Novel Coronavirus (nCoV) v1

World Health Organization

Operational Support & Logistics
Disease Commodity Packages

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

Related links: MERS-CoV [LINK]

Epidemic Potential: Under investigation

Last Update: 11 Jan 2020

Managing Epidemics Handbook (MERS) [LINK]

SURVEILLANCE	Sample Collection	Diagnosis		
		Polymerase Chain Reaction (PCR)	Immunoassay	Culture
Laboratory confirmation of a nCoV case will trigger an thorough investigation. Because there currently is not a PCR test 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.	Upper and lower respiratory samples (nasophyrangeal and sputum samples); lower respiratory speciments preferred	no commercial rRT-PCR kits yet available; see interim nCoV laboratory guidance	Not yet available	Viral transport medium

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

Laboraroty Testing for a novel Coronavirus is in development

PREVENTION & CONTROL	Travel & Trade	Vaccine	Infection Protection & Control (IPC)
The mode(s) of transmission of the nCoV are currently unknown. Available information suggests that the nCoV is zoonotic and causes infections in humans through contact with infected animals (to be confirmed). Current data suggests that there is no or limited human-to-human transmission. For other coronaviruses such as MERS-CoV and SARS-CoV, human-to-human tranmission occured due to breaches in IPC practices. Thus, the central focus of any prevention/control strategy is protecting healthcare workers with appropriate IPC supplies and ensuring basic health logistics at responding facilities.	Animal source has not yet been identified	Several vaccine candidates for MERS-CoV are in development.	Respiratory (standard, droplet IPC); Airborne precautions for aerosolyzed generating procedures, Personal Protective Equipment (PPE) for screening Use of PPE for at-risk health facilities

Please see WHO MERS guidance [LINK]

R&D Blueprint [LINK]

CASE MANAGEMENT	Treatment			Personal Protective Equipment (PPE)
	Aetiological	Supportive		
There is no specific treatment or vaccines for the nCoV, however there are ongoing R&D efforts for MERS-CoV. See WHO current guidance on case management for MERS. Guidance on case management for the nCoV from Wuhan is in development.	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.	Oxygen Therapy Mechanical Ventilation of severe cases (40%) Use of Oximeter highly recommended Intubation, ICU, ECMO requried for severe patients	Antibiotics, Pain/Fever	PPE for at-risk health facilities Respiratory (standard, droplet IPC); Airborn precautions for aerosolyzed generating procedures, Possibly Home Care Kits for home isolation of asymptomatic cases or mildly symptomatic (in the case of a large outbreak)

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

Note: Products for Surveillance, Prevention & Control, and Case Management are undergoing rapid and continous development and refinement. For greater clarity, please refer to most recent applicable WHO technical guidance.

INTERVENTION		COMMODITY	TECHNICAL DESCRIPTION	
SURVEILLANCE	Sample Collection	Triple packaging boxes	Triple packaging boxes for transport	Guidance on regulations for Transport of Infectious Substances 2017 - 2018 [LINK]
		Viral Transport Medium	Medium for specimen to transport to laboratory	
		Sharps container boxes	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.	• WHO performance specification E10/IC.1 • WHO/UNICEF standard E10/IC.2 or equivalent
		Viral Transport Medium	Viral Transport Medium with Swab., Medium 3 ml	Comply with the CLSI standard M40-A (for the Quality Control of Microbiology Specimen Transport Devices). Compatible with molecular and cell culture techniques.
	Diagnostics	Criteria for selection of specific diagnostic tests may include historical efficacy, adherence to any existing Target Product Profiles, ease of use, necessary throughput, distribution and logistics requirements, and manufacturer production capacity. For some pathogens, consideration may need to be given to the presence of mutations in targeted gene sequences or proteins. WHO can advise on the selection of tests on a case by case basis as determined by a specific event.		
Prevention & Control	PPE - Standard	Gloves, examination	Gloves, examination, nitrile, powder-free, non-sterile. Cuff length preferably reach mid-forearm (eg. minimum 280mm total length. Sizes, S, M, L Gloves should have long cuffs, reaching well above the wrist, ideally to mid-forearm.	• EU standard directive 93/42/EEC Class I, EN 455, • EU standard directive 89/686/EEC Category III, EN 374, • ANSI/ISEA 105-2011, • ASTM D6319-10 • or equivalent
		Mask, surgical	Medical/surgical mask, high fluid resistance, good breathability, internal and external faces should be clearly identified, structured design that does not collapse against the mouth (e.g. duckbill, cup-shaped)	EN 14683 Type IIR performance ASTM F2100 level 2 or level 3 or equivalent; • Fluid resistance at minimum 120 mmHg pressure based on ASTM F1862-07, ISO 22609, or equivalent • Breathability: MIL–M-36945C, EN 14683 annex C, or equivalent • Filtration efficiency: ASTM F2101, EN14683 annex B, or equivalent
		Gown	Single use, fluid resistant, disposable, length mid-calf to cover the top of the boots, light colours preferable to better detect possible contamination, thumb/finger loops or elastic cuff to anchor sleeves in place.	• Option 1: fluid penetration resistant: EN 13795 high performance, or AAMI PB70 level 3 performance or above, or equivalent • Option 2: blood borne pathogens penetration resistant: AAMI PB70 level 4 performance, or (EN 14126-B) and partial body protection (EN 13034 or EN 14605), or equivalent

Supportive Treatment	Oxygen concentrators	Device concentrates oxygen from ambient air. On 4 antistatic 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.	WHO Core: Concentrator, Oxygen [LINK] Oxygen Concentrator Technical Guidelines [LINK]	
	(Oxygen concentrator) 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 (inspiratory) up to 80 cm H20 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 internal to unit, with inlet filter	• ISO 13485:2003 Medical devices -- Quality management systems -- Requirements for regulatory purposes (Australia, Canada and EU) • ISO 14971:2007 Medical devices -- Application of risk management to medical devices IEC 60601-1:2012 Medical electrical equipment - Part 1: General requirements for basic safety and essential performance • IEC 60601-1-1:2000 Medical electrical equipment - Part 1-1: General requirements for safety - Collateral standard: Safety requirements for medical electrical systems • IEC 60601-1-2:2007 Medical electrical equipment - Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests • ISO 80601-2-12:2011 Medical electrical equipment -- Part 2-12: Particular requirements for basic safety and essential performance of critical care ventilators	
	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.	ISO 80601-2-61:2011or equivalent	
	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). • Large hollow, cylindrical, slightly ribbed handle • Handle made of either chromium-plated or stainless steel • Can be opened to insert two batteries (type LR14, size C, 1.5 V) • Stud contact, fitting various sizes and types of depressors	ISO 7376:2009 Anaesthetic and respiratory equipment — Laryngoscopes for tracheal intubation	WHO [LINK]
	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		
	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.		

CASE MANAGEMENT

	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	
	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.	ISO10651-4: Lung ventilators - Part 4: Particular requirements for operator-powered resuscitators;
	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.	ISO10651-4: Lung ventilators - Part 4: Particular requirements for operator-powered resuscitators;
	Airway, Guedel, sterile, single use (range of sizes)	Child sizes: 00, 0, 1; Adult sizes: 2, 3, 4 • Oro-pharyngeal airway, Guedel type. • Semi-rigid, transparent. • Proximal (or buccal) end straight and reinforced. • Flange colour coded and/or marked with corresponding size number. • Size: Airway Guedel, size 00, approximately 40mm; size 0, approx. 50mm; size 1, approx. 60 mm; size 2, approx. 70mm; size 3 approx. 80 mm; size 4 approx. 90mm • Material: Polyethylene/vinyl acetate (EVA) - Polyvinyl chloride (PVC). • Sterile, single patient use. • Initial sterilisation method: • Ethylene oxide gas or gamma radiation.	
	Compound Sodium Lactate Solution	Compound solution of sodium lactate (Ringer's lactate), injection solution, w/o IV set and needle, 1000ml	
	Infusion giving set	Infusion giving set, with airinlet and needle, sterile, single-use	
	Paracetamol	Paracetamol, 500mg, tablets	
	Gloves, examination	Gloves, examination, nitrile, powder-free, non-sterile. Cuff length preferably reach mid-forearm (eg. minimum 280mm total length. Sizes, S, M, L Outer glove should have long cuffs, reaching well above the wrist, ideally to mid-forearm.	• EU standard directive 93/42/EEC Class I, EN 455, • EU standard directive 89/686/EEC Category III, EN 374, • ANSI/ISEA 105-2011, • ASTM D6319-10 • or equivalent
	Gloves, surgical, length to forearm large (longer than examination gloves)	Gloves, surgical, nitrile, powder-free, single use. Gloves should have long cuffs, reaching well above the wrist, ideally to mid-forearm.	• EU standard directive 93/42/EEC Class I, EN 455, • ANSI/ISEA 105-2011, • ASTM 6319-10 • or equivalent
	Face shield	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 snuggly against the forehead, Fog resistant (preferable), Completely cover the sides and length of the face, May be re-usable (made of robust material which can be cleaned and disinfected) or disposable.	• EU standard directive 86/686/EEC, EN 166/2002, • ANSI/ISEA Z87.1-2010, or equivalent
	Fit Test Kit	To evaluate effectiveness of seal for tight fitting respiratory protection devices	OSHA 29 CFR 1910.134 Appendix A
	Particulate respirator, grade N95 or higher	N95 or FFP2 respirator, or higher Good breathability with design that does not collapse against the mouth (e.g. duckbill, cup-shaped)	"N95" respirator accodring to US NIOSH, or "FFP2" according to EN 149

PPE Health Care Facilities	Mask, surgical	Medical/surgical mask, high fluid resistance, good breathability, internal and external faces should be clearly identified, structured design that does not collapse against the mouth (e.g. duckbill, cup-shaped)	EN 14683 Type IIR performance ASTM F2100 level 2 or level 3 or equivalent; • Fluid resistance at minimum 120 mmHg pressure based on ASTM F1862-07, ISO 22609, or equivalent • Breathability: MIL–M-36945C, EN 14683 annex C, or equivalent • Filtration efficiency: ASTM F2101, EN14683 annex B, or equivalent
	Scrubs, tops	Tunic/tops, woven, scrubs, reusable or single use, short sleeved (tunic/tops), worn underneath the coveralls or gown.	
	Scrubs, pants	Trouser/pants, woven, scrubs, reusable or single use, short sleeved (tunic/tops), worn underneath the coveralls or gown	
	Gown	Single use, fluid resistant, disposable, length mid-calf to cover the top of the boots, light colours preferable to better detect possible contamination, thumb/finger loops or elastic cuff to anchor sleeves in place.	• Option 1: fluid penetration resistant: EN 13795 high performance, or AAMI PB70 level 3 performance or above, or equivalent • Option 2: blood borne pathogens penetration resistant: AAMI PB70 level 4 performance, or (EN 14126-B) and partial body protection (EN 13034 or EN 14605), or equivalent
	Goggles, protective	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.	• EU standard directive 86/686/EEC, EN 166/2002, • ANSI/ISEA Z87.1-2010, or equivalent
	Alcohol-based hand rub	Bottle of 100ml	
	Bio-hazardous bag	Disposal bag for bio-hazardous waste, 30x50cm, with "Bio Hazard" print, autoclavable polypropylene. 50 or 70 micron thickness	
	Body bag	Made of linear enforced, U-shape zipper and 2 zipper pulls with tie ribs. adult size 250x120cm Protector Body Bag specifications: • 6 handles • Impermeable, linear reinforced LLDPE, LDPE, EVA, PEVA, (avoid PVC), minimum thickness 400 microns; • Should be able to hold 100-125 kilos (200-250 lbs), • Should contain no chlorides: burning of chlorides pollute the environment and can cause damage to retort chambers. Body bags should be non carcinogenic to health of funeral workers when used for cremations. • At least 6 handles included in the body bag to allow burial team to hand carry it safely • Heat-sealed: insure superior strength and safety, • Provide full containment of blood borne pathogens • Cracking point of 25 - 32 degrees below zero • Shelf life: minimum 10 years • Bag and hands should be white color	
	Chlorine	NaDCC, granules, 1kg, 65 to 70% + dossage spon	