

The Future of Light in Medicine

Medlight, The Therapeutic Light Experts

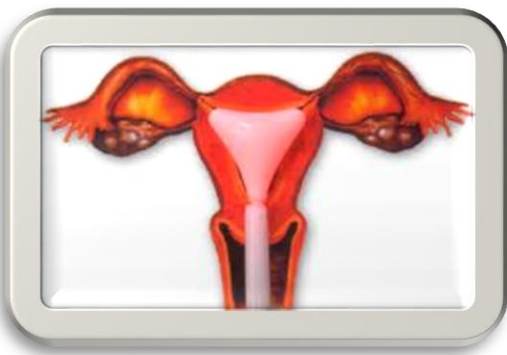
Medlight has unique experience in clinical applications of light. Since 1997, our products have been used by more than 35 biotech companies in over 70 different diagnostic and treatment applications, including the treatment of Parkinson's disease via devices implanted in the brain and the *in situ* curing of coronary stents. The highest volume applications are in oncology, ophthalmology, dermatology and dentistry. The diversity of applications has placed our products in many global markets necessitating respect of different regulatory requirements.

To meet our customers' demands, Medlight offers a range of services from delivering customized products & prototypes through to marketing standard CE marked medical devices, both in quantities from 10 units per year to 5,000. For larger volumes, we are in negotiations for technology transfer to mass production partners.

Medlight wishes to further push back the frontiers of medicine by continued focus on the premarketing project stages. Through collaborations with pioneers in the field, we can revolutionize the use of light in medicine to achieve the best patient care. We see the future of light in medicine depending on an optimized device for each indication.

One Indication – One Device

The future begins today.



One Indication – One Device: Treatment Package for Menorrhagia-PDT

SUMMARY

Medlight is beginning a new wave of development in medical devices for accurate light dosimetry. Devices optimized by indication or indication-drug combination ensure the best usability and treatment outcome, reducing the risks to the patient and user.

One Indication – One Device

To achieve this goal, Medlight is seeking active, cooperative collaborations that offer the possibility of new IP or manufacturing technologies, but with the ultimate objective of offering patients the best treatment.

Therapies using light touch a broad and increasing patient population: photobiostimulation and immunomodulation are being applied to previously untreatable diseases and photodynamic therapy offers to overcome microbial drug resistance. This growth requires a new approach to light dosimetry.

The One Indication – One Device concept offers to improve the market potential of current applications and accelerate passage of new applications through the clinical pipeline. This innovation provides accessible, practical and usable light delivery solutions, standardized for a dependable clinical outcome.

MEDLIGHT OFFERS

- IP protected state-of-the-art technology.
- Reliable service from concept to mass production.
- Experience in supporting partners through technology development and into the clinic.
- On-site regulatory affairs with global marketing knowledge.
- Optimized solutions for the best treatment outcome.

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Light dosimetry and propagation are central to positive treatment outcomes in phototherapy. These factors are influenced by the technology used to deliver light to the tissue. Medlight offers services from concept to production of state-of-the-art light delivery devices and has options for

technology transfer, licensing and mass production.

Working with Medlight avoids problems from documentation omissions through to miscomprehensions of light dosimetry, which could delay or block entry into the clinic.

Whilst generic fiber optics do have a place as investigational devices and may form part of a

One Indication – One Device: Precise illumination in dermatology

treatment package, the patient cannot be offered the best treatment without some level of device adaptation for each indication. As the therapeutic use of light touches many diverse treatments, optimization for any two applications is often mutually exclusive. Optimization includes specifically adapting features for ultimate device usability, repeatability and risk reduction.

Optimized light dosimetry optimizes the treatment outcome.



One Indication – One Device: An Isotropic Probe may be included in a Treatment Package. This probe offers for accurate measurement of light and its small size, shown here next to a match, allows *in situ* use.



One Indication – One Device: Treatment Package for Barrett's esophagus

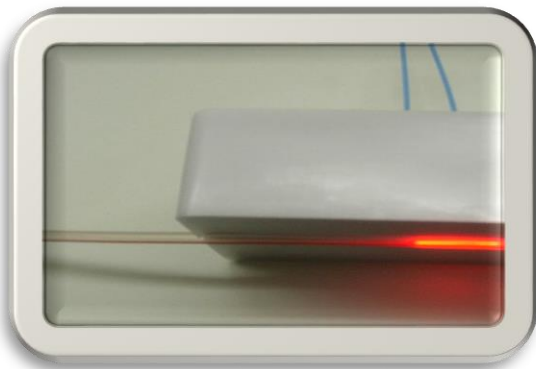
The future of light in medicine depends on fiber optic devices with optimized usability and light delivery for each indication: One Indication – One Device.

Medlight is a unique structure with practical experience and expertise in medical light dosimetry from concept to the clinic. Working cooperatively with health care professionals, industrial partners, academics and the pharmaceutical industry, we develop specific medical devices for therapeutic light delivery.

Medlight offers “One Indication – One Device” services at all stages in the medical device lifecycle

Situation: Today's patients seek the best treatment. Trustworthy pharmaceutical brands for the diagnosis, prevention and treatment of disease provided by health care professionals with extensive levels of expertise and specialized training in a specific medical field. As well as offering perhaps the highest quality service and greatest choice for the patients, the experts and centers of excellence become the frontline in treatment development, striving to improve therapies and stepping out to implement compassionate use of drugs and devices when a need arises. To support this commitment to push back the frontiers of healthcare, close relationships with the medical device and pharmaceutical companies are essential.

Challenge: Applications involving light are dependent on the amount of light produced by a laser or LED source over the treatment time; the general illumination profile; the amount of light delivered to different parts of the treatment site and how light is propagated in the tissue. As optimized light dosimetry optimizes drug performance, overlooking the importance of light delivery devices can cause complications for the physicians and introduce unnecessary risks, which can delay approval and block market expansion.

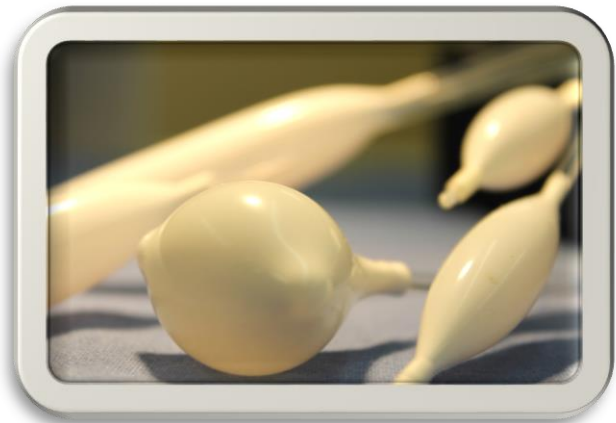


Medlight services include accurate characterization of device properties

Solution: Medlight are the therapeutic light experts. Our team of physicists, engineers, production line managers, biochemists and regulatory affairs experts cover all stages of the medical device lifecycle from concept through to mass production. We offer concept appraisal, computer aided design, testing and modelling protocols, *in situ* light detection, training, CE marked fiber optic light diffusers and a range of customized catheters to ensure light delivery gives the best treatment outcome.

We see that the future of light in medicine is dependent on indication-specific light delivery Treatment Packages, matched with a light source and photosensitive agent, where applicable. The Treatment Package would optimize light dosimetry for each indication considering, for example, the specific properties of the photosensitizer, including the excitation profile and tissue distribution.

Result: Optimization of light dosimetry for each indication or indication-drug combination ensures patients receive the best care, allows healthcare professionals to provide the best service and streamlines the drug development process.



Prototyping service for indication-specific devices.

One Indication – One Device

- Increases treatment efficacy
- Reduces side-effects
- Simplifies continual improvement
- Advances usability
- Reduces risks and user error
- Allows for the development of state-of-the-art devices for the best patient care

Medlight is a Swiss, ISO 9001 & ISO 13485 certified medical device company that develops optimized light dosimetry solutions for the best treatment outcome. Our established network of collaborators covers all stages of the medical device lifecycle. The company portfolio comprises of design concepts and a series of laboratory, investigational, CE marked and indication-specific medical devices in Treatment Packages for accurate light dosimetry. Medlight products are now available for technology transfer, allowing the Medlight team to realign its focus toward the design and development of light dosimetry solutions to give the best treatment outcome.

Medlight





THE LIGHT CHALLENGE

The challenge of beneficial light dosimetry touches different aspects of health. On a macro level, insufficient sunshine can cause weak bones and muscles, yet too much can cause skin damage leading to cancer. Obtaining the right dose depends on delivery (angle, filters etc.) and the environment. For example, skiers in Switzerland are all too aware how weak winter sunshine can be intensified, burning exposed skin.

Dosimetry is just as critical on a micro-level where the outcome of light-based medical applications change due to small differences in light delivery and the treatment environment. As with sunshine, the results vary from a weak – perhaps ineffective – treatment through to tissue damage.

Medlight, the therapeutic light experts, are promoting a new concept to ensure the best treatment outcome: state-of-the-art light delivery systems optimized for each indication-drug combination.

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