



DeLTA On-line Resource

The Safe Use of Lasers in Dentistry 2024

Dear Colleague,

The regulatory framework governing the safe use of lasers may be seen as a hierarchical devolvement, most referenced through the I.E.C. (International Electro-technical Commission) and A.N.S.I. (American National Standards Institute). From these organisations and their representation, National Regulations may apply – either as specific statutory instruments or more often as part of laws and regulations that might apply within the workplace ^{1,2,3}.

Laser use in general dental practice has grown considerably over the past 30 years, both in numbers of machines and the scope of usage. General and specific measures must be employed to ensure the safe use of lasers in dentistry. Regulations – specific to lasers or within the licenced scope of practice - apply a duty of care to all dental healthcare professionals in the application of lasers in clinical practice. Such laser regulations may exist through International standards and / or through National or Regional legislation. The duty of care extends to all staff as well as patients. The registered laser owner or lead clinician is responsible for ensuring that all staff personnel have a thorough knowledge of laser safety. Additional devolved responsibility may be applied to the laser safety officer.

Irrespective of National or Regional attitudes to regulation, it remains a key objective therefore that those personnel involved in the delivery of laser photonic energy (that is capable of risk to unprotected ocular and non-target tissue), should undergo training sufficient to alert them to their responsibility. Prime amongst this responsibility is to any patient receiving such therapy.

Existing framework on laser safety in clinical dental practice.

The fragmentation in outreach of agreed regulation in the safe use of lasers in dental practice has been the result of lack of awareness among governing bodies to the existence of laser practice in dentistry and an unwillingness to impose overarching and disproportionate regulation to an emerging treatment modality.

There is scant agreement on specific regulatory measures that might apply to dental practice. The Academy of Laser Dentistry developed a broad framework, resulting in a position paper published in 2009 ⁴ and together with peer-reviewed publications ⁵, reflected the growing awareness of risk and measured response required in dental practice.

An example of current policy that reflects broad safety protocols as may apply in medical, surgical, dental and veterinary practice has been published ⁶, but lacks specific and attainable measures that may be readily adopted by dental clinicians.

A framework developed through the British Medical Laser Association provides a basis for adoption and implementation for dental practice. With grateful recognition to the parent policy framework ⁷, the following has been adapted:

- λ An awareness of a Core of Knowledge that represents a body of knowledge that underpins the safe use of lasers in clinical practice in Greece.
- λ It is intended to be undertaken by all staff using laser (Class III and IV) in a range of applications, including dental, maxilla-facial and aesthetic practices.
- λ Its aim is to provide users with an understanding of the basic principles of laser safety.

Standards of safe use of Class 3b and 4 lasers

Standard 1:

“Patients will receive treatment using Class 3B and Class 4 lasers in accordance with safe and appropriate procedures”.

A treatment protocol in relation to the practitioner’s relevant area of practice is followed:

Obtaining patient consent

Record keeping of treatment process.

Cleanliness and infection control within the treatment environment

Pre-treatment tests

Post-treatment care

Recognition of treatment-related problems Procedure if anything goes wrong

Standard 2:

“Patients will receive treatment from appropriately trained and competent laser operators”.

All laser operators must attend a laser Core of Knowledge safety training course (minimum three hours).

Core of Knowledge training must be repeated periodically at least every 5 years. Evidence of training attendance certificates, including who provided the training and its contents, should be held within the establishment.

All staff using lasers must maintain evidence of CPD to demonstrate knowledge and skills relevant to the treatments carried out.

Standard 3:

“The treatment environment in which Class 3B and Class 4 lasers and IPLs are used is safe”.

In establishments with Class 3B lasers and Class 4 lasers, suitable area warning signs must be displayed on the outside of doors to the controlled area.

Lasers and IPLs must be serviced and maintained according to the manufacturer's instructions to ensure they are operating within their design specification.

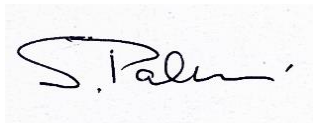
The user must ensure that the service agent services the laser/IPL in accordance with the manufacturer's specification.

A record of servicing and repairs is kept.

Lasers must have an electrical safety test carried out annually.

Accreditation through the DeLTA laser safety officer course may be considered as your responsible action towards a best practice standard of care in using your dental laser in your Practice. Certification on the successful completion of the course would demonstrate your awareness of safety and the protection of patients and staff when using lasers.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'S. Parker', is enclosed in a light grey rectangular box.

Dr Steven Parker

References.

- 1/ ANSI Z 136.1-9. American National Standard for Safe Use of Lasers (2014)
- 2/ Occupational Safety and Health Administration
- 3/ Lasers, intense light source systems and LEDs – guidance for safe use in medical, surgical, dental and aesthetic practices. Crown copyright 2015
Published by the UK Medicines and Healthcare products Regulatory Agency
- 4/ Sweeney C, Coluzzi D, Parker P, Parker S, Sulewski J, White J. Laser Safety in Dentistry: A Position Paper. J Laser Dent 2009;17(1):39-49.
- 5/ Parker S. Laser regulation and safety in general dental practice. Brit. Dent.Journal. 2007;202:(9)523-532
- 6/ Lasers, intense light source systems and LEDs – guidance for safe use in medical, surgical, dental and aesthetic practices. Crown copyright 2015
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- 7/ Essential Standards Regarding Class 3B and Class 4 Lasers and Intense Light Sources in Non-surgical Applications. BMLA May 2017.