Navy SBIR/STTR Success

Infrascanner Portable Medical Diagnostic Device

InfraScan Inc. invented a diagnostic device hand-held by a Marine corpsman to determine the need for treatment for suspected brain injury.

InfraScan Inc.
Founded: 2005
Building 100 Innovation Center,
4801 S Broad St, Suite 200,
Philadelphia, PA 19112

TOPIC NUMBER:
OSD04-DH4
(ONR topic managed by OSD, then acquired by Marine Corps Systems Command)

SBIR INVESTMENT:
$843,113

Phase III Revenue:
$7,000,000

THE TECHNOLOGY

Intracranial hematomas detection with near-infrared spectroscopy is based on the differential light absorption associated with the injured versus the non-injured parts of brain. The Infrascanner compares the left and right sides of the brain in four different areas, digitizes and analyses detected information from the device's sensors, and displays results on the screen of the hand-held portable device.

THE CHALLENGE

Prior to 2015 fielding of the Infrascanner, the Marine Corps lacked technological capability to assess brain injuries on the battlefield. Marines can sustain traumatic brain injury from a simple fall, or from close proximity to a blast, either of which could cause brain damage. Outward signs of such injury, if any, don't lead to timely diagnosis and intervention to prevent long-term medical challenges.

THE NAVAL BENEFIT

Infrascanner results from a hand-held device used on the battlefield lead to fast, accurate diagnosis and treatment of Marines' brain injuries. This contributes to readinesss of the Force, and helps ensure against long-term brain damage resulting from improperly diagnosed injuries. Cost avoidance results from field use of a small, inexpensive Infrascanner instead of state-of-the-art CT scanners available only in hospitals far from forward-deployed Marines, requiring costly transport of Marines – a negative Force readiness factor. Thus, Marines who haven't suffered brain injury can be treated faster to stay in the field.

THE TRANSITION

The Marine Corps Systems Command, soon to be followed by the Navy, completed testing of the Infrascanner by its Family of Field Medical Equipment Team, and in 2015 began incorporating hand-held Infrascanners – now a Program of Record -- into Marine Hospital Corpsman diagnostic toolkits for operational use. In recognition of their efforts, the MCSC Infrascanner team won the Dept. of the Navy's 2016 Ron Kiss Maritime Technology Transition Award.

THE FUTURE

The Infrascanner, with its underlying NextGen spectroscopy technology, launches a new era in medical battlespace management of engaged personnel, through device miniaturization and innovative use of sensors. As smart wearables become more prevalent in the Navy and Marine Corps, diagnostic tools like the Infrascanner can communicate directly with an injured warfighter's wearable, documenting exactly that person's condition to expedite field hospital treatment.

"Before the Infrascanner, all we could do to assess brain injuries in the field was complete a symptom questionnaire. For more definitive care, we would perform a CT scan … to look for any kind of brain squishing in from blood. No capability like this existed before the Infrascanner. In addition to helping us determine if Marines have suffered brain injuries, it can help us rule out Marines who haven't. So, Marines who aren't suffering from a brain hematoma can get back to the action sooner." John Philpott, MCSC Medical Team Engineer