



# COVID-19/ SARS-CoV-2

## PRECAUTIONS FOR ENT's

**“ENT's are in THE FRONT LINE!”**

This document (**17/04/2020**) might be subject to changes according to new evolutions and new informations and is only applicable during the current 2020 pandemic. Local hospital regulation should be taken into consideration

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# COVID-19/ SARS-CoV-2

## PRECAUTIONS FOR ENT's

**“ENT's are in THE FRONT LINE!” :**

Why Surgeons Don't Want to Operate Right Now



## GENERAL INFORMATION

- virus survives at least 3h probably up to 6h in aerosol/droplets
- droplets reach about 1 meter: so keep your distance: 1½ meter whenever possible
- virus survives 1day on cardboard and 3 days on plastics & metals
- virus survives up to 40 degrees Celsius
- contamination occurs by droplets (speaking, sneezing, coughing) and/or via hands
- contamination through nasal & buccal mucosa and conjunctiva



## GENERAL INFORMATION

- virus is inactivated within 1minute by solutions with  $>62\%$  alcohol,  $> 0,5\% \text{H}_2\text{O}_2$  or  $0,1\% \text{NaOCl}$  (sodium-hypochlorite, bleach, eau d’Javel, Carrel-Dakin)
- surgical masks prevent droplet diffusion for 4h
- FFP-2 (NF95) masks protect for contamination by droplets and can be continuously used for 8h
- “limited re-use” of FFP-2 masks is not recommended with Covid-19 yet is applicated in case of lack of supply
- protective glasses, goggles, facial shields to protect eyes & face (*see next slide*)
- gloves protect for contamination by droplets via hands
- hands have to be disinfected after taking off gloves and/or between patients (as well as after WC, before meal and at hospital or home arrival)
- FFP-3 masks are reserved for surgical interventions and procedures involving the airways





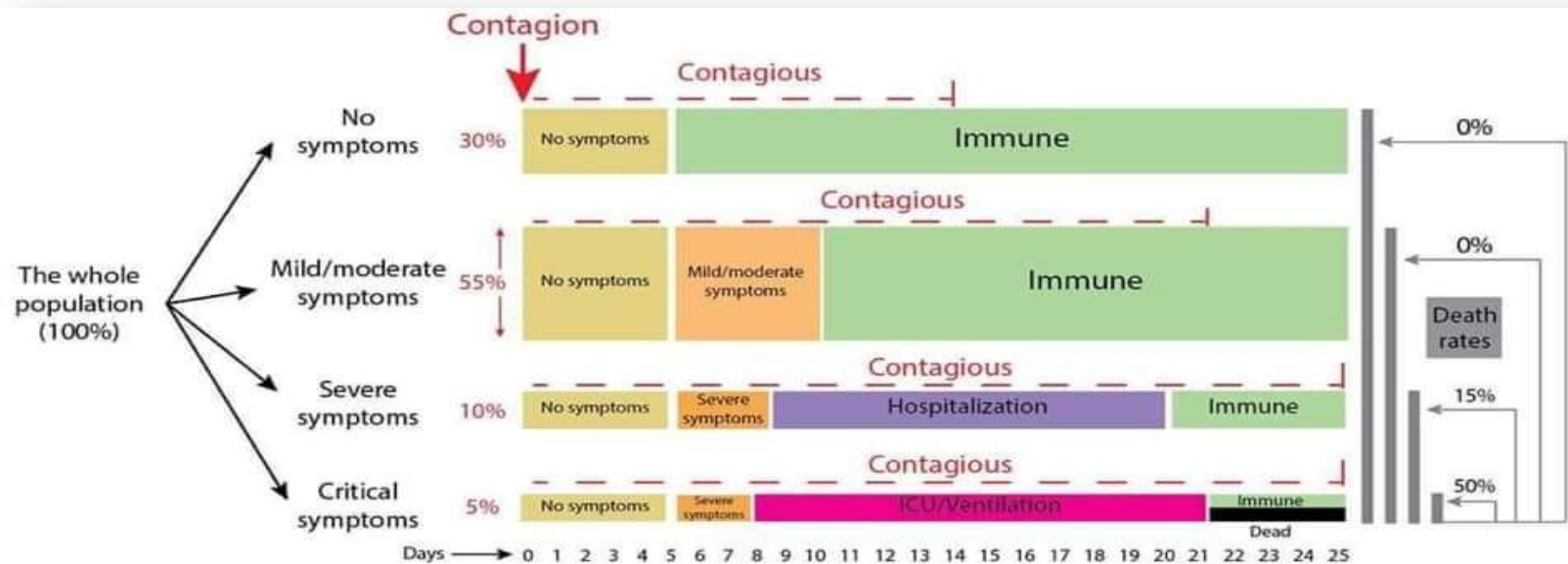
custom made facial shield :  
translucent firm plastic in A4  
punch four holes  
fix it on head light

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## GENERAL INFORMATION

### NEW : BRIEF COMMUNICATION in NATURE MEDICINE Respiratory virus shedding in exhaled breath and efficacy of face masks



#### References:

1. The Incubation Period of Coronavirus Disease 2019 (COVID-19) From Publicly Reported Confirmed Cases: Estimation and Application. Lauer SA et al. Ann Intern Med. 2020 Mar 10.
2. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID19 mortality and healthcare demand. Neil M Ferguson et al. Imperial College COVID-19 Response Team. 16 March 2020.
3. Viral dynamics in mild and severe cases of Covid-19. Yang Liu et al. The Lancet, March 19, 2020.



## FURTHER GENERAL INFORMATION

- [CovidReference](#) (Amadeo)
- [COVID-19 informatie voor artsen](#) (in Dutch)



EACH ENT SERVICE SHOULD CONVINCE ITS  
HOSPITAL DIRECTION / CRISIS TEAM / INFECTIOUS DISEASE DEPT  
THAT ENT IS AT HIGH RISK & NEEDS OPTIMAL PROTECTION

every procedure involving airways	proven CoVid(-)	all other => <u>P</u> ersonal <u>P</u> rotective <u>E</u> quipment
= entire ENT, esp. w/ aerosolization (sneezing & coughing reflexes, sprays, endoscopy, drilling)	surgical mask (preferably FFP2/3)	FFP2/3 ( <i>no surgical mask !</i> ) double gloves splash goggles or facial shield waterproof gown disposable cap

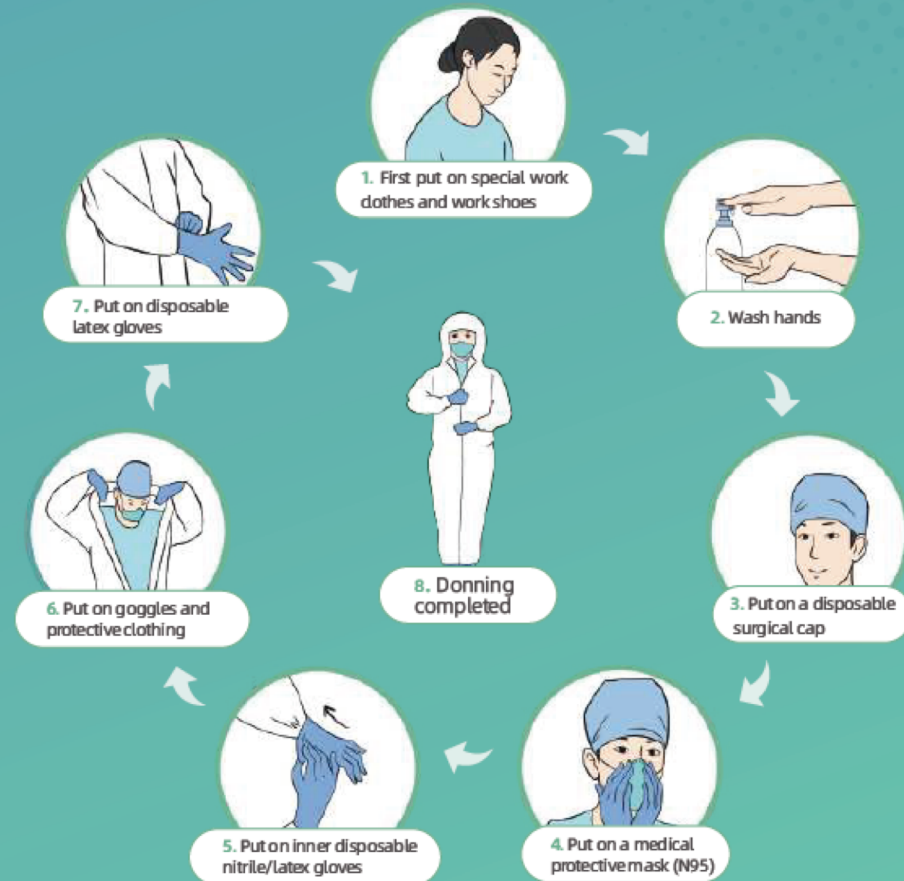


## Example of Personal Protective Equipment donning (ON)

This example is no substitute of local hospital recommendations

### IV. Hospital Practice Protocols during COVID-19 Epidemic

- 1 Guidance on Donning and Removing Personal Protective Equipment (PPE) to manage COVID-19 Patients



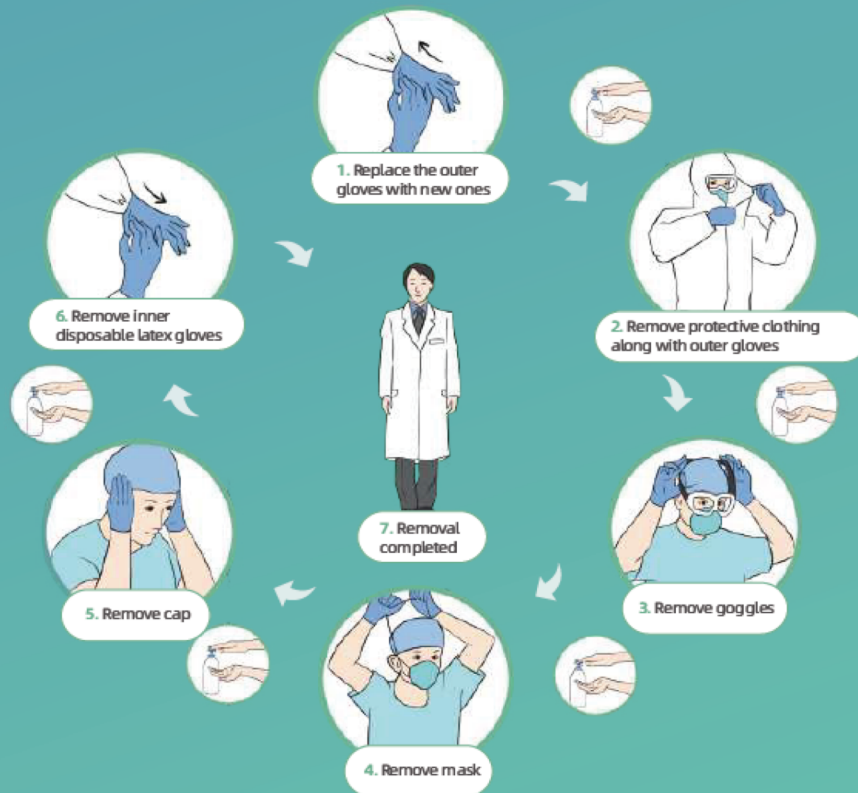
#### Protocol for Donning PPE:

Put on special work clothes and work shoes → Wash hands → Put on disposable surgical cap → Put on medical protective mask (N95) → Put on inner disposable nitrile/latex gloves → Put on goggles and protective clothing (note: if wearing protective clothing without foot covers, please also put on separate waterproof boot covers), put on a disposable isolation gown (if required in the specific work zone) and face shield/powered air-purifying respirator (if required in the specific work zone) → Put on outer disposable latex gloves



## Example of Personal Protective Equipment: duffing (OFF)

This example is no substitute of local hospital recommendations



### Protocol for Removing PPE:

Wash hands and remove visible bodily fluids/blood contaminants on the outer surfaces of both hands → Wash hands replace outer gloves with new gloves → Remove powered air-purifying respirator or self-priming filter-type full-face mask/mask (if used) → Wash hands → Remove disposable gowns along with outer gloves (if used) → Wash hands and put on outer gloves → Enter Removal Area No. ① → Wash hands and remove protective clothing along with outer gloves (for gloves and protective clothing, turn inside out, while rolling them down) (note: if used, remove the waterproof boot covers with clothing) → Wash hands → Enter Removal Area No. ② → Wash hands and remove goggles → Wash hands and remove mask → Wash hands and remove cap → Wash hands and remove inner disposable latex gloves → Wash hands and leave Removal Area No. ② → Wash hands, take a shower, put on clean clothes and enter the clean area



## PEDIATRIC ENT

- Guidelines of the French Pediatric Otolaryngological Society (AFOP) and French Society of Otorhinolaryngology (SFORL)



## OTOLOGY

1. Otological Emergency
2. Surgical Priority Stratification

NEW : BELGIAN REPORT for B-ENT

*Prioritizing otologic surgery during the COVID-19 pandemic*





## OTOLOGICAL EMERGENCY

### ACUTE OTITIS MEDIA complicated WITH

#### 1) Mastoiditis :

admission for IV antibiotics

if ear is running: no grommet, if no discharge: consider paracentesis

screening for COVID

monitoring (Upgrade to step 2 if no improvement within 24h)

#### 2) Mastoiditis + Subperiosteal Abscess

admission for IV antibiotics + grommet + incision & drainage of abscess

screening for COVID

monitoring (Upgrade to step 3 if no improvement in 24h)

#### 3) Mastoiditis + Subperiosteal Abscess + **Septic signs**

admission for IV antibiotics + grommet + incision & drainage of abscess

perform a limited cortical mastoidectomy (see next slides for precautions)



## OTOLOGICAL EMERGENCY

- **CONSIDER EAR AS RESPIRATORY MUCOSA and thus possibly contaminated**
- Treatment consists mainly in adequate IV antibiotics
- Mastoidectomy is warranted when you risk intracranial complications
- Surgery should only be performed by an experienced ENT
- Maximum precautions in clothing (cfr see general info and endonasal surgery)
- Minimum OR time with one goal: Drainage and offer some ventilation to the mastoid and middle ear (limited mastoidectomy and grommet)
- Minimal and slow drilling, with curettage whenever possible
- Cortical mastoidectomy can be done without microscope but use close fitting goggles for protection
- Avoid microsuction with control hole



# SURGICAL PRIORITY STRATIFICATION

Topsakal et al.

[Prioritizing otological surgery during the COVID-19 Pandemic](#)

B-ENT 2020

**NEW : BELGIAN REPORT for B-ENT**

**Table 1. Priority of otologic surgery during Covid-19 pandemic**

Priority: As Soon As Possible (ASAP)

- Life threatening complications of ear disease

Priority: Within 48 to 72 hours

- Acute mastoiditis not responding to intravenous antibiotics
- Acute mastoiditis with subperiosteal abscess
- Cholesteatoma with facial nerve palsy
- Cholesteatoma with intracranial complication
- Barotrauma with evident perilymph fistula and SNHL
- Trauma to
  - Facial nerve
  - Pinna
- Hydrocephalus because of brainstem compression by vestibular schwannoma

Priority: Delay up to 4 weeks may seem safe for

- Cochlear implantation for SNHL because of meningitis
- Otologic Neoplasia; shared decision of multidisciplinary teams

Priority: Delay up to 12 weeks may seem safe for

- Cholesteatoma, uncomplicated and stable
- Cochlear implantation for pre-lingual profound SNHL
- Implantable hearing aids
- Non-life threatening lesions requiring neurotologic procedures
- Ossiculoplasty, Stapedoplasty, Meatoplasty, Tympanoplasty
- Grommets

March 2020 Belgium; SNHL: sensorineural hearing loss



## RHINOLOGY

1. Outpatient clinic/consultation including nasal endoscopy
2. Surgery
3. Anosmia

NEW : BELGIAN SPECIAL REPORT for RHINOLOGY

*Personal protection and delivery of rhinologic and endoscopic skull base procedures during the COVID-19 outbreak*



## 1. Outpatient clinic/consultation including nasal endoscopy, patients with **unknown COVID-19 status**

The following rhinologic procedures in the outpatient clinic should be considered as a high risk:

- Interventional outpatient procedures on the upper aerodigestive tract, e.g. all endoscopies, nasal cautery, foreign body removal, biopsies, microbiology sampling.
- Any intervention to patients with airway modifications – tracheostomy tube changes and laryngectomy patients.
- Emergency care to ENT patients: acute tonsillitis, quinsy, epistaxis, foreign bodies, complications of acute sinusitis, other airway emergencies



## 1. Outpatient clinic/consultation including nasal endoscopy, patients with **unknown COVID-19 status**

- Question all patients about respiratory symptoms and fever before clinical examination
- Taking temperature is recommended
- Consider all diagnostic procedures involving the upper airway as high risk
- Reserve nasal endoscopy for urgent cases
- Try to limit the amount of manipulation as much as possible (inspection versus debridement with suction and/or forceps)
- Try to predict the necessary material and avoid leaving the consultation room with contaminated equipment
- Consider whether to use or avoid topical decongestant and local anaesthetic solution to reduce chances of sneezing and coughing during examination. If necessary use pledges or cotton wool soaked in solution rather than spray
- Use a tower with camera, screen and light source to avoid (too) close physical contact with the patient
- Patients should wear masks in the waiting room, try to limit the waiting time as much as possible
- Allow only essential staff in the consultation room (preferably one person)
- Keep doors shut as much as possible

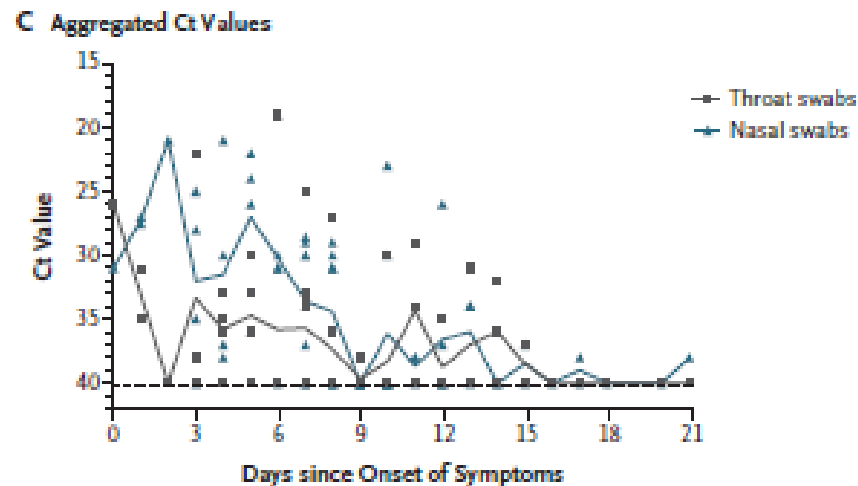
## Why high risk?

→ high viral shedding in the nasal cavity!

Nasal cavity >> throat

If viral particles become aerosolized, > 3 h in the air

Viral shedding also in asymptomatic patients



*Lirong Zou et al. NEJM, 2020*

# Protective equipment for health care professionals performing nasal endoscopy (unknown COVID-19 status)

- The following measures are recommended:
  - Patients: surgical mask before entry
  - Physicians:
    - hand-washing
    - FFP2 mask (=N95)
    - Nitrile gloves 2x
    - Cap
    - Fluid-impermeable gown
    - Splash goggles

FFP2  
MASK \*



NITRILE  
GLOVES



CAP



FLUID-IMPERMEABLE  
GOWN

















SPLASH  
GOGGLES





## 2. Rhinological and endoscopic skull base surgery

- Endoscopic endonasal surgery are considered as a high risk procedure for generating virus containing aerosols (esp when using lavages, powered instruments and drills)
- Postpone elective surgery if possible
- Preoperative testing for COVID-19 is advised. (Single or double test according to local availability. In the absence of confirmed negative status patients should be treated as positive.
- Protective equipment for health care professionals in COVID-19+ patients or patients with unknown status :
  - FFP2/N95 mask
  - double gloves
  - facial mask or goggles
  - disposable cap
  - fluid impermeable gown

 PATIENT	 CIRCULATING STAFF	 OPERATING STAFF
SURGICAL MASK 	FFP2 MASK *  NITRILE GLOVES  CAP  FLUID-IMPERMEABLE GOWN  SPLASH GOGGLES 	FFP2 MASK *  2x STERILE GLOVES  CAP  STERILE FLUID-IMPERMEABLE GOWN  SPLASH GOGGLES 



## 2. Rhinological and endoscopic skull base surgery, for **COVID-19 positive/symptomatic patients**

- postpone if possible
- international recommendations:  
use PAPRs (Powered, Air Purifying Respirators)
- video “[COVID modifications in sinus and nasal surgery](#)” (Melbourne) :



### 3. Sudden onset anosmia/hyposmia in COVID-19 infection

- in Germany it is reported that more than 2 in 3 confirmed cases have anosmia ; in South Korea, where testing has been more widespread, 30% of patients testing positive have had anosmia as their major presenting symptom in otherwise mild cases.
- given the potential for COVID-19 to present with anosmia, and the reports that corticosteroid use may increase the severity of infection, we would advise against the use of oral steroids in the treatment of new onset anosmia during the pandemic, particularly if it is unrelated to head trauma or nasal pathology (such as nasal polyps).
- initial treatment is decongestive (local and/or general) ; local steroids can be continued if used otherwise, but perhaps are better not initiated with new onset anosmia.
- spontaneous recovery seems to occur in the large majority.
- further information : [Sixty seconds on . . . anosmia](#)
- accepted for publication : [Olfactory and Gustatory Dysfunctions as a Clinical Presentation of Mild to Moderate forms of the Coronavirus Disease](#)



#### 4. SCIT and COVID-19 crisis

- guidelines of Dutch ENT & Allergology/Clinical-Immunology societies regarding patients treated with SubCutaneousImmunoTherapy)
- no start ups
- discuss if SCIT can be replaced permanently or temporarily by SLIT
- SCIT can be stopped in all patients that have been treated for (almost) 3 years
- in the maintenance scheme the interval between 2 injections can be prolonged with 1 week, with a maximum of 8 weeks, without changing the dose



## HEAD & NECK

- We reinforce the critical importance of appropriate personal protective equipment (PPE) in the safe management of patients with COVID-19.
- As the head and neck exam places the caregiver at heightened risk for potential COVID-19 infection from asymptomatic carriers, we recommend gloves, gown, masks and eye protection be worn in the examination of the upper aerodigestive tract as PPE availability allows.
- Elective and non-urgent outpatient visits should be postponed and innovative care approaches utilizing telemedicine should be explored and optimized.
- All elective and non-urgent surgery should be postponed.



## OR Priority criteria for H&N Surgery during covid-19 Pandemic

Proceed with surgery:

- Squamous Cell Carcinoma HPV + or –
- HNC Patients with complications of treatment (surgery or otherwise)
- HNC recurrence after RT or RT/chemo failure.



# OR Priority criteria for H&N Surgery during covid-19 Pandemic

Proceed surgery

Thyroid:

- Anaplastic and medullary thyroid Ca.
- Papillary thyroid Ca with suspicion for or identified metastases.
- Large (>4cm) follicular lesions.
- Revision Papillary thyroid Ca with active progression of disease.
- Parathyroidectomy with renal function declining.
- Risk of airway obstruction.

Skull base cancers requiring surgery.

Salivary gland carcinoma.

Skin cancer: melanoma, advanced staged SCC, BCC in critical areas.



## OR Priority criteria for H&N Surgery during covid-19 Pandemic

Consider postpone 30 days:

Low-risk DTC( differentiated thyroid cancer) without metastasis.

Postpone 30-90 days ( or as long as needed)

Goiter without airway compromise.

Benign Thyroid nodules, Thyroiditis.

Revision PTC stable or slow rate of progression.

Parathyroidectomy with stable renal function.

BCC where cosmetic impact is low even with further growth

Benign salivary lesions.





# Tracheostomy during covid-19 Pandemic

## **Emergency tracheostomy:**

Manage patient as if he is Covid-19 positive.

## **Elective tracheostomy:**

Always Covid-19 testing prior to procedure.

If possible delay procedure until active Covid-19 has passed.

Decision made by ENT and ICU consultants.



## Tracheostomy during covid-19 Pandemic

Surgical or open versus percutaneous procedure:

Risk of shedding appears to be smaller in percutaneous but risk for the bronchoscopy controller!

To be decided multidisciplinary ( ENT-Anaesthesia-Bronchoscopist) after weighing pro-and cons.

“It is recognized that many of these approaches will be local, influenced by epidemiologic and resource factors and that all our early experiences will be anecdotal, lacking the usual robust data on which we typically make decisions.”



## Standard operative procedure for tracheostomy in COVID 19 positive patient / Unknown status

- Most skilled anaesthetic and ENT clinician performing anaesthetic and procedure, to ensure that the procedure is safe, accurate and swift
- Reduce unnecessary team members to essential staff
- Preparation and Gowning:
  1. Use **FFP3** mask.
  2. Eye/face protection should be worn for performing tracheostomy or changing a tracheostomy tube due to the risk of respiratory secretions or body fluids. One of the following options are suitable:
    1. surgical mask with integrated visor
    2. full face shield/visor
  3. Fluid resistant disposable gown should be worn. If non-fluid resistant gown is used a disposable plastic apron must be worn underneath. A sterile disposable gown must be used for surgical tracheostomy.
  4. Gloves must be appropriate to allow palpation, use of stitches and surgical instruments. Consider using Eclipse system or “double-gloving”.



## Standard operative procedure for tracheostomy in COVID 19 positive patient / Unknown status

- Cuffed non-fenestrated tracheostomy should be used to avoid aerosolizing the virus
- Every effort should be made not to pierce the cuff of the endotracheal tube when performing tracheotomy
- Initial advancement of the endotracheal tube should be performed prior to tracheostomy window being made
- If possible, cease ventilation whilst window in the trachea is being performed and check the cuff is still inflated before recommencing ventilation
- Ventilation to cease prior to tracheostomy tube insertion and ensure swift and accurate placement of tracheostomy tube with prompt inflation of the cuff
- Confirm placement with end tidal CO<sub>2</sub>
- Ensure there is no leak from the cuff and the tube is secured in position
- HME (Heat and moisture exchanger) should be placed on the tracheostomy to reduce shedding of the virus should the anaesthetic tubing be disconnected
- Avoid disconnecting HME but if necessary, disconnect distal to HME



## Post tracheostomy care

Royal College of Anaesthesia (UK) suggests avoiding humidified wet circuits as theoretically it will reduce the risks of contamination of the room if there is an unexpected circuit disconnection.

Avoid changing the tracheostomy tube until COVID-19 has passed, will have to review with infectious diseases.

Cuff to remain inflated and check for leaks.

Make every effort not to disconnect the circuit.

Only closed in line suctioning should be used



# Laryngectomy

- laryngectomy procedure and all laryngectomised patients are significantly aerosol-generating: so avoid performing a laryngectomy unless absolutely necessary
  - consider radiotherapy with salvage laryngectomy at a time when the current COVID-19 situation has improved
  - avoid surgery in patients with advanced disease and a poor overall chance of survival.
- perform COVID-19 testing before a tracheostomy and certainly before laryngectomy. Two tests over an interval period would provide more definitive results
- do not perform a laryngectomy in a COVID-19 positive patient. Intubate or perform a tracheostomy to alleviate airway obstruction and wait for the patient to become COVID-19 negative before further definitive treatment
- all patients should be managed peri-operatively on the assumption that they may be COVID-19 infected - full PPE and FFP3 respirators are necessary for all theatre staff
- avoid a primary tracheoesophageal but rather perform a secondary TEP at a later date
- avoid microvascular free flaps where possible
- for patients requiring pharyngo-laryngectomy: avoid circumferential resection which will allow for pedicled flaps such as pectoralis major or SCAIF flaps
- consider, when primary pharyngeal closure is possible, an augmentation myofascial flap in cases at higher risk of fistula.



## Be aware:

A 2012 a systematic review of infection risk to healthcare workers (based on limited literature) has ranked airway procedures in descending order of risk as:

- 1.Tracheal intubation
- 2.Tracheostomy
- 3.Non-invasive ventilation (NIV)
- 4.Mask ventilation



# Thank you for your commitment!

PS : in case you need psychological support

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