

# VISIBLE LIGHT THERAPY

JUNE 2018 TECH BRIEF FOR HEALTH CARE  
TALENT NETWORK



## A Paradigm Shift for an Ancient Cure

Light therapy has long been used to treat skin conditions, [Seasonal Affective Disorder](#) and as part of a “[rest cure](#)” for arthritis. Today, photomedicine is being used alongside surgery and pharmaceuticals. Examples of current photomedicine use:

- 1) relief of chronic pain or muscle stiffness
- 2) healing of skin disorders such as psoriasis, graft-versus-host disease, acne and less-well-known skin ailments
- 3) reversing jaundice in newborns
- 4) correction of abnormal blood circulation and
- 5) as oncological therapy – cancer treatment

Photochemotherapy is not currently widespread even though it has fewer side effects than other chemotherapy options. However, given the number of clinical trials and patents being awarded, we can predict that the field will grow.

Phototherapies are also used for profitable, elective procedures such as body sculpting, tattoo removal, hair removal and skin resurfacing. Such procedures are growing in popularity. These therapies do not require a clinical setting, which means that there will be jobs spreading throughout the state.

## Labor Force Takeaway

Most workers have a passable understanding of the physics of light, e.g. white light is made up of different wavelengths which explain the phenomena of rainbows and prisms. It doesn't take that much more knowledge to understand phototherapies, although it does not seem to be commonly taught.

Phototherapy as an upskilling class, or as own certificate, has possibilities to improve the employability of healthcare paraprofessionals, dislocated workers and administrative personnel. After basic photonics is covered, the curriculum will essentially be different ways to use light to kill cells. This may seem like specialized knowledge, but once obtained, it will make it easier for workers and clinicians to make lateral moves. One may presume that there will also be upward mobility as photochemotherapy treatment centers grow.

# Phototherapy and Aesthetics are Highly Visible

Cancer photochemotherapies such as photodynamic therapy (PDT) use [photosensitizing agents](#) which are injected into the body. These agents kill cancer cells after the molecules have been activated or “turned on” by certain wavelengths of light. The use of light for medicinal purposes has many [advantages](#):

- As cancer treatments go, PDT can be one of the least expensive
- Light therapy has no long-term side effects when used properly
- It is less invasive than surgery
- It usually takes only a short time and is most often done as an outpatient
- It can be targeted very precisely using laser technology
- Unlike radiation, PDT can be repeated many times at the same site if needed
- There’s usually little or no scarring after the site heals

There are severe [limitations](#) though. Only cancers or diseases caught early and/or on surfaces that can be accessed by light such as skin or surface areas exposed during surgery or arthroscopic procedures can be treated.

Another technique is thermal ablation which uses heat rather than a chemical to kill cancer cells. The National Institutes of Health’s Clinical Center highlights [radio-wave ablation](#). Other frequencies can be used, and *are* used, for non-oncological treatments.

**Uninsured procedures such as tattoo and hair removal, body sculpting and skin resurfacing are becoming very popular in wealthy parts of the US, like New Jersey.**

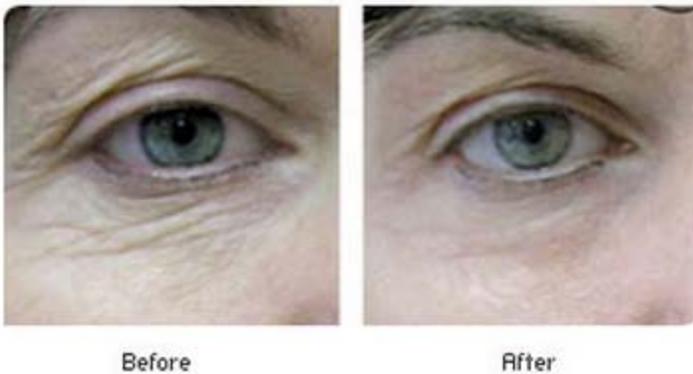


FIGURE 1 [HTTPS://WWW.SKINLASER.COM/CARBON-DIOXIDE-CO2-LASER/](https://www.skinlaser.com/carbon-dioxide-co2-laser/)

In terms of upcoming job creation, the use of phototherapies for cosmetic purposes should not be overlooked. Consider the laser therapy used to erase wrinkles around the eyes shown in Figure 1. Although such procedures are (generally) not covered by medical insurance, people will spend their own money to look younger and healthier.

Non-medical players are entering the field. L’Oreal Paris received a US patent for method and apparatus for [acne treatment](#) using low-intensity light therapy.

Body sculpting is another coveted treatment that does not necessarily involve surgeons and hospitals. It works because [fat is more temperature-sensitive](#) than skin. Fat cells will die before skin cells when treated with thermal ablation or cryotherapy such as cool sculpting. Non-invasive fat reduction procedures increased [7% during 2017](#).

Upskilling classes should cover both medical and cosmetic uses of phototherapy. [Cosmeceuticals](#), like nutraceuticals, is a nascent, growing industry that NJ can leverage for job growth.