



TITLE

SAFE USE OF LASERS

SCOPE

Provincial

DOCUMENT #

PS-105

APPROVAL AUTHORITY

Clinical Operations Executive Committee

INITIAL EFFECTIVE DATE

June 21, 2021

SPONSOR

Vice President, Corporate Services & Chief Financial Officer

REVISION EFFECTIVE DATE

Not applicable

PARENT DOCUMENT TITLE, TYPE, AND NUMBER

Not applicable

SCHEDULED REVIEW DATE

June 21, 2024

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.

If you have any questions or comments regarding the information in this document, please contact Policy Services at policy@ahs.ca. The Policy Services website is the official source of current approved policies, procedures, directives, standards, protocols, and guidelines. Only the electronic version of this document, as hosted on the Policy Services website or www.ahs.ca, is valid.

OBJECTIVES

- To provide **AHS representatives** with a standard approach for the safe use of lasers, their administration, operation, maintenance, and service while adhering to all safety precautions and protective measures in accordance with applicable legislation and standards and the College of Physicians and Surgeons of Alberta (CPSA).
- To provide guidance to AHS representatives with the development and implementation of a *Zone Laser Safety Program Guide* for each Zone in accordance with regulatory requirements and best practice. AHS Representatives shall follow the *Zone Laser Safety Program Guide* for their zone, in accordance with this Policy.

PRINCIPLES

Alberta Health Services (AHS) is committed to the safety of **patients** and AHS representatives when registered lasers are used in the course of patient treatment and care, or research.

Lasers, if improperly used, can cause **harm** and hazards including but not limited to fire, burns, eye damage, and electrocution.

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).

ELEMENTS

1. Laser Safety Program

- 1.1 Each site where **laser systems** are used shall have a Laser Safety Program. Each site Laser Safety Program shall consist of, but is not limited to, a site-specific:
- a) **Zone Laser Safety Officer (ZLSO) or Deputy Laser Safety Officer (DLSO)**; and
 - b) Applicable resources, including Standard Operating Procedures related to the *Zone Laser Safety Program Guide* that provide direction for facility variation.
- 1.2 Each site should have a Laser Safety Committee that is a multidisciplinary group of staff from the facility that meets regularly to oversee the safe use of laser systems at the site including, but not limited to:
- a) administering the relevant *Zone Laser Safety Program Guide*;
 - b) investigating **close calls, near misses** or harm; and
 - c) making recommendations to improve safety.
- 1.3 The ZLSO and DLSO are AHS staff members who have received formal medical laser safety officer training, are knowledgeable in the evaluation and control of laser system hazards, and are responsible for overseeing the control of laser system use. The ZLSO's and DLSO's responsibilities include, but are not limited to:
- a) overseeing all laser system safety practices by ensuring that safety control measures are being followed and are in compliance with the applicable policies, legislation, and program guides;
 - b) ensuring compliance inspection by an Authorized Radiation Protection Inspection Agency (ARPIA) and registering the laser system with the CPSA prior to initial use;
 - c) ensuring ARPIA inspections are completed as per CPSA re-testing rotation schedule; and
 - d) ensuring annual laser system registration renewal is completed.
- 1.4 Each site shall ensure that the inspection, planned maintenance, and testing required by applicable legislation and standards are performed according to the equipment manufacturer's recommendations.

2. Zone Laser Safety Program Guide

- 2.1 A *Zone Laser Safety Program Guide* shall:
- a) be produced and verified by the Zone Laser Safety Committee;
 - b) align with this Policy;
 - c) be followed by AHS representatives and compliance is mandatory;
 - d) include only those practices that are within the authority of the Zone Laser Safety Committees to control;
 - e) be approved by Zone Executive Leadership;
 - f) be reviewed annually by the Zone Laser Safety Committee; and
 - g) be updated on regular intervals, or when a new version of the CSA Standard *Safe Use of Lasers in Health Care* is published, to assure best evidence or evidence-informed practice by the Zone Laser Safety Committee.
- 2.2 The Zone Laser Safety Committee is a multidisciplinary group of AHS representatives from sites within the Zone that meets, at a minimum annually, to oversee the safe use of laser systems in the Zone.
- 2.3 The Zone Laser Safety Program Guide and any updates shall be:
- a) communicated to all AHS representatives at the earliest possibility by the mode or modes of communication that will have the most success in the program environment; and
 - b) reviewed at a minimum annually, by **laser users** and **laser operators**, and followed in the delivery of services and care to patients.
- 2.4 Where a situation is not addressed within the *Zone Laser Safety Program Guide*, internal consultation with the ZLSO or DLSO and other practice resources may be accessed for immediate needs. This may lead to further additions to the *Zone Laser Safety Program Guide* in consultation with the Zone Laser Safety Committee.
- 2.5 The approved *Zone Laser Safety Program Guide* shall be stored in accordance with the AHS *Records Management Policy* and *Records Retention Schedule*.

3. Facility Responsibilities

- 3.1 Administration at each AHS facility acquiring laser systems shall ensure:
- a) the ZLSO or DLSO is notified, in writing:
 - (i) prior to purchasing any new laser system; and

- (ii) upon arrival of any new laser system;
 - b) the laser system is registered with the CPSA and a certificate is issued before use;
 - c) in coordination with the ZLSO or DLSO, the appropriate laser system safety training, as per the applicable *Zone Laser Safety Program Guide*, is available and implemented;
 - d) the appropriate personal protective equipment (PPE) for the specific laser system is available and is used;
 - e) the manufacturer's guide for cleaning and disinfecting the laser and laser accessories shall be followed in consultation with the site's Infection Prevention and Control (IPC) personnel; and
 - f) all standard practices stated in the *Zone Laser Safety Program Guide* are followed.
- 3.2 Administration at each AHS facility operating a laser system(s) shall ensure the laser system(s) is inspected and recertified in accordance with the CPSA Equipment Retesting Schedule.

4. Laser Safety Training

- 4.1 All AHS representatives working in a laser controlled area shall complete the appropriate level of laser system safety training for their role as prescribed in the *Zone Laser Safety Program Guide*.
- 4.2 All laser users and laser operators shall complete site-specific laser system safety training and demonstrate competence to the ZLSO or a designate, as per the *Zone Laser Safety Program Guide*.
- a) Laser safety training shall meet applicable legislation and standards.
 - b) Laser safety training may be provided by AHS or provided by an external organization.

5. Laser Controlled Areas

- 5.1 Any enclosed area where laser systems are operated, and the occupancy and activity of those within are subject to safety control measures to provide protection from laser system hazards, shall be considered a laser controlled area.
- 5.2 Prior to operating laser systems, laser controlled areas shall be secured by the laser operator or laser user to prevent accidental exposure to laser hazards, as per applicable legislation and standards and the *Zone Laser Safety Program Guide*.

- 5.3 Safety requirements in laser controlled areas as per applicable legislation and standards, and the *Zone Laser Safety Program Guide*, shall include but are not limited to:
- a) laser signage specific to the laser system in use;
 - b) restricting and controlling access to a laser controlled area;
 - c) usage of PPE specific to the laser system in use (e.g., laser protective eyewear);
 - d) window coverings that restrict the transmission of the laser beam through them;
 - (i) Window coverings shall be non-flammable and should meet the infection prevention and control requirements of the facility.
 - e) eliminating or minimizing highly reflective surfaces in the laser controlled area;
 - f) the removal and secure storage of laser keys when the laser system is not in use;
 - g) ventilation standards shall comply with provincial building codes and applicable legislation and standards;
 - h) laser plume evacuation using a Plume Scavenging System (PSS) in alignment with the AHS *Surgical Plume Management Policy*; and
 - i) access to a fire extinguisher of the type approved by the Fire Marshal.

6. Emergency and Incident Reporting

- 6.1 In the event of a laser system malfunction, failure, fire, **clinical adverse event (CAE)**, close call or incident, the laser shall be shut down immediately.
- a) All AHS representatives and patients shall be immediately assessed for injuries and medical assistance sought as needed.
 - b) The ZLSO, DLSO, and Manager shall be notified as soon as possible and an investigation shall be completed by the ZLSO.
 - c) The laser system shall remain out of service until it is inspected and evaluated by Clinical Engineering or a designated service provider, and is determined to be safe for use.
- 6.2 If a CAE or close call occurs with a laser system and involves a patient, refer to the AHS *Recognizing and Responding to Hazards, Close Calls and Clinical Adverse Events Policy* for required steps for response.

- a) A **medical device incident (MDI)** shall be reported as per the AHS *Medical Device Safety Policy*.

- 6.3 If a laser system results in an injury or near miss to an AHS representative, they shall seek first aid and medical attention, notify the Manager, and submit an incident report in MySafetyNet (MSN) to report the injury. Refer to the AHS *Incident Reporting and Investigation Standard (Workplace Health and Safety)*.

DEFINITIONS

AHS representative means 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).

Clinical adverse event (CAE) means an event that reasonably could or does result in an unintended injury or complications arising from health care management, with outcomes that may range from (but are not limited to) death or disability to dissatisfaction with health care management, or require a change in patient care.

Close call means an event that has potential for harm and is intercepted or corrected prior to reaching the patient.

Deputy Laser Safety Officer (DLSO) means the facility/site level laser safety officer. DLSOs are appointed by the Director of the department they report to.

Harm means an unexpected outcome for the patient, resulting from the care and/or services provided, that negatively affects the patient's health and/or quality of life.

Laser operator means a laser operator is defined as any individual operating laser-associated technology (e.g., the laser control panel, suction devices, cooling devices, biofeedback equipment, etc.). Without the presence of a laser operator, the laser user shall assume the responsibilities of the laser operator.

Laser system means Class 3b and Class 4 lasers with an appropriate laser energy source, with or without additional incorporated components.

Laser user means an individual who directly utilizes a laser device to deliver laser energy to a target.

Medical device incident (MDI) means, according to Health Canada, a medical device problem that has led to the death or a serious deterioration in the state of health of a patient, medical device user, or other person, or could do so were it to recur; serious deterioration in health means a life-threatening disease, disorder or abnormal physical state, the permanent impairment of a body function or permanent damage to a body structure, or a condition that necessitates an unexpected medical or surgical intervention to prevent such a disease, disorder or abnormal physical state or permanent impairment or damage. MDIs include any that occur as a result of an off-label/abnormal use. This is the equivalent of a serious clinical adverse event (CAE) or near-miss serious CAE, or a worker incident with serious harm, at AHS.

Near miss means any undesired event that could have resulted in an injury, illness or loss. No first aid or medical attention is required.

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.

Zone Laser Safety Officer (ZLSO) means the Zone level laser safety officer. ZLSOs may also be responsible for a facility/site. ZLSOs are nominated by the Zone Laser Safety Committee, appointed by the Director of the department they report to, and shall co-chair the Zone Laser Safety Committee.

REFERENCES

- Alberta Health Services Governance Documents:
 - *Incident Reporting and Investigation Standard (#WHS-PCS-06)*
 - *Medical Device Safety Policy (#PS-103)*
 - *Recognizing and Responding to Hazards, Close Calls and Clinical Adverse Events Policy (#PS-95)*
 - *Records Management Policy (#1133)*
 - *Records Retention Schedule (#1133-01)*
 - *Surgical Plume Management Policy (#HCS-228)*
 - *Workplace Health and Safety Policy (#1121)*
- Alberta Health Services Resources:
 - *Authorized Radiation Protection Inspection Agency Manual*
 - *How to Manage Non-Employee Reporting*
 - *Surgical Plume Management Policy: Frequently Asked Questions*
 - *Zone Laser Safety Program Guide Calgary Zone*
 - *Zone Laser Safety Program Guide Edmonton Zone*
- Non-Alberta Health Services Documents:
 - *Best Practices in Medical Laser Safety, First Edition* (CMLSO Laser Institute of America)
 - *CSA Z386:20 Safe Use of Lasers In Health Care* (CSA Group)
 - *Guidelines, and Position Statements for Perioperative Registered Nurses, 13th Edition* (Operating Room Nurses Association Canada)
 - *Occupational Health and Safety Act and Code* (Alberta)
 - *Plume Scavenging in Surgical, Diagnostic, Therapeutic and Aesthetic Settings Z305.13-13* (Canadian Standard Association)
 - *Registration of Medical Lasers Class 3b and 4* (College of Physicians and Surgeons of Alberta)

© 2022, Alberta Health Services, Policy Services



This work is licensed under a Creative Commons Attribution-Non-commercial-Share Alike 4.0 International license. The licence does not apply to AHS trademarks, logos or content for which Alberta Health Services is not the copyright owner. This material is intended for general information only and is provided on an "as is", "where is" basis. Although reasonable efforts were made to confirm the accuracy of the information, Alberta Health Services does not make any representation or warranty, express, implied or statutory, as to the accuracy, reliability, completeness, applicability or fitness for a particular purpose of such information. This material is not a substitute for the advice of a qualified health professional. Alberta Health Services expressly disclaims all liability for the use of these materials, and for any claims, actions, demands or suits arising from such use.