



TITLE

SURGICAL PLUME MANAGEMENT

SCOPE

Provincial

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Clinical Operations Executive Committee

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SPONSOR

Surgery Strategic Clinical Network

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Not applicable

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Not applicable

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NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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OBJECTIVES

- To protect **patients**, Physicians and **health care providers** from the hazards associated with the **surgical plume**, regardless of the surgical approach.
- To establish minimum Alberta Health Services (AHS) requirements for surgical plume evacuation that comply with the applicable standards from Accreditation Canada, Canadian Standards Association, and the Alberta Occupational Health & Safety Act, Regulation, and Code.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, Students, Volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary) working in all settings where a surgical plume is generated.

ELEMENTS

1. Plume Scavenging System

- 1.1 A **Plume Scavenging System** (PSS) shall be used whenever a surgical plume is generated with the exception of bone saw debris.
 - a) When visualization of the surgical field is compromised by the PSS, smaller tips or in-line filtration on a suction device shall be used.
 - b) If a PSS fails during the surgical plume-generating procedure and a back-up PSS is unavailable:

- (i) the appropriate filter shall be used with a regular suction device; and
 - (ii) if the appropriate filter is not available to be used with a regular suction device, all staff shall don an N95 respirator when it is safe and reasonable to do so.
 - (iii) an N95 respirator shall only be used as an interim measure when the PSS fails and a backup PSS and/or an inline filter is not available.
- 1.2 The risk to the patient shall be considered and clinical judgement used to ensure patient safety at all times.
- 1.3 The PSS shall be used for surgical plume only, not for evacuation of body secretions.
- 1.4 The PSS shall be placed as close to the source of the surgical plume as possible to maximize plume capture and enhance visibility at the surgical site.
- 1.5 Documentation of the PSS in the patient **health record** shall include the type of PSS used and its identification number (e.g., serial number).
- 2. Operation of the PSS**
- 2.1 The PSS shall be used as per the **manufacturer's instructions for use (MIFU)**.
- a) Verbal instructions can assist the user in understanding the MIFU, but they are not a substitute for them.
 - b) Care shall be taken to ensure that the MIFU are the correct ones for the product. Any questions or discrepancies regarding the appropriateness of the instructions shall be resolved before the product is used.
- 2.2 Surgical sites shall establish local perioperative processes to follow for PSS set up operation, maintenance, and cleaning as per MIFU.
- 2.3 The surgical team shall be responsible for following the MIFU and ensuring local perioperative processes for set up, operation and cleaning of the PSS are followed.
- 3. Maintenance of the PSS**
- 3.1 The PSS manufacturer's instructions for use (MIFU) shall be followed regarding proper maintenance, care and cleaning.
- 3.2 Routine inspection, preventative maintenance and testing required by the medical device manufacturer in accordance with the CSA Standard shall be carried out and documented by trained Clinical Engineering/Facility Maintenance and Engineering staff, a contracted vendor, or other designate.

4. Plume Management Education

- 4.1 All **health care providers** within their scope of practice shall ensure their competency in operating the PSS in compliance with training and education as determined by their respective facilities and departments.
- 4.2 Training and education for the PSS shall include the hazards of surgical plume, the need for plume evacuation, and the proper set up, operation and cleaning of the equipment.
- 4.3 The frequency and methods of training shall be determined by respective facilities and departments.
- 4.4 Surgical plume shall be identified as a hazard in the Hazard Identification, Assessment and Controls (HIAC).

DEFINITIONS

Health care providers means any person who provides goods or services to a patient, inclusive of health care professionals, staff, students, volunteers and other persons acting on behalf or in conjunction with Alberta Health Services.

Health record means the Alberta Health Services legal record of the patient's diagnostic, treatment and care information.

Manufacturer's instructions for use means the written directions provided by the manufacturer or distributor of a product that contain the necessary information for the safe and effective use of the product.

Surgical plume means noxious airborne contaminants (i.e., aerosols, smoke) generated as by-products, particularly by procedures that rely on the ablation, cauterization, or mechanical manipulation of target tissue by devices such as lasers, electrosurgical generators, broadband light sources, ultrasonic instruments, and plasma generators.

Patient means an adult or child who receives or has requested health care or services from Alberta Health Services and its health care providers or individuals authorized to act on behalf of Alberta Health Services. This term is inclusive of residents, clients and outpatients.

Plume Scavenging System (PSS) means a portable, mobile or fixed device for capturing and neutralizing plume. PSSs are also called smoke evacuators, laser plume evacuators, plume scavengers, and local exhaust ventilators.

Surgical team(s) means Alberta Health Services employees, and other persons working on behalf of or in conjunction with Alberta Health Services, including surgeons, anesthesiologists, nurses, technicians, and other support staff, involved in surgical interventions.

REFERENCES

- Alberta Health Services Governance Documents:
 - *Safe Use of Lasers in Health Care Facilities Policy (#EZCELS16-01)*
 - *Patient Identification Policy (#PS-06)*
- Alberta Health Services Resources:
 - *Respiratory Protection Code of Practice*
 - *Hazard Identification, Assessment & Control*
 - *Waste Management Learning Module 2: Biomedical Waste and Hazardous Chemical Waste*
- Non-Alberta Health Services Documents:
 - *Occupational Health and Safety Act (Alberta)*
 - *Occupational Health and Safety Regulation (Alberta)*
 - *Occupational Health and Safety Code (Alberta)*
 - *Perioperative Services and Invasive Procedures Standards (Accreditation Canada, January 12, 2017)*
 - *Plume Scavenging in Surgical, Diagnostic, Therapeutic, and Aesthetic settings Z305.13-13 (Canadian Standards Association)*
 - *Standards, Guidelines and Position Statements for Perioperative Registered Nursing Practice 13th (Operating Room Nurses Association of Canada)*

VERSION HISTORY

Date	Action Taken
Click here to enter a date	Optional: Choose an item