**Chronologic Laser Advances & Applications**

**ACNE & ACNE SCARRING**
- Using non-invasive LEDS, non-laser blue fluorescent light, LEDs alone or in combination with topical aminolevulinic acid (ALA), resistant acne can be improved. Mid-infrared lasers (1320 nm, 1450 nm and 1540 nm) can non-selectively damage sebaceous glands by heat to temporarily improve acne. Acne scars can be improved with multiple retreatments with pulsed dye laser.

**BODY ODOR**
- HAIR REMOVAL Permanent hair reduction has been achieved with many prescription devices including normal mode ruby, normal mode alexandrite, diode, Nd: YAG and IPL. All are minimally painful and require multiple retreatments for maximum hair reduction. Several over-the-counter diode laser devices have received FDA clearance for home use and have proven to be safe and effective, although, like the prescription device, multiple retreatments are required.

**HAIR**
- The first laser to be successfully used to treat vascular lesions was so insufficiently precise in its absorption that it caused epidermal injury, significant pain, long healing times, incomplete removal and sometimes, permanent scar and depigmentation.
- COPPER VAPOR LASER This large, cumbersome device produced a small beam of yellow or green light which often gave better results than older technologies, but required long, painful treatments.
- PULSED DYE LASER This laser used the new concept of selective photothermolysis to permit the safe and effective treatment of children. The large spot sizes coupled with dynamic cooling allowed rapid treatment and reduced pain. It remains the gold standard for treating children with vascular lesions.
- POTASSIUM TITANYL PHOSPHATE (KTP) CRYSTAL This frequency-doubled Nd:YAG laser gave good results especially in the treatment of facial telangiectasia.
- INTENSE PULSED LIGHT (IPL) This non-laser used a large beam of filtered light of different wavelengths to treat large areas of solar damage and telangiectasia in adults.
- ND:YAG Longer pulses of 500 msec light at 1,064 nm was beneficial in the treatment of facial reticular veins in adults.
- ALEXANDRITE Long pulses of 2-20 msec light at 755 nm is effective in the treatment of facial reticular veins in adults.

**WOUND HEALING**
- CO2 Can be used to bloodlessly excise larger keloids to reduce the size and density which makes steroid injections more effective, but recurrences are common.
- PDL Excellent results following pulsed dye laser (PDL) treatments have been demonstrated with pre-sternal hypertrophic scars. A series of treatments is typically required.