**Hospital Protocol for Screening and Management of 2019 Novel Corona Virus (2019-nCoV)**

**National Academy of Medical Sciences,**

**Bir Hospital, Kathmandu.**



**Prepared By**

Outbreak Management Committee-2076

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# Introduction and Aims

The recent outbreak of novel Coronavirus infection in Wuhan, China and its subsequent spread to other countries warrants preparedness for possible cases.Further WHO has recently declared that the outbreak if 2019-nCoV constitutes a PHEIC and advice as temporary recommendations under the IHR. WHO urges "all the countries be prepared for **Containment**, including **active surveillance**, **Early detection**, **Isolation and case management**, **Contact tracing** and **prevention of onward spread** of 2019-nCoV infection and to **share full data with WHO**."

Sincethe cases of Coronavirus respiratory illness have already been diagnosed in Nepal, we need to be vigilant to screen and manage possible cases and limit the spread if subsequent cases visit our hospital.

This protocol is aimed at providing general guidance to the healthcare personnel involved in the screening and care of patients with **suspected**, **probable** or **confirm**2019-nCoV infection at National Academy of Medical Sciences, Bir Hospital.

## Screening (Outpatient and Emergency Department)

All patients presenting to the outpatient departments and emergency departments should be screened using the following questions:

1. Do you have an acute respiratory illness with
2. Fever >380C and
3. Cough and
4. Onset within 10 days

If the answer is **yes**, obtain following history

1. Have you or anyone in your family travelled to China recently (within 2 weeks)?
2. Have you come in contact with a traveler returning from China (within 2 weeks)?
3. Are you a healthcare person involved in evaluating and managing possible CoV patients?

If the answer is ‘yes’ for question 1 and and ‘yes’ for any of questions from 2 to 4 then the patient should be referred to the**Viral Fever Screening Desk** (**?3fvf]sLsf] Hj/f] hfFRg] sf]7f**) in the Emergency Department of Bir Hospital.

प्रश्नहरू (नेपालीमा)

1. केतपाईंलाईपछिल्लो१०दिनमाज्वरो , खोकीरस्वास-प्रश्वासकोसमस्याछ ?
2. केतपाईंलेपछिल्लो२हप्ताभित्रचीनकोभ्रमणगर्नुभएकोछ ?
3. केतपाईंकोपरिवारकोकुनैसदस्यलेपछिल्लो२हप्ताभित्रचीनकोभ्रमणगर्नुभएकोछ ?
4. केतपाईंकोसम्पर्कपछिल्लो२हप्ताभित्रचीनभ्रमणगरेकाकुनैयात्रुसंगभएकोछ ?
5. केतपाईं Corona virus संक्रमितवासम्भावितबिरामीकोरेखदेखगर्नेस्वास्थ्यकर्मीहो ?

## Protocol for Emergency Care

All cases referred to the **Viral Fever Screening Desk-?3fvf]sLsf] Hj/f] hfFRg] sf]7f\_**should be attended immediately by the duty doctor and attending nurse. Whether the patient meets the screening criteria should be confirmed by the duty doctor, and once confirmed, the necessary protocols should be activated. The infection prevention and control measures as listed in table 2 should be instituted immediately.

*Initial Evaluation and Management*

1. Vital parameters – Temperature, Pulse, Blood Pressure, Heart rate, Respiratory rate and Oxygen saturation by pulse oximeter should be recorded.
2. Oxygen supplementation (if SPO2 is <92% or severe respiratory distress):

If severely hypoxemic /not improved with O2 supplement / respiratory failure, need for advanced airway management is assessed and implemented accordingly.

1. Thorough systemic examination should be done to include any other co-morbidities.
2. Intravenous access should be established.

If hypotension, fluid boluses and inotropes as appropriate to be started immediately

1. Appropriate investigations should be sent – eg. Portable Chest Xray, ECG, ABG, Electrolytes, RFT, LFT, Blood Glucose, Blood counts, cultures.
2. Arrange to send appropriate samples (Nasopharyngeal swab / oropharyngeal swab / sputum) for testing the 2019-nCoV to NPHL.
3. Inform the "**Outbreak Management Team**", admitting medicine unit and isolation wards and ICU’s to prepare for possible admission of a case with 2019-nCoV.

*Note: For specific management of shock, hypoxia, fever and bronchospasm in Emergency refer to Table 1.*

*Subsequent Evaluation and Management*

1. Subsequent evaluation should be performed by Emergency Supervisor(s) from the Outbreak Management team as to whether the initial evaluation and management was appropriate.
2. The decision to admit and the place of admission (Isolation Ward/ICU) to be confirmed by the Outbreak Management team.
3. Once the preliminary management has taken place and decision to admit in Bir Hospital taken, the patient should be transferred promptly to appropriate wards accompanied by duty doctor and the nurse

*Note: For patients who are suspected or confirmed to have 2019-nCoV infection, a decision to transfer the patient to Sukraraj Tropical and Infectious Disease Hospital or as designated by MoHP can be taken by the Outbreak Management coordinator in consultation with competent authorities of referral hospital.*

Patients meeting the screening criteria in OPD Counter/ Emergency Room/ OPDs

Initial Assessment and Management in **Viral Fever Screening Desk(?3fvf]sLsf] Hj/f] hfFRg] sf]7f)**

Send appropriate samples including Nasopharyngeal / Oropharyngeal swab PCR for 2019-nCoV

Reassessment by "Outbreak Management Team" to ensure initial management was appropriate

Decision to admit/transfer the patient at Bir Hospital

Decision to admit

Prompt transfer to Isolation ICU (ICU-1)

Prompt transfer to Isolation Ward (Surgical Cabin bed no. 1,2,4,5 and 6)

**POSITIVE**

**NEGATIVE**

Discharge or transfer to General Ward / ICU

Continue care in Isolation Ward / ICU

Report of 2019-CoV

**Fig 1. Protocol for admission of suspected 2019-nCoV patients**

## Protocol for care in Wards/ ICUs

All patients admitted to Isolation ward/ICU should be managed using standard procedures and protocols of **good medical practice**. All major management decisions should be made in consultation with the supervisors from the 'outbreak management team' and specialist from respective sub-specialties as per need.

Management of common manifestations and equipments and drugs required in the wards and ICU are listed below.

|  |  |  |  |
| --- | --- | --- | --- |
| **Manifestations** | **Management** | **Target** | **Equipment required** |
| Hypoxia (SpO2 <92% at room air or features of severe respiratory distress) | Oxygen via nasal prong @ 5 l/min,   * if not maintaining / improving🡪 upgrade to face mask 10 l/min, * if not maintaining / improving 🡪 upgrade to non-rebreathing bag at more than 10 l/min * if not maintaining /improving 🡪 upgrade to NIV (if conscious and mild hypoxia) * if not maintaining / improving intubation and ventilation | 1. Respiratory rate less than 25 per minute 2. Work of breathing decreased 3. No cyanosis 4. Normal mental status | 1. Nasal prong 2. Face mask 3. Non-rebreathing bag with mask 4. Ambu-bag different size mask 5. Laryngoscope with different size blades 6. Endotracheal tube with stylet 7. Jelly 8. Tie 9. Ketamine 10. Succinyl choline/Rocuronium 11. Laryngeal mask airway 12. Guedel airway 13. Sodium bicarbonate 14. BiPAP with vented mask 15. Ventilator 16. Oxygen tube 17. 10 ml syringe 18. 5 ml syringe |
| Hypotension | Crystalloids @ 15-20 ml/kg bolus, if inadequate response inotropes – noradrenaline, vasopressin, adrenaline | MAP≥65mmHg | 1. Normal saline, Ringer’s Lactate 2. 16 G iv canula 3. Leukoplast 4. Cotton swab 5. IV line 6. Noradrenaline 7. Vasopressin 8. Adrenaline 9. Dobutamine 10. Infusion pump 11. Syringe Pump |
| Bronchospasm | Salbutamol MDI 2 puff every 5-10 minutes via spacer or salbutamol+ ipratropium+ normal saline nebulization | Decrease wheeze | 1. Salbutamol MDI 2. Spacer 3. Salbutamol solution 4. Ipratropium solution 5. Normal saline 100 ml 6. Syringe 10 ml 7. Nebulizer |
| Antibiotics | Gram Negative + Gram Positive |  | 1. Coamoxiclav, 2. Ceftriaxone, 3. Piperacillin-Tazobactam, 4. Meropenem, 5. Cefoperazone-Sulbactam, 6. Levofloxacin, 7. Teicoplanin, 8. Vancomycin, 9. Azithromycin |
| Fever | Paracetamol 500 mg/1 gm oral/rectal or IV | Normal Body temperature | 1. Tablet/supp Paracetamol 500 mg 2. Inj Paracetamol 1 gm |
| Glycemic Control | Hypoglycemia – 25% Dextrose Bolus  Hyperglycemia – Regular Insulin | Target BG – 150-180 mg% | 1.25% Dextrose  2. Insulin – Regular  3. Glucometer with strips |

**Table 1. Management protocols for common conditions**

## Protocol for Mechanical Ventilation

All patients should be ventilated using the following protocol

* 1. Calculate Predicted Body Weight

Males – 50+2.3(height in inches-60)

Females – 45.5 +2.3 (heignt in inches-60)

* 1. Select ACMV – VCV/PCV mode
  2. Select initial Tidal volume (TV) of 6ml/kg PBW, Respiratory rate (RR) to maintain baseline minute ventilation
  3. Oxygenation Goal – PaO2 of 55-80 mmHg or SpO2 88-95%.
  4. Plateau Pressure goal ≤ 30cmH2O
  5. pH Goal 7.30 – 7.45
  6. Use incremental PEEP and FiO2 combination to achieve the oxygenation goal
  7. Adjust RR, TV to achieve plateau pressure and pH goals

# Infection Prevention and Control

Necessary infection control measures should be instituted in Emergency, wards and ICU. This will be maintained and monitored by Infection prevention and control committee (IPCC).

**Safety Precaution**

Standard Precautionfor all patients includes

* hand hygiene
* appropriate personal protective equipment (PPE)
* gloves
* facial protection (eyes, nose, and mouth)
* gown
* respiratory hygiene and cough etiquette
* prevention (and management) of injuries from sharp instruments
* environmental cleaning
* appropriate handling of contaminated linens
* waste disposal
* Patient care equipment.

The specific recommendations are as follows:

|  |  |
| --- | --- |
| **At triage** | * Give suspect patient a medical mask and direct patient to the screening desk /isolation room. * Instruct all patients to cover nose and mouth during coughing or sneezing with tissue or flexed elbow for others. * Perform hand hygiene after contact with respiratory secretions. |
| **Apply droplet precautions** | * Use a medical mask if working within 1-2 meters of the patient. * Place patients in single rooms, or group together those with the same etiological diagnosis. * Use eye protection (face-mask or goggles) * Limit patient movement within the institution and ensure that patients wear medical masks when outside their rooms |
| **Apply contact precautions** | * Use PPE (medical mask, eye protection, gloves and gown) when entering room and remove PPE when leaving. * Use either disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). * If equipment needs to be shared among patients, clean and disinfect between each patient use. * Ensure that health care workers refrain from touching their eyes, nose, and mouth with potentially contaminated gloved or ungloved hands. * Avoid contaminating environmental surfaces that are not directly related to patient care (e.g. door handles and light switches). * Ensure adequate room ventilation. * Avoid movement of patients or transport. * Perform hand hygiene |
| **Apply airborne**  **precautions when**  **performing an aerosol**  **generating procedure** | * Ensure that healthcare workers performing aerosol-generating procedures **(i.e.** open suctioning of respiratory tract, intubation, bronchoscopy, cardiopulmonary resuscitation)use PPE, including gloves, long-sleeved gowns, eye protection, and fit-tested particulate respirators (N95 or equivalent, or higher level of protection). * Avoid the presence of unnecessary individuals in the room. |

# Communication

The following flow chart depicts the communication channel within the hospital. should any problem arises the coordinator of Outbreak Management Committee will take the decision.

## List of Drugs/Equipments to be available in Emergency

1. N95 mask-20
2. Eye shields-20
3. Full sleeve gowns-10
4. Sterile Gloves (6.5 and 7.0)- 1 box each
5. Screen – 2 per patient
6. Stethoscope -2
7. BP cuff -2
8. Thermometer -2
9. Monitor – 1
10. Pulse Oximeter - 1
11. Crash cart with emergency drugs (atropine, adrenaline, lignocaine, amiodarone, Sodium bicarbonate, Calcium Gluconate, Adenosine, Hydrocortisone, Frusemide, Tranexamic Acid) and airway devices
12. Swab stick for throat swab collection-as per need
13. Vessel for sputum collection-as per need
14. Blood collection tubes-as per need
15. Hand sanitizer-20
16. Cap-20
17. All drugs included in Table 1.

## List of Equipments/Drugs to be available in Isolation Wards

1. N95 mask-50
2. Eye shields-50
3. Full sleeve gowns-20
4. Sterile Gloves (6.5 and 7.0)- 2 box each
5. Screen – 2 per patient
6. Stethoscope -5
7. BP cuff -5
8. Thermometer -10
9. Monitor – 2
10. Pulse Oximeter - 1
11. Crash cart with emergency drugs (atropine, adrenaline, lignocaine, amiodarone, Sodium bicarbonate, Calcium Gluconate, Adenosine, Hydrocortisone, Frusemide, Tranexamic Acid) and airway devices-2
12. Vessel for sputum collection- as per need
13. Blood collection tubes- as per need
14. Hand sanitizer-20
15. Cap-50
16. Cardiac Table – 1 in each bed
17. All drugs and equipments included in Table 1.

## List of Equipments/Drugs to be available in ICU

1. N95 mask-50
2. Eye shields-50
3. Full sleeve gowns-20
4. Sterile Gloves (6.5 and 7.0)-2 box each
5. Screen – 2 per patient
6. Stethoscope -5
7. BP cuff -5
8. Thermometer -5
9. Monitor – 5
10. Ventilator – 1 for each bed
11. BiPAP machine with mask -2
12. Crash cart with emergency drugs (atropine, adrenaline, lignocaine, amiodarone, Sodium bicarbonate, Calcium Gluconate, Adenosine, Hydrocortisone, Frusemide, Tranexamic Acid) and airway devices-2
13. Vessel for sputum collection- as per need
14. Blood collection tubes- as per need
15. Hand sanitizer-50
16. Cap-50
17. All drugs and equipments included in Table 1.