

Decision Summary: Mastoidectomy

The B.C. Aerosol Generating Medical Procedure (AGMP) Expert Committee reviewed whether **Mastoidectomy** are aerosol generating. In conjunction with the UBC Therapeutics Initiative group, the AGMP Expert Committee conducted a literature review to identify relevant primary evidence, review articles, and guidelines/recommendations from governing bodies, medical societies and other expert groups. The search results were assessed for evidence quality and source using the provincial AGMP decision framework. The expert group does not provide personal protective equipment (PPE) guidance.

The AGMP Expert Committee determined that **Mastoidectomy** is a **Possible AGMP**.

Summary

Mastoidectomy is considered a possible AGMP because the mastoid bone and middle ear may harbor viruses that can lead to aerosolization and possible transmission from the Eustachian, which communicates with the nasopharynx¹.

The main mechanism of aerosol generation is through high-speed drilling. The total aerosol concentration during drilling is significantly higher than coughing, which is considered to cause significant concentration of aerosols¹.

The surgical technique can influence aerosol generation. Endoscopic ear surgery is also classified as an aerosol-generating procedure, but evidence showed that this minimally invasive surgical approach offers lesser bony drilling and shorter operative time in comparison to open mastoidectomy. Thus, this may be associated with a reduced risk of viral transmission to surgeons and operating room staff².

Chari *et al.* found that mastoid drilling generates large amounts of 1 to 10 µm particles when performed on cadaveric head specimens. However, they did not assess whether these aerosols contained viable respiratory infectious material³.

Majority of the available evidence is mostly driven from indirect data, as there is limited direct data demonstrating transmission to healthcare providers during active mastoidectomy.

References

1. Head and Neck Surgical Oncology in the Time of a Pandemic: Subsite-Specific Triage Guidelines During the COVID-19 Pandemic. Maniakas A, Jozaghi Y, Zafereo ME, et al. *Head & Neck*. 2020;42(6):1194-1201. doi:10.1002/hed.26206.
2. Tengku Kamalden TMI, Mison K. Endoscopic ear surgery during COVID-19 pandemic. *Med J Malaysia*. 2021 Aug;76(Suppl 4):42-44. PMID: 34558558.
3. Chari DA, Workman AD, Chen JX, Jung DH, Abdul-Aziz D, Kozin ED, Remenschneider AK, Lee DJ, Welling DB, Bleier BS, Quesnel AM. Aerosol Dispersion During Mastoidectomy and Custom Mitigation Strategies for Otologic Surgery in the COVID-19 Era. *Otolaryngol Head Neck Surg*. 2021 Jan;164(1):67-73. doi: 10.1177/0194599820941835. Epub 2020 Jul 14. PMID: 32660367; PMCID: PMC7361126.