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**CSA Z386:14**  
*(reaffirmed 2019)*

## **Safe use of lasers in health care**

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*Safe use of lasers in health care*



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# Preface

This is the fourth edition of CSA Z386, *Safe use of lasers in health care*. It supersedes the previous editions, published in 2008 under the title *Safe use of lasers in health care facilities* and in 2001 and 1992 under the title *Laser Safety in Health Care Facilities*.

This Standard was prepared by the Subcommittee on Laser Safety in Health Care, under the jurisdiction of the Technical Committee on Perioperative Safety and the Strategic Steering Committee on Health Care Technology & Systems, and has been formally approved by the Technical Committee.

## Notes:

- 1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
- 2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
- 3) *This Standard was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
- 4) *To submit a request for interpretation of this Standard, please send the following information to **inquiries@csagroup.org** and include “Request for interpretation” in the subject line:*
  - a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
  - b) *provide an explanation of circumstances surrounding the actual field condition; and*
  - c) *where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.*

*Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at [standardsactivities.csa.ca](http://standardsactivities.csa.ca).*
- 5) *This Standard is subject to review five years from the date of publication, and suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to **inquiries@csagroup.org** and include “Proposal for change” in the subject line:*
  - a) *Standard designation (number);*
  - b) *relevant clause, table, and/or figure number;*
  - c) *wording of the proposed change; and*
  - d) *rationale for the change.*

# CSA Z386:14

## *Safe use of lasers in health care*

### 0 Introduction

#### 0.1

In many situations, lasers offer several advantages over traditional health care approaches. These include enhanced precision and speed, utilization of improved surgical access via endoscopes, minimal thermal damage and blood loss, and improved healing and reduced pain following surgery. As a consequence, the use of lasers in health care continues to grow, with new equipment and procedures constantly evolving.

#### 0.2

Although the use of lasers has its benefits, experience with laser systems for health care has shown that there can be health risks for persons operating unfamiliar laser equipment and accessories, and that non-beam hazards such as fire, toxic fumes, and electrical shock can occur. Positive patient outcomes depend on knowledgeable staff and the safe and effective use of lasers in health care settings.

#### 0.3

Clause 4.7.3.2 (Clause 8.7.7 in this Standard) and Clause 4.7.4 (Clause 8.7.8 in this Standard), and Figures 1a, 1b, and 1d (Figures 2, 3, and 4 in this Standard) are reproduced with permission from ANSI Z136.3-2011, *American National Standard for Safe Use of Lasers in Health Care*. Copyright 2011, Laser Institute of America, Orlando, Florida. The Laser Institute of America disclaims any responsibility or liability resulting from the placement and use in the described manner.

### 1 Scope

#### 1.1

This Standard provides guidance for the safe use of lasers in health care. It applies to all procedures in health care settings where health-related lasers are used, including, but not limited to, the following:

- a) health care facilities;
- b) dental clinics, offices, and facilities;
- c) veterinary facilities;
- d) laboratories and other research facilities;
- e) physician offices;
- f) cosmetic and aesthetic treatment facilities;
- g) medical teaching facilities;
- h) medical professional exhibitions and trade shows; and
- i) medical laser servicing organizations.

## 1.2

This Standard presents the engineering, procedural, and administrative controls necessary to ensure the safety of persons at risk in the vicinity of a health-related laser, based upon a risk assessment.

**Note:** *A risk assessment is a thorough look at the workplace to identify situations, processes, etc. that can cause harm. A risk assessment, performed before policies and procedures are developed, is useful for determining engineering, administrative, and procedural controls and work practices to reduce the risk of laser exposure through*

- a) *identification of hazards;*
- b) *analysis or evaluation of the risks associated with those hazards; and*
- c) *determining appropriate ways to eliminate or control the hazards.*

## 1.3

The control measures described in this Standard do not preclude the use of laser systems, of any type, that can be intentionally administered for diagnostic, therapeutic, aesthetic, or research purposes. However, those persons administering and assisting in the administering of the laser systems, as well as the patient, where applicable, should be protected through the implementation of appropriate control measures and other provisions described in this Standard.

## 1.4

This Standard does not comment on the purposes, risks, or benefits of procedures or equipment, as they are the professional responsibility of health care providers. This Standard does, however, offer general guidelines to ensure the safe use of health-related lasers in health care settings as outlined in Clause 1.1.

## 1.5

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.

## 2 Reference publications

This Standard refers to the following publications, and where such reference is made, it shall be to the edition below, including all amendments published thereto.

**Note:** *In cases where the editions listed below are amended, replaced by new editions, or superseded by another standard during the life of this referencing Standard, it is the responsibility of the users of this Standard to investigate the possibility of applying those amendments, new editions, or superseding standards.*