**Novel Coronavirus (COVID-19) v3**

**Operational Support & Logistics**

**Disease Commodity Packages**

**Agent's Biosafety Level:** (to be confirmed): BSL2, Virus culture BSL3

**Epidemic Potential:** Under investigation

**Last Update:** 7 February 2020

**Managing Epidemics Handbook (MERS)**

**COVID-19**

**Treatment**

**Guidance on regulations for Transport of Viral transport**

**Infection Protection & Control (IPC)**

**Personal Protective Equipment (PPE)**

**Culture**

**Polymerase Chain Reaction (PCR)**

<table>
<thead>
<tr>
<th>Sample Collection</th>
<th>Diagnostics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory confirmation of a COVID-19 case will trigger an thorough investigation. Because there currently is not a PCR test commercially available, testing may take several days or longer. WHO's recommended strategy is to begin an investigation immediately, thus requiring immediate operational support and supplies.</td>
<td>Polymerase Chain Reaction (PCR)</td>
</tr>
<tr>
<td>Upper and lower respiratory samples (nasopharyngeal and sputum samples)</td>
<td>no commercial rRT-PCR kits yet available; see interim COVID-19 laboratory guidance</td>
</tr>
<tr>
<td>Animal source has not yet been identified</td>
<td>Several vaccine candidates for MERS-CoV are in development.</td>
</tr>
<tr>
<td>Several candidates under consideration for evaluation. On outbreak-specific basis, the Monitored Emergency Use of Unregistered Interventions (MEURI) may be considered. Please refer to most recent WHO guidance.</td>
<td>Oxygen Therapy Mechanical Ventilation of severe cases (40%) Use of Oximeter highly recommended Intubation, ICU, ECMO required for severe patients</td>
</tr>
<tr>
<td>PPE for at-risk HCWs at health facilities</td>
<td>Respiratory (standard, droplet IPC); Airborne precautions for aerosolized generating procedures, Possibly Home Care Kits for home isolation of asymptomatic cases or mildly symptomatic (in the case of a large outbreak)</td>
</tr>
</tbody>
</table>

**Key outbreak control activities considered for material supply**

- **Supportive treatment** (oxygen, antibiotics, hydration & fever/pain relief) to reduce mortality
- **Personal Protective Equipment** and material for the establishment of IPC measures at health care level to reduce transmission

**Case Management**

**Sample Collection**

<table>
<thead>
<tr>
<th>Interventions</th>
<th>Commodity</th>
<th>Technical Description</th>
<th>Guidance on regulations for Transport of Infectious Substances 2019 - 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surveillance</strong></td>
<td><strong>Sample Collection</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Triple packaging boxes</td>
<td>Triple packaging boxes for transport</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shale container boxes</td>
<td>Puncture resistant container for collection and disposing of used, disposable and auto-disable syringes, needles. 5 L capacity accommodating approximately 100 syringes. Boxes prominently marked</td>
<td></td>
<td></td>
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<tr>
<td><strong>Diagnosis</strong></td>
<td></td>
<td></td>
<td></td>
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</table>

**Note:** Many diagnostics supplies are also used for Case Management purposes, but have been included only in Surveillance.

Laboratory Testing for a novel Coronavirus is in development.
### Novel Coronavirus (COVID-19) v3

#### CLINICAL MANAGEMENT

**Triage / Screening**

- Supportive Treatment
  - PPE
  - Laryngoscope
  - Pulse Oximeter
  - Oxygen tube, extension
  - Oxygen concentrators
  - Flow splitter
  - Oxygen prongs, nasal, non-sterile, single use

**Oxygen concentrators**

- Device concentrates oxygen from ambient air. On 4 anistatic swivel castors, 2 with brakes. Integrated handle allows for easy moving and positioning. Oxygen sensing device is integrated and measures concentration at flow meter entrance. Four-step filtering of air-intake, including bacterial filter. All filters replaceable, coarse filter washable/reusable. Continuous monitoring with visual and audible alerts, on low ‘high output pressure, low oxygen concentration, power failure and battery test. Operating conditions: Temperature between 5 to 45 degrees Celsius, Relative humidity max. 90% without condensation. Spare parts should be required for operating at least one year.

**Flow splitter**

- Splitter of oxygen flow provided by an oxygen concentrator. Each flow can be adjusted individually via its flow meter, range: 0.125 to 2LPM (Liter Per Minute). The output nozzle can either be fit with tubing or left blank. Input pressure: 50 to 350kPa.

**Oxygen prongs, nasal, non-sterile, single use**

- Nasal prongs (nasal cannula) is a device designed for easy administration of oxygen and comfort of patient. The device consists of a plastic tube which fits behind the ears, and a set of two prongs which are placed in the nostrils. Soft twin prongs nasal tips to ensure equal oxygen flow to both Star lumen main tube to avoid accidental blockage. Adjustable, smoothly finished, nasal tips for maximum patient comfort. Soft funnel shaped connector to facilitate easy connection to oxygen source. Oxygen tube length: approximately 2m.

**Oxygen tube, extension**

- Tube used to deliver oxygen through the nose. Material: PVC. Automatic, open distal (patient) end, with 6 to 12 lateral eyes. Proximal end with connector enabling the tube to be connected to an oxygen supply tube of any diameter (e.g. serrated male conical tip). Sterile, for single patient use. Diameter: CH 10. Length: 40cm

**Portable ventilator**

- a) Tidal volume up to 1,000 mL
- b) Pressure (respiratory) up to 80 cm H2O
- c) Volume (inspiratory) up to 120 L/min
- d) Respiratory rate: up to 60 breaths per minute.
- e) SIMV Respiratory Rate: up to 40 breaths per minute.
- f) CPAP/PEEP up to 20 cm H2O.
- g) Pressure support up to 45 cm H2O.
- h) FiO2 between 21 to 100 %
- i) Inspiratory and expiratory times up to at least 2 sec and 8 sec respectively
- j) I:E Ratio at least from 1:1 to 1:3.

2 Modes of ventilation:
- a) Volume controlled.
- b) Pressure controlled.
- c) Pressure support.
- d) Synchronized intermittent mandatory ventilation (SIMV) with pressure support.
- e) Assist / control mode
- f) CPAP/PEEP

**Alarms required:**
- FiO2, minute volume, pressure, PEEP, apnoea, occlusion, high respiration rate, disconnection

**System alarms required:**
- power failure, gas disconnection, low battery, vent inoperative, self diagnostics

**If alarm silencing feature is incorporated, it must be temporary and clearly displayed when activated**

**Air and externally supplied oxygen mixture ratios fully controllable**

**Inlet gas supply (O2) pressure range at least 35 to 65 psi**

**Medical air compressor integral to unit, with inlet filter**

**Pulse Oximeter**

- Compact portable device measures arterial blood oxygen saturation (SpO2), heart rate and signal strength. Measuring range: SpO2 30 to 100% (minimum graduation 1%). Heart rate 20 to 250 bpm (minimum graduation 1bpm). Line-powered, or Extra-batteries/rechargeable batteries are required at least one year.

**Laryngoscope**

- A hand-held device (i.e., non-endoscopic rigid type) intended to be used by anaesthesia/emergency service personnel to manipulate the tongue, preventing it from obstructing the oropharynx and enabling a clear view of the trachea for the insertion of an endotracheal (ET) tube prior to the delivery of inhalation anaesthesia and/or ventilation. It has a handle containing batteries to power its light (a small built-in light bulb or fibre-optic light) for airway illumination, and a curved or straight blade of various designs and lengths that can be hinged/interchanged or integral. Some types can be magnetic resonance imaging (MRI) compatible. This is a reusable device to improve respiratory status of a patient, and to help in the treatment evaluation of patients suffering from chronic respiratory disorders (e.g., asthma, emphysema).

**Set of stainless steel depressors**

- Miller type:
  - Straight Nr 1, length approx. 100 mm
  - Macintosh type:
  - Curved Nr 2, length approx. 110 mm
  - Curved Nr 3, length approx. 135 mm
  - Curved Nr 4, length approx. 155 mm

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**WHO Core:**

- Concentrator, Oxygen

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**WHO Technical Guidelines:**

- Oxygen Concentrator Technical Guidelines

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**Technical Guidelines:**

- EN 14683 any type including Type I
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- ASTM F2100 any Level or equivalent

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**ISO 13485:2003 Medical devices -- Quality management systems -- Requirements for regulatory purposes (Australia, Canada and EU)**


- EN 14683 any type including Type I

- ISO 80601-2-12:2007 Medical electrical equipment - Part 1- 2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests

- ISO 60601-2-12:2011 Medical electrical equipment – Part 2-12: Particular requirements for basic safety and essential performance of critical care ventilators

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**WHO Core:**

- Concentrator, Oxygen
Endotracheal tube, without cuff

- Open distal end and Magill-type point with oral angle of 37.5º.
- Standard connector (ext. Ø 15mm) at the proximal end enabling the tube to be connected to the ventilation system.
- Radio opaque mark.
- With Murphy’s eye.
- Graduations.
- Endotracheal tube without cuff.
- Size: Ø internal 3mm or 3.5mm
- Material: Polyvinyl chloride (PVC).
- Disposable.
- Sterile.
- Initial sterilisation method: Ethylene oxide gas or Gamma radiation.

Endotracheal tube, with cuff

- Open distal end and Magill-type point with oral angle of 37.5º.
- Standard connector (ext. Ø 15mm) at the proximal end enabling the tube to be connected to the ventilation system.
- Radio opaque mark.
- With Murphy’s eye.
- Graduations.
- Endotracheal tube without cuff.
- Size: Ø internal 6.5mm, 7mm, 7.5mm or 8mm
- Material: Polyvinyl chloride (PVC).
- Disposable.
- Sterile.
- Initial sterilisation method: Ethylene oxide gas or Gamma radiation.

Carbon dioxide detector

- Disposable
- Colorimetric
- Sizes compatible with child and adult endotracheal tube

Portable ultrasound scanner

- High performance ultrasound scanner
- System integrator scanner, 2 probes, matching trolley and video-printer
- Compact and lightweight, easy to transport and position
- Alphanumeric keyboard with trackball and time gain control (TCG)
- Piezoelectric probes, electronically scanned; convex and linear
- Imaging display modes: B, dual B, M, B and M
- Adjustable field-of-view, 6 level zoom
- Imaging technologies: dynamic frequency imaging, multi-stage focusing, aperture control
- Depth range selection: convex sector image and linear image, 3 steps
- Image orientation: lateral and vertical inversion (in B mode)
- Freeze function with storage of approx. 25 images
- Measurements and analysis:
  - Calibre control: trackball
  - B mode image: distance, area and circumference by ellipse and trace method, volume, ratio, gestational age, fetal weight, angle
  - Gestational table: user programmable
  - M-mode: velocity, time interval, depth, heart rate, LV function
- Alpha-numerics & graphics:
  - Text annotations and body markers
  - Automatic display of: date and time, focal point setting, image orientation indicator, image scrolled position, distance scale mark, M-mode time mark, grey scale for calibration
  - High resolution B/W monitor, approx. 25 cm diagonal (across), equals to 10 inch, fit with reflection filter
  - Image grey scale: 256 levels
  - Video output: 625 lines/frame
  - Two transducer ports leave 2 probes permanently available, electronic switch between probes
- Data communication interface: RS232, BNC, IEEE, USB or equivalent
- Power supply: 220 V / 50 Hz

Portable ultrasound probes, included with scanner

- Convex abdominal probe, frequency range: 2.5 / 3.5 / 5.0 MHz

Resuscitator, adult

- Resuscitator to ventilate adult (body weight over 30kg), with compressible self-refilling ventilation bag, capacity: 1475-2000ml
- Resuscitator operated by hand
- Ventilation with ambient air
- Resuscitator shall be easy to disassemble and reassemble, to clean and disinfect, and be autoclavable
- All parts must be manufactured from high-strength, long life materials and require no special maintenance or storage conditions.

Resuscitator, child

- Resuscitator to ventilate child (body weight 7-30kg), with compressible self-refilling ventilation bag, child, capacity: 500-700ml and non-rebreathing valve with pressure limiting valve, patient connector
- Resuscitator operated by hand
- Ventilation with ambient air
- Resuscitator shall be easy to disassemble and reassemble, to clean and disinfect, and be autoclavable
- All parts must be manufactured from high-strength, long life materials and require no special maintenance or storage conditions.
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**Operational Support & Logistics**

#### Disease Commodity Packages

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<tr>
<th>Item</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>Infusion giving set</td>
<td>Infusion giving set, with air inlet and needle, sterile, single-use</td>
</tr>
<tr>
<td>Paracetamol</td>
<td>Paracetamol, 500mg, tablets</td>
</tr>
<tr>
<td>Gloves, examination</td>
<td>Gloves, examination, nitrile, powder-free, non-sterile. Cuff length preferably reaching above the wrist (e.g., minimum 230mm total length. Sizes, S, M, L)</td>
</tr>
<tr>
<td>Gloves, surgical, length to forearm large (longer than examination gloves)</td>
<td>Gloves, surgical, nitrile, powder-free, single use. (Gloves should have long cuffs, reaching well above the wrist, ideally to mid forearm. Sizes ranging 5.0 - 9.0)</td>
</tr>
<tr>
<td>Face shield</td>
<td>Made of clear plastic and provides good visibility to both the wearer and the patient. Adjustable band to attach firmly around the head and fit snugly against the forehead. Fog resistant (preferable). Completes cover the sides and length of the face. May be re-usable (made of robust material which can be cleaned and disinfected) or disposable.</td>
</tr>
<tr>
<td>Fit Test Kit</td>
<td>To evaluate effectiveness of seal for tight fitting respiratory protection devices.</td>
</tr>
<tr>
<td>Particulate respirator, grade N95 or higher</td>
<td>N95 or FFP2 respirator, or higher. (Good breathability with design that does not collapse against the mouth (e.g. duckbill, cup-shaped))</td>
</tr>
<tr>
<td>Mask, medical</td>
<td>Medical mask, good breathability, internal and external faces should be clearly identified.</td>
</tr>
<tr>
<td>Mask, medical patient</td>
<td>Medical mask, good breathability, internal and external faces should be clearly identified.</td>
</tr>
<tr>
<td>Scrubs, tops</td>
<td>Tunic/tops, woven, scrubs, reusable or single use, short sleeved (tunic/tops), worn underneath the coveralls or gown.</td>
</tr>
<tr>
<td>Scrubs, pants</td>
<td>Trousers/pants, woven, scrubs, reusable or single use, short sleeved (tunic/tops), worn underneath the coveralls or gown.</td>
</tr>
<tr>
<td>Apron, heavy duty</td>
<td>Straight apron with bib. Fabric: 100% polyester with PVC coating, or 100% PVC, or 100% rubber, or other fluid resistant coated material. Waterproof. Sewn strap for neck and back fastening. Minimum basis weight: 300g/m². Covering size: 70-90 cm (width) x 120-150cm (height). Reusable (provided appropriate arrangements for decontamination are in place). Acceptable standards: EN ISO 13688, EN 14126-B and partial body protection (EN 13334 or EN 14605), EN 343 for water and breathability or equivalent.</td>
</tr>
<tr>
<td>Gown</td>
<td>Single use, disposable, length mid-calf.</td>
</tr>
<tr>
<td>Good seal with the skin of the face, Flexible PVC frame to easily fit with all face contours with even pressure. Enclose eyes and the surrounding areas, Accomodate wearers with prescription glasses, Clear plastic lens with fog and scratch resistant treatments, Adjustable band to secure firmly so as not to become loose during clinical activity, Indirect venting to avoid fogging, May be re-usable (provided appropriate arrangements for decontamination are in place) or disposable.</td>
<td>- EU PPE Regulation 2016/425, - EN 166, - ANSI/ISEA Z87.1, or equivalent</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>--------------------------------------------------</td>
</tr>
<tr>
<td>Bottle of 100ml &amp; 500ml</td>
<td></td>
</tr>
<tr>
<td>Disposal bag for bio-hazardous waste, 30x50cm, with “Bio Hazard” print, autoclavable polypropylene. 50 or 70 micron thickness</td>
<td></td>
</tr>
<tr>
<td>SAFETY BOX, needles/syringes, 5l, cardboard for incineration, box-25</td>
<td>Biohazard Label as per WHO PQS E010/011</td>
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<td>Liquid (prefered), powder and bar</td>
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<td>Outer glove should have long cuffs, reaching well above the wrist, ideally to mid-forearm. Cuff length preferably reach mid-forearm (eg. minimum 280mm total length. Sizes, S, M, L), Reusable</td>
<td>Puncture resistant, FDA compliant</td>
</tr>
<tr>
<td>50 to 100m roll</td>
<td></td>
</tr>
<tr>
<td>NaDCC, granules, 1kg, 65 to 70% + dosage spon</td>
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