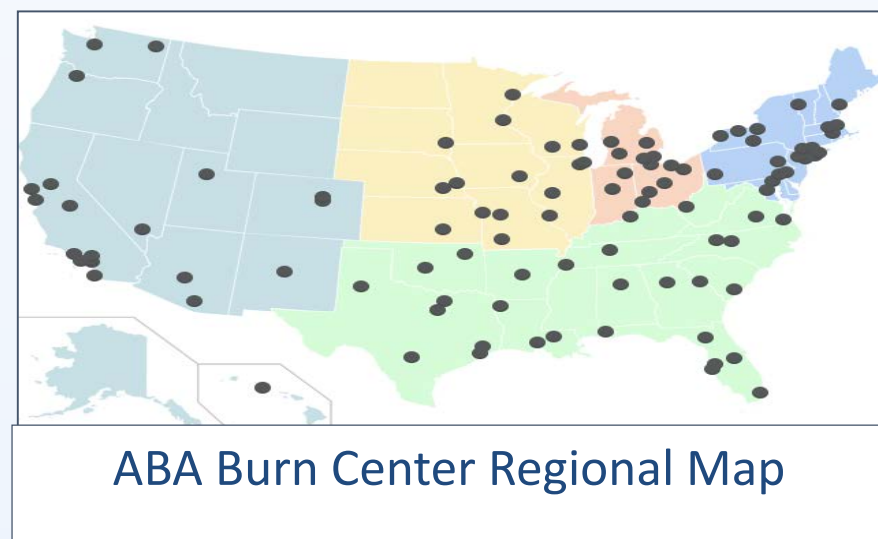


Burn Wound Treatment

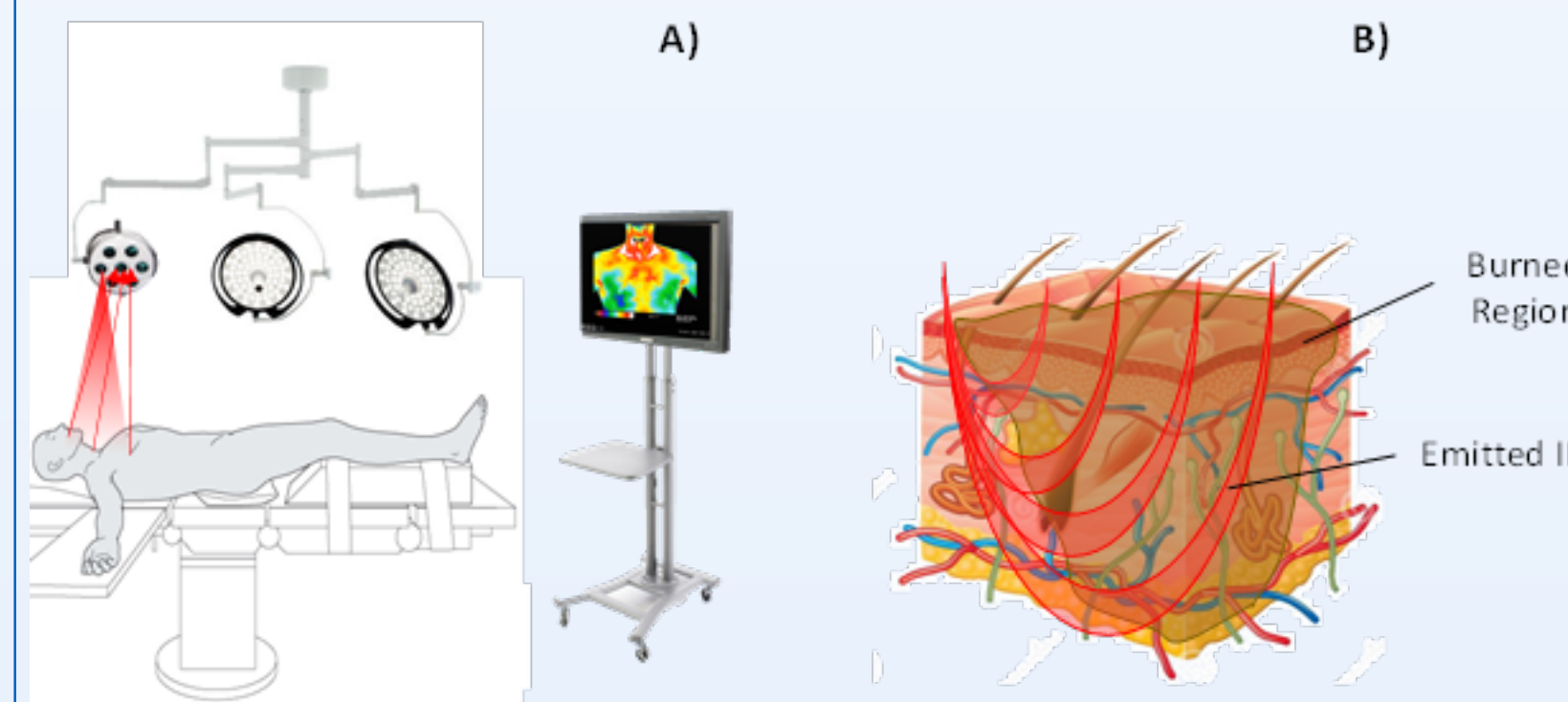
According to the American Burn Association (ABA), there are approximately 128 Burn Centers in the US.



When treating severely burned patients, clinicians must balance the risk of infection and sepsis with **the level of excision necessary** to minimize inflammation and maximize the potential of preparing the burn surface for a successful skin grafting procedure. Grafting success depends on the **removal of all necrotic (dead) tissue** to clear the entire surface to the highly vascularized granulation tissue bed.

NTVA system Designed for DoD (Department of Defense)

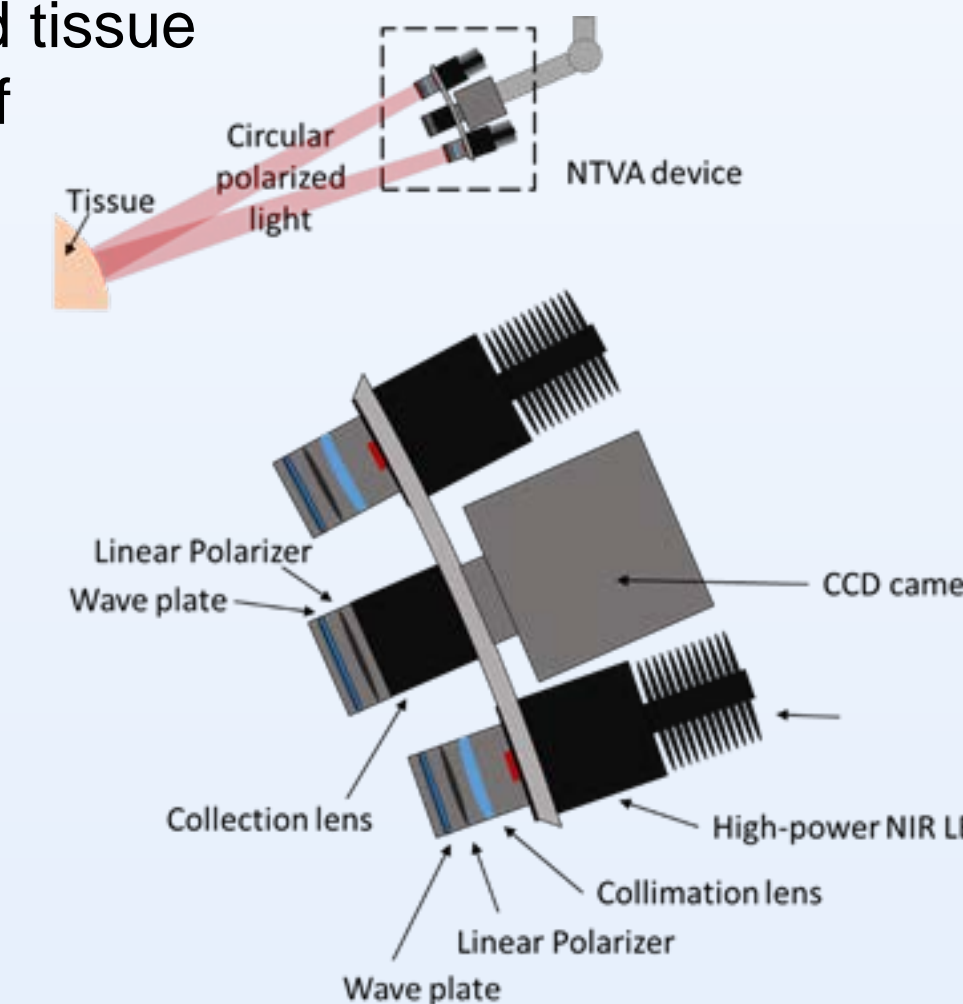
- **Non-invasive**
- **Non-contact**
- **Easy-to-use**
- **Real-time image acquisition**



Based on NIR (near-infrared technology)

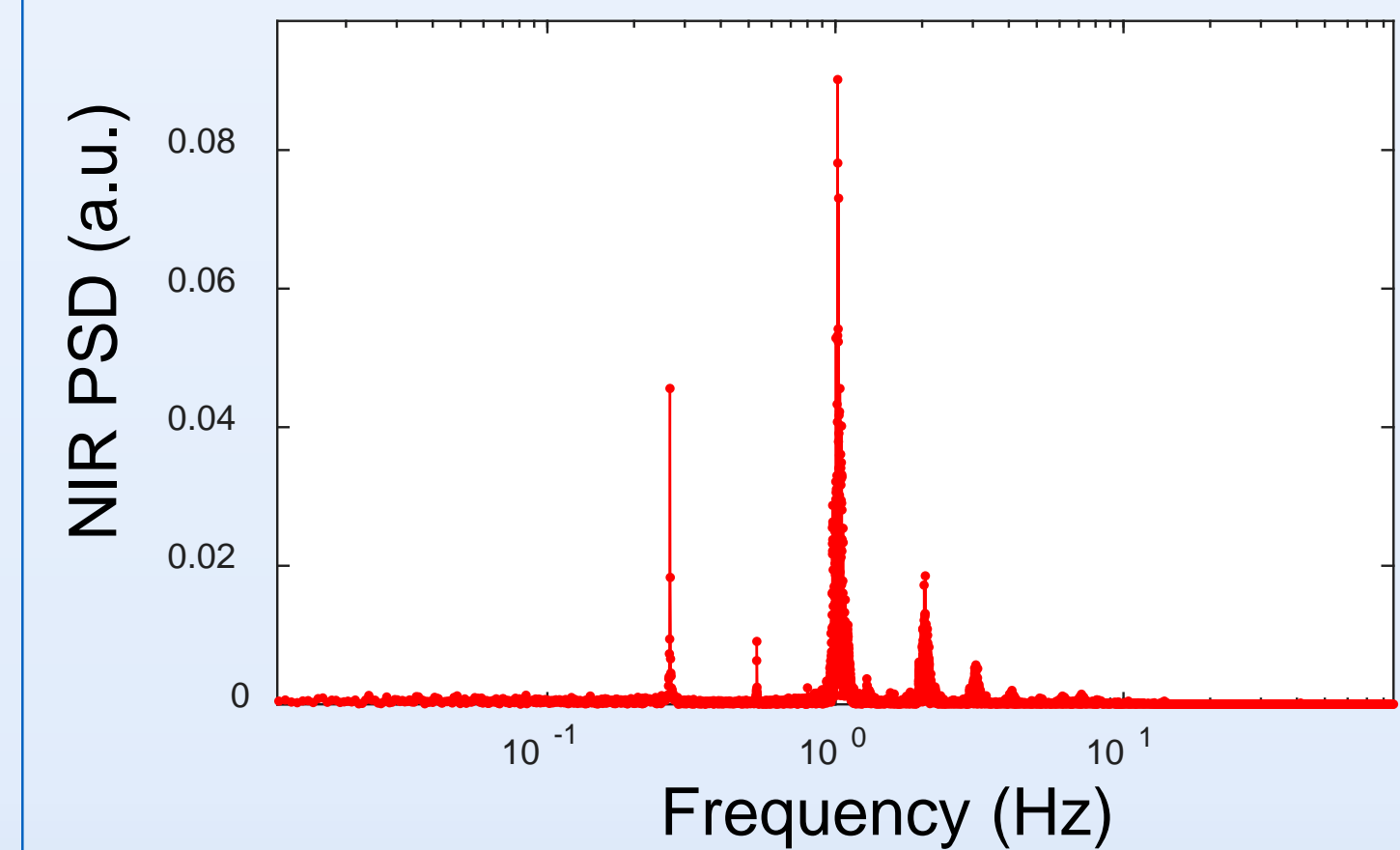
NTVA is engineered to assess tissue viability in the outer surface of the imaged tissue

A co-elliptical polarized NIR-light configuration was employed to provide the ideal contrast between perfused tissue and a thin layer of highly-scattering necrotic tissue.

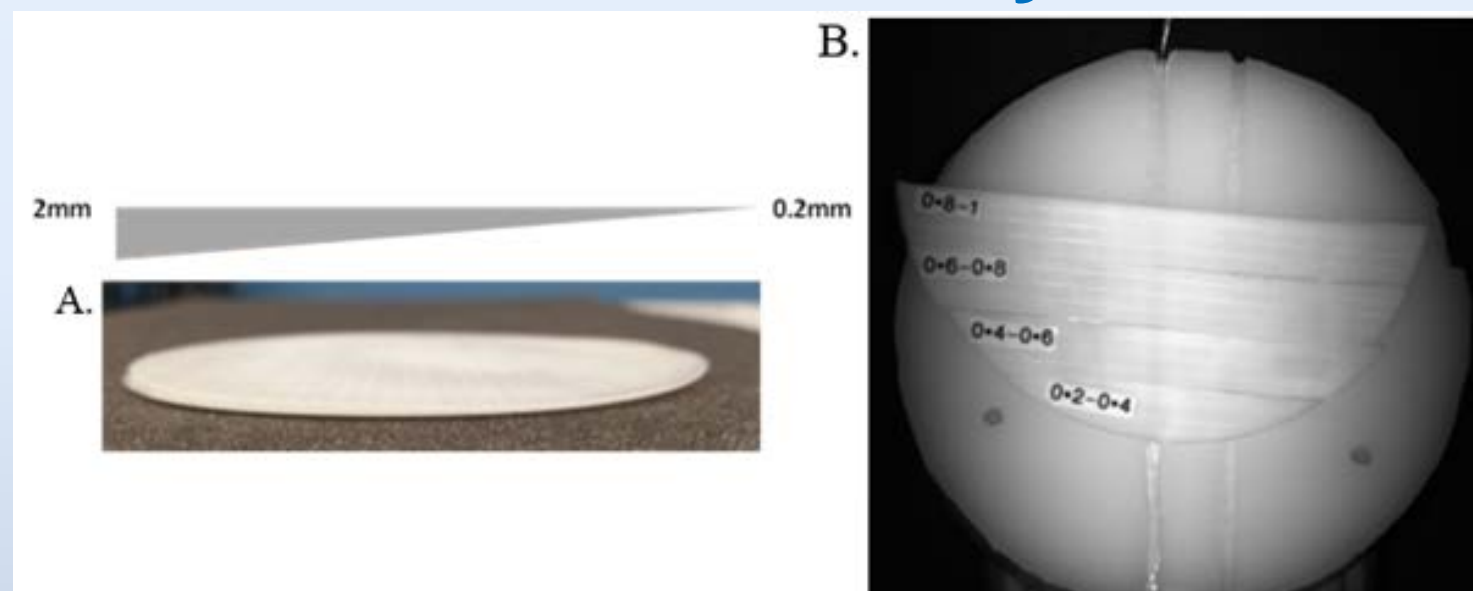


NTVA Novel methodology to discriminate viable from necrotic tissue

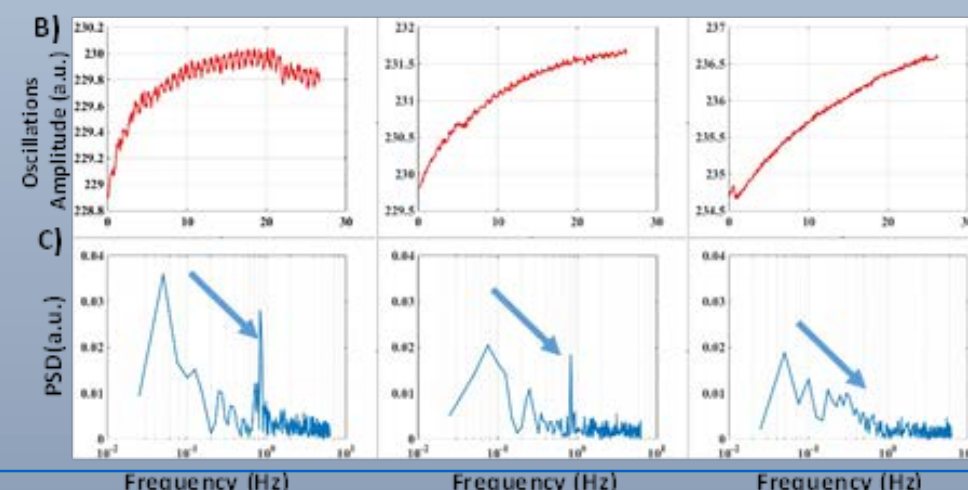
The NTVA non-contact imaging system herein proposed, as opposed to common NIRS techniques, does not require absolute concentration retrieval of the chromophores present in the cardiovascular system; rather it will determine the health of the investigated tissue by analyzing spontaneous hemodynamic oscillations [cardio and respiratory induced: ~0.3 and ~1 Hz associated with blood volume changes].



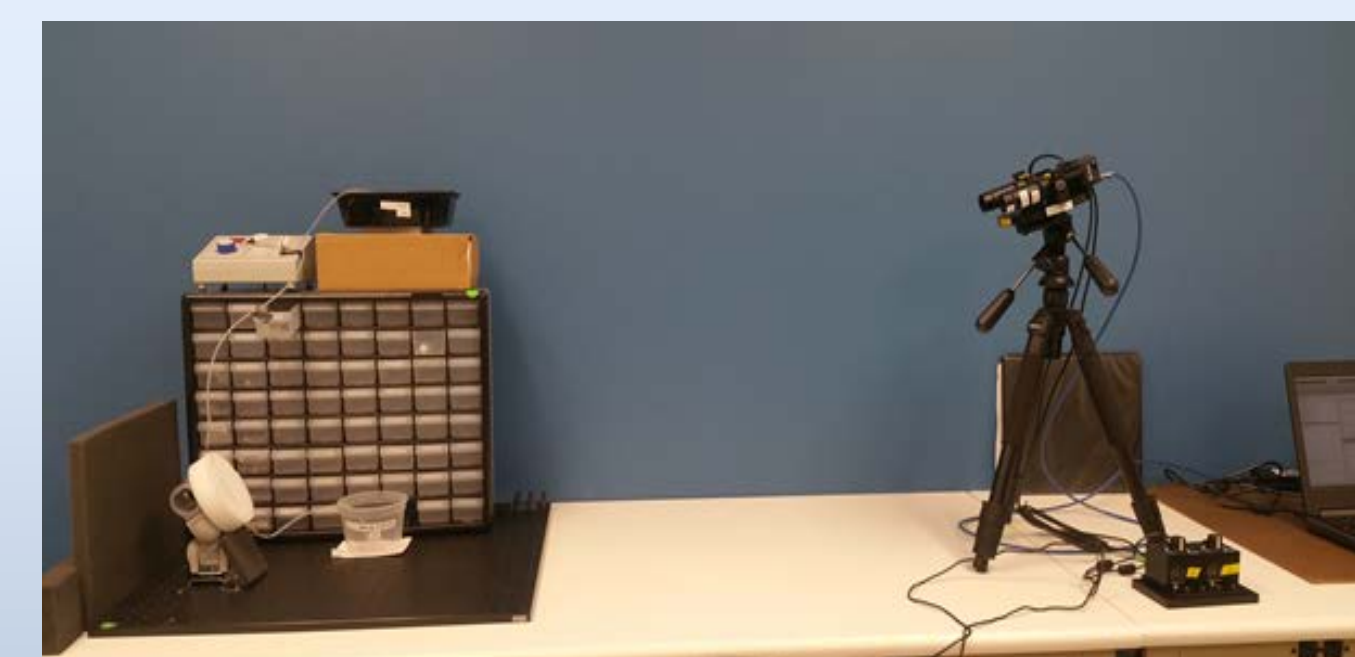
In-vitro Study



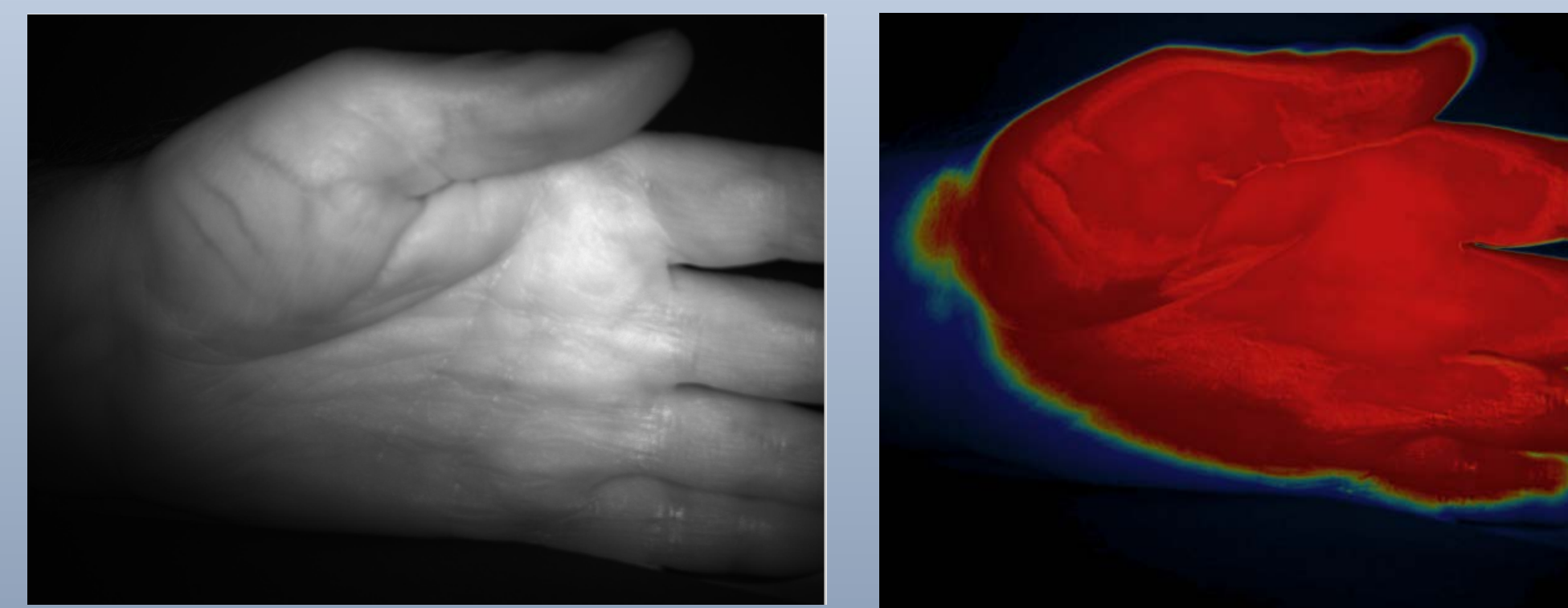
A series of optical phantoms for evaluation of the system were created. The phantoms simulate optical properties of human tissue and blood flow in the tissue. To objectively evaluate the effectiveness of the debridement we tested and demonstrated the depth sensitivity, and depth resolution of the NTVA system.



In-vivo preliminary testing (Pre Clinical healthy human subjects)



Our proprietary algorithm successfully identifies viable tissue, through blood volume oscillations, down to the pixel level, as opposed to commercially available optical based technology



Partners and Affiliates

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Arkansas Children's Hospital.

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The views, opinions and/or findings contained in this poster are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other documentation.