

# A Checklist for Safe Surgery during the COVID-19 Pandemic

M. D. Jayawardene, M. A. C. Lakmal, A. A. Pathirana

During the novel Coronavirus (COVID-19) outbreak, surgeons in Sri Lanka were confronted with the challenge of continuing surgical patient care without compromising the safety of the patient and the healthcare worker (HCW). The fiscal constraints in unreserved utilisation of PCR tests for diagnosis of COVID, the lack of availability of personal protective equipment (PPE), combined with the theoretical risk of COVID exposure to the HCW with every patient encountered tipped the balance toward an undue fear and paranoia that hindered the provision of optimum patient care.

This triggered an urgent need for a viable system in place that could not only ease the mental stress on the HCW, but also reduce the extraneous COVID testing, and the unmerited use of PPE in tandem. A standardised checklist was developed to stratify the risk of managing a surgical patient in the setting of COVID that in turn would aid the HCW to be appropriately prepared to minimise the risk of exposure.

The checklist was developed in 3 parts.

• **Part 1** - is filled by the ward doctor and it has 2 subsections.

- Priority level of surgical decision** - The patient is placed in one of the 5 priority levels based on the surgical management decision. At a glance, this provides an overall impression on the degree of priority that ought to be given for the patient's management.
- Assessment of the patient's COVID-19 status** - Based on a set of standard questions and clinical findings, this ascertains the probability of COVID in the surgical patient. A guide is included to decide the need for PCR testing based on this assessment. The patient's COVID status is then placed on a *Dichotomous chart*.

• **Part 2** - is filled by the ward nurse before sending the patient to the operation theatre (OT). It is based on a well-established nurses' preoperative checklist. As COVID-19 special preparations, a mask and chest x-ray were included.

• **Part 3** - is filled together by the anaesthetist, surgeon, and the theatre nurse at the 'patient waiting room' in the OT prior to taking the patient to the inside of the OT. In this section, a guide is included to decide the need for full PPE/intermediate protection/standard protection based on the patient's COVID status, the surgical procedure, and the mode of anaesthesia. The necessary protective equipment for the surgery is then distributed amongst the staff accordingly.

The checklist was approved for a pilot run at the CSTH and amendments were made based on the feedback. Upon approval by the College of Surgeons of Sri Lanka, it was officially introduced to Sri Lankan surgeons and distributed amongst surgical units in the country. The checklist was used widely within the surgical setup to stratify the COVID risk for the HCW, and it helped to *reduce the fear-psychosis of COVID, rationalise the PCR testing, and judiciously manage the available PPE*.

Name:	Age	BHT	Ward	<b>COVID-19 - Checklist for Surgical Patient</b>					Surgical Procedure:	Serial No:																																																																															
<table border="1"> <thead> <tr> <th colspan="2">PRIORITY LEVEL OF SURGICAL DECISION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Emergency surgery (Life/Limb/Organ saving)</td> </tr> <tr> <td>2</td> <td>Oncologic elective</td> </tr> <tr> <td>3a</td> <td>Non-oncologic elective with high morbidity &amp; mortality</td> </tr> <tr> <td>3b</td> <td>Non-oncologic elective with high morbidity</td> </tr> <tr> <td>4</td> <td>Day case and other non-urgent surgery</td> </tr> </tbody> </table>				PRIORITY LEVEL OF SURGICAL DECISION		1	Emergency surgery (Life/Limb/Organ saving)	2	Oncologic elective	3a	Non-oncologic elective with high morbidity & mortality	3b	Non-oncologic elective with high morbidity	4	Day case and other non-urgent surgery	<table border="1"> <thead> <tr> <th colspan="3">WARD NURSING OFFICER'S PREOP CHECK LIST</th> </tr> </thead> <tbody> <tr> <td>Informed written consent</td> <td>Taken</td> <td>Not taken</td> </tr> <tr> <td>Skin preparation (ie: bath)</td> <td>Done</td> <td>Not done</td> </tr> <tr> <td>Shaving</td> <td>Done</td> <td>Not done</td> </tr> <tr> <td>Surgical site marking</td> <td>Done</td> <td>Not done</td> </tr> <tr> <td>Clean clothes</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Cap</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Mask*</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Leggings/DVT Stockings</td> <td>Yes</td> <td>No</td> </tr> <tr> <td>Jewellery</td> <td>Removed</td> <td>Not removed</td> </tr> <tr> <td>Dentures</td> <td>Removed</td> <td>Not removed</td> </tr> </tbody> </table>					WARD NURSING OFFICER'S PREOP CHECK LIST			Informed written consent	Taken	Not taken	Skin preparation (ie: bath)	Done	Not done	Shaving	Done	Not done	Surgical site marking	Done	Not done	Clean clothes	Yes	No	Cap	Yes	No	Mask*	Yes	No	Leggings/DVT Stockings	Yes	No	Jewellery	Removed	Not removed	Dentures	Removed	Not removed	<table border="1"> <thead> <tr> <th colspan="3">AT THE OT BEFORE PATIENT IS TAKEN INSIDE</th> </tr> </thead> <tbody> <tr> <td colspan="3"><b>RECONFIRM COVID-19 STATUS</b></td> </tr> <tr> <td>COVID-19 Confirmed/Clinically Likely</td> <td></td> <td><b>A</b></td> </tr> <tr> <td>COVID-19 Tested Negative/Clinically Unlikely</td> <td></td> <td><b>B</b></td> </tr> <tr> <td>Mode of Anaesthesia or Surgical Procedure likely being an AGP** (Aerosol Generating Procedure)</td> <td>Likely</td> <td>Unlikely</td> </tr> <tr> <td></td> <td><b>C</b></td> <td><b>D</b></td> </tr> <tr> <td><b>A</b></td> <td><b>Full PPE Kit indicated</b></td> <td></td> </tr> <tr> <td><b>B + C</b></td> <td><b>Intermediate Protection***</b></td> <td></td> </tr> <tr> <td><b>B + D</b></td> <td><b>Standard Protection</b></td> <td></td> </tr> </tbody> </table>		AT THE OT BEFORE PATIENT IS TAKEN INSIDE			<b>RECONFIRM COVID-19 STATUS</b>			COVID-19 Confirmed/Clinically Likely		<b>A</b>	COVID-19 Tested Negative/Clinically Unlikely		<b>B</b>	Mode of Anaesthesia or Surgical Procedure likely being an AGP** (Aerosol Generating Procedure)	Likely	Unlikely		<b>C</b>	<b>D</b>	<b>A</b>	<b>Full PPE Kit indicated</b>		<b>B + C</b>	<b>Intermediate Protection***</b>		<b>B + D</b>	<b>Standard Protection</b>								
PRIORITY LEVEL OF SURGICAL DECISION																																																																																									
1	Emergency surgery (Life/Limb/Organ saving)																																																																																								
2	Oncologic elective																																																																																								
3a	Non-oncologic elective with high morbidity & mortality																																																																																								
3b	Non-oncologic elective with high morbidity																																																																																								
4	Day case and other non-urgent surgery																																																																																								
WARD NURSING OFFICER'S PREOP CHECK LIST																																																																																									
Informed written consent	Taken	Not taken																																																																																							
Skin preparation (ie: bath)	Done	Not done																																																																																							
Shaving	Done	Not done																																																																																							
Surgical site marking	Done	Not done																																																																																							
Clean clothes	Yes	No																																																																																							
Cap	Yes	No																																																																																							
Mask*	Yes	No																																																																																							
Leggings/DVT Stockings	Yes	No																																																																																							
Jewellery	Removed	Not removed																																																																																							
Dentures	Removed	Not removed																																																																																							
AT THE OT BEFORE PATIENT IS TAKEN INSIDE																																																																																									
<b>RECONFIRM COVID-19 STATUS</b>																																																																																									
COVID-19 Confirmed/Clinically Likely		<b>A</b>																																																																																							
COVID-19 Tested Negative/Clinically Unlikely		<b>B</b>																																																																																							
Mode of Anaesthesia or Surgical Procedure likely being an AGP** (Aerosol Generating Procedure)	Likely	Unlikely																																																																																							
	<b>C</b>	<b>D</b>																																																																																							
<b>A</b>	<b>Full PPE Kit indicated</b>																																																																																								
<b>B + C</b>	<b>Intermediate Protection***</b>																																																																																								
<b>B + D</b>	<b>Standard Protection</b>																																																																																								
<table border="1"> <thead> <tr> <th colspan="2">ASSESS COVID-19 STATUS</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>History of being quarantined OR Constant exposure to a personnel involved in essential services (e.g., medical)</td> </tr> <tr> <td>B</td> <td>Close contact with a confirmed/suspected COVID-19 patient or quarantined person during last 14 days</td> </tr> <tr> <td>C</td> <td>History of travel to/residence in a COVID-19 high transmission area in Sri Lanka OR Not having a minimum of 14 days of home lockdown</td> </tr> <tr> <td>D</td> <td>Acute respiratory symptoms (cough/sore throat/SOB)</td> </tr> <tr> <td>E</td> <td>Fever (without another infective focus)</td> </tr> <tr> <td>F</td> <td>Acute pneumonia</td> </tr> <tr> <td>G</td> <td>Acute respiratory distress (RR&gt;30, SpO<sub>2</sub> &lt;90%) without a definite cause</td> </tr> </tbody> </table>				ASSESS COVID-19 STATUS		A	History of being quarantined OR Constant exposure to a personnel involved in essential services (e.g., medical)	B	Close contact with a confirmed/suspected COVID-19 patient or quarantined person during last 14 days	C	History of travel to/residence in a COVID-19 high transmission area in Sri Lanka OR Not having a minimum of 14 days of home lockdown	D	Acute respiratory symptoms (cough/sore throat/SOB)	E	Fever (without another infective focus)	F	Acute pneumonia	G	Acute respiratory distress (RR>30, SpO <sub>2</sub> <90%) without a definite cause	<table border="1"> <thead> <tr> <th colspan="5">INVESTIGATION REPORTS</th> </tr> </thead> <tbody> <tr> <td>Grp &amp; DT</td> <td>CXR*</td> <td>ECG</td> <td>CBS</td> <td>Urine Sugar</td> </tr> <tr> <td>Other X-rays</td> <td>USS</td> <td>CT</td> <td>MRI</td> <td>2D Echo</td> </tr> <tr> <td colspan="5">Other reports</td> </tr> <tr> <td colspan="5">Patient kept fasting from</td> </tr> <tr> <td colspan="5">Premedication:</td> </tr> <tr> <td colspan="5">Special medical orders carried out:</td> </tr> <tr> <td>Vital signs at</td> <td>PR</td> <td>RR</td> <td>BP</td> <td>Temp</td> </tr> <tr> <td>I.D. Band</td> <td>Attached</td> <td>Not attached</td> <td colspan="2"></td> </tr> <tr> <td>Patient sent to</td> <td>OT</td> <td>at</td> <td>BHT</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td>with</td> <td>O.C. File</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Other items</td> </tr> <tr> <td colspan="2"><b>Ward N.O. sending the patient</b></td> <td colspan="3"><b>OT N.O. receiving the patient</b></td> </tr> </tbody> </table>					INVESTIGATION REPORTS					Grp & DT	CXR*	ECG	CBS	Urine Sugar	Other X-rays	USS	CT	MRI	2D Echo	Other reports					Patient kept fasting from					Premedication:					Special medical orders carried out:					Vital signs at	PR	RR	BP	Temp	I.D. Band	Attached	Not attached			Patient sent to	OT	at	BHT					with	O.C. File					Other items	<b>Ward N.O. sending the patient</b>		<b>OT N.O. receiving the patient</b>		
ASSESS COVID-19 STATUS																																																																																									
A	History of being quarantined OR Constant exposure to a personnel involved in essential services (e.g., medical)																																																																																								
B	Close contact with a confirmed/suspected COVID-19 patient or quarantined person during last 14 days																																																																																								
C	History of travel to/residence in a COVID-19 high transmission area in Sri Lanka OR Not having a minimum of 14 days of home lockdown																																																																																								
D	Acute respiratory symptoms (cough/sore throat/SOB)																																																																																								
E	Fever (without another infective focus)																																																																																								
F	Acute pneumonia																																																																																								
G	Acute respiratory distress (RR>30, SpO <sub>2</sub> <90%) without a definite cause																																																																																								
INVESTIGATION REPORTS																																																																																									
Grp & DT	CXR*	ECG	CBS	Urine Sugar																																																																																					
Other X-rays	USS	CT	MRI	2D Echo																																																																																					
Other reports																																																																																									
Patient kept fasting from																																																																																									
Premedication:																																																																																									
Special medical orders carried out:																																																																																									
Vital signs at	PR	RR	BP	Temp																																																																																					
I.D. Band	Attached	Not attached																																																																																							
Patient sent to	OT	at	BHT																																																																																						
			with	O.C. File																																																																																					
				Other items																																																																																					
<b>Ward N.O. sending the patient</b>		<b>OT N.O. receiving the patient</b>																																																																																							
<p><b>Suspected case</b> (Obtain medical opinion)</p> <p>A/B/C + D/E F G</p> <p>COVID-19 Suspected → COVID-19 Unlikely</p> <p>Not Tested → Tested → COVID-19 Confirmed / Test Negative</p> <p>Doctor's name &amp; signature:</p>				<table border="1"> <thead> <tr> <th colspan="4">PERSONAL PROTECTIVE EQUIPMENT</th> </tr> <tr> <th>Type of PPE</th> <th>Anaesthetist</th> <th>Surgeon</th> <th>Scrub Nurse</th> </tr> </thead> <tbody> <tr> <td>Full PPE Kit</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Gown</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Double Gloves</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Visor/Goggles</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Plastic Apron</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Surgical Masks (Single/Double)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>Boots</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>						PERSONAL PROTECTIVE EQUIPMENT				Type of PPE	Anaesthetist	Surgeon	Scrub Nurse	Full PPE Kit				Gown				Double Gloves				Visor/Goggles				Plastic Apron				Surgical Masks (Single/Double)				Boots																																															
PERSONAL PROTECTIVE EQUIPMENT																																																																																									
Type of PPE	Anaesthetist	Surgeon	Scrub Nurse																																																																																						
Full PPE Kit																																																																																									
Gown																																																																																									
Double Gloves																																																																																									
Visor/Goggles																																																																																									
Plastic Apron																																																																																									
Surgical Masks (Single/Double)																																																																																									
Boots																																																																																									
<table border="1"> <thead> <tr> <th colspan="3">ADDITIONAL PROTECTIVE DEVICES</th> </tr> </thead> <tbody> <tr> <td>Barrier Intubation Chamber</td> <td>Available</td> <td>Unavailable</td> </tr> <tr> <td>Smoke Evacuator/Suction</td> <td>Available</td> <td>Unavailable</td> </tr> </tbody> </table>				ADDITIONAL PROTECTIVE DEVICES			Barrier Intubation Chamber	Available	Unavailable	Smoke Evacuator/Suction	Available	Unavailable	<p>**Anaesthetic AGP → Endotracheal intubation/extubation, Mask ventilation, Supraglottic airway insertion/removal, Open suctioning, Nebulisation</p> <p>**Surgical AGP → Surgery with high speed devices (i.e.: bone drills, pulse lavage), Surgery involving the airway (i.e.: tracheostomy)</p> <p>***Intermediate Protection → Gown, Double Gloves, Visor/Goggles, Boots, Impermeable apron extending beyond upper border of boots, Two surgical masks</p> <p>Based on Guidelines by College of Surgeons of Sri Lanka - Guidelines for Providing Surgical Care During the COVID epidemic (April 2020) and College of Anaesthesiologists &amp; Intensivists of Sri Lanka - Interim guidelines on intubation of a suspected or positive patient with COVID-19 (April 2020)</p>																																																																												
ADDITIONAL PROTECTIVE DEVICES																																																																																									
Barrier Intubation Chamber	Available	Unavailable																																																																																							
Smoke Evacuator/Suction	Available	Unavailable																																																																																							