

## Editorial



## COVID-19 pandemic 2019-20

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### The global scenario

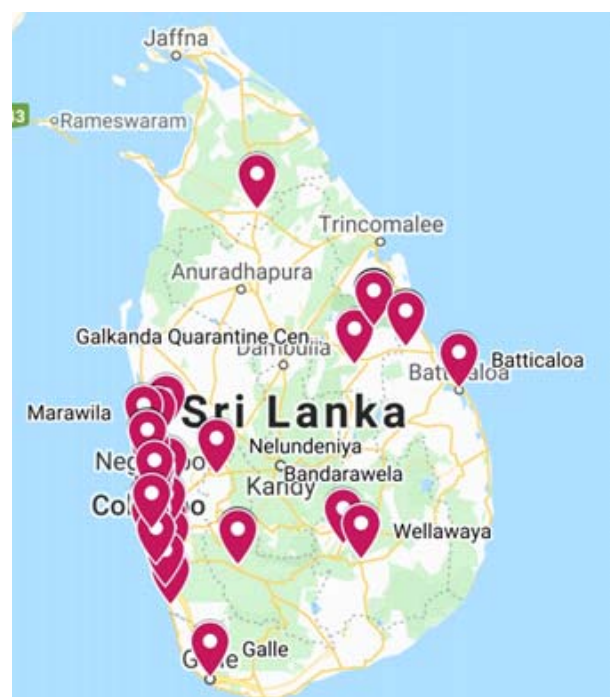
The 2019-20 coronavirus pandemic is an on-going global epidemic of coronavirus disease. An outbreak of pneumonia of unknown origin was first reported on 31<sup>st</sup> December 2019 from Wuhan City in Hubei Province, China. This pneumonia was diagnosed to be due to a novel coronavirus. On 30<sup>th</sup> January 2020, the World Health Organization (WHO) declared it as a Public Health Emergency of International Concern (PHEIC). On 11<sup>th</sup> February, the virus was named as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and the disease as COVID-19. On 11<sup>th</sup> March 2020, the WHO declared the outbreak as a pandemic.

As of 22<sup>nd</sup> of March 2020, 307,341 laboratory confirmed cases were reported in over 171 countries and territories, with major outbreaks occurring in Central China, Europe, Iran, South Korea and the United States. Total deaths stood at 13,049 worldwide, while the total number of recovered cases was 86,036. Most number of cases (81,393) were reported from China, of which 3,144 succumbed to the illness. Italy reported 53,578 confirmed cases with 4825 deaths, exceeding the number of deaths reported from China. On 13<sup>th</sup> March 2020, the WHO announced that Europe had become the new epi-center of the pandemic.

### Local outbreak situation

The first confirmed case of COVID-19 in Sri Lanka was reported on 27<sup>th</sup> January 2020. The patient was a Chinese national who landed in Sri Lanka as a tourist on 19<sup>th</sup> January 2020. She was treated at the National Institute of Infectious Diseases (NIID) and

discharged on 19<sup>th</sup> February 2020 on complete recovery. The second confirmed case was identified on 11<sup>th</sup> March 2020, and the total number of confirmed cases as of 20<sup>th</sup> March 2020 was 70 in Sri Lanka, with three foreign nationals. As at 22<sup>nd</sup> March 2020, three cases have been completely recovered while 78 are being managed at the NIID, and 212 symptomatic probable cases are being managed in state sector hospitals in Sri Lanka.



**Figure 1. COVID-19 geographical case distribution in Sri Lanka (as of 20.03.2020)**

Source: Epidemiology Unit, Ministry of Health and Indigenous Medicine

## Coronavirus and the mode of spread

Corona viruses constitute the subfamily Orthocoronavirinae in the family Coronaviridae. They are enveloped viruses with a single-stranded RNA genome, and cause diseases mainly in birds and mammals. In humans, the virus causes respiratory tract infections that can be mild such as common cold or lethal such as SARS, MERS and COVID-19.

Human to human transmission of coronavirus is primarily through contacts via droplets generated by coughing and sneezing. In addition, the spread can occur when two people are in close contact with one another, i.e. within about 6 feet. The droplets can land in the mouth or nose of people who are nearby or possibly be inhaled into the lung. The virus is also thought to be transmitted via contaminated surfaces or objects. Patients are thought to be most contagious when they are most symptomatic. However, the spread is also possible during the asymptomatic or incubation period. The coronavirus is thought to be highly contagious and evidence from all over the world show a sustainable spread in the community (community spread).

## Clinical profile of COVID-19 cases

Fever, dry cough, myalgia, fatigue and shortness of breath are the frequently complained symptoms among cases with COVID-19. Other less commonly reported symptoms include sore throat, headache, cough with sputum production and haemoptysis. Some patients have reported gastro-intestinal symptoms such as diarrhoea and nausea prior to the onset of respiratory symptoms. The course of fever among patients with COVID-19 is not yet fully understood; with cases reporting prolonged as well as intermittent fever.

Clinical presentation of the reported cases varies in severity from asymptomatic or mild illness to severe or fatal illness. Some reports suggest the potential for clinical deterioration during the second week of the illness. The median interval between presentation and developing dyspnoea is 8 days with a range of 5-13 days.

Majority of the cases (80%) are found to have mild symptoms with complete recovery. Of the remaining 20%, 15% are predicted to have severe disease and 5% will be critically ill. Approximately 20-

30% of hospitalized COVID-19 patients have required intensive care for respiratory support, and these critically ill patients were more likely to be older and have an underlying medical condition. Among the critically ill patients admitted to intensive care units, 11-64% have received high-flow oxygen therapy while 47-71% received mechanical ventilation. Some patients (4-42%) have required advanced organ support with endotracheal intubation and mechanical ventilation. Other reported complications include cardiac injury, arrhythmia, septic shock, liver dysfunction, acute kidney injury and multi-organ failure.

Risk factors for severe illness are not yet clear, although older patients and those with chronic medical conditions are thought to be at higher risk. Case fatality rates are observed to increase with age linearly. Patients reporting no underlying medical condition had an overall case fatality of 0.9%, while the same for patients with co-morbidities was as high as 10.5% for those with cardiovascular disease, 7% for diabetes, and 6% each for chronic respiratory disease, hypertension and cancer. Case fatality for patients who developed respiratory failure, septic shock or multi organ failure was 49%.

Limited information is available about the clinical presentation, course and the risk factors for children and pregnant women. Of the confirmed patients with COVID-19 in China as of February 11<sup>th</sup> 2020, only 2.1% were aged less than 20 years, and so far, no deaths had been reported among those less than 10 years. Available limited evidence reports fever, cough, congestion and rhinorrhoea to be the commonest presenting symptoms among paediatric cases.

The case fatality risk estimates for COVID-19 differ according to the geographical location. Adjusted case fatality rates (95% confidence interval) are estimated to be 3.5% (3.3-3.6%) in China, 0.8% (0.6-0.9%) in China excluding Hubei Province, 4.2% (2.6-6.9%) in other 82 countries and 0.6 (0.2-1.6%) in cruise ship in Australia.

## Investigation and management of COVID-19 cases

The Epidemiology Unit of the Ministry of Health and Indigenous Medicine, Sri Lanka introduced a case definition for clinically suspected cases and confirmed

cases. Clinically suspected cases were defined as a) a person with acute respiratory illness (with cough, shortness of breath, sore throat) with a history of fever (at any point in time during this illness), returning to Sri Lanka from any country within the last 14 days OR b) a person with acute respiratory illness and having been in close contact (a person staying in an enclosed environment for more than 15 minutes, e.g. same household/workplace/social gathering/travelling in the same vehicle) with a confirmed or suspected COVID-19 case during the last 14 days as prior to the onset of symptoms OR c) a patient with severe acute pneumonia (critically ill and not explainable by any other aetiology) regardless of travel or contact history as decided by the treating consultant. A confirmed case is described as a person with laboratory confirmation of COVID-19, irrespective of the clinical signs and symptoms. All patients falling into the category of a suspected case of COVID-19 are to be admitted and transferred by ambulance to the closest designated state hospital for confirmatory testing and management. These instructions are to be applied in all hospitals including those in the private sector.

For initial diagnostic testing for COVID-19, upper respiratory nasopharyngeal swabs are preferred. Collection of sputum is only recommended for patients presenting with a productive cough. Induction of sputum to collect samples is not recommended. Oropharyngeal swabs are of lower priority. For those receiving invasive mechanical ventilation, a lower respiratory tract aspirate or bronchoalveolar lavage samples could be taken. Collected samples should be stored at 2-8°C for up to 72 hours after collection. Samples are tested for reverse transcription polymerase chain reaction (RT-PCR).

The most common laboratory abnormalities among the COVID-19 cases include leukopenia, leukocytosis, lymphopenia and elevated alanine aminotransferase and aspartate aminotransferase levels. Thrombocytopenia was also seen in a minority of cases. Radiographic changes of the lungs include bilateral involvement of lungs in most patients with multiple areas of consolidation and ground glass opacities.

As the majority of cases would be self-limiting mild cases, hospitalization of all cases may not be required. However, clinical signs and symptoms may

worsen with progression to lower respiratory tract disease in the second week of the illness. Therefore, it has been decided to admit all patients to be monitored carefully in a hospital setting. No specific treatment for COVID-19 is currently available, although several clinical trials for drugs and vaccines are being undertaken in many developed countries. Clinical management include prompt implementation of recommended infection prevention and control measures and supportive management of complications, including advanced organ support if indicated.

It is recommended to avoid corticosteroids, and emerging evidence displays progression of the disease among patients who are treated with non-steroidal anti-inflammatory drugs.

## Prevention of infection with SARS-CoV-2

Basic hand hygiene is the most effective preventive measure against the infection with SARS-CoV-2. Frequent hand washing with soap and running water for 20-40 seconds, avoid touching the nose, mouth and eyes and using a tissue or the inner elbow while sneezing or coughing and safe disposal of the tissue are recommended. In addition, social distancing and avoiding crowds are important to prevent getting infected with the virus. When in contact with other people, maintaining at least one-meter gap between two people and not shaking hands or hugging another person to greet should be done. Zero touch with other people and minimal touch of other surfaces and objects followed by standard hand washing practices minimize the risk of contracting the virus

## Health sector preparedness and response to mitigate the outcomes of the outbreak in Sri Lanka

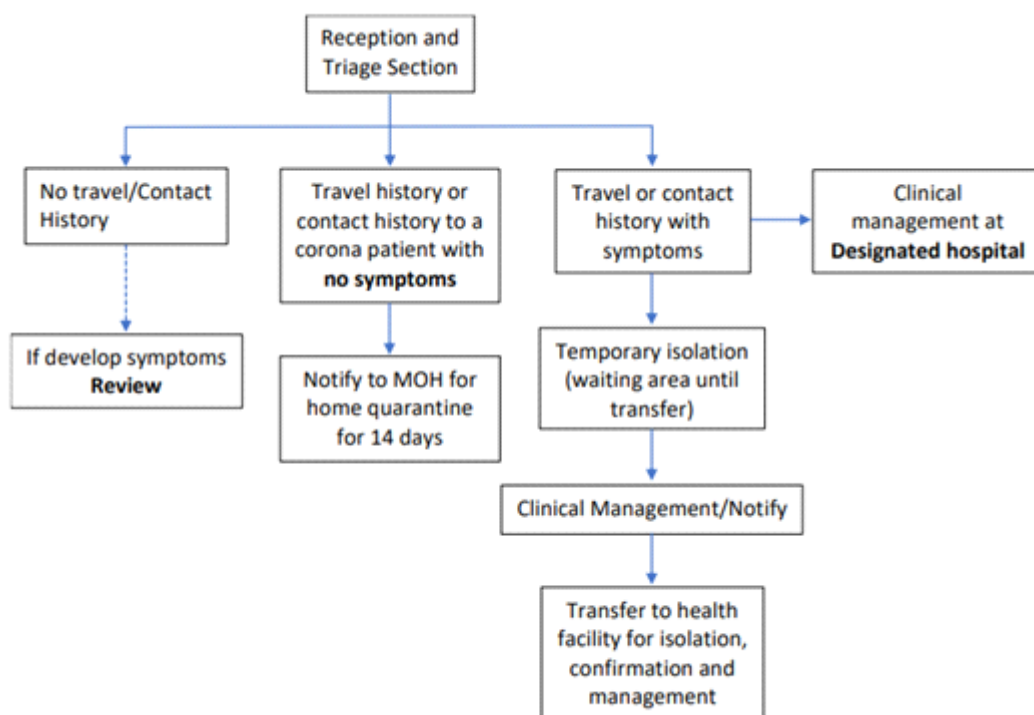
The Ministry of Health and Indigenous Medicine, Sri Lanka had been vigilant from the very early stages of the COVID-19 outbreak in China. Together with important stakeholders like the Sri Lanka Army, Sri Lanka Police and Sri Lanka Civil Aviation Authority, the Ministry of Health established a multi-disciplinary National Action Committee to coordinate preventive and management measures to ensure that healthcare

and other services are well-g geared to serve the general public of the country. As responses to the outbreak, the Ministry of Health focused on early case identification and management, isolation of cases, contact tracing, quarantining of suspected persons and risk communication and wide awareness of the general public on preventive measures.

Since the initial period of the outbreak in China, all passengers are being screened at all ports of entry into the country, as a measure of early case detection. During the initial phase of the outbreak, all passengers arriving in Sri Lanka from China were traced back and were requested to be subjected to mandatory self-quarantine for a period of two weeks. Construction sites were visited by the preventive health staff to educate the Chinese nationals and follow them up. Screening all the passengers entering the country continued in an escalating manner, until all international airports in the country were closed on 19<sup>th</sup> March 2020. The global situation of the outbreak was closely monitored to take necessary actions, and as the outbreak was exponentially growing in Italy, Iran and South-Korea, the passengers coming from those countries were subjected to a mandatory quarantine period of 14 days at state established quarantine camps. All the

other passengers were informed to self-quarantine and to contact the area medical officer of health (MOH) if they develop symptoms suggestive of the coronavirus infection. The contact details of the arriving passengers were documented and distributed to the respective MOH areas for follow up.

Thirty state hospitals were identified and prepared to manage suspected and confirmed COVID-19 cases. The hospitals were provided with personal protective equipment while instructions for primary care physicians were disseminated on triaging the patients at the out-patient departments, admission of required patients, inward management including obtaining samples for investigations, continued care for test positive patient and transferring confirmed cases to the NIID. Case management guideline for confirmed cases was prepared in collaboration with the Ceylon College of Physicians and were made available for the designated treatment centres. Laboratory facilities were established to perform required virology testing to diagnose cases. Initially, only the state hospitals were permitted to perform the RT-PCR diagnostic test for suspected patients. Later, the permission to perform the test was given to private laboratories under strict regulations.



**Figure 2. Primary care assessment of suspected COVID-19 patients**

*Source: Epidemiology Unit, Ministry of Health and Indigenous Medicine*

The preventive health teams are given the task of tracing close contacts of all confirmed cases. District consultant community physicians, regional directors of health services, regional epidemiologists, medical officers of maternal and child health, medical officers of non-communicable diseases, public health inspectors, health education officers and many others are involved in this team effort. Traced contacts were advised on mandatory self-quarantining for 14 days period and health advices were given to contact the area MOH if they develop suggestive symptoms. In addition, the Epidemiology Unit in consultation with relevant experts prepared information such as guidance for workplace preparedness for COVID-19, instructions to flights from China and information leaflet for school children, to mitigate the effects of the infection on the society.

Electronic and printed media are being widely used to educate the general public on measures to reduce the transmission of the virus. Hand hygiene practices, cough etiquette, zero touching of persons, minimum touch of surfaces and objects, and social distancing were advised as recommended measures. In addition, relevant non-health authorities were provided with technical advises such as banning large scale public gatherings and closure of schools and universities and granting leave for non-essential work force.

Continued efforts to practice recommended preventive and mitigatory measures by the general public to prevent the community transmission of the infection and untiring efforts of the preventive and curative health sector staff will pave the pathway to control the COVID-19 outbreak effectively in Sri Lanka.

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