

AS/NZS 4173:1994

Australian/New Zealand Standard

**Guide to the safe use of lasers in
health care**

AS/NZS 4173:1994

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee HT/28, Lasers in Medical Procedures. It was approved on behalf of the Council of Standards Australia on 5 November 1993 and on behalf of the Council of Standards New Zealand on 29 April 1993. It was published on 14 February 1994.

The following interests are represented on Committee HT/28:

Australasian College of Dermatologists
Australasian College of Physical Scientists and Engineers in Medicine
Australian and New Zealand College of Anaesthetists
Australian Centre of Medical Laser Technology
Australian Confederation of Operating Room Nurses
Australian Radiation Protection Association
Commonwealth Department of Health, Housing and Community Services, Australia
Department of Health, N.S.W.
Department of Health and Community Services, Vic
Health Department, W.A.
Institute of Biomedical Engineering, Australia
Medical Industry Association of Australia
Ministry of Commerce, New Zealand
National Health and Medical Research Council, Australia
Royal Australasian College of Obstetricians and Gynaecologists
Royal Australasian College of Physicians
Royal Australian College of Ophthalmologists
University of Waikato, New Zealand

Additional interests participating in preparation of Standard:

Laser equipment manufacturers and suppliers
Royal Adelaide Hospital

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PREFACE

This Standard was prepared by the Joint Australian/New Zealand Standards Committee HT/28 on Lasers in Medical Procedures and is issued as a joint Standard under the terms of the Active Cooperation Agreement between Standards Australia and Standards New Zealand.

The Standard provides guidance in the safe use of lasers and laser systems for diagnostic and therapeutic uses in health care facilities (including hospitals, private medical facilities and dental practices). To this end, it includes explanations of basic laser physics and radiation/tissue interactions, and also identifies engineering and administrative control measures designed to avoid the most significant hazards. Protocols to be observed during specialist medical and dental procedures are also included.

It is not intended that the recommended control measures should restrict or limit the use of laser radiation which may be intentionally administered to a patient for diagnostic, therapeutic, surgical or medical research purposes. However, the controls are those considered necessary for the safety of all attending staff, as well as those which should be considered as fundamental to patient safety.

This Standard was prepared in the knowledge that separate Standards were being developed for medical laser equipment (to supplement the safety procedures and requirements of AS 2211/NZS 5821, *Laser safety*) and for medical laser installations. These Standards will incorporate mandatory engineering and installation requirements to be observed by the manufacturers and constructors. Accordingly, this Standard concentrates on identifying those administrative needs and user precautions which are of equal importance. In particular, the importance of staff training is emphasized and this Standard—

- (a) identifies appropriate levels of staff training (i.e. not all staff need to be trained to the same level);
- (b) recommends that relevant educational organizations insist on formal medical laser training and certification of post-graduate specialists; and
- (c) notes the medical laser training facilities developed at the Australian Centre for Medical Laser Technology (South Australia) and the Australian Laser Institute (Queensland).

The laser types and applications addressed in this Guide are current at the time of writing. Given the rapid development in the field, efforts will be made to revise the Standard as the technology and its applications change.

In this Standard the Tables and Figures are numbered in accordance with the Clause in which they are first referenced.

Standards Australia acknowledges the contribution of the Australian Centre for Medical Laser Technology to this Standard.

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

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