



### A Global Solution

Infrascanner has produced excellent study and clinical results in Asia and Europe in both adult and pediatric patients. It has received a CE Mark, passed a British standards Institute audit, and received ISO certification following studies in Moscow, Russia; Seville, Spain; Padua and Treviso, Italy; Lublin, Poland, Mumbai, India, and Kunduz, Afghanistan. Infrascanner is currently distributed by a network of authorized distributors in over a dozen countries.

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## Take the Offensive Against Brain Injury



**IMPROVE** Patient Safety

**ENHANCE** Outcomes

**REDUCE** Costs

## The Power to Heal in the Palm of Your Hand.

Now, for the first time ever, the application of Near-Infrared (NIR) technology can be applied in a portable, handheld, FDA-cleared, CE-marked device that empowers clinicians to know what's happening inside the human skull, even before symptoms of brain injury appear.

The early screening for intracranial bleeding in patients with head trauma is vital because the timing of any required neurosurgical intervention is a critical factor that can positively or adversely impact patient outcomes.

Infrascanner™ screens patients for intracranial bleeding, quickly identifying those who would most benefit from immediate referral to a CT scan and neurosurgical intervention.

There is no faster way to detect and triage subdural, epidural, and intracerebral hematomas. Infrascanner puts the power to heal in the palm of your hand.



**RAPID** Hematoma Detection

**PORTABLE** and Accurate

**IDEAL** for Remote Locations

**INFRASCANNER** is a revolutionary, hand-held, brain hematoma detection device for head injury assessment based on Near-Infrared (NIR) technology.



### Specifications:

- Patient measurement is completed within 2-3 minutes
- Detects hematomas greater than 3.5 cc in volume
- Detects hematomas up to 2.5 cm deep from the surface of the brain (or 3.5 cm from the skin surface)
- Weight: 400 grams





**INFRASCANNER**

## Clinical Applications

### **Enlisted for Duty**

The United States Marine Corps' decision to deploy 200 Infrascanners as a standard component in trauma kits for all battalion aid stations marks a significant milestone in the application of the world's only handheld brain injury diagnostic device.



### **Infrascanner Military Application**

The Infrascanner has a very specific application in detecting Traumatic Brain Injury (TBI) on the battlefield and in routine military settings where timely triage is critical. Recognizing its battlefield potential, the United States Navy's Office of Naval Research and the United States Marine Corps have invested significantly in Infrascanner's development and have successfully field tested it. Other NATO members including the UK, German and Spanish militaries have also utilized Infrascanner in combat conditions. Early hematoma detection is life saving technology that also supports prioritized evacuation of injured military personnel.

Recent statistics from Iraq shows that 30% of all wounded in action have head injuries, and 40% of them have brain hematomas. Intracranial hematomas are a significant but treatable cause of secondary brain injury in patients with head trauma. Infrascanner can play a crucial role in the early detection of hematomas allowing for timely triage and early intervention.

### **Hospital & Intensive Care Monitoring**

Neurosurgery patients can be monitored as often as necessary, at bedside, to provide early detection of changes in intracranial hematomas between CT scans. Additionally, since approximately 20% of trauma-related hematomas do not appear immediately following an accident, Infrascanner can be used effectively as a bedside monitoring tool for hospital patients undergoing observation.

### **Sports Medicine**

The growing recognition of sports-related brain trauma creates an ideal application for Infrascanner. In contact sports like football, rugby, soccer, boxing and others, Infrascanner can provide sideline diagnostics and help aid in the decision to evacuate injured athletes to a trauma center.

## Embraced by Leading Neuro ICU Teams

FDA-cleared Infrascanner has been studied at some of the most distinguished teaching, specialty, and pediatric hospitals throughout the world.

A 431 patient, multi-center clinical trial, demonstrated that the Infrascanner was better than a physical examination alone in identifying patients at high risk of intracranial bleeding.



### Hospital Emergency Room Screening

Traumatic Brain Injury (TBI) patients with multiple complications (like those arising from accidents) can be screened in the ER to help determine the urgency of TBI treatment with respect to other complications. In the event of multiple casualties, Infrascanner can help triage patients for CT scan. Infrascanner screening of patients under the effect of alcohol or drugs, those who are unconscious, as well as young children, can be particularly helpful since rapid neurological evaluation in these cases is challenging using the Glasgow Coma Scale.

### Pre-Hospitalization Screening in Remote Locations

Head trauma patients can now be diagnosed at the site of injury by first responders. Infrascanner can be used in remote villages, small towns, islands, mines, sport clubs, skiing sites, hospitals and other locations that lack convenient access to CT scanners or neurosurgeons.



### The Revolutionary Application of Proven Infrared Technology

Infrascanner accurately detects intracranial hematomas because of the unique light-absorbing properties of hemoglobin and the non-invasive, non-ionizing nature of Near Infrared (NIR) technology. The basic method for intracranial hematoma detection with NIR spectroscopy is based on the differential light absorption associated with the injured versus the non-injured parts of brain.

Under normal circumstances, the brain's absorption should be similar when comparing left and right sides. However, extravascular blood absorbs NIR light more readily than intravascular blood because there is a greater concentration of hemoglobin in acute hematomas than in normal brain tissue. As a result, the absorbance of NIR light is greater (and reflected light is reduced) on the side of the brain containing a hematoma, as compared to the uninjured side.

Infrascanner compares the left and right sides of the brain in four different areas. The Infrascanner is placed successively in the left and right frontal, temporal, parietal, and occipital areas of the head and the absorbance of light at selected wavelengths is recorded. The difference in optical density in the corresponding areas instantly reveals the location of trauma to the brain. The detection depth is superficial (within 3.5 cm of the skin surface), where blood typically migrates in most cases of bleeding.