

2020

**HANDBOOK OF PEDIATRIC COVID – 19
INFECTION PREVENTION & CONTROL
FOR HEALTHCARE WORKERS**



**THE CHILDREN'S HOSPITAL &
THE INSTITUTE OF CHILD HEALTH LAHORE**





Preface

The medical profession has never confronted a situation like this in the recent history of mankind. COVID-19 endemic which started from Wuhan, China in December 2019 has become an international human crisis. Thousands of people have died all over the world and millions have been so far infected with this deadly virus. The government reacted in time and has already taken necessary measures to prevent the spread of this virus to overcome this crisis. We need to interrupt the human-to-human transmission as no definitive treatment is yet available. Serious consideration should be given regarding contact not only with other people but also in handling objects present at public places. Healthcare providers, who are our heroes, being the most vulnerable part of the society since they are in close contact with the patients being admitted in the hospital, need to be educated in this aspect. Following guidelines have been prepared by a panel of senior experts of The Children's Hospital and Institute of Child Health, Lahore, especially for health care providers working at all levels, which are also very useful for public at large. The recommendations of CAEC have also been Incorporated.

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Contents

Chapter	Topic	Page
1.	Background & Modes Of Transmission	6
2.	Case Definition of COVID 19	7
	2.1. Definitions for pediatric age group.	7
	2.2. Definitions for neonatal age group.	8
3.	Standard Operating Procedures For Covid-19 Patients	10
	3.1 General Principles	10
	3.2. SOPs Of A Model Quarantine Facility	11
	3.3 & 3.4. Isolation room and Isolation ward	12
	3.5 High dependency unit (HDU)	13
4.	Covid-19 Screening. Recommendations for OPD, Indoor and Emergency Services	14
5.	Covid-19 Testing /Triage/Yield of Different Specimens	16
6.	Triage Algorithm: Triage Of Corona Ward	18
7.	Treatment Algorithm For Pediatric Age Group	19
8.	Treatment Algorithm For Neonatal Age Group	20
	8.2 Guidelines on feeding and care of neonate by mother	21
9.	Surgical Protocols During Corona Pandemic	22
	9.1. Guidelines For The Surgical Patients In Wards	22
	9.2. SOP's For Operation Theatres	23
	9.3. Staff Safety Guidelines	24
	9.4. Algorithm: Guideline for Operation Theater	25
	9.4. Intercollegiate General Surgery Guidance COVID 19	26
10.	Safety Guidelines For Health Care Providers	27
	10.1. Protocols PPE for healthcare providers:	27
	10.2. Personal Protective Equipment's	29,30
	10.3. SOP's for HCW In Corona Ward Children's Hospital LHR	31
11.	Hand Washing Techniques	32
12.	Donning and Doffing Method:	33
	12.1. Sequence for Putting on PPEs	34
	12.2 How to Safely Remove PPEs	35
13.	Essential Precautions for Frontline Healthcare Staff	36
	13.1. Advice to Healthcare Personnel.	36
	13.2. Protocols for Protection at Returning Home	37
	13.3. Daily Prevention Flyer	38
14.	Infection Control Protocols For COVID-19	39
15.	Guidelines for imaging COVID-19 patients	42
16.	Home Quarantine Instructions	45
17.	Outcome/prognosis	46

Chapter 1

Background

1.1 SARS-COV-2

COVID-19 is a highly contagious disease caused by the most recently discovered COVID-19 virus. It primarily involves respiratory system that in its severe form may cause pneumonia and respiratory compromise. The etiologic agent, COVID-19 virus is a new type of corona virus which was initially given the name '2019 novel coronavirus' (2019-nCoV) and later renamed on February 11, 2020 as 'severe acute respiratory syndrome coronavirus 2 (**SARS-CoV2**) or **COVID-19 virus**'. The virus can infect frequently adults rarely children and very rarely neonates as only few cases have been reported in literature. It was first identified in Wuhan, China on December 2019. Initially thought to be transmitted, from bats to humans but transmission from Human-to-Human is main source of disease. Recently droplet infection has proved to be the source of spread.

1.2: Modes of transmission:

- Direct contact and droplets by airborne; possible feco-oral transmission is under investigation
- Incubation period: 5-14 days
- Spectrum of Infection: Mild respiratory illness to pneumonia/acute respiratory distress syndrome
- Mild symptoms in ~80% of cases; mortality 2-3%

Chapter 2.

Case Definitions:

2.1: Definitions For Pediatric Age Group

2.1.1: Suspect case

1. A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), and a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset (includes international travel and other local endemic areas.)

OR

2. A patient with any acute respiratory illness and having been in contact with a confirmed or probable COVID-19 case (see definition of contact) in the last 14 days prior to symptom onset;

OR

3. A patient with severe acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath; and requiring hospitalization) and in the absence of an alternative diagnosis that fully explains the clinical presentation.

2.1.2: Probable case

- A suspect case for whom testing for the COVID-19 virus is inconclusive

OR

- A suspect case for whom testing could not be performed for any reason.

2.1.3: Confirmed case

A person with laboratory confirmation of COVID-19 infection (PCR positive), irrespective of clinical signs and symptoms.

2.1.4: Definition of contact

• A contact is a person who experienced any one of the following exposures during the 2 days before and the 14 days after the onset of symptoms of a probable or confirmed case:

1. Face-to-face contact with a probable or confirmed case within 1 meter and for more than 15 minutes;
2. Direct physical contact with a probable or confirmed case;
3. Direct care for a patient with probable or confirmed COVID-19 disease without using proper personal protective equipment;

OR

4. Other situations as indicated by local risk assessments.

Note: for confirmed asymptomatic cases, the period of contact is measured as the 2 days before through the 14 days after the date on which the sample was taken which led to confirmation

2.2: Definitions For Neonatal Age Group

2.2.1. Suspected COVID-19

- Neonates born to the mothers with history of COVID-19 between 14 days prior to delivery and 28 days after delivery,
OR
- Neonates with history of exposure to persons (family members, visitors, attendant etc.) with confirmed or suspected COVID-19

2.2.2. Confirmed COVID-19

1. Respiratory tract swabs or blood specimens tested by real-time fluorescence PCR (RT-PCR) are positive for COVID-19 nucleic acid.
2. Virus gene sequencing of the respiratory tract or blood specimens that is highly homologous to known COVID-19 specimens.

2.2.3. Suggestive clinical features

- Temperature instability (hyper or hypothermia)
- Tachypnea
- Grunting
- Nasal flaring
- Apnea
- Cough
- Tachycardia
- Poor feeding
- Lethargy
- Vomiting
- Diarrhea
- Abdominal distension

2.2.4. Supportive laboratory findings

1. Laboratory examinations may be non-specific.
2. Complete blood count (CBC)
 - a. TLC (normal or decreased)
 - b. DLC (decreased lymphocyte count)
 - c. Platelet count (mild thrombocytopenia)
3. ALP, AST, LDH (elevated)
4. RT-PCR positive for COVID-19 virus in upper respiratory tract (nasopharyngeal and oropharyngeal) or lower respiratory tract (endotracheal aspirate or bronchoalveolar lavage), blood and stool.

2.2.5. Radiographic findings

- Chest x-ray/lung ultrasound (may show pneumonia)
- Abdominal radiography (may show intestinal ileus)

Chapter 3.

Standard Operating Procedures

For Covid-19 Patients:

3.1. General principles.

1. The Committee held a meeting on 23rd March, 2020 at The Department of Specialized Health Care, Government of Punjab.
2. After detailed deliberation on the existing situation of COVID-19 and the potential risk of expected high burden of the patient in Punjab, following recommendations were finalized:
 - i. The Hospital/biomedical waste will be strictly managed as per Hospital Waste Management Rules, 2014.
 - ii. All the international travelers (except from Africa) will be sent to Quarantine facilities and will be retained there for 14 days.
 - iii. **Registration** and Testing (PCR) will be done for all suspected cases
 - All hospitals equipped with HDUs will receive suspected patients from the general public. These will be registered, screened and examined at Triage/ Filter Desks. If any patient falls within the Case Definition above, he/she will be admitted to the Isolation Room.
 - Samples from all patients, thus admitted, shall be obtained in the prescribed manner by a trained official and sent to the Laboratory for PCR test.
 - Any person who *Tests Positive* for Covid-19, he/she will be quarantine him/herself in Govt facility for next 14 days; will be provided Quarantine Instructions (page 36), shift to isolation ward/HDU as required in case of any medical complication and deterioration in clinical signs.
 - Any person, who is contacted after being traced because he/she returned recently from Iran, China, Europe, USA or

Kingdom of Saudi Arabia, or from any other country where Covid-19 has reported, showing signs and symptoms of corona disease, shall be shifted to nearby Quarantine Facility and tested for the disease.

3.2. SOPs of a Model Quarantine Facility:

- a. One room for one person. No common halls.
- b. Facility of distribution of meals to individual rooms by dedicated personnel observing all PPEs.
- c. Appropriate facilities for hand washing/Hand hygiene will be provided.
- d. Registration, Screening (as per case definition) will be done at these facilities. Testing (PCR) will be done for all symptomatic people at Quarantine. Samples will be collected, labeled and transported to designated laboratories by staff of Rescue 1122.
- e. Once the test comes POSTIVE, these cases to be shifted to COVID-19 ward/HDUs for further management.
- f. Dedicated ambulance of 1122 to be made available for the sole purpose of transportation of patients form Quarantine to Isolation at hospitals.
- g. Waste generated at Quarantine facilities will be segregated, collected, transported and disposed of as per Hospital Waste Management Rules, 2014.
- h. Non-critical patient-care equipment (e.g. stethoscope, thermometer, blood pressure cuff and sphygmomanometer) to the individuals will be provided. adequate equipment required for cleaning/disinfection will be provided for individual room. Thorough daily cleaning of each room will be ensured as per infection control SOP's.
- i. The room attendants will ensure use of proper PPEs for contacting and attending the inmate.
- j. No visitors/family members from outside will be allowed inside

this Quarantine facility.

- k. Psychologist should be available for necessary counseling of the patient.
1. All the Hospitals will establish a Triage/Filter Clinic for self-reporting patients. The Desks established will segregate/isolate the patients on the basis of symptoms, history of contact and travel and will be guided accordingly.
2. The Committee further recommended to establish **Isolation Rooms, Isolation Wards and High Dependency Units** in the dedicated buildings/blocks of all public sector hospitals.

Following will be the SOPs for said facilities:

3.3. Isolation Rooms

1. All the conditions mentioned for Model Quarantine Facility will be applicable for Isolation rooms.
2. The guidelines for the use of PPEs will be followed strictly.
3. All the patients with symptoms (as per Case Definition as Annexed), and positive contact/travel history will be kept in the Isolation and will be managed symptomatically.
4. Samples for PCR testing will be obtained and sent at the Day 1 and the patient will be kept till the result of PCR.
5. In case of Test Positive the patient will either stay in room or be shifted to **Isolation Ward** as required.
6. In case of developing Shortness of Breath (SOB) or any other life-threatening complication or on the basis of clinical assessment, the patient will be shifted to High Dependency Unit (HDU).
7. Hospital Administration will ensure the implementation of all hospital safety protocols for cross infection control and barrier the transmission for minimizing the risk.

3.4. Isolation Ward

1. This facility will be preferably located away or completely isolated

from the main hospital building, having separate entry and exit and preferably near to the isolation rooms.

2. Only the (PCR) **Test Positive** patients will be shifted/ kept here.
3. Once the facility is occupied to 50% of the capacity, the patients will be shifted to dedicated facilities (as declared) by the Department.
4. Stable patients, not requiring any supportive treatment would stay here.
5. In Case any patient gets unstable, develops shortness of breath or advised so by the clinical consultant will be shifted to HDU.

3.5. High Dependency Unit (HDU)

As per already given instructions by this Department, HDUs will be equipped with all facilities for the management of unstable patients. HDU will be equipped with Ventilator, Cardiac monitor, Oxygen, Resuscitation equipment, lifesaving drugs, disposables, portable X-rays & Ultrasound and other diagnostic equipment.

Chapter 4

COVID-19 Screening:

4.1. Recommendations for OPD & Emergency Services:

- First screening of all patients will be done at OPD and emergency gates.
- Healthcare providers will be allocated at the OPD and emergency gates (appointed in shifts not more than 6 hours)
- Duties of these healthcare providers are as under.
 - Take temperature of every patient.
 - Ask relevant history of travel (Iran, Italy, China or other endemic areas) or contact with any such person.
 - History of fever, persistent cough or breathing difficulty.
- If history is positive, the patient will be sent to corona desk for screening (outside main building).
- If history is negative, then a mark with some marking will be made on thumb and then sent to OPD, ward or emergency as required.
- Only those attendants who have mark on thumb will be allowed to stay/visit the patients in the wards.
- Second screening will be done at surgical or medical OPD.
- Third Screening will be done at ward/operating room.
- Only one attendant will be allowed to enter with the patients having mark on thumb.
- Healthcare providers will wear mask and use hand sanitizers all the time.
- For the best benefits of healthcare providers all patients' attendants will wear mask after entering premises of the hospital.
- At entrance of the hospital there will be a board with request to help and co-operate the healthcare providers for prevention of corona virus.

4.2. Out Door Patient

1. All the patients coming to OPD will be screened for temperature.
2. In OPD a separate room near entrance will be allocated where all patients having signs and symptoms of respiratory infection will be filtered.
3. A proper mechanical distance between the Doctor and Suspected patient will be assured by glass wall and communication will be done by mike and speaker.
4. Attending personnel's will be provided with adequate PPEs
5. If any patient is suspected of having Corona virus will be shifted directly to the isolation room/ward which is already built as per Govt Policy.

4.3. Indoors.

1. One patient one attendant policy will be followed
2. All health care professionals in wards will be provided with masks or equipment as CEAG recommendation (page 22).
3. Ward to ward policies to avoid overcrowding of Doctors and staff will be made.

4.4. Emergency services.

1. All the patients coming to OPD will be screened for temperature.
2. Trauma doctors directly attending the patients will be provided with N95 masks for safety.
3. It is responsibility of the Director Emergency to provide masks to all other health care providers on daily basis as per CEAG recommendation (page 22)..
4. If any patient is suspected of having corona will be shifted directly to isolation ward.

Chapter 5.

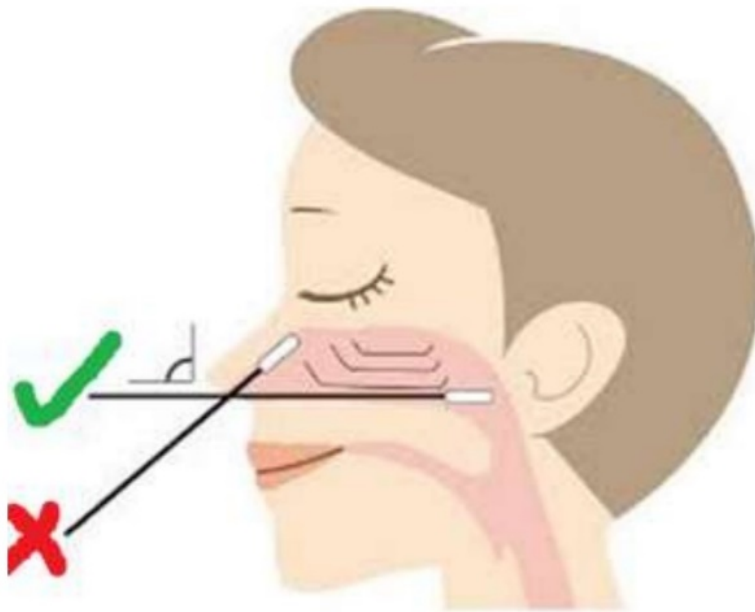
COVID-19 Testing

5.1 Who should be tested for COVID-19?

- Patients meeting the case definition

5.2. What COVID-19 test are we performing?

- PCR on nasopharyngeal swab
- Nasopharyngeal swab must be collected as shown in the diagram below



-
- Additionally, 5 ml of blood must be drawn in a purple top vial and transported to the lab for storage as per NIH guidelines

5.3. Yield of Different Swab/ Specimen Positivity.

Corona testing positivity rates- Journal of American Medical Association (JAMA)		
Sl No	Type of specimen	Positive %
1	Bronchoalveolar lavage fluid	93 %
2	Fibrobronchoscope brush biopsy	46 %
3	Sputum	72 %
4	Nasal swabs	63 %
5	Pharyngeal swabs	32 %
6	Feces	29 %
7	Blood	1 %
8	Urine	0 %

Note: Nasal swab will detect only 2/3rd of cases and pharyngeal swabs will detect only 1/3rd of cases and Nasal swab testing is better of two for unadmitted patients

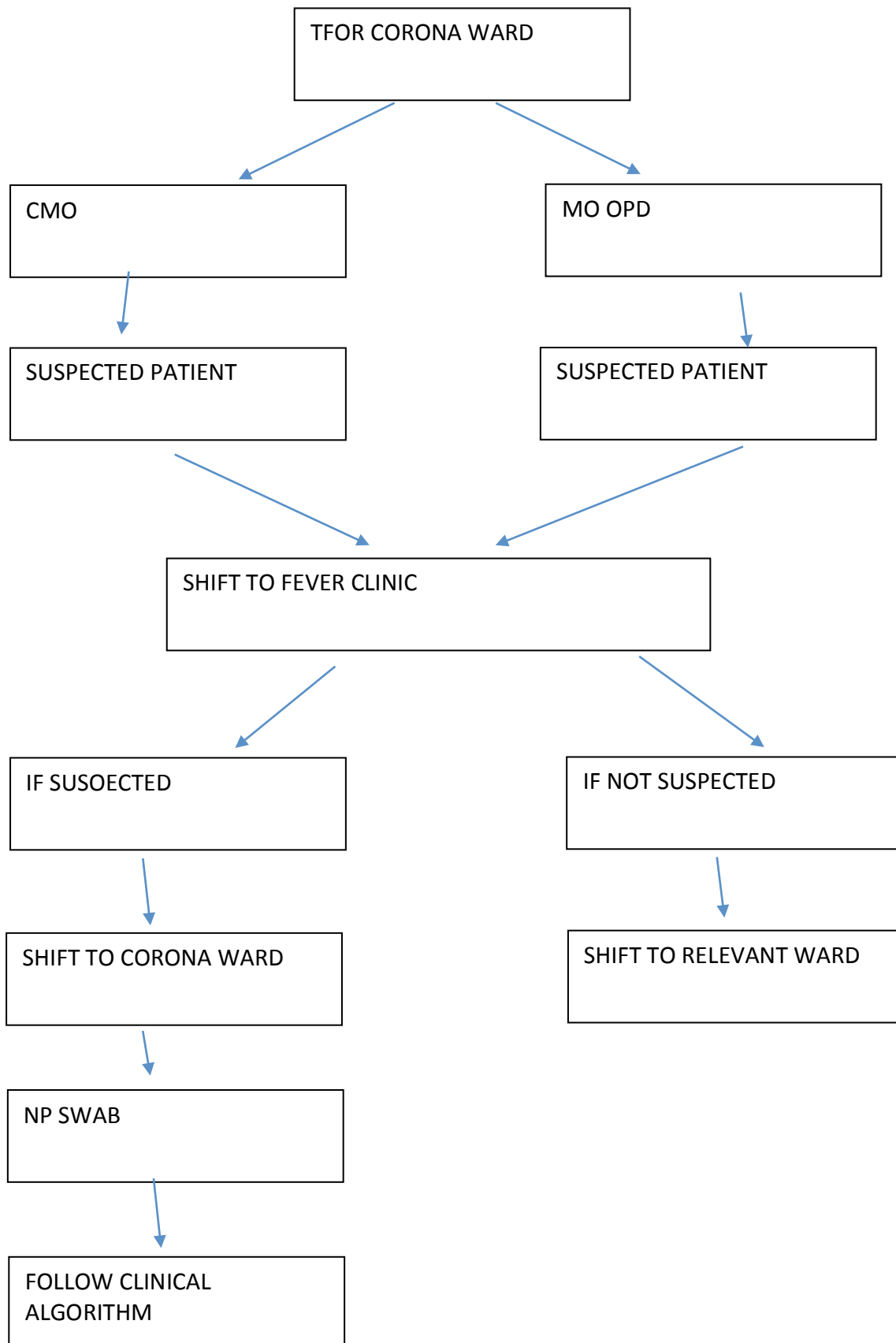
Ref: Detection of SARS-CoV-2 in Different Types of Clinical Specimens

Wenling Wang, Yanli Xu, Ruqin Gao, Roujian Lu, Kai Han, Guizhen Wu, Wenjie Tan

JAMA. 2020 Mar 11 : e203786. Published online 2020 Mar

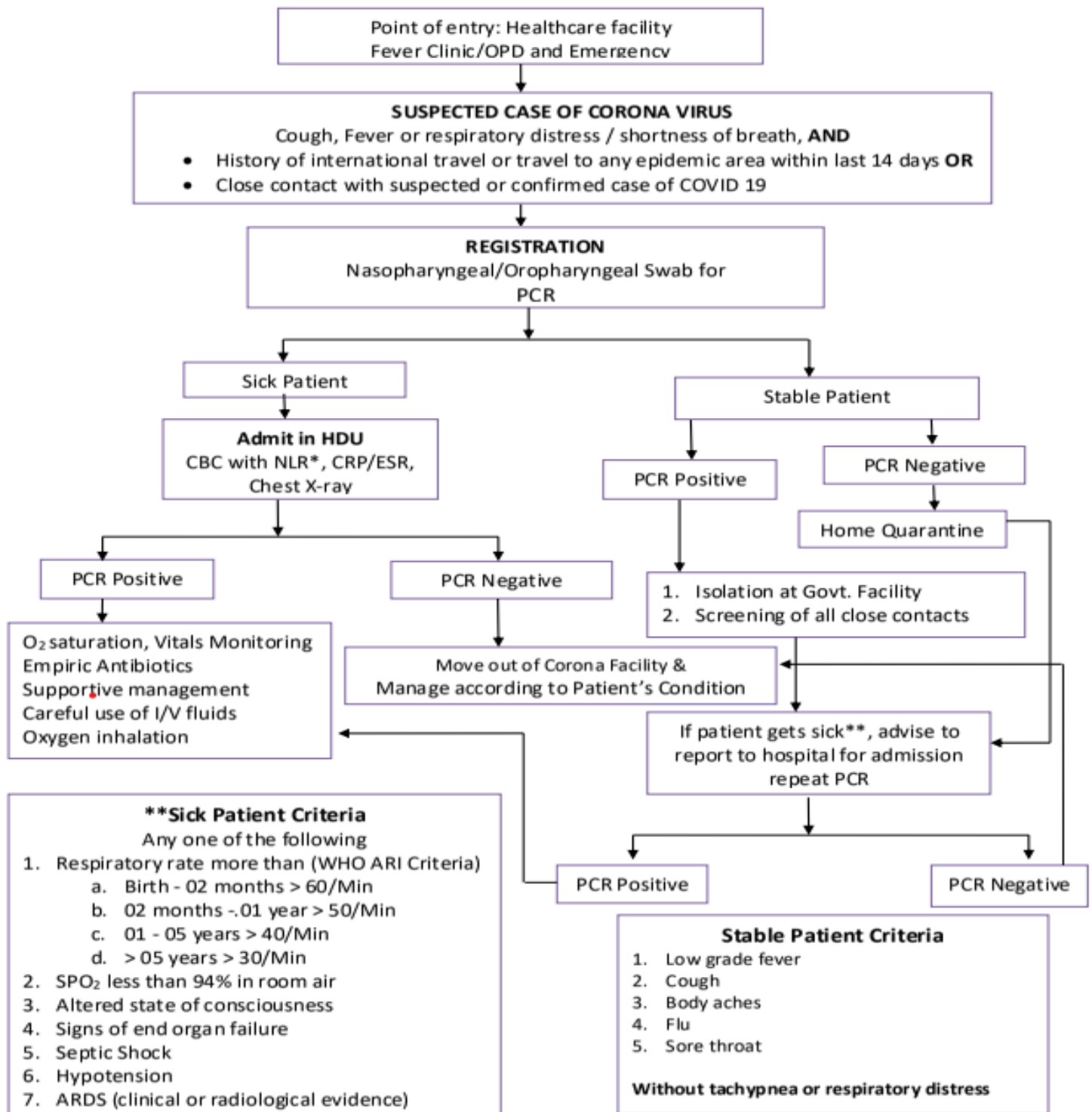
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Chapter 6 Triage Algorithm



Chapter 7. Pediatric Patient Management

ALGORITHM FOR PEDIATRIC AGE GROUP----- COVID-19

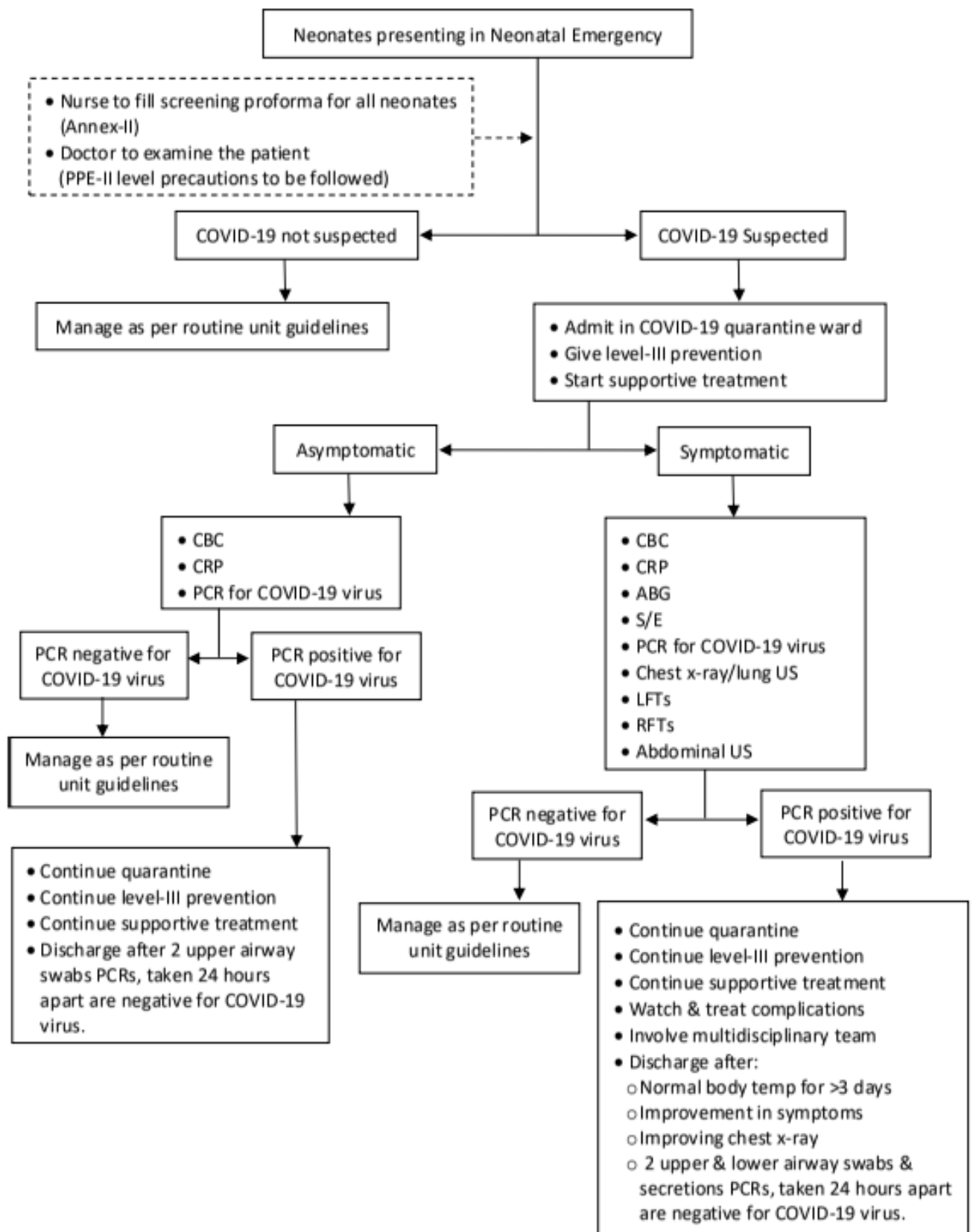


Go home therapy: Self isolation, Rest, Monitor temperature, Antipyretics, Oral Fluids, Hand Washing, No Steroids and No Ibuprofen

*NLR (Increased Neutrophil: Lymphocytic count ratio, 3.13 cutoff values)

Chapter 8. Neonatal Patient Management

MANAGEMENT APPROACH FOR COVID-19 IN NEONATES



8.2. Guidelines on feeding and care of neonate by mother having COVID-19:

- Currently, there is no evidence for vertical transmission of virus to neonates in women who develop COVID-19 in late pregnancy.
- In addition, evidence does not support presence of COVID- 19 virus in breast milk of these mothers.
- However, postnatal transmission through infective air borne droplets pose a risk of transmission.
- Benefits of breast-feeding outweigh any potential risks of transmission of the virus through breast milk.
- The risks and benefits of breastfeeding, including the risk of holding the baby by the mother and required infection prevention & control (IPC) measures should be discussed with her.
- Neonates born to mothers with suspected, probable or confirmed COVID-19 infection, can be fed according to standard infant feeding guidelines, while applying necessary precautions for IPC.

Chapter 9

Surgical Protocols During Corona Pandemic

In view of the global Public Health Emergency, COVID-19 (Corona Virus Pandemic), the competent authority, as a part of National Emergency Response, has hereby decided the following strategies for surgical floors to ensure public and staff safety in The Children's Hospital & The Institute of Child Health, Lahore. These decisions have been taken in the best public interest till further orders and the situation will be kept under review on ongoing basis.

9.1 Guidelines For The Surgical Patients In Wards:

- There will be strictly one patient on each bed.
- There will be one accompanied attendant only.
- Relevant history from attendant will be taken regarding fever, cough or travel history (China, Iran, Italy or Corona Centers or other local endemic areas), if positive, will be referred back with precaution to corona desk.
- Emergency cases will be given priority over the elective cases during pandemic.
- Each surgical specialty will rationalize the elective procedures/surgeries.
- There will be minimum number of the patient attendants in the ward and attendants will be educated about cross infection.
- The stay of patients will be kept as short as possible.
- Daily disinfection of floor and hardware of all OT's will be ensured.
- Separate spaces will be dedicated in wards, ICU and other areas for suspected cases if needed **but preferably shifted to corona isolation room if available.**
- A team of trained doctors and paramedical staff will be appointed to take care for suspected cases.

- Single use or dedicated equipment (stethoscope, BP cuff and thermometer) will be used with proper care and after sterilization.
- If equipment needs to be shared it will be cleaned and disinfected/sterilized between usages.
- Stoppage of unnecessary movement and transportation of patients from one area to another will be ensured.
- Healthcare worker who are transporting patients will perform strict hand hygiene and protective measures.

9.2. SOP'S For Operation Theatres:

- At entrance of the hospital there will be a signboard with request to help and co-operate with the healthcare providers for prevention of unnecessary exposure to infected patients.
- Screening will be done at entrance of OT.
- If patient is having fever $> 100.4F$, persistent cough or travel history (Iran, China, Italy) will not be scheduled for surgery and will be referred to CORONA desk.
- All Health Care Workers will wear provided facemask and necessary equipment as per CEAG recommendation.
- Alcohol based sanitizers will be used in each operating room for personal hygiene.
- All OT tables and surfaces will be cleaned with alcohol-based liquids/ bleach (1:5 dilution) after each use.
- Patients will be allowed to come one by one for pre-operative assessment.
- N-95 Masks and PPE will be used for all known or suspected cases of COVID-19
- The number of staff members present in OT for intubation/extubation will be limited to reduce the risk of encounter with the patients having mark on thumb.
- Healthcare providers will wear a mask and use hand sanitizers all the time.

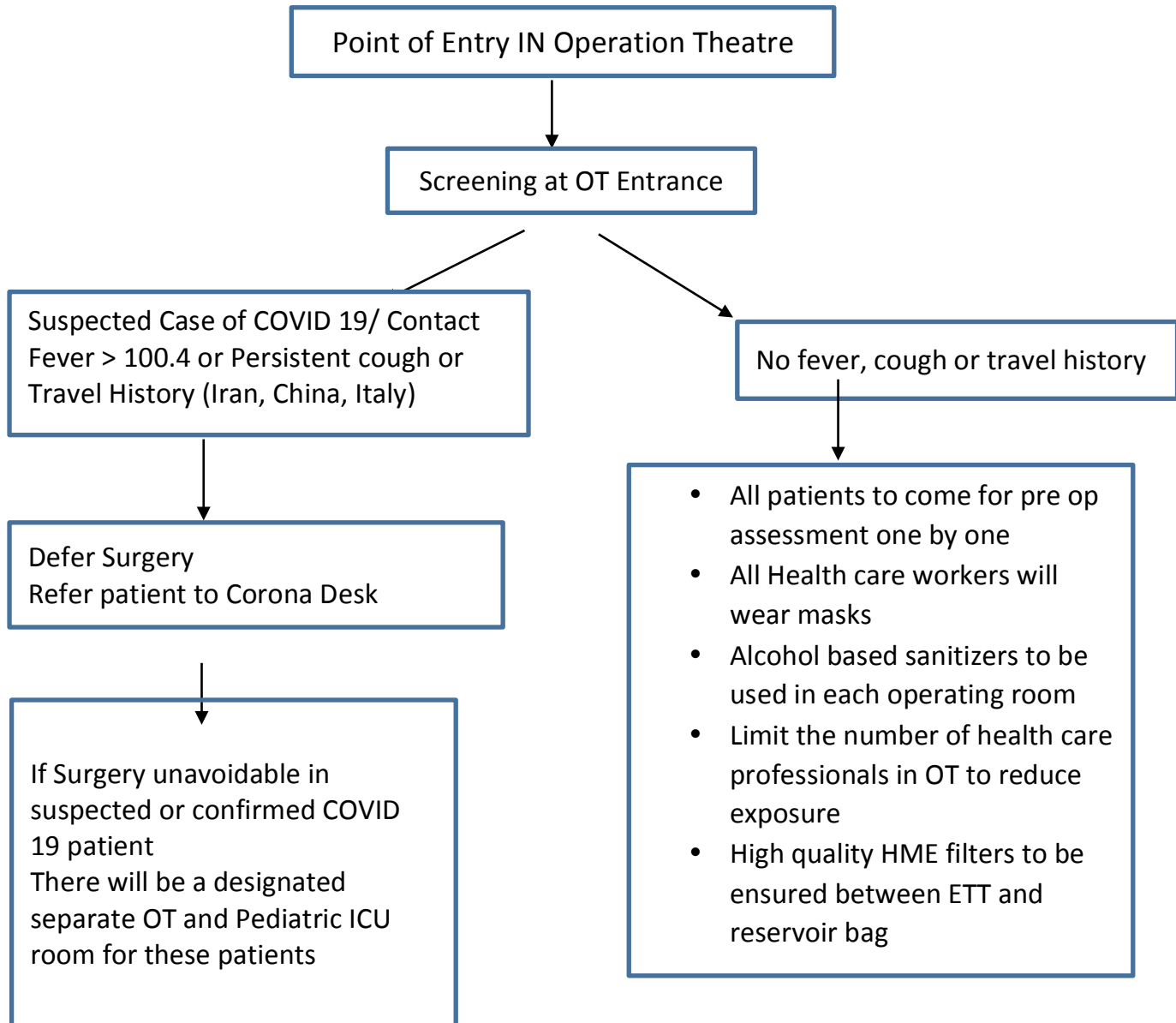
- For the best benefits of healthcare providers all patients' attendants will wear mask after entering premises of the hospital.
- There will be **separate designated O.R and PICU room/area or in isolation room/isolation ward/HDU for confirmed or suspected 2019-nCOV** infected cases.
- High quality HME filter between ETT and the reservoir bag will be ensured.

9.3. Staff Safety Guidelines:

- Everyone in Operation Theater/ wards/ICU will maintain strict hand hygiene.
- Staff will wear a surgical mask all the time.
- Staff will wear disposable gloves before touching a patient or patient's surrounding.
- Staff will wash hands properly before leaving the operation theater/wards/ICU.
- Staff will inform if anyone having flu, fever or contact with a traveler from abroad.

9.4: ALGORITHM – COVID 19

GUIDELINES FOR OPERATION THEATRES



9.5. Intercollegiate General Surgery Guidance COVID 19.

Intercollegiate General Surgery Guidance on COVID-19		
Emergency Surgery <ul style="list-style-type: none"> - Test all for COVID-19 - Treat all as +ve - CT thorax in last 24 hours - Add CT thorax if having CT abdo 	Planned Surgery <ul style="list-style-type: none"> - Risk assessment for COVID-19 - Greater risks of surgery - Consent - Risk-reducing strategies (e.g. stoma) 	PPE <ul style="list-style-type: none"> - PPE for all laparotomies - Unless COVID-19 negative (beware false negative) - Include eye protection - Practise donning & doffing
Theatre <ul style="list-style-type: none"> - Minimum staffing levels - All staff PPE including visors - Stop +ve pressure ventilation - Smoke extraction - Intubation / extubation in theatre 	Laparoscopy <ul style="list-style-type: none"> - Generally should not be used - Filters etc. difficult to implement - Appendicitis: open / conserv. - Cholecystitis: conserv. / cholecystostomy 	Endoscopy <ul style="list-style-type: none"> - Emergency only - Follow guidance from BSG - Upper GI endoscopy requires full PPE

Managing COVID-19 in Surgical Systems

- Prepare for a rapidly evolving situation: reevaluate frequently
- Postpone elective operations immediately, save personnel & PPE
- Develop a clear plan for providing essential operations
- Educate all staff on PPE and COVID-19 management
- Decrease Health Care Staff Exposure: limit to most experienced
- ORs may need to be converted to ICUs as landscape changed
- Develop a Dedicated COVID operating space
 - Specific room for all COVID operations
 - No unnecessary items inside
 - Minimize traffic in an out
 - Recover in OR until ready for isolation room
 - Keep transport pathways clear
 - Specific care pathways should be developed for each site

Guidelines by @MaryEBrindle & @Atul_Gawande of @AriadneLabs
 @CAHarrisMD

#CoVisuals

How do I manage surgery for COVID-19 PUI/confirmed patients?

- Develop a dedicated Covid-19 OR
- Intubate in a negative pressure room prior, extubate there too
- Minimize Airway Circuit disconnection
- Consider additional filters on anesthesia machines
- Employ an anteroom to don/doff PPE and staff a runner outside
- Empty OR of all non-essential materials
- Use separate OR case, airway, and medication carts
- N95 or PAPR for all aerosol generating procedures

Source: American College of Surgeons COVID-19 FAQ
 @CAHarrisMD

#CoVisuals

Chapter 10.

Safety Guidelines For Health Care Providers: PPEs

10.1. Protocols PPE for healthcare providers



GOVERNMENT OF THE PUNJAB
SPECIALIZED HEALTHCARE &
MEDICAL EDUCATION DEPARTMENT

NOTIFICATION

No. SO (PHP) 9-98/2002(14). In pursuance of directions of Corona Experts Advisory Group (CEAG) in its meeting held on 23/3/2020, following instructions are hereby issued for immediate compliance by all the public and private hospitals in Punjab:

SAFETY GUIDELINES FOR HEALTHCARE PROVIDERS / FACILITIES DEALING WITH COVID-19 PATIENTS

PROTECTION LEVEL	PROTECTIVE EQUIPMENT	SCOPE OF APPLICATION
Level-I	<ul style="list-style-type: none"> • Disposable Surgical Mask • Disposable Examination Gloves • Sanitizer or soap with water 	<ul style="list-style-type: none"> • General OPD • General Emergency • Pre-Examination Triage
Level-II	<ul style="list-style-type: none"> • Disposable Cap • Disposable Surgical Mask • Disposable latex Gloves • Sanitizer or soap with water 	<ul style="list-style-type: none"> • Triage Centre for Corona • General Wards • Short stay areas • Regular Labour Room & Operation Theatres
Level-III	<ul style="list-style-type: none"> • Disposable Cap • N 95 Mask • Tyvek Suit • Disposal latex Gloves • Goggles 	<ul style="list-style-type: none"> • Isolation Ward/ Treatment Area for Covid-19 • HDU/ICU for Covid-19 • Radiological Imaging of suspected / confirmed cases for Covid-19 • Cleaning of Surgical / Interventional equipment • Sample collection & laboratory for Covid-19 • Labour Room & Operation Theatres if a Suspected /Confirmed case of Covid-19 is being managed/operated upon.

- Handwritten signature and date: 24/3/2020*
- i. All staff at the healthcare facilities must wear surgical masks and wash hands preferably.
 - ii. All staff working in the outpatient department of infectious diseases, outpatient department of respiratory care, endoscopic examination room (gastrointestinal endoscopy,

- bronchoscopy, laryngoscopy, etc.) must upgrade their surgical masks to medical protective masks (N95).
- iii. Staff must wear a protective face screen based on level-III protection while collecting respiratory specimens from suspected / confirmed patients.
 - iv. Life of N95 Mask is 8 days (08 hours duty per 24 hours with 02 hours break), provided it does not get wet/soiled and is used by the same user.
 - v. Surgical masks are disposable. May be used continuously for six hours, provided it does not get wet/soiled.
3. These guidelines are to be strictly implemented.

(BARRISTER NABEEL AHMAD AWAN)
SECRETARY
SPECIALIZED HEALTHCARE &
MEDICAL EDUCATION DEPARTMENT

Dated Lahore the 24th March, 2020
No. & Date Even

Copy of the above is forwarded for information & necessary action to:

1. Minister for Health Punjab.
2. Secretary, Government of the Punjab, Primary & Secondary Healthcare Department.
3. Chairman, Corona Experts Advisory Group
4. All the Vice Chancellors of public sector Medical Universities in Punjab.
5. All the Principals of public sector Medical & Dental Colleges in Punjab.
6. Chairman, Punjab Healthcare Commission for implementation in private sector hospitals.
7. Director General Health Services Punjab, Lahore
8. Director General Nursing Punjab, Lahore.
9. PSO to Secretary SHC & ME Department
10. PS to SSH, SHC & ME Department
11. PA to Add. Secretary (Admin) (Development) & (Technical), SHC & ME Department.


24/3/2020
(DR. SALMAN SHAHID)
ADDITIONAL SECRETARY (TECHNICAL)

Scanned with CamScanner

10.2. Personal Protective Equipment PPEs

COVID-19 Safe PPE



General contact with confirmed or suspected Covid-19 case

Aerosol Generating Procedures

10.2. Personal Protective Instrument (PPE)



Gown



Full Body Suit / Tyvek Suit

5



3 Layered Medical/Surgical Mask



N95 Mask



N95 Respirator



Goggles



Gloves



Shoe Covers

10.3. SOP's for HealthCare Worker The Children's Hospital Lahore

HEALTH FACILITIES	TARGET PERSONNEL	ACTIVITY	TYPE OF PPE'S
PATIENT ROOM	Health care workers	Providing direct care to COVID-19 Aerosol-generating procedures performed on COVID-19 patients.	<ul style="list-style-type: none"> Gloves N95 Mask Gown Eye Protection goggles or face shield
	Cleaners/Sweeper/ Ward Boy	Cleaner entering the room	<ul style="list-style-type: none"> Gloves N95 Mask Gown Eye Protection goggles or face shield
		Cleaner not entering the room	<ul style="list-style-type: none"> Gloves Medical mask & cap Surgical Gown
	Visitors	Entering the room of a COVID-19 patient	<ul style="list-style-type: none"> Gloves Medical mask & cap Surgical Gown
TRIAGE	CMO/MO fever clinic	Preliminary screening not involving direct contact	<ul style="list-style-type: none"> Maintain social distance of at least 1 m. Gloves Medical mask & cap Surgical Gown
	Patients with respiratory symptoms	Any	<ul style="list-style-type: none"> Maintain social distance of at least 1 m. Provide medical mask to the patient No PPE's required
	Patients without respiratory symptoms	Any	<ul style="list-style-type: none"> No PPE's required
LABORATORY	Lab Technician/designated health worker	Manipulation of respiratory samples	<ul style="list-style-type: none"> Medical Mask Gown Gloves Eye protection by goggles
ADMINISTRATIVE AREAS	All Staff, Including healthcare workers	Administration tasks that do not involve contact with COVID-19 patients.	<ul style="list-style-type: none"> Medical mask Hand sanitizer

Chapter 11. Hand Washing Techniques

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

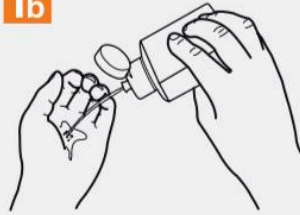
⌚ Duration of the entire procedure: 20-30 seconds

1a



Apply a palmful of the product in a cupped hand, covering all surfaces;

1b

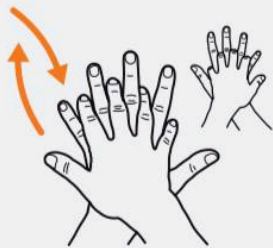


2



Rub hands palm to palm;

3



Right palm over left dorsum with interlaced fingers and vice versa;

4



Palm to palm with fingers interlaced;

5



Backs of fingers to opposing palms with fingers interlocked;

6



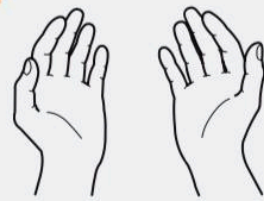
Rotational rubbing of left thumb clasped in right palm and vice versa;

7



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;

8



Once dry, your hands are safe.

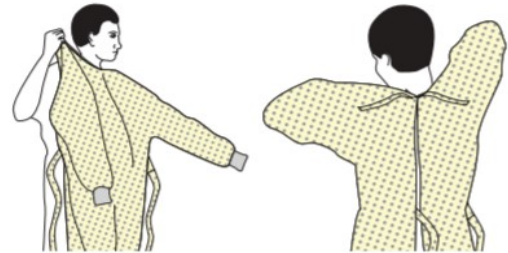
Chapter 12. Donning and Doffing Method

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator



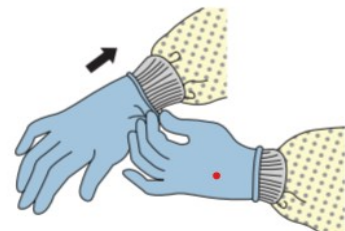
3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit



4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

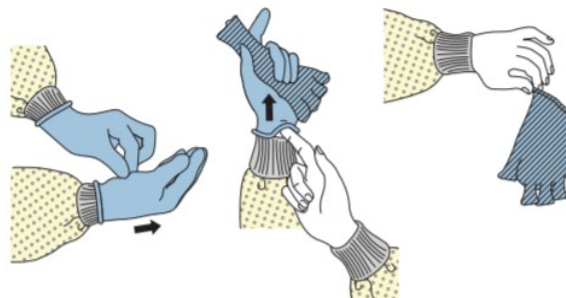


HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in an infectious* waste container



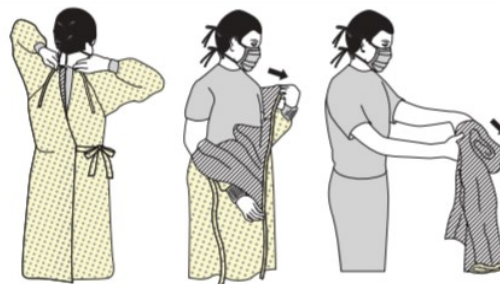
2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in an infectious* waste container



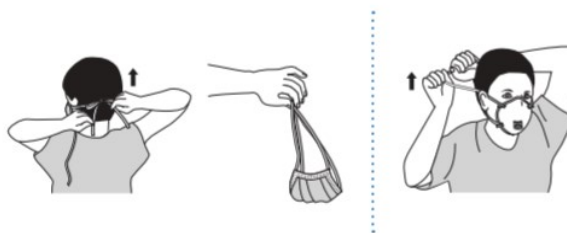
3. GOWN

- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in an infectious* waste container

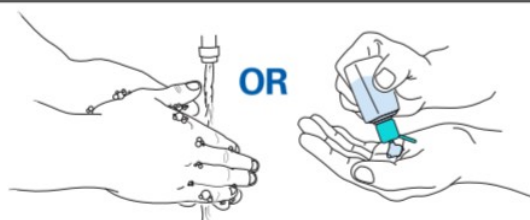


4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — **DO NOT TOUCH!**
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in an infectious* waste container



5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



* An infectious waste container is used to dispose of PPE that is potentially contaminated with Ebola virus.

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE



HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into an infectious* waste container



2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in an infectious* waste container

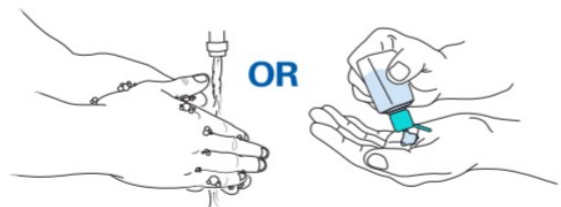


3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in an infectious* waste container



4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



* An infectious waste container is used to dispose of PPE that is potentially contaminated with Ebola virus.

PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE



Chapter 13.

Essential Precautions for Frontline Healthcare Staff:

13.1: Advice to Healthcare Personnel:

1. Stop wearing watches, rings, or bracelets
2. Stop bringing computer and handbags, wallet to hospital.
3. Don't bring money purse and watch to hospital. Just a credit card and some notes should be enough.
4. Leave the driving license in the car
5. At home, **leave mobile phone case** in car and just take naked phone to your house
6. **No phones, remotes, ipads** on beds at home and even duty rooms in hospital
7. **Cleaning spectacles and car keys with antiseptic solution** on arriving at hospital and just before leaving
8. Frequently clean steering wheel, door handle of car/ bike.
9. **Avoid putting the mobile on the bed**, whether at home or the shift room.
10. Clean your eyeglasses, business card, pen and mobile phones before starting work and before going home.
11. If possible, use the spare rooms in the hospital, and wear (Scrub) the hospital, when you arrive at work, and replace it with your clothes before leaving.
12. If work clothes are not available from the hospital, bring the work clothes with you in a clean bag.
13. Wash your hands to the elbows before leaving the hospital.
14. Leave work shoes in the car or outside the home.
15. Wash your work clothes (with hot water if possible) and don't mix it with the other clothes
16. Take shower as soon as you arrive home.
17. **Nutrition:** Take high protein diet, citreous fruits, dry fruits, and multivitamins to increase immunity.

13.2. Protocols for Protection at Returning Home.

PROCOLS FOR ENTERING YOUR HOME
ACTIONS AGAINST COVID-19

1 **When you come home, try not to touch anything.**

2 **Take off your shoes.**

3 **Disinfect your pet's paws if you were walking it.**

4 **Take off your outer clothing and put it in a laundry bag.** With bleach, recommend at more than 140f.

5 **Leave bag, purse, keys, etc. in a box at the entrance.**

6 **Shower or, if you are not able, wash all exposed areas well** Hands, wrists, face, neck, etc.

7 **Clean your phone and glasses with soap and water, or alcohol.**

8 **Clean the surfaces of what you have brought outside with bleach before storing.** Don't forget to wear gloves. Prepare a mixture of bleach 20 ml per liter of water. 5 tbsp (1/3 cup) of bleach in one gallon of water or 4 tsp of bleach in one quart of water.

9 **Remove your gloves carefully, throw them away and wash your hands**

10 **Remember that it is not possible to do a total disinfection, the objective is to reduce the risk**

13.3. Daily Prevention Flyer

کورونا وائرس

خود اور دوسروں کو کیسے بچائیں۔



گندے ہاتھوں سے آنکھ
ناک اور منہ کو مت
چھوئیں۔



ہاتھوں کو باقاعدگی سے صابن
اور پانی سے صاف کریں۔



استعمال کے بعد ٹشو کو
مناسب طریقے سے ضائع
کریں۔



کھانسی یا چھینک آنے پر منہ اور
ناک کو ہاتھوں کی بجائے ٹشو
یا کپڑے سے ڈھانپیں۔



اگر آپ کو نزلہ، زکام ہے تو
اپنے آفس، سکول یا بھیڑ میں
جانے کی بجائے گھر پر رہیں۔



نزلہ، زکام ہونے کی صورت
میں دوسرے افراد سے ایک
میٹر کی دوری اختیار کریں۔



بخار، کھانسی اور سانس لینے میں
دشواری کی صورت میں ڈاکٹر
سے رجوع کریں۔



اگر آپ کو نزلہ، زکام ہے تو
گلے ملنے یا ہاتھ ملانے سے
پرہیز کریں

Chapter 14.

Infection Control Protocols For COVID-19

Purpose: Is to define the policy of Isolating patients of COVID-19

14.1. Description:

- Corona suspect or confirmed patients require isolation due to highly transmissible nature of Covid-19 virus

14.2. Personnel and responsibilities:

- These guidelines are intended to apply to all medical staff (consultants, junior doctors, staff nurses, support staff) attending the patient within the Corona Unit.

14.3 General rules:

These rules are to be followed by all the team members and include :

- Implementation of "**Standard Precautions**"
- Additional "**Transmission-Based Precautions**" are for patients known or suspected to be infected by epidemiologically important pathogens spread by airborne or droplet transmission or by contact with dry skin or contaminated surfaces.

14.4. Standard Precautions:

Standard Precautions apply to all those Healthcare workers who contact with:

- Respiratory secretions
- Blood
- All body fluids, secretions, and excretions
- Non-intact skin; and
- Mucous membranes.

14.5. These Precautions include the following:

- *Health care providers must follow hand washing and antisepsis (hand hygiene) before donning PPEs, before and*

after touching a patient OR his/her surroundings OR any of the secretions or fluids.

- Do not wear watches or jewelry.
- Do not use nail polish.
- **Healthcare worker** must wear personal protective equipment while entering Corona Ward as protocol provided.
- **Sanitize hands** and change gloves between patients.
- Healthcare Personal must handle patient care equipment properly.
- Where possible, use disposable items.
- **Disinfection of the instrument** will be done before using for next patient according to the protocol provided to Head Nurse.
- **Soiled linen** will be packed in a double bag, in another yellow bag, sealed by sanitary staff and marked as **Highly infectious**.
- It will be handed over to waste management unit to transfer it to CSSD.
- They should prevent needle stick/sharp injuries.
- Head nurse and support staff are responsible to keep Environment clean and spills-management as per IC protocols
- Every member of the team is responsible for appropriately handling of waste.
- **Treat every type of specimen** as **Highly infectious** and every room should be provided with a pedal operated close bin to dispose it off in Yellow bags.
- **Head Nurse will collaborate with waste management department** for the safe transportation of infectious waste to the incinerator where it will be immediately incinerated.
- The **surfaces in patient care areas** including washrooms will be disinfected at the beginning of the shift by the ward boy on duty as guided by infection control team under the supervision of on Duty Head nurse.
- Head nurse will be responsible for maintaining the stock of disinfectants, sanitizers, liquid soap and PPEs.

- **Use of mobiles** must strictly be prohibited in patient care areas.
- No Healthcare Personal should carry **bags laptops, tablets** in this area.
- **Food** for the patient must be provided in disposable packs. No food should be left open in the ward.
- **When leaving**, wash your hands up to elbow thoroughly after doffing PPEs and sanitize your belongings

14.6. Transmission-Based Precautions: (Aerosol & Contact)

The following precautions need to be taken:

- **Implement standard precautions.**
- Place patient in a single room.
- The air should be discharged to the outdoors and specially be filtered before it is circulated in the room.
- Keep doors closed.
- Anyone who enters the room must wear a medical mask and if he is going to perform some respiratory procedure, he must wear N 95 respirator.
- Limit the movement of the staff members.
- Keep the minimum number of staff to avoid cross contamination.
- A list of all disinfectant solutions approved for used with COVID-19 is available on the following link: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

Chapter 15

Guidelines for imaging COVID-19 patients

15.1. General precautions:

- Limit attendants/visitors to the department
- Scanning areas should only be accessed by staff or patients.
- Pregnant staff will not be assigned to work with known/suspected COVID-19 patients.

15.2. PPE and Isolation precautions:

- Include protective gowns, gloves, and goggles (preferably).
- N95 respirator is required to prevent droplet infection.

15.3. Patient transfers to and from the department:

- Patients must not be shifted to department unless absolutely necessary.
- In event of transfer, radiology department must be pre-informed so that adequate arrangements can be made.

15.4. Patient must wear a surgical mask.

- Healthcare staff needs to wear PPEs during patient transfer.
- Patients with COVID-19 should be shifted directly to the scanners or procedure room and should ideally be scheduled at the end of the list if clinically possible.
- Patient transfer routes in and out of the department/scan rooms should be earmarked beforehand for ease of transfers.
- **Use of portable x-ray is highly recommended in emergency rooms /isolation rooms rather than patient transfer to the radiology department.**

- Ultrasound facility should be reserved for critically sick patient and decision to be made in consultation with Radiology team considering the risk Vs benefit outcome; keeping in mind the outcome in management of the patient .
- A designated ultrasound machine should be dedicated for COVID-19 patients.
- Departmental x-rays and ultrasounds to be discouraged and performed if discussed with a consultant.

15.5.CT scanning:

- CT Scan facility should be reserved for critically sick patient and decision to be made in consultation with Radiology team considering the risk Vs benefit outcome; keeping in mind the outcome in management of the patient.
- A dedicated CT is required be designated for all patients with COVID-19, to prevent cross-contamination to other patients.
- Dedicated radiographers should be staffed in this scanner.
- Appropriate PPEs and Decontamination kits/equipment must be available outside and inside the scanner suites.

15.6. Post exposure de-contamination:

- All sheets gowns used must be discarded as per infection control policy
- Preferably disposable sheets should be used.
- If not sheets should be sent for sterilization in designated sealed waterproof or alginate bags.
- Appropriate disinfectant solution spray (which include quaternary ammonium, sodium hypochlorite, hydrogen peroxide and alcohol based compounds) should be used to cover all contact surfaces of the scanners, work stations/desks, keyboards, monitors instrument trolleys etc.
- If a radiological instrument like X-ray or ultra sound machine is required for patient's investigation, it should be thoroughly disinfected (as per

protocol provided) before leaving the ward to avoid transmission of virus.

- Appropriate concentration and contact times of the surface disinfectant should be used.
- These precautions are to be used with all imaging modalities.
- All PPEs must be discarded appropriately in designated bins and discarded as per infection control protocols.

Chapter 15. Home Quarantine Instructions

14.1. In Suspected Cases

1. Restrict the mobility to your room for 14 days and minimize contact with family members and other people.
2. Drink plenty of water.
3. **Medicine:** Tab. Chloroquine (Resochin) 500mg OR HCQ 500
 - a. 2+0+2 (for day 1)
 - b. 1+0+1 (for next 4 days)
- c. **Important:** Pregnant females, Heart patients and patients on Anti-Epilepsy should not be taking this medicine)
4. **Drugs:** Tab Cetrizine Or Tab. Loratidne Or Ebastine 10mg for 14days
5. **In case of fever:** Tab. Paracetamol 2+2+2
6. **After Sneezing or coughing:** Wash your Hands frequently with Soap for at least 20 seconds
7. Keep wearing fear mask all the time
8. Visit hospital in case of Not Feeling Well

14.2. Stay at Home guidance for households:

Current guidelines illustrated

Criteria and guidance applied as:

- **Incubation period** = maximum 14 days Day1 is the first day of symptoms.
- The 14-day period starts from the day when the first person in the house became ill.
- If you live with others and you are the first in the household to have symptoms of coronavirus, then you must stay at home for 7 days.
- If anyone else in the household starts displaying symptoms, they stay at home for 7 days from when their symptoms appeared, regardless of what day they are on in the original 14-day isolation period.

- Household members who remain well stay in self-isolation for 14 days due to maximum incubation period, calculated from day 1 of first symptomatic person.

Household members do not need to restart the clock if other members become symptomatic during the 14 days self-isolation

Criteria and guidance applied as of 17/03/2020:

Incubation period = maximum 14 days

Day 1 is the first day of symptoms

The 14-day period starts from the day when the first person in the house became ill

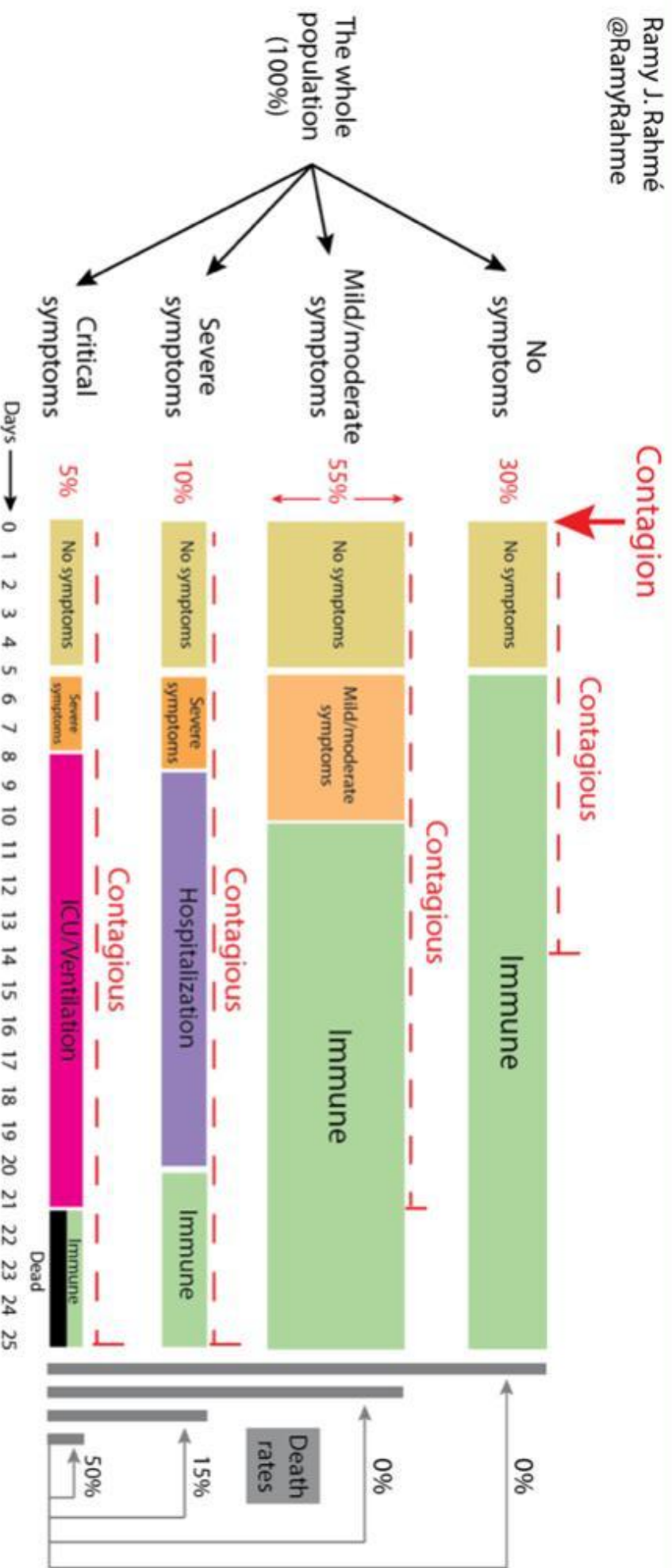
If you live with others and you are the first in the household to have symptoms of coronavirus, then you must stay at home for 7 days

If anyone else in the household starts displaying symptoms, they stay at home for 7 days from when their symptoms appeared, regardless of what day they are on in the original 14-day isolation period. Household members who remain well stay in self isolation for 14 days due to maximum incubation period, calculated from day 1 of first symptomatic person

Household members do not need to restart the clock if other members become symptomatic during the 14 days self-isolation

	DAY	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
Person in household																								
Example household 1	A	X							✓															
	B				X							✓												
	C																							
	D																							
		+14 days from person A becoming ill																						
Example household 2	A	X																						
	B				X																			
	C																							
	D																							
		+14 days from person A becoming ill																						

Key: X = when illness started - first day of symptoms
✓ = allowed to go out again



References:

1. The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. Lauer SA et al. Ann Intern Med. 2020 Mar 10.
2. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand. Neil M Ferguson et al. Imperial College COVID-19 Response Team. 16 March 2020.
3. Viral dynamics in mild and severe cases of Covid-19. Yang Liu et al. The Lancet, March 19, 2020.