

Indiana Center for Brain Rehabilitation, Advanced Imaging, and Neuroscience (ICBRAIN): An IUPUI Signature Center Initiative

Flora Hammond, MD,^{1,2} Andrew Saykin, PhD,³ James Malec, PhD,^{1,2} Jacob Kean, PhD,^{1,2}
Michelle Keiski, PhD,^{1,3} Brenna McDonald, PhD,³ Dawn Neumann, PhD^{1,2} Yang Wang, PhD,³
Karmen Yoder, PhD³

¹Department of Physical Medicine and Rehabilitation, Indiana University School of Medicine;
²Rehabilitation Hospital of Indiana; ³Indiana University Center for Neuroimaging

Abstract

The Mission of the Indiana Center for Brain Rehabilitation, Advanced Imaging, and Neuroscience (ICBRAIN) is: **to develop and disseminate techniques and methodologies for advanced neuroimaging and precision behavioral measurement to evaluate novel rehabilitation interventions for people with acquired brain injury.** Traumatic and other types of acquired brain injury (ABI) affect millions of U.S. citizens each year, many of whom experience persistent disabilities. For example, among the estimated 1.4 million civilians who sustain a traumatic brain injury (TBI) each year, 50,000 die and a minimum of 80,000 sustain injuries of sufficient severity to require extended rehabilitation. The current conflicts in Iraq and Afghanistan have increased awareness and mobilized interest in medical treatment and rehabilitation for returning soldiers with TBI (designated as the “signature injury” of these conflicts). A 2008 study by the RAND corporation based on a random sample of 1,965 veterans estimated that, among 1.64 million returning veterans, approximately 320,000 experienced a probable TBI (19%). Over the past decade there has been a notable rise in research activities to address serious gaps in the knowledge base of ABI, including neuroimaging, outcome measurement, and intervention studies to change function. However, brain injury researchers have not yet established solid links between these research agendas. Such links are crucial for moving the evidence base forward to improve treatment outcomes. ICBRAIN will fill this gap in neuroscience by bringing together an interdisciplinary team of clinical researchers to (1) advance basic science and clinical knowledge to the next level of integration, (2) translate the knowledge gained directly into clinical care for improved patient outcomes, and (3) use the newly integrated knowledge to drive the leading edge of future research. ICBRAIN represents a unique collaboration among established clinical rehabilitation and measurement researchers in PM&R and at RHI and established researchers at the IU Center for Neuroimaging.