

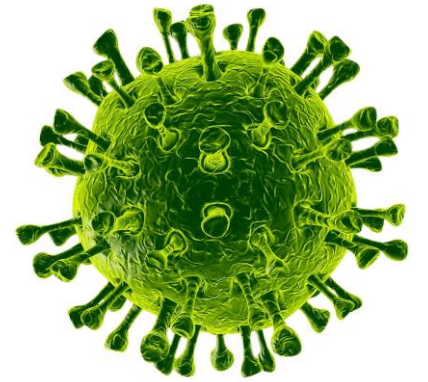


COVID-19: Protecting Yourself while Caring for Patients – PPE and more

CAS Town Hall Webinar

MODERATOR:

Dr Daniel Bainbridge



Dr Laura Duggan
@drlauraduggan



Dr Hilary Grocott
@DrGrocott



Dr Shannon Lockhart
@ShannonLockhart



Dr Randy Wax
@drrandywax



COVID

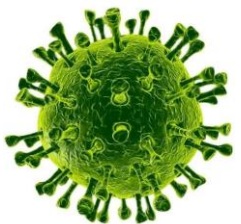


Evolving situation, Evolving Knowledge

Absence of evidence doesn't = Evidence of absence

Pandemics call for rapid, sometimes imprecise action

Healthcare workers need to stay safe



COVID-19





REVIEW ARTICLE/BRIEF REVIEW

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

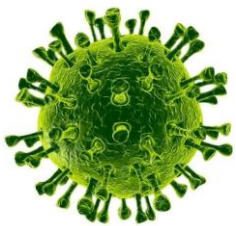
Randy S. Wax, MD, MEd, FRCPC, FCCM • Michael D. Christian, MD, MSc (Public Health), FRCPC, FCCM

Received: 7 February 2020 / Accepted: 7 February 2020
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COVID-19 patient on Nasal Prongs
Requires an IV start



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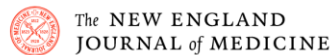
Post-intubation of Suspected/Diagnosed COVID Patient: Precautions required?

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



CORRESPONDENCE

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



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CDC. Guidelines for Environmental Infection Control in Health-Care Facilities (2003)
American Society of Refrigerating Engineers



COVID-19 Map FAQ →



Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University (JHU)



Total Confirmed

1,328

Confirmed Cases by Country/Region/Sovereignty

28,572 Spain
26,747 US
23,921 Germany
21,638 Iran
14,485 France
8,897 Korea, South
7,104 Switzerland
5,071 United Kingdom
4,216 Netherlands
3,401 Belgium
3,021 Austria
2,216 Norway
1,770 Sweden
1,600 Portugal
1,489 Denmark
1,328 Canada
1,314 Australia
1,306 Malaysia

Last Updated at (M/D/YYYY)

3/22/2020, 10:43:19 AM



Cumulative Confirmed Cases

Active Cases

169

countries/regions

Lancet Inf Dis Article: [Here](#). Mobile Version: [Here](#). Visualization: JHU CSSE. Automation Support: [Esri Living Atlas team](#) and [JHU APL](#). [Contact US](#). [FAQ](#).
Data sources: WHO, CDC, ECDC, NHC, DXY, 1point3acres, Worldometers.info, BNO, state and national government health department, and local media reports. Read more in this [blog](#).
Downloadable database: [GitHub](#): [Here](#). Feature layer: [Here](#).
Confirmed cases include presumptive positive cases.

Total Deaths

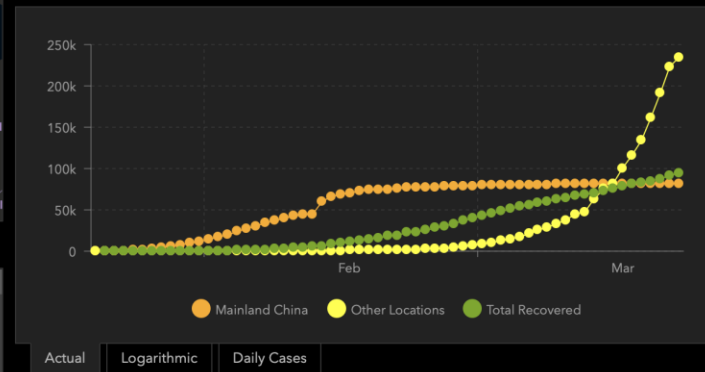
19

10 deaths
British Columbia Canada
5 deaths
Quebec Canada
3 deaths
Ontario Canada
1 deaths
Alberta Canada

Total Recovered

10

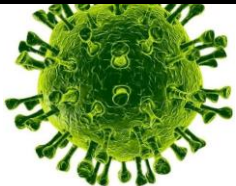
6 recovered
Ontario Canada
4 recovered
British Columbia Canada



Actual

Logarithmic

Daily Cases



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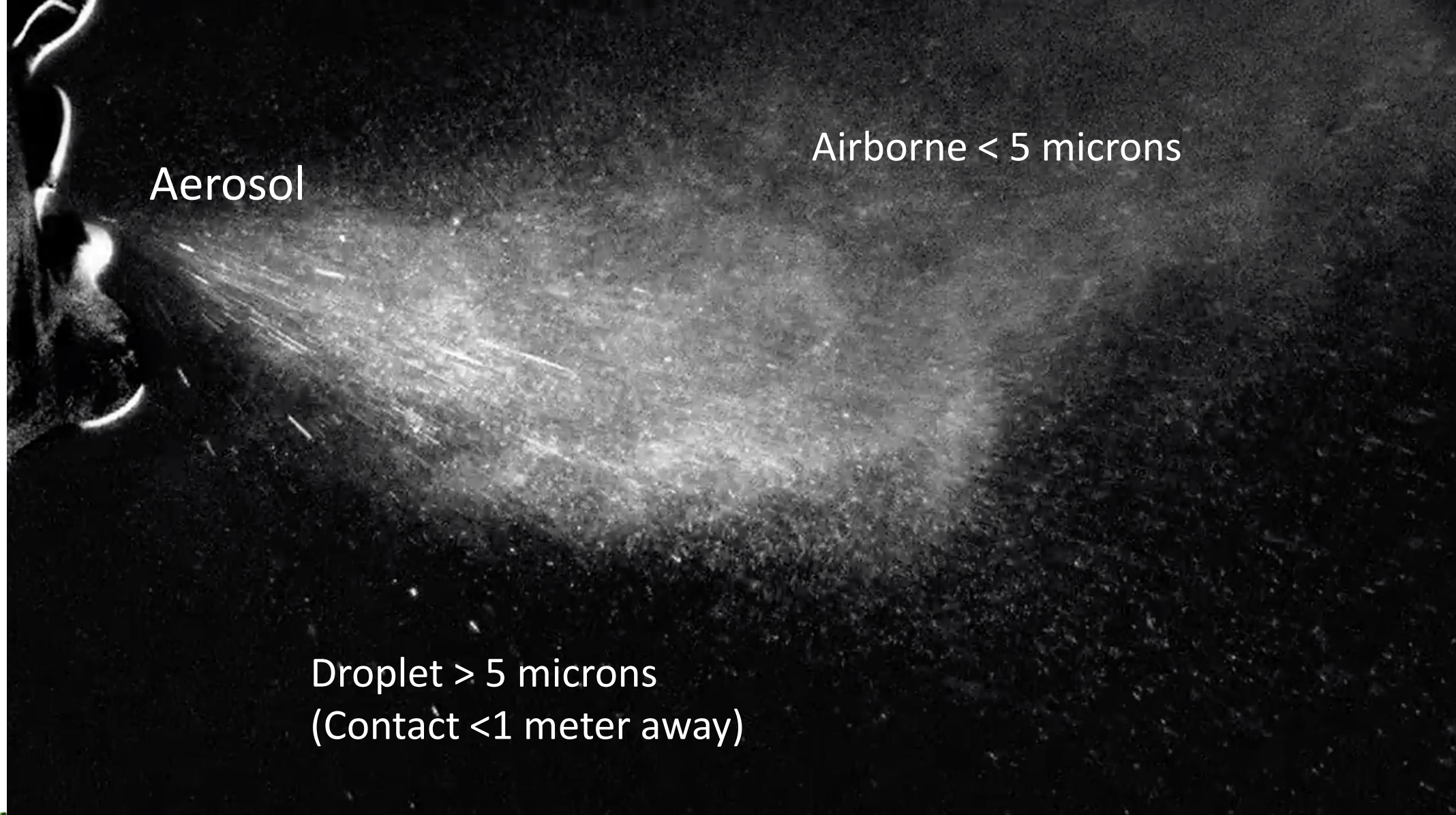
<https://coronavirus.jhu.edu/map.html>



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Understanding fluid dynamics in disease transmission,
Dr. Lydia Bourouiba MIT

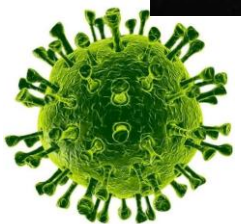




Aerosol

Airborne < 5 microns

Droplet > 5 microns
(Contact <1 meter away)



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<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.”

Definitely	Controversial
Intubation Tracheotomy Non-invasive ventilation Manual ventilation	CPAP, BiPAP, Optiflow High flow dry gas (nasal cannula, simple mask) CPR Endotracheal aspiration Open airway suction Nebulizers Bronchoscopy NG insertion Sputum collection

WHO Guidelines : Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care
Tran et al. [PLoS One](#). 2012;7(4):e35797. doi: 10.1371/journal.pone.0035797. Epub 2012 Apr 26.




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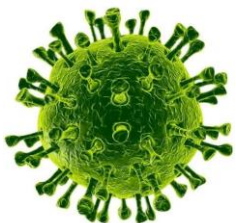
- SPH Background C. Air

 Guidelines for Environmental Infection Control in Health-Care Facilities (2003)

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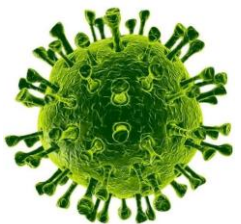
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CDC. Guidelines for Environmental Infection Control in Health-Care Facilities (2003)
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3 Questions To Guide PPE Decisions:

1. COVID Suspected/Diagnosed
2. AGMP
3. Intubation or other AGMP



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Aerosol Generating Medical Procedures (AGMP): Risk

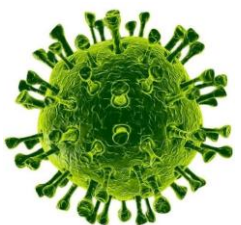


OR=3

OR=6



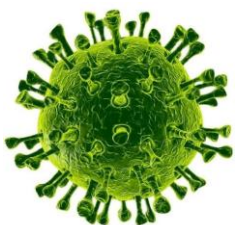
OR=4



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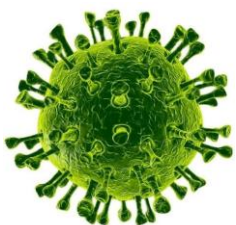
<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0035797>





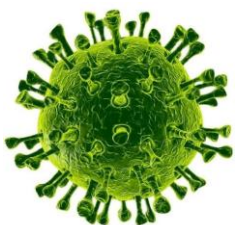
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<https://www.medicircle.in/italian-doctors-forced-to-choose-their-icu-patients-who-have-the-best-chance-for-survival>



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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



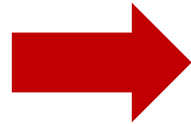
Evolving PPE for Aerosol-Generating Medical Procedures

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

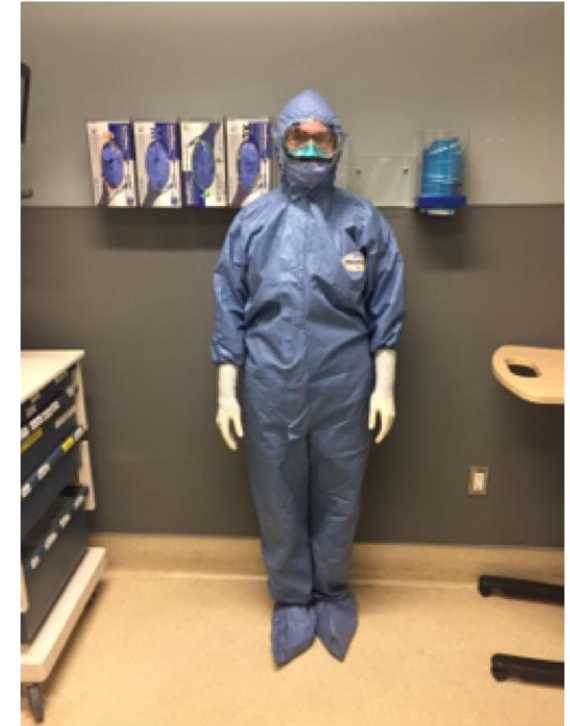


Modified PPE for AGMP:

- 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)

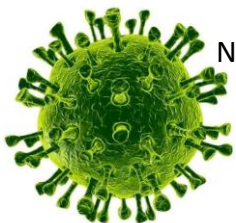


Ideal



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



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*AAMI =The Association for the Advancement of Medical Instrumentation

<https://www.fda.gov/medical-devices/personal-protective-equipment-infection-control/medical-gowns>





CANADIAN ANESTHESIOLOGISTS' SOCIETY
SOCIÉTÉ CANADIENNE DES ANESTHÉSIOLOGISTES

SCIENCE • VIGILANCE • COMPASSION

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 risking the health and safety of their families and the communities in which they live. They are striving to respond to the ever-increasing 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 dire 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 government to invoke the *Emergencies 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 Bainbridge
President

Dr Roanne Preston
President, ACUDA
Association of Canadian University
Departments of Anesthesia



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