NEST360°
Newborn Essential Solutions and Technologies

# **RESPONDING TO THE COVID-19 PANDEMIC:** Resources Compiled by NEST for Use in Hospital-Based Newborn Care

*Last updated on 15 May, 2020*

## USE INSTRUCTIONS

Intended use of this guidance is to aid clinicians and hospital staff to manage COVID-19 response efforts in newborn care units in sub-Saharan Africa. The guidance material includes a combination of NEST-developed and compiled documents from various organizations and institutions. It also links to further information developed by national bodies. The resources may be viewed as one complete document (click the title herein) or as individual files via links found on the NEST360° COVID-19 Resources webpage.

***DISCLAIMER: COVID-19 guidance continues to evolve rapidly. We intend to update the material as new resources become available and will work with others to bring together the best available information. As such, we include a qualifier of "Last Updated on [date]" as reference. We encourage use of this guidance alongside local operational policies developed by your institutions and organizations.***

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# PERSONAL PROTECTIVE EQUIPMENT (PPE) AND PRECAUTIONS:

## COVID-19 in Different Settings in the Neonatal Unit

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# PPE AND PRECAUTIONS:
## COVID-19 IN DIFFERENT SETTINGS IN THE NEONATAL UNIT

## ADMISSIONS TO NICU

### IF THE MOTHER IS COVID+VE AND/OR HAS SYMPTOMS SUGGESTIVE OF COVID

**DO NOT ALLOW** labour ward staff or the person transporting the baby to enter NICU

### IF THE MOTHER IS COVID+VE AND/OR HAS SYMPTOMS SUGGESTIVE OF COVID

Receive the baby at the door of NICU wearing full PPE.

Take the baby to a designated COVID+ve area for assessment → when a management decision is made transfer to a **COVID+ve SICK MOTHERs** designated room in NICU, which is separate from the COVID-negative mothers.

The baby should be placed in an **INCUBATOR OR WARMER** which is partially covered.

**If the mother is well enough to breastfeed →** she should do so and the baby should remain with the mother. She can breastfeed if she chooses **AFTER** washing her hands and cleaning her breast with **SOAP AND WATER**. The mother should wear a surgical mask and gloves while breastfeeding.

**If the mother is not well enough breastfeed →** then the baby can receive expressed breast milk, provided by the mother but fed by a member of staff or a designated other person.

The mother should only be separated from the baby if she is too unwell to care for the baby.

### IF THE MOTHER IS COVID+VE BUT IS ASYMPTOMATIC

Receive the baby at the door of NICU wearing full PPE.

Take the baby to a designated COVID+ve area for assessment → when a management decision is made transfer to a **COVID+ve WELL MOTHERs** isolation room.

The mother can breast feed if she chooses **AFTER** washing her hands and cleaning her breast with **SOAP AND WATER.**

She should wear a surgical mask and gloves.

# PPE AND PRECAUTIONS:
## COVID-19 IN DIFFERENT SETTINGS IN THE NEONATAL UNIT

## COVID ISOLATION AREAS IN NICU

### ENTERING AND EXITING ISOLATION WARDS/AREAS

**STAFF MUST PUT ON PPE OUTSIDE THE ROOM** and **BEFORE ENTERING ISOLATION AREAS**

As few persons as possible go in and out of isolation areas

All waste must be collected and double bagged inside the isolation area and taken immediately to the ward waste collection

Staff must remove PPE in a designated area just outside the isolation areas and place it in double disposal bags.

### GENERAL COVID PRECAUTIONS FOR NICU

Symptomatic COVID+ve mothers may deliver prematurely.

The babies need to receive routine premature baby care.

Full PPE is required for **BVM resuscitation** – eg for apnoea.

BVM must be thoroughly cleaned after use with **0.5%** chlorine solution and allowed to dry.

Surgical mask, gloves and apron should be worn for **NGT feeds, IV cannulation and giving injections**.

Ideally have a bag of all possibly required equipment that can be taken into the room to prevent movement of people in and out of the ward and can be removed and thoroughly cleaned after use.

**CPAP**
CPAP creates some aerosoled dispersal of exhaled gases.

If CPAP is required this should be given as normal with staff wearing full PPE.

Expressed mother's milk can be given to the baby as with all babies on CPAP.

# PPE AND PRECAUTIONS:

## COVID-19 IN DIFFERENT SETTINGS IN THE NEONATAL UNIT

### LABOUR WARD OR THEATRE

**NICU STAFF FOR COVID+VE DELIVERIES**

**IF PAEDIATRIC ASSISTANCE IS REQUESTED TO BE PRESENT AT A DELIVERY**

a **SENIOR DOCTOR** and **ONE NURSE** should be designated to be ready to do so

**DO NOT ENTER**
**unless** requested to do so if the baby needs your assistance

**IF** you do have to enter the ward or theatre **DRESS IN FULL PPE** and be ready to enter

**IF YOU ARE NOT REQUIRED** for resuscitation

**A NURSE SHOULD RECEIVE THE BABY at the theatre or labour ward door** in a designated COVID+ve transport cot & taken to the NICU COVID+ve assessment area

### LABOUR WARD & THEATRE

**RESUSCITATION AND NEONATAL EQUIPMENT**

**Ideally** this **DESIGNATED EQUIPMENT** should already be in the room:

- COVID+ve resuscitaire
- Resuscitation equipment
- Weighing scales

**Ideally** have a bag of all possibly required **EMERGENCY EQUIPMENT** that can be taken into the room to prevent movement of people in and out of the ward. The bag can then be removed and thoroughly cleaned after use.

*Priority Resource*

# KANGAROO MOTHER CARE (KMC) AND BREASTFEEDING

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# COVID-19 GUIDANCE:
## SKIN-TO-SKIN CONTACT AND BREASTFEEDING

## 1 COVID-19 & KANGAROO MOTHER CARE (KMC)

Kangaroo mother care (KMC), including early skin-to-skin contact and promotion of exclusive breast milk feeding, is associated with a reduced risk of death and morbidity during the neonatal period and beyond.[1] Breast milk contains antibodies and other immune factors that protect against many respiratory and enteric invasive infections.[2] There is no evidence to suggest that respiratory viruses, including the novel coronavirus (COVID-19), can be transmitted through breast milk.[3–6]

Guidance from the WHO, UNICEF, the Royal College of Obstetricians and Gynaecologists and the Royal College of Paediatrics and Child Health, based on available evidence, states that the benefits of breastfeeding outweigh any potential risks of COVID-19 transmission through breast milk.[7–9]

## 2 COVID SYMPTOMATIC MOTHERS (REGARDLESS OF TESTING STATUS)

The mother should be encouraged and supported to breastfeed, hold her newborn skin-to-skin, and share a room with her baby, while applying the necessary precautions below:

- **Symptomatic mothers well enough to breastfeed and/or provide skin-to-skin contact should practice respiratory hygiene (including wearing a mask when near the baby),** including during feeding, and wash hands before and after touching/holding the baby.
- Surfaces with which the symptomatic mother has been in contact should be routinely cleaned and disinfected.
- **Symptomatic mothers and their newborns should stay together but be physically separated from mothers/newborns who are unaffected by maternal COVID-19** (ideally in a separate room/ward), and maintained at least 6 feet (~2 metres) apart from one another.[10]
- **If a mother is too ill to breastfeed**, she should be encouraged and supported to express milk that can be given to the baby via a clean cup and/or spoon, in line with WHO and UNICEF standard guidance on infant feeding,[11] while practicing respiratory hygiene (including wearing a mask when near the baby) and washing hands before and after milk expression and/or contact with the baby.

- In the event that a mother is too ill to express breast milk, alternative feeding options that may be considered include donor human milk, appropriate breast milk substitutes, and/or wet nursing, based upon cultural context, service/supply availability, and acceptability to the mother.[7,11]
- When the mother is well enough to breastfeed or express milk, re-lactation should be encouraged and supported.[7,12]

**2 Continued**

- **If a mother is too ill to hold her newborn skin-to-skin OR if a newborn is considered to be *clinically unstable* according to WHO criteria** (i.e., breathing and/or circulation require continuous medical support and monitoring),[13] → **the newborn should be admitted to the neonatal unit** and placed in an incubator (if preterm/low birth weight or unstable) or in a cot /bassinet (if term/normal birthweight and stable), in line with WHO recommendations for improving preterm outcomes.[14]

## 2.1 ADMITTED NEONATES BORN TO COVID SYMPTOMATIC MOTHERS

Admitted neonates born to symptomatic mothers should be physically separated from neonates unaffected by maternal COVID-19 (ideally in a separate room/ward), and maintained at least 6 feet (~2 metres) apart from one another.[10]

- Skin-to-skin contact may be initiated when the mother is well enough to hold her newborn skin-to-skin AND all of the following neonatal criteria have been met for a continuous period of at least 24 hours:[15,16]
  - **Breathing spontaneously with SpO2 >90% in room air**
  - **No need for supplemental oxygen or CPAP**
  - **Respiratory rate 40 to <60 breaths/minute**
  - **No apnoea**
  - **Heart rate 80 to <180 beats/minute**
  - **Axillary temperature 36.0–37.4°C**
  - **No need for intravenous (IV) fluids**
- **Symptomatic mothers should practice respiratory hygiene (including wearing a mask when near the baby)** and wash hands before and after holding the baby.

## 3 COVID ASYMPTOMATIC MOTHERS (TESTING NOT DONE OR RESULT PENDING)

The mother should be encouraged and supported to breastfeed, hold her newborn skin-to-skin, and share a room with her baby, while applying the necessary precautions below:

- **Asymptomatic mothers should practice respiratory hygiene** (i.e., avoid touching eyes, nose, and mouth; use tissues to contain any respiratory secretions), and wash hands before and after touching/holding the baby.
- Surfaces with which the asymptomatic mother has been in contact should be routinely cleaned and disinfected.
- **Asymptomatic mothers and their newborns should stay together but be physically separated from mothers/newborns who are unaffected by maternal COVID-19** (ideally in a separate room/ward), and maintained at least 6 feet (~2 metres) apart from one another.[10]

# COVID-19 GUIDANCE:
## SKIN-TO-SKIN CONTACT AND BREASTFEEDING

**3 Continued**

- **Mothers who are not able to initiate breastfeeding during the first hour after delivery** (e.g., due to caesarean section or medical instability) should be encouraged and supported to breastfeed as soon as they are able, in line with WHO and UNICEF standard guidance on infant feeding.[11]

- Mothers who remain too ill to breastfeed should be encouraged and supported to express milk that can be given to the baby via a clean cup and/or spoon,[11] washing hands before and after milk expression and/or contact with the baby, and practicing respiratory hygiene (as above).
- In the event that a mother is too ill to express breast milk, alternative feeding options that may be considered include donor human milk, appropriate breastmilk substitutes, and/or wet nursing, based upon cultural context, service/supply availability, and acceptability to the mother.[7,11]

- **If a mother is too ill to hold her newborn skin-to-skin OR if a newborn is considered to be *clinically unstable* according to WHO criteria** (i.e., breathing and/or circulation require continuous medical support and monitoring),[13] → **the newborn should be admitted to the neonatal unit** and placed in an incubator (if preterm/low birth weight or unstable) or in a cot /bassinette (if term/normal birthweight and stable), in line with WHO recommendations for improving preterm outcomes.[14]

## 3.1 ADMITTED NEONATES BORN TO COVID ASYMPTOMATIC MOTHERS

Admitted neonates born to asymptomatic mothers should be physically separated from neonates unaffected by maternal COVID-19 (ideally in a separate room/ward), and maintained at least 6 feet (~2 metres) apart from one another.[10]

- Skin-to-skin contact may be initiated when the mother is well enough to hold her newborn skin-to-skin AND all of the following neonatal criteria have been met for a continuous period of at least 24 hours:[15,16]
  - **Breathing spontaneously with SpO2 >90% in room air**
  - **No need for supplemental oxygen or CPAP**
  - **Respiratory rate 40 to <60 breaths/minute**
  - **No apnoea**
  - **Heart rate 80 to <180 beats/minute**
  - **Axillary temperature 36.0–37.4°C**
  - **No need for intravenous (IV) fluids**
- **Aymptomatic mothers should practice respiratory hygiene (including wearing a mask when near the baby)** and wash hands before and after holding the baby.

# COVID-19 GUIDANCE:
## SKIN-TO-SKIN CONTACT AND BREASTFEEDING

## 4 UNINFECTED MOTHERS
### (COVID TESTING NEGATIVE)

The mother should be encouraged and supported to breastfeed, hold her newborn skin-to-skin, and share a room with her baby, while applying the necessary precautions below:

- Uninfected mothers should practice respiratory hygiene (i.e., avoid touching eyes, nose, and mouth; use tissues to contain any respiratory secretions), and wash hands before and after touching/holding the baby to help prevent infections.
- Uninfected mothers and their newborns should be admitted to the routine postnatal ward and treated according to standard care practices.
- Surfaces should be routinely cleaned and disinfected to help prevent infections.
- Mothers who are not able to initiate breastfeeding during the first hour after delivery (e.g., due to caesarean section or medical instability) should be encouraged and supported to breastfeed as soon as they are able, in line with WHO and UNICEF standard guidance on infant feeding.[11]

- Mothers who remain too ill to breastfeed should be encouraged and supported to express milk that can be given to the baby via a clean cup and/or spoon,[11] washing hands before and after milk expression and/or contact with the baby.
- In the event that a mother is too ill to express breast milk, alternative feeding options that may be considered include donor human milk, appropriate breastmilk substitutes, and/or wet nursing, based upon cultural context, service/supply availability, and acceptability to the mother.[7,11]

- If a mother is too ill to hold her newborn skin-to-skin OR if a newborn is considered to be clinically unstable according to WHO criteria (i.e., breathing and/or circulation require continuous medical support and monitoring),[13] → the newborn should be admitted to the neonatal unit and placed in an incubator/radiant warmer (if preterm/ low birthweight or unstable), or in a cot/bassinette (if term/normal birthweight and stable), in line with WHO recommendations for improving preterm outcomes.[14]

## 4.1 ADMITTED NEONATES BORN TO UNINFECTED MOTHERS

Skin-to-skin contact may be initiated when the mother is well enough to hold her newborn skin-to-skin **AND** all of the following neonatal criteria have been met for a continuous period of at least 24 hours: [15,16]

- **Breathing spontaneously with SpO2 >90% in room air**
- **No need for supplemental oxygen or CPAP**
- **Respiratory rate 40 to <60 breaths/minute**
- **No apnoea**
- **Heart rate 80 to <180 beats/minute**
- **Axillary temperature 36.0–37.4°C**
- **No need for intravenous (IV) fluids**

- As above, uninfected mothers should practice respiratory hygiene and wash hands before and after holding/touching the baby to help prevent infections.

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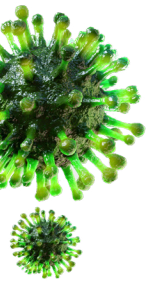
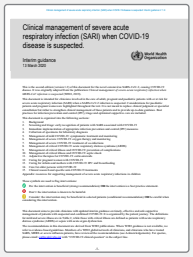
World Health Organization



# FREQUENTLY ASKED QUESTIONS:
## Breastfeeding and COVID-19
## For health care workers

(28 April 2020)

## Preface


Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected.

Interim guidance
13 March 2020

This FAQ complements the WHO interim guidance: *Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected* (13 March 2020 - www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected ) and provides responses to questions that have arisen about the recommendations.

**The interim guidance and FAQ reflect:**

i. **the available evidence regarding transmission risks of COVID-19 through breastmilk;**
ii. **the protective effects of breastfeeding and skin-to-skin contact, and,**
iii. **the harmful effects of inappropriate use of infant formula milk.**

The FAQ also draws on other WHO recommendations on Infant and Young Child Feeding and the Interagency Working Group Operational Guidance on Infant and Young Child Feeding in Emergencies. A decision tree shows how these recommendations may be implemented by health workers in maternity services and community settings, as part of daily work with mothers and families.

www.who.int/news-room/q-a-detail/q-a-on-covid-19-and-breastfeeding

### 1. Can COVID-19 be passed through breastfeeding?

The COVID-19 virus has not, to date, been detected in the breastmilk of any mother with confirmed/suspected COVID-19. It appears unlikely, therefore, that COVID-19 would be transmitted through breastfeeding or by giving breastmilk that has been expressed by a mother who is confirmed/suspected to have COVID-19. Researchers continue to test breastmilk from mothers with confirmed/suspected COVID-19.

### 2. In communities where COVID-19 is prevalent, should mothers breastfeed?

Yes. In all socio-economic settings, breastfeeding improves survival and provides lifelong health and development advantages to newborns and infants. Breastfeeding also improves the health of mothers. In contrast, transmission of COVID-19 through breastmilk and breastfeeding has not been detected. There is no reason to avoid or stop breastfeeding.

### 3. Following delivery, should a baby still be immediately placed skin-to-skin and breastfed if the mother is confirmed/suspected to have COVID-19?

Yes. Immediate and continued skin-to-skin care, including kangaroo mother care, improves thermal regulation of newborns and several other physiological outcomes, and is associated with reduced neonatal mortality. Placing the newborn close to the mother also enables early initiation of breastfeeding which also reduces neonatal mortality.

The numerous benefits of skin-to-skin contact and breastfeeding substantially outweigh the potential risks of transmission and illness associated with COVID-19.

### 4. If a mother is confirmed/suspected to have COVID-19, should she continue breastfeeding?

Yes. The transmission of the COVID-19 virus through breastmilk and breastfeeding has not been detected. While breastfeeding, a mother should still implement appropriate hygiene measures, including wearing a medical mask if available, to reduce the possibility of droplets with COVID-19 being spread to her infant.

Mothers and families can be advised that among the few cases of confirmed COVID-19 infection in children, most have experienced only mild or asymptomatic illness.

In contrast, there is high quality evidence showing that breastfeeding reduces neonatal, infant and child mortality including in high resource settings and improves lifelong health and development in all geographies and economic settings.

## 5. What are the hygiene recommendations for a breastfeeding mother confirmed/suspected to have COVID-19?

**If a mother is confirmed/suspected to have COVID-19 she should:**

- Wash hands frequently with soap and water or use alcohol-based hand rub, especially before touching the baby
- Wear a medical mask while feeding. It is important to:
  - Replace masks as soon as they become damp
  - Dispose of masks immediately
  - Not re-use a mask
  - Not touch the front of the mask but untie it from behind
- Sneeze or cough into a tissue, immediately dispose of it and use alcohol-based hand rub or wash hands again with soap and clean water
- Regularly clean and disinfect surfaces

## 6. If a mother confirmed/suspected to have COVID-19 does not have a medical face mask should she still breastfeed?

Yes. Breastfeeding unquestionably reduces neonatal and infant mortality and provides numerous lifelong health and brain development advantages to the infant/child. Mothers with symptoms of COVID-19 are advised to wear a medical mask, but even if this is not possible, breastfeeding should be continued. Other infection prevention measures, such as washing hands, cleaning surfaces, sneezing or coughing into a tissue are also important.

Non-medical masks (e.g. home-made or cloth masks) have not been evaluated. At this time, it is not possible to make a recommendation for or against their use.

## 7. Is it necessary for a mother with confirmed/suspected COVID-19 to wash her breast before she breastfeeds directly or before expressing milk?

If a mother is confirmed/suspected to have COVID-19 has just coughed over her exposed breast or chest, then she should gently wash the breast with soap and warm water for at least 20 seconds prior to feeding.

It is not necessary to wash the breast before every breastfeed or prior to expressing milk.

## 8. If a mother confirmed/suspected to have COVID-19 is not able to breastfeed what is the best way to feed her newborn/infant?

**The best alternatives to breastfeeding a newborn or young infant are:**

- ***Expressed breastmilk***
  - Expression of breastmilk is primarily done or taught through hand expression, with the use of a mechanical pump only when necessary. Hand expression and using a pump can be equally effective.
  - The choice of how to express will depend on maternal preference, availability of equipment, hygiene conditions and cost.
  - Expressing breastmilk is also important to sustain milk production so that mothers can breastfeed when they recover.
  - The mother, and anyone helping the mother, should wash their hands before expressing breastmilk or touching any pump or bottle parts and ensure proper pump cleaning after each use. *(See question 10 below)*
  - The expressed breastmilk should be fed to the child preferably using a clean cup and/or spoon (easier to clean), by a person who has no signs or symptoms of illness and with whom the baby feels comfortable. The mother/caregiver should wash their hands before feeding the newborn/infant.
- ***Donor human milk***
  - If the mother is unable to express milk and milk is available from a human milk bank, donor human milk can be fed to the baby while the mother is recovering.
- ***If expressing breastmilk or donor human milk are not feasible or available then consider:***
  - Wet-nursing *(see question 11 below)*
  - Infant formula milk with measures to ensure that it is feasible, correctly prepared, safe and sustainable.

## 9. Is it safe to give expressed breastmilk from a mother confirmed/suspected to have COVID-19?

Yes. The COVID-19 virus has not, to date, been detected in the breastmilk of any mother confirmed/suspected to have COVID-19. It is unlikely that the virus can be transmitted by giving breastmilk that has been expressed by a mother with confirmed/suspected COVID-19.

## 10. If a mother with confirmed/suspected COVID-19 is expressing her milk for her baby, are there extra measures needed when handling the breastmilk pump, milk storage containers or feeding utensils?

Even when COVID-19 is not a consideration, breastmilk pumps, milk storage containers and feeding utensils need to be appropriately cleaned after every use.

- Wash the pump/containers after every use with liquid soap, e.g. dishwashing liquid and warm water. Rinse after with hot water for 10-15 seconds.
- Some breast pumps parts can be put in the top rack of a dishwasher (if available). Check the instruction manual before doing this.

## 11. If a mother with confirmed/suspected COVID-19 is not able to breastfeed or to express breastmilk, can wet-nursing be recommended?

Wet-nursing may be an option depending on acceptability to mothers/families, national guidelines, cultural acceptability, availability of wet-nurses and services to support mothers/wet-nurses.

- In settings where HIV is prevalent, prospective wet-nurses should undergo HIV counselling and rapid testing, according to national guidelines, where available. In the absence of testing, if feasible undertake HIV risk assessment. If HIV risk assessment/ counselling is not possible, facilitate and support wet-nursing. Provide counselling on avoiding HIV infection during breastfeeding.
- Prioritise wet-nurses for the youngest infants.

## 12. If a mother confirmed/suspected to have COVID-19 was unable to breastfeed because she was too ill or because of another illness, when can she start to breastfeed again?

A mother can start to breastfeed when she feels well enough to do so. There is no fixed time interval to wait after confirmed/suspected COVID-19. There is no evidence that breastfeeding changes the clinical course of COVID-19 in a mother.

She should be supported in her general health and nutrition to ensure full recovery. She should also be supported to initiate breastfeeding or relactate.

## 13. Do the results of COVID-19 testing make any difference to infant and young child feeding recommendations?

COVID-19 testing does not have any immediate implications for decisions on infant and young child feeding.

However, confirmation of COVID-19 means that a mother should implement appropriate recommended hygiene practices for the period that she is likely to be infective i.e. while symptomatic or through the 14 days after the start of symptoms, whichever is longer.

## 14. Is it advisable for a mother with confirmed/ suspected COVID-19 who is breastfeeding, to give a 'top-up' with infant formula milk?

No. If a mother is confirmed/suspected to have COVID-19 and is breastfeeding, there is no need to provide a 'top-up' with an infant formula milk. Giving a 'top-up' will reduce the amount of milk produced by a mother. Mothers who breastfeed should be counselled and supported to optimise positioning and attachment to ensure adequate milk production. Mothers should be counselled about responsive feeding and perceived milk insufficiency and how to respond to their infants' hunger and feeding cues to increase the frequency of breastfeeding.

## 15. What are key messages for a mother who wants to breastfeed but is scared about passing COVID-19 to her infant?

As part of counselling, a mother's or family's anxiety about COVID-19 should be acknowledged and responded to with the following messages:

I. COVID-19 has not been detected in the breastmilk of any mother with confirmed/suspected COVID-19 and there is no evidence so far that the virus is transmitted through breastfeeding.

II. Newborns and infants are at low risk of COVID-19 infection. Among the few cases of confirmed COVID-19 infection in young children, most have experienced only mild or asymptomatic illness.

III. Breastfeeding and skin-to-skin contact significantly reduce the risk of death in newborns and young infants and provide immediate and lifelong health and development advantages. Breastfeeding also reduces the risk of breast and ovarian cancer for the mother.

IV. The numerous benefits of breastfeeding substantially outweigh the potential risks of transmission and illness associated with COVID-19.

## 16. If a mother is confirmed/suspected to have COVID-19, is infant formula milk safer for infants?

No. There are always risks associated with giving infant formula milk to newborns and infants in all settings.

The risks associated with giving infant formula milk are increased whenever home and community conditions are compromised e.g. reduced access to health services if a baby becomes unwell / reduced access to clean water / access to supplies of infant formula milk are difficult or not guaranteed, not affordable and not sustainable.

The numerous benefits of breastfeeding substantially outweigh the potential risks of transmission and illness associated with the COVID-19 virus.

## 17. For what period of time are WHO recommendations on Breastfeeding and COVID-19 relevant?

The recommendations on caring and feeding of infants of mothers with confirmed/suspected COVID-19 are for the time when she is likely to be infective, i.e. while symptomatic or through the 14 days after the start of symptoms, whichever is longer.

## 18. Why do recommendations for mothers with confirmed/suspected COVID-19 and their infants seem different from social distancing recommendations for the general population?

Recommendations for adults and older children to maintain social distancing aim to reduce contact with asymptomatic persons who have COVID-19 and transmission of the virus that may result. This strategy will reduce the overall prevalence of COVID-19 and the number of adults who experience more serious disease.

The aim of recommendations on the care and feeding of infants and young children whose mothers have confirmed/suspected COVID-19 infection is to improve the immediate and lifelong survival, health and development of their newborns and infants. These recommendations consider the likelihood and potential risks of COVID-19 in infants and also the risks of serious illness and death when infants are not breastfed or when infant formula milk are used inappropriately as well as the protective effects of breastfeeding and skin-to-skin contact.

In general, children are at low risk of COVID-19 infection. Among the few cases of confirmed COVID-19 infection in children, most have experienced only mild or asymptomatic illness. The numerous benefits of breastfeeding substantially outweigh the potential risks of transmission and illness associated with the COVID-19.

## 19. Is it alright for health facilities to accept free supplies of formula milk for infants of mothers with confirmed/suspected COVID-19?

No. Donations of infant formula milks should not be sought or accepted. If needed, supplies should be purchased based on assessed need. Donated formula milk is commonly of variable quality, of the wrong type, supplied disproportionate to need, labelled in the wrong language, not accompanied by an essential package of care, distributed indiscriminately, not targeted to those who need it, is not sustained, and takes excessive time and resources to reduce risks.

## 20. Why do WHO recommendations on mother/infant contact and breastfeeding for mothers with confirmed/suspected COVID-19 differ from those of some national and professional organizations?

WHO's recommendations on mother/infant contact and breastfeeding are based on a full consideration not only of the risks of infection of the infant with COVID-19, but also the risks of serious morbidity and mortality associated with not breastfeeding or the inappropriate use of infant formula milks as well as the protective effects of skin-to-skin contact and breastfeeding.

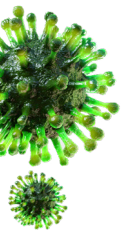
Recommendations of other organizations may focus only on the prevention of COVID-19 transmission without full consideration of the importance of skin-to-skin contact and breastfeeding.

www.who.int/news-room/q-a-detail/q-a-on-covid-19-and-breastfeeding

**Disclaimer**

The responses to questions in this document are derived from WHO publications and the Interagency Working Group Operational Guidance on Infant and Young Child Feeding in Emergencies. The WHO interim guidance was developed by a WHO global network of clinicians and clinicians who have treated patients with SARS, MERS, or severe influenza or COVID-19.

For queries, please email: **outbreak@who.int** with **"COVID-19 clinical question"** in the subject line.



# DECISION TREE

## for breastfeeding in context of COVID-19: Guidance for **health care and community settings**

**Is mother a suspected or confirmed case of COVID-19?**

NO → 

YES ↓

**Is mother well enough to breastfeed?**

YES → Mother should wear a medical mask during feeding. If a medical mask is unavailable, advise mother to:

- Sneeze or cough into a tissue and immediately dispose of it & wash hands

Chest should be washed if she has been coughing on it. Breast does not need to be washed before every feeding.

NO ↓

**Is mother able to express breastmilk (including with help)?**

YES → Feed mother's expressed milk to the baby → Revert to direct breastfeeding when mother is well enough to breastfeed

NO ↓

**Is human milk available from a donor human milk bank?**

YES → Feed donor human milk to the baby until the mother recovers

NO ↓

**Is wet-nursing culturally acceptable and can a safe wet-nurse be identified?**

YES → Facilitate wet-nursing of the baby until the mother recovers

NO → Feed infant formula milk to the baby until the mother recovers

**Is mother willing to breastfeed after recovery?**

YES → Assist mother with relactation when she is well enough to breastfeed

NO → **Continue alternative modes of feeding the baby**

- **Support mother to breastfeed:**
  - **For newborns**, initiate breastfeeding within first hour after delivery and practice skin-to-skin care as soon as possible
  - **For infants < 6 months**, support exclusive breastfeeding
  - **For infants and young children > 6 months**, continue breastfeeding with safe and health complementary foods
- **Do not separate mother and baby**
- **Advise mother to:**
  - **Wash hands frequently** with soap and water or use alcohol-based hand rub before touching the baby
  - **Regularly clean and disinfect surfaces** that she has touched

World Health Organization

www.who.int/news-room/q-a-detail/q-a-on-covid-19-and-breastfeeding

*Priority Resource*

# INITIAL COVID-19 SCREENING FOR PREGNANT MOTHERS

*Last updated on 15 May, 2020*

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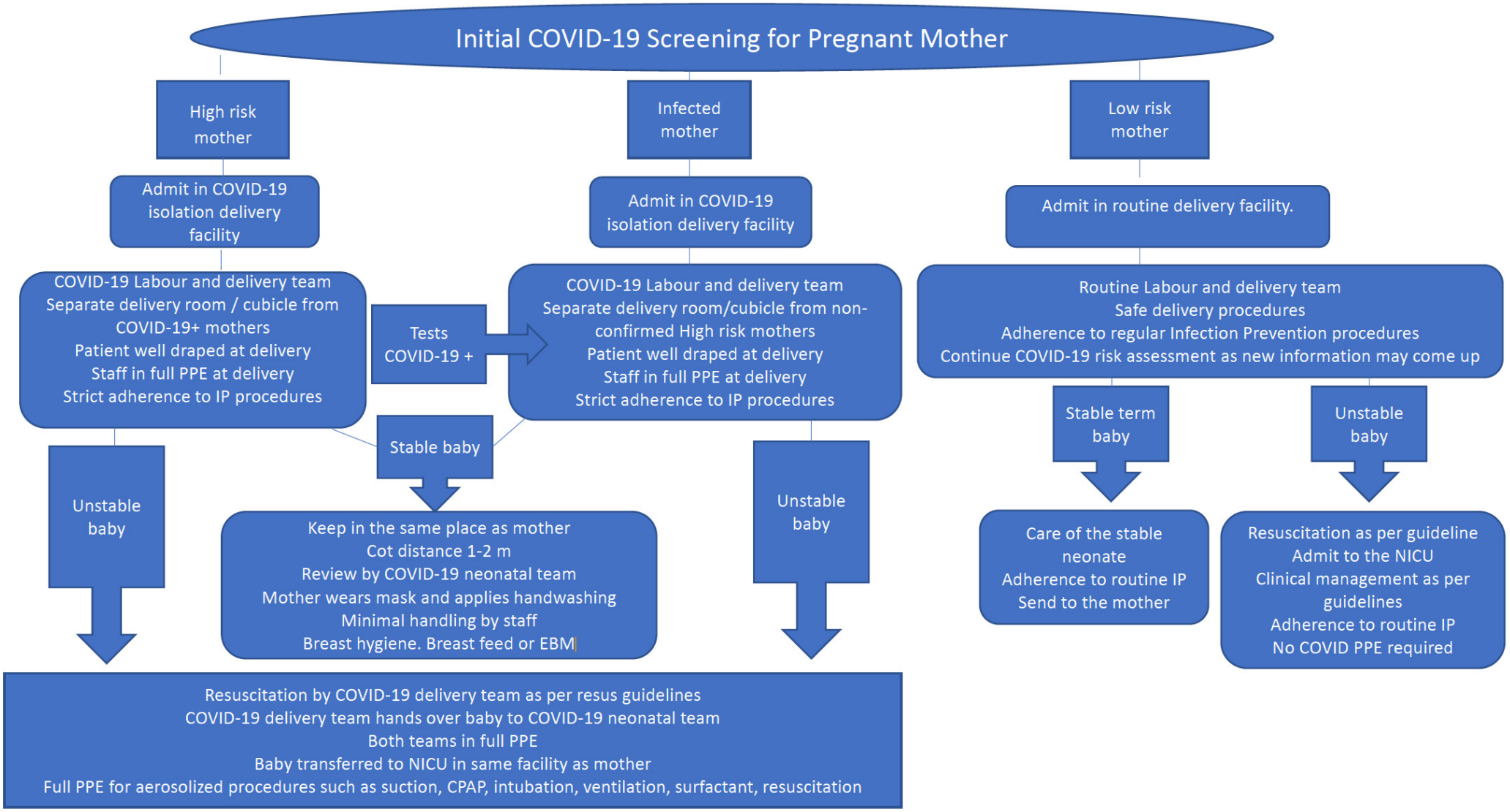
# COVID-19 GUIDANCE:
## INITIAL COVID-19 SCREENING FOR PREGNANT MOTHERS



# RISK TO NEONATES AND INFANTS

*Last updated on 15 May, 2020*

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# RISK TO NEONATES AND INFANTS:

## General Information and Resources

*Last updated on 15 May, 2020*

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# COVID-19 GUIDANCE:
## A FEW FACTS ABOUT COVID-19 IN CHILDREN

REFERENCE – WHO: openwho.org/channels/covid-19

**#1** WORLDWIDE
**ONLY 1% OF ALL COVID-19 CASES ARE CHILDREN < 10 YRS OF AGE**

→ Incubation period is 2 (0-2) days.
Boys and girls are equally affected.

**#2** **VERY FEW CHILDREN DEVELOP SEVERE COMPLICATIONS**

→ 16% are asymptomatic
41% have a fever
48% a cough
46% have pharyngitis

**#3** **THERE IS NO REPORTED CASE OF MOTHER TO CHILD VERTICAL TRANSMISSION OF COVID-19**

→ A few neonates are reported to have become COVID-19 positive a few days after delivery to a positive mother.

A few have become ill after discharge; it is assumed that COVID-19 was acquired in the community.

**#4** IN INFANTS AND NEONATES
**THE CLINICAL SIGNS ARE NON-SPECIFIC:**

→ Temperature may be raised, low, or normal.

GIT signs are poor feeding, diarrhoea and vomiting, and abdominal distension.

**OTHER SIGNS:**

A CXR may show pneumonia; an abdominal XR may show paralytic ileus.

LFTs may be moderately deranged, FBC may show a lymphopenia.

The CRP may be slightly raised and renal function may be affected.

**#5** **BREASTMILK DOES NOT CONTAIN COVID-19 VIRUS**

# COVID-19 GUIDANCE:
## RESOURCES

## 1 GENERAL PEDIATRIC/NEONATAL

**American Academy of Pediatrics:** https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/

**CDC:** https://www.cdc.gov/coronavirus/2019-ncov/hcp/inpatient-obstetric-healthcare-guidance.html

**WHO (general):** https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance

## 2 PREGNANCY/NEONATAL SPECIFIC

**Consortium sharing neonatal specific resources from around the globe:** https://perinatalcovid19.org

**American Academy of Pediatrics:** https://services.aap.org/en/pages/2019-novel-coronavirus-covid-19-infections/faqs-managementof-infants-born-to-covid-19-mothers/

**Royal College of OB/GYN:** https://www.rcog.org.uk/en/news/national-guidance-on-managing-coronavirus-infection-in-pregnancy-published/

**Vermont Oxford Network:** https://public.vtoxford.org/covid-19/

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

## 3 KANGAROO MOTHER CARE SPECIFIC

**Infographics from WHO:** https://www.who.int/reproductivehealth/publications/emergencies/COVID-19-pregnancy-ipc-breastfeeding-infographics/en/

# COVID-19 GUIDANCE:
## RESOURCES

## 4 BREASTFEEDING

https://www.isrhml.com/i4a/pages/index.cfm?pageid=3368

**Academy of Breastfeeding Medicine:** https://www.bfmed.org/index.php?option=com_content&view=article&id=138&fbclid=IwAR0hk75%20Jv9MNareDxlsoDLdguJxqlpVtARDytf3lMEeMsRFMwyA43DjiVbw

**National Perinatal Society (graphics/posters):** http://nationalperinatal.org/COVID-19#breastmilk

**Infographics from WHO:** https://www.who.int/reproductivehealth/publications/emergencies/COVID-19-pregnancy-ipc-breastfeeding-infographics/en/

**International Lactation Consultant Association:** https://ilca.org/covid-19/

**UNFPA statement:** https://www.unfpa.org/press/unfpa-statement-novel-coronavirus-covid-19-and-pregnancy

## 5 PPE RESOURCES

**Videos on PPE and N95 fit testing:** https://perinatalcovid19.org/videos/

**CDC IPC in inpatient care settings:** https://www.cdc.gov/coronavirus/2019-ncov/hcp/inpatient-obstetric-healthcare-guidance.html

**University of Washington:** https://covid-19.uwmedicine.org/Pages/default.aspx

**WHO IPC/WASH:** https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/infection-prevention-and-control

## 6 REGULARLY UPDATED SUMMARIES OF RESEARCH TO-DATE

**NEOCLEAR:** https://perinatalcovid19.org/neoclear/

**American Academy of Pediatrics up-to-date summary of COVID pediatric research to date:** https://www.aappublications.org/sites/default/files/additional_assets/aap_files/COVID-19-Pediatric-Populations-Summary-from-AAP.pdf

**American Academy of Pediatrics up-do-date summary of COVID data tools available:** https://www.aappublications.org/sites/default/files/additional_assets/aap_files/COVID-19-Data-Tools-Summary-from-AAP.pdf

## 7 COVID-19 GENERAL INFORMATION VIDEOS CREATED BY PICTURING HEALTH

Picturing Health are creating public health information films to promote behaviour that can reduce the spread of coronavirus in Africa. They are also making films to contribute to the policy debate to help guide the response to the pandemic.

Here are links to recent videos:

**Coronavirus message for communities:** https://www.picturinghealth.org/coronavirus-message-for-communities/

**COVID on the Breadline (long version):** https://www.picturinghealth.org/covid-on-the-breadline/

**COVID on the Breadline (short version):** https://www.picturinghealth.org/covid-on-the-breadline-short/

# RISK TO NEONATES AND INFANTS:

## Proposed District and Unit Structure (Malawi Example)

*Last updated on 15 May, 2020*

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# 1 CONSIDERATIONS

Potential for in utero transmission exists; though currently there is not much information on COVID-19 acquired much earlier on in gestation.[3–6]

It is currently unclear if COVID-19 can cross through the transplacental route to the fetus. Studies have not detected SARS-CoV-2 in amniotic fluid, cord blood and breast milk of COVID-19 positive mothers. However, the virus has been detected from nasopharyngeal swab and anal swab specimens. Therefore, the vertical maternal-fetal transmission cannot be ruled out. Potentially, postnatal transmission, through airway droplets could be the major mother to baby transmission route.[7–9]

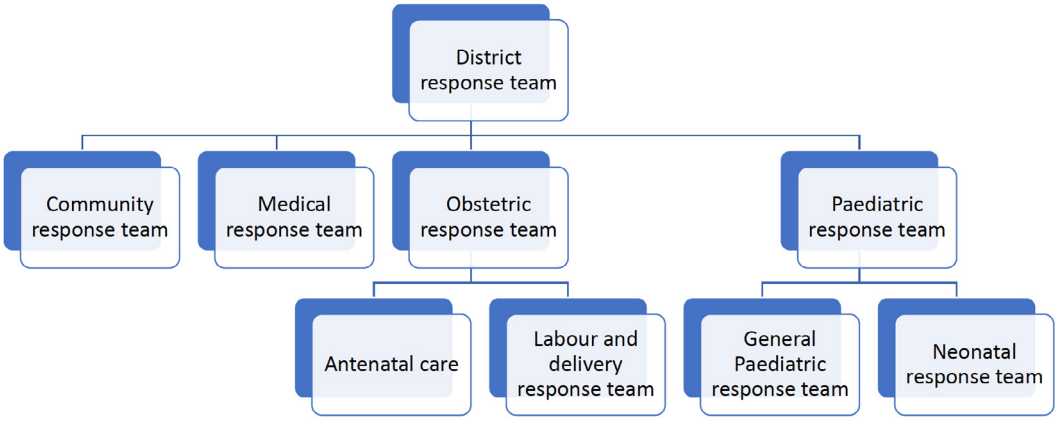
The goal is to minimize the risk of infection to baby; the risk of infection to staff and to provide appropriate clinical and nursing care to the newborn, in the setting of limitations in the availability of testing and PPE.

Resource limited environments rely on stringent risk – benefit assessment for decision making. Currently there is no reported case of mother to child vertical transmission of COVID-19. A few neonates are reported to have become COVID-19 positive a few days after delivery to a positive mother. A few have become ill with non-specific clinical symptoms and signs after discharge when it is assumed that COVID-19 was acquired in the community.

## 2 COVID-19 DISTRICT RESPONSE STRUCTURE

- Every district will have a centralized COVID-19 obstetric unit
- All suspected and confirmed COVID-19 pregnant women in district are cared for within the same district isolation unit where feasible, as the obstetric team can be helpful in providing care to other cases when there are no obstetric cases to be taken care of
- There should have a pre-arranged referral system for those who might require emergency obstetric surgeries e.g., caesarian section
- Every district COVID-19 response team should have staff with obstetric skills set to manage labour and delivery of COVID +ve or suspected COVID patients
- Every district COVID-19 response team should have staff with neonatal skills set to manage neonate from COVID +ve or suspected COVID patients
- Staff should be regularly screened and risk stratified
- Staff assessed to be high risk, should follow staff isolation protocol

## 2.1 PROPOSED DISTRICT RESPONSE STRUCTURE (MALAWI)



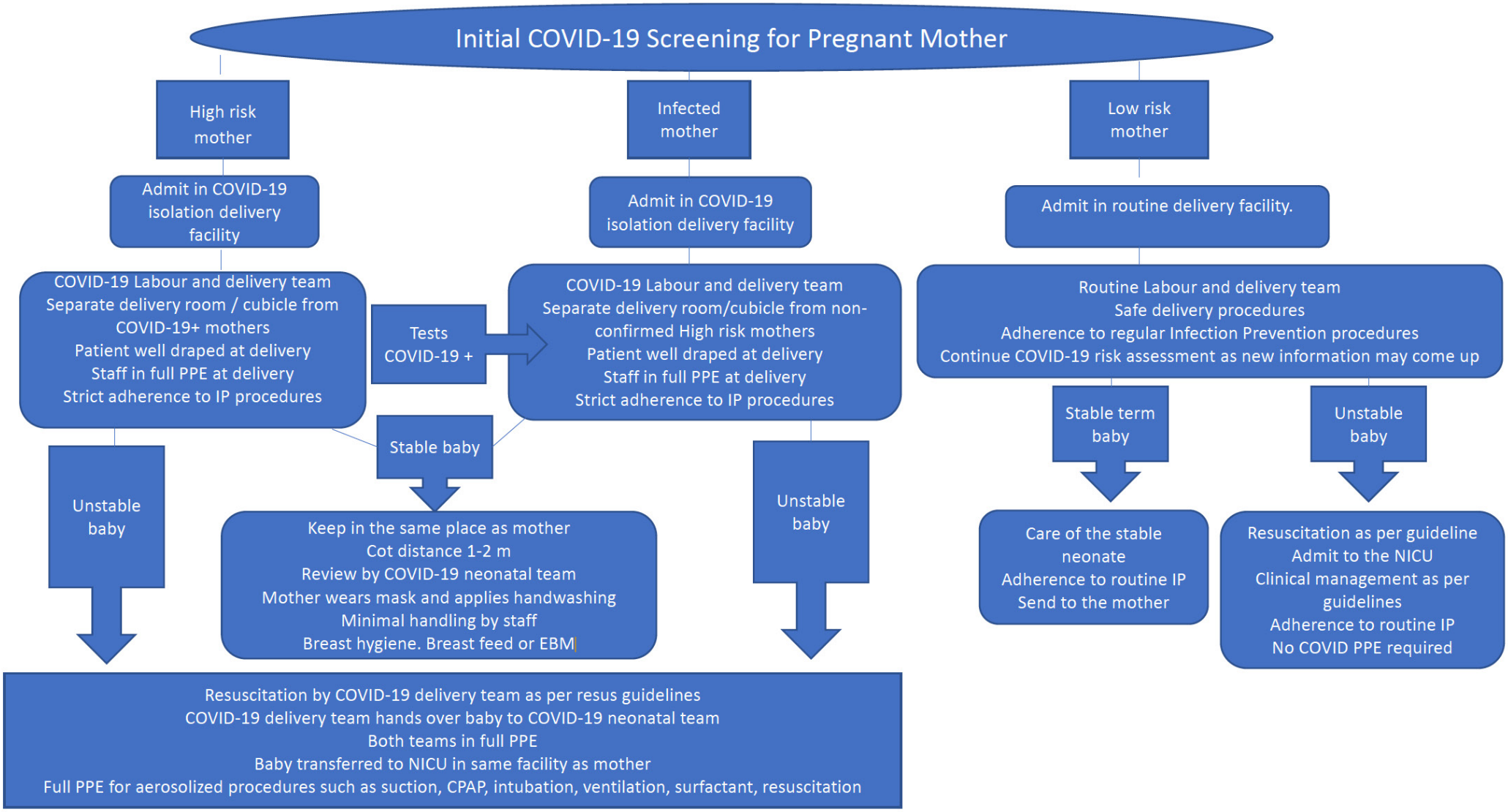
## 2.2 THE TEAMS

- Logistically the Paediatric team and the neonatal team remains one team, supervised by the district Paediatric response team
- Functionally, the Paediatric team and the neonatal team are different, depending on the presenting event
- The neonatal response team is activated when there is notification from the obstetric team of COVID-19 +ve or suspected patient
- The neonatal response team works closely with the labour and delivery team, which is supervised by the district obstetric response team
- The neonatal COVID response team works and coordinates with the district / facility NICU care team
- The labour and delivery team is responsible for delivery and resuscitation of the neonate in labour ward, as well as transfer to the NICU
- The neonatal team is responsible for the care of the neonate while in admission

## 2.3 SPACE

- Current general set-up at district hospital
- Screening will be conducted at entry point to the hospital or at the antenatal clinic
- COVID-19 low risk mothers still go through the routine flow
- COVID-19 high risk mothers and COVID-19 +ve mothers will be at a COVID delivery isolation and delivery centre
- The COVID-19 isolation and delivery centre will conduct labour, delivery and postnatal care
- Caesarian sections will be conducted at the main delivery theatre in the district hospital
- Babies are best cared for in the same facility as the mother
- It will be best to set up an isolation space and equipment for neonates in the COVID-19 delivery unit for neonates requiring care
- Resources could be shared between obstetric and neonatal staff such as PPE, changing room, nursing roles, IP facilities and routines
- Staff should be experienced and trained in HBB, COIN, NEST modules, COVID care, PPE

# COVID-19 GUIDANCE:
## PROPOSED DISTRICT RESPONSE STRUCTURE



## 3 LABOUR AND DELIVERY:

- Every woman coming to labour and delivery is assessed for symptoms of COVID-19
- If a pregnant woman is a suspected COVID-19 case, she is provided with a facemask, and referred to the COVID-19 isolation obstetric unit / separate delivery room
- The COVID-19 delivery team is notified
- Where feasible, **ONE WOMAN PER ROOM** and **ONE GUARDIAN PER WOMAN**
- In obstetric units with more than one delivery bed, place beds at least 1 meter apart
- Same team will attend to the mother, deliver the baby and care for the mother and the baby in delivery room
    - *Allow continuity, minimize staff exposure and rational use of staff and PPE*
- COVID-19 delivery team will make all the decisions, including the immediate care for mother and baby, following the set guidelines
- Once delivered, women are assessed whether they are high risk or low risk for puerperal complications
- Women with low risk for puerperal complications are discharged after 12 hours of normal delivery and tailored approach devised for high risk women
- COVID-19 delivery team will hand over neonatal care to COVID-19 neonatal team

## 4 DELIVERY ATTENDANCE FOR A HIGH RISK OR CONFIRMED COVID-19 +VE MOTHER

### STAFF

- Experienced midwives trained in COVID-19, IP, PPE, HBB, COIN
- Obstetric clinicians trained in COVID-19, Ip, PPE
- Paediatric clinicians trained in COVID-19, IP, PPE, COIN
- Support cover – District Medical Officer
- Support cover – Paediatrician on call, central hospital
- If feasible, a designated person for the COVID-19 delivery, to minimize use of PPE through change – throughs and minimize contact with other patients while caring for a COVID-19 positive mother

### EQUIPMENT

- Separately prepared, disinfected resuscitaire with all separate resus equipment in place
- Full PPE for the attending staff; including respirator masks and goggles
- Respirator mask for the mother

### PROCEDURE

- Full PPE
- Keep distance unless when necessary to examine the mother
- Minimize invasive vaginal examinations
- Minimize activities that promote aerosolization = minimize airway manipulation, unless necessary, minimize instrument delivery

### ON DELIVERY

- Full PPE
- No evidence yet to deviate from delayed cord cutting
- Briefly show the newborn to the mother, but keep a safe distance if the mother is not adequately masked
- Resuscitation in separate resuscitaire, set more than 2 meters away from the mother
- Routine care of the newborn and resuscitation procedures in delivery room
- Avoid suctioning unless thick meconium is blocking the airway
- Advise very gentle drying with warm cloth, to minimize abrasions on the baby's skin
- Keep the newborn well covered and warm
- Bathe the newborn with warm water as soon as possible after delivery

4
continued

## DELIVERY ATTENDANCE FOR A HIGH RISK OR CONFIRMED COVID-19 +VE MOTHER

### THEATRE DELIVERIES

- Same COVID-19 delivery team composition
- Same scrubbing procedures
- **Full PPE before entering the theatre**

### RESUSCITATION AND STABILIZATION

- Same COVID-19 delivery team
- Full PPE before entering the theatre room
- No change in resuscitation guidelines
- Neonatal resuscitation trolley at far end of the theatre, to minimize droplet contamination from the mother's droplets
- Early transfer of baby from delivery room or theatre

### TRANSFERING THE NEWBORN TO THE WARD

- A midwife from the COVID-19 neonatal team waits outside the door of the deliver room / theatre to receive the baby
- A designated closed incubator or movable cot is used
- The COVID-19 delivery team hands over the baby to a waiting midwife (from COVID-19 neonatal team) at the door of the labour room / theatre
- **None of the delivery team staff should accompany the baby to NICU in their used PPE**

4
continued

## DELIVERY ATTENDANCE FOR A HIGH RISK OR CONFIRMED COVID-19 +VE MOTHER

### STABLE BABIES

- Keep in the same place as the mother
- The mother applies strict hand washing and wears a mask
- The mother applies IP and breast hygiene for breastfeeding or breast milk expression
- Minimal handling of the baby from staff
- If the mother is unwell, move the baby to an isolation room in the NICU
- A relation to take over care of the baby

### UNSTABLE BABIES

- Keep in the same facility as the mother
- Provide all the available routine and advanced NICU care
- Designated care staff in full PPE while looking after the baby
- Provide stabilization and resuscitation as required as per clinical indications
- If need for intubation, ventilation and surfactant, staff apply full PPE
- Provide respiratory support based on local protocols in use
- Keep in the same facility as the mother
- If respiratory support required; nurse the baby in isolated cubicle or at the far corner of the room
- Minimal handling procedures

### OUT-BORN BABY

- Every baby referred from a facility should have the mother's screening status confirmed using the most up to date tool
- Symptoms of COVID-19 (i.e. fever, difficult breathing/shortness of breath, or cough), and history of travel by parent or relation
- With local transmission confirmed, negative history of travel should not be reassuring at this stage
- At risk babies are admitted to COVID-19 isolation facility as above
- Non-risk babies admitted to NICU if required
- Adopt 'minimal handling' procedures, where babies are only examined when necessary
- Daily update of risk status, in case new information becomes available

# COVID-19 GUIDANCE:
## PROPOSED DISTRICT RESPONSE STRUCTURE

NEST360°

5

### TESTING

**BOTH SYMPTOMATIC AND ASYMPTOMATIC HIGH RISK PATIENTS:**

↓

24 hours
48 hours
NP and OP swab
Rectal swab

**IF BOTH MOTHER AND BABY ARE POSITIVE AND STABLE, BUT ASYMPTOMATIC:**

↓

Discharge
Follow quarantine rules at home

**IF MOTHER IS POSITIVE,
BUT BABY IS NEGATIVE AND STABLE:**

↓

Discharge baby to mother/caretaker
Mother practices precautions
Re-test baby in 2-3 weeks

## SOURCES

1. Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected Interim guidance 13 March 2020
2. Neonatal Intensive Care Unit (NICU) Division E Women and Children's Services; NICU COVID-19 Policy - Attendance at delivery, Admission and Isolation Management
3. Neonatal Early-Onset InfectionWith SARS-CoV-2in 33 Neonates Born to Mothers With COVID-19 inWuhan, China. JAMA Pediatrics Published online March 26, 2020
4. INITIAL GUIDANCE: Management of Infants Born to Mothers with COVID-19 American Academy of Pediatrics Committee on Fetus and Newborn, Section on Neonatal Perinatal Medicine, and Committee on Infectious Diseases Date of Document: April 2, 2020
5. A contingency plan for the management of the 2019 novel coronavirus outbreak in neonatal intensive care units. The Lancet Child/adolescent April 2020
6. Association of Obstetricians and Gynaecologists in Malawi: AOGM GUIDANCE: COVID-19 IN PREGNANCY IN MALAWI
7. Malawi Paediatric COVID-19 Clinical Guidelines Version 2 April 2020_draft

# BEST PRACTICES FOR HANDWASHING:

## Water or Sanitizer

*Last updated on 15 May, 2020*

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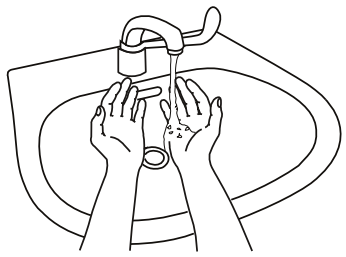
# Best Practice: Appendix 1 - How to hand wash step by step images

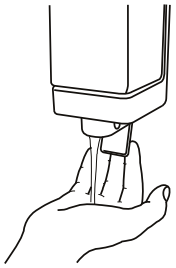
Steps 3-8 should take at least 15 seconds.

**1**



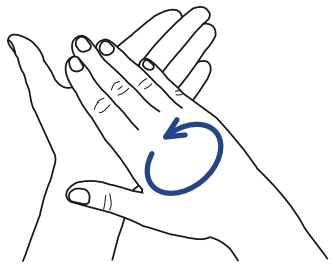
Wet hands with water.

**2**



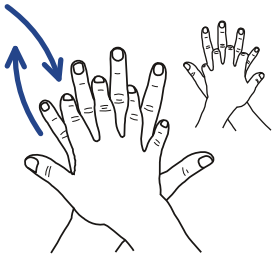
Apply enough soap to cover all hand surfaces.

**3**



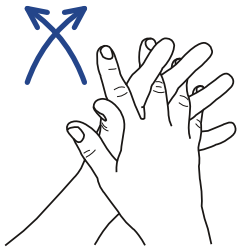
Rub hands palm to palm.

**4**



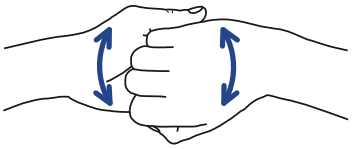
Right palm over the back of the other hand with interlaced fingers and vice versa.

**5**



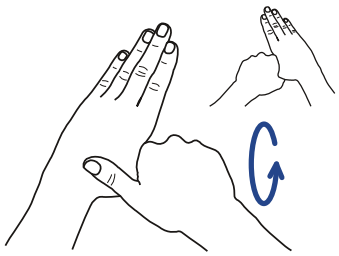
Palm to palm with fingers interlaced.

**6**



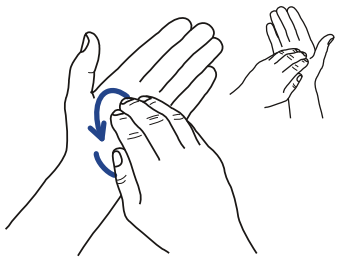
Backs of fingers to opposing palms with fingers interlocked.

**7**



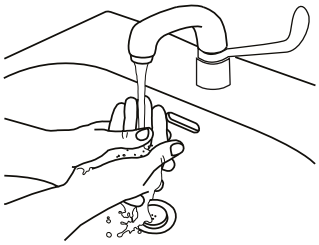
Rotational rubbing of left thumb clasped in right palm and vice versa.

**8**



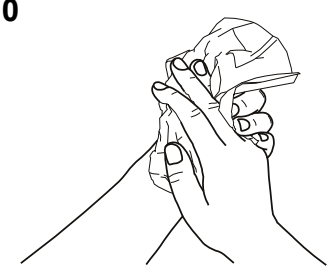
Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.

**9**



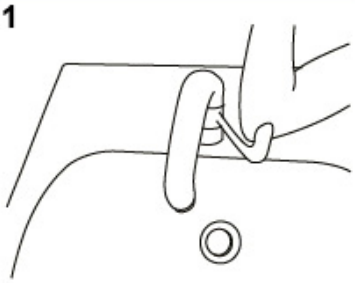
Rinse hands with water.

**10**



Dry thoroughly with towel.

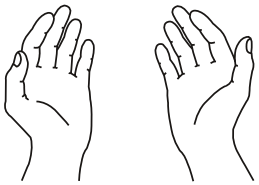
**11**



Use elbow to turn off tap.

**12**

Steps 3-8 should take at least 15 seconds.



...and your hands are safe*.

*Any skin complaints should be referred to local occupational health or GP.

Adapted from the World Health Organization


Germs. Wash your hands of them.

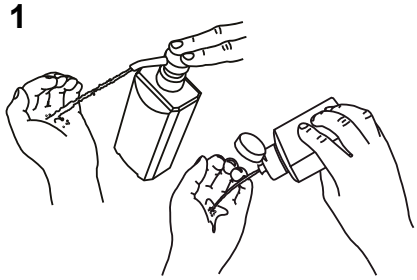
NHS SCOTLAND

Part of the National Infection Prevention and Control Manual (NIPCM), available at: http://www.nipcm.hps.scot.nhs.uk/.
Produced by: Health Protection Scotland, July 2018.

# Best Practice: Appendix 2 - How to handrub step by step images

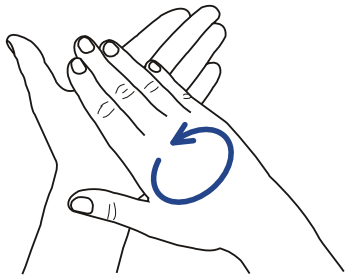
Duration of the process: 20-30 seconds.

**1**



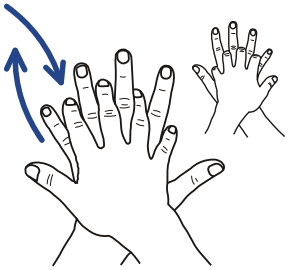
Apply a palmful of the product in a cupped hand and cover all surfaces.

**2**



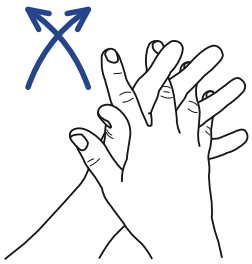
Rub hands palm to palm.

**3**



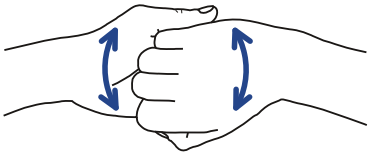
Right palm over the back of the other hand with interlaced fingers and vice versa.

**4**



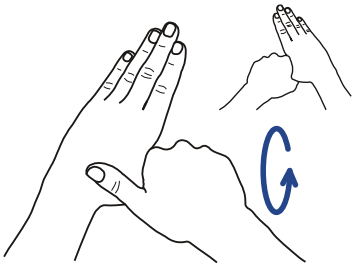
Palm to palm with fingers interlaced.

**5**



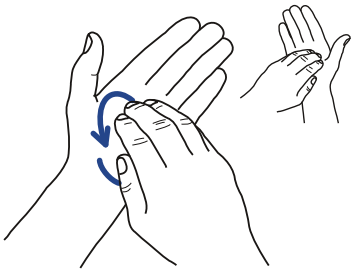
Backs of fingers to opposing palms with fingers interlocked.

**6**



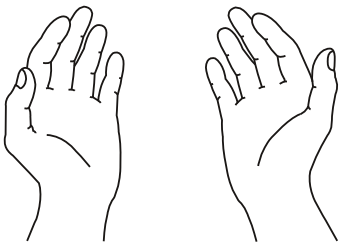
Rotational rubbing of left thumb clasped in right palm and vice versa.

**7**



Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa.

**8**



...once dry, your hands are safe.

Adapted from the World Health Organization


Germs. Wash your hands of them.

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# GENERAL INFORMATION ON PERSONAL PROTECTIVE EQUIPMENT (PPE):

## Donning, Doffing, and Levels of PPE for Different Areas and Types of Work

*Last updated on 15 May, 2020*

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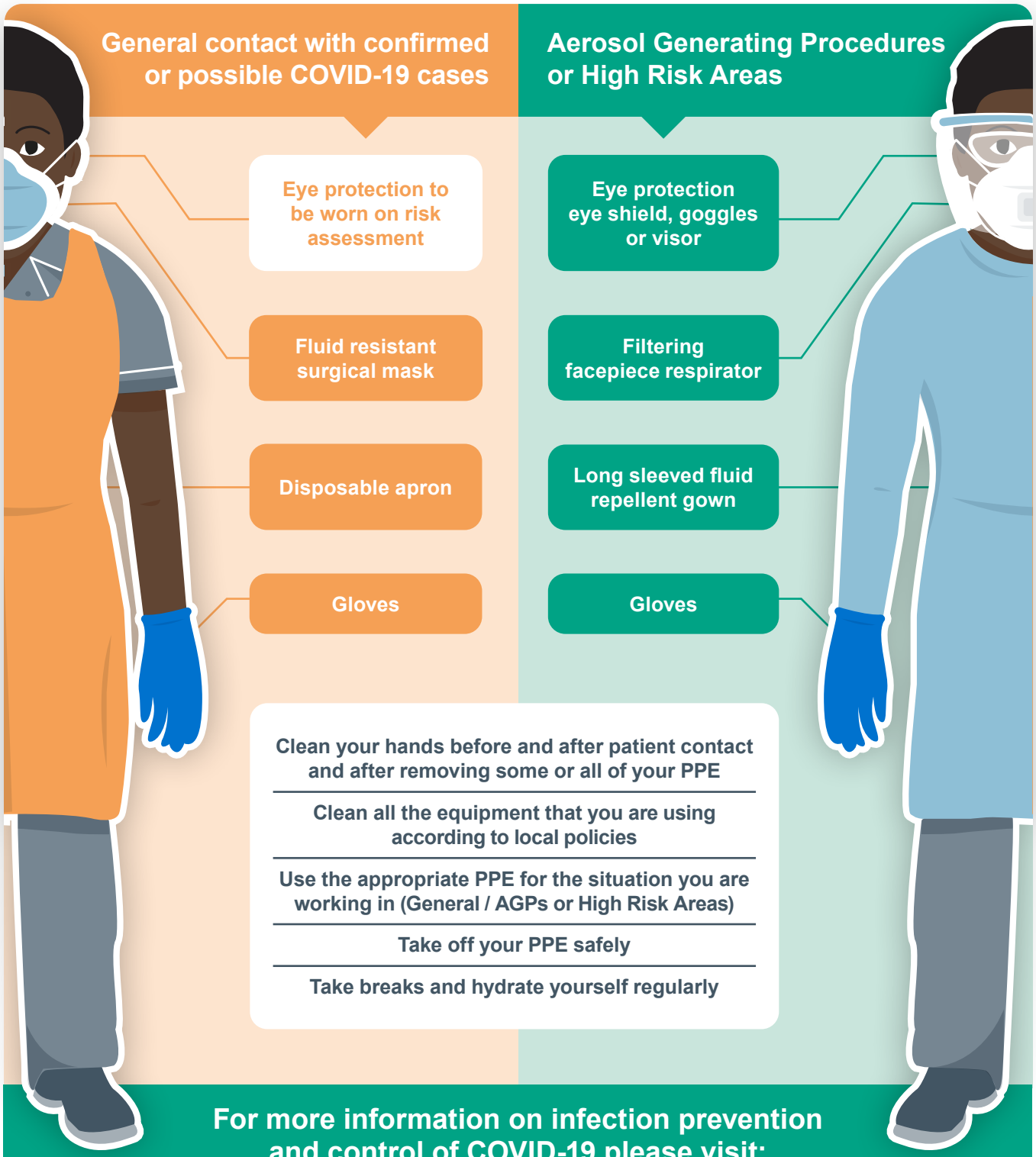
Public Health England

# COVID-19 Safe ways of working

# A visual guide to safe PPE




Clean your hands before and after patient contact and after removing some or all of your PPE

Clean all the equipment that you are using according to local policies

Use the appropriate PPE for the situation you are working in (General / AGPs or High Risk Areas)

Take off your PPE safely

Take breaks and hydrate yourself regularly

**For more information on infection prevention and control of COVID-19 please visit:**

www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control

Public Health England

# Putting on (donning) personal protective equipment (PPE) for aerosol generating procedures (AGPs)

**Use safe work practices to protect yourself and limit the spread of infection**

- keep hands away from face and PPE being worn
- change gloves when torn or heavily contaminated
- limit surfaces touched in the patient environment
- regularly perform hand hygiene
- always clean hands after removing gloves

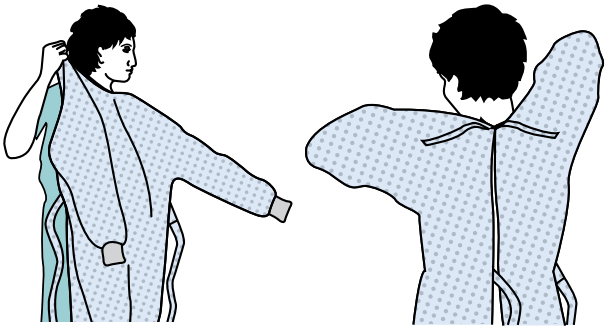
**Pre-donning instructions**

- ensure healthcare worker hydrated
- tie hair back
- remove jewellery
- check PPE in the correct size is available

Putting on personal protective equipment (PPE). The order for putting on is gown, respirator, eye protection and gloves. This is undertaken outside the patient's room.

## Perform hand hygiene before putting on PPE

**1** **Put on the long-sleeved fluid repellent disposable gown** - fasten neck ties and waist ties.



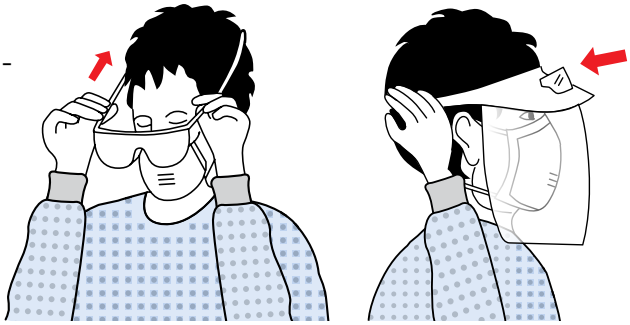
**2** **Respirator.**

Note: this must be the respirator that you have been fit tested to use. Where goggles or safety spectacles are to be worn with the respirator, these must be worn during the fit test to ensure compatibility

Position the upper straps on the crown of your head, above the ears and the lower strap at the nape of the neck. Ensure that the respirator is flat against your cheeks. With both hands mould the nose piece from the bridge of the nose firmly pressing down both sides of the nose with your fingers until you have a good facial fit. If a good fit cannot be achieved **DO NOT PROCEED**

**Perform a fit check.** The technique for this will differ between different makes of respirator. Instructions for the correct technique are provided by manufacturers and should be followed for fit checking

**3** **Eye protection** - Place over face and eyes and adjust the headband to fit



**4** **Gloves** - select according to hand size. Ensure cuff of gown covered is covered by the cuff of the glove.

Public Health England

*Quick guide*

# Removal of (doffing) personal protective equipment (PPE) for aerosol generating procedures (AGPs)

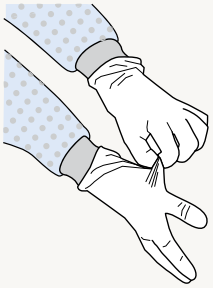
PPE should be removed in an order that minimises the potential for cross contamination.

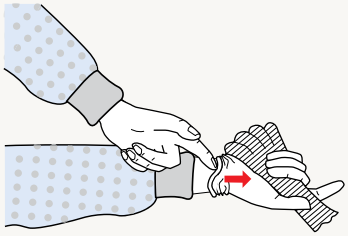
## The order of removal of PPE is as follows:

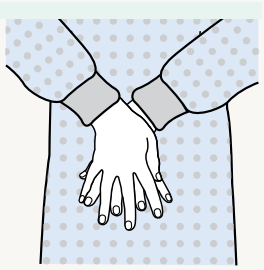
**1**

**Gloves –**

the outsides of the gloves are contaminated







Clean hands with alcohol gel

**2**

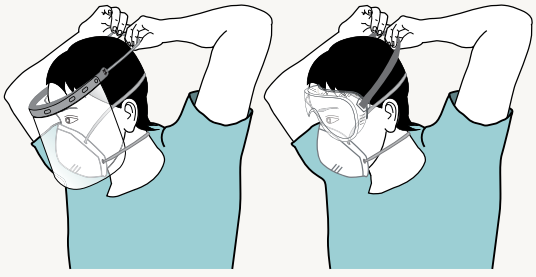
**Gown –**

the front of the gown and sleeves will be contaminated

**3**

**Eye protection -**

the outside will be contaminated



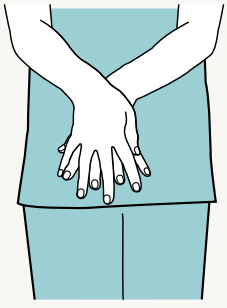
**4**

**Respirator**

Clean hands with alcohol hand rub. Do not touch the front of the respirator as it will be contaminated

**5**

Wash hands with soap and water



Public Health England | Academy of Medical Royal Colleges | GIG CYMRU NHS WALES – Iechyd Cyhoeddus Cymru Public Health Wales | Health Protection Scotland | HSC Public Health Agency | NHS

# Recommended PPE for healthcare workers by secondary care inpatient clinical setting, NHS and independent sector

| Setting | Context | Disposable Gloves | Disposable Plastic Apron | Disposable fluid-resistant gown | Surgical mask | Fluid-resistant (Type IIR) surgical mask | Filtering face piece respirator | Eye/face protection[1] |
|---|---|---|---|---|---|---|---|---|
| Acute hospital inpatient and emergency departments, mental health, learning disability, autism, dental and maternity settings | Performing a single aerosol generating procedure[2] on a possible or confirmed case[3] in any setting outside a higher risk acute care area[4] | ✓ single use[5] | ✗ | ✓ single use[5] | ✗ | ✗ | ✓ single use[5] | ✓ single use[5] |
| | Working in a higher risk acute care area[4] with possible or confirmed case(s)[3] | ✓ single use[5] | ✓ single use[5] | ✓ sessional use[6] | ✗ | ✗ | ✓ sessional use[6] | ✓ sessional use[6] |
| | Working in an inpatient, maternity, radiology area with possible or confirmed case(s)[3] – direct patient care (within 2 metres) | ✓ single use[5] | ✓ single use[5] | ✗ | ✗ | ✓ sessional use[6] | ✗ | ✓ sessional use[6] |
| | Working in an inpatient area with possible or confirmed case(s)[3] (not within 2 metres) | ✗ | ✗ | ✗ | ✗ | ✓ sessional use[6] | ✗ | ✓ risk assess sessional use[6,7] |
| | Working in an emergency department/acute assessment area with possible or confirmed case(s)[3] – direct patient care (within 2 metres) | ✓ single use[5] | ✓ single use[5] | ✗ | ✗ | ✓ sessional use[6] | ✗ | ✓ sessional use[6] |
| | All individuals transferring possible or confirmed case(s)[3] (within 2 metres) | ✓ single use[5] | ✓ single use[5] | ✗ | ✗ | ✓ single or sessional use[5,6] | ✗ | ✓ risk assess single or sessional use[5,6,7] |
| | Operating theatre with possible or confirmed case(s)[3] – no AGPs[2] | ✓ single use[5] | ✓ single use[5] | ✓ risk assess single use[5,7] | ✗ | ✓ single or sessional use[5,6] | ✗ | ✓ single or sessional use[5,6] |
| | Labour ward/area – 2nd/3rd stage labour vaginal delivery (no AGPs[2]) – possible or confirmed case[3] | ✓ single use[5] | ✓ single use[5] | ✓ single use[2] | ✗ | ✓ single or sessional use[5,6] | ✗ | ✓ single or sessional use[5,6] |
| | Inpatient care to any individuals in the extremely vulnerable group undergoing shielding[8] | ✓ single use[5] | ✓ single use[5] | ✗ | ✓ single use[5] | ✗ | ✗ | ✗ |

**Table 1**

**1.** This may be single or reusable face/eye protection/full face visor or goggles.
**2.** The full list of aerosol generating procedures (AGPs) is within the COVID-19 IPC guidance [note APGs are undergoing a further review at present].
**3.** A case is any individual meeting case definition for a possible or confirmed case: https://www.gov.uk/government/publications/wuhan-novel-coronavirus-initial-investigation-of-possible-cases/investigation-and-initial-clinical-management-of-possible-cases-of-wuhan-novel-coronavirus-wn-cov-infection
**4.** Higher risk acute areas include: ICU/HDUs; ED resuscitation areas; wards with non-invasive ventilation; operating theatres; endoscopy units for upper Respiratory, ENT or upper GI endoscopy; and other clinical areas where AGPs are regularly performed.
**5.** Single use refers to disposal of PPE or decontamination of reusable items e.g. eye protection or respirator, after each patient and/or following completion of a procedure, task, or session; dispose or decontaminate reusable items after each patient contact as per Standard Infection Control Precautions (SICPs).
**6.** A session refers to a period of time where a healthcare worker is undertaking duties in a specific care setting/exposure environment e.g. on a ward round; providing ongoing care for inpatients. A session ends when the healthcare worker leaves the care setting/exposure environment. Sessional use should always be risk assessed and considered where there are high rates of hospital cases. PPE should be disposed of after each session or earlier if damaged, soiled, or uncomfortable.
**7.** Risk assessed use refers to utilising PPE when there is an anticipated/likely risk of contamination with splashes, droplets of blood or body fluids.
**8.** For explanation of shielding and definition of extremely vulnerable groups see guidance: https://www.gov.uk/government/publications/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19/guidance-on-shielding-and-protecting-extremely-vulnerable-persons-from-covid-19

**Patient use of PPE:** In cohort wards, communal waiting areas and during transportation, it is recommended that suspected or confirmed cases wear a surgical face mask if this can be tolerated. The aim of this is to minimise the dispersal of respiratory secretions, reduce both direct transmission risk and environmental contamination. A surgical face mask should not be worn by patients if there is potential for their clinical care to be compromised (e.g. when receiving oxygen therapy).

# PROFESSIONAL RISK EXPOSURE

*Last updated on 15 May, 2020*

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# PROFESSIONAL RISK EXPOSURE:

## COVID-19 Patient Care

*Last updated on 15 May, 2020*

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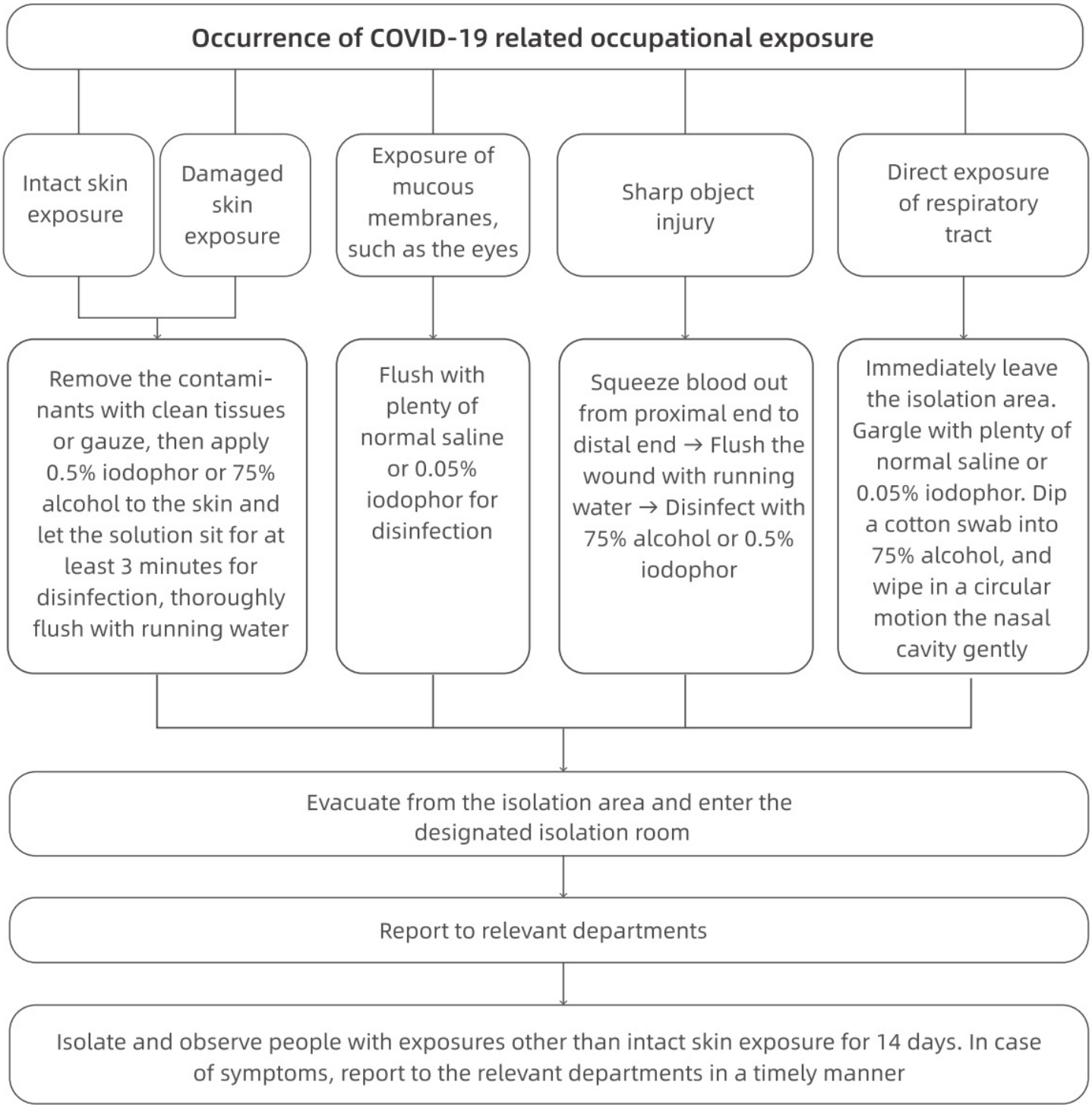
# COVID-19 GUIDANCE:
## PROFESSIONAL RISK EXPOSURE




**Source:** https://video-intl.alicdn.com/Handbook%20of%20COVID-19%20Prevention%20and%20Treatment.pdf

# PROFESSIONAL RISK EXPOSURE:

## Handling of Deceased Patients (COVID-19 Confirmed or Suspected)

*Last updated on 15 May, 2020*

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## PROCEDURES FOR HANDLING BODIES OF DECEASED SUSPECTED OR CONFIRMED PATIENTS

(1) Staff PPE: The staff must make sure they are fully protected by wearing work clothes, disposable surgical caps, disposable gloves and thick rubber gloves with long sleeves, medical disposable protective clothing, medical protective masks (N95) or powered air purifying respirators (PAPRs), protective face shields, work shoes or rubber boots, waterproof boot covers, waterproof aprons or waterproof isolation gowns, etc.

(2) Corpse care: Fill all openings or wounds the patient may have, such as mouth, nose, ears, anus and tracheotomy openings, by using cotton balls or gauze dipped in 3000-5000 mg/L chlorine-containing disinfectant or 0.5% peroxyacetic acid.

(3) Wrapping: Wrap the corpse with a double-layer cloth sheet soaked with disinfectant, and pack it into a double-layer, sealed, leak-proof corpse wrapping sheet soaked with chlorine containing disinfectant.

(4) The body shall be transferred by the staff in the isolation ward of the hospital via the contaminated area to the special elevator, out of the ward and then directly transported to a specified location for cremation by a special vehicle as soon as possible.

(5) Final disinfection: Perform final disinfection of the ward and the elevator.

**Source:** https://video-intl.alicdn.com/Handbook%20of%20COVID-19%20Prevention%20and%20Treatment.pdf

# NEST Adaptations to the Guidance of Procedures for Handling of Deceased Patients

## 1 STAFF PPE

Staff to ensure they are fully protected. This means wearing work clothes, disposable surgical cap, disposable gloves, and thick rubber gloves with long sleeves. medical disposable protective clothing, medical protective masks (N95) [a powered air purifying respirator may not be available], protective face shield, work shoes or rubber boots, waterproof boot covers, waterproof aprons or waterproof isolation gowns, etc.

## 2 CORPSE CARE

Fill all openings the patient may have, such as mouth, nose, ears, anus, and tracheotomy openings. Ensure usage of cotton balls or gauze dipped in 3000-5000 mg/L chlorine-containing disinfectant as indicated; 0.5% peroxyacetic acid is not required.

## 3 WRAPPING

Wrap the deceased in a double layer cloth sheet soaked with disinfectant. After this, if a corpse wrapping sheet is not available, a double layer of plastic is a suitable outer option.

## 4 TRANSPORT

Depending on the hospital unit and layout of the newborn ward, if special elevator access is not possible, the body shall be transferred to a designated area by staff in the isolation area, and then out of the hospital via dedicated transport vehicle to cremation location as soon as possible.

## 5 FINAL DISINFECTION

It need only occur in the areas in which the body was held (the ward) and the form of transport (a dedicated COVID transport trolley). If an elevator was not used for transport, it need not be disinfected.

# DISINFECTION OF MEDICAL EQUIPMENT

*Last updated on 15 May, 2020*

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# COVID-19 GUIDANCE:
## DISINFECTION OF MEDICAL EQUIPMENT

## 1 STANDARD DISINFECTION PRODUCTS

Most standard disinfection products are effective against coronavirus on hard, nonporous surfaces, including (but not limited to):

- **Sodium hypochlorite 0.5%**
- **Hydrogen peroxide 2.5%**
- **Isopropyl alcohol 70%**
- **Ethanol 70%**
- **Glutaraldehyde 2.5%**

Following the disinfectant manufacturer recommendations for disinfection preparation for adenovirus, norovirus, hepatitis A, or poliovirus.

Devices should be cleaned thoroughly according to manufacturer recommendations and hospital protocols. Cleaning personnel should wear PPE if there is suspected exposure to COVID-19. Before application of the disinfecting agent, visible contamination should be rinsed or wiped; this can be done with disinfectant or soap and water. Frequency and quality of cleaning should be increased. Environmental cleaning (incl. door handles, keyboards, cabinets, and other high-touch surfaces) should also be undertaken to prevent transmission.

## 2 SPECIAL CONSIDERATIONS

**Respiratory equipment** may pose an increased risk due to aerosolized virus

- Suction pumps have an antibacterial hydrophobic filter (pore size 0.027 microns, bacterial and viral filtration efficiency 99.9999%)

### Cleaning PPE (Porous or Soft Surfaces)

- If PPE is reusable, it can be cleaned according to manufacturer specifications.
- Disposable masks may be disinfected using UV-C treatment
    - UV-C light range is 200-280nm, and covers peak germicidal range of UV light
    - All soiled surfaces must be exposed to UV light for disinfection
- Laundered items should be washed at high heat (90°C) or with a disinfecting agent.

## 3 ADDITIONAL INFORMATION

### Disposables

- Disposables should be treated as infectious material and disposed of accordingly.
- Disposable covers for equipment can reduce cleaning time.

### Devices

- Unnecessary or excess device accessories should be removed from the room and stored until needed.
- Dedicated devices for known or suspected COVID-19 cases should be used, when possible.

### Bed Spacing

- All patient beds should be placed at least one meter apart, regardless of whether patients are suspected to have COVID-19 or not.

## REFERENCES

1. Center for Disease Control. Interim infection prevention and control recommendations for patient with suspected of confirmed coronavirus desease (COVID-19) in healthcare settings. Online access 5 April 2020. https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html

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5. Wong, Jolin, Qing Yuan Goh, Zihui Tan, et al. Preparing for a COVID-19 pandemic: a review of operating room outbreak response measures in a large tertiary hospital in Singapore. Can J Anesth (2020).https://doi.org/10.1007/s12630-020-01620-9

6. World Health Organization. Infection prevention and control during health care when COVID-19 is suspected: interim guidance, 19 March 2020. No. WHO/2019-nCoV/IPC/2020.3. World Health Organization, 2020. Online access 6 April 2020. https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125

7. World Health Organization. "Decontamination and reprocessing of medical devices for health-care facilities." (2016). Online access 6 April 2020. https://apps.who.int/iris/handle/10665/250232