

**COLLEGE OF PODIATRIC SURGEONS OF BRITISH COLUMBIA  
PRACTICE STANDARDS AND GUIDELINES**

**LASER INSTRUMENT AND SAFETY RULES**

**Preamble**

This document is a standard of the College of Podiatric Surgeons of British Columbia ('CPS-BC' or 'College').

Patient and staff safety is of paramount importance. The use of medical lasers has greatly enhanced and expanded the podiatric treatment modalities, but with it comes a risk of harm to the patient, staff, and podiatrist. The purpose of this document is to ensure that podiatric surgeons stay current and informed of the best practices, follow proper protocols and procedures, and ensure the safety of their patients.

As technologies progress, it is anticipated that the College's laser-related standards and guidelines will change from time to time to address these new advances.

**Definitions**

**ALARA** - as Low as Reasonably Achievable

**CRNBC** - College of Registered Nurses of British Columbia

**College** - College of Podiatric Surgeons of British Columbia

**health-care laser** - Any laser product designed, manufactured, intended or promoted for the purposes of diagnostic, surgical, aesthetic or therapeutic laser irradiation of any part of the human body.

**laser safety officer (LSO)** - The individual who has responsibility for oversight of the control of laser hazards.

**laser-controlled area** - An area where the occupancy and activity of those within is subject to control and supervision for the purpose of protection from radiation hazards.

**maximum permissible exposure (MPE)** - The level of laser radiation to which a person can be exposed without hazardous effects or adverse biological changes in the eye or skin.

**NP** - Nurse Practitioner

**nominal ocular hazard area (NOHA)** - The area within which the beam irradiance or radiant exposure exceeds the appropriate corneal maximum permissible exposure (MPE), including the possibility of accidental misdirection of the laser beam.

**podiatric medical director** - The podiatrist who assumes overall responsibility for the safe use of lasers in the podiatrist office.

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**RN** - Registered Nurse

**risk assessment** - A thorough analysis of potential risks and hazards (beam and non-beam) associated with the use of health-care lasers; the process of risk assessment includes:

- a. identification of physical, chemical, and biological hazards based on tissue interaction, dosimetry, delivery system, and practice setting,
- b. analysis or evaluation of the risks associated with those hazards,
- c. determination of appropriate control measures to eliminate or control the hazards.

**wavelength** - nm or  $\lambda$

**Laser classifications**

Class 1

Laser equipment emitting radiation that is not considered hazardous even with long-term exposure, and do not require hazard-warning labelling. Examples include positioning and alignment lasers, low-level laser therapy and home-use lasers.

Class 1M

Laser equipment emitting radiation that is not considered hazardous for the naked eye even with long-term exposure.

Class 2

Laser equipment emitting visible radiation in the wavelength range from 400 nm to 700 nm that is considered safe for exposures of duration less than 0.25 s. Examples include alignment lasers used in aiming invisible radiation of CO<sub>2</sub> and Nd:YAG lasers.

Class 2M

Laser equipment emitting visible radiation in the wavelength range from 400 nm to 700 nm that is considered safe for the naked eye for exposures of duration less than 0.25 s.

Class 3R

Laser equipment emitting radiation that can exceed the MPE when viewed directly but with low risk of permanent eye injury.

Class 3B

Laser equipment emitting radiation that is considered hazardous to the skin and eyes from direct exposure or a specular reflection.

Class 4

Laser equipment emitting radiation that is considered hazardous to the skin and eyes from direct exposure or a specular or diffuse reflection.

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**Responsibilities of the Podiatric Medical Director**

Every podiatric practice that utilizes class 3 or 4 lasers must have appointed at all times a podiatric medical director (PMD) who is a registered podiatrist.

The PMD assumes overall responsibility for the safe use of lasers in the podiatrist's office.

The medical director ensures that:

- a laser safety program is established and maintained in accordance with CSA Z386, applicable regulations and professional standards,
- a laser safety officer (LSO) is appointed,
- the LSO has successfully completed LSO training through a recognized laser safety education provider (e.g. Rockwell Laser Industries, Laser Institute of America, Ryerson University); proof of training must be readily available to the College upon and for the purposes of assessment, inspection or request,
- the LSO has the authority to suspend, restrict or terminate the operation of a laser or laser system if he/she deems that laser hazard controls are inadequate or unsafe conditions are present,
- the LSO fulfills the LSO responsibilities in accordance with CSA Z386-14 Safe Use of Lasers in Health Care.

The medical director verifies initial and continuing credentials or approvals for all personnel responsible for working with lasers.

The medical director ensures all laser personnel have qualifications, credentials, education and training as prescribed by CSA Z386 Safe use of lasers in health care (see Appendix A).

The medical director, in collaboration with the LSO, ensures that laser safety and education programs for all personnel are conducted in the podiatric practice.

**Responsibilities of the Laser User**

Only a podiatric surgeon, registered nurse (RN) or a nurse practitioner (NP) may apply laser for the purpose of destroying tissue. A podiatrist may delegate the task to an RN or NP.

Only a podiatric surgeon may apply laser for the purpose of cutting tissue. This task cannot be delegated.

The laser user is responsible for ensuring the safety of the patient and all personnel in the laser-controlled area during laser set-up and use.

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The laser user:

- remains in the laser room at all times during laser usage,
- ensures the environmental and procedural control measures are in place (e.g. protective eyewear, plume evacuators),
- ensures clear communication with the laser operator (assistant),
- handles the laser delivery device and is the only one operating the laser footswitch or hand-held device,
- selects the appropriate laser parameters for the procedure,
- activates, fires and/or deploys the laser,
- reports any unusual events and safety concerns to the LSO.

### **Responsibilities of the Laser Safety Officer**

Every practice facility that utilizes class 3 or 4 lasers must have appointed at all times a laser safety officer (LSO) who must be knowledgeable in the evaluation and control of laser hazards.

The LSO is responsible for directing the safe use of health-care lasers and ensuring compliance with laser hazard control.

The LSO is responsible for:

- the development and implementation of a laser safety program which includes quality assurance and risk management parameters
- conducting hazard evaluations (risk assessments), including the determination of the NOHA, and implementing appropriate control measures
- the enforcement of all laser safety policies and procedures
- advising the medical director with respect to the safe use of lasers and compliance with protective measures
- the investigation of all laser-related incidents and malfunctions and making recommendations for remedial and preventive action
- conducting regular laser safety surveys to detect equipment problems or any trends toward a decrease in the level of laser safety
- advising on the purchase of all laser equipment (systems and instrumentation), advising on the purchase of all laser-related personal protective equipment (PPE) to ensure appropriate PPE selection
- auditing the effectiveness of:
  - the laser safety program

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- maintenance of appropriate documentation
- compliance with policies and procedures
- compliance with applicable standards and regulations
- suspending, restricting, or terminating the use of a laser or laser system if laser hazard controls are inadequate or unsafe conditions are present
- the development and implementation of maintenance guidelines for the laser system
- verifying that preventive maintenance, repair, and servicing are performed and advising the user of any resulting changes or modifications to the system
- ensuring the safety education and training of all personnel involved in laser procedures
- establishing laser safety criteria for granting laser privileges to qualified physicians
- verifying and maintaining a list of laser personnel which includes their laser-specific privileges/role (e.g. physician, nurse, technician, procedure, wavelength) and documentation of their clinical competency
- the development, implementation and approval of laser documentation (e.g. logs, forms, checklists)

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**RULES**

1. All health care lasers used by podiatrists in the practice of podiatric medicine in British Columbia must be registered with the College. The onus is on registrants to ensure that the lasers used in their practice are reported to the College.
2. The type, quality and name of any laser used in the practice of podiatric medicine must meet CSA standards and be approved by Health Canada. Practitioners must be familiar with and observe the CSA standards.
3. Non-pulsed visible lasers that have a power output of less than 1.0 milliwatt of power (class 1, 2, and 3R) are considered low power.
4. The use of class 1, 2 or 3R lasers requires:
  - 1) Protective eyewear for patients and staff as specified by the manufacturer.
  - 2) A laser warning sign on the device.
5. Lasers that have a power output of 1.0 - 5.0 milliwatts (class 3b and 4) are considered to be high power. Lasers used in podiatric medicine are usually class 3b and 4 lasers.
6. Application of a class 3b or 4 laser is considered a "restricted" activity. A Podiatrist registered in the Full or Temporary class with the College and with no relevant limits on their registration may apply the laser for the purpose of destroying and cutting live tissue. The task of applying the laser may be delegated to an appropriately trained Registered Nurse or Nurse Practitioner who has a current active license with the CRNBC, within their scope of practice. (NOTE: at the time of writing this guideline, an RN or NP MAY NOT apply the laser for the intent of cutting tissue).
7. Before using a laser, a practitioner must obtain appropriate training for the laser's use and the conditions under which the laser is to be employed. Proof of training must be readily available to the College upon and for the purposes of an assessment, inspection or request. See Appendix A for training requirements.
8. A practitioner who uses a laser must have in place an appropriate emergency plan and protocols. Proof of the same must be readily available to the College upon assessment, inspection or request.
9. Laser Controlled Area Specifications:
  - all individuals in the laser controlled area are responsible for maintaining safe practices and have the authority to halt unsafe practices
  - access to laser keys are restricted to only personnel authorized to operate the laser

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- appropriate protective eyewear and PPE are worn by all personnel in the NOHA during laser use
- laser warning signs specify the wavelength and the class of laser being used and indicate PPE required
- laser warning signs are placed at all entrances to the laser room and removed when the laser procedure is completed
- doors to the laser room remain closed while laser is in use
- reflective surfaces that could interfere with the beam path are minimized (eg. jewelry, mirrors, highly polished glass)
- fire extinguisher(s) are located near by and free of obstruction
- the environment is free of flammable surfaces or materials that can interfere with the beam path
- laser equipment is used in a well vented area to ensure excess heat generated by the laser is removed.
- air intake and outlets are unobstructed at all times

10. A practitioner who uses a laser must have in place an appropriate emergency plan and protocols. Proof of the same must be readily available to the College upon and for the purposes of an assessment, inspection or request.

11. Practitioners must meet all federal and provincial requirements respecting the use of lasers in practice, including but not limited to having a Laser Safety Officer appointed and properly trained within the practice.

12. As with any treatment mode, informed consent must be obtained from the patient prior to administration of any laser procedure.

13. Registrants must not in their marketing activity, in any way convey guarantees, such as, but not limited to claims that laser treatment is risk free, pain free, or 100% effective.

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**RESOURCES**

**LASER RESOURCES**

**1. CSA Safety Standards**

See:

[www.hc-sc.gc.ca/dhp-mps/md-im/qualsys/cmdcas\\_scecm\\_accep\\_cert13485\\_gd207-eng.php](http://www.hc-sc.gc.ca/dhp-mps/md-im/qualsys/cmdcas_scecm_accep_cert13485_gd207-eng.php)

**2. CDC Safety Guidelines**

For a comprehensive discussion of higher power (class 3b and 4a) laser safeguards, please refer to the BC Center for Disease Control web site:

[www.bccdc.ca/healthenv/ElectromagFields/Optical/Gnrl\\_Laser\\_Guide.htm](http://www.bccdc.ca/healthenv/ElectromagFields/Optical/Gnrl_Laser_Guide.htm)

**3. WorkSafe (WCB) Laser Safety Program / Exposure Control Plan / Education and Training**

For up to date Occupational Health and Safety requirements please refer to the WorkSafe website:

[www2.worksafebc.com/Publications/OHSRegulation/GuidelinePart7.asp](http://www2.worksafebc.com/Publications/OHSRegulation/GuidelinePart7.asp)

The relevant content is found at sections G7.19(4)-2 through G7.20(2).

**DOCUMENTS REFERRED TO IN THE MAKING OF THESE RULES INCLUDE:**

1. Accreditation standards Patient safety Laser Safety – NHMSFP, College of Physicians and Surgeons of British Columbia(April 2015)
2. Laser Hair Removal Safety Guidelines for Facility Owners and Operators. Prepared by the Joint Documents Working Group of The Federal Territorial Radiation Protection Committee (First Edition, October 2011)
3. Canadian Center for Occupational Health and Safety. Lasers – Health Care Facilities
4. Canadian Center for Occupational Health and Safety. Laser Plumes – Health Care Facilities