the prevention of infections. It is one of the most cost-effective health investments, with proven strategies that make it accessible to even the most hard-to-reach and vulnerable populations.

Routine immunization is recommended mainly for the new-borns, infants and paediatric population through the National Immunization Programmes, depending on the disease prevalence and epidemiology of different countries. E.g. In addition to the commonly used vaccines, Yellow Fever vaccine in African countries, Japanese Encephalitis (JE) vaccine in Asian and South East Asian countries, Meningococcal vaccine in the UK etc.

In addition to the routine immunization programme, certain high-risk populations are offered other vaccinations to prevent specific infections for which they are more prone. These include travellers, pregnant women, immuno-compromised patients, those with chronic kidney, liver or lung diseases, hyposplenic or asplenic patients, persons undergoing cochlear implantation etc.

> *"Immunization saves lives. It protects the immunized person, their families and community. It helps to protect future generations by eradicating"*

The history of immunization in Sri Lanka goes back to the 19th century. The law relating to compulsory vaccination against smallpox is referred to in the Vaccination Ordinance of 1886. The Expanded Programme of Immunization (EPI) established in 1978, has continued to make excellent progress over the past four decades, most notably in terms of achieving high immunization coverage and disease control. The milestones of immunization in Sri Lanka are given below with the year of introduction of each vaccine/programme.

1886-Vaccination against smallpox introduced under the Vaccination Ordinance

1949-BCG Vaccination against tuberculosis

1961-"Triple" vaccination against diphtheria, whooping cough and tetanus

1962-Oral polio vaccine

1963-BCG vaccination of new-born

1969-Tetanus Toxoid administration to pregnant mothers

1978-Launching of the Expanded Programme of Immunization

1984-Measles vaccination

1987-JE vaccine in high-risk areas

1991-Revision of Tetanus Toxoid schedule

1995-First National Immunization Day was conducted.

1996- Rubella vaccine

2001-Revised National Immunization Schedule with MR and aTd

2003-Hepatitis B Vaccine on phase basis

2008-Hib containing Pentavalent vaccine

2011-Two doses of MMR vaccine

2017-HPV vaccine for schoolgirls' programme

With the commencement of the EPI Programme in 1978, the focus was to control diseases like childhood tuberculosis, tetanus, whooping cough, diphtheria, polio and neo-natal tetanus. With the introduction of the measles vaccine in 1984, the focus shifted to disease elimination. In 1991, a fifth dose of OPV was introduced at school entry to facilitate the polio eradication process. The MR and later MMR vaccine, Hepatitis B and Hib containing Pentavalent vaccines were introduced to the EPI over the years. To achieve these objectives, immunity has to be created in the population against specific organisms causing diseases by administering safe and potent vaccines in correct dosage using correct technique, according to the national immunization schedule with good coverage. The national level coverage for all EPI vaccines for 2010 was between 92 - 97% and the tetanus toxoid coverage for pregnant women being over 85%. These were remarkable achievements.

Sri Lanka's National Immunization Programme is frequently quoted as one of the strongest performers, not only in the region, but also in the world. The National EPI, has an excellent record with a high coverage of all EPI vaccines resulting in an extremely low incidence of vaccine preventable diseases. However, unless the country pays attention to key issues of programme quality and timely introduction of newer vaccines according to the needs, it could lose the advantages it has gained in disease control over the last 40 years. The EPI is one of the priority public health activities to which the government of Sri Lanka has paid due attention even during any economic or political crises. In 1978, all EPI vaccines were donated by the United Nations Children's Fund (UNICEF) but in 1990, the Government of Sri Lanka was made to finance selected vaccines and by 1995 all EPI vaccines were fully funded by the government.

The main source of the government's health expenditure is the consolidated fund. The amount of donor funding received mainly through the WHO, GAVI and UNICEF for immunization is proportionately very low. Presently the immunization programme in Sri Lanka is self-funded, as nearly 98% of the cost is borne by the government.

For several years Sri Lanka has been considering two newer vaccines, the human papillomavirus vaccine (HPV) and pneumococcal vaccine as the next vaccines to be included in the National Immunization Programme (NIP). Introduction of new vaccines need to be justified by an evidence base, derived from solid epidemiological data to allow appropriate burden of disease assessments and cost-effectiveness analyses. Both HPV vaccine and pneumococcal vaccine are relatively very much more costly vaccines compared to other EPI vaccines. If both these vaccines are added to our NIP, the annual expenditure for the NIP could nearly double.

At the Immunization Summit held in 2015, Sri Lankan data regarding the detection of nearly 1000 new cases of cervical cancer annually, its association with HPV and the economic burden to the country were discussed at length. A subcommittee was appointed, and the recommendations were presented to the National Advisory Committee on Communicable Diseases (ACCD) in 2016 and the decision was made to introduce the quadrivalent HPV vaccine as a school-based programme to 10 - 11 year old girls, which came into effect from July 2017.

The next vaccine which is considered for inclusion into the NIP would be the pneumococcal vaccine. Though pneumonia and meningitis have been identified as public health issues, like in many developing countries, there is a scarcity of information on the aetiology of these diseases in Sri Lanka. Pneumococcal surveillance conducted among under five-year-old children at the Lady Ridgeway Hospital for children (LRH) under the South Asian Pneumococcal Network Alliance (SAPNA) has revealed that 4.9% of septicaemia, 2.2% of clinical meningitis and 1.2% of clinical pneumonia were caused by Streptococcus pneumoniae. Similarly, low isolation rates are reported from other countries including the developed world due to multiple reasons. A working committee representing all specialties was appointed by the Director General of Health Services in May 2019, to submit observations and recommendations to the ACCD regarding the inclusion of pneumococcal vaccine to the Sri Lankan NIP.

Increasing cost of most vaccines, is a real challenge to ensure a balance between the sustainability and the expansion of the immunization programme according to the current needs.

"Sri Lanka's National Immunization Programme is frequently quoted as one of the strongest performers, not only in the region, but also in the world. The National EPI, has an excellent record with a high coverage of all EPI vaccines resulting in an extremely low incidence of vaccine preventable diseases".

Further Reading

National Immunization Programme of Sri Lanka
Last Updated on Monday, 16th May 2011 04:39

Comprehensive Multi-Year Plan for Immunization 2012 - 2016
Ministry of Health, Government of the Democratic Socialist Republic of Sri Lanka

Clinical Pearls from the second Regional Clinical Meeting

As reported in the March issue of SLMA NEWS+, the second regional clinical meeting of the Sri Lankan Medical Association (SLMA) organised in collaboration with Asiri Group of Hospitals, was held on 27th February 2020 at the Auditorium of the Asiri Surgical Hospital, Colombo. The following are the key clinical points discussed by the resource persons during this meeting.

Practical way of stroke follow-up

Dr. Padma Gunaratne, Consultant Neurologist

- While 9% of stroke sufferers die within the first admission, a good proportion could be rehabilitated to lead an independent life.
- In Sri Lanka, where a bed in a stroke unit is a scarcity, premature discharges are common and streamlining stroke follow-up of outdoor patients is essential.
- A check list is introduced for stroke follow-up at clinics. As fundamentals of stroke care are common among all communities, Canadian Stroke Best Practices Post Stroke Check List is a useful guide for stroke follow-up clinics.
- Secondary prevention, ambulation and mobility, spasticity, activities of daily living, cognition, communication, incontinence, depression, pain, family relationships including sexual problems and life after stroke need attention at the follow-up visits.
- Measures of secondary prevention such as controlling blood sugar, hypertension, hyperlipidaemia, smoking cessation, diet and exercise, should be implemented by the medical officer and for other disabilities, patient should be referred to relevant members of the multidisciplinary team.

Diagnosis and management of osteoporosis

Dr. Chiranthi Liyanage, Senior Registrar in Rheumatology and Rehabilitation and Lecturer, Department of Pharmacology, Faculty of Medicine, University of Colombo

- In post-menopausal women and men over the age of 50 years, the diagnosis of osteoporosis is made if the T score for bone mineral density (BMD) measured by dual-energy X-ray absorptiometry (DXA scan) is less than -2.5.
- Anti-resorptive therapy is recommended in patients who are diagnosed with osteoporosis based on BMD measurement, those who have sustained fragilities fractures or with osteopenia with high fracture probability on FRAX assessment.
- Management of osteoporosis should include prevention of falls with lifestyle and dietary modifications and addressing other modifiable risk factors.

Childhood diabetes

Dr. Navoda Atapattu, Consultant Paediatric Endocrinologist

- There are two main types of diabetes to be considered in children: Type 1 diabetes (DM) mediated through autoimmune destruction of beta cells of pancreas and type 2 diabetes which is on the rise with the increase incidence of obesity.
- The symptoms are not different from that of adults, but it is extremely important to understand that childhood diabetes is managed differently from that of an adult.
- Insulin therapy is the mainstay in treatment of type 1 diabetes. Failing to treat children with type 1 diabetes with appropriate insulin therapy would put them at risk of diabetes ketoacidosis.
- The nutritional requirement of children must be taken into account when dietary advices are given. Importance of preventing and treating hypoglycaemia should be discussed with the child, care givers as well as schoolteachers
- Metformin is the only FDA approved drug for children with type 2 diabetes and the second line is Insulin. Type 2 diabetes can be prevented as well as reversed with healthy living.
- It is important to have a multidisciplinary team (psychologist, nurse educator, social worker) support to care for children with diabetes. They should be given all the opportunities at school like any other child of the same age to participate in extra or co-curricular activities.

Invasive and non-invasive diagnosis of cardiac diseases

Dr. Chamara Rathnayake, Consultant Cardiologist

- Patient management should be based on the golden rules: history, examination, investigations and treatment
- However, angina as a symptom may be a late feature in coronary artery disease. This is usually preceded by ECG changes; echocardiogram changes (systolic and diastolic dysfunction) and perfusion defects on scans.
- High Sensitivity CRP (hsCRP) is a novel marker of possible atherosclerosis and is seen early. This could lead the way to early diagnosis of coronary artery disease in the future.
- An initial non-invasive method of diagnosis is recommended for patients with low-moderate pre-test probability/risk ratio. Currently CT coronary angiography is considered as the investigation of choice
- For patients with a high pre-test probability/risk ratio, an invasive method of diagnosis - coronary angiography with Fractional Flow Reserve (FFR) or Intravascular Ultrasound (IVUS) is recommended for early diagnosis and revascularisation.

EXTENSION OF THE DEADLINE FOR SUBMISSION OF APPLICATIONS FOR ORATIONS AT THE SLMA ANNUAL CONGRESS

The Sri Lanka Medical Association invites you to submit applications for the following orations to be held during the 133rd Anniversary International Medical Congress - 2020.

- The SLMA Oration
- Dr. S.C. Paul Oration
- Dr. S. Ramachandran Oration
- Dr. N.W.D. Lionel Oration

Although the deadline to submit applications for the above orations was not planned to be extended, due to the unexpected situation prevailing in the country, the **DEADLINE is now EXTENDED to the 15th of May 2020 23:59 Sri Lankan Time.**

Dr. Sumithra Tissera
Secretary - SLMA

EXTENSION OF THE ABSTRACT SUBMISSION DEADLINE FOR THE SLMA ANNUAL CONGRESS

The Sri Lanka Medical Association invites you to submit abstracts for the 133rd Anniversary International Medical Congress - 2020.
Although the deadline to submit abstracts was not planned to be extended, due to the unexpected situation prevailing in the country, the
ABSTRACT SUBMISSION DEADLINE is now EXTENDED to the 15th of May 2020 23:59 Sri Lankan Time.

If you have not obtained the membership to date, you can fill the membership form which can be found on

https://slma.lk/membership/ application-for-membership/ and send it to office@slma.lk to obtain your SLMA membership. Payment of the membership fees can be done once the country has come back to normal.

Dr. Sumithra Tissera
Secretary - SLMA

Picture Test

By Dr. P.S.M.J.U. Samarakoon

Case 01

A 19 year old female presented with bilateral ankle edema, frothy urine and a rash over her cheeks of 2 weeks duration. She did not have fever but had significant loss of appetite. There was no preceding history of sore throat. On examination she was found to have lymphadenopathy, oral ulcers and her blood pressure was 150/90mmHg. Her full blood count showed lymphopenia. Her antinuclear antibody (ANA) test was 1:80.

1. What is the most likely diagnosis in this patient?
2. What is the most important investigation needed for prognostication in this patient?

Case 02

A 50 year old lady presented with numerous bullous eruptions on the upper and lower extremities and the trunk for 4 weeks duration. They were itchy and had an erythematous base. There were a few lesions in the oral mucosa as well.

1. What is the diagnosis?
2. How would you treat this patient?

Case 03

A 45 year old male presented to a hospital dermatology department with pruritic skin rash of 6 months duration. On examination, he was found to have thick, scaly, annular plaques, with well demarcated margins, scattered on his trunk, face and scalp. He is a laborer who worked in the sun.

1. What is the diagnosis?
2. How would you treat this patient?

Case 04

48 year old female presented with multiple joint pains and fever for two weeks. This was preceded by an evanescent, non-pruritic macular rash mainly over the trunk and extremities. Investigations showed leukocytosis, elevated liver enzymes, C-reactive protein and erythrocyte sedimentation rate. There were markedly elevated levels of serum ferritin as well.

1. What is the most possible diagnosis?
2. Name the diagnosis criteria

Case 05

A patient who had first noted only one warty lesions on the dorsum of her hand, had developed multiple similar lesions following scratching that area.

1. What is this phenomenon called?
2. What are the conditions that exhibit this phenomenon?

Answers

Case 1
1. Systemic lupus erythematosus (SLE)
2. Renal biopsy

Case 2
1. Bullous pemphigoid
2. The most commonly used medications are anti-inflammatory agents (e.g. corticosteroids, dapsone), tetracyclines and immunosuppressants (e.g. azathioprine, methotrexate, mycophenolate mofetil, cyclophosphamide)

Case 3
1. Psoriasis
2. Remove precipitating factors (e.g. sunlight)
3. Specific therapies depend on the extend of skin
4. involvement
5. Topical - corticosteroids, Vitamin D analogues, retinoids
6. Systemic - methotrexate, cyclosporine, apremilast, biologic immune modifying agents
7. Phototherapy

Case 4
1. Adult onset Still's disease
2. Yamaguchi criteria

Case 5
1. Koebner phenomenon
2. Pityriasis rubra pilaris, Lichen planus, Flat warts, Lichen nitidus, Vitiligo, Lichen sclerosus

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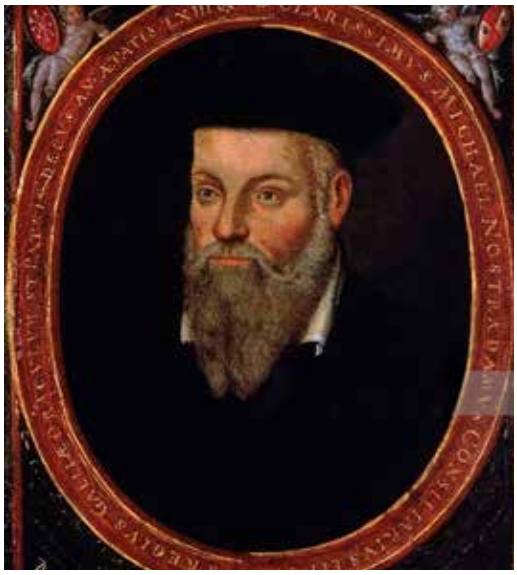
Corona: A plague, a symbol of monarchy and also a name for ale!!!



Michel de Nostredame
Source: https://en.wikipedia.org/wiki/Nostradamus

Michel de Nostredame, usually Latinised as Nostradamus, was a French astrologer, physician and reputed seer, best known for his book Les Prophéties, a collection of 942 poetic quatrains allegedly predicting future events.

The following was written by Nostradamus in the year 1551 of the Common Era:-
"There will be a twin year (2020) from which will arise a queen (corona) who will come from the East (China) and who will spread a plague (virus) in the darkness of night, on a country with seven hills (Italy) and will transform the twilight of men into dust (death), to destroy and ruin the world. It will be the end of the world economy as you know it.

He also wrote this:-

"In the year of Olympus, from Cathay will come a plague, named for the symbol of monarchy and for ale, leading to much wailing and gnashing of teeth over hand cleaning products and latrine paper..."
(The word Cathay (/kæ e /), is an alternative European historical name for China)

(*Extracted from https://twitter.com/hashtag/nostradamus*)

Sent by Dr B. J. C. Perera

A Message from the Editor-in-Chief

SLMA NEWS+ is the official e-magazine of the Sri Lanka Medical Association. We invite all SLMA members to contribute to SLMA NEWS+ with articles, letters, poems, cartoons, quizzes, medically relevant photographs, drawings or any material you wish to share with the other members. We also welcome your views on the content published in SLMA NEWS+.

Please send them by e-mail to office@slma.lk or by post to Editor-in-chief SLMA NEWS+, Sri Lanka Medical Association, No. 6, Wijerama Mawatha, Colombo 7.

Dr. Chiranthi K. Liyanage

QUARANTINED IN THE VANNI

Dr. Lucian Jayasuriya
Hony. Life Member SLMA
Former President SLMA 1995

When Nimala and I left London on the evening of 15th March 2020, we never thought that on arrival in Colombo, the Government of Sri Lanka would give us a free pleasant holiday in the Vanni. We left in a hurry to beat the ban on travel to Sri Lanka from the UK. When we landed in Colombo at about 6 pm on 16th March, nineteen of us who came from London were told by an airport official that we could either go back to London (for which they would provide free tickets) or be compulsorily quarantined. There would be no exceptions. All opted to stay in Sri Lanka.

We were taken by bus to the temporary medical cum emigration centre in the airport. All were sprayed with disinfectant before we were allowed into the centre. Passengers who came from an earlier flight were already there. We were provided with dinner packets and bottles of water. A bus was there to take us. We identified our baggage, and they we put in a truck.The Brigadier in charge did not know where we will be taken. He was awaiting orders. We left at about 2 am on the next day. We were taken for a cup of tea to an army building in Dambulla. We passed Anuradhapura and Vavuniya and turned off from at Puvarasankulam on the Vavuniya-Mannar Road to the Air Force Combat Training Camp Vanni at about 7 am. This Camp was in the thick forest about 30 km from Vavuniya.

The reception centre outside the camp was headed by an Air Force doctor, Squadron Leader Buddhika Wanasinghe. He is a strict efficient caring person. Each person had to fill a form, then interviewed and given a block number and a bed number. The Camp had seven blocks - prefabricated buildings with typical school type dormitories, each housing 30 persons. The total in quarantine was 206. All had bunker beds. The upper bed was to keep the baggage. Each block had had its own washrooms which were to be shared. Males and females were assigned separate blocks. However, considering our age and my medical history, Dr. Budhika was kind enough to give us a separate room at one end of block 4.

Myself, Nimala and Dr. Buddhika

The Camp had been specially renovated to accommodate us, as we were the first group to be quarantined there. In the toilets, the squatting pans had been replaced by commodes. The planning was so detailed that even the toilet for the occupant of each bed was indicated in a notice. Military order was seen in the camp. Each block had a notice board giving the programme for each day, instructions regarding quarantine and prevention of COVID-19 etc.

Camp Block 4

Our garden

Every day at 6.30 am there is an announcement telling that the medical team will come in half an hour. The team - the only doctor and a male staff nurse come in full protective kit. All inmates line up (except two of us) keeping one metre space for the staff nurse to take each person's temperature by a digital thermometer. The doctor then gave an update of the COVID-19 situation, a health education lecture and takes questions. Then he meets both of us for a short chat. He has a small office in block 3 where he saw any patients.

The temperature checks in the camp

Food was exceptionally good. An announcement was made before every meal which was served to each person in a box. Breakfast came at about 7.30 am. There was variety, quality and sufficient quantity with different combinations each day which included milk rice, rice, sandwiches, seeni sambol rolls, chicken sausages, eggs and cutlets. Lunch was rice with chicken or fish and two curries. A banana or a apple or a slab of chocolate was desert. Dinner would be rice, noodles, spaghetti or bread. Morning and evening tea were served, the latter with a short eat. Coriander was served at bedtime. The inmates who were mostly middle level workers from the Middle East were very satisfied.

Medicines that were needed were supplied by the doctor. If he did not have a particular medicine, he tried his best to get it from outside. If he failed, he found substitutes. For me nifedipine was substituted for amlodipine in consultation with my friend Dr. Ruvan Ekanayake, Senior Consultant Cardiologist.

Surveillance for COVID-19 was by twice daily checking of temperature and on symptoms. Inmates were encouraged to inform the doctor about any cough or difficulty in breathing. Dr. Buddhika told us that if any person had two readings of fever (temperature over 99.5 degrees F) and upper respiratory tract symptoms, he would transfer him to District General Hospital Vavuniya. However, PCR testing was available only at Teaching Hospital Anuradhapura. Luckily, no person had to be transferred.

There was plenty of water from an overhead tank supplied by a well. Adequate hand washing with soap and water was strongly advocated. Each block had a sink dedicated for hand washing only.

Each block had a pleasant spacious garden right round. It was made up of old trees of the forest with foliage plants grown on fallen logs. It was a nice place to sit in the evening when the heat was less. Inmates were restricted to their block and garden. Dr. Buddhika encouraged all to be physically active. He provided material for soft ball cricket and badminton.

No reading material was made available, on the premise that it would lead to many persons handling them and thus spreading germs. A lot of our time was spent on telephone calls and text messages. Although the Air Force Wi Fi was available to us, the reception was poor. E-mails could be accessed in the mobile phones but not on the laptop. However, sometimes it was possible to access news and teledramas on the laptop. Each ward had a large television screen .

The cleaning of the block and the garden was by the inmates. It was gladly undertaken early morning with the many brooms and eekel brooms provided. Each block had a washing machine which was constantly used from early morning. The inmates of our block were very courteous and respectful to a senior doctor and wife. They would not allow us even to move a chair. Some took the opportunity to discuss health matters with us.

Visitors were not allowed. The only visitors we had were the monkeys. The quarantine was strictly implemented. An inmate was not allowed to attend the funeral of his mother who passed away two days before the day we were to leave.

All were very happy when we were told that we could leave on the morning of 31st March.

The inmates were from all areas of the country. Dr. Buddhika studied our destinations, had discussions with us,planned a route and a bus for each of us. Transport was provided by the Sri Lanka Army. There would be six routes, with nine large buses and seven trucks to carry the baggage. We were to be in route 5 (Colombo), bus 8 with truck 6 for our baggage. The bags were packed in the trucks on 30th evening under Dr Buddhika's direct supervision.

Early morning on 31st March, Dr. Buddhika handed over Quarantine Certificates to each inmate, which certify that the person 'underwent the necessary Quarantine Process in the Puvarasankulam Quarantine Centre from 17.03.2020 to 31.03.2020. The certificate says that Quarantine Centre was managed in accordance with the legal provisions vested in the Director General of Health Services under the Quarantine and Prevention of Diseases Act No.3 of 1897. It is signed by the Chief of Defence Staff and Commander of the Army and the Director General of Health Services.

By 7 am on 31st March the Camp Commander and the media were present to record our departure. Few volunteered to speak, and the speeches were recorded. All praised Dr. Buddhika and the Air Force personnel for the excellent and friendly way we were looked after. Boarding was according to the number of the bus. Each person was identified before being boarded.

The convoy led by the police and army left by 7.45 am and travelled fast through deserted Vavuniya, and Anuradhapura to Puttalam. There we stopped for tea cum lunch at about 11.30 am. We reached home late evening after dropping the passengers at the nearest police stations.

Comments

Although initially we were apprehensive, we soon came to enjoy our stay. It was an interesting experience of a lifetime. We were comfortable under the circumstances. The only irritant was the shared toilets, which were always wet.

Suspected COVID-19 patients were to be detected only by fever and upper respiratory tract symptoms. The PCR test on all inmates would have been the ideal. is also not advisable.

Mandatory quarantining elderly elderly persons with a history NCDs and incidents of acute episodes, who are not contacts of patients or even suspected patients, in a camp so far away from adequate emergency medical facilities does not seem justified. They could have been quarantined at home.

A Deadly Coronation

Dr. Saroja Siriwardene
Lanka Hospitals Diagnostics, Colombo 5, Sri Lanka
3rd April 2020

Mankind over millennia standing tall,
On fauna and flora made their call,
Exploiting Earth, they had a ball,
Now a virus, changing it all.

Only the humans it will devour,
Fish may swim; birds fly over,
Men and women rush for cover,
Confined to homes, twenty-four hour.

Spread from China across the globe,
Damaging lungs, each and every lobe,
Health care staff disguised in robe,
To find a cure, a hasty probe.

SARS-2 virus named as culprit,
Prevention best; avoid or kill it!
Its lipid layer can easily be split,
By soapy water or strong spirit.

ICUs full, many lives in jeopardy,
Death toll rising, there's no remedy,
Some powers display, of errors a comedy,
The raging pandemic is a great tragedy.

Many a country in total lockdown,
No one can go in or get out of town,
Situation grave; no time to clown,
Distancing breach will bring on a frown!

Corona conquering from East to West,
The novel Queen of Diseases of Chest,
Paralysing systems, even the best,
No seeming end to the menacing pest.

Confront the virus if it does not leave,
Go incognito, cough into your sleeve,
One metre distance do not cleave,
Social networks may continue to weave.

The world is brought to a grinding halt,
No positions matter; nor riches in the vault,
A lesson on sharing this planet is taught,
Live simple, claim less; do not fault!

A TRIBUTE TO A SUPERLATIVE HUMAN BEING
Dr C. G. Uragoda

Dr B. J. C. Perera
Specialist Consultant Paediatrician

I am greatly honoured, and indeed tremendously privileged, to present this homage of remembrance to a great son of Mother Lanka who left this worldly life on the 28th of March 2020.

Deshabandu Doctor C. G. Uragoda MBBS(Ceylon), MD(Ceylon), Honorary D.Sc (Colombo), FRCP (Edinburgh) and FRCP (Glasgow), is portrayed on the Internet as a Sri Lankan Physician, an acclaimed expert on occupational respiratory disorders, a renowned author, an unmatched folklorist, a celebrated historian and a dedicated ecologist. That is a superlative description; one that has reached the pinnacle of excellence.

My association with Dr Uragoda goes right back to 1984. At that time, I was due to make an academic research presentation at the Annual Congress of the Sri Lanka Paediatric Association. I needed some scientific information for this purpose. I was based in Badulla and being the only Consultant Paediatrician for a radius of at least 50 kilometres, it was not feasible for me to come to Colombo and spend several days in libraries to get the information that I needed.

What did I do? It was way before the advent of e-mail. I just wrote a snail-mail letter, asking for help, to one Dr C. G. Uragoda in Colombo. I did not know him from Adam and had never met him. I had only heard about the man. In just a few days, virtually by return of post, I had the information with photocopies of the literature as well. That was my very first contact with Dr Uragoda, by courtesy of the Sri Lankan Postal Service.

Then we go fast forward 16 years, to late 1990. I was preparing a competitive submission for my very first oration. It was well before the internet was opened to the public. The title was "Changing frontiers in childhood asthma". I proposed to trace the advances in childhood asthma from ancient times, right up to the nineties, blended with details from my own research ventures. I needed a lot of literature from very early times of human life for my manuscript. By then, I was working in Colombo, and what did I do? I just took the easiest way out. I went and met Dr Uragoda. The result? I had all the necessary literature within just a couple of days. The manuscript was accepted and the oration was presented on the 22nd of February 1991 in Colombo.

Ten years later, in the year 2000, the Adult Chest Physicians and all others who were interested in respiratory diseases got together and formed the Respiratory Disease Study Group of Sri Lanka. I was most fortunate to be the Founder President of that organisation. Dr Chris Uragoda was our Patron, Godfather and our Guiding Light, all rolled into one. His academic brilliance, consummate humility, classical caring qualities and legendary willingness to help others, were fantastic guiding lights for all of us to follow.

That person, by the name of Christopher Gunapala Uragoda is no mere mortal. A genius in his own chosen field, with a dazzling array of achievements, he was an extremely special and priceless gift to mankind. It has been said...., and I am ever so pleased to say it again.., that one has to be enormously blessed to be loved by

all. There is only a very small band of men and women who would belong to such an elite group. Dr Uragoda is undoubtedly one of them, a Prince in that very select ensemble. His life, his work, and his triumphs, would surpass the corridors of time and be etched in golden letters in the annals of history. It would be preserved for posterity and for the enlightenment, as well as the edification, of generations to come.

Doctor Chris Uragoda is a much-celebrated colossus in the medical scenario of Sri Lanka. His knowledge was incredibly encyclopaedic. He always had an answer to any question that one would ask. He is the monumental Rolex of them all. Still for all that, the much-revered crown of fame sat ever so lightly on his unpretentious humble self. It has been said that it takes just one person to change a few, a few to change many and, many to change the world. It all starts with one. As far as Sri Lankan Adult Chest Medicine goes, that one person is a gentleman by the name of Dr C. G. Uragoda.

The man was an indefatigable writer and a historian with a proven track record of no mean repute. These two traits have combined to produce many a volume, some of which have become the gold standard of the History of Medicine in Sri Lanka. In recognition of his prowess in, and contributions to, medical history, the Sri Lanka Medical Association was pleased to designate the History of Medicine Lecture, delivered each year on the 26th of February, the birthday of the said organisation, as the Dr C. G. Uragoda History of Medicine Lecture, in honour of a man who was one of its distinguished Past Presidents. I was most fortunate to be selected to deliver that lecture this year on "Progression of Paediatrics: From ancient times, to the modern era". My only regret is that failing health prevented the said maestro from being physically present for the lecture. That has now become the last such lecture, delivered while the virtuoso was still alive. However, it will be continued each year, from now on, as an accolade of remembrance to a medical giant of this era.

I am tremendously humbled, yet flattered beyond belief, to acknowledge that he and I do share the same commitment to Diseases of the Respiratory Tract. History records that in his time he has been responsible for the fabulous progress of Adult Pulmonology and its transformation into a glorious discipline. I have also been a humble witness to the fantastic developments in Paediatric Respirology. Both of us have had our protégés carrying the torch that we lit, to reach higher and higher levels in propagating Respiratory Medicine in Sri Lanka.

I am delighted now to reiterate, how greatly advantaged I feel, to have written this encomium dedicated to that incomparable and unrivalled leading light of Respiratory Medicine in Sri Lanka, Dr Chris Uragoda. This effort on my part is a reverential accolade to a man, who defies comparison to anyone else in this mortal world. It is a personal salute to such a person; a personality par excellence, whose life is a breath-taking canvas of achievements and unassuming simplicity. All of us would look back on his life as one of a role model that was a splendid guiding light for all of us to follow.

When his time came at the age of 91 years, he went the very same way he lived, unpretentiously, sans any fuss and without troubling anyone. A man like no other, one of the finest that Mother Lanka ever produced, is no more.

Though tremendously saddened, it was for me a real privilege and an indulgence of honour, to be able to accompany him on his last journey, even braving a curfew, on the 29th of March 2020. Even wild horses would not have been able to keep me away.

May he attain the supreme bliss of නිර්වාණ

(this article was published in the island on 27-04-2020)

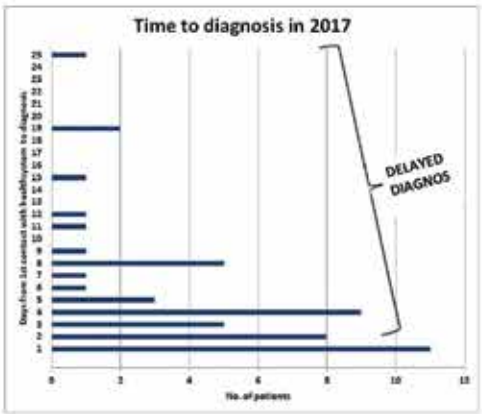
Reduce the Delay in diagnosing imported Malaria

Every single day that a malaria patient is left untreated,

* **His/her chances of survival decreases, &**

* **He/she can transmit the disease to others & re-introduce malaria to Sri Lanka**

Therefore malaria should be diagnosed within 24 hours of onset of fever



Your role:

For all fever patients, always check **travel history** at first interview. If patient has travelled to a malaria endemic country recently, **test for malaria.**

Anti Malaria Campaign Headquarters
Public Health Complex, 3rd floor, 555/5,
Elvitigala Mawatha, Colombo 05
Tell: 011 2 588 408/ 011 2 368 173/ 011 2 368 174
Email : antimalariacampaignsl@gmail.com

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WWW.SLMA.LK

'WIJERAMA HOUSE'
NO. 06, WIJERAMA MAWATHA,
COLOMBO 07, SRI LANKA
+94(11) 269 3324
OFFICE@SLMA.LK