

Shaukat Khanum Memorial Cancer Hospital & Research Center

Infection Control Committee

Coronavirus Disease 2019 (COVID-19)

Contents

Section 1: COVID-19 Basics, Outpatient Pathway and Testing	2
Background; Case definitions	2
Isolation precautions; COVID-19 screening	3
Pathway for patients with suspected COVID-19 in the outpatient setting	4
COVID-19 testing	6
Criteria for COVID-19 retesting	7
Employees with household contacts with COVID-19	8
When can COVID positive employees return to work?	8
What is the duration of isolation for COVID-positive household contacts of hospital employees?	8
Section 2: COVID-19 Clinical Syndromes and Inpatient Management	9
Isolation precautions and PPE for COVID-19 patients	10
Transporting COVID-19 patients	10
Room allocation for COVID-19 patients	13
COVID-19 patients requiring medical procedures	13
COVID-19 visitor policy	13
COVID-19 patients and cardiopulmonary resuscitation	13
How frequently must rooms of COVID patients be cleaned?	13
How frequently must surfaces, electronics and door handles on COVID units be disinfected?	14
When can isolation precautions be discontinued?	14
What if there is strong clinical suspicion but test results are negative?	14
When can the patient be discharged?	14
What instructions must patients be given on discharge?	14
What are the recommendations for patients are with suspected or confirmed COVID-19 undergoing procedures requiring written consent?	14
Section 3: Personal Protective Equipment (PPE)	16
PPE Table SKM Lahore	22
PPE Table SKM Peshawar	23
Section 4: High Risk Units	24
Section 5: Planning for Procedures and Chemotherapy	
Planning for Endoscopic and Bronchoscopic Procedures	25
Planning for Surgery	26
Planning for FNACs, Radiologic and Dental Procedures	27
Planning for Chemotherapy and Stem Cell Transplant	28
Section 6: Guidance on Patient Flow for COVID Rule-out During Admission	29
Section 7: Guidance for Pregnant Healthcare Workers	31
Section 8: Frequently Asked Questions (FAQs)	32
Appendix A: Patient Under Investigation (PUI) Form	34

Section 1: COVID-19 Basics, Outpatient Pathway and Testing Background

- Caused by SARS-COV-2, first identified in Wuhan, China in 12/2019
- Transmission: human-to-human
→modes of transmission: contact and droplets
- Incubation period: 4-14 days
- Spectrum of infection: mild respiratory illness (~80% of cases) to pneumonia/acute respiratory distress syndrome; mortality 2-3%

Case Definitions:

Suspected case

A patient with acute febrile illness (documented **fever [$>38^{\circ}\text{C}$ or 100°F] over the past 48 hours**) AND at least one of the following signs/symptoms: cough, sore throat, shortness of breath, myalgias or chills, loss of sense of taste or smell

Probable case

1. A suspected case for whom testing for the COVID-19 virus is inconclusive
OR
2. A suspected case for whom testing could not be performed for any reason.

Confirmed case

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

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.

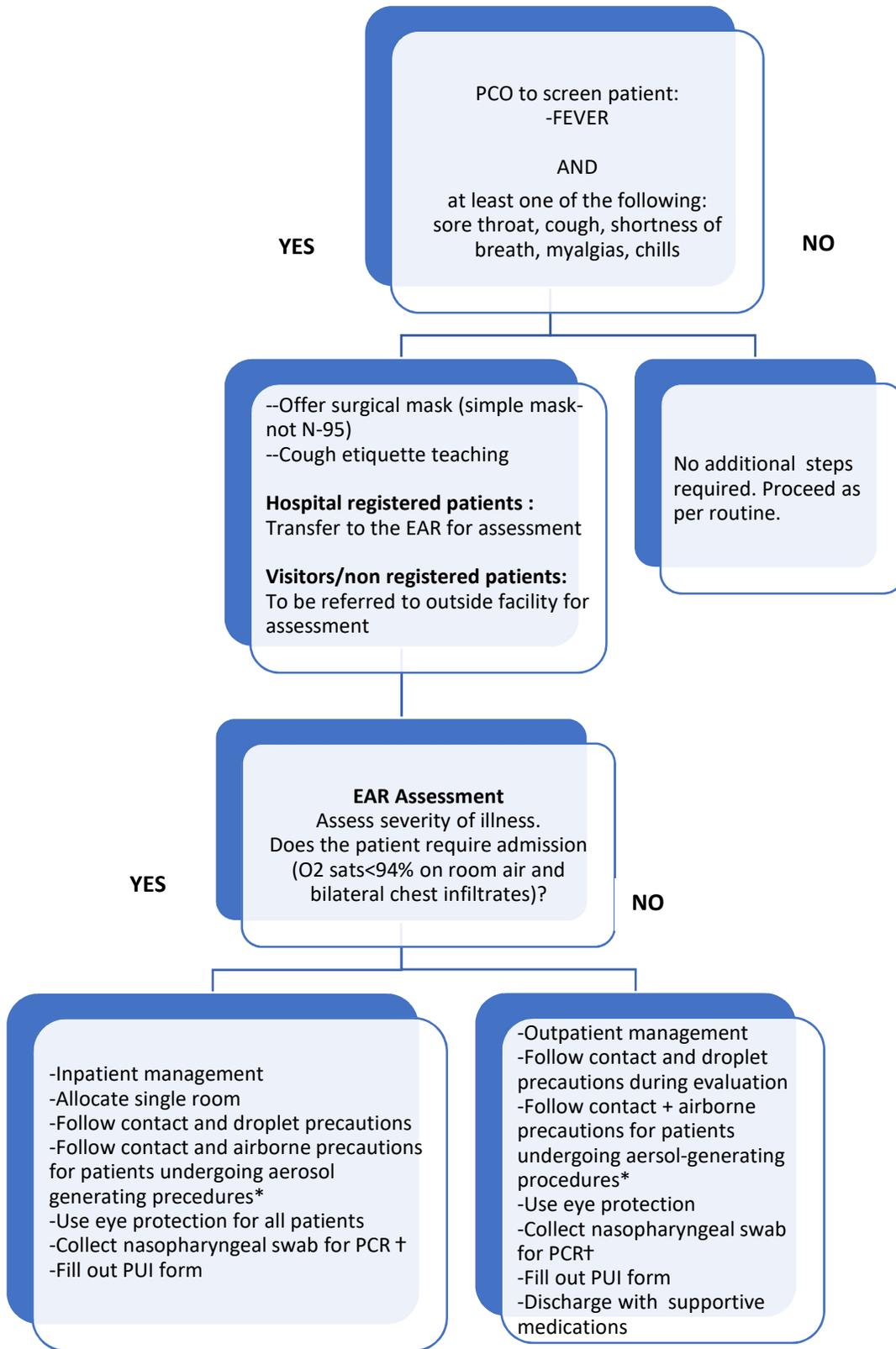
Isolation Precautions:

- **Standard + contact+ droplet:** for all patients
- **Standard+ contact+ airborne:** for patients requiring **aerosol-generating procedures** e.g. bronchoscopy, CPR, intubation, nasopharyngeal specimen collection, noninvasive ventilation, airway suctioning, NG insertion, dental procedures **ONLY. Any other procedures do not fall under this list.**
- **Eye protection:** for all patients

COVID-19 Screening:

- Screening will be performed at designated COVID screening counters outside the hospital
→9:00 am to 9:00 pm 7 days a week
- For patients meeting the case definition, activate the plan for suspected COVID cases:

Pathway for Patients with Suspected COVID-19 (Screening Desks at Hospital Entrances)



PCO: patient care officer; PUI: person under investigation

*Aerosol generating procedures: nasopharyngeal sample collection, bronchoscopy, airway suctioning, noninvasive ventilation, intubation, CPR, dental procedures, NG insertion, upper GI endoscopy

†Wear a simple surgical mask for nasopharyngeal samples collected in open air

All samples must be placed in a biohazard bag, then in a puncture proof container or a second biohazard bag and transported to the lab.

Contact Precautions

To prevent the spread of infection
جراثیم کی روک تھام کے لیے
ANYONE* ENTERING THIS ROOM
MUST WEAR
اس کمرے میں داخل ہونے سے پہلے تمام مہلک مندوجذیل ضروری نہیں۔

Gloves ✓
دستانے

Gown ✓
گاؤن

*Visitors do not need to wear gloves and a gown, but must wash hands upon entering and leaving this room.
*مریض کے لواحقین کے لیے دستانے اور گاؤن پہننا ضروری نہیں لیکن کمرے میں داخلے یا اخراج سے قبل اپنے ہاتھ ضرور دھوئیں۔

For further queries and information contact, Infection Control Nurse (Extension 2492/5008)
مزید معلومات کے لیے انفیکشن کنٹرول نرس سے رابطہ کریں (ایکسٹینشن 2492/5008)

Droplet Precautions

To prevent the spread of infection
جراثیم کی روک تھام کے لیے
ANYONE ENTERING THIS ROOM
MUST WEAR
اس کمرے میں داخل ہونے سے پہلے تمام مہلک مندوجذیل ضروری نہیں

Surgical Mask ✓
سرجیکل ماسک

N-95 Respirator not required
N-95 Respirator کے استعمال کی ضرورت نہیں

For further queries and information contact, Infection Control Nurse (Extension 2492/5008)
مزید معلومات کے لیے انفیکشن کنٹرول نرس سے رابطہ کریں (ایکسٹینشن 2492/5008)

Airborne Precautions

To prevent the spread of infection
جراثیم کی روک تھام کے لیے
ANYONE* ENTERING THIS ROOM
MUST WEAR
اس کمرے میں داخل ہونے سے پہلے تمام مہلک مندوجذیل ضروری نہیں

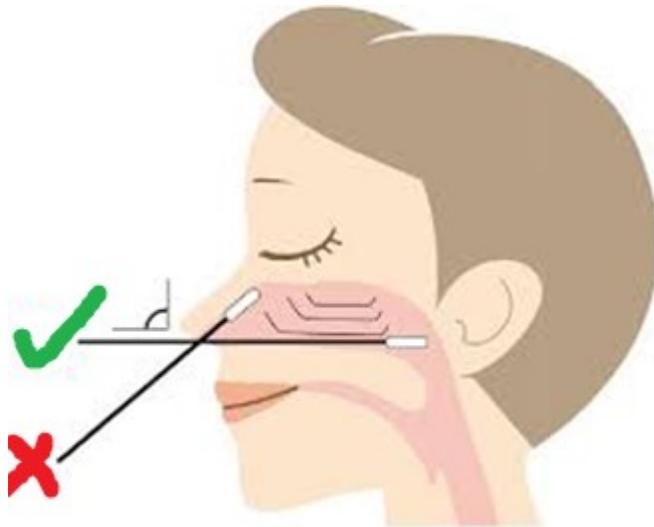
N-95 Respirator ✓

Ensure that the door to the patient's room remains closed at all times.
کمرے کا دروازہ ہر وقت بند رہے۔

*Visitors should wear a surgical mask while in the patient's room.
*مریض کے لواحقین دوران عیادت سرجیکل ماسک نہرا استعمال کریں۔

COVID-19 Testing

- **Who should be tested for COVID-19?**
→Patients meeting the case definition
- **What COVID-19 test are we performing?**
→PCR on nasopharyngeal swab
→Nasopharyngeal swab must be collected as shown in the diagram below



- **Where will testing be performed?**
SKM Employees:
→COVID Testing Center (CTC)
→PPE: gloves, impermeable gowns, plastic aprons, face shields, surgical masks

SKM Patients:
In the EAR/IPD/ICU:
→In isolation rooms with doors closed. Negative pressure is not required for nasopharyngeal sampling.
→PPE: gloves, impermeable gowns, plastic aprons, face shields, N-95 masks

Pre-procedure testing:
→COVID Testing Center (CTC)
→PPE: gloves, impermeable gowns, plastic aprons, face shields, surgical masks
→Work Orders will be generated in the clinic where tests are ordered

Non-SKM Patients:

→ Drive through testing and CTC

→ PPE: gloves, impermeable gowns, plastic aprons, face shields, surgical masks

- **What is the reporting time for COVID-19 testing?**

48 hours

Re-testing patients/staff/all others who have previously tested negative should only be carried out in the following circumstances:

1. Clinical deterioration, manifested by development of shortness of breath – obtain a chest X-ray and re-test for Covid-19.
2. Persistence of symptoms (fever, cough, sore throat, or any combination thereof) for more than 3 days since the original test.
3. Recurrence of symptoms, following initial resolution for at least three days, suggesting new infection. The interval between tests must be at least 7 days.

Covid-19 re-testing for individuals with a history of COVID-19 infection:

If an individual has a new exposure to someone with suspected or confirmed COVID-19 and:

1. Has recovered from illness due to laboratory-confirmed (RT-PCR or antigen) SARS-CoV-2 infection and has already met criteria to end isolation, and
2. Is within the first 90 days following the onset of symptoms of their initial laboratory-confirmed SARS-CoV-2 infection or within the first 90 days of their first positive SARS-CoV-2 test result if they were asymptomatic during initial infection, and
3. Has remained asymptomatic since the new exposure,

then they **do not require repeat testing or quarantine for SARS-CoV-2 in the context of this new exposure.**

If an individual has a new exposure to a person with suspected or confirmed COVID-19 and meets the first two above criteria, but has or **develops new symptoms consistent with COVID-19 within 14 days of the new exposure**, consultation with a health care provider is recommended. If an alternative cause of

the symptoms cannot be readily identified, retesting for SARS-CoV-2 infection is warranted. For those testing positive, the **duration of isolation would be 10 days after symptom onset and after resolution of fever for at least 24 hours, without the use of fever-reducing medications, and with improvement of other symptoms.** Transmission-based precautions should be used for admitted patients.

COVID testing for employees with household contacts with COVID-19

→For employees with a positive COVID PCR within the past 90 days, and with symptoms consistent with COVID-19, COVID testing is recommended

→For employees without a prior positive COVID PCR, COVID PCR must be performed regardless of symptoms

→Employees who undergo testing following household COVID-19 exposure must be quarantined at home for 7 days once the test has been performed

→If the initial test is negative, and they develop symptoms consistent with COVID-19 during home quarantine, they must be retested

→If they remain asymptomatic through day 7, they may return to work without undergoing retesting

→For a positive test upon initial presentation or symptom onset, they must be isolated at home for a minimum of 10 days regardless of symptoms. If on day 10, they are afebrile for 24 hours with improvement in other symptoms, they may return to work

→ Fully vaccinated employees who have completed at least 2 weeks from the last vaccine dose do not need to be quarantined or tested unless they have symptoms suggestive of COVID-19

When can COVID positive employees return to work?

At least 10 days from the date of initial positive COVID-19 test, provided that they fulfill the following conditions: afebrile for at least 24 hours with improvement in other symptoms (cough, sore throat, shortness of breath etc.). This will be assessed by the ID team via telephonic communication.

What is the duration of isolation for COVID-positive household contacts of hospital employees?

→COVID-positive household contacts of hospital employees must be advised to isolate at home in a separate room with a washroom, if possible. Direct contact with these individuals must be avoided as far as possible. If contact is unavoidable, the employee and infected family member must both wear masks and maintain a distance of at least 3 feet during the interaction. The employee must perform hand hygiene frequently.

→The duration of isolation is at least 10 days from the date of initial positive COVID-19 test, provided that they fulfill the following conditions: afebrile for at least 24 hours with improvement in other symptoms (cough, sore throat, shortness of breath etc.).

Section 2: COVID-19- Clinical Management

1. Clinical Management of COVID-19

Patients can be classified into asymptomatic, mild, moderate and severe based on their presentation

Asymptomatic:

Nasopharyngeal RT- PCR positive for SARS CoV2 but having no symptoms

Mild:

Presence of symptoms consistent with COVID such as fever, fatigue, cough (with or without sputum production), anorexia, malaise, muscle pain, sore throat, dyspnea, nasal congestion, or headache without any hemodynamic compromise, need for oxygen or chest x-ray findings.

Moderate:

Hypoxia (oxygen saturation $\leq 94\%$) or mild infiltrate on chest x-ray. Persistent high-grade fever for >3 days. Absence of features suggestive of severe disease (listed below)

Severe

Fever, shortness of breath, signs/symptoms of respiratory tract infection and any of the following:

Adults

- RR > 30 breaths/Min
- Central cyanosis
- Respiratory distress (unable to complete a sentence)
- CURB score of more than 2
- Confusion, agitation, restlessness
- SpO₂ $\leq 93\%$ on Room air
- Bilateral widespread infiltrates on CXR.
- Clinically heart failure (gallop rhythm, raised JVP)
- Oxygen Saturation/ FiO₂ ratio less than 315
- Evidence of heart failure (Raised JVP, Gallop rhythm)
- Signs of shock: Delayed capillary refill; Cold, clammy peripheries; Mottled skin; Systolic BP less than 90 or less than 40mm Hg of baseline in hypertensive; Urine output < 0.5 ml/kg/hr

Pediatric patients:

- Central cyanosis or SpO₂ $< 90\%$
- Severe respiratory distress (e.g. grunting, very severe chest indrawing)

- Signs of pneumonia with a general danger sign: inability to breastfeed or drink, lethargy or unconsciousness, or convulsions
- Other signs of pneumonia may be present: chest indrawing, fast breathing (in breaths/min): < 2 months: ≥ 60 ; 2–11 months: ≥ 50 ; 1–5 years: ≥ 40

Criteria for admission of suspected or confirmed COVID-19 patients

Asymptomatic and mild disease

- Can be managed at home with home isolation
- Patients with mild or asymptomatic disease who do not have adequate home arrangements or do not consent to stay at home should be shifted to a dedicated isolation facility (as opposed to a hospital)
- Upon discharge, clear instructions must be given to call if any worsening occurs.

Moderate and severe disease

- Patients should be admitted
- Place in a negative pressure room (if available) if aerosol generating procedure(s) are anticipated.

Management

Management of asymptomatic and mild disease

- Treat with supportive care only. This includes acetaminophen for fever, oral hydration in case of diarrhea and anti-histamines for rhinorrhea.
- No specific treatment is recommended for asymptomatic or mild disease. There is no role of prophylactic medications at this time

Management of moderate disease

Investigations

The following investigations should be done in all patients:

- CBC
- Electrolytes and serum creatinine
- Chest X-ray
- CRP
- Ferritin
- D-dimer
- Blood and respiratory cultures

Additional investigations may include the

- Lactate
- Liver function tests

Treatment

- Supportive therapy with oxygen therapy via nasal cannula
- Acetaminophen for fever control and intravenous fluids if needed should continue.
- These patients must be started on dexamethasone 6mg PO or IV daily. Additionally, they may be candidates for antiviral therapy (Remdesivir).

Management of severe disease

Investigations

- Initial investigations and supportive care should proceed as in moderate disease.
- Additional investigations may be required according to the respiratory status of the patient, including arterial blood gases and lactate levels.

Treatment

1. Empiric antibiotics may be considered if a secondary bacterial pneumonia is suspected (e.g. if raised white blood cell count).
2. In patients with ARDS who are intubated, use conservative fluid management.
3. Implement mechanical ventilation using lower tidal volumes (4–8 mL/kg predicted body weight, PBW) and lower inspiratory pressures (plateau pressure < 30 cmH₂O).
4. Finally, if expertise is available, in adults with severe ARDS, prone ventilation for 12–16 hours per day is recommended.

The following treatment options may be considered:

- Dexamethasone 6mg PO or IV daily for 5-10 days, based on clinical response.
- Antiviral therapy (Remdesivir) for adult patients with GFR>30 and those with normal liver function.
- Tocilizumab may be considered in the following situation:
Indication: Cytokine storm. To be given to patients in the ICU (severe infection, critically ill) with worsening hypoxia, rising CRP and ferritin
Monitoring: CRP, Ferritin, Neutrophil: Lymphocyte (NLR) at baseline and daily after Tocilizumab administration
Dose: 4 mg/kg x 1; if CRP, Ferritin and NLR continue to increase, repeat a second dose on day 2
- **Please seek ID advice when managing COVID-19 patients with severe disease**

2. Isolation Precautions and PPE for COVID-19 patients

- **Standard + contact+ droplet:** for all patients
- **Standard+ contact+ airborne:** for COVID-19 patients admitted in the ICU and those requiring **aerosol-generating procedures** e.g. bronchoscopy, CPR, intubation, nasopharyngeal specimen collection, noninvasive ventilation, airway suctioning, dental procedures, NG insertion, upper GI endoscopy.
- **Eye protection:** for all patients
- To minimize exposure to airborne droplet nuclei, N-95 masks must form a tight seal around the nose and mouth. Facial hair present along the edges of the mask prevents formation of this seal and results in exposure to airborne infections.
- Since specialized respirators are not available at our facility, **staff members with beards/sideburns/moustaches, who are expected to perform or assist with aerosol generating procedures, or care for patients in the ICU or the floor must ensure that the area of the mask seal is clean shaven**
- **The virus can persist on surfaces for up to 72 hours.** Therefore, it is crucial to **clean rooms and medical equipment as per hospital policy for contact and droplet/airborne precautions** where applicable
- PPE guidelines must be followed by **ALL** staff members entering patient rooms

3. Transporting COVID-19 patients

- Patients must **NOT** be transported to other departments unless absolutely necessary
In the event of transfer, do the following:
- Inform the receiving department over the phone with details of isolation precautions required
- Staff transferring patients from a bed to a wheelchair or stretcher are required to wear gloves, gown and surgical mask
- Once the patient has been moved and is ready for transport:
 - ensure that the patient wears a surgical mask
 - wipe the handles of wheelchair or stretcher with alcohol wipes
 - discard PPE and transport the patient; no PPE is required for transport
- Once transferred, the patient should be moved directly to the intended IPD room/procedure room etc. Patients must NOT be seated in the waiting area
- Once inside the room at the destination unit, wear gloves, gown and surgical mask to move the patient from the wheelchair/stretcher to the bed; remove and discard PPE inside the patient's room before leaving
- Wheelchairs and stretchers must be disinfected with an approved disinfectant (alpha guard) prior to reuse

4. Room allocation for COVID-19 patients

- Single rooms must be allocated while patients are under investigation for COVID-19
- Patients with confirmed COVID-19 may be cohorted i.e. placed in the same room

5. Patients with suspected or confirmed COVID-19 requiring medical procedures

- All elective procedures must be cancelled to minimize transport and avoid unnecessary exposure to hospital staff and other patients
- For patients requiring emergent/lifesaving procedures:
 - i) schedule procedures at the end of list of possible
 - ii) shift patients directly from the inpatient unit to the procedure room
 - iii) bronchoscopies must be deferred; if absolutely necessary, perform in negative pressure rooms
 - iv) In addition to standard PPE required for the planned procedure, the following apply:
 - standard+ contact + airborne precautions + goggles/face shield for bronchoscopy
 - standard+ contact + airborne precautions + goggles/face shield for upper GI endoscopy; disposable shoe and hair covers may be worn if procedures entail the risk of splashes
 - standard+ contact+ droplet precautions for all other procedures that do not fall under aerosol generating procedures
 - v) PPE guidelines must be followed by **ALL** staff members present inside the procedure rooms as well as housekeeping staff who clean these rooms following procedures
 - vi) terminal cleaning of rooms to be performed as per hospital policy for contact and droplet/airborne isolation rooms

6. COVID-19 visitor policy

- **NO** visitors will be allowed for adult patients
- Pediatric patients are allowed one attendant who will be treated as though infected. The attendant will wear a mask and will not be allowed to leave the room.

7. COVID-19 patients and cardiopulmonary resuscitation

- Wear the appropriate PPE before participating in a code

8. How frequently should rooms of COVID patients be cleaned?

- At least once per shift and more frequently if required

9. How frequently must surfaces, electronics and door handles be disinfected?

- Every 8 hours. Logs must be maintained for this. Surface disinfection checklists have been introduced and must be maintained in all areas.
- Cleaning and disinfection of clinic rooms must be performed before and after each clinic

- In areas where procedures are performed or dressings are changed, cleaning and disinfection must be performed between patients

10. When can isolation precautions be discontinued?

- Isolation can be discontinued **as early as 10 days from the date of diagnosis** if the patient is afebrile for at least 24 hours, with improvement in other symptoms and no longer requires respiratory support
- For the following groups of patients, the **duration of isolation precautions is a minimum of 20 days**:
 - immunocompromised patients (patients with neutropenia, those who have recently received chemotherapy or are on steroids/ other immunosuppressants)
 - **these patients must remain in isolation until 2 consecutive COVID PCRs taken 24 hours apart are negative**
- Patients who continue to run fevers/require respiratory support must remain in isolation until clinically stable

11. What if there is strong clinical suspicion for COVID-19 but the test results are negative?

- Continue isolation precautions and repeat nasopharyngeal PCR in 3 days
-

12. When can the patient be discharged?

- Once clinically stable and deemed fit for discharge by the evaluating physician
- Patients do not need to be isolated at the hospital if medically stable

13. What instructions must patients and employees be given on discharge?

- SKM nonregistered patients:
 - advise home isolation until the following 2 conditions are fulfilled:
 - i) **at least 10 days following initial diagnosis of infection**
 - ii) **afebrile for at least 24 hours with improvement in other symptoms**

14. What are the recommendations for patients with suspected/confirmed COVID-19 undergoing procedures requiring written consent?

- For patients with suspected or confirmed COVID-19, requiring a procedure for which written consent must be obtained, hard copies/printouts of the consent form must not be taken inside the patient's room. A physician must verbally discuss the elements of consent including the diagnosis, indication for the procedure, risks, benefits and alternatives for the procedure, and risks of deferring the procedure with the patient.

- The physician obtaining the consent must sign the consent form upon exiting the patient's room. A second physician must sign the consent form as a witness.
- Physicians must document in HIS that institutional COVID guidelines prohibit taking forms inside patients' rooms; therefore, the patient was unable to sign the consent form.
- All such consent forms must be reviewed and ratified by the head of department by the next working day, to ensure that the process is being followed

Section 3: Personal Protective Equipment (PPE)

Follow standard precautions and strictly adhere to the 5 moments of hand hygiene for patients in all clinical areas

All staff (clinical and non-clinical) must wear masks in all areas of the hospital at all times.

Based on risk assessment, all clinical areas of the hospital will be marked as Red or Yellow zones (details below). PPE guidelines must be strictly followed for all units based on the zone they fall in.

The COVID units have been permanently marked as **Red Zones**.

All non-COVID clinical areas with COVID risk may be converted in to **Yellow Zones** temporarily based on risk assessment.

The unit allocation and PPE guidance is as follows:

COVID UNITS: Red Zone

Confirmed COVID-19 patients may be cohorted (placed in the same room)

SKM Lahore:

COVID ICU:

PPE:

→To be worn at all times: hazmat suits, inner gloves, surgical masks

→To be worn upon entering a patient's room: hazmat suits, gloves, N95 masks, faceshields, gown and second pair of gloves.

→**While caring for multiple patients:** wear the same faceshield and masks. Gloves and Gowns must be changed between patients

→**At the end of rounds:** remove and discard faceshield and surgical mask. Save the N-95 for later use (see guidelines for N-95 reuse below)

COVID Ward:

PPE:

→To be worn at all times: surgical mask

→To be worn upon entering a patient's room: faceshields, gown, surgical masks, gloves upon entering a patient's room). Gowns and gloves must be changed between patients.

→ Aerosol generating procedures: faceshields, gown, N-95 mask, gloves

SKM Peshawar:

PPE:

→To be worn at all times: surgical mask

→To be worn upon entering a patient's room: faceshields, gown, surgical masks, gloves upon entering a

patient's room). Gowns and gloves must be changed between patients.
→ Aerosol generating procedures: faceshields, gown, N-95 mask, gloves

NON-COVID UNITS:

High Risk: Yellow Zone

PPE

→ to be worn at all times: **surgical mask, fabric gown with gloves** taped to the ends of sleeves

Upon entering the unit: please obtain a gown from the Team Leader and proceed to the donning area. Before exiting these areas, ensure that your gloves have been taped to the ends of the sleeves.

Before seeing a patient: perform hand hygiene and wear a second pair of second (outer) gloves

After seeing a patient: discard outer gloves and perform hand hygiene.

Before leaving the unit: proceed to the doffing area; please request the Team Leader or Unit Coordinator to point you to the doffing areas for these units. Remove and discard inner gloves. Remove gowns and place in laundry hampers. Perform hand hygiene and exit the area

Daily active monitoring:

→ Temperature monitoring and COVID screening will be performed for staff working on these units on a daily basis

Areas may be converted in to **Yellow Zones** temporarily based on risk assessment.

Low Risk:

PPE:

→ Staff, patients and visitors in all other areas of the hospital must wear masks at all times

→ Those working in clinical areas are required to wear **surgical masks** throughout the shift. Use 1 mask per shift.

→ Secretaries/managers in the relevant departments will issue 7 masks per employee once a week and maintain records. Masks will be reissued once the employee has completed 7 shifts.

→ These masks will only be issued to those currently working or expected to work in these areas during the upcoming week.

→ For patients requiring additional isolation precautions (contact, airborne etc.) follow the relevant PPE guidelines.

In addition to the above, the following are recommended:

All clinical areas, SKM Lahore and Peshawar:

May wear surgical scrubs. Use OR changing rooms. Must change out of scrubs before leaving the hospital

Staff examining/assessing patients/performing vitals:

- Perform hand hygiene

- All staff must wear surgical masks at all times
- Use the same surgical mask for the entire shift unless damaged or visibly soiled

If, upon evaluation, a patient is suspected to have COVID-19:

- Immediately move to a separate room and follow droplet and contact precautions; use eye protection
- PPE includes gloves, disposable water-resistant gown, surgical mask, goggles/faceshield
- **In the event of a surge in the volume of patients, and nonavailability of isolation rooms, please contact the Infection Control team.**

Taking a COVID-19 nasopharyngeal sample:

- Must be performed in a closed room, following airborne precautions. Negative pressure is not required.
- PPE includes gloves, disposable water-resistant isolation gown, N-95 mask*, faceshield/goggles^

Operating Rooms:

ALL surgical procedures requiring general anesthesia:

a) Guidance for the anesthesia team:

- minimum number of staff to be present in the OR during intubation
- PPE: N-95 mask, impermeable gown, gloves, faceshield or goggles

b) Guidance for the surgery team:

Operating on patients with negative COVID PCR performed 48-72 hours prior to surgery:

- May enter the OR immediately following intubation.
- PPE: N-95 mask, sterile impermeable gown, sterile gloves, faceshield or goggles
- *Use of an N95 mask, as opposed to a standard surgical mask, is compulsory for **all laparoscopic procedures, head and neck surgery and ENT surgery** and recommended for all other procedures.

Operating on patients with positive COVID PCR prior to surgery, and for emergency surgeries where pre-procedure COVID PCR could not be performed:

- May enter the OR 15 minutes following intubation.
- PPE: N-95 mask, sterile impermeable gown, sterile gloves, faceshield or goggles

PACU and Holding Bay:

→All staff must wear surgical masks at all times

Patients and Attendants (both inpatient and outpatient):

→Must wear cloth masks at all times

Recommendations for PPE Reuse:

Items to be used ONCE only:

- i) Gloves
- ii) Shoe covers, where applicable
- iii) Face shields

Items that can be reused

i) Goggles

- Disinfect with alcohol wipes before and after use.
- Following use, goggles must be placed in designated drawers in isolation trolleys to be used by the next person

ii) N-95

→ N-95 masks may be obtained from unit coordinators (UCs). UCs must maintain a record of employees who have been issued N-95 masks with the date the mask was issued.

→ Write your employee code on the mask prior to use

→ Write employee code on a paper bag prior to use and leave on the isolation trolley. These may be obtained from unit coordinators covering the shift (image below)

→ Wear a surgical mask on top of the N-95 to prevent mask contamination.

→ Following use, discard the surgical mask

→ Remove the N-95 mask carefully, without touching the front surface and place in the paper bag (as shown on page 20)

→ Masks may be reused for as long as there is no wear and tear and a tight seal forms around the mouth and nose. If your mask is damaged, or visibly soiled or no longer forms a tight seal around your face and mouth, you must notify the UC and submit the used mask to obtain a new N-95 mask.

→ N95 masks worn during intubation can only be reused once sterilized. Currently, this is only being done for intubations in the OR. Anesthesia staff must clearly write their employee codes on these masks prior to use. Sterilized masks will be sent to the same employee for reuse. Prior to use, please ensure that there is no surface contamination, the elastic bands are not damaged and the mask forms a tight seal when worn. If these conditions are not fulfilled, please discard the mask and use a new one.

→ N95 masks used during intubation in all other areas must be discarded. Please note that CDC currently recommends that masks not be reused following any aerosol generating procedures; however, given the regional and global shortage of N-95 masks, you may continue to reuse N-95 masks worn during aerosol generating procedures (other than intubation) as long as you wear a surgical mask on top of the N-95.

Gowns (COVID ward):

→ The same gown must be worn to see ALL **CONFIRMED NON-ICU, COVID ward** patients. Gloves must be changed between patients. Try, as much as possible, to visit these patients around the same time to conserve gowns. Gowns must be discarded after rounding on these patients.

→ For patients in COVID ICU or suspected COVID cases on the COVID ward, a new gown and gloves must be worn for each patient.



PPE Donning and Doffing for Suspected or Confirmed COVID patients on Non-COVID units:

Donning (putting on the gear):

1. Identify and gather the proper PPE to don. Ensure choice of gown size is correct.
2. Perform hand hygiene using hand sanitizer.
3. Put on isolation gown. Tie all of the ties on the gown.
4. Put on face mask
5. Put on face shield
6. Put on gloves. Gloves should cover the cuff (wrist) of gown.
7. Healthcare personnel (HCP) may now enter patient room.

Doffing (taking off the gear):

1. Remove gloves **inside the patient's room**. Ensure glove removal does not cause additional contamination of hands.
2. If hands are contaminated, perform hand hygiene.
3. Remove gown **inside the patient's room**
4. HCP may now **exit patient room**.
5. Perform hand hygiene.

6. Remove face shield carefully by grabbing the strap and pulling upwards and away from the head. Do not touch the front of face shield. Discard this in a **yellow bin outside the patient's room**.
7. Remove and discard facemask **if visibly contaminated**.
8. Perform hand hygiene after removing facemask and before putting it on again if your workplace is practicing reuse.
9. N-95 masks must be retained and used for up to 7 days. Please refer to the PPE use guidelines in the COVID document.

Shaikat Khanum Memorial Cancer Hospital & Research Center

Personal Protective Equipment (PPE) Recommendations for SKM Lahore



	Gloves	Medical Mask	N95 Mask	Gown	Faceshield / Goggles	Hazmat Suit
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Recommendations for Select Groups of Healthcare Workers

Staff at screening counter		✓				
Staff at first point of contact*		✓				
Staff in all areas of the hospital		✓				
Staff in the COVID Testing Area	✓	✓		✓	✓	

Recommendations for staff caring for suspected / confirmed COVID-19 patients

ALL healthcare workers entering the patient's room	✓	✓		✓	✓	
ALL healthcare workers present inside a room when aerosol generating procedures† are performed	✓		✓	✓	✓	
Doctors collecting nasopharyngeal samples for COVID-19 testing in inpatient units	✓		✓	✓	✓	
Phlebotomy Staff	✓	✓		✓	✓	
Housekeeping Staff cleaning the room once the patient leaves (terminal cleaning)	✓	✓		✓		
Porters transporting patients	NO PPE required. Porters and patients must wear a surgical mask during transport.					
Visitors of pediatric COVID-19 positive patients. 1 visitor allowed-must stay		✓				
Visitors of adult COVID-19 positive patient	NO visitors allowed for adult patients.					

Recommendations for staff caring for patients in Red Zones

All staff entering ICU rooms of patients with suspected or confirmed COVID-19	✓		✓	✓	✓	
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Recommendations for Yellow Zones

All staff to wear at all times	✓	✓		✓		
Staff with patient interaction in Yellow Zones. Change outer gloves between patients.	✓	✓				

Recommendations for staff in PACU, Holding Bay and surgical procedures in the OR requiring General Anaesthesia

All staff present inside the OR during an operative procedure must wear	✓	✓	✓	✓	✓	
PACU and Holding Bay		✓				

All staff must strictly adhere to hand hygiene guidelines.

**PCOs and cashiers at front desk at COVID screening counters, OPD, EAR, WIC, Radiology, Radiation; Pharmacists at front desk in pharmacy; front desk receptionist/cashier in phlebotomy lab; guard who searches the bags of those entering the Hospital at the main gate and one guard each at the main entrances to the Hospital and to the WIC*

†Aerosol generating procedures: nasopharyngeal sample collection, bronchoscopy, open airway suctioning, noninvasive ventilation, intubation, CPR, dental procedures, NG insertion, Upper GI endoscopy, administration of general anaesthesia

Minimize the number of staff members present while aerosol generating procedures are performed. Only those performing and assisting should be present.

Shaukat Khanum Memorial Cancer Hospital & Research Center

Personal Protective Equipment (PPE) Recommendations SKM Peshawar



	Gloves	Medical Mask	N95 Mask	Gown	Faceshield / Goggles	Hazmat Suit
Recommendations for Select Groups of Healthcare Workers						
Staff at screening counter		✓				
Staff at first point of contact*		✓				
Staff in all areas of the hospital (surgical masks for clinical staff and cloth masks for nonclinical staff)		✓				
Staff in the COVID Testing Area	✓	✓		✓	✓	

Recommendations for staff caring for suspected / confirmed COVID-19 Patients						
ALL healthcare workers entering the patient's room	✓	✓		✓	✓	
ALL healthcare workers present inside a room when aerosol generating procedures are performed	✓		✓	✓	✓	
Doctors collecting nasopharyngeal samples for COVID-19 testing in inpatient units	✓		✓	✓	✓	
Phlebotomy Staff	✓	✓		✓	✓	
Housekeeping Staff cleaning the room once the patient leaves (terminal cleaning)	✓	✓		✓		
Porters transporting patients	NO PPE required. Porters and patients must wear a surgical mask during transport.					
Visitors of pediatric COVID-19 positive patients. 1 visitor allowed-must stay inside the room at all times		✓				
Visitors of adult COVID-19 positive	NO visitors allowed for adult patients.					

Recommendations for staff caring for patients in Red Zones						
All staff entering ICU rooms of patients with suspected or confirmed COVID-19	✓		✓	✓	✓	

Recommendations for Yellow Zones						
All staff to wear at all times	✓	✓		✓		
Staff with patient interaction in Yellow Zones. Change outer gloves between patients.	✓	✓				

Recommendations for patients and attendants in all areas of the hospital						
Cloth masks		✓				

All staff must strictly adhere to hand hygiene guidelines.

**PCOs and cashiers at front desk at COVID screening counters, OPD, EAR, WIC, Radiology, Radiation; Pharmacists at front desk in pharmacy; front desk receptionist/cashier in phlebotomy lab; guard who searches the bags of those entering the Hospital at the main gate and one guard each at the main entrances to the Hospital and to the WIC*

†Aerosol generating procedures: nasopharyngeal sample collection, bronchoscopy, open airway suctioning, noninvasive ventilation, intubation, CPR, dental procedures, NG insertion, Upper GI endoscopy, administration of general anesthesia

Minimize the number of staff members present while aerosol generating procedures are performed. Only those performing and assisting should be present.

Section 4: High Risk Units

Guidance for Staff Working in Yellow Zones:

PPE:

For guidance on PPE, refer to Section 3

Instructions for all staff:

→ALL staff working on these units must undergo daily symptom screening and temperature checks at the beginning of the shift

Areas Designated as Yellow Zones

SKM Lahore: None

SKM Peshawar: None

Section 5: Planning for Procedures and Chemotherapy

Planning for Endoscopic Procedures:

Screen for symptoms of COVID-19 (fever, cough, sore throat, shortness of breath). If any of these are present, postpone the procedure and reevaluate in 2 weeks

If the patient reports no symptoms and no contact with a COVID patient over the past 2 weeks, test for COVID and advise the patient to self-isolate for 2 days

Pre-procedure COVID-19 testing:

All patients booked for endoscopic procedures must be tested for COVID 48 hours prior to the procedure.

This will be applicable to admitted and OPD patients.

For admitted patients who are too unwell to be tested in an open area, samples may be taken in a single room with closed doors- negative pressure is not required.

Asymptomatic patients with a COVID positive PCR over the past 90 days do not require preprocedure testing

If the test is positive, postpone endoscopy and reevaluate in 2 weeks; if, upon reevaluation, the patient is afebrile for at least 24 hours with improvement in other symptoms, proceed with the planned procedure.

→**PPE:** faceshield, impermeable gown, gloves, N-95 mask, plastic apron, shoe covers and headcover/cap; the same headcover may be worn during multiple procedures

If the test is negative, plan for endoscopy.

→Screen the patient for COVID symptoms once again (fever, cough, sore throat, shortness of breath) on the day of the procedure. If these are present, postpone endoscopy and reevaluate in 2 weeks.

→If no signs/symptoms suggestive of COVID are present, proceed with endoscopy.

→**PPE:** standard PPE for endoscopy+ surgical mask, disposable plastic apron, shoe covers and headcover/cap; the same headcover may be worn during multiple procedures.

Planning for Bronchoscopies:

Screen for symptoms of COVID-19 (fever, cough, sore throat, shortness of breath). If any of these are present, postpone the procedure and reevaluate in 2 weeks

If the patient reports no symptoms and no contact with a COVID patient over the past 2 weeks, test for COVID and advise the patient to self-isolate for 2 days

Pre-procedure COVID-19 testing:

All patients booked for bronchoscopic procedures must be tested for COVID 48 hours prior to the procedure.

This will be applicable to admitted and OPD patients.

For admitted patients who are too unwell to be tested in an open area, samples may be taken in a single room with closed doors- negative pressure is not required.

Asymptomatic patients with a COVID positive PCR over the past 90 days do not require preprocedure testing

If the test is positive, postpone the procedure and reevaluate in 2 weeks; if, upon reevaluation, the patient is afebrile for at least 24 hours with improvement in other symptoms, proceed with the planned procedure.

→PPE: faceshield, impermeable gown, gloves, N-95 mask

If the test is negative, proceed with the procedure.

→Screen the patient for COVID symptoms once again (fever, cough, sore throat, shortness of breath) on the day of the procedure. If these are present, postpone the procedure and reevaluate in 2 weeks.

→If no signs/symptoms suggestive of COVID are present, proceed with the procedure.

→PPE: faceshield, impermeable gown, gloves, N-95 mask

Planning for Surgical Procedures:

Screen for symptoms of COVID-19 (fever, cough, sore throat, shortness of breath). If any of these are present, postpone the procedure and reevaluate in 2 weeks

If the patient reports no symptoms and no contact with a COVID patient over the past 2 weeks, test for COVID 48 hours before the procedure and advise the patient to self-isolate x 2 days

Pre-procedure COVID-19 testing:

All patients booked for surgery must be tested for COVID 48 hours prior to surgery.

This will be applicable to admitted and OPD patients.

For admitted patients who are too unwell to be tested in an open area, samples may be taken in a single room with closed doors- negative pressure is not required.

Asymptomatic patients with a COVID positive PCR over the past 90 days do not require preprocedure testing

If the test is negative, plan for surgery.

→Screen the patient for COVID symptoms once again (fever, cough, sore throat, shortness of breath) on the day of surgery. If these are present, postpone surgery and reevaluate in 2 weeks.

→If no signs/symptoms suggestive of COVID are present, proceed with surgery.

If the test is positive, postpone surgery and reevaluate in 2 weeks; if, upon re-evaluation, the patient is afebrile x 1 day with improvement in other symptoms, proceed with the planned procedure

-PPE: N-95 mask, sterile impermeable gown, sterile gloves, faceshield or goggles

Any patient who tested positive pre-procedure and whose surgery was delayed as a result, may undergo their surgical procedure up to four weeks (28 days) from the date of the initial positive test without having to be re-tested. However, as for all other procedures, these patients must still be screened for symptoms of COVID prior to surgical procedures. Those reporting symptoms must be considered COVID positive.

For patients who recover from COVID and require procedures within 90 days after the initial positive test:

Asymptomatic patients with a COVID positive PCR over the past 90 days do not require preprocedure testing

Guidance for the anesthesia team:

- minimum number of staff to be present in the OR during intubation
- PPE:** N-95 mask, impermeable gown, gloves, faceshield or goggles

Guidance for the surgery team:

- May enter the OR 15 minutes following intubation.
- PPE:** N-95 mask, sterile impermeable gown, sterile gloves, faceshield or goggles

*Use of an N95 mask, as opposed to a standard surgical mask, is **compulsory** for the following:

-all laparoscopic, head and neck and ENT procedures

all emergent procedures

- all procedures performed on patients with confirmed or suspected COVID
- all procedures performed on patients testing positive for COVID over the past 4 weeks

*N95 masks are **recommended** for all other operative procedures performed under GA.

Planning for FNACs:

This section applies to FNACs performed in Radiology and Pathology

For FNAC:

Perform needle biopsy rather than FNA where possible.

Performing FNA may be necessary in some situations e.g for thyroid nodules. We recommend the following PPE for these cases:

- N-95 mask, sterile impermeable gown, gloves, faceshield or goggles
- Following use, N-95 masks be saved and used for an extended period of time as explained on page 19

Planning for Radiologic Procedures:

For other aerosol generating procedures, lung and pleural biopsies, bronchial artery embolization, insertion and gastrostomy the following PPE is recommended:

- N-95 mask, sterile impermeable gown, gloves, faceshield or goggles

N-95 masks must be reused. Please refer to N-95 reuse guidelines on Page 17

No COVID testing is required prior to radiologic procedures for patients with no clinical suspicion for COVID.

Planning for Dental Procedures:

Pre-procedure COVID testing is not required

PPE for aerosol-generating procedures:

- N-95 mask, sterile impermeable gown, gloves, faceshield or goggles

PPE for non-aerosol generating procedures:

→ surgical mask, sterile impermeable gown, gloves, faceshield or goggles

Planning for Chemotherapy and Stem Cell Transplant:

All patients with **acute leukemias and those planned for stem cell transplant**, must be tested for COVID 48 hours prior to chemotherapy. Patients must be tested once prior to each cycle of chemotherapy.

If the test is positive, postpone chemotherapy and reevaluate in 2 weeks; once afebrile x 1 days and at least 10 days from symptom onset, repeat COVID testing x 2, 24 hours apart. If both tests are negative, proceed with the planned chemotherapy.

For pediatric patients, it is advisable to proceed with moderate intensity chemotherapy even if COVID is diagnosed, as childhood malignancies are very aggressive and may be fatal if treatment is delayed- even by a few weeks. Induction therapy may be initiated in 3 weeks from diagnosis of infection

If the test is negative, plan for chemotherapy.

→Screen the patient for COVID symptoms once again (fever, cough, sore throat, shortness of breath) on the day of chemo. If these are present, postpone chemotherapy and reevaluate in 2 weeks.

→If no signs/symptoms suggestive of COVID are present, proceed with chemotherapy.

*Patients with COVID must not undergo transplant until they have completed the isolation period of 10 days, are afebrile x 3 days and have tested negative on 2 consecutive nasopharyngeal PCRs taken 24 hours apart.

*The subset of COVID-positive patients with aggressive malignancies, in whom delaying chemotherapy poses a greater risk than COVID, intermediate-strength chemotherapy may be administered. These patients must be admitted and appropriate isolation precautions must be followed.

*Standard risk patients (all solid malignancies, lymphoma, myeloma), who have had a COVID positive PCR , have completed at least 10 days isolation and are afebrile for 24 hours with improvement in other symptoms:

- Isolation can be discontinued
- 'COVID-19' flag can be removed
- Commencement of chemotherapy may be considered by the primary team

*For the following groups of patients, the **duration of isolation precautions is a minimum of 20 days:**

→immunocompromised patients (patients with neutropenia, those who have recently received chemotherapy or are on steroids/ other immunosuppressants)

→**these patients must remain in isolation until 2 consecutive COVID PCRs taken 24 hours apart are negative**

Section 6: Guidance on Patient Flow for COVID Rule-out During Admission

Patients with signs/symptoms of COVID on admission:

- Must be admitted directly to the regular ward or ICU, depending on the severity of illness.
- Patients must preferably be placed in negative pressure rooms. If these are unavailable, please accommodate in regular rooms.
- Patients with confirmed COVID infection must be cohorted (i.e placed in the same room)

Patients who develop symptoms of COVID or require COVID testing for planned procedures during admission:

- Move to a single room on the same unit
- Institute contact+ droplet precautions+ eye protection
- **PPE:** impermeable gown, faceshield, gloves, surgical mask
- If the COVID PCR is positive, continue isolation
- If the PCR is negative, discontinue isolation, if admitted, and proceed with the planned chemotherapy or procedure

Asymptomatic acute leukemia or pre-transplant patients, pre-op patients and those admitted for endoscopic procedures requiring COVID-rule out:

- COVID rule out should ideally be performed on an outpatient basis, 48 hours prior to the planned procedure or chemotherapy
- For patients requiring urgent chemotherapy or admission for some other reason, admit to a non-COVID unit
- Allocate a single room
- Institute contact+ droplet precautions+ eye protection
- **PPE:** impermeable gown, faceshield, gloves, surgical mask
- If the COVID PCR is positive, continue isolation
- If the PCR is negative, discontinue isolation, if admitted, and proceed with the planned chemotherapy or procedure

Patients admitted to the ICU, who develop symptoms of COVID and require COVID testing during admission:

- Move to a negative pressure room on the same unit
- Institute contact+ airborne precautions+ eye protection
- **PPE:** impermeable gown, faceshield, gloves, N-95 mask

→If the COVID PCR is positive, continue isolation

→If the PCR is negative, discontinue isolation. Patients may be moved out of negative-pressure rooms.

*For the following groups of patients, the **duration of isolation precautions is a minimum of 20 days:**

→immunocompromised patients (patients with neutropenia, those who have recently received chemotherapy or are on steroids/ other immunosuppressants)

→**these patients must remain in isolation until 2 consecutive COVID PCRs taken 24 hours apart are negative**

Section 7: Guidance for Pregnant Healthcare Workers

Employees under 28 weeks of gestation

- Require risk assessment by employee health physicians
- Those with uncomplicated pregnancies and no history of cardiac or pulmonary disease can return to work
- These employees must not be posted to COVID units or EAR
- These employees must strictly adhere to PPE guidelines for areas they work in

Employees at 28 to 34 weeks of gestation

- Will be assigned duties with no patient interaction e.g. administrative work and telemedicine clinics

Employees over 34 weeks of gestation

- Must be advised to stay at home

Section 8: Frequently Asked Questions (FAQs)

1. What resources are these guidelines based on?

- CDC, WHO, NHS

2. What should employees with cough/fever/sore throat do?

- Do not enter the hospital building
- Visit the following areas for assessment:
SKM Peshawar: COVID Assessment Area (24 hours, 7 days a week)
SKM Lahore: OPD Room 21 for evaluation (24 hours, 7 days a week). Room 21 must be accessed from the back entrance.

3. How can hospital staff protect themselves from COVID-19?

- Adhere to **hand hygiene** policies
- Practicing good **cough etiquette** (cover your cough with your sleeve or tissue, appropriately dispose of used tissues), avoid touching eyes and mouth
- Avoid crowds and gatherings. **Physical distancing**.

4. What is the policy on code blue situations where the patient is a suspected or known cases of COVID-19, or the COVID-19 infectivity status is unknown e.g patients who are pulseless or code soon after arrival at the hospital?

- Wear gloves, gown, N-95, face shield / goggles. Do not participate in codes without this PPE.
- Minimize the number of staff present inside rooms during codes

5. Should employees who have recovered from COVID-19 be considered immune?

- Little is known about COVID-19 infection and immunity.
- Those who have been infected once may be re-infected and, therefore, must continue to follow all PPE guidelines and infection control policies religiously.
- Those with a history of COVID-19 infection and signs/symptoms suggestive of COVID (fever, chills, myalgias, sore throat, cough, shortness of breath) must proceed to the designated assessment areas.

6. Should employees who have been vaccinated for COVID-19 continue to follow precautions?

- Those who have been vaccinated may acquire the infection and, therefore, must continue to follow all PPE guidelines and infection control policies religiously.

Appendix A: Patient Under Investigation (PUI) Form



Patient Under investigation (PUI) Form: Coronavirus Disease (COVID-19)

Shaukat Khanum Memorial Cancer Hospital & Research Centre

Patient first name _____	Patient last name _____	Patient date of birth _____
Sex <input type="checkbox"/> M <input type="checkbox"/> F Nationality _____	Place of Residence _____	
Patient NIC number _____	Contact # _____	
Marital Status _____	Occupation _____	
MR # (if generated) _____	Screening date _____	
Physician's name _____	Employee Code number _____	

PUI Criteria

Date of symptom onset _____

Does the patient have the following signs and symptoms (check all that apply)?

Fever¹ Cough Sore throat Shortness of breath

Does the patient have these additional signs and symptoms (check all that apply)?

Chills Headache Muscle aches Vomiting Abdominal pain Diarrhea Other, Specify _____

Any travel over the past 14 days before symptom onset

International Travel _____	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown
Country name: _____	
Date traveled to: _____ Date traveled from: _____	
Date arrived in Pakistan: _____	
Local Travel Outside of City of Residence _____	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown
City name: _____	
Date traveled to: _____ Date traveled from: _____	
Date arrived in city of residence: _____	
Have close contact ² with a person under investigation for COVID-19?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown
Have close contact ² with a laboratory-confirmed COVID-19 case?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown
In which country was the case diagnosed with COVID-19? _____	
Have close contact ² with an individual returning from international travel?	<input type="checkbox"/> Y <input type="checkbox"/> N <input type="checkbox"/> Unknown
Which country did the contact return from? _____	

Additional Patient Information

Is the patient a health care worker? Y N Unknown

Have history of being in a healthcare facility (as a patient, worker, or visitor)? Y N Unknown

Care for a COVID-19 patient? Y N Unknown

Diagnosis (select all that apply): Pneumonia (clinical or radiologic) Y N Acute respiratory distress syndrome Y N

Comorbid conditions (check all that apply): None Unknown Pregnancy Diabetes Cardiac disease Hypertension

Chronic pulmonary disease Chronic kidney disease Chronic liver disease Immunocompromised

Cancer, specify type _____

Other, specify _____

Does the patient have another diagnosis/etiology for their respiratory illness? Y, Specify _____ N Unknown

Illness severity: Mild Y N Moderate Y N Severe Y N Ventilated Y N

Specimens for COVID-19 testing

Specimen type	Collected by (Name and Employee Code)	Transported by (Name and Employee Code)	Date collected

¹ Fever may not be present in some patients, such as those who are very young, elderly, immunosuppressed, or taking certain medications. Clinical judgement should be used to guide testing of patients in such situations

² Close contact is defined as: a) being within approximately 6 feet (2 meters) or within the room or care area for a prolonged period of time (e.g., healthcare personnel, household members) while not wearing recommended personal protective equipment (i.e., gowns, gloves, respirator, eye protection); or b) having direct contact with infectious secretions (e.g., being coughed on) while not wearing recommended personal protective equipment. Data to inform the definition of close contact are limited. At this time, brief interactions, such as walking by a person, are considered low risk and do not constitute close contact.