

Memorandum

Date: April 25, 2020

To: All endoscopy sites – medical and operational leads

From: Dr. Sander Veldhuyzen van Zanten, Senior Medical Director, Digestive Health SCN

Drs. John Conly and Uma Chandran, Infection Prevention and Control

RE: PPE for endoscopy procedures during COVID-19 pandemic

Many healthcare providers have inquired about appropriate use of personal protective equipment (PPE) while caring for patients who are suspected (i.e. influenza-like illness symptoms) or confirmed to have COVID-19. In response to provider questions, leaders from the Digestive Health SCN and Infection Prevention and Control (IPC) have collaborated with Gastroenterology and Surgery stakeholders from across Alberta to develop these recommendations for gastrointestinal endoscopy procedures. The Emergency Coordination Centre has endorsed these recommendations.

Note: These recommendations are based on current evidence, and may be revised as new evidence becomes available.

Where possible, avoid endoscopy procedures for patients with confirmed or suspected COVID-19

- In most cases, results of COVID-19 testing in hospitalized patients or patients seen in Emergency Departments should be available in 24 hours.
- Procedures should be rescheduled after COVID-19 clinical symptoms have subsided and contact and droplet precautions have been discontinued. Typically, the infectious window is **14 days from symptom onset or when symptoms are completely resolved, whichever is later.** (See “further information about infectious window” on page 6). Consult IPC for immunocompromised patients if there are questions that arise.

The importance of adherence to PPE recommendations cannot be overemphasized. The table summarizes PPE recommendations and more details follow on page 2:

Patient information	Type of procedure	PPE requirement
No ILI symptoms/no suspicion of COVID infection	All endoscopy procedures	<ul style="list-style-type: none"> • As per IPC Routine Practices, wear at least gown & gloves. • Procedure mask (with ear loops) or surgical mask (with ties) should be worn as per the AHS Guidelines for Continuous Masking. • Consider eye/face protection if any concerns of blood/body fluid splashes/other contact with face. <p>No N95 respirator required.</p> <p><i>*Change all PPE (including gown) for each new case</i></p>
COVID infection confirmed or suspected	Most endoscopy procedures (unless in the context of an aerosol-generating medical procedure)	Contact and droplet precautions: <ul style="list-style-type: none"> • Proper single use PPE gown • Surgical mask (with ties) with eye protection/ visor/goggles/face shield (eye protection is very important for protection against splash back from large droplets)

Patient information	Type of procedure	PPE requirement
		during endoscopy) <ul style="list-style-type: none"> • Single gloves worn over the gown that cover the wrist (double gloves are not necessary) • A hairnet is not required <i>*Change all PPE (including gown) for each new case</i>
COVID infection confirmed or suspected	Endoscopy procedures in the context of aerosol-generating medical procedures (i.e. patient is intubated, mechanically ventilated, or has a high likelihood of requiring intubation during the procedure)	Contact and droplet precautions <ul style="list-style-type: none"> • Substitute N95 respirator for surgical mask • All other elements of PPE stay the same <i>*Change all PPE (including gown) for each new case</i>

- **Other resources about proper use of PPE** are found on page 5.

PPE for endoscopic procedures on patients without confirmed or suspected COVID infection

- There is no uniform standard about PPE use for endoscopic procedures. As a minimum it generally includes hand washing, a gown and use of gloves. Procedure/surgical mask should be worn as per the [AHS Guidelines for Continuous Masking](#). Eye/face protection should be considered if any concern of blood/body fluid splashes/other contact with face. A N95 respirator is not required.

PPE for endoscopic procedures on patients with confirmed or suspected COVID infection

- PPE for contact and droplet precautions applies for all endoscopic procedures on patients with confirmed or suspected COVID infection. See <https://www.albertahealthservices.ca/assets/healthinfo/ipc/hi-ipc-contact-and-droplet-precautions-info.pdf>.
- **In addition, a N95 respirator is required in the context of *Aerosol-Generating Medical Procedures (AGMPs)*.**
 - Aerosol Generating Medical Procedures include: bronchoscopy, intubation and related procedures, mechanical ventilation, bi-level positive airway pressure (BPAP), CPR, and aerosolized medication administration. A complete list is available at <https://www.albertahealthservices.ca/assets/healthinfo/ipc/hi-ipc-respiratory-additional-precautions-assessment.pdf> (page 2).
- **There are conflicting opinions about whether standard gastroscopy should be considered an AGMP.**
 - AHS IPC **does not consider** gastroscopy to be an AGMP based on current scientific evidence.
 - Exposure to respiratory droplets is different from exposure to aerosols.
 - Although there is no conclusive evidence that standard gastroscopy does not produce aerosols, in SARS and other previous similar outbreaks transmission has not been linked to endoscopic procedures. There is no evidence that N95 respirators provide better protection than procedure/surgical masks (+ eye/face protection + gloves + gown) in this setting.
 - Oral suctioning (as opposed to airway suctioning) has not been shown to generate aerosols that increase infection risk.

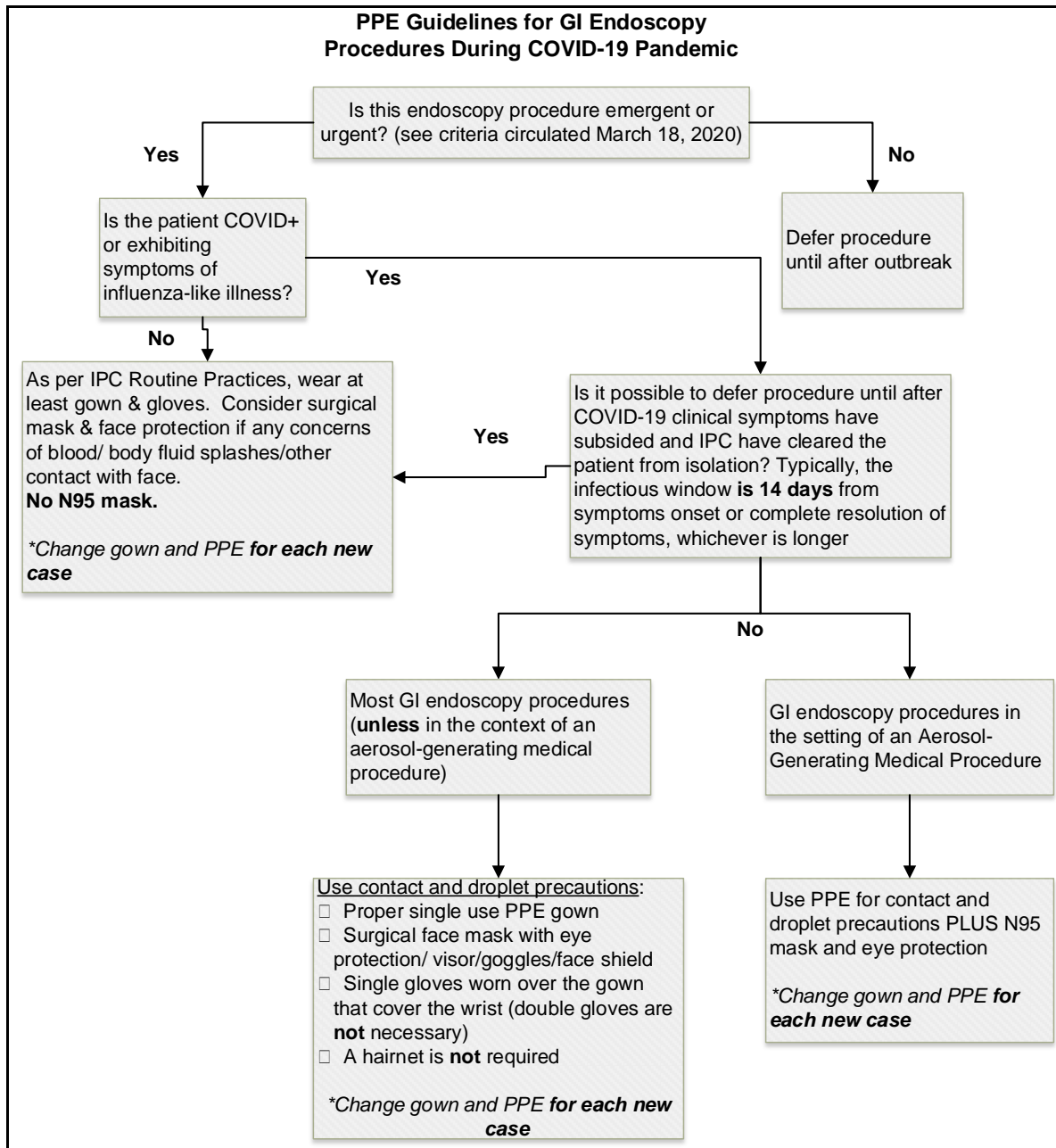
- **There are conflicting opinions about whether standard colonoscopy should be considered an AGMP.**
 - AHS IPC **does not consider** colonoscopy to be an AGMP based on current scientific evidence.
 - Although shedding of the COVID-19 virus in stool does occur, it is unlikely that this generates aerosols.

- **As per AHS IPC direction, in the context of gastrointestinal endoscopic procedures, AGMP is limited to the following circumstances:**
 - Patient is intubated and/or ventilated -or-
 - There is a high risk of requiring intubation during the procedure, e.g. serious upper GI bleeding or difficult to manage food bolus obstruction -or-
 - Nebulized therapy/aerosolized medication administration (excluding meter-dosed inhaler).

We recognize that these recommendations differ somewhat from those published by professional societies such as the Canadian Association of Gastroenterology. AHS IPC has carefully reviewed the available evidence. Given the mode of transmission for the COVID-19 virus, IPC supports limited use of N95 respirators (i.e. only during AGMPs or high risk procedures for patients with confirmed COVID-19). Further information is provided on pages 4-5, outlining the evidence about COVID-19 transmission and the benefits and harms of N95 respirators versus procedure/surgical masks.

Clinical judgment on appropriate use of PPE

As outlined in the AHS Joint Agreement with Unions (<https://www.albertahealthservices.ca/assets/news/nr/ne-nr-2020-03-27-joint-statement-covid-ppe.pdf>), “a point-of-care risk assessment (PCRA) must be performed before every patient interaction. The PCRA should include the frequency and probability of routine or emergent AGMP being required. If a health care worker determines on reasonable grounds that specific PPE is required, they shall have access to the appropriate PPE based on their PCRA...”



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Other resources about proper use of PPE

It is important that **all individuals involved** in care of patients requiring endoscopy are **AWARE** and **TRAINED** in proper handling of PPE.

- AHS requirements for donning and doffing PPE Video: https://ahamms01.https.internapcdn.net/ahamms01/Content/AHS_Website/Information_For/if-hp-ipc-donning-and-doffing.mp4 (Note: for doffing, proper hand hygiene is required between each step)
- Donning PPE Poster: <https://www.albertahealthservices.ca/assets/Infofor/hp/if-hp-ipc-donning-ppe-poster.pdf>
- Doffing PPE Poster: <https://www.albertahealthservices.ca/assets/Infofor/hp/if-hp-ipc-doffing-ppe-poster.pdf>
- PPE Checklist Poster: <https://www.albertahealthservices.ca/assets/healthinfo/ipc/hi-ipc-chklist-contact-droplet-precautions.pdf>

Further information about COVID-19 transmission

Currently available evidence supports that the predominant route of human-to-human transmission of the SARS-CoV-2 is through respiratory droplets and/or contact routes. (1-4). The report by the World Health Organization (WHO) Joint Mission on Coronavirus Disease 2019 (COVID-19) in China which analyzed the experience with 75,465 cases supports person-to-person droplet and fomite transmission during close unprotected contact, with the majority of SARS-CoV-2 transmission occurring within families in close contact with each other. (4) The vast majority (78-85%) of the investigated infection clusters occurred within families, with a household secondary attack rate varying between 3-10%, a finding that is not consistent with airborne transmission. (4) The report further explicitly stated that “airborne transmission was not reported for COVID-19 and was not believed to be a major driver of transmission.” (4) There were 2,055 laboratory-confirmed SARS-CoV-2 cases reported in health care workers across China but the majority were identified early in the outbreak when experience and supplies were lacking. Data from studies that have conducted sampling for the presence of SARS-CoV-2 RNA in the immediate airspace surrounding infected patients with significant viral loads in their respiratory secretions have been consistently negative (5, 6) and a study demonstrating no evidence of transmission to passengers seated in close proximity to infected cases who have travelled on long distance flights (7) also support the conclusion that the SARS-CoV-2 is not transmitted by the airborne route.

References

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Further information about infectious window

- The incubation period for COVID-19 ranges from 2 to 14 days from point of exposure. Most affected individuals develop clinical symptoms at 5 to 6 days post-exposure (Reference: WHO-China Joint Mission Report https://www.who.int/docs/default-source/coronaviruse/who-china-joint-mission-on-covid-19---final-report-1100hr-28feb2020-11mar-update.pdf?sfvrsn=1a13fda0_2&download=true).
- Given that there is increasing community transmission, it may be difficult to pinpoint the time of exposure to a specific risk factor such as travel or close contact with a COVID+ individual.
- From a management perspective, this makes it difficult to use 14 days from exposure as a timeline for self-isolation in all cases.
- Therefore, 14 days from symptom onset (or complete resolution of symptoms – whichever is longer) is being used for duration of self-isolation at home and is being incorporated into hospital management with regards to duration of contact + droplet precautions.

N95 respirators versus procedure/surgical masks: benefits and harms

The findings from multiple systematic reviews and meta-analyses over the last decade have not demonstrated any significant difference in the clinical effectiveness of particulate respirators compared to the use of medical masks (both procedure and surgical masks) when used by Health Care Workers (HCW) in multiple health care settings for the prevention of respiratory virus infections, including influenza. (1-3). A recent large, well-conducted cluster randomized, multi-centre, multi-year pragmatic effectiveness study demonstrated no evidence of greater clinical effectiveness of particulate respirators (i.e. N95 respirators) compared to medical masks in the prevention of acquisition of laboratory-confirmed influenza in HCWs. (4) One of the systematic reviews commented about the harms of particulate respirators, especially when worn for prolonged periods. (1) Other studies have demonstrated side effects associated with the use of particulate respirators including facial dermatitis due to formaldehyde release from the mask components, increased work of breathing, respiratory fatigue, impaired work capacity, increased oxygen debt, early exhaustion at lighter workloads, elevated levels of CO₂, increased nasal resistance, and increased non-compliance (adjustments, mask or face touches, under-the-respirator touches, and eye touches). (4-10) *These side effects are not seen with the use of medical masks.* An additional study has suggested pregnant women were not able to maintain their minute ventilation and had decreased oxygen uptake and increased carbon dioxide production even at rest.(11) The effects on the developing fetus are unknown. Studies of the use of particulate respirators in clinical settings have demonstrated anywhere between 44% and 97% of HCWs do not use the respirators properly. (12).

References

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Please feel free to contact Dr. Sander Veldhuyzen van Zanten at Sander.vanZanten@ahs.ca with any questions. Thank you for your efforts during this challenging time.

Sincerely,

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