

# **Health Care Workers Providing care to the severe or critically person with COVID-19**

Based on WHO training packages and guidelines

2<sup>nd</sup> April, 2020



# Learning objectives

At the end of the training package you will be able to:

- Describe what COVID – 19 is including symptoms and risk population
- Describe the general principles of IPC
- Describe the assessment and early recognition of patients suspected of having COVID-19
- Gain an understanding of acute clinical care for an acutely unwell person with suspected or confirmed COVID-19
- Describe pandemic preparedness actions



- What it is
- Signs and symptoms
- Severity of disease
- At risk populations
- Case definition criteria
- The role of health care workers
- Flattening the curve

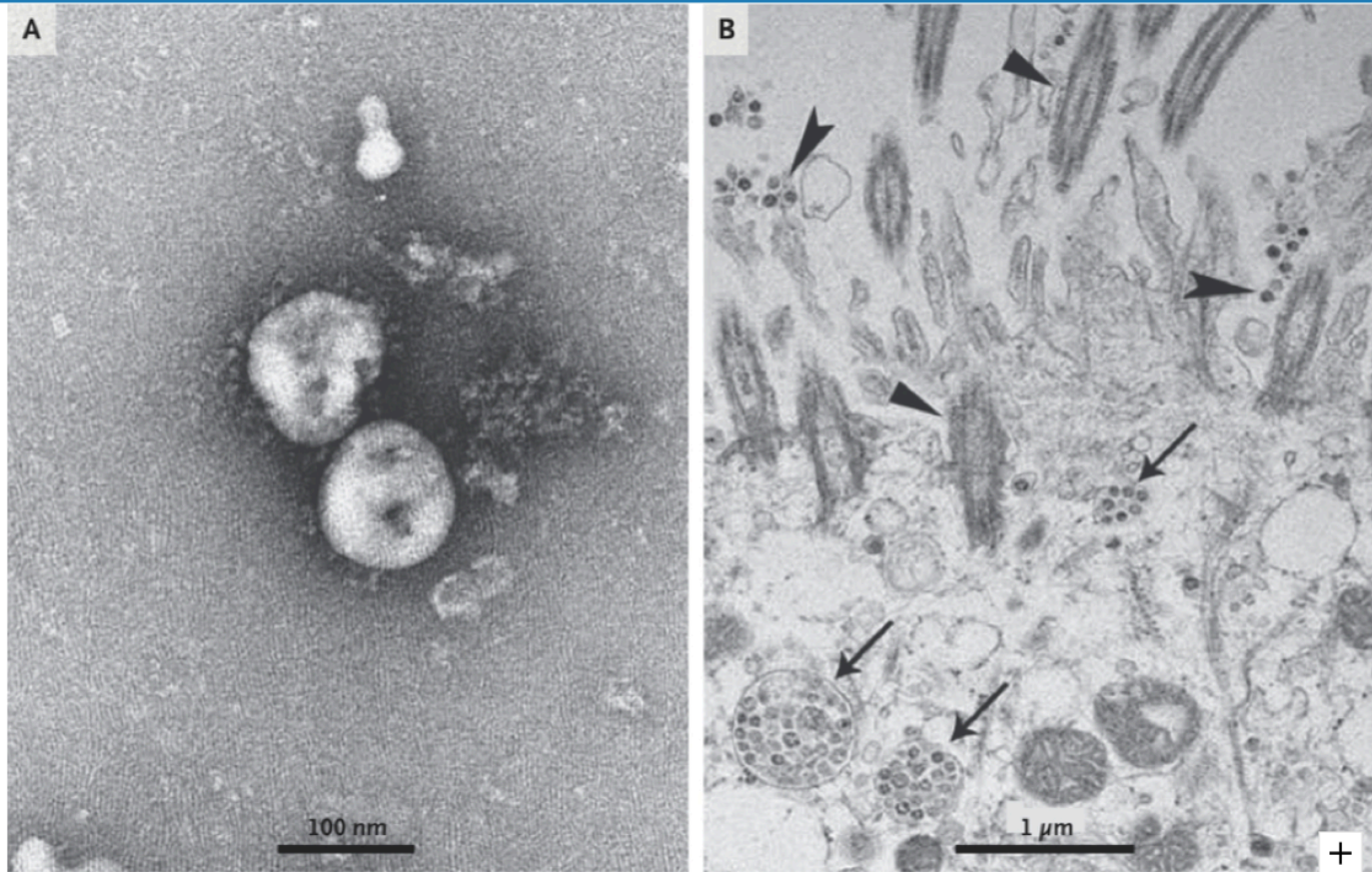
COVID-19

# Background

- In December 2019 a novel corona virus (COVID -19) started in Wuhan, China and quickly turned into an outbreak with cases increasing rapidly
- Related to other coronas viruses SARS-CoV and MERS- CoV
- Considered to have been zoonotic initially but then human to human transmission
- Causes severe respiratory infections in humans



# COVID-2019 (Corona virus)



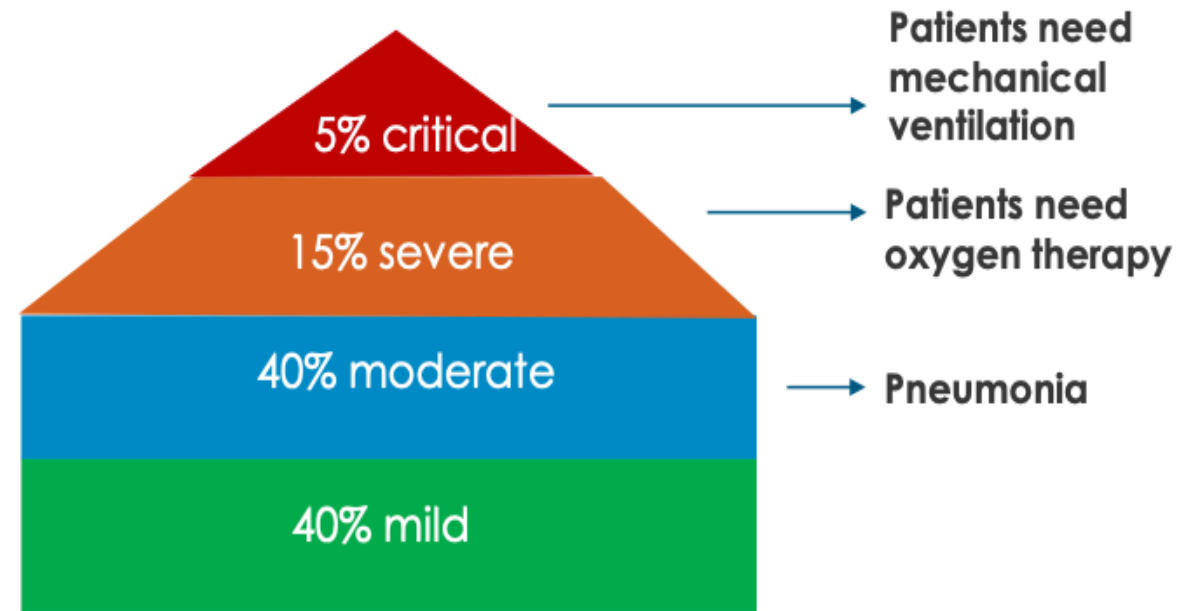
**Electron microscopy:**

**A** nCoV virus particles

**B** nCoV particles within  
human airway epithelial  
cells

# Severity profile

- Based on assumptions from progression of pandemic so far
- Numbers shown in the diagram represent current situation of 17/3/2020
- No data so far from populations with HIV, malnutrition



# COVID-19

Case definition criteria are:

- Patients with severe acute respiratory infection (fever, cough, tiredness +/- shortness of breath)
- Recent history of travel or close contact with someone who has recently travelled (within 14 days)

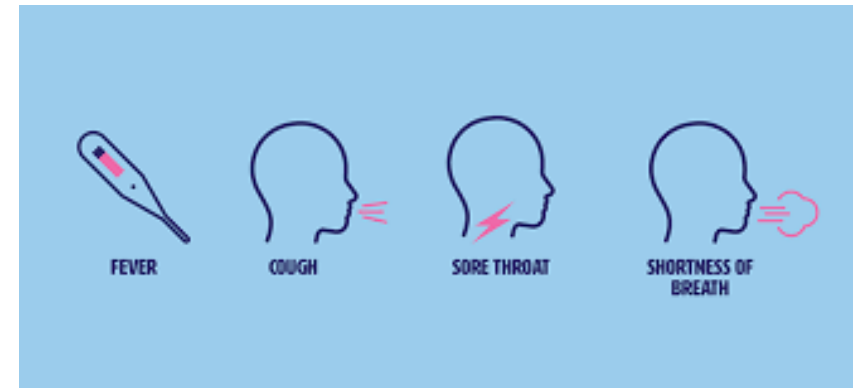


COUGH



FEVER

# When to suspect COVID -19



- Someone with acute respiratory symptoms consistent with COVID-19
- Someone who has had close unprotected contact with someone with acute respiratory symptoms or who has COVID-19
- Someone with acute respiratory symptoms who is nearby a known cluster of spreading cases
- \* Someone with acute respiratory symptoms who has returned from an overseas country or has been in close contact with someone who has recently returned from overseas (please note since international travel restrictions the connection to travel may not be a major factor)

# WHO has recognized the role of health care workers in controlling the disease

- The health sector, including healthcare workers and professionals are the backbone of a country's defences to save lives and limit the spread of disease. They play a central and critical role in global response efforts to the COVID-19 pandemic. Healthcare workers face higher risks of potential COVID-19 infection in their efforts to protect the greater community and are exposed to hazards such as psychological distress, fatigue and stigma. (WHO March 2020)*

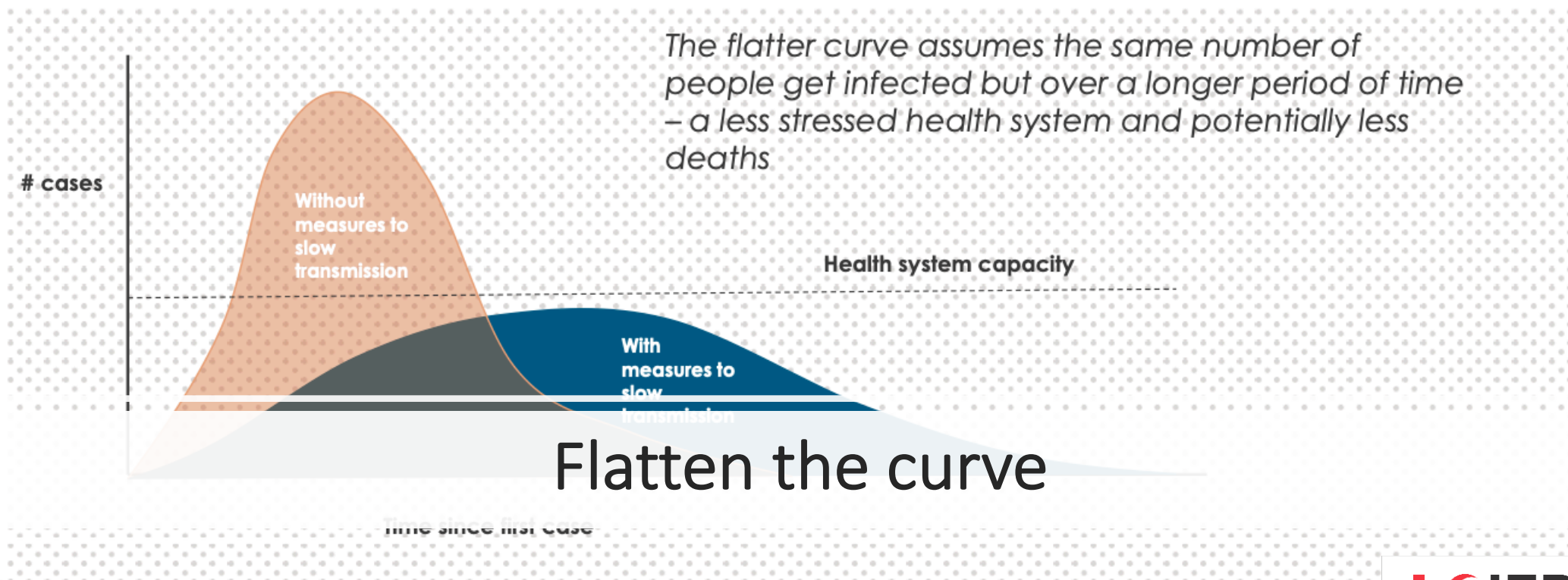




The aim of the response to COVID-19 is to “flatten the curve”

## “Flatten the curve”

*The steep curve represents exponential spread of the virus – the local health system will quickly become overloaded beyond its capacity to treat people.*



# Things to know and do

## 5 Things to Know

### What is COVID-19?

COVID-19 is a disease caused by a new coronavirus, which has not been previously identified in humans. Coronaviruses are a large family of viruses found in both animals and humans.

### What are the symptoms of COVID-19?

In most cases, COVID-19 causes mild symptoms including a runny nose, sore throat, cough and fever. It can be more severe for some people and can lead to pneumonia or breathing difficulties. In some cases, infection can lead to death.

### How does COVID-19 spread?

COVID-19 appears to spread most easily through close contact with an infected person. When someone who has COVID-19 coughs or sneezes, small droplets are released and, if you are too close, you can breathe in the virus.

### Who is most at risk?

We still need to learn more about how COVID-19 affects people. Older people, and people with other medical conditions, such as diabetes and heart disease, appear to be more at risk of developing severe disease.

### What is the treatment for COVID-19?

There is no currently available treatment or vaccine for COVID-19. However, many of the symptoms can be treated.

## 5 Things to Do

### Wash your hands frequently.

Wash your hands with soap and water or, if your hands are not visibly dirty, use an alcohol-based hand rub. This will remove the virus if it is on your hands.

### Cover your mouth and nose with a flexed elbow or tissue when coughing and sneezing.

Throw away the used tissue immediately and wash your hands with soap and water or use an alcohol-based hand rub. This way you protect others from any virus released through coughs and sneezes.

### If possible, keep a distance of 1-metre between yourself and someone who is coughing, sneezing or has a fever.

COVID-19 appears to spread most easily through close contact with an infected person.

### Avoid touching your eyes, nose and mouth

Hands touch many surfaces which can be contaminated with the virus. If you touch your eyes, nose or mouth with your unclean hands, you can transfer the virus from the surface to yourself.

### If you have fever, cough AND difficulty breathing, seek medical care. Phone ahead and inform the health center when you will visit.

Always follow the guidance of your health care professional or national health advisories.



# Communication

## Novel Coronavirus COVID-19

FOR: HEALTHCARE WORKERS



### *Communicating with patients with suspected or confirmed COVID-19*



- Be respectful, polite and empathetic
- Be aware that suspected and confirmed cases, and any visitors accompanying them, may be stressed or afraid
- The most important thing you can do is to listen carefully to questions and concerns
- Use local language and speak slowly
- Answer any questions and provide correct information about COVID-19
- You may not have an answer for every question: a lot is still unknown about COVID-19 and it is okay to admit that
- If available, share information pamphlets or handouts with your patients
- It is okay to touch, or comfort suspected and confirmed patients when wearing PPE
- Gather accurate information from the patient: their name, date of birth, travel history, list of symptoms...
- Explain the healthcare facility's procedure for COVID-19, such as isolation and limited visitors, and the next steps
- If the patient is a child, admit a family member or guardian to accompany them – the guardian should be provided and use appropriate personal protective equipment
- Provide updates to visitors and family when possible



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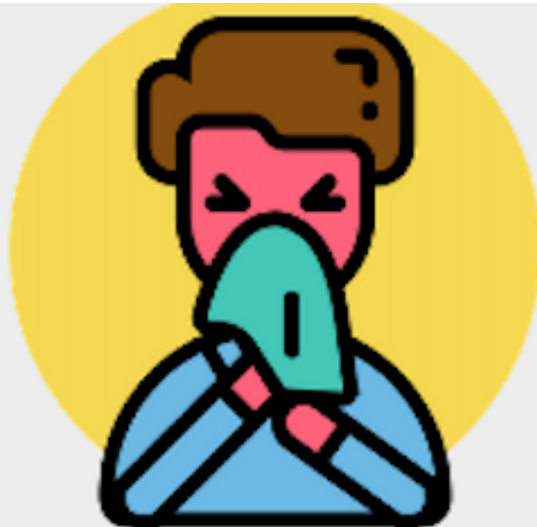
# Standard precautions when caring for a patient

- Hand hygiene – 5 moments
- Respiratory hygiene
- PPE according to the risk
- Safe handling during close contact
- Safe handling during cleaning, disinfection and handling of soiled linen
- Waste management

# Hand hygiene

- Alcohol based hand rub if hands are not visibly soiled for at least 20 seconds
- Soap and water when hands are visibly dirty for at least 20 seconds (should aim for 40- 60 seconds)
- Always follow the 5 moments





## Respiratory hygiene


- Cover nose and mouth when coughing and sneezing with a tissue or into elbow
- Immediately dispose of tissue or cloth into a rubbish bin with a lid
- Perform hand hygiene frequently
- Wear a mask if delivering direct care
- Avoid close contact
- Stay away from others if sick
- Stop shaking hands, kissing, touching, hugging

# Personal Protection Equipment (PPE)



- PPE is clothing or equipment designed to protect you from **injury** or **harm**
- **COVID-19** is a new respiratory virus we need to protect ourselves from – by changing how we do things and sometimes by wearing PPE
- Use the right PPE for the job you are doing - check the chart
- We need to prioritise PPE for frontline workers like Health care workers and ambulance drivers.
- Do not use PPE when it is not needed – supplies are precious
- PPE can only keep us safe if we use and dispose of it correctly

# Hospitals — High priority for receiving PPE supplies, especially N95 masks, they have the highest risk

Inpatient facilities								
Patient room				Triage areas			Laboratory	Transit/admin areas and tasks
Healthcare workers		Cleaners	Visitors	Health Care Workers	Patients		Laboratory technicians	All staff
Direct CARE COVID-19 patient	Aerosol generating activities COVID-19 patient	Entering room of COVID-19 patient(s)	Entering room of COVID-19 patient(s)	Preliminary screening NO direct contact	Patients with respiratory symptoms	Patients <b>NO</b> respiratory symptoms	Testing respiratory samples	No direct contact with COVID-19 patients
Medical mask	Respirator mask (N95 or FFP2) 	Medical mask	Medical mask	No PPE	Medical mask	No PPE	Medical mask	No PPE
Eye protection	Eye protection	Eye protection		Stay ONE or more metres away from patient No-touch thermometer OR thermal image camera.	Stay ONE or more metres away from other people		Eye protection	Stay ONE or more metres away from patient
Gloves	Gloves	Cleaning gloves	Gloves				Gloves	
Gown	Gown Apron	Gown Boots or closed shoes	Gown				Gown	

# Ambulances and transports – may transport people with severe illness to hospital. High priority for PPE

Ambulance transfer for people with confirmed or suspected COVID-19					
Paramedics / healthcare workers	Driver			Patients	Cleaners
Transport of people with suspected or confirmed COVID-19	No contact with patient and separate driver compartment	No contact with patient and NO separate driver compartment	Assisting with loading of suspected COVID-19 patient	Transport of suspected or confirmed COVID-19 patient to health facility	After/between transport of suspected COVID-19 patients to the referral healthcare facility
Mask, respirator N95 or FFP2  Eye protection  Gloves  Gown  Stay ONE or more metres away from patient (if possible)	No PPE required  Stay ONE or more metres away from patient	Medical mask <b>Driver</b>  Medical mask <b>Patient</b>	Medical mask <b>Driver</b> Medical mask <b>Patient</b> Eye protection  Gloves  Gown	Medical mask <b>PATIENT</b>	Medical mask  Eye protection  Cleaning gloves  Gown  Boots or closed work shoes

# Infection prevention and control

- PPE recommendations for health care workers delivering direct care is:
  - 5 moments of hand hygiene
  - Mask
  - Gloves
  - Gown
  - Eye protection – goggles or face shield
  - Use the right PPE for the job you are doing – check the chart
- \* Avoid touching face, eyes, nose, mouth with contaminated PPE



# PPE according to risk- assess to minimize risk

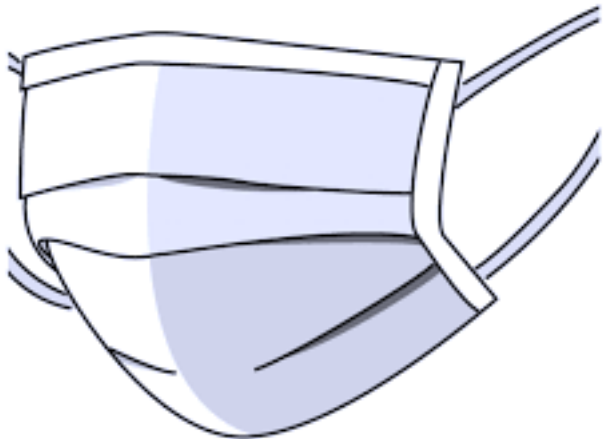
*\* use droplet precautions when caring for all suspected patients*

SCENARIO	HAND HYGIENE	GLOVES	GOWN	MEDICAL MASK	EYE-WEAR
Always before and after patient contact, and after contaminated environment	<b>X</b>				
If direct contact with blood and body fluids, secretions, excretions, mucous membranes, non-intact skin	<b>X</b>	<b>X</b>			
If there is risk of splashes onto the health care worker's body	<b>X</b>	<b>X</b>	<b>X</b>		
If there is a risk of splashes onto the body and face	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>

# Droplet precautions

## Healthcare worker

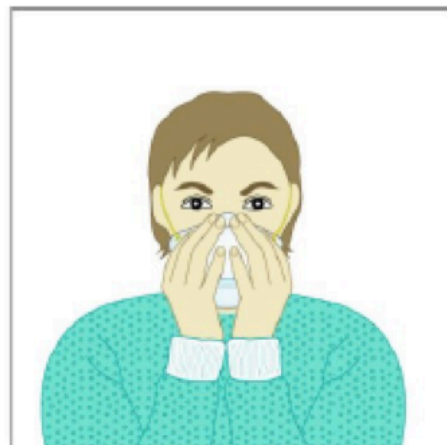
- Wear a mask whenever within 1 metre of a patient
- Wear eye protection if risk of fluid splashes



## Patient

- Should be isolated in a single room if possible with good open ventilation
- Separated from others by at least 1 metre
- Restricted movement outside the room
- Wear a mask if going outside room or if HCW enters the room

# Fitting a mask and checking the seal



## 5A Positive seal check

- Exhale sharply. A positive pressure inside the respirator = no leakage. If leakage, adjust position and/or tension straps. Retest the seal.
- Repeat the steps until respirator is sealed properly.

## 5B Negative seal check

- Inhale deeply. If no leakage, negative pressure will make respirator cling to your face.
- Leakage will result in loss of negative pressure in the respirator due to air entering through gaps in the seal.



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# Management of a deceased patient

- Respect cultural and religious traditions throughout- the need to manage on a case by case basis to balance family rights vs risk of infection
- Ensure hand hygiene and PPE prior to attending to a deceased body.
- Avoid hasty removal of a body
- Before transfer or interaction adopt standard precautions - gown, gloves (if risk of splashes from bodily fluids - mask and eyewear)
- Keep movement of body to a minimum
- Wrap the body in a cloth for transfer as soon as possible

For WHO guideline go to:

[https://apps.who.int/iris/bitstream/handle/10665/331538/WHO-COVID-19-IPC\\_DBMgmt-2020.1-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/331538/WHO-COVID-19-IPC_DBMgmt-2020.1-eng.pdf)

# Transfer of dead body to mortuary

- Standard precautions and PPE according to level of interaction
- Hand hygiene before and after contact
- Remove all lines, catheters and tubes prior to transfer
- Keep handling to a minimum
- Wrap body in a cloth (no need for body bag but may be used)
- Ensure any bodily fluids leaking from orifices are contained
- No need to disinfect body prior to mortuary
- No special transport vehicle necessary

For more information

[https://apps.who.int/iris/bitstream/handle/10665/331538/WHO-COVID-19-IPC\\_DBMgmt-2020.1-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/331538/WHO-COVID-19-IPC_DBMgmt-2020.1-eng.pdf)

# Home burial or deaths at home

- Any family member preparing the deceased body should wear gloves
- If any activity that risks splashing of bodily fluids wear a mask and eye protection
- Remove and ash clothing immediately after finished preparing the body (or wear apron or gown if available )
- The person caring for the body or family members viewing should not kiss the body
- Wash hands thoroughly once finished
- Anyone who is responsible for placing the body in the grave should wear gloves and wash hands immediately after
- Anyone with respiratory symptoms should NOT view the body closely unless they are wearing a mask
- Anyone > 60 years, children or immunosuppressed should not have any close contact with the body

# Novel Coronavirus COVID-19

FOR: HEALTHCARE WORKERS

## Protecting yourself at work from COVID-19



Follow the guidance of your healthcare facility management and talk to your colleagues about agreed COVID-19 safety procedures



When entering a room with a suspected or confirmed COVID-19 patient, put on:

- disposable gloves
- a clean, long-sleeve gown
- medical mask that covers your mouth and nose
- eye protection such as goggles



### Remember

Personal protective equipment should be changed between use and for each different patient. If utilizing single-use personal protective equipment (e.g. single-use masks, gloves, face shields) dispose in a waste bin with a lid and wash your hands thoroughly. Anything single-use cannot be reused or sterilized!



If performing an aerosol-generating procedure, such as intubation, use a particulate respirator such as an N95 – **do a seal check!**



Boots and coverall suits **are not required**

### Remember

Don't touch your eyes, nose or mouth with gloves or bare hands until proper hand hygiene has been performed



If you start coughing, sneezing or develop fever after you have provided care, report your illness immediately to the concerned authority and follow their advice



### My 5 Moments for Hand Hygiene

Use alcohol-based hand rub or wash hands with soap and water:

1. Before touching a patient
2. Before engaging in clean/aseptic procedures
3. After body fluid exposure risk
4. After touching a patient
5. After touching patient surroundings



## Assessment and early recognition of patients with COVID-19

- Steps
- IPC measures
- Assessment questions
- Symptoms
- Differential diagnoses
- Assessment and disposition flow chart



# The steps in assessment and early recognition of patients with COVID-19 are:

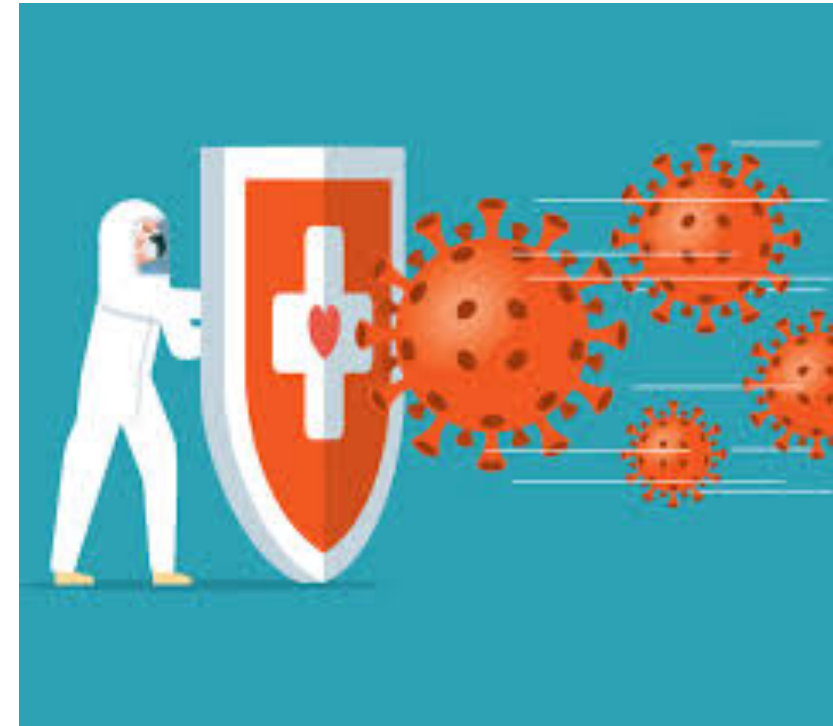
- Screening (triage)
- Strict IPC protocols
- Early diagnosis
- Supportive measures
- Prevention of complications
- Investigation
- Contact tracing



# Assessment and early recognition - Triage

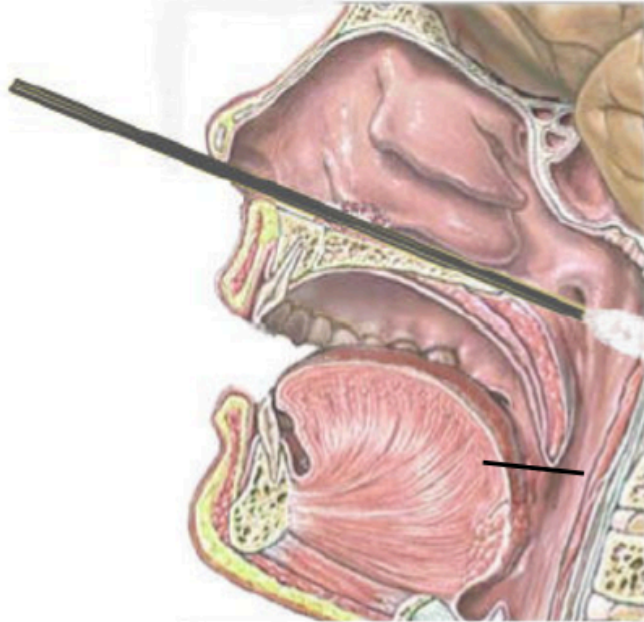
Establish screening at all health care facilities

- Decreases risk of suspected cases entering facility by having to go through triage process
- Ensures severe cases are prioritized and treated as soon as possible
- Helps minimize mild cases from unnecessary entry into facility i.e. may be managed at home



# Specimens

**Nasopharyngeal swabs**



**Throat sw**



- Naso pharyngeal and throat swab for PCR asap
- Use appropriate PPE to collect (gown, mask, gloves and eye protection)
- Rapid tests have been developed and soon to be available for use



*For latest information refer to your national laboratory and health ministry recommendations and to the WHO COVID-19 website.*

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance>

# Assessment - questions

- Have you travelled internationally in the last 2 weeks?
- Have you been in close contact with someone who has travelled in the last 2 weeks?
- Do you have any chronic disease such as asthma, COPD, heart disease, diabetes, hypertension?
- Do you have a fever, cough, sore throat?
- What other symptoms do you have?

# Apply appropriate IPC

- Droplet precautions
  - If any cough or other respiratory symptoms ask the person to put on a mask
  - Instruct the person to practice respiratory hygiene and hand hygiene
  - Protect yourself by keeping at least 1 metre from the person
  - Wear appropriate PPE when checking vital signs
  - Ensure dedicated equipment stays at triage and is cleaned between patients
  - Ensure patient is triaged to a dedicated waiting area or room set aside for COVID patients
  - Prioritise according to severity of symptoms

# Symptoms

- Most common
  - Fever (98%)
  - Dry cough (76%)
  - Fatigue and tiredness (44%)
- Other less common
  - Headache
  - Diarrhoea
  - Sore throat
  - +/- productive cough - sputum
- More severe
  - Shortness of breath or breathing difficulties



Cough



Fever



Shortness of breath

# Clinical Diagnosis - consider

- COVID-19
  - if clinical signs and history +/- clusters of positive cases are present
- Influenza
  - if seasonal and other cases are known of or suspected
- Pneumonia
  - if at risk i.e co-morbidities, age, past history of pneumonia
  - symptomatic (fever, rapid breathing, productive or dry cough)
  - If no known cases of COVID-19 and/or no travelers or history of travel recently

# Co-morbidities

- Diabetes
- Hypertension
- Cardiovascular disease
- Chronic respiratory disease – COPD, asthma
- Vulnerable groups
  - Extremes of age (the very old and the very young < 2 years)
  - Immunosuppressed (HIV, cancer)
  - Pregnant women



# Case scenario 1- assessment and early recognition

- You are working at triage and a 40 year old man presents telling you he has been sick for the last 2 days with a fever and cough. He says he lives in a small nearby community. He has been working at the busy local market as normal up until yesterday. He looks unwell and has some shortness of breath when he talks to you.

*Could this man have COVID-19? Why? What further questions do you need to ask?*

# Case scenario- Assessment and recognition response

While his symptoms are consistent with COVID-19 they are also the same as a cold

He could be at high risk if there are other cases from this area (cluster)

Questions to ask him include:

- Do you have any other symptoms? Please describe
- Is there anyone on the community who has recently travelled
- Where is the market?
- How close to people does he get at the market?

# Case scenario 2- assessment and early recognition

- An ambulance arrives at the clinic with a 70 year old woman on a stretcher. The ambulance officer tells you they were called to her home as she has been sick with a fever, not eating or drinking and a bad cough for the last few days. They tell you she has COPD, diabetes and hypertension. When you go to speak to her you notice she is breathing rapid and shallow and unable to answer your questions. As the ambulance officer goes to leave he mentions that this is the 3<sup>rd</sup> person they have picked up from that community with respiratory symptoms in the last couple of days

*Are you concerned about this woman? Is she considered a high risk? Why or why not? Where would you triage her to?*

# Case scenario- Assessment and recognition response

- This woman is a high risk because:
  - She is acutely unwell right now
  - She has several co morbidities
  - There may have been a cluster of people from the community
- She needs to be transferred into a resuscitation area immediately and call for help

## Acute clinical care

- Priorities
- Care of those symptomatic and not acutely unwell
- Emergency care
- ICU care
- Complications
- Resuscitation
- Recommendation for HCW

*What are your priorities as a health care worker when caring for a critically ill patient who has COVID -19?*

# Safety of health care workers is always the first priority

This means:

- PPE including mask, gown, gloves and eye protection when delivering direct care (N95 mask if aerosol generating procedure)
- Hand hygiene before and after every task
- Maintaining at least 1 metre distance when not delivering direct care
- Changing out of hospital clothes before travelling home





# Acute clinical care – emergency presentation

Emergency care should not be delayed if displaying severe symptoms however staff must be safe with full PPE prior to delivering emergency interventions including:

- Administer oxygen – oxygen saves lives
  - Consider need for ventilation
  - Insert IV cannula and start IV therapy (if indicated)
  - Collect pathology (swabs and blood if indicated)
  - Follow medical directions for specific care
- \* Remember at all times to protect yourself and have appropriate PPE before delivering care especially airway management



# Oxygen therapy

- If severely or critically unwell commence high flow oxygen(12-15 litres) therapy with a non - rebreather bag (face mask with reservoir bag)

# Acute clinical care– airborne precautions

An N95 mask should be used, and if available the patient should be in a negative pressure room or as a minimum a room with natural ventilation when undergoing aerosol generating procedures including:

- Intubation
- Suctioning
- CPR
- Bronchoscopy
- Aerosolised nebulizer
- Non invasive ventilation
- High flow oxygen

# Acute clinical care -ICU



In ICU, ensure adequate protection when performing advanced airway management with appropriate PPE as outlined in the IPC section i.e. higher level N95 mask + full PPE

- Ensure timely administration of life saving treatment e.g. intubation
- Ensure patient is monitored (cardiac and SaO<sub>2</sub>) if performing any advanced clinical procedures and to watch for signs of deterioration
- 1 on 1 nurse : patient ratio
- Review frequently (temperature, heart rate, respiratory rate, BP, Sao<sub>2</sub>, urine output)
- Specialised drug interventions (vasopressors)



## High flow oxygen therapy

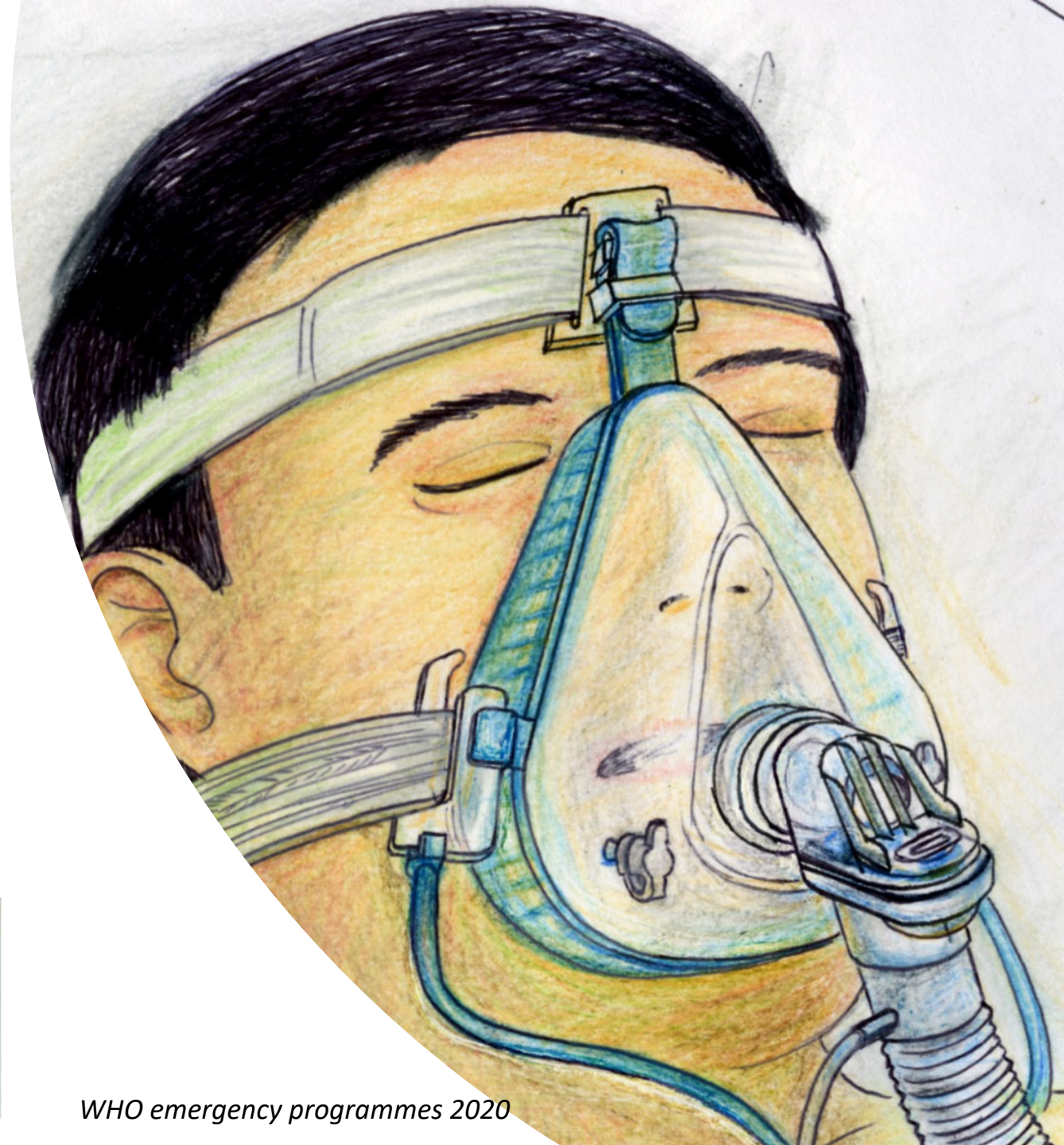
- Consider using if patient is awake (i.e. conscious) and cooperative, and not confused
- Vital signs should be stable
- Helps reduce work of breathing
- Provides a level of PEEP (help keep alveoli open for gas exchange)
- Provides humidified oxygen
- **Ensure airborne precautions are applied (PPE)**
- If deteriorates will require intubation and ventilation



# Non invasive ventilation

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- CPAP or BIPAP are both methods of non invasive oxygen ventilation
- Provides oxygen under positive pressure
- Decreases work of breathing, takes some pressure off the heart (decreases preload) and improves gas exchange
- Consider using if patient is awake (i.e. conscious) and cooperative, and not confused
- **Ensure airborne precautions are applied (PPE)**



# Monitoring for clinical deterioration

- Increasing fatigue
- If not intubated
  - Increased accessory muscles use
  - Grunting respirations
  - Change in mental status – altered level of consciousness, confusion, seizures
  - Delayed capillary refill (>3sec)
  - Cool limbs
  - Skin mottling (white/bluish)
- *For more training in critically unwell respiratory patients – SARI clinical care*  
<https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rtfiles/5p140SHgH1g2YZZf5XrC2F/Module 4 Monitoring.pdf>

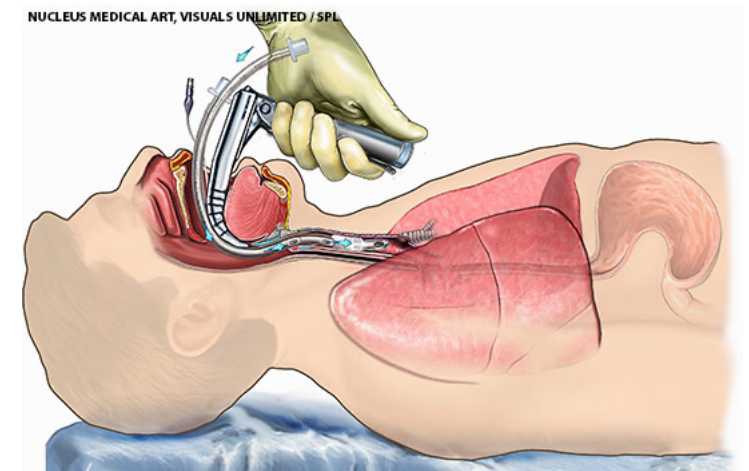


# Endotracheal intubation

If intubation is required use airborne precautions

- If required patient is not haemodynamically stable
- Target tidal volume 6ml/kg in adult
- Requires PEEP to help with gas exchange and oxygenation (usually start at 5-10cm H<sub>2</sub>O)
- Target SaO<sub>2</sub> > 88%
- Monitor SaO<sub>2</sub> continuously
- Nurse: patient ratio 1:1
- Monitor arterial blood gases regularly

For more detailed training in invasive mechanical ventilation for ARDS [https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/3QmcVeeNBrxXmbT3fmnPT8/Module\\_9\\_Mechanical\\_Ventilation.pdf](https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/3QmcVeeNBrxXmbT3fmnPT8/Module_9_Mechanical_Ventilation.pdf)



# Weaning off intubation (extubation)

- Weaning is the gradual discontinuation of mechanical ventilation due to an improvement of the patients own respiratory effort
  - Trial of spontaneous breathing
  - If fails resume ventilation and try again as per medical orders
- Extubation is the removal of the endotracheal tube
- It's important to follow with respiratory care post extubation i.e.
  - Oxygen via mask
  - Position of patient (if condition allows sit upright)
  - Continue to monitor continuously and look for any signs of deterioration

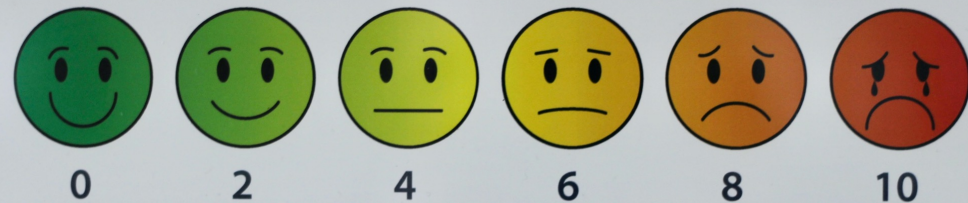
For more detailed training on weaning and extubation go to [https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rtfiles/5MgDFpkwvJm6KqSpwShxNf/Module\\_12\\_Liberation\\_.pdf](https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rtfiles/5MgDFpkwvJm6KqSpwShxNf/Module_12_Liberation_.pdf)

# Managing pain or mental status (confusion/agitation/delirium)

- The aim is to keep the patient comfortable
- Monitor closely the ventilated or NIV patient for signs of anxiousness or agitation
- Monitor closely for signs of pain (consider pain scale options)
- Follow hospital protocols for methods of sedation and pain management
- Regularly assess haemodynamic state
- Remember that a confused or agitated patient may be in pain or their condition may be deteriorating!



## Rate Your Pain:



*For more detailed training in invasive mechanical ventilation for ARDS*

*Manage pain, agitation and delirium*

[https://s3.xopic.de/openwho-](https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/2ix0QrldGOvaDi7pa4mtFO/Module_10_Sedation_.pdf)

[public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/2ix0QrldGOvaDi7pa4mtFO/Module\\_10\\_Sedation\\_.pdf](https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/2ix0QrldGOvaDi7pa4mtFO/Module_10_Sedation_.pdf)

# Drug therapy for COVID -19

- At this stage there are no known effective antiviral therapies for COVID-19 infections
- There are currently trials of different drugs in some countries but these should be used with strict monitoring and ethical approval
- There is no proven role for corticosteroids for corona virus infections (may be considered if patient also has exacerbation of asthma or COPD)
- *(WHO Antimicrobial therapy, health in emergencies programme, 2020)*

# Acute clinical care

Patients should be carefully monitored for signs of clinical deterioration including:

- Increasing fatigue
- If not intubated
  - Change in mental status – altered level of consciousness, Increased accessory muscles use
  - Grunting respirations
  - confusion, seizures
  - Delayed capillary refill (>3sec)
  - Cool limbs
  - Skin mottling (white/bluish)



For more training on critically unwell respiratory patients go to

[https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/5p140SHgH1g2YZZf5XrC2F/Module\\_4\\_Monitoring.pdf](https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/5p140SHgH1g2YZZf5XrC2F/Module_4_Monitoring.pdf)

# Principles of management for ARDS

- Must be managed in intensive care
- Initiate ventilatory support without delay
  - High flow oxygen vs non invasive ventilation (NIV) vs invasive mechanical ventilation (IMV)
- Manage acidosis
- Judicious (careful) IV fluid therapy
- Management of pain, agitation and delirium
- Continuous monitoring and recording of deterioration

# Acute clinical care

Resuscitation principles for a critically ill patient include:

- Safety of HCW must be a priority
- Early targeted resuscitation saves lives
- Early resuscitation with IV fluids if in shock + vasopressors if indicated
- Monitor vital signs and aim for improved blood pressure and tissue perfusion (urine output, heart rate, skin perfusion, lactate, mental status)





# Acute clinical care

For detail on quality in critical care go to

[https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/1DTiUNLSumVEIKluT4ABiK/Module\\_13\\_Quality.pdf](https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/1DTiUNLSumVEIKluT4ABiK/Module_13_Quality.pdf)

For detail on clinical care go to

[https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected)

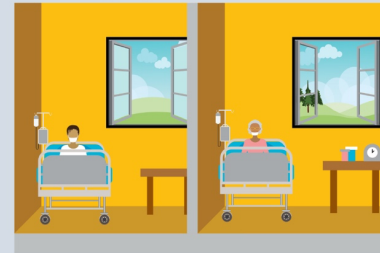
## Novel Coronavirus COVID-19

FOR: HEALTHCARE FACILITY MANAGEMENT

*Managing patients with suspected or confirmed COVID-19 at your healthcare facility*

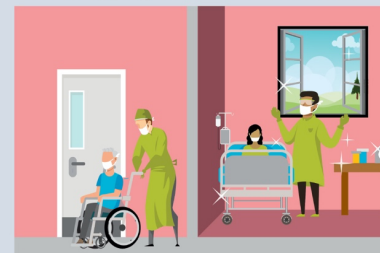
**Staff should wear appropriate personal protective equipment when screening patients at the triage station. Provide medical masks to all patients presenting with flu-like symptoms or reporting possible COVID-19 infection. Remind all patients to use good respiratory and hand hygiene.**

### Managing Placement



- Immediately isolate suspected and confirmed cases
- To reduce stress and anxiety, explain to patients what you do and why you do it
- If possible, place patients in single rooms
- Suspected and confirmed cases should be kept separate
- Maintain at least 1-metre distance between all patients
- Do not put more than one patient in a single hospital bed

### Managing the Environment



- Limit the movement of patients within the health center to reduce potential infection throughout the healthcare facility
- If a patient needs to be moved, plan the move ahead: all staff and visitors who come into direct contact with the patient should wear personal protective equipment
- Perform regular environmental cleaning and disinfection
- Maintain good ventilation – if possible open doors and windows

### Managing Visitors



- Limit the number of visitors per patient
- All visitors should wear the required personal protective equipment and their visits should be recorded



# Staffing

- Provide training for care of a suspected and confirmed cases and triage
- Ensure access to appropriate PPE
- Ensure surge capacity for increase in case load or to strengthen existing healthcare teams
- Ensure staff have access to psychological support

# Novel Coronavirus COVID-19

FOR HEALTHCARE FACILITY STAFF

## Coping with stress



It is normal to feel sad, stressed, or overwhelmed during a crisis



Talk to people you trust or a counsellor



Maintain a healthy lifestyle: proper diet, sleep, exercise and social contacts with friends and family

Don't use alcohol, smoking or other drugs to deal with your emotions



If you have concerns, talk with your supervisor, and if you start feeling unwell tell your doctor immediately



# Acute clinical care - Complications



Complications of COVID-19 include:

- Pneumonia
- ARDS (acute respiratory distress syndrome – acute widespread inflammation of the lungs)
- Acute cardiac injury (cardiac arrest, myocarditis – inflammation of the heart muscle)
- Secondary infection

# Signs and symptoms of severe pneumonia

- Rapid respiratory rate (adult  $> 30/\text{min}$ )
- Respiratory distress – unable to speak
- Use of accessory muscles ( chest indrawing, neck veins distended)
- High fever
- Increasing lethargy (can lead to unconscious state)
- Central cyanosis ( $\text{Sao}_2 < 90\%$  on room air)
- Confusion as hypoxia worsens
- Can lead to unconscious state
- Decreased blood pressure (BP)
- Increased heart rate (tachycardia)





# Acute clinical care – management

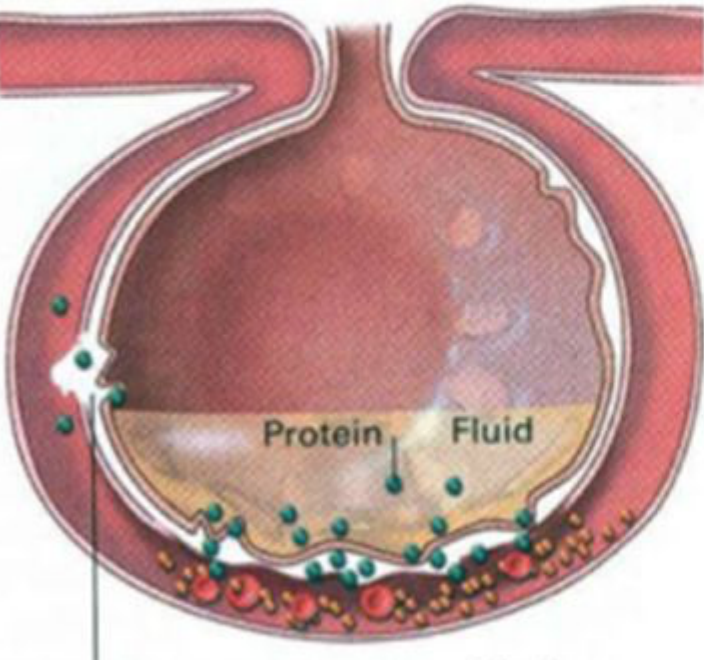
## Management of pneumonia includes:

- Oxygen supplementation aiming for  $SpO_2 > 94\%$
- Consider use of high flow humidified oxygen if patient has work of breathing
- Maintenance of end organ perfusion with IV fluid
- Inotropes may be required
- Early IV antibiotics
- Trial of NIV if patient develops respiratory failure
- Intubation and ventilation strategies for those patients presenting in extremis, where NIV has failed or NIV is contraindicated

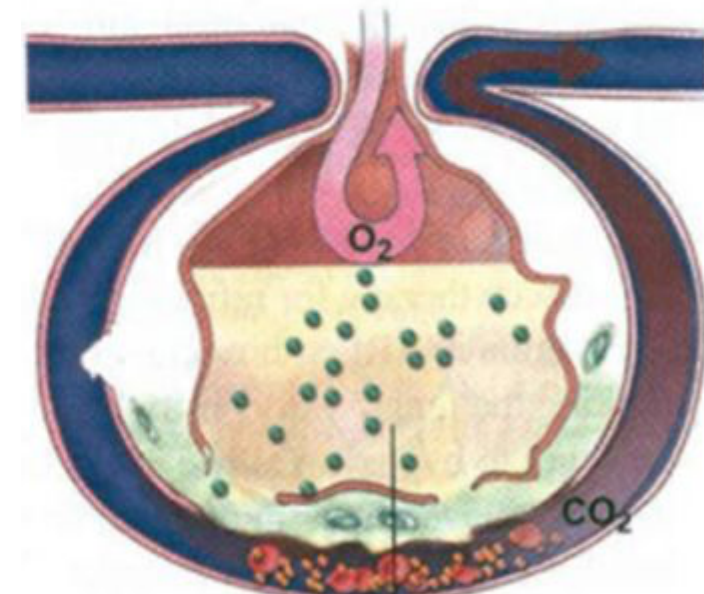




Early-stage ARDS



Late-stage ARDS



# Acute clinical care - ARDS

- A type of respiratory failure where the lungs develop widespread inflammation causing damage to the alveoli which fill with fluid making ventilation very difficult
- Manifests as acute shortness of breath (tachypnoea), use of accessory muscles and fast respiratory rate and poor oxygen levels, cyanosed (bluish colour)
- Poor outcome
- *For more information on ARDS go to the WHO training packages - clinical syndromes and pathophysiology of sepsis and ARDS <https://openwho.org/courses/severe-acute-respiratory-infection/items/2xfhcuKvIQXoW3x4Jd0ycY>*

# Acute clinical care

## Principles of management for ARDS are:

- Patients must be managed in intensive care
- Initiate ventilatory support without delay
  - High flow oxygen vs noninvasive ventilation (NIV) vs invasive mechanical ventilation (IMV)
- Manage acidosis
- Judicious (careful) IV fluid therapy
- Management of pain, agitation and delirium
- Continuous monitoring and recording of deterioration



# Recommendations for health workers with high risk of infection - advice

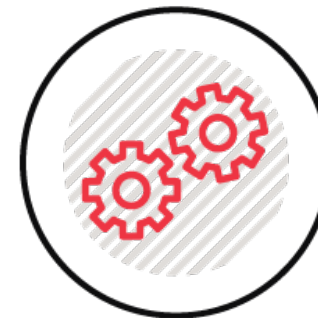
- Stop all health care interaction with patients for a period of 14 days after the last day of exposure to a confirmed COVID-19 patient
- Be tested for COVID-19 virus infection
- Quarantine for 14 days in a designated setting



# Recommendations for health workers with low risk of infection - advice

- Self-monitor temperature and respiratory symptoms daily for 14 days after the last day of exposure to a COVID-19 patient. Call the health care facility if he/she develop any symptoms suggestive of COVID-19
- Be aware of contact and droplet precautions when caring for all patients with acute resp symptoms
- Take precautions for aerosol generating procedures on all suspect and confirmed COVID-19 patients
- Correct and consistent use of appropriate personal protective equipment when exposed to confirmed COVID-19 patients
- Hand hygiene practices and respiratory etiquette!





# Pandemic Preparedness

Priorities

Resources

# Pandemic preparedness

- Preparedness
  - The public health system
  - Clinical teams – strengthen knowledge through training, share expertise
  - Hospitals
  - Clinics
  - Equipment
  - Medical stores
  - Drugs
  - Early public engagement and information sharing
- <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
- <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance>



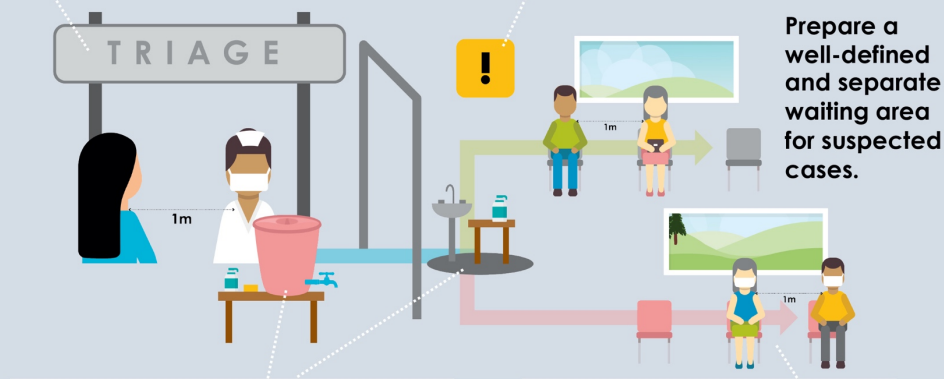
# Novel Coronavirus COVID-19

FOR: HEALTHCARE FACILITY MANAGEMENT

## Preparing for COVID-19 at your healthcare facility

**Have a triage station at the healthcare facility entrance,** prior to any waiting area, to screen patients for COVID-19. This limits potential infection throughout the health care center.

**Post information, like posters and flyers, that remind patients and visitors to practice good respiratory and hand hygiene.**



**Have alcohol-based hand rub or soap and water handwashing stations readily available** for the use of healthcare workers, patients and visitors.

**Be alert for anyone that may have symptoms** such as cough, fever, shortness of breath, and difficulty breathing.



### Protect your workforce

**Be ready! Ensure your healthcare and triage workers:**

- Are trained on the importance, selection and proper use of personal protective equipment
- Are trained to spot symptoms of a potential COVID-19 infection and offer a medical mask to suspected cases
- Know the case definition and have a decision flow diagram available and accessible for reference at the triage station
- Isolate a suspected case promptly
- Perform hand hygiene frequently



# More information on detailed training areas

For detail on prevention of complications go to:

- [https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/NYPGcd8JvY9yZE88QGfBN/Module\\_11\\_Prevention.pdf](https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/NYPGcd8JvY9yZE88QGfBN/Module_11_Prevention.pdf)

For detail on quality in critical care go to:

- [https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/1DTiUNLSumVEIKIuT4ABiK/Module\\_13\\_Quality.pdf](https://s3.xopic.de/openwho-public/courses/15mKXx4nfaqUxh1MxGcrca/rfiles/1DTiUNLSumVEIKIuT4ABiK/Module_13_Quality.pdf)



# Links to clinical care and IPC documents

- [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected)
- [https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected)

# RCRC preparedness links

- <https://go.ifrc.org/emergencies/3972#additional-info>
- [http://prddsgofilestorage.blob.core.windows.net/api/sitreps/3972/EN\\_NS\\_guidance\\_07-02-2020.pdf](http://prddsgofilestorage.blob.core.windows.net/api/sitreps/3972/EN_NS_guidance_07-02-2020.pdf)
- <https://media.ifrc.org/ifrc/document/preparedness-effective-response-considerations-epidemic-preparedness/>
- [http://prddsgofilestorage.blob.core.windows.net/api/sitreps/3972/Key\\_Advocacy\\_Messages\\_for\\_NS\\_Aux\\_Role\\_IDRL\\_and\\_COVID19\\_IFRC\\_Disaster\\_Law\\_Programme.pdf](http://prddsgofilestorage.blob.core.windows.net/api/sitreps/3972/Key_Advocacy_Messages_for_NS_Aux_Role_IDRL_and_COVID19_IFRC_Disaster_Law_Programme.pdf)

# Summary

- COVID-19 is an acute respiratory disease that started in December 2019
- It is highly infectious and strict IPC measures must be followed
- HCW delivering acute care must adhere to strict PPE protocols
- People with severe symptoms may be admitted to ICU and require intensive care including airway management
- Visit IFRC GO or WHO for up to date information