If I had a magic wand....Wish list of a dermatologist (Conference Presentation)

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ABSTRACT

Challenges in dermatology that can be addressed by photonics research will be explored. Non-invasive, real-time diagnosis of skin lesions would eliminate biopsy risks, minimize patient anxiety by providing more rapid answers and allow diagnosis and treatment in a single visit. Multiple approaches have been tried, but significant limitations of current technologies make them impractical for routine clinic implementation. Photonics can also be used for treatment assessment to determine if intervention is adequate or if further treatment is needed. Ideal feedback should be non-invasive, rapid and accurate. Monitoring for potential adverse effects can greatly improve treatment safety, allowing clinicians to push the limits of therapy while preventing serious complications. Light based therapies can also be improved by increasing photon penetration and selectivity for targeted cells or skin structures. Current light based treatments are in many cases limited by photon penetration. In addition, we often seek to damage a specific chromophore but are not able to distinguish between targeted disease and non-targeted normal structures such as the cells of a melanoma and normal melanocytes and port wine stain versus normal vasculature. Scientist and clinician collaboration can address these and other issues and greatly improve patient care.

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