

Sri Lanka physical distancing policies and epidemiology from January – September 2020: A case report

Policy Frameworks and Epidemiology of COVID-19
Working Group

March 2021



HEALTH SCIENCES
Health Research Methods,
Evidence, and Impact



University of Colorado
Boulder

Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Report title Sri Lanka physical distancing policies and epidemiology from January - September 2020: A case report

Publication date March 2021

Authors

Pavalagantharajah, Sureka, MD Candidate, McMaster University, Hamilton, Ontario

Gunabalasingam, Janany, Undergraduate student, Faculty of Health Sciences, McMaster University, Hamilton, Ontario.

Hopkins, Stephanie E., MPH, Department of Health Research Methods, Evidence and Impact (HEI), McMaster University, Hamilton, Ontario.

Alvarez, Elizabeth, MD MPH PhD, Assistant Professor, Department of Health Research Methods, Evidence and Impact (HEI), McMaster University, Hamilton, Ontario. Member of the Centre for Health Economics and Policy Analysis (CHEPA) at McMaster University.

Funding

The authors acknowledge the support of the National Science Foundation-funded Social Science Extreme Events Research (SSEER) Network and the CONVERGE facility at the Natural Hazards Center at the University of Colorado Boulder (NSF Award # 1841338).

Conflicts of Interest

No conflicts of interest were reported.

Acknowledgments

The authors wish to thank CONVERGE for providing a platform to build this team and the Working Group members for their input throughout the project. Ms. Usha Ramidi created the cover image. Her work is featured on PNGHut.com. Stephanie Hopkins and Kaelyn McGinty developed the graphs. We would like to thank key informant interviews for providing additional information

Contact information

For more information on this project, or if you have suggestions or want to join the working group, please contact Elizabeth Alvarez at alvare@mcmaster.ca or Stephanie Hopkins at hopkis4@mcmaster.ca or call 905-525-9140 x22248.

To cite this report:

Pavalagantharajah S, Gunabalasingam J, Hopkins SE, Alvarez E. (2021). Sri Lanka physical distancing policies and epidemiology from January - September 2020: A case report. Policy Frameworks and Epidemiology of COVID-19 Working Group. <https://covid19-policies.healthsci.mcmaster.ca/research/publications/>



Table of contents

| | | |
|---------------------------|--|----|
| I. | Introduction and project description | 4 |
| II. | Methods | 8 |
| III. | Findings | 9 |
| | A. Setting characteristics | |
| | 1. Geographic, environmental, social & economic contextual factors | 9 |
| | 2. Population health characteristics | 11 |
| | 3. Governance and health systems | 12 |
| | 4. Pandemic experience and preparedness | 13 |
| | B. Policies and epidemiology | |
| | 1. Cases and social distancing policies | 15 |
| | 2. Description of events in Sri Lanka | 16 |
| | 3. Disproportionately affected populations | 20 |
| | 4. Comparisons with other country responses | 21 |
| IV. | Discussion of main findings, limitations, and next steps | 22 |
| V. | Conclusions | 22 |
| VI. | References | 23 |
| | | |
| Tables and figures | | |
| | Table 1. COVID-19 relevant contextual factors for Sri Lanka | 10 |
| | Table 2. Age and health characteristics for Sri Lanka | 11 |
| | Table 3. Political and health system indicators for Sri Lanka | 12 |
| | Table 4. Definition and Disposition of Clinically Suspected Cases in Sri Lanka | 17 |
| | Table 5. Comparative national-level responses to COVID-19 by country | 21 |
| | Figure 1. Heat map of Sri Lanka: Confirmed Cases on September 1, 2020 | 9 |
| | Figure 2. Global Health Security epidemic preparedness rank category | 9 |
| | Figure 3. Proportional mortality from non-communicable diseases – Sri Lanka, 2016 | 11 |
| | Figure 4. Number of reported COVID-19 cases and deaths in Sri Lanka with select policies from January to September 1, 2020 | 15 |

Links to supplementary materials

[Study proposal](#)

[Informed consent](#)

[Interview guide](#)

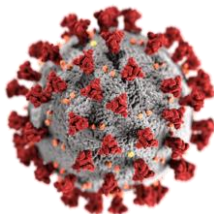
COVID-19 [Country characteristics database](#)



I. Introduction and project description

A new disease that spread around the world

On December 31, 2019, the World Health Organization (WHO) was notified of a cluster of individuals with pneumonia of unknown cause in Wuhan, China.(1) On January 12, 2020, China shared the genetic sequence of the novel coronavirus with other countries to help develop diagnostic tests.(1) Thailand reported the first known case of the novel coronavirus outside of China on January 13, 2020. WHO declared the novel coronavirus (2019-nCoV) outbreak a Public Health Emergency of International Concern on January 30, 2020 with 7,711 confirmed cases, 12,167 suspected cases, and 170 deaths in China and 83 cases in 18 countries outside of China.(1,2) The disease was later named COVID-19 for coronavirus disease 2019 and the virus referred to as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).(1) WHO declared COVID-19 a pandemic on March 11, 2020.(1)



Physical distancing policies and knowledge gaps

As an emerging infectious disease, governments have had to rely on the use of public policies to combat the spread of the virus.(1-4) Creating policies has been difficult due to the large amount of information and ongoing uncertainty around the characteristics of the virus and who it affects.(4) One of the most commonly used policy to mitigate (slow) the spread of the virus that causes COVID-19 centres on physical or social distancing, which relies on separating people to reduce the transmission of the virus.(5) However, it is still unclear when is the best time to institute such policies and what happens when distancing policies are eased. There are many aspects of distancing, such as recommendations for maintaining a physical distance in public, banning group gatherings, or complete lockdowns, that complicate their assessment.(5) There are also many factors that have been attributed to people acquiring or having a worse outcome from COVID-19.(6-11) However, there is no harmonized database available with all the policies, epidemiology and contextual information that is needed in order to perform comparative analyses useful to informing policy making.



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

About this project

The Policy Frameworks and Epidemiology of COVID-19 Working Group was developed after a “CONVERGE Virtual Forum: COVID-19 Working Groups for Public Health and Social Sciences Research.” A group of international researchers convened to explore what physical distancing policies countries implemented and their effects on the epidemiology of COVID-19. The Working Group was further supported through an award from CONVERGE and the Social Science Extreme Events Research (SSEER) Network. CONVERGE is a [National Science Foundation](#)-funded initiative headquartered at the [Natural Hazards Center](#) at the [University of Colorado Boulder](#).

This project is registered in:



Alvarez, Elizabeth. (2020) “**Physical distancing policies and their effect on the epidemiology of COVID-19: A multi-national comparative study**”. *World Pandemic Research Network* . WPRN-457852, 2020-06-09 at 04h05 (GMT): <https://wprn.org/item/457852>



Elizabeth Alvarez, Stephanie E. Hopkins, Ellen Amster, Lisa Schwartz, Katharine Boothe, Mark Loeb, Emma Apatu, Ahmed Belal, Donna Goldstein, Jean Slick, Edris Alam, Neil Abernethy. (2020).



University of Colorado
Boulder

Policy Frameworks and Impacts on the Epidemiology of COVID-19. CONVERGE COVID-19 Working Groups for Public Health and Social Sciences Research. Boulder, CO: Natural Hazards Center, University of Colorado Boulder. <https://converge.colorado.edu/resources/covid-19/working-groups/issues-impacts-recovery/policy-frameworks-and-impacts-on-the-epidemiology-of-covid-19>



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

In collaboration with:



Anthropology
UNIVERSITY OF COLORADO BOULDER



UNIVERSITY OF
South Carolina



JORDAN UNIVERSITY
OF SCIENCE
AND TECHNOLOGY



Royal Roads
UNIVERSITY



Schulich
MEDICINE & DENTISTRY



BRIGHTER
WORLD



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Working Group Lead

Elizabeth Alvarez, McMaster University Email: alvare@mcmaster.ca

Project Coordinator

Stephanie E. Hopkins, McMaster University Email: hopkis4@mcmaster.ca

Working Group Members

| | |
|--|---|
| <p>Neil Abernethy, University of Washington Edris Alam, Faculty of Resilience, Rabdan Academy, Abu Dhabi, UAE and Department of Geography and Environmental Studies, University of Chittagong Ellen Amster, McMaster University Courtnee Anderson, Royal Roads University Emma Apatu, McMaster University Ehab Abu-Basha, Jordan University of Science and Technology Ahmed A. Belal, McMaster University Alicia Benton, Royal Roads University Iwona Bielska, McMaster University Katherine Boothe, McMaster University Dorsai Boreshnavard, McMaster University Katrina Bouzanis, McMaster University Margie Champion, Royal Roads University Shruthi Dakey, Visvesvaraya National Institute of Technology Agnes Dallison, Royal Roads University Jared Dookie, Western University Alexandra Durocher, Western University Edward Feng, McMaster University Marie-Carmel Gedeon, Heidelberg University Simrat Gill, McMaster University Donna M. Goldstein, University of Colorado Boulder Janany Gunabalasingam, McMaster University Charles Harris, Royal Roads University Bronwyn Hersen, Western University Lyndsey Huynh, McMaster University</p> | <p>Irene Israel, York University Yuna Jang, BC Cancer Centre Yannick Lapierre, Royal Roads University Tamika Jarvis, McMaster University Jinhee Lee, McMaster University Mark Loeb, McMaster University Arielle Luchich, Royal Roads University Claire McFadyen, University of Colorado Boulder Kaelyn McGinty, McMaster University Arielle Milkman, University of Colorado Boulder Peter Miller, McMaster University Nicholas Mitsakakis, University of Toronto Sarita Panchang, University of South Florida Sureka Pavalagantharajah, McMaster University Carla Perrotta, University College Dublin Lisa Schwartz, McMaster University Jean Slick, Royal Roads University Magdalena Stawkowski, University of South Carolina Alice Tan, McMaster University Japleen Thind, McMaster University Rosemary Thuss, Royal Roads University Matthew Van, California State University Long Beach Marg Verbeek, Royal Roads University Simon Wells, Royal Roads University Anna Wynfield, University of Colorado Boulder Sammah Yahya, McMaster University Michelle Yao, McMaster University Song Yegi, York University</p> |
|--|---|



II. Methods

Research design

A qualitative embedded multiple case study research design was used to compare countries (or subnational jurisdictions, such as provinces, states or territories). The suite of public policies and resulting changes in the epidemiology of COVID-19 are examined within their specific country setting. Our cases start in January 2020 and end in (or after) August 2020. (Please see full [study proposal](#)). Research ethics approval was obtained by the Hamilton Integrated Research Ethics Board (HIREB) (Project # 11243).

Data collection

For each country, the setting, such as health systems, political systems and demographics were described to help with interpretation of findings and potential transferability, or the degree to which findings are applicable to other sites or future research.

Publicly available data was first collected on the jurisdiction following a standardized data collection form. Epidemiological data was drawn from publicly available data. WHO, World Bank, Central Intelligence Agency and other publicly available sources were used for timelines and country characteristics, where possible. Other sources of information included governmental and non-governmental websites, news articles, government reports, and peer-reviewed journals.

Next, key informant interviews were conducted to fill in gaps, verify information found through the documentary searches, and identify further participants and documentary sources of relevant information. (See [informed consent](#) and [interview guide](#)) Key informant interviews were conducted with policymakers, health workers, researchers and other stakeholders as appropriate to fill in knowledge gaps.

Data analysis and presentation

Our [COVID-19 policies](#) and epidemiology databases harmonize data on setting characteristics, policies, demographic characteristics and epidemiological risk factors and outcome metrics. These will further be described in single country or jurisdiction case reports. Comparisons will be selected based on both literal and theoretical replication. Countries that have similarities in either policies or epidemiological trends can be considered literal comparisons, whereas countries that differ will be used as theoretical comparisons. These comparisons will be submitted to peer-reviewed journals for publication.



III. Findings

A. Setting characteristics

Geographic, environmental, social and economic contextual factors

Sri Lanka is in the WHO South-East Asia Region.(12) Sri Lanka has a population of 21,803,000 and a population density of 346 people per km².(13) However, the population is most concentrated within the wet zone in the southwest, urban centers along the eastern coast, and on the Jaffna peninsula in the north. 18.59% of people live in urban centres.(14)

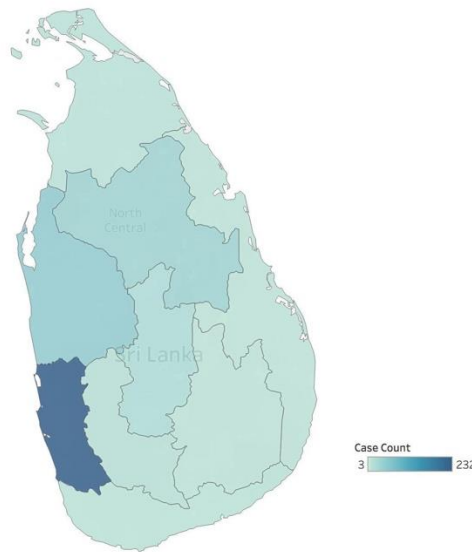


Figure 1. Heat map of Sri Lanka: Confirmed Cases on September 1, 2020 (15)

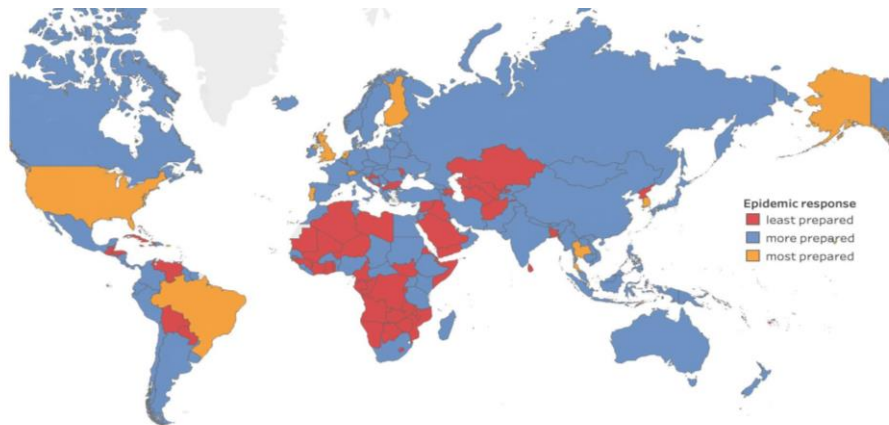


Figure 2. Global Health Security epidemic preparedness rank category



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Table 1. COVID-19 relevant contextual factors for Sri Lanka

| | |
|---|-----------------------|
| Global Health Security Index, 2019 (Overall Index Score out of 100 and category) (16) | 33.9 – More Prepared |
| Global Health Security Index, 2019 (Epidemic Preparedness Index Score out of 100 and category) (16) | 26.4 – Least Prepared |
| Particulate matter (PM2.5) air pollution, mean annual exposure, 2017 (micrograms per cubic meter) (17) | 11.1 |
| PM2.5 air pollution, population exposed to levels exceeding WHO guideline value, 2017 (% of total) (17) | 45.54 |
| International migrant stock, 2015 (% of population) (18) | 0.19 |
| Trust in national government, 2018 (% of population) (19) | 60.85 |
| Mobile cellular subscriptions, 2018 (per 100 people) (20) | 142.65 |
| Individuals using the internet, 2017 (% of population) (21) | 34.11 |
| Index of economic freedom, 2020 (Overall score and category) (22) | 57.4 - Mostly unfree |
| World Bank classification, 2020 (23) | Lower middle income |
| GINI Index, 2016 (24) | 39.8 |
| GDP per capita, PPP, 2019 (Current international \$) (25) | 13,620.12 |
| GNI per capita, PPP, 2019 (Current international \$) (26) | 13,230 |
| Current health expenditure, 2017 (%) (27) | 3.8 |
| Vulnerable employment, total, 2020 (% of total employment) (28) | 38.82 |
| Vulnerable employment, female, 2020 (% of female employment) (29) | 42.79 |
| Vulnerable employment, male, 2020 (% of male employment) (30) | 36.78 |
| Homelessness, 2016 (%) (31) | -- |
| Adult literacy rate, 2018 (%) (32) | 91.71 |
| Literacy rate, adult female, 2018 (% of females 15 and above) (33) | 90.8 |
| Literacy rate, adult male, 2018 (% of males 15 and above) (34) | 92.77 |
| Primary school enrolment, 2018 (% net) (35) | 99.11 |

GDP - gross domestic product; **GNI** - gross national income; **PPP** - purchasing power parity



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Population health characteristics

Life expectancy at birth in Sri Lanka is 77 yrs (2018).(36) For males, life expectancy at birth is 73 yrs, and for females it is 80 yrs.(37,38) Non-communicable diseases are believed to play a role in who develops severe symptoms of COVID-19. In Sri Lanka, the proportional mortality from cardiovascular diseases was 34%, cancers 14%, chronic respiratory diseases 8%, and diabetes 9%.(39) (See Figure 3.) The probability of dying between ages 30-70 from cardiovascular disease, cancer, diabetes, or chronic respiratory disease was 17.4% for all adults, and 22.1% and 13.2% for males and females, respectively.(40)

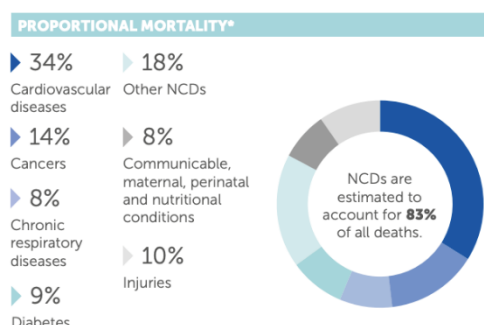


Figure 3. Proportional mortality from non-communicable diseases (NCDs) – Sri Lanka, 2016 (39)

Table 2. Age and health characteristics for Sri Lanka

| | Male | Female | Total |
|--|-------------------|-------------------|-------------------|
| Population ages 0-14, total, 2019 (% of total population) (41-44) | 2,638,732 (12.10) | 2,584,450 (11.85) | 5,223,227 (23.96) |
| Population ages 15-64, total (% of total population) (45-48) | 6,823,018 (31.29) | 7,393,570 (33.91) | 14,216,588 (65.2) |
| Population ages 65 and above, total (% of total population) (49-52) | 1,001,668 (4.59) | 1,361,562 (6.24) | 2,363,185 (10.84) |
| Current tobacco use prevalence, total, 2018 (%) (53) | 43.2 | 2.7 | 22.9 |
| Raised blood pressure (Systolic blood pressure ≥ 140 or Diastolic Blood Pressure ≥ 90), ages 18+, 2015 (%) (54) | 23.8 | 23.8 | 23.8 |
| Raised fasting blood glucose (>7.0 mmol/L or on medication), ages 18+, 2014 (%) (55) | 7.3 | 8.4 | 7.9 |
| Prevalence of obesity among adults (Body Mass Index ≥ 30), 2016 (%) (56) | 3 | 7.7 | 5.4 |
| Prevalence of Human Immunodeficiency Virus (HIV), 2019 (% of population ages 15-49) (57) | | | 0.1 |
| Bacillus Calmette-Guérin (BCG) Immunization coverage estimates, 2019 (%) (58) | | | 99 |
| Prevalence of undernourishment, 2018 (% of population) (59) | | | 7.6 |



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Governance and health systems

Sri Lanka is a unitary country with power for health under the federal government.(60) The Ministry of Health, Nutrition and Indigenous Medicine is responsible for health actions.(61) The Sri Lanka Podujana Peramuna, which is a liberal leaning government, has been in power since August 17, 2015.(60) The health system is funded by general tax revenues though there is a private sector that plays a crucial role in the health system. Integrated financing and delivery of resources are managed by the Ministry of Health and its nine provincial counterparts. Each provincial Ministry of Health has a Provincial Director of Health Services, and these ministries are responsible for primary and secondary levels of curative care and all preventive services. Specifically, preventive health services are provided through facilities that are led by Medical Officers of Health, each of which covers a geographic area ranging from 50,000 to 100,000 people. There are also 26 health districts each led by a Regional Director of Health Services.(62)

Sri Lanka does have a long-standing policy of providing free universal health care for the entire population, including non-citizens, but there is no social health insurance in Sri Lanka, apart from a small contributory plan for civil servants.(62) There are voluntary prepayment plans that cover about 6% of total health spending. External aid is a minor source of health spending for individuals. Out-of-pocket spending accounts for about 40% of total health expenditures, including some diagnostic and pharmaceuticals at public facilities, outpatient services and spending at private hospitals. Public health funding is primarily through public finances. Preventive medicine is only 10% of the health budget but has been largely successful, especially in domains such as maternal and child health outcomes.(62)

Table 3. Political and health system indicators for Sri Lanka

| | |
|--|------------------|
| Fragile States Index score, 2020 (maximum 120, higher is worse) (63) | 81.8 |
| Fragile States Index rank, 2020 (out of 178 countries, higher is better) (63) | 52 |
| Global Freedom score and status, 2020 (64) | 55 – Partly Free |
| Internet Freedom score and status, 2020 (65) | 52 – Partly Free |
| World press freedom index, 2020, global score (0-100, lower is better) and rank (out of 180 countries, lower is better) (66) | 41.94 – 127 |
| Physician density, 2018 (physician/1,000 pop) (67) | 1 |
| Hospital bed density, 2012 (beds/1,000 pop) (68) | -- |



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Pandemic experience and preparedness

Most recently, there was a dengue fever epidemic in Sri Lanka from January 1, 2017 to July 7, 2017.(69) Sri Lanka reported 80,732 cases of dengue fever and 215 deaths.(69) The most impacted area with the greatest number of reported cases was Colombo District (18,186 cases) followed by Gampaha (12,121 cases), Kurunegala (4,889 cases), and Kalutara (4,589 cases). About 43% of cases were reported from the Western province. The circulating strain during this outbreak was identified as DENV-2. Following this, the WHO has been supporting the Ministry of Health in Sri Lanka to ensure appropriate public health responses and plans are available in the case of future epidemics of dengue fever. These include: 1) Increased number of beds when healthcare facilities are overwhelmed through temporary wards; 2) created an emergency response that includes vector control activities with support of defense forces; 3) constituted Task Force to guide response; 4) updated triage protocol to ensure appropriate management of patients in health facilities; 5) purchased fogging machines to support vector control; and 6) prepared a strategic and operational plan for intensive measures to control potential future dengue outbreaks.(69)

Prior to this, there was an outbreak of suspected myocarditis in March 2005 in Sri Lanka.(70) Sri Lanka was not greatly impacted by the Severe Acute Respiratory Syndrome (SARS), Middle East Respiratory Syndrome (MERS) or Ebola.

Sri Lanka does not appear to have a national public health emergency response plan to address multiple communicable diseases with pandemic potential. Sri Lanka does have a Comprehensive Disaster Management Programme that was put forth by the Minister of Disaster Management.(71) This does touch upon epidemics briefly but states that the Ministry of Health continues to be the primary point of prevention and management when epidemics occur. The Ministry of Health, specifically the Epidemiology Unit, monitors and reports cases of several communicable diseases including those during outbreaks. Specifically, the Disaster Management Act no. 13 of 2005 defined epidemics as being included with natural disasters, and thus epidemics and communicable diseases are treated as any other natural disaster.(71) With regards to the COVID-19 outbreak, which will be expanded on in section B, Sri Lanka did create a specific COVID-19 preparedness and response plan.(71) As well, there is a hazard risk and vulnerability assessment plan that is used to identify the probability of specific hazards occurring in pre-specified time periods and gauging the intensity or impact.(71)

Sri Lanka has a mix of laboratory systems, including state and private health institutions. The Government of Sri Lanka acknowledges health laboratory services as essential in the healthcare system and has created a national health laboratory policy to ensure appropriate standards.(72) Prior to April 6, 2020, COVID-19 testing was only available to those with symptoms and who met specific criteria in Sri Lanka. Following this date, anyone showing COVID-19 symptoms were tested. RT-PCR test kits were used in both government and private laboratory facilities, though these were not manufactured in Sri Lanka.(73,74) Rapid test kits were not used for testing as they had low sensitivity, but Anil Jasinge, the head of Sri Lanka's health service, did say that if rapid tests of better quality are developed then Sri Lanka would use them. They may be used in



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

the future for surveillance needs.(75) The Health Information Systems Programme (HISP) created a District Health Information Software 2 (DHIS2) tracker specifically for COVID-19 surveillance in Sri Lanka. This is a system that registers and tracks incoming travellers from areas with high risk of COVID-19 infection. Additionally, this system allows for secure entry and analysis for longitudinal and single event data at the individual-level so that health personnel can follow-up on individual cases.(76)



B. Policies and epidemiology

Cases and social distancing policies

Sri Lanka’s first case of COVID-19 was recorded on January 27, 2020, and Sri Lanka had 100 cases on March 25, 2020.(1) As of August 31, 2020, there were 3049 cases and 12 deaths.(13) Figure 4 shows the number of daily cases and deaths in Sri Lanka for each of the select physical distancing policies from January to September 1, 2020.

Sri Lanka COVID-19 case & death counts and physical distancing policies

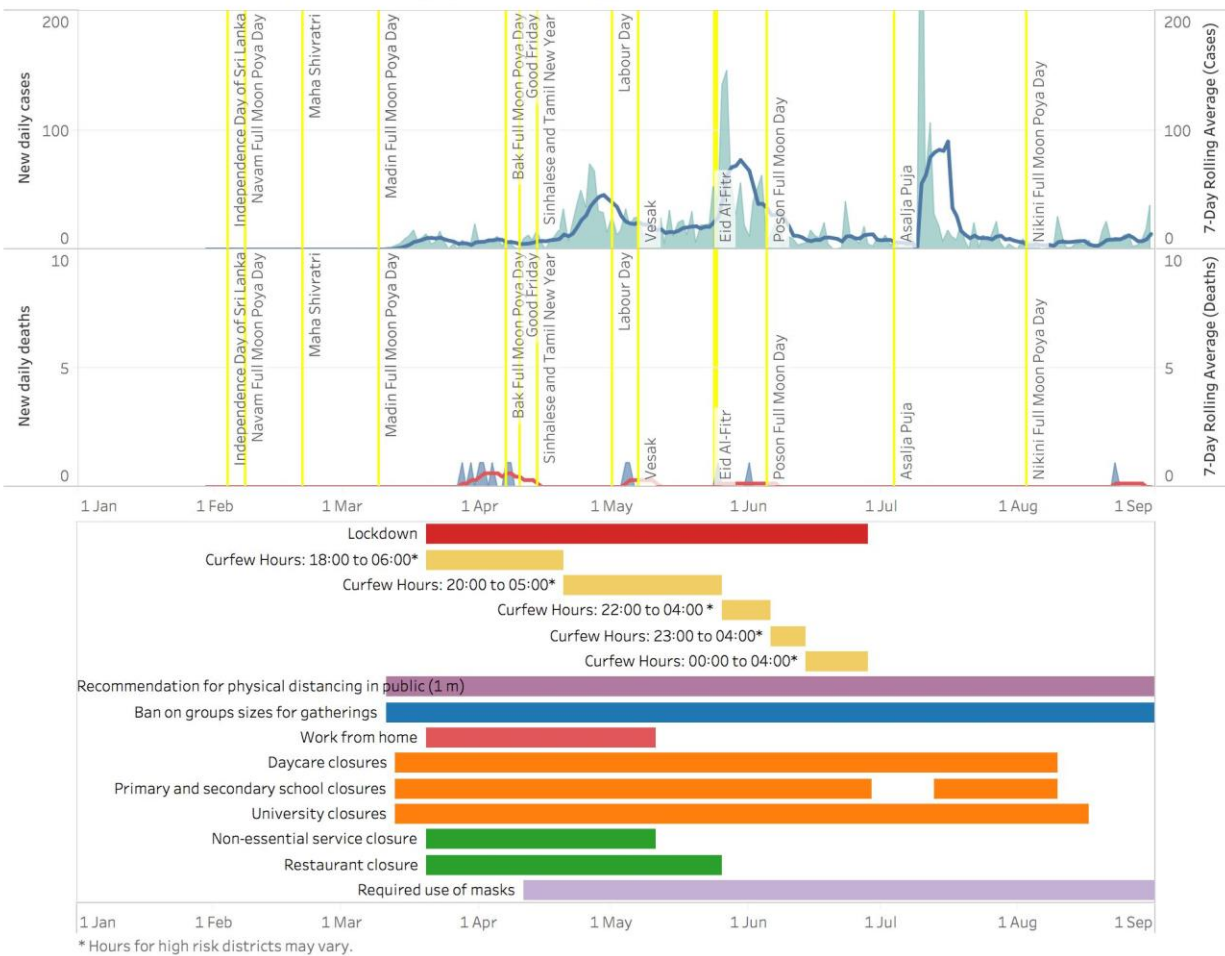


Figure 4. Number of reported COVID-19 cases and deaths in Sri Lanka with select policies from January to September 1, 2020 (15)



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Description of events in Sri Lanka

The main spokesperson for Sri Lanka's COVID-19 response has been President Gotabaya Rajapaksha.(77) President Gotabaya Rajapaksha works alongside with the Ministry of Health to provide updates on the COVID-19 situation and create policies to reduce the spread of the disease.(78) These COVID-19 strategies are implemented at national and district levels, with contributions from various public health teams. The Epidemiology Unit formulates guidelines and reports collected data to the public. The Quarantine Unit facilitates screening measures for incoming travellers and refers patients to medical care. The Health Promotion Bureau addresses behavioural and practice changes with COVID-19, while tackling misinformation. The Family Health Bureau sets out guidelines for pregnant mothers and children. Disaster Preparedness & Response Team closely works with the public health teams.(78) Although these public health teams play an important role in proposing actions that need to be taken, the president has the final decision in what is to be implemented.

Sri Lanka had its first case of COVID-19 on January 27, 2020.(79) A tourist arrived in Sri Lanka on January 19, 2020 and was confirmed to have the virus following testing on January 27, 2020. However, the momentum of COVID-19 cases and attention to state emergency only increased in March after the first local case reported on March 10, 2020.(80) To suppress the COVID-19 curve, Sri Lanka followed a mitigation strategy. The government initially implemented a nationwide curfew on March 20, 2020 from 18:00 to 06:00 until March 23, 2020.(81) This has been extended several times to evolve with the changing case numbers. During the curfew, strict interdistrict travel bans were enforced, and individuals were prohibited from leaving their homes with the exception for essential needs.(82) The Sri Lankan police had a leading role in managing curfew orders, as they responded to reports of violations, arrested suspected violators, and took vehicles in their custody.(83,84) From March 20, 2020 to April 20, 2020, the police have arrested 34,131 individuals and suspended 8714 vehicles into their custody.(84)

On April 20, 2020, the Sri Lankan authorities had relaxed the ongoing curfew measures in several districts.(85) The curfew was lifted at 05:00 and reimposed at 20:00 in all districts except for high-risk regions, such as Colombo, Gampaha, Kalutara, and Puttalam. On May 26, 2020, curfew measures were further relaxed for all districts between 22:00 to 04:00. On June 26, 2020, curfew hours were relaxed between 23:00 to 04:00, and then between 00:00 to 04:00 on June 14, 2020 (86,87). However, these mentioned curfew hours were not always applicable for high-risk regions, as the hours varied depending on the case counts of these areas. On June 28, 2020, the nationwide curfew was lifted.(87) The implementation of a nationwide curfew in Sri Lanka was unique for COVID-19.(82) Prior to COVID-19, a nationwide curfew was imposed in 2019 in response to the Easter bombings.(88)

Along with a nationwide curfew, the Sri Lankan authorities had introduced physical distancing measures of at least 1 metre distance on March 11, 2020.(89) On April 11, 2020, it became mandatory for individuals to wear face masks while in public. Furthermore, in early May, disinfectants were also sprayed in many places in Sri Lanka's capital Colombo as a preventative measure against COVID-19.(90) In fact, there were occasions where the Sri Lankan police would



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

spray disinfectants on individuals. However, WHO states that spraying disinfectant on the streets does not eliminate the virus as the disinfectant is inactivated by dirt and debris.(90) WHO also states that spraying individuals with disinfectants could be physically and psychologically harmful and would not reduce an individual’s ability to transmit COVID-19. The practice of mass disinfectant spraying has not been reported in the latter half of the duration of this report.

While Sri Lanka has actively minimized human movement and contact through nationwide curfews and distancing measures, it has also been proactive in defining cases and clinically suspected contacts. A confirmed case is a person with a laboratory confirmation of COVID-19 infection, irrespective of signs or symptoms.(91) All confirmed cases are then transferred to a COVID-19 Treatment Centre. Close contacts are those who have been in the same enclosed environment as a contact for more than 15 minutes. This includes the same household, workplace, or vehicles. Extensive definition of clinically suspected cases and disposition of cases is outlined In Table 4, as updated on April 23, 2020.(91)

Table 4: Definition and Disposition of Clinically Suspected Cases in Sri Lanka (91)

| Clinically Suspected Cases | Disposition of Cases |
|---|---|
| A person with acute respiratory illness with a history of fever AND returning to Sri Lanka from any country within the last 14 days | The person should be admitted to the closest hospital for confirmatory testing and management. This should be done with prior consultation with the hospital to ensure necessary prevention and control precautions. |
| A person with acute respiratory illness AND has been in close contact with a confirmed or suspected COVID-19 case during the last 14 days before the onset of symptoms. | The person should be admitted to the closest hospital for confirmatory testing and management. This should be done with prior consultation with the hospital to ensure necessary prevention and control precautions. |
| A person with acute respiratory illness with a history of fever AND has traveled to an area of high transmission of COVID-19 during the 14 days before symptom onset | The person should be admitted to the closest hospital for confirmatory testing and management. This should be done with prior consultation with the hospital to ensure necessary prevention and control precautions. |
| A person with acute pneumonia regardless of travel or contact history | The person should be managed at a hospital in a designated area, such as isolation unit or intensive care unit. A PCR test should be conducted, and if the test is positive, the patient is transferred to a COVID-19 treatment centre. |



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

| | |
|--|---|
| A person with fever and in respiratory distress | The person should be managed at a hospital in a designated area, such as isolation unit or intensive care unit. A PCR test should be conducted, and if the test is positive, the patient is transferred to a COVID-19 treatment centre. |
| An asymptomatic person with an epidemiological link to a confirmed COVID-19 case | The person should be admitted to hospital. If tested positive, the person is transferred to COVID-19 treatment facility. |

With increased hospital admissions from confirmed and suspected clinical contacts, Sri Lanka faced shortages of equipment.(92) On May 5, 2020, WHO donated essential laboratory equipment, such as PCR machine, hospital equipment, personal protective equipment (PPE), and consumables to the Government of Sri Lanka.(93) The contribution from WHO supported Sri Lanka’s response to the outbreak. Along with external aid, Sri Lanka Institute of Nanotechnology (SLINTEX) formed a 20-member task force of scientists to research solutions for face masks, hand sanitizers and rapid test kits.(92) The team partnered with the private sector and formed manufacturing processes for these items.

Along with separating clinically suspected cases in health care settings, asymptomatic high-risk contacts are expected to isolate themselves through quarantining at home.(94) High risk contacts include individuals returning to Sri Lanka from countries and having contact with suspected or diagnosed cases. These individuals are expected to home quarantine for 14 days, with body temperatures monitored twice a day. If symptoms start to present, they are to immediately inform the Ministry of Health or the Public Health Inspector.(94)

Tourism, one of Sri Lanka’s major industries, has been significantly impacted by COVID-19.(95) On March 7, 2020, the government announced that travelers arriving from Italy, Iran and South Korea were expected to quarantine for 14 days.(96) With the rise in local cases, all visas and incoming flights to Sri Lanka were suspended starting March 17 and 18 respectively. On April 25, 2020, departing flights with passengers originating from Colombo were allowed to operate. The government also stated that repatriation flights would be arranged on a case-by-case basis. A PCR test is conducted at the Colombo Airport for all those returning to the country.(97) These individuals were further expected to quarantine at home for 14 days.(96) As well, the use of cruise ships was banned on March 3, 2020. Borders were planned to reopen on August 1 for non-essential travels, but this was extended.(96)

On March 13, 2020, The Ministry of Education declared that all schools would be closed.(98) Preschools were planned to initially reopen on July 6, 2020 with full capacity, but remained closed until August 1.(99,100) Primary and secondary schools were planned to reopen at different stages starting June 29, 2020.(101) The first stage of reopening involved teachers and principals returning on June 29, 2020, followed by students in Grades 5, 11, and 13 returning on July 6, 2020. Due to the rise in cases, the Ministry of Education shut down schools again for all



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

grades starting July 13, 2020.(102) Maintaining social distancing, schools again reopened on a staggered schedule beginning August 10, 2020. Schools with less than 200 students operated similar to before the lockdown, while the other schools created a new schedule based on the grade of the class.(102) Universities, similar to primary and secondary schools, reopened on August 17, 2020, but earlier openings were made for examinations.(103) Examinations were held in person on dates respective to their faculties.

Most non-essential services were closed from March 20, 2020 to May 11, 2020.(82) Businesses were recommended to use telecommunicating facilities during this period.(96) On May 11, 2020, state organizations decided on who would return to work to ensure return to normalcy.(104) With the resumption of civilian life, authorities advised the public to go shopping on days based on the last digit of their ID card. Hotels and restaurants began to reopen their services on May 26, 2020.(105) There was no suspension of elective medical or dental procedures. However, services provided by hospitals slowed down due to reduced numbers of staff.(106)

Physical distancing policies were supported through economic relief for individuals and businesses. These reliefs were first announced on March 23, 2020, and newer aids were added during the duration of this study period to include more facilities and benefits.(107) The government issued an interest free advance of Rs. 10,000 to all low-income households, vulnerable families, registered senior citizens, and disabled persons.(108) Furthermore, financial institutions have implemented a debt moratorium on capital and interests for businesses to relieve the impacts of COVID-19. This includes a moratorium on personal loans for private sector nonexecutive employees until May 30, 2020, a three-month moratorium for all personal loans, and a six-month debt moratorium for industries in small enterprises, tourism, apparel, and related logistic service providers. Along with a debt moratorium, financial institutions provide working capital requirements at an interest rate of 4% and waive off interest payments for at least 6 months for logistic service providers. At an individual level, payment of electricity and water bills that are below 15, 000 rupees and monthly credit card bills of below 50,000 rupees is extended till April 30, 2020.(107) Along with an extended payment date, the minimum monthly payment on credit cards is reduced by 50%.(108)

Further insight to COVID-19 response and suggestions for future pandemics were provided by interviewees. Through qualitative interviews, it was noted that there were frustrations initially with the delay in managing the pandemic due to officials wanting to carry forward with elections.(109) The elections were postponed after public complaining and statements from health authorities. President Gotabaya Rajapaksa dissolved the parliament on March 2, 2020 and the parliamentary election was held on August 5, 2020 after postponing twice on April 25, 2020 and June 20, 2020 to ensure voting was held safely.(110) Sri Lanka has been functioning without a parliament for months, and the implications of this on COVID-19 response is not studied in this report. The interviewee also stated that for better COVID-19 risk management, the government could have done earlier testing and lockdown measures.(109) Since the first community case of COVID-19 on March 10, 2020, there was a delay in action for a week which upset the public.



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Disproportionately affected populations

There are certain groups that are believed to be disproportionately affected by COVID-19 in Sri Lanka.(111-113) The case numbers amongst these populations are rarely reported.

Care Homes for Older Persons

Although numbers of care home-related cases are not reported, adults aged over 60 have a higher risk of dying from COVID-19. Sri Lanka has a rapidly aging population and formulated public health responses to address this vulnerable population.(111) The government specifically focused on care homes for older persons, and derived extensive instructions for the workers to follow. If any individual in the facility developed symptoms, such as cough, fever, or sore throat, the Medical Officer of Health or helpline 1390 are contacted and their advice is followed accordingly.(112) Proper ventilation and adequate sunlight are maintained. The air conditioning filters are washed and cleaned once a week. Along with other sanitary practices, a record of visitors was kept and outsiders were not allowed to be in direct contact with seniors.(112)

Migrant Workers

Other populations that are believed to be disproportionately affected are migrant workers. Migrant workers faced severe economic challenges with their return to Sri Lanka.(113) They were not paid salaries for over two months and did not receive financial assistance on their return. Migrant workers also experienced hostile attitudes from the government as they accounted for the spike in cases between May 24 and 28, with exact numbers not reported. The workers state that the lack of prompt repatriation by the government could explain why many of them were infected in other countries.(113)



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Comparisons with other country responses

There are many concerns in trying to compare countries’ responses to COVID-19. This is shaped by limitations of the data itself and differences in contextual factors. A separate paper by this working group describes limitations of COVID-19 data. (Submitted) Table 5 presents a list of countries and their use of different physical distancing policies.

Table 5. Comparative national-level responses to COVID-19 by country – updated August 21, 2020 (filled in means policy was implemented)

National level COVID-19 policy comparison

| Category | Policy | AUS | BGD | BRA | CAN | CHN | CUB | DNK | DJI | EGY | ENG | FRA | GHA | IND | IRE | IRE | KAZ | NLD | NZL | N-IR | PAK | RUS | SCL | SLE | SGP | KOR | SRI | UAE | VN | WLS | |
|------------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|-----|----|-----|--|
| Government | State of emergency | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Case Management | Recommended self-isolation after travel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommended self-isolation for cases | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommended self-isolation for symptoms | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommended self-isolation for contacts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Separation of cases or suspected cases within institutions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Closure | Non-essential service closure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Closing restaurants | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Suspended elective medical/dental procedures | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Detection | Surveillance systems | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Contact tracing | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Assessment centres | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Drive through testing centres | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Mass fever screening in public transportation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Economics | Economic relief policies for individuals/families | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Economic relief policies for businesses | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Housing economic relief | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Anti-hording | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Anti-price gouging | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Education | School closure - daycare | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | School closure - elementary school | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | School closure - high school | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | University closure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Health Workforce | Health workers allowed to only work at one site | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | LTC Health workers allowed to only work at one site | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Healthcare Resources | Audio/video telehealth | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Telehealth access to prescription medication | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Physical Distancing | Physical distancing recommendation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Ban on group size | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Quarantine orders after travel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Quarantine orders for cases | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Quarantine orders for contacts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Isolation for vulnerable populations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Work from home/remote work | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Recommended use of masks/PPE for public | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Required use of masks/PPE for public | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Quarantine for "at risk" or priority neighbourhoods | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Lockdown | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Public Decontamination | Public decontamination transit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Public decontamination streets | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Travel bans | International bans for non-essential travel | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Screening at airports/borders | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Closing public transportation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

AUS–Australia, **BGD**–Bangladesh, **BRA**–Brazil, **CAN**–Canada, **CUB**–Cuba, **DNK**–Denmark, **DJI**–Djibouti, **EGY**–Egypt, **ENG**–England, **FRA**–France, **GHA**–Ghana, **IND**–India, **IRE**–Ireland, **KAZ**–Kazakhstan, **NLD**–Netherlands, **NIR**–Northern Ireland, **PAK**–Pakistan, **RUS**–Russia, **SCL**–Scotland, **SLE**–Sierra Leone, **SGP**–Singapore, **KOR**–South Korea, **SRI**–Sri Lanka, **UAE**–United Arab Emirates, **VN**–Vietnam, **WLS**–Wales



IV. Discussion of main findings, limitations, and next steps

Sri Lanka has a population of 12,413,249 with 3,012 cases and 12 confirmed deaths as of August 31, 2020.(13) Sri Lanka had its first community case of COVID-19 on March 10, 2020, and since then, rigorous measures were taken to contain the spread of COVID-19.(80) This includes a nationwide curfew that was initially implemented on March 20, 2020 for three days but was extended multiple times with the evolving case numbers.(81) Curfew measures were relaxed with shorter time frames throughout the process and was lifted on June 28, 2020.(87) While Sri Lanka actively minimized human movement through a nationwide curfew, it has also been proactive in defining and addressing assessment plans for cases and clinically suspected cases. Cases were transferred to COVID-19 treatment facilities, and suspected clinical cases were transferred to hospitals where individuals were tested. If suspected cases are tested positive, they are transferred to treatment facilities as well.(91) Sri Lanka faced shortage of equipment such as PPE and PCR test kits. WHO supported the country by donating equipment.(93) High risk contacts that are asymptomatic are expected to quarantine at home.(94)

Tourism in Sri Lanka has also been significantly impacted by COVID-19. To further curb the spread of COVID-19, incoming flights were suspended on March 18, and borders for nonessential travels continue to be closed passed August 1, 2020.(96) Schools were closed on March 13, 2020 and reopened for selective grades on July 6, 2020.(98-100) However, with a sudden rise in case, the Ministry of Education shut down schools again on July 13, 2020 and reopened on August 10, 2020 on a staggered schedule for primary and secondary students.(102) Non-essential services were closed from March 20, 2020 to May 11, 2020, and to limit the movement of civilians, authorities advised to go shopping based on the last digit of their ID card. These physical distancing policies were supported by economic relief for individuals and businesses.(108) Businesses were given a debt moratorium on capital and interest to assist to relieve the impacts of COVID-19. Monetary aid was provided to low-income households, vulnerable families, registered seniors and disabled persons. Further financial reliefs were provided through an extension in various household payments.

Although these policies have been successful in containing the spread of COVID-19, earlier implementation of testing and lockdown measures could have further reduced the number of cases.(109) The experiences from COVID-19 as outlined in this report can act as considerations for future pandemics.

Conclusions

COVID-19 has had a significant impact worldwide from loss of life to economic hardship. Sri Lanka has tried to effectively control the number of cases and deaths, but the long-term impacts of this pandemic have yet to be fully understood. Sri Lanka is beginning to see closures and curfews again due to the resurgence in the number of cases. The effectiveness of these strategies has to be further investigated to ensure the most appropriate physical distancing and containment strategies are being used. Comparative work is being conducted by this Working Group to understand what policies work, where and why.



References

1. Rolling updates on coronavirus disease (COVID-19). (Updated July 31, 2020). World Health Organization. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/events-as-they-happen> (Accessed October 15, 2020).
2. Statement on the second meeting of the International Health Regulations (2005) Emergency Committee regarding the outbreak of novel coronavirus (2019-nCoV). (January 30, 2020). WHO. Available at: [https://www.who.int/news/item/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news/item/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov)) (Accessed October 16, 2020).
3. Report of the WHO-China Joint Mission on COVID-19 Final Report. (Feb 16-24, 2020). Available at: <https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19-final-report.pdf> (Accessed October 15, 2020).
4. Weible CM, Nohrstedt D, Cairney P, et al. (2020). COVID-19 and the policy sciences: initial reactions and perspectives. *Policy Sci* 53:225-241. <https://doi.org/10.1007/s11077-020-09381-4>
5. Ferguson N, Laydon D, Nedjati-Gilani G, et al. (2020). Report 9: Impact of Non-Pharmaceutical Interventions (NPIs) to Reduce COVID19 Mortality and Healthcare Demand. MRC Centre for Global Infectious Disease Analysis. Available at: <https://www.imperial.ac.uk/mrc-global-infectious-disease-analysis/covid-19/report-9-impact-of-npis-on-covid-19/> (Accessed October 16, 2020).
6. Ho S. (Updated March 31, 2020). Breaking down the COVID-19 numbers: Should we be comparing countries? CTV News. Available at: <https://www.ctvnews.ca/health/coronavirus/breaking-down-the-covid-19-numbers-should-we-be-comparing-countries-1.4874552> (Accessed October 16, 2020).
7. D'Adamo H, Yoshikawa T, & Ouslander JG. (2020). Coronavirus disease 2019 in geriatrics and long-term care: the ABCDs of COVID-19. *J Am Geriatr Soc*: doi: 10.1111/jgs.16445
8. Kluge HHP. Older people are at highest risk from COVID-19, but all must act to prevent community spread. (April, 2, 2020). World Health Organization. Available at: <http://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/statements/statement-older-people-are-at-highest-risk-from-covid-19,-but-all-must-act-to-prevent-community-spread> (Accessed October 16, 2020).
9. Jin JM, Bai P, He W, et al. (2020). Gender differences in patients with COVID-19: Focus on severity and mortality. *Front Public Health*. <https://doi.org/10.3389/fpubh.2020.00152>
10. Canadian Institutes of Health Research. (Updated April 20, 2020). Why sex and gender need to be considered in COVID-19 research. CIHR. Available at: <https://cihr-irsc.gc.ca/e/51939.html> (Accessed October 16, 2020).
11. Vocke M. (April 8, 2020). Trust between Canadians and government improving during COVID-19 outbreak: survey. *Global News*. Available at: <https://globalnews.ca/news/6791574/coronavirus-trust-canadians-government-survey/> (Accessed October 16, 2020).



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

Findings - Setting characteristics

12. WHO Regional Offices. (2020). The World Health Organization. Available at: <https://www.who.int/about/who-we-are/regional-offices> (Accessed October 19, 2020).
13. Worldometer. (n.d.). Countries in the world by population. Available at: <https://www.worldometers.info/world-population/population-by-country/> (Accessed June 29, 2020).
14. Central Intelligence Agency World Factbook. (n.d.). The World Factbook. Available at: <https://www.cia.gov/library/publications/the-world-factbook/geos/ce.html> (Accessed June 29, 2020).
15. Coronavirus disease 2019 (COVID-19) - Situation Report (September 12, 2020). Ministry of Health, Epidemiology Unit. Available at: http://epid.gov.lk/web/images/pdf/corona_virus_report/sitrep-sl-en-09-12_10.pdf (Accessed December 11, 2020)

Table 1

16. The Global Health Security Index. (n.d.) 2019 GHS Index. Available at: <https://www.ghsindex.org/> (Accessed October 16, 2020).
17. Brauer M. (2017). PM2.5 air pollution, population exposed to levels exceeding WHO guideline value. The World Bank. Available at: <https://data.worldbank.org/indicator/EN.ATM.PM25.MC.ZS?view=chart> (Accessed October 16, 2020).
18. United Nations Population Division (2015). International migrant stock. The World Bank. Available at: <https://data.worldbank.org/indicator/SM.POP.TOTL.ZS> (Accessed October 16, 2020).
19. Ortiz-Ospina E, Roser M (2016). Trust. Our World in Data. Available at: <https://ourworldindata.org/trust> (Accessed October 17, 2020).
20. International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database. (2020). Mobile Cellular Subscriptions. The World Bank. Available at: <https://data.worldbank.org/indicator/IT.CEL.SETS.P2> (Accessed October 16, 2020).
21. International Telecommunication Union (ITU) World Telecommunication/ICT Indicators Database. (2020). Individuals using the internet. The World Bank. Available at: <https://data.worldbank.org/indicator/IT.NET.USER.ZS> (Accessed October 16, 2020).
22. Country Rankings: 2020 Index of Economic Freedom. (2020). The Heritage Foundation. Available at: <http://www.heritage.org/index/ranking> (Accessed October 17, 2020).
23. World Development Indicators. (n.d.) The world by income. The World Bank. Available at: <https://datatopics.worldbank.org/world-development-indicators/the-world-by-income-and-region.html> (Accessed October 21, 2020).
24. World Bank, Development Research Group. (n.d.) GINI Index. The World Bank. Available at: <https://data.worldbank.org/indicator/SI.POV.GINI/> (Accessed October 21, 2020).
25. International Comparison Program, World Bank. (n.d.) GDP per capita, PPP. The World Bank. Available at: <https://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD> (Accessed October 21, 2020).



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

26. International Comparison Program. (n.d.) GNI per Capita, PPP. The World Bank. Available at: <https://data.worldbank.org/indicator/NY.GNP.PCAP.PP.CD> (Accessed October 17, 2020).
27. Global Health Observatory data repository. (Updated 2020). Current health expenditure (CHE) as percentage of gross domestic product (GDP) - Data by country. WHO. Available at: <https://apps.who.int/gho/data/view.main.GHEDCHEGDPSHA2011v> (Accessed October 21, 2020).
28. International Labour Organization, ILOSTAT database. (2020). Vulnerable Employment. The World Bank. Available at: [https://databank.worldbank.org/embed/COVID-19-Database-\(Vulnerable-employment\)/id/19517473](https://databank.worldbank.org/embed/COVID-19-Database-(Vulnerable-employment)/id/19517473) (Accessed October 17, 2020).
29. International Labour Organization, ILOSTAT database. (2020). Vulnerable Employment, female. The World Bank. Available at: [https://databank.worldbank.org/embed/COVID-19-Database-\(Vulnerable-employment\)/id/19517473](https://databank.worldbank.org/embed/COVID-19-Database-(Vulnerable-employment)/id/19517473) (Accessed October 17, 2020).
30. International Labour Organization, ILOSTAT database. (2020). Vulnerable Employment, male. The World Bank. Available at: [https://databank.worldbank.org/embed/COVID-19-Database-\(Vulnerable-employment\)/id/19517473](https://databank.worldbank.org/embed/COVID-19-Database-(Vulnerable-employment)/id/19517473) (Accessed October 17, 2020).
31. OECD Affordable Housing Database. (Updated March 3, 2020). HC3.1 Homeless population. OECD Social Policy Division. Available at: <http://www.oecd.org/els/family/HC3-1-Homeless-population.pdf> (Accessed October 17, 2020).
32. Canada Literacy rate 1990-2020 (2020). macrotrends. Available at: <https://www.macrotrends.net/countries/CAN/canada/literacy-rate> (Accessed October 17, 2020).
33. Education: Literacy: Female: Countries compared. (n.d.) NationMaster. Available at: <https://www.nationmaster.com/country-info/stats/Education/Literacy/Female> (Accessed October 17, 2020).
34. Education: Literacy: Male: Countries compared. (n.d.) NationMaster. Available at: <https://www.nationmaster.com/country-info/stats/Education/Literacy/Male> (Accessed October 17, 2020).
35. UNESCO Institute for Statistics. (n.d.). School enrollment, primary. The World Bank. Available at: <https://data.worldbank.org/indicator/SE.PRM.NENR> (Accessed October 17, 2020).

Population Health Characteristics

36. United Nations Population Division. (n.d.). Life Expectancy at Birth, Total. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.DYN.LE00.IN> (Accessed October 21, 2020).
37. United Nations Population Division. (n.d.). Life Expectancy at Birth, Male. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.DYN.LE00.MA.IN> (Accessed October 21, 2020).
38. United Nations Population Division. (n.d.). Life Expectancy at Birth, Females. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.DYN.LE00.FE.IN> (Accessed October 21, 2020).



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

39. Noncommunicable Diseases Country Profiles 2018. (n.d.). WHO. Available at: <https://www.who.int/nmh/countries/en/> (Accessed October 21, 2020).
40. Global Health Observatory data repository. (Updated 2018). Mortality between age 30 and exact age 70 from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases - Data by country. WHO. Available at: <https://apps.who.int/gho/data/view.main.GSWCAH21v> (Accessed October 21, 2020).

Table 2:

41. United Nations Population Division's World Population Prospects. (n.d.). Population ages 0-14, male. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.0014.MA.IN> (Accessed October 21, 2020).
42. United Nations Population Division's World Population Prospects. (n.d.). Population ages 0-14, female. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.0014.FE.IN> (Accessed October 21, 2020).
43. United Nations Population Division's World Population Prospects. (n.d.). Population ages 0-14, total. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.0014.TO> (Accessed October 21, 2020).
44. United Nations Population Division's World Population Prospects. (n.d.). Population ages 0-14, percent of total population. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.0014.TO.ZS> (Accessed October 21, 2020).
45. United Nations Population Division's World Population Prospects. (n.d.). Population ages 15-64, male. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.1564.MA.IN> (Accessed October 21, 2020).
46. United Nations Population Division's World Population Prospects. (n.d.). Population ages 15-64, female. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.1564.FE.IN> (Accessed October 21, 2020).
47. United Nations Population Division's World Population Prospects. (n.d.). Population ages 15-64, total. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.1564.TO> (Accessed October 21, 2020).
48. United Nations Population Division's World Population Prospects. (n.d.). Population ages 15-64, percent of total population. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.1564.TO.ZS> (Accessed October 21, 2020).
49. United Nations Population Division's World Population Prospects. (n.d.). Population ages 65 and above, male. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.65UP.MA.IN> (Accessed October 21, 2020).
50. United Nations Population Division's World Population Prospects. (n.d.). Population ages 65 and above, female. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.65UP.FE.IN> (Accessed October 21, 2020).
51. United Nations Population Division's World Population Prospects. (n.d.). Population ages 65 and above, total. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.65UP.TO> (Accessed October 21, 2020).
52. United Nations Population Division's World Population Prospects. (n.d.). Population ages 65 and above, percent of total population. The World Bank. Available at: <https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS> (Accessed October 21, 2020).



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

53. Global Health Observatory Data Repository. (Updated 2020). Age-standardized estimates of current tobacco use, tobacco smoking and cigarette smoking - Data by country. WHO. Available at: <https://apps.who.int/gho/data/view.main.TOBAGESTDCURRv> (Accessed October 21, 2020).
54. Global Health Observatory Data Repository. (Updated 2017). Raised blood pressure (SBP ≥ 140 or DBP ≥ 90 , crude (%)) - Estimates by country. WHO. Available at: <https://apps.who.int/gho/data/view.main.2464EST> (Accessed October 21, 2020).
55. Global Health Observatory Data Repository. (Updated 2017). Raised fasting blood glucose (≥ 7.0 mmol/L or on medication)(crude estimate) - Estimates by country. WHO. Available at: <https://apps.who.int/gho/data/view.main.2469> (Accessed October 21, 2020).
56. Global Health Observatory Data Repository. (Updated 2017). Prevalence of obesity among adults, BMI >30 , crude - Estimates by country. WHO. Available at: <https://apps.who.int/gho/data/view.main.BMI30Cv> (Accessed October 21, 2020).
57. UNAIDS. (n.d.). Prevalence of HIV, total. The World Bank. Available at: <https://data.worldbank.org/indicator/SH.DYN.AIDS.ZS> (Accessed October 21, 2020).
58. Global Health Observatory. (n.d.). BCG immunization coverage among 1-year-olds (%). WHO. Available at: [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/bcg-immunization-coverage-among-1-year-olds\(-\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/bcg-immunization-coverage-among-1-year-olds(-)) (Accessed October 21, 2020).
59. Food and Agriculture Organization. (n.d.). Prevalence of undernourishment. The World Bank. Available at: <https://data.worldbank.org/indicator/SN.ITK.DEFC.ZS> (Accessed October 22, 2020).

Governance and health systems:

60. Government of Canada. (September 2020). Sri Lanka. Available at https://www.international.gc.ca/country-pays/assets/pdfs/fact_sheet-fiche_documentaire/sri_lanka-en.pdf (Accessed November 8, 2020)
61. The Gazette of the Democratic Socialist Republic of Sri Lanka (September 2015). Part I : Section (1) – General Government Notifications The Constitution of the Democratic Socialist Republic of Sri Lanka Notification. Available at: http://www.documents.gov.lk/files/egz/2015/9/1933-13_E.pdf (Accessed November 8, 2020)
62. Smith O. (2018). Sri Lanka: Achieving pro-poor universal health coverage without health financing reforms. Universal Health Coverage Study Series No. 38, World Bank Group, Washington DC. Available at <http://documents1.worldbank.org/curated/en/138941516179080537/pdf/Sri-Lanka-Achieving-pro-poor-universal-health-coverage-without-health-financing-reforms.pdf> (Accessed November 8, 2020)

Table 3: Political and health system indicators

63. Fragile States Index 2020. (n.d.). Global Data. The Fund for Peace. Available at: <https://fragilestatesindex.org/data/> (Accessed October 22, 2020).



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

64. Countries and Territories. (n.d.). Global Freedom Scores. Freedom House. Available at: <https://freedomhouse.org/countries/freedom-world/scores> (Accessed October 22, 2020).
65. Countries. (n.d.). Internet Freedom Scores. Freedom House. <https://freedomhouse.org/countries/freedom-net/scores> (Accessed October 22, 2020).
66. 2020 World Press Freedom Index. (n.d.) Reporters Without Borders. Available at: https://rsf.org/en/ranking_table?sort=asc&order=Countries%20%26%20regions. (Accessed October 22, 2020).
67. WHO Global Health Workforce Statistics (n.d.). Physicians (per 1,000 people). The World Bank. Available at: <https://data.worldbank.org/indicator/SH.MED.PHYS.ZS> (Accessed October 21, 2020).
68. WHO (n.d.). Hospital beds (per 1,000 people). The World Bank. Available at: <https://data.worldbank.org/indicator/SH.MED.BEDS.ZS> (Accessed October 21, 2020).

Pandemic Experience and Preparedness

69. World Health Organization (July 2017). Dengue fever – Sri Lanka. Available at: <https://www.who.int/csr/don/19-july-2017-dengue-sri-lanka/en/> (Accessed November 8, 2020).
70. World Health Organization (March 2005). Suspected myocarditis – Sri Lanka. Available at: https://www.who.int/csr/don/2005_03_17a/en/ (Accessed November 8, 2020).
71. Ministry of Health and Indigenous Medical Services, Sri Lanka. (April 2020). Sri Lanka preparedness & response plan. Available at: http://www.health.gov.lk/moh_final/english/public/elfinder/files/publications/2020/SP_RP.pdf (Accessed November 8, 2020).
72. Ministry of Health, Sri Lanka. (n.d.). National health laboratory policy. Available at: http://www.health.gov.lk/moh_final/english/public/elfinder/files/publications/publishpolicy/14_Health%20Laboratory.pdf (Accessed November 8, 2020).
73. Writer S. (April 2020). Everything you should know about COVID-19 testing in Sri Lanka Available at: <https://www.newsfirst.lk/2020/04/06/everything-you-should-know-about-covid-19-testing-in-sri-lanka/> (Accessed November 8, 2020).
74. Fernando D. (April 2020). RT PCR Tests! Don't we test enough in Sri Lanka? Available at: http://scientist.lk/2020/04/03/rt-pcr-tests-dont-we-test-enough-in-sri-lanka/?_cf_chl_jschl_tk_=b6a82ff6018cf5d2c295fc80a468b70a275409b8-1593463144-0-AabzpkgrxRdsZwKDUjRPqkhJ0Pi0C5ql_rOmnl5bW6E8xYrtjAkFEsrVtg6Kdv0dN7CQUEWZI2-FhRwWnby3YRMbnVCWu3RSVN3F75Q9dP9XRLhatSPqOZqJsA7k6RDM0i---i3M5Ea3ZSMMCXvkSnCf8EfVmj245BUPj0Kb_XUFEivkqTtSaODZAAASp6JwxQVt0mhNS6CeCt_TU0kkMrA37ojQIL5DdgJHBoTUfL1SRF6W6y0xIEvxdqITaNo3nJdNF53BVV7B6OrfTpZn3VyohozB41wstNnpAhUINxVPMAxETmEh9FHYVaie4KTpCupk4Fi6zQqmF2U3bzc4AT9dkvRIT4CAvVq-olWHkacj (Accessed November 8, 2020).
75. Economy Next. (April 2020). Sri Lanka coronavirus testing ramped up as Vietnam tests 94,000 in Covid-19 offensive. Available at: <https://economynext.com/sri-lanka-coronavirus-testing-ramped-up-as-vietnam-tests-94000-in-covid-19-offensive-64466/> (Accessed November 8, 2020)



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

76. DHIS2. (n.d.). Innovating DHIS2 tracker and apps for COVID-19 surveillance in Sri Lanka. Available at: <https://www.dhis2.org/sri-lanka-covid-surveillance> (Accessed November 8, 2020)

Policies and epidemiology

77. Perera J. (March 19, 2020). Dealing with COVID-19 crisis in Sri Lanka. Available at: <https://www.newagebd.net/article/102590/dealing-with-covid-19-crisis-in-sri-lanka> (Accessed November 5)
78. Jeyaratne K. (April 2020). Flattening the epidemic curve of COVID-19 in Sri Lanka: the public health response. JCCPSL 26(1): 56-64. <https://doi.org/10.4038/jccpsl.v26i1.8311> (Accessed November 5)
79. Rocha E. (January 27, 2020). Sri Lanka confirms first case of coronavirus – health official. National Post. Available at: <https://nationalpost.com/pmn/health-pmn/sri-lanka-confirms-first-case-of-coronavirus-health-official> (Accessed December 10, 2020)
80. Perera M. (March 11, 2020). First Local Coronavirus Case in Sri Lanka. Available: [http://www.asianews.it/news-en/\(South-Asia,East-Asia,China,Sri-Lanka\)-First-local-coronavirus-case-in-Sri-Lanka-49529.html](http://www.asianews.it/news-en/(South-Asia,East-Asia,China,Sri-Lanka)-First-local-coronavirus-case-in-Sri-Lanka-49529.html) (Accessed November 5, 2020)
81. Sri Lanka: Nationwide curfew implemented March 20-23/update 5. (March 20, 2020). Government implements a nationwide curfew due to COVID-19 March 23; follow authority directives. GARDAWORLD. Available at: <https://www.garda.com/crisis24/news-alerts/324931/sri-lanka-nationwide-curfew-implemented-march-20-23-update-5> (Accessed November 5, 2020)
82. Erandi K, et al. (September 22, 2020). Effectiveness of the Strategies Implemented in Sri Lanka for Controlling the COVID-19 Outbreak. *Journal of Applied Mathematics* 2020:1-10. Available at: <https://doi.org/10.1155/2020/2954519> (Accessed November 20, 2020)
83. Hettiarachchi D, et al. (November 3, 2020). Ethical Responses to the COVID-19 Pandemic – Lessons from Sri Lanka. *Asian Bioethics Review*. Available at: <https://doi.org/10.1007/s41649-020-00153-z> (Accessed December 10, 2020)
84. Official Website for Sri Lanka's Response to COVID-19. (April 20, 2020). 976 Curfew Violators Arrested. Available at: <https://covid19.gov.lk/news/law-and-order/976-curfew-violators-arrested.html> (Accessed December 10, 2020).
85. Sri Lanka to relax COVID-19 curfew starting Monday. (April 18, 2020). *Economynext*. Available at: <https://economynext.com/sri-lanka-to-relax-covid-19-curfew-starting-monday-66802/> (Accessed November 20, 2020)
86. Sri Lanka: Authorities ease curfew measures and domestic travel restrictions from May 26/update 17. (May 27, 2020). Sri Lanka authorities ease COVID-19 curfew measures and domestic travel restrictions from May 26; follow authority directives. GARDAWORLD. Available at: <https://www.garda.com/crisis24/news-alerts/345906/sri-lanka-authorities-ease-curfew-measures-and-domestic-travel-restrictions-from-may-26-update-17> (Accessed November 20, 2020).
87. Sri Lanka completely lifts coronavirus curfew as no community infection in nearly two months. (June 28, 2020). *The New Indian Express*. Available at: <https://www.newindianexpress.com/world/2020/jun/28/sri-lanka-completely-lifts->



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

[coronavirus-curfew-as-no-community-infection-in-nearly-two-months-2162628.html](https://www.bbc.com/news/world-asia-48269240)

(Accessed November 20, 2020)

88. Sri Lanka extends nationwide curfew after anti-Muslim riots. (May 15, 2019). BBC. Available at: <https://www.bbc.com/news/world-asia-48269240> (Accessed November 20, 2020)
89. World Health Organization Sri Lanka. (October 6, 2020). Towards A New Normal: nationwide COVID-19 prevention campaign. WHO. Available at: <https://www.who.int/srilanka/news/detail/06-10-2020-towards-a-new-new-normal-nationwide-covid-19-prevention-campaign> (Accessed December 10, 2020)
90. Spraying disinfectants in effort to kill coronavirus can be 'harmful', WHO says. (May 17, 2020). thejapantimes. Available at: <https://www.japantimes.co.jp/news/2020/05/17/world/science-health-world/spraying-disinfectants-coronavirus-harmful/> (Accessed December 5, 2020)
91. Director General of Health Services. (April 23, 2020). COVID-19 (New Coronavirus) Outbreak in Sri Lanka Interim Guidelines for Sri Lankan Primary Care Physicians. Available at: <https://hpb.health.gov.lk/media/pdf/interim-guidelines-primary-care.pdf> (Accessed December 5, 2020)
92. Illanperuma S. (May 22, 2020). Feature: COVID-19 spurs innovation in Sri Lanka. XINUANET. Available at: http://www.xinhuanet.com/english/2020-05/22/c_139079619.htm (Accessed December 5, 2020)
93. World Health Organization Sri Lanka. (May 2, 2020). WHO and DFAT donate vital equipment and supplies to fight COVID-19 in Sri Lanka. WHO. Available at: https://docs.google.com/document/d/1598J6w0GXfz3b6XGy4nrALZp4HZKddH_rYf77L6e_do/edit
94. Epidemiology Unit. (n.d.). Guideline for the Home quarantine/ Quarantine in non-health care settings. Ministry of Health & Indigenous Medical Services. Available at: http://www.epid.gov.lk/web/images/pdf/Circulars/Corona_virus/guidelines-ofhome-quarantine.pdf (Accessed December 5, 2020)
95. COVID-19 Outbreak. (April 8, 2020). Impact on Sri Lanka and Recommendations. Pwc. Available at: <https://www.pwc.com/lk/en/assets/COVID-19-Impact-on-Sri-Lanka-PwC.pdf> (Accessed November 20, 2020)
96. WorldAware. COVID-19 Risk Intelligence and Resource Center. (Updated daily). Available as: <https://www.worldaware.com/covid-19-risk-intelligence-and-resource-center> (Accessed November 5)
97. Sri Lanka begins PCR tests for COVID-19 at int'l airport. (June 2, 2020). XINHUANET. Available at: http://www.xinhuanet.com/english/2020-06/02/c_139108569.htm (Accessed November 20, 2020)
98. Government schools closed from tomorrow till April 20th. (March 12, 2020). Newsfirst. Available: <https://www.newsfirst.lk/2020/03/12/government-schools-closed-from-tomorrow-till-april-20th/> (Accessed November 5, 2020)
99. Jayasinghe C. Sri Lanka day-care centres to run full capacity with COVID-19 contained. (June 30). Echelon Media (PVT) Ltd. Available: <https://economynext.com/sri-lanka-day-care-centres-to-run-full-capacity-with-covid-19-contained-71576/> (Accessed November 5, 2020)



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

100. Preschools, Grade 1 and 2 to re-open on August 10. (July 1, 2020). ColomboPage. Available: http://www.colombopage.com/archive_20B/Jul01_1593625687CH.php#:~:text=July%2001%2C%20Colombo%3A%20Grade%201,10th%2C%20the%20Education%20Ministry%20announced. (Accessed November 5, 2020)
101. Schools to re-open for students from July 6. (June 9, 2020). Daily News. Available: <http://www.dailynews.lk/2020/06/09/local/220335/schools-re-open-students-july-6> (Accessed November 5, 2020)
102. Schools reopen fully in Sri Lanka. (August 10, 2020). The Tribune. Available: <https://www.tribuneindia.com/news/schools/schools-reopen-fully-in-sri-lanka-124649> (Accessed November 5, 2020)
103. All Universities to reopen from August 17. (April 12, 2020). Lanka Education. Available: <https://www.lankaeducation.com/sri-lanka-university-reopen-after-coronavirus-outbreak/> (Accessed November 5, 2020)
104. Sri Lanka new curfew rules from May 11 Monday for public, businesses – Updated. (May 11, 2020). Echelon Media (PVT) Ltd. Available: <https://economynext.com/sri-lanka-new-curfew-rules-from-may-11-monday-for-public-businesses-updated-69807/> (Accessed November 5, 2020)
105. Sri Lanka Coronavirus health guidelines for supermarkets, restaurants. (April 29, 2020). Echelon Media (PVT) Ltd. Available: <https://economynext.com/sri-lanka-coronavirus-health-guidelines-for-supermarkets-restaurants-68936/> (Accessed November 5, 2020)
106. Surgeries won't be suspended at hospitals Health Services DG. (April 18, 2020). Newsfirst. Available: <https://www.newsfirst.lk/2020/04/18/surgeries-wont-be-suspended-at-hospitals-health-services-dg/> (Accessed November 5, 2020)
107. Central Bank initiatives new schemes to support revival of economy adhering to President's guidelines. (June 2020). Information & Communication Technology Unit. Available: <https://www.presidentsoffice.gov.lk/index.php/2020/06/17/central-bank-initiates-new-schemes-to-support-revival-of-economy-adhering-to-presidents-guidelines/> (November 5, 2020)
108. Government and Institution measures in response to COVID-19. (Updated October 28, 2020). KPMG. Available at: <https://home.kpmg/xx/en/home/insights/2020/04/sri-lanka-government-and-institution-measures-in-response-to-covid.html> (Accessed November 5, 2020)
109. Participant ID 001. (2020, August). Personal Communication [Interview].
110. Sri Lanka votes in pivotal election following coronavirus delay. (2020). Deutsche Welle. Available at: <https://www.dw.com/en/sri-lanka-votes-in-pivotal-election-following-coronavirus-delay/a-54443080> (Accessed December 10, 2020)

Specific Population

111. Marasinghe, Keshini Madara (2020): Protecting older adults of Sri Lanka amid COVID-19. Advance. Preprint. <https://doi.org/10.31124/advance.11992911.v2>



Policy Frameworks and Epidemiology of COVID-19 – Sri Lanka case report

112. Jasinghe, Anil. (May 28, 2020). Care Home for Older Persons. Available at: <https://hpb.health.gov.lk/media/new-pdf/care-homes-eng.pdf> (Accessed November 5, 2020)
113. Perara M. COVID-19 has limited economic and travel opportunities of Sri Lankan migrants. (September 28, 2020). Available at: <http://www.asianews.it/news-en/COVID-19-has-limited-economic-and-travel-opportunities-of-Sri-Lankan-migrants-51154.html> (November 5, 2020)

