COVID-19 Aerosol Generating Medical Procedure (AGMP) Decision Framework

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This framework is intended for use by the B.C. AGMP expert group. It is based on known evidence as of February 4, 2021.

Introduction

The purpose of this document is to provide a transparent and consistent framework to guide the British Columbia AGMP expert group in making determinations on whether or not medical procedures are considered to be AGMPs in the context of the COVID-19 pandemic.

Scope

The B.C. AGMP expert group reviews medical procedures being performed on patients with suspected or confirmed COVID-19 in health-care settings in B.C.

The B.C. AGMP expert group does not provide personal protective equipment (PPE) guidance. Decisions made by the group will be summarized and shared with the clinical reference group.

Glossary of Terms and Definitions[1,2]

Aerosol: Solid or liquid particle suspended in the air, potentially of any size, but commonly from 0.1 µm-20 µm (microns).

Aerosol generating medical procedure (AGMP): Medical procedure that can generate aerosols as a result of artificial manipulation of a person's airway.

Airborne transmission: Transmission of microorganisms via inhalation of aerosols that results in an infection in a susceptible host. This framework includes both long-range transmissions (from one room to another) and short-range transmission (within one room).

Droplet: Liquid particle of any size suspended in the air, but in the context of this framework refers to liquid particles having a diameter larger than 5 µm.

Droplet transmission: Transmission that occurs when droplets that contain microorganisms are propelled a short distance (within several metres) through the air and are deposited on the mucous membranes of another person, leading to infection of the susceptible host. Droplets can also contaminate surfaces and contribute to contact transmission.

Grading of recommendations, assessment, development and evaluations (**GRADE)**: The framework for developing and presenting summaries of evidence that provides a systematic approach for making clinical practice recommendations.

Important note: Commonly used definitions of aerosols and droplets have a wide degree of overlap. Thus, the particle size separating droplets from aerosols is largely a matter of a widely used but not-universal convention. The aerosol-droplet boundary varies from 3 to over 30 µm in the papers reviewed by the B.C. AGMP expert group. In this framework, the AMGP expert group will adopt a boundary of an aerodynamic diameter of 5 µm,[3,4] consistent with the World Health Organization.[5] ASTM rated medical masks (levels 1-3), which are used for droplet and contact precautions, are tested against 0.1-3 micron sized particles with filtration efficiency of 95-98% respectively (ASTM F2101-19[6], ASTM 2299[7]) and these results have been shown elsewhere.[8] Therefore, for the purpose of this group's work, particles 5 µm or smaller will be considered as aerosols.

How to Use

The framework consists of two key considerations that will be used to determine whether a procedure is an AGMP:

1) Evidence for airborne and/or increased risk of transmission of infectious pathogens normally transmitted by the droplet and contact route **and/or**

2) Indirect evidence for increased risk that is not sufficiently addressed by droplet and contact precautions.* This may include, but is not limited to, evidence for the creation and quantity of aerosol particles beyond what would be produced in the absence of any medical intervention (e.g., by speaking, coughing, sneezing) and biological plausibility.

*Refer to the *COVID-19: Risk of SARS-CoV-2 aerosol transmission in health-care settings* document.

Each of these considerations will receive a GRADE quality of evidence score[2] to summarize the quality of available data:

Certainty	What it means
Very low	The true effect is probably markedly different from the estimated effect
Low	The true effect might be markedly different from the estimated effect
Moderate	The members believe that the true effect is probably close to the estimated effect
High	The members have a lot of confidence that the true effect is similar to the estimated effect

If there are no studies (e.g., direct evidence), biological plausibility and expert opinion of other groups (e.g. professional organizations, clinical experts) will be taken into consideration and noted in the B.C. AGMP expert group's decision summary.

Wherever possible, the B.C. AGMP expert group will make a consensus decision on whether a procedure is a probable AGMP, possible AGMP, or non-AGMP according to the criteria outlined in the table below. If a consensus decision is not achieved, the decision will be based on a majority vote (defined as 70% of votes received in support of a particular AGMP category).

AGMP CATEGORY	CONSIDERATIONS	
	Direct evidence of increased risk of transmission (GRADE score)	**Indirect evidence for increased risk of transmission** (GRADE score)
Probable AGMP	High or moderate	Any
	Low or very low	High or moderate
Possible AGMP	Low or very low	Low or very low or no studies
	No studies	Low or very low
	No studies	No studies Biological plausibility
Non-AGMP	No studies	No studies No biological plausibility
	Evidence suggesting no increased risk	Evidence suggesting no increased risk (e.g. aerosol production)

References

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