NZ Laser Training Code of Practice

For operators of Lasers and Intense Light Sources

in the New Zealand aesthetic industry

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Introduction

There is widespread acknowledgement that New Zealand needs better regulation and control over operators of light-based devices such as intense pulsed light (IPL) and lasers. Currently, only Auckland Council provides any overarching legislation aimed at promoting compliance within the beauty and laser aesthetic industry. NZ Laser Training is committed to the development of such controls to improve trading standards and to increase public safety. In line with this philosophy, we have prepared this document to support and provide guidance to operators of IPL and lasers until government regulation is implemented. We understand that suppliers and industry authorities in New Zealand who may not be familiar with Laser or IPL technology, also utilise this document for their own guidelines, which we encourage.

This Code of Practice (COP) recommends appropriate levels of expertise and training for IPL and laser operators, provides safety guidelines for clinics operating laser and IPL devices, and provides a summary of the current relevant rules and regulations in New Zealand.

Purpose: to provide a structured hygiene policy that is easy to follow and to provide a more in-depth reference for those seeking to follow industry best practice.

Terms used in this document

Laser overview

- The acronym 'L.A.S.E.R' stands for: Light amplification by the stimulated emission of radiation. Lasers emit a single (Monochromatic) light source. Lasers commonly used in beauty and aesthetics include but are not limited to: Fd:nd:Yag, pulsed dye, ruby, alexandrite, diode, Nd:Yag, erbium, CO 2, plasma, Q-switched, and a wide range of ablative (*removes the skin*)and fractional (*does not remove skin surface but does leave thermal channels in the skin*), laser types.
- Q-Switched and Pico second tattoo removal lasers, also used for some skin rejuvenation treatments, do have the potential to break the surface of the skin when used in certain pulse modes and energy settings.
- Hair removal lasers (Alexandrite, Diode and Nd:Yag) are not designed to break the surface of the skin, however can cause a skin injury. All lasers mentioned in this document are classified by international standards as Class IV; and are serious devices capable of causing ocular and skin hazards along with other non-beam related hazards too.

Intense light sources

Intense light sources; referred to as: pulsed light, broadband light, square pulsed or super pulsed light, variable pulsed / varied pulsed (VPL) or efficient pulsed light (EPL), sources are <u>not</u> lasers and should not be described as such. Intense light source devices use filters to block unwanted wavelengths and emit a range of broadband wavelengths generally from 400nm to 1200nm. All intense light source devices mentioned in this document are categorised as Class 3R or 3B. However, when the pulsed light device is situated on a multiplatform with a Laser, it will be classed differently.

Regulations in New Zealand relating to Laser & IPL

Classification of Laser / IPL devices: At this time in New Zealand laser and IPL devices are NOT classed as medical devices by MedSafe NZ, this is despite them fitting into the definition of devices that are approved for a 'therapeutic purpose'. Read more here

Classification of non-laser devices:

Non-laser devices such as: HIFU (High intensity focused ultrasound) which utilises ultrasound waves to distribute thermal energy into the skin, and Plasma (the 4th energy state) – used to cause superficial thermal coagulation and therefore, a micro wound response; are also not restricted. No government restrictions exist on the sale of them to industry, or to members of the public. This also means anyone (*members of the public/ non-industry related background / inexperienced*) can become a laser or IPL supplier. Some local councils have guidelines for use of these devices; which may impose restrictions based on the qualifications, training and experience of the operator.

Auckland Council 'Health and Hygiene Bylaw 2013'

Please download and read the full Health & Hygiene Bylaw and Code of Practice which available on the Auckland Council Website.

Code of Practice: Relating to IPL operators (actual exert)

Auckland Council's Health & Hygiene Bylaw 2013 and associated Code of Practice also sets out training requirements for operators of pulsed light equipment:

- *7(1) All operators of pulsed light equipment must have the knowledge and skills necessary to provide pulsed light services, including skin type identification and the safe use of equipment, which can be achieved through the following:*
- *National Certificate (or international equivalent) in Electrology, evidence of professional development in pulsed light services, and commercial industry experience of 12 months or more; or*
- *commercial industry experience of five consecutive years or more using pulsed light equipment, and evidence of professional development in pulsed light services; or*
- *Evidence of training with a pulsed light training provider, and industry experience of 12 months or more;*

Code of Practice: Relating to Laser operators – Including tattoo removal lasers (actual exert)

"Training in the provision of laser treatment"

7(2) All operators of lasers that risk breaking the skin must comply with Minimum Standard 4: Risk of Breaking the Skin;
7(3) All operators of lasers that risk breaking the skin, including those used for laser tattoo removal, must have the knowledge and skills necessary to provide laser services including:

(a) skin type identification; and
(b) safe use of lasers based on AS/NZS 4173: 2004 and any updates, additions or amendments to that standard; and
(c) commercial industry experience of 12 months or more;

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*7(4) All operators of lasers that are designed to **remove the skin** must be a health practitioner and must be trained in the safe use of lasers based on AS/NZS 4173: 2004 any updates, additions or amendments to that standard;*

Medical grade Lasers –

High powered lasers, sometimes referred to as medical grade lasers; including those used for internal body treatments such as fractional and continuous Erbium (Er:yag), Carbon dioxide (CO2), Plasma, Yttrium scandium gallium garnet (YSGG) lasers; should be operated by medically qualified practitioners, or under the direct supervision and mentoring of medical practitioners.

These laser devices may cause significant damage and potential scarring to the skin if used inappropriately or in untrained hands, and are deemed to be lasers that break, or risk breaking* the surface of the skin. (*See page 7 for definitions)

The use of intra-vaginal lasers (*as used in laser vaginal rejuvenation*) also pose a risk to the patient, particularly those with undiagnosed prolapse, vaginal cancers, or endocrine disorders. There is also risk of contamination; and transfer of faecal matter and sexually transmitted disease. *(currently not classed as medical devices)*

Images courtesy of Google

Image courtesy of Plastic surgerykey.com

There are currently no regulations at **national government** level to enforce these guidelines. However, **Auckland Council** does restrict the use of lasers that risk breaking the skin with the code of practice under the Health & Hygiene Bylaw 2013 – which states:

Clause: 7(4) "All operators of lasers that are designed to remove the skin must be a health practitioner and must be trained in the safe use of lasers based on AS/NZS 4173: 2004 and any updates, additions or amendments to that standard;

Operator competence

Operators of light-based devices *should* be able to:

- Recognise the fundamental concepts of laser science for aesthetic devices
- Have knowledge of biophysics and the tissue effects of lasers
- Understand safe clinical applications of laser technologies they use
- Identify hazards associated with aesthetic devices (lasers and IPL) and the appropriate control measures required, and
- Be able to implement and manage laser safety programmes for their beauty clinic or medi-spa; based on regulatory and advisory guidelines
- Be able to identify common skin conditions, and possess knowledge of melanoma awareness, knowing when to refer clients to a specialist, and which treatments / clients are outside of their scope of expertise and practice
- Pass an assessment based on safe application of Intense pulsed light and / or lasers for various skin types, skin conditions, hair types and hair colours, in specific cosmetic applications such as hair reduction and photo-rejuvenation.
- Possess knowledge and skills to conduct a thorough consultation for light-based treatments, including using the appropriate paperwork / client records
- Demonstrate confidence and competence in handling the device including how to safely turn it on, adjust settings based on skin type and skin condition, and how to control beam hazards and engineering controls.
- Demonstrate correct placement and technique including cooling techniques and how to manage adverse reactions and responses should they occur.
- Operators of all IPL and Laser devices should demonstrate knowledge of the potential risks and hazards related to their devices.
- Operators of these devices should also be well versed in NZ consumer law – which addresses clients rights and protects both the client and the operator.
- Owners of laser, IPL, HIFU, and plasma devices (and all other related aesthetic devices) should understand the identifying and approval marks related to their equipment, this would include but not be limited to: FDA approval, CE marks, ISO approval etc..

Medical lasers: additional to the above, it would be strongly advised that operators of fractional, ablative and intra-body lasers (such as those used in the vagina), complete a hygiene and infection control course, and skin cancers & melanoma educational course, and are ideally medical qualified (Medical doctor, or nurse)

Laser safety requirements as interpreted in AS/NZS 4173:2018 and according to best practice set out by NZ Laser Training Ltd.

Clinics operating a Class IV laser device should have a nominated Laser Safety Officer (LSO)/ LHSO (Laser health & safety officer) whose role includes the following responsibilities:

- Developing policies and procedures, including identification of, and control of hazards
- Establishing staff credentials and certification criteria
- Establishing a valid laser maintenance and equipment auditing / control standard
- Identifying risk management issues and reporting methods for any incidents that occur to the laser safety committee (LSC)
- Ensuring compliance with the clinics standards, policies and procedures (SOP's)
- Develop and maintain consistent methods for documentation record keeping such as a log sheet of treatments conducted
- Updating infection control best practice and Worksafe guidelines as updated by authorities
- Implementing and conducting compliance audits in accordance to the clinics SOP's.
- Establish a continuing education and training program schedule to ensure staff are kept up to date.
- Ensure compliance to any local council bylaws, government issued regulations and or best practice set out by industry authorities.

Quick reference guide:

Non-ablative	**Non-ablative but capable of breaking the skin**	**Ablative – breaks the skins surface**	**Sub ablative – works under the skin**
Non-ablative lasers & IPL do not aim to break the surface of the epidermis; however, all IPL and Laser devices have the potential to cause a skin injury or a burn, severe burns such as those seen on darker skin types when treated with short wavelengths can cause epidermal separation	Nd:yag laser, Q-Switched and Pico-second Lasers, non-ablative fractional skin rejuvenation devices can cause pinpoint bleeding, or at least moderate to severe erythema (redness). The potential for skin injury using these devices is increased with lack of thorough training.	CO2 (carbon dioxide) and Erbium, or Er;Yag (erbium:yttrium aluminum garnet)- available as continuous or fractional devices. The potential for skin injury using these devices is increased with lack of thorough training.	Can cause thermal damage under the skin and to underlying anatomic structures (organs, thyroid, arteries) Includes: thermal ablation of subcutaneous adipose (fat) tissue Examples: Certain radio frequency (RF) devices / HIFU
Operators should be educated and certified and possess a laser safety certification – those using Class IV devices should also have a Laser Safety Officer or LHSO (Laser health & safety officer)	Operators should be educated and certified and possess a laser safety certification – as these are Class IV devices , a Laser Safety Officer or LHSO (Laser health & safety officer) should also be appointed	Operators should be medically qualified, educated and certified and possess a laser safety certification – as these are Class IV devices , a Laser Safety Officer or LHSO (Laser health & safety officer) should also be appointed	Operators should be trained in the thermodynamics of tissue interactions which differs greatly from Laser & IPL training. No guidelines exist for requirement of operator experience or qualification

The above chart is NZ Laser Trainings interpretation of these definitions, these may differ, and may not be the only explanation available. Please seek further information or contact us.

Training recommendations

Understanding training and qualification related terms

'Medical practitioner' refers to a doctor who is currently registered with the Medical Council of New Zealand, or a registered nurse who holds a current practising certificate. Both are traceable through the Medical council & Nurses council

'*Training'* means undertaking comprehensive learning related to all aspects of operating lasers or IPL devices, including

- operating the device in a practical setting
- using lasers or IPL safely, including understanding the client's skin type and selecting the appropriate device and/or wavelength for that client
- understanding clinical treatment parameters
- understanding risks for the client associated with treatment such as burns, blisters, loss of pigmentation or other unwanted side effects.

NZ Laser Training also advises undertaking a minimum prior qualification related to beauty therapy or equivalent training in skin and hair anatomy. (Please see '*How can I become a competent operator?'* below for more information)

'**Refresher'** means a short course that touches on all aspects of the above comprehensive training programme in order to update a person's knowledge every few years or re-certify that person. Also referred to as professional development.

'**Diploma'** is a level 5 qualification obtained through achieving credits via the National Qualifications framework (NZQA). A diploma must contain a minimum of 120 credits at level 4 or above, including at least 72 credits at level 5 or above. This term applies to NZ based qualifications and does not include international frameworks such as ITEC.

'Qualification' is a certificate issued after the completion of **an approved NZQA approved training providers course**. (can be issued online, or in person) – credits are assigned based on hours of learning. If you are offered a qualification you should be able to locate this listed on the NZQA framework website using this link. https://www.nzqa.govt.nz/qualifications-standards/qualifications/ - if it is not listed here , it is NOT a qualification.

'**Attendance certificates'** issued by a training provider means a person has attended a workshop, programme or course, but do not deem the person competent. When a person obtains a certificate from a training provider or supplier of equipment, the certificate itself or accompanying letter of attainment should state how many hours have been attended, regardless of whether or not the provider is accredited or not. This approach follows guidelines set out by the British Medical Laser Association (UK) and The National Council on Laser Certification (USA).

'**Certification'** *as above, this* means a person has attended a course, workshop or training seminar and received a certificate of attendance. This should be counted towards on-going professional development and shows that the person is actively seeking continued learning but this does not mean they are necessarily 'trained' or 'qualified'. It may be deemed appropriate to record these certifications as continued professional development (CPD).

CPD points in NZ, are issued on a case by case basis by the NZNO (New Zealand Nurses organisation) and are not generally allocated by the training provider themselves.

How can I become a competent operator?

NZ Laser Training recommends that operators of any laser or IPL device **undertake a minimum of three days' training**, including but not limited to the following:

- Client consultations and consent forms for light based treatments
- Generic laser science and basic laser physics principles
- Skin identification for light based treatments
- Melanoma and skin cancer awareness
- Treatment parameters
- Light tissue interactions
- Scope of practice guidelines
- Laser safety including: engineering controls, hazard controls, skin hazards, eye hazards, knowledge of laser systems and nominal hazard zones (NHZ)
- Understanding the optical density (OD) of protective eyewear required for your device.

Further on-going training is required:

Trainees should also receive hands on practical clinical training related to the safe operation of lasers or IPL devices in a clinic setting. 1-day minimum training would be required, however more training can and should be sought to adequately cover trouble shooting scenarios, other clinical applications or handpieces, and more advanced client situations.

The need for thorough training is supported by the majority of suppliers of equipment – many of whom simply provide functionality training. This level of training illustrates safe use of the individual device, however may not extend to laser safety, the role of the laser safety officer, or best practice, or advanced clinical situations such as preventing and managing side effects. **Training above and beyond that provided by the device supplier should be sought and would be considered best practice.**

Laser safety guidelines

How to protect against lasers

Follow this three-step process (sequentially): *provided courtesy of Honeywell.*

Engineering Controls

Safety provided by engineering the hazard out, for example, interlocking switches that shut off the laser if anyone enters an area of laser risk.

Administrative Controls

Safety provided by warning signs, notices and training personnel working with lasers.

Personal Protective Equipment (PPE)

Safety provided by PPE such as gloves, respirators, masks, clothing and laser eyewear that protects against accidental exposure to laser. The eyewear should be selected based on the laser wavelength and power density or energy density of the laser.

Ideal Clinic set up for LASER - *provided courtesy of NZ Laser Training Ltd*

a) Ensure there are either no windows in your treatment room, or that any windows or gaps in doorways etc are covered with roll down blinds (preferably in flame retardant fabric).
b) A nominal hazard zone (NHZ) should be set up, meaning that the entire room where the laser is to be used becomes authorised entry only. Your set up should comply with AS/NZS 4173:2018 Laser Safety Officer (LSO) requirements. Never leave your energised laser or IPL unattended, as they can overheat and pose a fire risk
c) Keys should never be left in the machine, when the device is not in active use
d) Ensure all surfaces are wipeable and able to be adequately sanitised.
e) Use light coloured towels or white towels – these should be freshly laundered for each client, and/or use a disposable bed roll cover.
f) Keep a copy of the manufacturer's settings and guidelines laminated and bound in a safe place for access when required.
g) Ensure all clients are appropriately and thoroughly consulted and have signed their consent form, provided written medical consent and any other required documentation.
h) Cover or remove any reflective or shiny surfaces before the laser is turned on (i.e. mirrors, shiny handles, metal instruments).
i) Remove potentially flammable, combustible supplies from the treatment room (i.e. oxygen cylinders, alcohol in liquid form).
j) Ensure the room has easy access to a CO^2 fire extinguisher.
k) Ensure safety glass meets AS/NZS safety standards and is of appropriate optical density (OD) and wavelength.

l) Ensure the laser operator and client undertaking the treatment are not wearing any large shiny jewellery, or cover it with gloves or paper tape.
m) Disposable gloves should be worn at the discretion of the laser technician and are recommended for hair reduction work on genital regions.
n) Wear disposable face masks that provide adequate plume protection to protect against exposure to laser plume*, at the discretion of the laser technician.
o) Ensure the laser remains in standby mode until placed on the skin ready to fire.
p) Place a 'laser in use' sign at the doorway when treatment is to be undertaken. "Do Not Enter" – Laser / IPL in use – stating the wavelength range and warning about wearing eye protection.

Clinic set up for INTENSE LIGHT SOURCES (i.e.: IPL)

The characteristics and propagation of intense pulsed light are not deemed as hazardous as laser light; however it is best practice to follow the same room set up as for a 'laser' treatment room. **True Laser plume is not generally seen with IPL devices.*

Skin preparation

Cleaning the skin prior to laser or IPL treatment should include:

- Removing all make-up residue (a double cleanse may be required for a person wearing moderate to heavy make-up, and removal of reflective cosmetic minerals and sunscreen)
- Close shaving any hair that is being treated prior to the application of the laser or IPL hand-piece to the skin
- Wiping areas of skin to be treated with an anti-septic or anti-viral cleaning wipe such as chlorhexidine prior to treatment.

Leading contraindications for IPL or laser

Do not treat a person:

- With any stage of active cold sore present. This includes when the first sign of 'tingling' is present, or crusted scabs or partially healed cold sores exist
- With infection at the treatment site (infected follicles, skin infection or infected acne)
- Who suffers from light triggered epilepsy (a less common form of epilepsy) with an intense light source device (IPL); and with non-light triggered, or when intending to use a laser; obtain written medical clearance - the client should sign a disclaimer form (There is a still a risk)
- Who is pregnant or breastfeeding and seeking reduction of pigmentation or vascular skin rejuvenation treatment. Hair reduction is permitted as per page 6 of the AS/ NZS 4173:2018 statement
- Who has either had melanoma (a form of malignant skin cancer) in situ or malignant forms, or are currently undertaking diagnosis of suspected melanoma or treatment for melanoma. Direct family members who have

undertaken full medical skin checks and obtained written medical clearance may request treatment. However, treatment is not recommended, and is not permitted according to Auckland Council Health & Hygiene Bylaw 2013
- Who has Type I diabetes – due to uncontrolled and unpredictable healing and ulceration
- Who has keloid scarring, or suspects they might form keloid scarring – persons who have experienced formation of keloid scarring or are suspected of unpredictable healing or accelerated proliferation of keratinocytes
- Who is taking Isotretinoin – persons on this prescribed medication must not undertake IPL or laser until a stand down period has been observed. This would vary from person to person depending on the prescribed dose and duration of treatment, or
- Who suffers from polymorphous light eruption – light sensitivity disorder.
- Has a past history of developing pigmentation as seen in cases of post inflammatory hyper-pigmentation (PIH), or suffers from pigmentary diseases or disorders.

Other contraindications may exist; this list is not exhaustive and operators of IPL or lasers should seek formal training in full contraindications.

Complications and side effects associated with the use of IPL or laser

The complications and side effects associated with use of lasers and IPL in the treatment of skin conditions, including hair reduction, are:

- Damage to the eye and vision such as corneal abrasions, retinal burns, damage to blood vessels in the eye, macular damage (caused by light exposure), presence of 'floaters' (see as black spots that float across the line of vision), opaque spots on the cornea which can result in blurred vision or total blindness.
- Injury to the skin such as scarring, hyperpigmentation (darkening of pigmentation), hypo and depigmentation (loss of pigment resulting in pale or white areas), burns and blisters, infection, bruising (Purpura), prolonged redness and milia (tiny cysts), open skin injury (a wound), and in severe cases ; epidermal separation (a severe type of burn that causes epidermal and dermal tissues to slide apart)
- Skin eruptions, lesions from tissue trauma, occurrence of spontaneous welts (hive like reaction), and follicle-based infection or reactions (some of which are expected and normal), and demarcation lines.
- Worsening of pre-existing skin conditions such as acne, rosacea, and melasma
- Unexplained or stimulated hair growth due to IPL or Laser (paradoxical)
- Light induced hypertrichosis (due to subtherapeutic does of energy)

Regulations and guidelines in New Zealand

Relevant Australian / New Zealand Standards (AS/NZS)

- AS/NZS 4173:2018 - Safe use of lasers and intense light sources in healthcare
- AS/NZS 1337.4:2011 - Eye and face protection - Part 4: Filters and eye protectors against laser radiation (laser eye-protectors)
- AS/NZS 2211.9:2002 (Reconfirmed 2014) - Laser safety - Compilation of maximum permissible exposure to incoherent optical radiation
- AS/NZS 2211.1:2004 Safety of laser products - Equipment classification, requirements and user's guide (IEC 60825-1:2001, MOD)

The Ministry of Health provides advice to Government and the public on the health effects of non-ionising radiation; currently this does not extend to lasers or IPL devices used in beauty or aesthetic clinics.

Health & Disability Commissioner (HDC)

The Code of Rights establishes the rights of consumers, and the obligations and duties of providers to comply with the Code. It is a regulation under the Health and Disability Commissioner Act.

Fair Trading Act 1986 & Consumer guarantees act 1993

Providers of IPL and Laser treatments in beauty or aesthetic clinics should be aware of their legal obligations under the above mentioned acts as set out by the NZ Government. Consumers seeking light based treatments have rights under both of these acts.

NZSCM – New Zealand Society of cosmetic medicine

For doctors and nurses seeking training and professional accreditation in cosmetic medicine services. (Botulinum, fillers, sclerotherapy, etc..)

Guidelines for laser and IPL treatment in pregnancy

Pregnancy statement: quoted from AS/ NZS 4173:2018

"Some manufacturers do not recommend the use of IPL on pregnant and nursing women. However, it seems that there is currently no scientific evidence for pregnancy or nursing to a contraindication"

NZ Laser Trainings additional comments:

NZ Laser Training would contraindicate pregnant or breastfeeding women from laser tattoo removal treatments and radio frequency (RF) treatments, for safe practice. It should also be noted that as hair and pigment is stimulated by hormones, the desired clinical result may not be achieved by those seeking hair reduction, and or skin rejuvenation whilst breastfeeding or pregnant. It would not be advisable to conduct treatments of any kind on a woman in her first trimester for insurance and personal claim case situations.

Operating of IPL or Laser devices whilst pregnant

Due to the nature of IPL and Lasers being non-ionising radiation and therefore considered safe to humans; operating these devices whilst pregnant can also be deemed safe. There will be other considerations however such as standing for long periods, being able to reach, bend or move adequately; and it should be noted that devices emitting radio frequency or ultrasonic / ultra sound energies should be cleared by the specific manufacturer of that device. It should be up to the individual operator to make the final decision on whether they chose to use these devices whilst pregnant; and a risk assessment should be carried out periodically throughout their pregnancy term to ensure any risks or potential hazards are identified and managed. This would be conducted by the Laser Safety Officer or LHSO

Indemnity insurance

All clinics offering IPL or laser services should have sufficient public and professional indemnity insurance to provide cover for claims made by clients in cases of adverse events such as accidental beam exposure, moderate to severe adverse reactions or accidental overtreatment.

Additional recommendations from NZ Laser Training

- Operators of IPL or laser devices who have undertaken Level 1 or introductory training should only conduct hair reduction (and not skin rejuvenation) treatments. NZ Laser Training recommends 12 months of hair reduction experience prior to commencing services in skin rejuvenation due to the complex training required to offer this service.
- IPL and lasers should only ever be operated by appropriately trained personnel.
- Any client presenting for treatment who has actinic bronzing (chronic sun tanning history) and or a mixture of skin lesions (normal or not), should first be cleared by a medical specialist (i.e. gain written permission to proceed with IPL or laser treatment).
- Operators of IPL and lasers should be familiar with the risk of accidental treatment of Melanoma (a malignant skin cancer) and common skin cancers such as basal cell carcinomas (Bcc's) and squamous cell carcinomas (Scc's) in order to know when to refer clients for a skin check and when to avoid treating an area where suspicious lesions are present.
- The term 'skin lesion' is very broad and might include but not be limited to: Vascular abnormalities, Birthmarks, Pigmented spots, Moles, and Melasma or other such pigmented dyschromia.
- Operators of IPL and lasers should be familiar with the Health and Hygiene Bylaw 2013 and the associated Code of Practice issued by Auckland Council regardless of whether they are working within this region, as it provides useful minimum standards and best practice guidelines. Visit http://www.aucklandcouncil.govt.nz/en/licencesregulations/bylaws/pages/healthandhygienebylaw.aspx

Cleaning and sanitation for IPL or Laser devices

Although traditionally skin contact with IPL or Lasers was restricted to face and body areas, these days more intimate areas are being treated with these devices and as such there is an increased risk of cross contamination or cross infection between clients. Techniques and protocols observed were limited to use of alcohol wipes, we now understand better hygiene techniques and ingredients can be utilised to better prevent cases of cross contamination in the clinic setting.

Objective: *to prevent unwanted cross contamination or infection between clients, substances or surfaces and to aid clinics in creating their own necessary individual policies to develop their own work place procedures based on the requirements of this Standard to ensure that their reprocessing activities result in a safe RMD that is able to be used for diagnostic and/or treatment purposes and that is not hazardous to either staff or to the environment.*

Best indications for use:
Client's skin may contain bacterial, viral, sporicidal particles, and dirt, oil and debris which potentially causes build up on your IPL or Laser head, these can be transferred to subsequent clients and may cause cross contamination. The following are recommendations from NZ Laser Training, however please also check with your equipment manufacturer for specific information pertaining to your specific device.

- ☐ Skin preparation – used topically on the clients skin before application of IPL or Laser handpiece
  - Use: 70% isopropanol, Chlorhexidine skin wipes or liquid sprayed onto tissues, or alternative for those affected by sensitive skin, chlorhexidine or alcohol sensitivities.

- ☐ Cleaning the treatment bed, wipeable surfaces or equipment casing
  - Use: Medi-wipes containing Chlorhexidine and Alcohol

- ☐ Cleaning your IPL hand piece: (glass, pyrex, or sapphire crystal treatment window)
  - Bio- film removing agents, and or a clean tissue to remove excessive gel, or ejected hairs, then clean the surface using Chlorhexidine or Medi-wipe containing chlorhexidine and alcohol

- ☐ Cleaning your IPL glass filters: (Plug in filters responsible for changing the wavelength starting point)
  - Use acetone or Isopropanol alcohol – or as instructed by your equipment manufacturer
  - Use a clean microfiber cloth to polish

- ☐ Cleaning your laser treatment head or aperture: (Typically Metal or glass)
  - Use Medi-wipes containing Chlorhexidine and Alcohol

- ☐ Cleaning your stand off bars or attachments on the laser: (Plastic spot size wave guides or tips designed to be reusable)
  - Use Medi-wipes containing Chlorhexidine and Alcohol

- ☐ Cleaning your safety glasses: IPL or Laser safety goggles or glasses
  - Wash lens with warm soapy water, polish with a clean microfiber cloth.
  - Wipe plastic frames or parts of the glasses or goggles that come in direct contact with skin with Medi-wipes or Chlorhexidine
  - Do not reuse disposable adhesive eye shields.

Spaulding classification chart

Critical	Process to be followed	Examples	
Entry or penetration into sterile tissue, cavity or blood stream	Clean thoroughly as soon as possible after using Sterilize after cleaning by moist heat If RMD is heat or moisture sensitive, sterilize using an alternative process, e.g. automated low temperature chemical sterilizing process, liquid chemical sterilizing process, or ethylene oxide sterilizing process	**(Single use – Dispose after use)** **Dermal Needling Rollers or stampers** **Needle heads designed for single use**	Sterility must be maintained Packaged RMDs that are moist heat sterilized to be subjected to a drying cycle and then be checked to ensure drying has taken place before use or storage The integrity of the SBS must be maintained Wraps to act as an effective biobarrier during storage Unpackaged sterile RMDs to be used immediately (without contamination during transfer from sterilizer to site of use) or to be desterilised
Semi-critical Contact with intact mucous membranes or non-intact skin	Clean thoroughly as soon as possible after using Moist heat sterilization is preferred If the RMD will not tolerate moist heat sterilization use thermal disinfection or disinfection using a high level instrument grade chemical disinfectant	**IPL or Laser treatment head if used on genital areas**	Store to prevent Environmental contamination
Non-critical Contact with intact skin	Clean as necessary with detergent solution If decontamination is necessary, disinfect with compatible low level or intermediate level instrument grade disinfectant after cleaning	**IPL or Laser Treatment head if used on non- genital areas such as stand off bars, laser guides or plug in wavelength filters.** **Microdermabrasion tips**	**If detachable** store in a clean dry place to minimize environmental contamination

Common types of cleaning and sanitising agents available in New Zealand:

Chlorhexidine: Chlorhexidine is a biguanide compound used as an antiseptic agent with topical antibacterial activity. Chlorhexidine is positively charged and reacts with the negatively charged microbial cell surface, thereby destroying the integrity of the cell membrane. Subsequently, chlorhexidine penetrates into the cell and causes leakage of intracellular components leading to cell death. Since gram positive bacteria are more negatively charged, they are more sensitive to this agent
PHENOLICS - a class of chemical compounds that include phenol
Examples: Benzyl-4-chlorophenol, Amylphenol, Phenylphenol
Advantages and disadvantages: good general purpose disinfectants, not readily inactivated by organic matter, active against wide range of organisms (including mycobacteria), but is not sporicidal. (Does not kill spores)
Disposal guidance:· Benzyl-4-chlorophenol is a hazardous waste (halogenated organic compound) due to environmental persistence at concentrations above 0.01%. It also is a toxic hazardous waste at concentrations above 10%. It must be captured and properly disposed. Solutions below 10% can be disposed of through waterways.

HALOGENS - Examples: hypochlorites, bleach
Advantages and disadvantages: cheap, effective, act by release of free chlorine, active against viruses and therefore recommended for disinfection of equipment soiled with blood (because of HIV and hepatitis risk), but rapidly inactivated by organic material and corrosive to metals.
Disposal guidance:
Hypochlorite compounds, including bleach, are hazardous wastes at concentrations below 10% are allowed to the waste water system.
QUATERNARY AMINES
Example: Alkyl dimethyl benzyl ammonium chloride, Alkyl dimethyl ethylbenzyl ammonium Chloride

Advantages and disadvantages: effective at low concentrations. Inexpensive broadly effectivesurface disinfectant.

Disposal guidance:
· Quaternary amines designate as toxic hazardous wastes at concentrations above 1%. It must be captured and properly disposed. Solutions below 1% can be disposed to the waste water system.

ALCOHOLS
Disinfectants are substances that kill or inhibit the growth of microorganisms that are living on inanimate objects by destroying the cell wall or by affecting metabolism. Alcohol can be considered as a disinfectant as well as an antiseptic, antimicrobial agents that destroy microorganisms on living tissue. Alcohol affects the outer cell membrane of bacteria by making the lipids in the membrane soluble to water. This solubility causes the cell membrane to lose its structure, allowing alcohol into the cell where it denatures proteins. The denatured proteins become coagulated.
70% Isopropanol (IPA) is better than 100% - One hundred percent alcohol causes protein to coagulate instantly. The coagulated proteins create a hardened protein wall around the cell, protecting the interior. With the inside of the cell protected, the organism is not killed but remains dormant. Seventy percent IPA is combined with 30% water. This dilution allows protein

coagulation to occur gradually as the organism absorbs the alcohol at a slower rate. The microorganism is slowly overcome and dies.
When choosing alcohol as a disinfectant, it is important to pay attention to the percentage of alcohol. Too much alcohol will actually put a microorganism into a dormant state instead killing it. The right amount of alcohol will kill the organism by gradual deterioration of its proteins
Using 100% isopropanol alcohol requires dilution to 70% - for example: 70ml of 100% solution requires 30ml of water added to make it a 70% solution.
Examples and usage: ethyl alcohol (ethanol), isopropyl alcohol (isopropanol or IPA).
Comments: good choice for skin disinfection and for cleaning surfaces, sometimes used in combination with iodine or chlorhexidine. Water must be present for bacterial killing.
Isopropanol is preferred for skin and articles in contact with patient.
Disposal guidance:
Ethanol solutions are ignitable hazardous wastes at concentrations above 24% and must be captured and properly disposed. Solutions below 24% can be disposed to the waste water system.
Isopropanol solutions are ignitable hazardous wastes at concentrations above 24% and are toxic hazardous wastes at concentrations above 10% and must be captured and properly disposed. Solutions below 10% can be disposed to waste water system.

References & Sources:

- Protec Solutions
- Francie Morgan – infection control nurse
- NZ Laser Training advisory panel and associates

Definitions: "Breaking the skin" or "Risk of breaking the skin" can be determined or classified by the following terms

Wounds may also be referred to as open, in which the skin has been compromised and underlying tissues are exposed, or closed, in which the skin has not been compromised, but trauma to underlying structures has occurred *(e.g. a thermally induced column, or micro-wound caused by needling device)*.

Abrasion — Also called a scrape. The rubbing away of the skin surface by friction against another rough surface. I.e.: microdermabrasion, dermabrasion, or derma planning.

Avulsion — The forcible separation of a piece from the entire structure. *(i.e.: removal of hair follicle)*

Cut — Separation of skin or other tissue made by a sharp edge, producing regular edges.

Laceration — Also called a tear. Separation of skin or other tissue by a tremendous force, producing irregular edges.

Puncture — An injury caused by a sharp, narrow object deeply penetrating the skin. I.e.: micro-wound caused by needling device

Entering into a skin opening such as pores, or hair follicles *(i.e.: electrolysis)*

Information provided courtesy of: Protec Solutions Ltd

NZ Laser Training has been actively lobbying New Zealand governments regulating industry authorities since 2012 under its own merits, with no support from other industry professional bodies. Traction has been gained and some initiatives have now been undertaken as a direct result of these actions, however much work is still required. The formation in 2019 of the NZ Board of professional skin therapies now holds some promise in gathering collective support and action moving forward.

NZ Laser Training's recommendations for future regulation of the IPL & Laser industry

- All local New Zealand regional councils should have as a minimum, a health & hygiene standard that refers to beauty services, and safe use of devices such as IPL & Laser
- The definitions used by authorities should be clarified, and used consistently through all legislation for continuity and clear communication to operators of devices across industry
- Loopholes in Medsafe's classification of medical devices (therapeutic purposes bill) should be reviewed so devices that should be classed as medical devices are and better controls are put in place to control who can use, sell and operate them.
- Any formal associations representing industry could issue guidelines on the use of devices such as IPL, Laser, HIFI, plasma, radio frequency etc.. and ought to audit its members to verify that they follow industry best practice and therefore are held in high regard and are accredited by the association itself as competent.
- The implementation of CPD (continued professional development points) system could be extended from the nursing industry to the beauty industry in order to set up a minimum level of education to be attended annually.
- Suppliers of Intense light sources (eg: IPL) and lasers should obtain as a minimum, a laser safety certification to demonstrate they understand the regulations in New Zealand and the recommended best practice for dealing with complaints, and the differences between devices as well as the associated risks they each pose.
- Formal development of scope of practice guidelines should be developed to provide information and cautions about why certain treatments should be left up to the experts.

NZ Laser Training encourages all operators of IPL & Lasers to contact their local regional councils and make enquiries about health & hygiene bylaws in place (if any) – and to complete a submission to request that a bylaw be formed where none exist. For assistance in how to write a submission please email: ruth@nzlasertraining.co.nz