

InTBIR is Greater than the Sum of It's Parts: 5th Annual Meeting Report

The International TBI Research (InTBIR) initiative aims to lessen the global burden of traumatic brain injury (TBI) by 2020. Member organizations include the European Commons, the National Institute of Neurological Disorders and Stroke, the Canadian Institute of Health Research, One Mind, the U.S. Department of Defense, and the Ontario Brain Institute, who have all cooperatively agreed to promote international research and collaboration. **The 5th Annual InTBIR Meeting, held at the Canadian Embassy in Washington, D.C. on October 11 - 12, 2016, focused on crosscutting, synergistic opportunities for InTBIR.** A brief summary report follows. For more information, the agenda and slide presentations are posted on the [InTBIR website](#).

Session I of the meeting addressed the heterogeneity of TBI and the *critical need to subdivide patients into groups that are likely to benefit from specific types of treatments.* Classification will require large numbers and high quality, detailed data about the patients' pre-injury status, the mechanisms of their injury, and their outcomes. Sophisticated tools will also be necessary to curate and analyze the data to determine if there are common patterns of injury. InTBIR is uniquely positioned to address this challenge because approximately 30,000 adults and children with TBI are or will be enrolled in the InTBIR studies. In addition, a research study on service members and veterans with TBI (presented in Session II) will also be included in InTBIR because the U.S. Department of Defense joined the initiative in 2016.

Sessions III and IV presented strategies for comparative effectiveness research (CER), acknowledging the need to examine this in the context of patient subtypes because "one size will not fit all". Three broad opportunities emerged: 1) to achieve greater power through the integration of data sets; 2) to evaluate the reproducibility of findings from a single study to other studies with similar patient cohorts; and 3) to evaluate the generalizability of findings from one patient population to another (e.g. children vs. adults, or high-income vs. low-income settings). Additional resources to integrate and analyze data across studies may be required for the CER studies, and the InTBIR members presented grant opportunities and other resources within their organizations in Session V.

Sessions VI - IX highlighted some of the early successes and ongoing challenges of InTBIR, including the following:

- InTBIR has more than 45,000 blood samples along with detailed clinical and outcomes data. This provides an extraordinary opportunity to develop biomarkers for detecting and monitoring mechanisms of injury and recovery, and for evaluating the brain response to treatments. Cataloging these biospecimens and building an infrastructure for standardizing protocols and sharing samples has begun at the [TRACK-TBI Biospecimens Core](#), and this will provide a valuable resource for InTBIR and other TBI investigators.

- A new collaboration aimed at understanding the effects of genes and gene expression on injury and recovery following brain trauma is an offshoot of InTBIR and the investigators are currently seeking funding for the project from the Wellcome Trust.
- The *Lancet Commissioned Issue on TBI: State of the Art* is a major undertaking to inform policy makers and the public about advances in knowledge that could be implemented now or in the near future to lessen the global burden to TBI. Publication will be announced at the Global Brain Health Alliance on April 6, 2017.
- The Lancet Commissioned Issue will also provide a foundational resource for another transformative InTBIR project, *Living Systematic Review: State of the Art in TBI*. The goal is to rigorously review and discuss the literature to inform best clinical practice for TBI and then to update it electronically as new evidence becomes available.
- The InTBIR data integration workgroup is tackling the issues surrounding data sharing, e.g. the need for high quality, curated data, and the need to adhere to varying regulations across organizations and countries. These groundbreaking efforts will pave the way for others interested in using *Big Data* to advance healthcare.
- A longitudinal, prospective study of mild TBI in youth hockey demonstrated the effectiveness of policies recently implemented in Canada and the U.S.A. to reduce the incidence of concussions.
- Discussions between InTBIR investigators and the FDA are paving the way for U.S. regulatory endorsement of prognostic fluid and neuroimaging biomarkers, and for evidence-informed outcome assessments for TBI.

Session X solicited input about priority objectives for 2017 and ways to achieve them. A survey will be sent out to all of the meeting participants to follow up on this discussion and ensure that everyone has a voice and time to reflect on priorities and strategies. The survey will provide a basis for a 2017 action plan, which will later be added as an addendum to this report.