MOTUS SERIES

ALEXANDRITE / Nd:YAG LASER SYSTEM

TREATMENT PROTOCOLS

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Lynton

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Treatment Protocol for the MOTUS SERIES Alexandrite / Nd:YAG Laser Systems supplied by Lynton Lasers Ltd

1. INTRODUCTION AND TECHNICAL SPECIFICATIONS

The object of this document is to supply an Expert Treatment Protocol for the use of the MOTUS laser system for the treatment of unwanted hair, removal of benign vascular and pigmented lesions and skin rejuvenation. It is not intended to be prescriptive, or in any way replace thorough training; rather it is intended to be used as a constant point of reference that will be updated periodically.

This document describes the safe working channel within which treatments can be delivered.

The MOTUS Lasers have the following technical specification:

Model	MOTUS AX	MOTUS AY	
Laser Type	Alexandrite	Alexandrite	Nd:YAG
Wavelength nm	755	755	1064
Pulse Duration (ms)	2 to 50ms (single pulse) 4 to 80ms (twin pulse)	2 to 50ms (single pulse) 4 to 80ms (twin pulse)	0.2 to 50ms (single pulse) 0.4 to 50ms (twin pulse)
Spot size (mm)	Up to 20; Moveo handpiece	Up to 20; Moveo handpiece	Up to 20; Moveo Handpiece
Maximum Fluence / Energy	Up to 160 J/cm^2	Up to 200 J/cm^2	Up to 600 J/cm^2
Repetition rate	Up to 10Hz	Up to 10Hz	Up to 10Hz
Weight	90kg	90kg	
Dimensions	95 (H) x 51 (W) x 83 (D)	90 (H) x 51 (W) x 83 (D)	

2. CLINICAL APPLICATIONS

The MOTUS Alexandrite laser at 755nm is designed for the removal of dark unwanted hair to any part of the body on skin types 1-4. It is also suitable for the treatment of benign superficial pigmented lesions such as freckles and lentigines (commonly known as age spots, liver spots or sun spots). The MOTUS Nd:YAG laser at 1064nm is used for the treatment of vascular lesions, and hair removal in all skin types, including darker skins.

The MOVEO technology in the MOTUS series allows delivery of Alexandrite at 755nm or Nd:YAG at 1064nm in pain free mode for hair removal treatments on all skin types.

2.1 HAIR REMOVAL

The object of hair removal treatment is to target the melanin of the hair and cause heating of the hair follicle, without excessive collateral damage to the surrounding tissues. The parameters should be set according to the hair and skin type of the client, with lighter skins being able to tolerate higher fluences than darker skin types. All clients should be test-patched before treatment commences, but this is particularly important for

the treatment of darker skins, who should be treated at settings considerably lower than those used for fairer skins and using less aggressive wavelengths.

The available wavelengths of 1064nm and 755nm are the optimum wavelengths for hair removal in high and low Fitzpatrick skin types respectively. The long-pulsed Nd:YAG laser has the longest wavelength of all the lasers commonly used for hair removal and as such, shows a decreased affinity for absorption in the epidermal melanin. This reduced absorption results in less skin heating in comparison to other hair removal laser systems. Therefore, there is a lower associated risk of epidermal damage and the Nd:YAG is considered the only laser that is safe for use in standard delivery on Skin Type VI. The 1064nm in standard delivery should be used for hair removal on all patients with darker skins (Fitzpatrick Skin Type V and VI), as treatment with the Alexandrite laser is not appropriate, due to the high absorption of this wavelength in epidermal melanin.

The higher melanin absorption at 755nm means that the Alexandrite laser is considered to be the Gold Standard for hair removal in patients with Fitzpatrick skin type lower or equal to IV. The increased affinity for melanin also means that it is more effective than the Nd:YAG when treating fine, fairer hair (although blonde and grey hair cannot be treated).

When used in standard delivery, the energy emitted by a laser system is largely reflected by the skin, resulting in a significant portion of energy is lost during the treatment. The MOVEO handpiece optimizes the laser-skin coupling by enhancing the transmission of energy and uses a sapphire tip that comes into contact with the skin to decrease the amount of energy reflection during treatment. MOVEO technology allows the treatment of all skin types with the Alexandrite wavelength for hair removal by delivering lower fluences at faster repetition rates.

For hair reduction treatments with the MOTUS System, the area to be treated should be completely shaved leaving stubble no longer than 1mm in length. Client selection is paramount and white, grey, light blonde or very fair vellus hair will not respond and is not suitable for treatment.

Observable end points may include mild patient discomfort (likened to an elastic band flicking on the skin), peri-follicular oedema and mild to moderate erythema of the area. This erythema response is transient and should resolve in all cases within 1-24 hours. Severe erythema or discomfort may suggest over-treatment. After treatment the area should be cooled and a soothing lotion (such as Light Soothe) can be applied.

Multiple treatments are required for optimum results. Complete 100% hair loss is unlikely, although any hair that remains should grow back more slowly and be thinner and lighter in colour.

2.2 PIGMENT REMOVAL

Prolonged sun exposure can result in changes in skin pigmentation, and these benign, superficial pigmentation marks can be treated with the MOTUS Alexandrite laser. The 755nm wavelength is well absorbed by the melanin contained within the pigmented lesion, causing heating which destroys the melanocytes and the excess pigment is expelled from the skin via the process of skin renewal. Only benign, superficial pigment

can be treated such as freckles and lentigines (commonly known as age spots, liver spots or sun spots). Any deeper pigment, such as pigmented birthmarks, moles or melasma, should not be treated, nor should any pigmented lesions that look in anyway unusual, or that have recently changed in colour or size. Any suspicious lesions should always be examined by a dermatologist.

A darkening or 'greying' of the lesion should become apparent after treatment – this can sometimes take several minutes to occur. After this time has elapsed and if there is no visible change to the lesion or the surrounding tissue, the area may be treated again. General erythema may be seen in the area after treatment, and over the following 1-2 weeks, the lesion will form 'micro-crusts' which will gradually fade or flake off to leave an area without excess pigmentation. This sun-induced pigmentation can recur with repeated exposure to the sun so it is important to advise your clients to use a high sun-protection factor in the future.

2.3 VASCULAR LESION REMOVAL

Nd:YAG lasers emit light at a wavelength of 1064nm. At 1064nm, there is a broad peak (approximately 800nm to 1100nm) in the absorption spectrum of blood. Skin penetration depths are relatively high (approximately 3-4mm) at this wavelength, as there is little absorption by melanin. This deep penetration means that the Nd:YAG laser at 1064nm is particularly useful for the treatment of deeper or larger vessels, as the relatively low melanin absorption allows safe heating of the full thickness of the vessel with fewer risks of epidermal pigmentation changes.

2.4 SKIN REJUVENATION

Non-ablative photo-rejuvenation is a non-traumatic procedure, which can help to improve the signs of cutaneous aging. These signs arise mainly as a result of damage induced by ultraviolet rays on the structural components of the skin, such as the collagen and the elastic fibres. It's not uncommon to find people, even in their early thirties, with a marked loss of elasticity of the skin, presence of dilated capillaries (telangiectasia) and wrinkles. These signs of aging will continue to worsen upon further sun exposure. Photo-rejuvenation allows us to address the aspects of premature aging, due to light's ability to promote fibroblast activity and subtly restructure collagen within the skin. The longer wavelength of the Nd:YAG laser at 1064nm enables gentle heating of the dermis, stimulating fibroblast activity and growth of collagen and elastin to improve skin laxity, skin texture and to reduce the appearance of fine lines and mild to moderate wrinkling.

Treatment is pain-free, although there may be some very mild erythema following treatment. This redness usually subsides within an hour, and the patient is free to use make-up in the area.

3. CONTRA-INDICATIONS

Do not treat anyone who has:

- Tanned skin (real or artificial)
- Skin Pigmentation problems such as melasma (in or near the treatment area)
- A history of keloid scarring
- Pregnancy and Breastfeeding
- Severe photosensitivity
- Epilepsy within the last 12 months
- Cancer or other malignant disease
- A history of malignant melanoma
- Any active inflammatory skin condition e.g. eczema, psoriasis, Herpes Simplex in the treatment area
- Healing disorders such as those caused by Diabetes Mellitus, connective tissue disease (e.g. lupus), radiation therapy or chemotherapy
- Patients with unrealistic expectations, or who are unlikely to follow post treatment guidelines
- Immune / lymphatic system disorders
- Do not treat over any tattoos, semi-permanent make-up or moles (these can be covered with a white pencil if required). Pay particular attention to the presence of eye-liner, lip-liner or other cosmetic tattoos in the area being treated which may not always be obvious.
- Used St John's Wort, minocycline or amiodarone in the past month
- Used Isotretinoin (Roaccutane or Retin-A) or any drugs for Photodynamic Therapy (PDT) in the previous 6 months
- Used topical retinoids such as Tretinoin, (Retin-A, Aknemycin Plus,) Isotretinoin (Isotrexin), Adapalene (Differin) in the last two weeks on the area to be treated
- Used high dose systemic steroids in the past month
- Used topical steroids in the past week (in or near the treatment area)
- Has ever had a gold salt injection for the treatment of arthritis

Careful test patching should be carried out before treating anyone on any photo-sensitising medication in line with the British Medical Association Guidelines.

A GP letter should be requested before treating anyone where you are uncertain about any medical condition.

4. PRE-TREATMENT DOCUMENTATION AND TESTS

Prior to treatment, each client is to undergo a thorough consultation and a test patch. In addition, written information about the procedure should be made available to the client. During the consultation a full medical history will be taken in private and the treatment will be fully explained with any special circumstances to be documented. If any contraindications are identified, act on the directions listed for that condition (i.e., do not treat). After a medical history is obtained it is important to also:

- Reassure the patient of the high quality medical attention they will receive.

- Assess the area/condition to be treated. For example colour, density and texture of the hair / type of vascular/pigmented lesion. Explain the expected clinical results and ensure they are *realistic expectations*. Discuss the necessity of multiple treatments and the possibility of maintenance sessions.
- Explain the treatment process and discuss pain control and aftercare. Possible side effects of treatment should be discussed in detail.
- Explain the hazards of laser radiation and the need for appropriate goggles to be worn at all times.
- Carefully record the client's reaction to sun exposure and assign skin type using the Fitzpatrick Scale.
- Provide estimates of the total cost of treatment and methods of payment.
- Photograph the treatment site to allow actual progress to be demonstrated.
- Answer any questions that the client might have and record client comments.
- Ask the client to read, sign and date the consent form if he/she has understood its contents. Countersign the consent form and give the client a copy if requested.

CONSENT POLICY

Informed consent is a legal and medically imperative document that must be obtained before commencing any physical examination, treatment or personal care for a patient. The practitioner providing the treatment shall be responsible for ensuring that the patient has given valid consent before treatment begins.

Patients need sufficient information concerning the benefits, risks, alternative treatments, expected outcomes and fees before they can decide whether to give their consent. If the patient is not offered as much information as they reasonably need to make their decision, and in language they can understand, their consent may not be valid. A Health Questionnaire and Contractual Agreement to LASER or ILS Skin Treatments / Consent Form is used for this purpose.

Prior to any examination, skin test patch or treatment, every adult patient is required to provide informed consent to LASER or ILS treatment. If, as the responsible therapist, you have doubts about their competence, the question to ask is: "Can this patient understand and weigh up the information needed to make this decision?" Unexpected decisions do not prove the patient is incompetent but may indicate a need for further information or explanation.

Consent must be given voluntarily: not under any form of duress or undue influence from therapists, family or friends. Check your facility's policies and procedures concerning who can obtain the consent and the required documentation defined by your scope of practice. It is good practice to maintain contemporaneous hand-written notes to amplify advice. A signature on a consent form does not itself prove the consent is valid - the point of the form is to record the patient's decision - and also increasingly the discussions that have taken place.

Before examining, test patch procedure or treating a child, you must also seek consent. Young people aged 16 and 17 are presumed to have the competence to give consent for themselves. In other cases, someone with parental-responsibility must give consent on the child's behalf.

Giving and obtaining consent is usually a process, not a one-off event. patients can change their minds and withdraw consent at any time. If there is any doubt, you should always check that the patient still consents to your treating them.

If the client is suitable for treatment continue with patch-testing. A patch test must be performed on or as near as possible to the area prior to any course of treatment.

5. PATCH TESTING

- Patch testing must be carried out on all patients before treatment commences. If subsequent areas are to be treated then a test patch must be carried out in the new treatment area.
- The test patch should always be carried out using the wavelength that is to be used in treatment. If a client has previously been treated with one wavelength, it is necessary to re-test patch with the new wavelength.
- The aim of the test patch is to determine the most effective treatment parameters for the patient skin type and lesion type, without adverse reaction. Details on parameter selection can be found in the in-built system database and in the Clinical User Manual.
- Treat a small area in the desired treatment location. Typically, a test patch consists of a few shots only.
- Treatment area should be clean and void of all cosmetics and operator, client and any additional persons in the treatment room must wear the appropriate laser safety glasses.
- Test patches should not be carried out if a contra-indication is discovered during the consultation process. If written consent is requested from the client's doctor then this should be obtained before the test patch procedure.

6. TREATMENT TECHNIQUE

Following consultation and test patch, and having obtained written consent, it is important to follow a set routine at all treatment sessions. The regime advocated is as follows:

- Check that there has been no change to client's health or medications since the previous consultation or treatment.
- Examine the treatment area to identify any signs of scarring, pigment change or underlying skin disorders such as eczema. If there are any broken areas or pustules the treatment should be delayed until the area has completely healed.
- Clean the skin to ensure it is free from deodorant, perfume, make up, foundation or other creams and lotions.
- It is recommended that the area to be treated is photographed together with the patient's identification number. Before and after photographs taken at each treatment session will allow progress to be demonstrated.
- Operators should assess response to previous treatment and note accordingly.
- Ensure the patient is comfortable and all safety precautions have been followed before commencing treatment.

- Provide the patient and any visitors with suitable goggles for the wavelength being used. The operator is also to wear the correct eyewear.
- Set the treatment parameters based on the patient's medical history, patient's skin type and colour, density and thickness of the hair or size or type and colour of the pigmented/vascular lesion. Refer to the in-built database for further instruction.
- Large treatment areas such as the leg can be divided into smaller sections for ease of treatment. This may be done with a white make up pencil.
- Use an air cooling system or contact cooling for 3-5 seconds immediately before treatment. Limit cooling to a short time to prevent over-cooling the target.
- Begin treatment, taking care to ensure the client remains comfortable at all times.
- Accurately record treatment parameters, including fluence, pulse width, spot size, number of shots, accumulated energy, repetition rate, observations and any other relevant information in the client's record. Sign and date the entry.

7. SETTING THE PARAMETERS

The fluence should always be set as low as possible in order to achieve a satisfactory clinical response. Setting the fluence too high can result in excessive pain, blistering, skin pigmentation changes and possibly even scarring. Setting the energy density too low can result in no interaction and involve the patient undergoing further treatment. Treatment cannot be purely prescriptive and as in all high-energy laser treatments, individual tissue reaction and observed clinical endpoints for successful outcomes are the primary determining factor in setting device parameters. It is the operator's responsibility to evaluate each patient and each lesion and to treat that patient accordingly. Nonetheless, it is possible to provide a framework of guidelines to assist the operator in their evaluation. While each client is to be assessed on an individual basis it is possible to provide parameter guidelines to assist the operator in their evaluation.

8. PERMITTED VARIATION ON MACHINE VARIABLES

The highest fluence most tolerable for the individual client should be used during the laser treatment to ensure the best results. The exact energies should be determined through patch testing. However, the standard requirement on medical products is for machine variables to be accurate to ±20%. Lynton regard this as being too broad a range and ensure that outputs stay accurate to ±10% between recommended service intervals. In the unlikely event that re-calibration during a service visit results in a machine variable change that is more than ±10%, the customer is formally notified.

9. MOTUS TREATMENT PARAMETER GUIDELINES

Please refer to the Clinical User Manual for a detailed breakdown of parameter guidelines. It is recommended that operators use the in-built database, inputting skin-type, hair or lesion type and body area to determine the starting parameters.

10. TREATMENT INTERVALS

Hair removal treatments should be carried out at four weekly intervals for the face and at six to eight weekly intervals for the body. If a client should return for follow up treatment and very few hairs have returned, it is best to postpone treatment for a few weeks. Hair growth cycles and growth rates vary from person to person and for each anatomical area so treatment intervals are approximate only. It may be useful to allow longer intervals between treatments for hair removal treatments on the body such as the underarm, bikini and leg after the first three sessions.

Pigment treatments should be carried out at four to six weekly intervals. Again, if a client returns for a follow up treatment and all the excess pigment has not cleared it is best to postpone treatment for a few weeks.

Vascular treatments should be carried out approximately every 4-6 weeks. Bear in mind that the final result may not be apparent for several weeks following the treatment, particularly when treating vascular lesions on the legs.

Skin rejuvenation treatments should be carried out at 3-4 week intervals

Follow up treatment should not proceed if the area to be treated is inflamed, raised, broken, if the skin is tanned or pigment change is noted.

11. POST-TREATMENT CARE

Immediately after any treatment, the skin should be cooled. Cooling can improve patient comfort and reduce post-operative redness or swelling. Clients should be instructed in post-treatment care and should be provided with written take-home instructions recommending:

- Care should be taken to avoid trauma to the treated area for 4 or 5 days afterwards. Avoid strenuous activities, sauna and steam, excessively hot baths, massaging etc.
- If the area feels hot or swollen, the use of ice packs and / or aloe vera gel etc. can improve client comfort and reduce erythema and swelling.
- Wash and bathe as normal but take cool showers rather than hot baths. The skin should be patted dry and not rubbed.
- Make-up can be applied after several hours, if the skin is not sore or broken. However, we advise caution if the area is feeling sensitive. Remove make up carefully as rubbing the skin can cause irritation or infection. If the skin at the treatment area becomes broken, then make-up should be avoided.
- Following vascular treatments a bruise may appear at the treated area. This may last up to 15 days and as the bruise fades there may be brown discolouration of the skin. This usually fades in 1-3 months. When larger vessels are treated they may take on a darker colour. Again this may take up to four weeks to resolve as the body re-absorbs the damaged vessels.
- Use a sunscreen (SPF 30+) and protect the area from sunlight as much as possible between treatments and for at least one month after treatment ends. Failure to do this can lead to sunburn and hyper-pigmentation of the treated area.

(Most cases of changes in pigmentation occur when the treated area has been exposed to sunlight or in people with darker skin types).
- If blistering or crusting occurs, do not pick or scratch the treated area as this could result in scar tissue formation.

12. RECOGNITION OF TREATMENT RELATED PROBLEMS

Improper use of the system may result in possible side effects. Although these effects are rare and expected to be transient, any serious adverse reaction should be reported to the client's own doctor. Side effects may be immediate or appear shortly post treatment (0-24hrs); in rare cases there may be late emerging side effects (24-72hrs) and include:

IMMEDIATE

- Excessive pain: stop treatment and cool the skin. Review after 24 hours and re-start treatment at lower fluence (most common reasons, tanned skin, stress, menstruation and tiredness).

POST TREATMENT

- Excessive persistent heat and redness: Normally resolves in 24 hours. Cool the area regularly using cold packs and advise the client to apply aloe vera gel or after sun lotion as for mild sunburn until the sensation disappears. If the reaction persists the client should consult their doctor.
- Damage to the natural skin texture (crust, blister, burn): Obvious signs that a burn has occurred include: the presence of blisters or raised skin (this may arise immediately but can also occur up to a period of 24 hours); a greyish discolouration of the skin; extreme discomfort; severe erythema or any mark/reddening of the skin that occurs in the actual shape of the block. If the burn is deep, pressing down on the skin will not result in the blanching effect seen in normal skin. Burns such as these will require urgent medical attention. As soon as the burn occurs cool area thoroughly for pain relief. Hold the burned area under cool running water for 20 minutes (ideal temperature is 15°C). If this is impractical, immerse the burn in cold water or cool it with cold compresses or covered ice packs changed frequently. **Do not use ice or iced water.**
- Excessive swelling (oedema): Cool area immediately for effective pain relief.
- Herpes Simplex: Perioral areas are vulnerable to Herpes Simplex after laser therapy. Susceptible patients should be advised to be alert for any pre-cursor symptoms of herpes and to take appropriate action. If relatively high pulse energy and total density are used in one session consider prescribing an oral anti-viral medication for about three days post operation to help prevent simple herpes.

LATE EMERGING

- Change of pigmentation (hyper or hypo-pigmentation): Moisturise and protect from sun exposure. Contact GP if condition persists.
- Scarring and textural changes of the skin. Contact GP if condition persists.
- Ineffective lesion removal: Re-assess client history and increase fluence dependant on skin reaction. Remind client that some people will not respond satisfactorily to laser removal procedures.

NB: Only re-treat an area where any problems have occurred after full healing and always repeat test patching.

13. ACTION TO BE TAKEN IN THE EVENT OF AN ADVERSE REACTION

If anything goes wrong during treatment such as untoward skin reaction, excessive pain, client taken ill, etc., treatment should be abandoned immediately. (NB: If necessary, the emergency stop button should be pressed to prevent any further emission of laser light. Also see section 'In the Event of Equipment Failure.' Appropriate information should be recorded in the client notes of extent of the partially completed treatment with details of any untoward side effects. An 'Untoward Incident Report' should be completed and the laser manufacturers informed.

Suspected eye damage or serious skin damage should be referred immediately to the A&E Department of the nearest hospital or via the client's GP to an appropriate medical specialist if necessary. The following action should be taken in result of a burn:

As Soon as a Burn has Occurred

- **Stop the burning process** (stop using the laser)
- **Cool the burn.** Hold the burned area under cool running water for 20 minutes (ideal temperature is 15°C). If this is impractical, immerse the burn in cold water or cool it with cold compresses or covered ice packs changed frequently. **Do not use ice or iced water.** Putting ice directly on a burn can cause frostbite, further damaging your skin.
- **Take an over-the-counter pain reliever** if required**.** These include aspirin, ibuprofen, or paracetamol.

Short Term Recommendations

- It is not necessary (or recommended) to use antiseptic creams or lotions.
- If the area has small, intact blisters, no dressing is required and exposure to the air is recommended. **Do not break small blisters.** Fluid-filled blisters are sterile and protect against infection. If large blisters form, seek medical attention.
- If the burnt area is open and moist looking, or if blisters have burst, cover the area in a paraffin gauze dressing such as Jelonet. Dry gauze dressings used with a layer of Vaseline may be substituted if paraffin gauze is not available. Change the dressings every 2-3 days.
- Elevation of the burnt area will help to reduce swelling.
- **Do not pick blisters or scabs.** This will drastically increase the risk of scarring.

Long Term Recommendations

- Massage moisturiser into the skin twice daily until the area has completely healed.
- Newly healed skin can be more sensitive to the sun and may be prone to pigment changes on sun exposure. For this reason, use high factor sun cream or avoid sun exposure on burns that are less than a year old.
- Deeper burns may result in the formation of a scar. If there is evidence of a raised or lumpy scar forming, consult a doctor immediately.

Minor burns usually heal in about 1 to 2 weeks without further treatment. Scarring is uncommon in superficial burns but pigment changes in the skin may occur. These changes may be permanent but will often resolve within 12 months. Watch for signs of

infection such as increased pain, redness, fever, swelling or oozing. Infection will cause poor healing and further damage. If infection develops, get medical help immediately.

14 PROCEDURE TO BE FOLLOWED IN THE EVENT OF EQUIPMENT FAILURE

In the event of equipment failure, treatment should be abandoned IMMEDIATELY and the emergency stop button pressed and / or the key removed to prevent any risk of further treatments being carried out. Remove the mains plug. Details should be recorded in the client record sheet of the partially completed treatment and with details of any untoward side effects. A Lynton Lasers service engineer should be contacted immediately and informed of the circumstances of equipment failure, including any warning messages that may have been displayed. The equipment should not be used until passed for use by the appointed service engineer.

This protocol should be adopted in conjunction with the MOTUS series User and Training manuals provided by the manufacturer and the 'Local Rules' provided by the certified Laser Protection Advisor, as these will contain important information to be followed by the operator in respect of;

- potential hazards associated with this type of laser
- controlled and safe access to the Controlled Area
- the authorised users' responsibilities
- methods of safe working and safety checks
- normal operating procedures
- personal protective equipment
- prevention of use by unauthorised persons
- adverse incident procedure
- further information on infection control and cleanliness

15. INFECTION CONTROL AND CLEANLINESS

In order to prevent cross contamination, potential infections and unwanted reactions, certain measures should be put into place that must be followed:

GENERAL PRINCIPALS

- Workplace, furniture, furnishings, telephones and fittings shall be kept clean and free from visible dirt. The whole of the premises is a non-smoking area.
- Where possible utilize appropriate single use, packaged items and discard them after each treatment. Follow protocols for the disposal of sharps, such as razors, which need to be discarded in designated sharp containers. No attempt should be made to recycle or reuse disposable equipment designed for single use.
- All lighting, heating and ventilation installations will be in accordance with the Health & Safety Commission Approved Code of Practice (Workplace – Health, Safety & Welfare Regulations 1992) [ ].
- It is good practice to have all electrical appliances safety tested annually (PAT – Portable Appliance Test) and evidence of testing (e.g. PAT labels) should be affixed to plugs and appliances. Make sure any local regulations about electrical safety testing of fixed and portable appliances are observed.

TREATMENT AREA CLEANING

- The treatment room should have a daily, weekly, and monthly environmental cleaning schedule.
- Depending on the surface material, floors should be vacuumed daily or mopped cleaned utilizing a general-purpose disinfectant. All horizontal surfaces should be cleaned with a hospital-grade disinfectant or a bleach solution (hypochlorite concentration 1000 ppm).
- Clean couches daily and change disposable couch roll between patients. Hair residue on working surfaces may be removed between patients using a lint roller. Empty waste receptacles daily.
- Toilet facilities with hot and cold running water are available and must be cleaned and disinfected daily. Liquid soap and disposable paper towels will be provided.
- Towels and washcloths used when washing the skin or used to maintain patient privacy and dignity when treating intimate body areas, should be changed or cleaned after every patient. Employment of a laundry service or machine-washing of these towels should be performed using in a dedicated washing machine at 90°C and dried using a high heat cycle.

LASER & IPL APPLICATOR HEAD CLEANING

- Before and after all treatments, goggles, laser handpieces and IPL lightguides must be disinfected using either alcohol or methanol wipes and dried thoroughly before use
- When using the AQS arm for tattoo removal and Fractional 2940nm Er:YAG for resurfacing, there can be a degree of plume and tissue spatter. It is advisable for practitioners to wear face masks when carrying out these treatments to prevent inhalation of said plume and tissue spatter.

HAND HYGIENE

- Use disposable paper towels or hot air hand dryer after hand washing whenever possible. Change reusable towels between patients. Wash reusable towels in a dedicated washing machine at 90°C.
- Good hand washing technique is an ESSENTIAL part of infection control as many infections are spread by hand contact. Hand washing should be performed routinely before and after contact with each patient and includes:
    - use of liquid antimicrobial soap and water for at least 15 seconds;
    - alcohol based hand rubs can be substituted when hands are not viably soiled;
    - before and after eating, after using the toilet.
- Staff developing skin reactions to hand disinfectant products or with pre-existing skin conditions should seek medical advice.
- Hand disinfection is necessary only in specific situations e.g. dealing with infected patient or inadvertent contamination of hands.
- Water based:
    - Wet hands and wrists before applying antimicrobial soap;
    - Apply cleanser;
    - Ensure all hand and wrist surfaces are well covered with lather;
    - Rinse off lather;
    - Dry hands thoroughly to avoid chapping.
- Alcohol based:
    - Antimicrobial and alcohol hand rub (e.g. ‘Hibisol’) should be used on unsoiled dry hands;

- Ensure all hand and wrist surfaces are well covered with the hand rub, and then massage hands together until dry.
- Use hand lotion (supplied in pump dispenser) regularly to avoid chapping of hands.

GLOVE POLICY

- The hands of laser operators are the most likely means of transmitting infection to others. The purpose of wearing gloves is to:

  - protect the hands from becoming contaminated with dirt and micro-organisms;
  - prevent the transfer of organisms already present on the skin of the hands and to minimize cross infection.

- Non-sterile gloves of appropriate quality should be used i.e. domestic type rubber for cleaning purposes and nitrile or vinyl examination gloves for patient procedures.
- Gloves must be made easily available for staff use, including the procedures described in this workbook. Standard precautions should be followed when working with LASER or IPL patients, which are the basic level of infection control measures in the care and treatment of patients. Gloves must be changed between performing each procedure. Hands should always be washed after wearing gloves.
- NITRILE or VINYL GLOVES MUST BE USED for handling blood stained items or contaminated with body fluids. Latex gloves are not recommended due to latex sensitivity.
- Disposal: Gloves are clinical waste and disposed of in the designated trash containers.

MRSA CONTROL

If a patient is identified as MRSA positive they should be referred to a clinic for treatment advice before an elective cosmetic procedure is performed.

BLOOD BORNE INFECTIONS

Where LASER treatments involve the possibility of puncture of the skin barrier e.g. Q-switched lasers, infection control procedures for blood-borne viruses or blood aerosol contaminants are particularly important e.g. use of gloves and N95 respirator mask.

16. FURTHER INFORMATION

This protocol is only to be used by registered persons or operators authorised and trained to use the MOTUS Series Laser System in conjunction with ‘Local Rules’ and within the confines of the ‘Controlled Area’ of the named establishment.

17. APPENDIX 1

The Equality Act 2010

Under the Equality Act 2010 several everyday situations encountered routinely in the LASER or ILS clinic have ‘protected’ status. These conditions automatically include, amongst others, pregnancy, cancer, HIV infection, multiple sclerosis, severe disfigurement (excluding tattoos), blind or partially sight-ed people. In the event of disinclination or refusal to treat a person with any of these conditions could imply a

breach of the Act and expose the clinic, its staff and professional consultants to liability claims.

Several of these conditions are often identified by LASER and IPL manufacturers as contraindicated for light-based therapy so caution needs to be exercised when confronted with a request for treatment.
Reasonable adjustments that could be made, for example, in the case of HIV / AIDS are:
- Patient to provide current evidence from G.P. that the HIV viral load is undetectable;
- Operator to use single-use nitrile or vinyl examination gloves and single-use N95 respirator mask;
- Operator to avoid highest LASER or IPL settings to reduce risk of blister / burn;
- Treatment provision to be confirmed with appointed Expert Medical Practitioner (EMP).

18. APPENDIX 2

GUIDANCE ON PHOTOSENSITIVE MEDICATION

Drugs & Lasers/IPLs

Guidance provided by the British Medical Laser Association

Issued December 2009

Important
This advice relates to non-essential aesthetic laser applications and reflects the best data available at the time of this report. Caution should be exercised in interpretation; the results of future studies may require alteration of the recommendations in this document.

The following is a consensus opinion of interested parties from the laser and light source world in the UK and takes into account:
a) Personal opinions
b) Theoretical perspectives
c) Evidence from practical use over very large numbers of clients/patients.
d) Reporting of adverse events in clinical trials and in post marketing surveillance studies.

Background
There has been a general trend within the industry to provide end-users of laser devices with guidance on which drugs to avoid to minimise the possibility of drug induced photosensitivity reactions. This guidance has often, in the opinion of the authors, been largely based on an inappropriately rigid inter-pretation of what data exists.

Reports of photosensitivity reactions as a result of drug administration do occur, but we believe that these reactions have been reported to regulatory bodies with no indication of the wavelength of light that has been responsible. Accurate data are lacking generally.

Phototoxicity generally results from exposure to UVA (315-400 nm) radiation with some drugs show-ing sensitivity into the visible region of the spectrum up to about 460 nm. For

laser/IPL devices emit-ting wavelengths above 500 nm there is very little likelihood of such a reaction for the vast majority of drugs

Other drugs may have an effect on the skin's healing ability without causing photosensitivity.

Practical Advice
Information regarding all drugs a patient / client is taking should be recorded including:
a) over the counter drugs
b) prescribed drugs
c) herbal remedies.

1. Photosensitising drugs that are CONTRAINDICATIONS to laser therapy.

a. Drugs causing marked whole-body sensitivity – wait 6 months

Drugs administered for systemic Photodynamic Therapy (PDT), e.g. Photofrin, Foscan.

b. Drugs causing marked localised light sensitivity – wait 6 weeks

Drugs administered for localised PDT, e.g. ALA, Metvix.

2. Other drugs that may cause Photosensitivity

Any treatment should be performed with caution. Test carefully and treat small areas initially. If in doubt, do not treat.

If the client / patient wishes to proceed with treatment, the increased risk of hyperpigmentation / photosensitivity should be emphasised and documented.

a. Amiodarone – risk of hyperpigmentation and photosensitivity.

b. Minocycline (Minocin) – risk of hyperpigmentation. Recommend stopping 4 weeks prior to treatment or consider change to alternative.

c. St John's Wort – risk of photosensitivity. Recommend stopping 4 weeks prior to treatment.

d. If taking other medications or herbal remedies of any sort then careful initial test patch, wait 4-7 days in the case of hair reduction and 4-6 weeks in the case of vascular/pigmented treat-ments.

e. If client starts a BNF named photosensitiser then repeat test patch.

3. Drugs which may affect the healing of treated areas.

Any treatment should be performed with caution. Test carefully and treat small areas initially. If in doubt, do not treat.

a. Oral Retinoids – wait 6 months after completion of the drug course

Isotretinoin (Roaccutane), acitretin (Neotigason), alitretinoin (Toctino)

b. Topical Retinoids – stop use 2 weeks prior to laser, recommence once area is healed.

Tretinoin (Retin-A, Aknemycin Plus), isotretinoin (Isotrexin), adapalene (Differin)

c. Oral Steroids – Wound healing impairment is dependent on potency, dose and duration of use. It is advisable to check with the prescribing physician if laser treatment can proceed safe-ly. When possible, wait 4 weeks off drug and avoid use immediately following laser therapy. Recommence use once treated area is healed.

Betamethasone, cortisone, deflazacort, dexamethasone, hydrocortisone, methyl prednisolone, prednisolone, triamcinolone

d. Topical Steroids – Wound healing impairment is dependent on potency, dose and duration of use. It is advisable to check with the prescribing physician if laser treatment can proceed safe-ly. Wait 1 week prior to treatment and avoid use immediately following laser therapy. Re-commence use once treated area is healed.

Disclaimer

This should not be considered as an exclusive list of drugs that may interact with the laser treatment. It does not replace any advice or instruction issued by a registered medical practitioner, pharmacist or other registered health professional. The information provided is without any implied warranty of fit-ness for any purpose or use whatsoever.