COVID-19: Protecting Yourself while Caring for Patients – PPE and more

CAS Town Hall Webinar

MODERATOR:
Dr Daniel Bainbridge

Dr Laura Duggan @drlauraduggan
Dr Hilary Grocott @DrGrocott
Dr Shannon Lockhart @ShannonLockhart
Dr Randy Wax @drrandywax
Evolving situation, Evolving Knowledge

Absence of evidence doesn’t = Evidence of absence

Pandemics call for rapid, sometimes imprecise action

Healthcare workers need to stay safe
Practical recommendations for critical care and anesthesiology teams caring for novel coronavirus (2019-nCoV) patients

Directives concrètes à l’intention des équipes de soins intensifs et d’anesthésiologie prenant soin de patients atteints du coronavirus 2019-nCoV

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COVID-19 patient on Nasal Prongs
Requires an IV start
Post-intubation of Suspected/Diagnosed COVID Patient: Precautions required?

Q: How long are airborne precautions required post-intubation?

No definitive evidence

Varying recommendations site to site due to differences in air exchanges per hour

• SPH: 1h, Ottawa Civic: 2h, Randy Wax: 0h

Aerosol and Surface Stability of SARS-CoV-2 as Compared with SARS-CoV-1 - 3h aerosolized in static drum (in vitro)

A: Based on air exchanges per hour at your site = Liaise with IPAC
   - newer standards = 12 exchanges/h
   - many of us not in new hospitals = 6 exchanges/h
Understanding fluid dynamics in disease transmission,
Dr. Lydia Bourouiba MIT
COVID-19

Droplet > 5 microns
(Contact <1 meter away)

Aerosol

Airborne < 5 microns

http://www.cidrap.umn.edu/news-perspective/2020/03/commentary-covid-19-transmission-messages-should-hinge-science
What are aerosol generating medical procedures (AGMP)?

Lack of precision in definition of AGMP

“Aerosols are produced when an air current moves across the surface of a film of liquid, generating small particles at the air–liquid interface. The particle size is inversely related to the velocity of air. Therefore, if a procedure causes air to travel at high speed over the respiratory mucosa and epithelium, the production of aerosols containing infectious agents is a potential risk.”

<table>
<thead>
<tr>
<th>Definitely</th>
<th>Controversial</th>
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<tbody>
<tr>
<td>Intubation</td>
<td>CPAP, BiPAP, Optiflow</td>
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<td>Tracheotomy</td>
<td>High flow dry gas (nasal cannula, simple mask)</td>
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<td>Non-invasive ventilation</td>
<td>CPR</td>
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<td>Manual ventilation</td>
<td>Endotracheal aspiration</td>
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<td>Open airway suction</td>
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<td>Nebulizers</td>
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<td>Bronchoscopy</td>
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<td>NG insertion</td>
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<td>Sputum collection</td>
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</tbody>
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WHO Guidelines: Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care
Post-intubation of Suspected/Diagnosed COVID Patient: Precautions required?

Q: How long are airborne precautions required post-intubation?

No definitive evidence
Varying recommendations site to site due to differences in air exchanges per hour
• SPH Background C. Air

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3 Questions To Guide PPE Decisions:

1. COVID Suspected/Diagnosed
2. AGMP
3. Intubation or other AGMP
https://www.medicircle.in/italian-doctors-forced-to-choose-their-icu-patients-who-have-the-best-chance-for-survival
COVID-19
Health and Safety for Anesthesiologists

- COVID-19 represents a paradigm shift
  - get comfortable putting your own health and safety first
  - protect healthcare workers so we can protect health care
- You will perform better if you feel safe
- PPE is a safety issue, but also a morale/mental health issue
Evolve PPE for Aerosol-Generating Medical Procedures

**Not Acceptable**

- Originally recommended PPE for AGMP:
  - N95 respirator
  - Eye protection (surgical mask with visor)
  - Reusable yellow gown
    (AAMI* Level 2, prior to 25 washes)
  - Single pair of nitrile gloves
    (no cuff specification)
  - No head covering; no shoe covering

**Modified PPE for AGMP:**

- N95 respirator
- Eye protection (surgical mask with visor)
- Disposable surgical gown (*AAMI Level 3)
- Double high-cuffed (surgical-type) gloves
- Surgical hood with ties
  (head and neck covering)
- Knee high shoe covering (not shown)

**Ideal PPE for AGMP:**

- N95 respirator
- Eye protection (goggles)
- Disposable coverall (*AAMI Level 4)
  covers head and neck
- Integrated shoe cover
- Double high-cuffed (surgical-type) gloves

*COVID-19*

*AMI = The Association for the Advancement of Medical Instrumentation*

https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/medical-gowns
March 19, 2020

The Honourable Patty Hajdu
Minister of Health

Dr Stephen Lucas
Deputy Minister of Health

Dear Minister Hajdu & Deputy Minister Lucas,

As the President of the Canadian Anesthesiologists’ Society, I am compelled to bring this urgent matter to your attention. Our members—anesthesiologists across Canada—are on the front line during this COVID-19 pandemic and are facing both personal health risks, as well as risks to the health and safety of their families and the communities in which they live. They are striving to respond to the overwhelming number of cases and potential cases in their hospitals and clinics and are attempting to ensure that all the necessary precautions and guidelines are followed.

Currently, we are receiving notice from across the country of shortages of many items required for the safety of healthcare workers as well as items required for testing. While some provinces are more fortunate than others because of the higher number of current cases, we know that all other provinces are facing impending shortages as well. Personal Protective Equipment (PPE) is currently critical—N95 face masks are of primary concern. Vital shortages include testing kits and items such as nasal swabs and hand sanitizer.

The Canadian Anesthesiologists’ Society asks that the government of Canada prioritize the expansion of PPE production—most importantly N95 masks—as well as testing materials for COVID-19. It is also vital that we expand access to ventilators in many areas—support is required for funding and immediate access. We compel the government to invoke the Emergency Act to ensure the expedition and expansion of resources, resulting in the production of significant numbers of N95 masks and other critical equipment and supplies.

CAS is committed to working with Health Canada and the government to ensure the safety of our healthcare workers, as well as to manage and eradicate this pandemic. We are ready and willing to meet with you to discuss this crisis. I look forward to hearing from you.

Sincerely,

Dr Daniel Barrie
President

Dr Reanne Preston
President, ACUA
Association of Canadian University
Departments of Anesthesia