

MEDICAL SURVEILLANCE – LASERS

INTRODUCTION

Use of lasers may occur within research, teaching, clinical and operational activities at the University of Guelph. This module will outline the medical surveillance requirements for personnel associated with the use of lasers at the University of Guelph

SCOPE

This module applies to personnel involved in the use of Class 3b and 4 lasers as part of University of Guelph research, teaching, clinical or operational activities including but not limited to employees and graduate students.

LEGISLATION AND STANDARDS

American National Standard for Safe Use of Lasers ANSI Z136.1

[Ministry of Labour Guideline – Lasers in Ontario Workplaces](#)

[University of Guelph Safety Policy – Lasers 851.05.03](#)

CRITERIA

Prior to using Class 3b or 4 lasers, prospective users must undergo pre-assignment (baseline) ocular examination conducted by an optometrist or ophthalmologist.

RESPONSIBILITIES

OCCUPATIONAL HEALTH AND WELLNESS (OHW)

- Provide information to identified users to take to the optometrist/ophthalmologist
- Receive and maintain records according to standard medical practice
- Maintain list of University personnel who have completed pre-assignment (baseline) laser examinations

- Notify the Radiation Safety Officer that pre-assignment (baseline) ocular examination records of personnel have been received
- Follow up with personnel suspected of a laser related injury as per University incident reporting process

RADIATION SAFETY OFFICER

- Communicate medical surveillance requirements to University of Guelph personnel who may be involved in use of Class 3b or 4 lasers
- Identify to OHW University of Guelph personnel who may be involved in use of Class 3b or 4 lasers
- Provide confirmation to personnel that work with lasers may proceed

SUPERVISORS

- Ensure all personnel whom they supervise and who are to be involved in laser use participate in training and pre-assignment (baseline) medical examination as required.
- Cover the costs associated with any examinations, etc. that must be outsourced from the University

UNIVERSITY PERSONNEL INVOLVED IN LASERS

- Participate in pre-assignment (baseline) medical examinations as applicable
- Ensure examination results are submitted to OHW
- Follow the University incident reporting procedures for any laser related incidents

METHODS/PROCEDURES

MEDICAL EXAMINATIONS

Ocular examinations are to be conducted by or under the supervision of a qualified optometrist or ophthalmologist in accordance with the requirements of ANSI 136.1. As indicated within this standard the primary purpose of pre-assignment examination is to establish a baseline against which ocular damage can be compared in the event of an incident.

Pre-assignment medical examinations are to include the examination protocols (as taken from ANSI Z136.1) described in the following table:

Test
<p>Ocular History</p> <ul style="list-style-type: none">• Review of past eye and family history• Current complaints/concerns reviewed• General health status is considered with emphasis on systemic diseases that may cause ocular problems• Date of most recent examination and current refraction prescription noted
<p>Visual Acuity</p> <ul style="list-style-type: none">• Visual acuity for far and near vision measured using a standard, reproducible method• Refraction corrections should be made as required for near and distant test targets• If refractive corrections cannot change acuity to 20/20 for distance and Jaeger 1+ for near a more extensive examination may be required.
<p>Macular Function</p> <ul style="list-style-type: none">• An Amsler grid or similar pattern is to be used to test macular function for distortion and scotomas• Any distortions or missing portions of the grid pattern indicate an abnormal test result
<p>Colour Vision</p> <ul style="list-style-type: none">• Assessed using Ishihara or similar colour vision test
<p>Examination of Ocular Fundus (as indicated only in the presence of abnormal results from any of the above tests)</p> <p>Assessment of:</p> <ul style="list-style-type: none">• Presence/absence of opacities in the media• Sharpness of outline of the optic disc• Colour of optic disc• Depth of physiological cup (if present)• Ratio of size retinal veins to retinal arteries• Presence/absence or well defined macula and foveal reflex• Any retinal pathology (hyperpigmentation, depigmentation, retinal degeneration, exudate, etc.)

FREQUENCY

The pre-assignment ocular exam is required prior to use of a Class 3b or 4 laser. Subsequent examinations are required only after a suspected injury.

INCIDENT MANAGEMENT

All incidents shall be reported using the University's incident reporting process.

OHW and the Occupational Health Physician are available for consultation for personnel that have had a suspected laser related injury.

RECORDS MAINTENANCE

Results of laser-related injury will be disclosed to the RSO for investigation purposes. In the event that the injury is classified as critical (i.e. loss of sight), the results will be shared with EHS to facilitate regulatory reporting to the Ministry of Labour. General information regarding laser-related incidents will be shared with the Radiation Safety Committee as the oversight body of the Radiation Safety program.

All personal medical records are maintained confidentially according to accepted medical practice by Occupational Health and Wellness.