

CORE OF KNOWLEDGE

This revision of the Laser and ILS core of knowledge has been produced with the involvement of the MHRA and the BMLA

Introduction

Core of knowledge represents a body of knowledge that underpins the safe use of lasers and intense light sources in medical, surgical, dental, veterinary and cosmetic practice.

In order to obtain the minimum competency level and as part of their safety training, staff should attend refresher core of knowledge courses every 5 years. The course certificate should clearly state which speciality has been covered.

It is essential that the core of knowledge is supplemented by additional training in specific applications.

The core of knowledge should be delivered by suitably qualified persons (e.g. a certificated Laser Protection Adviser (LPA)) who have a high level of knowledge and understanding of different optical radiation devices systems, optical radiation safety and the hazards associated with the use of lasers and intense light sources. The faculty delivering core of knowledge training should remain up to date with current approaches to laser safety and any new or emerging information relevant to hazards associated with laser and intense light sources and update course content accordingly.

There is no statutory approvals body for core of knowledge courses but some organisations, such as the British Medical Laser Association (BMLA), may have an approval process to ensure course standard and consistency.

It is the responsibility of the employer to ensure that adequate measures, including training, are in place to ensure safe use of lasers and intense light sources.

Although exact content may differ slightly, the following syllabus is considered to be the minimum course content that may be covered by training centres. Course duration should total at least three hours. After attending the course, each participant should demonstrate an understanding of:

Fundamentals of Optical Radiation Devices and tissue interactions (including wavelength versus absorption in different parts of the eye)

- Awareness of how the different types of radiation are produced, what types of active media are used, and delivery systems
- Understanding of the differences between laser, Intense Pulse Light devices (IPL) and Light Emitting Diode systems (LED's) and their optical radiation characteristics (including wavelength and divergence)
- Awareness of the risk class systems for lasers (Class 1 to 4) and intense light sources (Risk Groups 1-3)

- Understanding of the types of interactions between optical radiation and tissue (although the skin and eye are always relevant tissues, other tissues may be included depending on the intended use – e.g. urology, dental etc). In particular, to understand how risk to the relevant part of the eye depends on wavelength and the difference between central and peripheral retinal injury

Hazards and how to control them (including the hierarchy of control measures)

- Understanding of hazards to the eye and the skin from unintended exposure
- Understanding of the hierarchy of controls in risk management
- Understanding of differences between specular and diffuse reflections, how these may vary with wavelengths, and common dangers in the work environment from such reflections.
- Understanding of the use of personal protective equipment (PPE) including safety eyewear, plume protection measures, etc.
- Understanding of additional hazards to the patient or client related to laser use.
- Understanding of non-beam hazards (e.g. electricity, fire, explosion and plume inhalation)
- Awareness of the additional precautions that may be required when undertaking non-routine activities
- Awareness of how hazards may depend on the role of the individual within team working

Safety Management (including risk assessment, quality assurance and concepts of Maximum Permissible Exposure levels and nominal ocular hazard distance)

- Awareness of the principles of risk assessment
- Awareness of the principles and requirements of equipment quality assurance processes and procedures and how these are applied locally
- Understanding of Maximum Permissible Exposure and Nominal Ocular Hazard Distance
- Understanding of laser safety management including the roles of Laser Protection Adviser (LPA), Laser Protection Supervisor (LPS), Expert Registered Healthcare Practitioner (EHRP), authorised users, local rules, treatment protocols, and controlled areas
- Awareness of the need to report any deterioration in personal protective equipment (PPE) or other workplace conditions (e.g. unaddressed fault conditions of equipment, use by unauthorised staff) to the Laser Protection Supervisor and / or other responsible person
- Understanding of how to deal with an adverse incident or near miss, including the requirement for reporting

Standards and Guidance documents.

- Awareness of the meaning of the markings on laser and intense light safety eyewear
- Awareness of relevant legislation, guidance and standards relating to laser and intense light source equipment use
- Awareness of the labelling requirements for lasers and intense light sources
- Awareness of professional body recommendations such as the BMLA's 'Essential Standards'.