

Decision Summary: Loop Electrosurgical Excision Procedure (LEEP)

The B.C. Aerosol Generating Medical Procedure (AGMP) Expert Committee reviewed whether **Loop Electrosurgical Excision Procedures (LEEP)** are aerosol generating. 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 the **Loop Electrosurgical Excision Procedure (LEEP)** is a **Probable AGMP**.

Summary

The Loop Electrosurgical Excision Procedure (LEEP) is a minimally invasive procedure performed in hospital Operating Rooms, physician offices, or outpatient clinics. The LEEP removes abnormal tissue from the cervix for diagnosis and treatment of precancerous changes (cervical dysplasia) or early-stage cervical cancer. A thin wire loop carrying electric current (low-voltage, high-frequency radio waves) is used to excise tissue.

Compared to laser, electrosurgery may cause less tissue destruction but can release more intact cells, including viral DNA, which may increase infectious risk. While positive viral DNA tests do not confirm infectivity or disease, precautionary AGMP measures are recommended.

Therefore, following discussion at the March 3, 2025 AGMP meeting and the final voting poll concluded on June 10, 2025, the group determined that LEEP is a “Probable AGMP.”

References

1. Canadian Cancer Society. Loop Electrosurgical Excision Procedure (LEEP). Last updated December 2023. Available at: <https://cancer.ca/en/treatments/tests-and-procedures/loop-electrosurgical-excision-procedure-leep>
2. Sood AK, Bahrani-Mostafavi Z, Stoerker J, Stone IK. Human papillomavirus DNA in LEEP plume. *Infect Dis Obstet Gynecol*. 1994;2(4):167-70. doi:10.1155/S1064744994000591.
3. Rioux M, Garland A, Webster D, Reardon E. HPV positive tonsillar cancer in two laser surgeons: case reports. *J Otolaryngol Head Neck Surg*. 2013 Nov 18;42(1):54. doi:10.1186/1916-0216-42-54.
4. Neumann K, Cavalari M, Rody A, Friemert L, Beyer DA. Is surgical plume developing during routine LEEPs contaminated with high-risk HPV? A pilot series of experiments. *Arch Gynecol Obstet*. 2018 Feb;297(2):421-424. doi:10.1007/s00404-017-4615-2.
5. Zhou Q, Hu X, Zhou J, Zhao M, Zhu X, Zhu X. Human papillomavirus DNA in surgical smoke during cervical loop electrosurgical excision procedures and its impact on the surgeon. *Cancer Manag Res*. 2019 Apr 29;11:3643-3654. doi:10.2147/CMAR.S201975.
6. Hu X, Zhou Q, Yu J, Wang J, Tu Q, Zhu X. Prevalence of HPV infections in surgical smoke exposed gynecologists. *Int Arch Occup Environ Health*. 2021 Jan;94(1):107-115. doi:10.1007/s00420-020-01568-9.