How to Use Personal Protective Equipment

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PGME
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Outline

• Personal Protective Equipment Use
  • Resources: https://www.mcgill.ca/surgery/covid-19-updates
  • Protocols: https://www.covidprotocols.org/

• Donning and Doffing

• Location of Donning and Doffing

• Common Issues

• List of PPE Champions

• Safety at Work
Mission Statement

• To keep you safe when evaluating suspected or confirmed COVID-19 patients.
Terms to know

• **Personal Protective Equipment (PPE):** Protective clothing, mask and shield to protect you from infection.

• **Don:** To put on the protective equipment.

• **Doff:** To remove the protective equipment.

• **AGMP:** Aerosol-generating medical procedure.
Goals

• Understand the principles of Personal Protective Equipment (PPE) when evaluating a patient with suspected or confirmed COVID-19.
• Learn the steps to don and doff PPE.
• We will allow time to ask questions at the end of the donning and doffing process.
• Discuss safety at work and at home.
Introduction to Personal Protective Equipment

• PPE will be used when seeing any patient with suspected or confirmed COVID-19.
• ‘Buddy-system’ to ensure proper placement and removal of PPE.
• Avoid redundant evaluations/procedures to reduce exposure.
• Be aware of the regular updates to the PPE protocol.
Introduction to Personal Protective Equipment

• All personal items including jewellery, watch, wallet, ID badge, pen and phone are to remain outside of the patient’s room.

• Prior to entering any room:
  • Nails trimmed
  • Long hair tied
  • Beard shaved
Use of procedure masks while in hospital

• At all times while working within 2 metres of other individuals.
• Mask must be changed when soiled, wet or damaged.
• **Minimize touching** the procedure mask and carry out hand hygiene after touching it to avoid contamination.
• When seeing a patient who is on additional precautions, the procedure mask must be **doffed** and full PPE for those precautions must be donned.
Suspected† or confirmed COVID-19 and:

**Critically ill†**

- OR
- **AGMP**

**All other suspected or confirmed patients**

**Airborne + Droplet + Contact**
1) N95 and Face Shield
2) Gown***
3) Gloves
4) Negative Pressure room*
*if not available, place patient in single-room with door closed

**Droplet + Contact**
1) Mask with visor
2) Gown***
3) Gloves
4) Single-room, door closed

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†Suspected: Fever, chills, dyspnea, sore throat, rhinorrhea, diarrhea, vomiting, headache, acute loss of smell, syncope/general deterioration.

‡Critically ill (adult): Severe respiratory distress (≥4L/min O₂ or FiO₂ 35% by face mask with saturation >90%), altered mental status, shock.

‡Critically ill (pediatric): Severe respiratory distress, signs/symptoms of dehydration, lethargy or loss of consciousness, shock.

***Yellow disposable gown is the default. An impermeable gown when dealing with large amounts of bodily fluids. Remove airborne precautions if SARS-CoV-2 PCR is negative.
Suspected or confirmed COVID and:

1) Critically ill
2) AGMP

OR

Airborne + Droplet + Contact

1) N95 and Face Shield
2) Gown
3) Gloves
4) Negative Pressure room*

*if not available, place patient in single-room with door closed

"Critically ill (adult): Severe respiratory distress (≥4L/min O₂ or FiO₂ 35% by face mask with saturation >90%), altered mental status, shock.

"Critically ill (pediatric): Severe respiratory distress, signs/symptoms of dehydration, lethargy or loss of consciousness, shock.

"Yellow disposable gown is the default. An impermeable gown when dealing with large amounts of bodily fluids.
Aerosol-Generating Medical Procedures

- Intubation/Extubation
- Mechanical ventilation (on transport)
- Non-invasive ventilation (oxygen via high-flow nasal canula, CPAP, BiPAP)
- Bag mask ventilation
- High oscillatory ventilation
- Tracheotomy care
- Laryngoscopy
- Bronchoscopy
- Cardiopulmonary resuscitation
- Nasopharyngeal aspirate in children
- Open circuit suctioning in intubated patients
- Nebulization
- Sputum induction
- Upper GI endoscopy
- Dental procedures with high-velocity drill

(7/04/2020)
Donning

(Putting on personal protective equipment)
Necessary Equipment

- Gloves
- N95 respirator
- Face shield
- Gown
- Alcohol-based hand sanitizer or soap/water
- If possible, have a buddy
Step 1 – Wash hands

- Donning is outside the patient’s room.
- Wash hands for **30 seconds**, ensuring to wash in between digits, back of hand and wrist (according to hand hygiene policy).
Step 2 – Place Gown

• Gown should cover neck to knees
• Use **yellow gown** for low-risk soiling
• Use **impermeable gown** for large amount biological fluid exposure
• **Tie in 2 places** to cover body fully
• Buddy to check gown placement
Step 3 – Put on N95 Respirator

• Open fully and cup in hand
• Place over mouth and nose
• **Place upper band** (at crown of head) **then lower band** (at neck)
• Do not cross bands
• Compress nasal bridge to allow good seal (avoid pinching)
• Perform **seal test** (negative and positive seal checks).
Step 4 – Place Face Shield

• Ensure covers entire face
• Elastic strap fitting well behind head
Step 5 – Put on Gloves

• **Overlap** cuff of glove over gown

• Single pair of gloves

• Option:
  • *Punch a hole in sleeve with thumb* to prevent wrist show

• Bend elbows and ensure adequate coverage of arm/wrist
Step 6 – Check + Enter room

• Ensure adequate placement of PPE by *buddy*
• Enter room
Summary of Donning (critically ill or AGMP)

Step 1 – Wash hands
Step 2 – Place gown
Step 3 – Put on N95 respirator & perform seal test
Step 4 – Place face shield
Step 5 – Put on gloves
Step 6 – Check + Enter room
Doffing

(Removing Personal Protective Equipment)
Doffing

• **After every step**, ensure to *wash hands* well for 30 seconds.

• The gloves are considered most contaminated, followed by the front of the gown, face shield and N95 respirator.

• Doffing of equipment is from ‘**dirty-to-clean**’ and then ‘**back-to-front**’.
Step 1 – Remove Gloves (in room)

- Pinch and remove glove
- Roll glove off
- Slip finger of exposed hand underneath other glove
- **Contamination** may occur when removing gloves
- Wash hands immediately after (water/soap or alcohol-based)
Step 2 – Remove Gown (in room)

- Untie upper part of gown
- **Ensure elbows do not touch head** (risk of contamination)
- Remove gown from **back-to-front**
- Can rip lower waist tie
- Form inside out and dispose
- Wash hands immediately after (water/soap or alcohol-based)
IF you have impermeable gown, remove gown and gloves together:

• Break tie at waist
• Break tie at upper neck
• **Roll gown** inside out and remove gloves at same time
• Wash hands immediately after (water/soap or alcohol-based)
Step 3 – Remove Face Shield (inside room)

- Remove when more than 2 meters away from patient
- **Lean slightly forward** over garbage
- Grab elastic at **back** and remove
- Dispose in garbage
- Wash hands immediately after (water/soap or alcohol-based)
Step 4 – Exit Room and Wash Hands

• Exit room before taking off N95 respirator
• Avoid touching surfaces in patient’s room
• Ensure door closed well
• Wash hands immediately upon exiting
Step 5 – Remove N95 Respirator (outside room)

• Lean slightly forward over waste bin

• Remove lower strap first then **upper** at **back** of head and maintain tension

• Dispose in garbage

• Wash hands immediately after
Summary of Doffing (critically ill or AGMP and yellow gown)

Step 1 – Remove gloves  ➡️ Wash hands
Step 2 – Remove gown  ➡️ Wash hands
Step 3 – Remove face shield  ➡️ Wash hands
Step 4 – Exit patient’s room  ➡️ Wash hands
Step 5 – Remove N95 respirator  ➡️ Wash hands
Summary of Doffing (critically ill or AGMP and impermeable gown)

Step 1 – Remove gown and gloves ➔ Wash hands
Step 2 – Remove face shield ➔ Wash hands
Step 3 – Exit patient’s room ➔ Wash hands
Step 4 – Remove N95 respirator ➔ Wash hands
Suspected or confirmed COVID and:

NOT critically ill nor AGMP (all other patients)

- ***Droplet + Contact***
  1) Mask with visor
  2) Gown
  3) Gloves
  4) Single-room, door closed

"Yellow disposable gown is the default. An impermeable gown when dealing with large amounts of bodily fluids."
Donning

(Putting on personal protective equipment)
Summary of Donning (mask with visor)

Step 1 – Wash hands
Step 2 – Place gown
Step 3 – Place mask with visor
Step 4 – Put on gloves
Step 5 – Check + Enter patient’s room
Placing mask with visor

• Place over mouth and nose and elastic behind ears
• **Compress nasal bridge** (avoid pinching)
• Avoid tangling with glasses (glasses alone do not offer sufficient protection)
Doffing

(Removing Personal Protective Equipment)
Doffing

• **After every step**, ensure to wash hands well for 30 seconds.
• **Similar technique** to doffing of PPE in critically ill/AGMP; however, mask and visor to be removed inside the room **2 meters away** from patient.
• If cannot be performed 2 meters away, remove mask and visor outside patient’s room.
Summary of Doffing (mask with visor)

Step 1 – Remove gloves  ➔ Wash hands
Step 2 – Untie and remove gown  ➔ Wash hands
Step 3 – Remove mask with visor  ➔ Wash hands
Step 4 – Exit room and wash hands
Remove mask and visor

• Lean slightly forward over garbage
• **Remove at back**
• Dispose in garbage
• Wash hands immediately after
Location of Doffing

Chambre négative
Negative room

Corridor
Hallway

Chambre négative
Negative room

Antichambre négative
Negative antechamber

Corridor
Hallway
Location of Doffing

Chambre négative
Negative room

Antichambre positive
Positive antechamber

Corridor
Hallway

Chambre positive
Positive room

Antichambre négative
Negative antechamber

Corridor
Hallway
Stethoscope and Other Equipment Handling

• Place equipment to be disinfected in the room, near the exit
• **Doff PPE** as per protocol
• Exit room and don a new pair of **gloves**
• Take a disinfectant **wipe***
• Reach into the room and **grab the equipment with the wipe** (can enter the room without PPE if you remain at least 2 meters from the patient, except for airborne isolation: in that case, keep your N95 respirator on)
• **Exit room** with the equipment if small (large equipment, e.g., portable x-ray machine, must be cleaned in the room)
• **Clean & disinfect** equipment and leave to dry (e.g., hang the stethoscope on a clean hook or place it on a clean surface)
• Discard wipe and **remove gloves**
• Perform **hand hygiene**
Common Errors

1) Buddy system
2) Definition of Aerosol vs Non Aerosol Generating Medical Procedures: need to bring up clinical cases relevant to each specialty.
3) Gloves overlap with gown to cover wrist.
4) Wash hands after every step in doffing.
5) Remove all PPE except mask in room.
Additional Tips

• Suggest closed shoes which are easily wipeable.
• While in hospital remain in scrubs, if possible.
• Cleaning glasses regularly with wipes
• Consider cleaning neck with face wipes or soap/water.
Concluding Remarks

• Avoid all redundant procedures/evaluations to minimize exposure.
• Ensure someone checks your PPE placement prior to entering room.
• Wash hands after each step of the doffing.
List of MUHC Champions

Cardiac Surgery:
- Kevin Lachapelle
- Patrick Ergina
- Nouf Baker
- Aly Ghoneim
- Ali Alakhtar

Dentistry:
- Nour Karra
- Edwin Chan

ENT:
- Emily Kay-Rivest
- Noura Alyouha
- Marco Mascarella

General Surgery:
- Steven Paraskevas
- Francine Tremblay
- Maria Abou Khalil
- Araz Kouyoumdjian

Neurosurgery:
- Jared Wilcox

Ophthalmology:
- Fatma Zaguia

Obstetrics/GYN:
- Mohammad Khojah

Orthopedic Surgery:
- Adam Hart
- Mitchell Bernstein
- Gregory Berry
- Bardia Barimani
- Mohammed Alotaibi

Plastic Surgery:
- Stephanie Thibaudeau
- Peter Alam
- Abdulaziz Alabdulkarim

Urology:
- Melanie Aube
- Heather Gill

Vascular Surgery:
- Heather Gill

Urology:
- Melanie Aube
- Heather Gill

Medicine:
- Ashan Alam
- Linda O’Fiara
- Patrick Wilemont
- Amel Bessisow
- Ariane Marelli

Pediatrics:
- Lianne Kopel
- Elisa Ruano
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Resources

PPE Videos:
MUHC: https://youtu.be/4VaTdL6uFwU
CDC: https://www.utmb.edu/covid-19/health-care-workers/don-and-doff-ppe

Resources:
https://www.covidprotocols.org/ (COVID Protocols)
Questions?
Safety at Work

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1 - BEFORE Work

- Leave watch and rings at home
- Tie hair back, keep nails short, no nail polish
- Avoid extra accessories (bags, coats)
- Activate ApplePay™ (no need for cash or credit card)
- Lunches in a disposable wrapping
- Put phone in Ziploc bag (to be discarded at end of day)
- Bring work clothes in a washable bag (i.e. pillowcase)
2 – AT WORK

• Change into scrubs or work clothes as soon as you arrive
• Change into work shoes (ideally plastic wipeable shoes)
• Use PPE as appropriate
• Leave pens, phones etc. outside of patient room
• Get used to never touching your face
3 – **AFTER** Work

- Place dirty work clothes in bag to bring home (leave scrubs at hospital)
- Wash hand, then put clean clothes on
- Sanitize badge, phone, glasses, etc.
- Wash hands and arms with soap and water
- Consider showering at the hospital if high exposure risk or significant time spent with COVID+ patients
4 – AT Home

• Do not touch anything
• Remove shoes. Wash work clothes (hot water with detergent)
• Shower with soap and water
• Consider limiting interaction with family (i.e. exposure, symptoms, vulnerable population)
• Clean hard surfaces with disinfectant solution (i.e. 60% alcohol)
• Practice wellness daily
SAFETY AT WORK

BEFORE WORK
- Leave watch and rings at home
- Tie hair back, keep nails short, no nail polish
- Avoid extra accessories (bags, coats)
- Activate Apple Pay (no need for cash or credit cards)
- Lunches in disposable wrapping
- Put phone in Zploc bag (to be discarded at end of the day)
- Bring work clothes in a washable bag (i.e. pillowcase)

AT WORK
- Change into scrubs or work clothes as soon as you arrive
- Change into work shoes (ideally plastic wipeable shoes)
- Use personal protective equipment as appropriate
- Leave pers, phones, ID badges, etc. outside of patient room
- Get used to never touching your face

AFTER WORK
- Place dirty work clothes in bag to bring home (leave scrubs at hospital)
- Wash hands, then put clean clothes on
- Sanitize badge, phone, glasses, etc.
- Wash hands and arms with soap and water
- Consider showering at the hospital if high exposure or significant time spent with COVID-19 patients

AT HOME
Try not to touch anything until you do the following:
- Remove shoes
- Shower with soap and water
- Consider limiting interaction with family (i.e. exposure, symptoms, vulnerable population)
- Clean hard surfaces with disinfectant solution (i.e. 60% alcohol)
- Practice wellness daily