

Evidence-Based Clinical
STANDARD OF PRACTICE

Optometric Laser Procedures

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Effective November 1, 2026

ALBERTA college of OPTOMETRISTS

Optometric Laser Procedures
Standard of Practice

The objective of this Standard of Practice is to provide guidance to Doctors of Optometry on performing specific optometric laser procedures.

This Standard of Practice is based on the best available and most current optometric and medical clinical evidence and research. It is not intended to replace professional discretion and judgment, nor is it intended to be used as an all-encompassing clinical manual. Clinicians must base their assessment, diagnostic, management and treatment regimens on the specific needs of the patient at that point in time.

In the Province of Alberta, lasers are governed by Alberta's Radiation Protection Program established under the *Occupational Health and Safety Act*.

Goals

When considering the provision of optometric laser procedures, every Doctor of Optometry should:

1. **Identify those patients who may benefit from an optometric laser procedure,**

2. **Follow the standards in this document as well as the ACO Infection Prevention and Control CPG to ensure the appropriate procedure is performed in a competent and safe manner,**

3. **Collaborate and appropriately share information with patients, legal guardians, and/or other health care practitioners in order to:**
    - **Increase access to competent vision care services,**
    - **Maximize a patient's visual status and quality of life,**
    - **Improve a patient's compliance and outcomes,**
    - **Reduce the possibility of duplication of tests and services, and,**
    - **Provide vision care services in the most efficient and effective manner.**

List of Optometric Laser Procedures

Doctors of Optometry are specifically authorized to provide the following optometric laser procedures: laser peripheral iridotomy (LPI), selective laser trabeculoplasty (SLT), and Nd:YAG capsulotomy.

1. **PI with an argon or Nd:YAG laser may be performed in either emergent or prophylactic treatment of angle closure.**

2. **SLT may be performed in cases where pharmaceutical treatment of glaucoma has not been effective (non-compliance, inability to administer drops, undesirable side effects or drug inefficiency) or, as a first-line treatment if deemed appropriate in select patients.**

3. **Nd:YAG capsulotomy may be performed in the treatment of symptomatic posterior capsule opacification following cataract surgery.**

General Guidelines

1. **Doctors of Optometry who provide laser procedures must have successfully completed the education or examinations, and the clinical supervision requirements, approved by the ACO Council, as required under section 42(3) of the *Health Professions Restricted Activity Regulation*.**
    a. **In addition, supplementary training on the proper use, care and maintenance of a specific laser device is highly recommended.**

2. **Doctors of Optometry who provide laser procedures must be registered with the ACO and hold a Special Authorization for laser procedures, as indicated by the Registrar on their practice permit.**

3. **Prior to any procedure being performed, Doctors of Optometry must be diligent in counselling patients on potential risks, side effects, and alternatives to laser treatment.**

4. **A Doctor of Optometry must refer patients to an appropriately certified and trained optometrist or ophthalmologist if the recommended laser treatment is outside that Doctor of Optometry's legislative limitations and/or competence.**

Specific Guidelines

All Doctors of Optometry who perform laser procedures must adhere to the following:

1. **Examination Requirements:**
    a. **Doctors of Optometry must perform an oculo-visual assessment before performing any optometric laser procedure. The case history**

should include (but not be limited to) inquiries about medications, allergies, and previous ophthalmic laser or surgical procedures.

2. **Facility Requirements:**
    a. **Each clinic must develop and follow a Laser Operating Procedures Manual that includes:**
        i. **Name and technical specifications of the laser**
        ii. **Appropriate infection prevention and control protocols**
        iii. **Safety protocols for operators, assistants and patients**
        iv. **Emergency procedures and protocols**
        v. **Procedures and protocols in the event of equipment failure**
    b. **Each facility must pass a compliance inspection from an authorized Radiation Protection Agency.**
    c. **Each facility must be registered with the Alberta College of Optometrists.**

3. **Patient Record Requirements:**
    a. **The patient record must contain the following information:**
        i. **The name of the Doctor of Optometry providing the treatment**
        ii. **Contraindications consultation**
        iii. **Signed, written and dated patient consent form**
        iv. **The date and time of treatment**
        v. **The type of treatment performed and referenced to one or both eyes**
        vi. **The treatment parameters (intensity, pulse number, etc.)**
        vii. **Any accidental or adverse effects**
        viii. **Recommended post-treatment care and follow-up.**

4. **Patient Consultation Requirements:**
    a. **Every patient consultation must include:**
        i. **Provision of information explaining the laser procedure to be performed.**
        ii. **Explanation of the steps involved during the procedure.**
        iii. **Pre- and post-treatment instructions.**
        iv. **Explanation of any associated risks.**
        v. **Explanation of any patient protective measures that will be taken.**

5. **Laser Safety Officer (LSO):**
    a. **The clinic shall have a Laser Safety Officer who has completed a laser safety training course approved by the ACO and will be responsible for:**
        i. **Maintaining the Laser Operating Procedures Manual**
        ii. **Ensuring the security of the controlled treatment area**
        iii. **Maintaining the education and training of operators and support staff**
        iv. **Ensuring and documenting maintenance and scheduled service of the laser equipment**

6. **Operator Responsibility:**
    a. **All operators shall be familiar with all protocols listed in Alberta's Radiation Protection Program established under the Occupational Health and Safety Act. While the laser equipment is being operated, Doctors of Optometry providing the treatment are responsible for the safety of all people in the controlled area.**

7. **Controlled Treatment Area:**
    a. **The area around where laser treatments are performed must be controlled to protect the Doctor of Optometry, the patient, and all other persons from accidental exposure.**
    b. **The controlled area must be in a room with clearly defined and suitable warning signs posted.**
    c. **The laser equipment may only be used in this area. When the laser is in use, no other procedures shall be performed in the controlled area.**
    d. **If a key switch is used, formal arrangements for the safe custody of the key must be in place.**

8. **Laser Equipment Requirements:**
    a. **All laser equipment must have a valid registration certificate, issued by a registration agency before the equipment may be used in clinic. Certificates are usually valid for a period of 5 years. A copy of the registration certificate must be kept on site, and be posted near the laser equipment if feasible.**
    b. **The laser equipment must be serviced and maintained according to the manufacturer's instructions to ensure it is operating within their design specifications.**
    c. **Re-certification inspections and maintenance procedures are to be completed at regular intervals in accordance with Alberta's Radiation Protection Program established under the Occupational Health and Safety Act. A record of service and repairs must be kept on site and available for inspection. Copies of inspection certificates should be kept in the Laser Operating Procedures Manual.**

9. **Facility Review Requirement:**
    a. **Optometric offices providing laser procedures will be inspected as per the ACO Continuing Competence Program Practice Assessment rules and protocols.**

Resources & References

1. **Radiation Inspection/Registration Agencies in Alberta**
   - https://www.alberta.ca/radiation-agencies
2. **Non-Hospital Surgical Facilities**
   - **https://cpsa.ca/facilities-clinics/accreditation/non-hospital-surgical-facilities/**
3. **Alberta Radiation Equipment Registration**
   - https://www.alberta.ca/register-radiation-equipment
4. **Alberta OHS Act, Regulation and Code**
   - https://www.alberta.ca/ohs-act-regulation-code
5. **Guide for Alberta's Radiation Protection Program**
   - https://open.alberta.ca/dataset/7466e383-f25e-4bfc-b620-606ae49e35e2/resource/0b5db41a-ac4a-4d78-80ba-565fb315130b/download/lbr-guide-for-albertas-radiation-protection-program-2021-11.pdf

Appendix 1 – Laser Settings Table

<table>
<tr><td colspan="3">YAG Capsulotomy</td></tr>
<tr><td>Laser: Nd:YAG (1064 nm)</td><td rowspan="2">Pre-Op Meds: Alphagan and dilation gtts</td><td rowspan="5">Cruciate Pattern: normal 40 shots or less.</td></tr>
<tr><td>Tissue Reaction: Photodisruption Pigment Independent</td></tr>
<tr><td>Initial Energy / Power: 1.3 – 1.8 mJ</td><td rowspan="4">Post-Op Meds: Alphagan in the office and steroid gtts QID x 1 week</td></tr>
<tr><td>Spot Size: Fixed</td></tr>
<tr><td>Duration: Fixed</td></tr>
<tr><td>Follow-Up: 1 hour and 1 week</td></tr>
</table>

<table>
<tr><td colspan="3">YAG Peripheral Iridotomy (PI)</td></tr>
<tr><td>Laser: Nd:YAG (1064 nm)</td><td rowspan="2">Pre-Op Meds: Alphagan and 1% Pilocarpine</td><td rowspan="5">Preference is a crypt at 11 or 1 o’clock about 2/3 or more from the limbus. 0.5 to 1 mm minimum opening.</td></tr>
<tr><td>Tissue Reaction: Photodisruption Pigment Independent</td></tr>
<tr><td>Initial Energy / Power: 3.0 – 6.0 mJ single or double shot</td><td rowspan="4">Post-Op Meds: Alphagan in the office and steroid gtts QID x 1 week</td></tr>
<tr><td>Spot Size: Fixed</td></tr>
<tr><td>Duration: Fixed</td></tr>
<tr><td>Follow-Up: 1 hour and 1 week</td></tr>
</table>

<table>
<tr><td colspan="3">Argon Peripheral Iridotomy (PI)</td></tr>
<tr><td>Laser: Argon or Nd:YAG (532 nm)</td><td rowspan="2">Pre-Op Meds: Alphagan and 1% Pilocarpine</td><td rowspan="5">Same as YAG PI.

Might cause more inflammation than YAG PI but less possible bleeding.</td></tr>
<tr><td>Tissue Reaction: Photocoagulation Pigment Dependent</td></tr>
<tr><td>Initial Energy / Power: 600 – 1200 mW</td><td rowspan="4">Post-Op Meds: Alphagan in the office and steroid gtts QID x 1 week</td></tr>
<tr><td>Spot Size: 50 microns</td></tr>
<tr><td>Duration: 0.1 – 0.2 sec.</td></tr>
<tr><td>Follow-Up: 1 hour and 1 week</td></tr>
</table>

<table>
<tr><td colspan="3">Selective Laser Trabeculoplasty (SLT)</td></tr>
<tr><td>Laser: Nd:YAG (532 nm) with 3 nsec burn</td><td rowspan="2">Pre-Op Meds: Alphagan and 1% Pilocarpine if required to view angle</td><td rowspan="5">50 to 60 burns right next to each other per 180 degrees.

Treat entire TM.</td></tr>
<tr><td>Tissue Reaction: Photocoagulation / Sublethal Photostimulation Pigment Dependent</td></tr>
<tr><td>Initial Energy / Power: 0.5 – 1.0 mJ dependent on various patient and disease factors including TM pigmentation.</td><td rowspan="4">Post-Op Meds: Alphagan in the office and topical NSAID prn x 2 days</td></tr>
<tr><td>Spot Size: 400 microns</td></tr>
<tr><td>Duration: 3 nsec</td></tr>
<tr><td>Follow-Up: 1 hour, 1 week and 6 weeks</td></tr>
</table>

Appendix 2 – Authorized Radiation Protection Agencies

All agencies service the entire province.

Alberta Radiation Service
8020 182 Street NW
Edmonton, AB T5T 0Z8
Phone: 1-888-653-9200 or
(780) 487-3889
Cell: (780) 566-9427
E-mail: abradser@telus.net

Diagnostic Solutions Inc.
10623 - 59 Street NW
Edmonton, AB T6A 2K5
Phone: 1-866-626-1189
Fax: 1-866-626-1189
E-mail:
diagnosticsolutions@hotmail.com
Website: www.diagnosticsolutions.ca

Filipow Associates Inc. (Edmonton)
6508 – 109 Avenue
Edmonton, AB T6A 1S2
Cell: (780) 288-4833
Phone: (780) 468-4833
Fax: (780) 468-4866
E-mail: info@filipow.ca
Website: www.filipow.ca

RadMan Radiation Management Services
868 Prestwick Circle SE
Calgary, AB T2Z 4E4
Phone: (403) 903-2020
Fax: (403)726-7676
E-mail: rad_man@telus.net

University of Alberta
Environment, Health & Safety Department Risk Management Services 2-10 Materials Management Building 8415 117 Street NW Edmonton, Alberta T6G 2R3 Phone: 780-492-5655 Fax: 780-492-7790 Email: ehs.info@ualberta.ca

Alberta Health Services Diagnostic Imaging Services 8th Floor North Tower, Seventh Street Plaza 10030 107 Street NW Edmonton, Alberta T5J 3E4 Phone: 780-616-5382 Fax: 780-735-1377 Email: Susan.Walker@albertahealthservices.ca

University of Calgary
Environmental Health and Safety MacEwan Student Center Room 260, 2500 University Drive NW Calgary, Alberta T2N 1N4 Phone: 403-220-7653 Fax: 403-284-1332 Email: radsafe@ucalgary.ca

Appendix 3 – ACO Application for Registration of Designated Laser Equipment

Owner Information:

Owner Name: **Date:**
Address:
City: **Province:** **Postal Code:**
Telephone: **FAX:**
Email:
Name of previous owner (applies only if owner has changed):

Facility Information:

Facility Name:
Contact Person: **Email:**
Address:
City: **Province:** **Postal Code:**
Telephone: **Fax:**

Compliance Information:
Name of Authorized Radiation Protection Agency that performed the Inspection:

Date of Inspection:

I certify that the installation of the above equipment complies with all aspects of *Alberta's Radiation Protection Program* and the ACO Standards of Practice.

_____
(Signature of Owner)

Laser Equipment #1 Information:
Name or Type of Laser:
Manufacturer Name:
Room Location in Facility: **Installation Date:**

Laser Equipment #2 Information:
Name or Type of Laser:
Manufacturer Name:
Room Location in Facility: **Installation Date:**