

## **LIMBIC CONCUSSION CLINICAL INVENTORY TOOL (Self-report and interview)**

- *These variables are completed at Initial and Comprehensive Re-Evaluations, except as noted. Collection Schedule – baseline, 1-year-post-index mTBI, 3-year-post-index mTBI, 5-year-post-index mTBI, then every 5 years afterwards*
- *The self-report questionnaires may be completed prior to visit, reviewed by study staff for completeness and reviewed with subject at visit; alternatively, they may be collected remotely, such as over the telephone, if the participant is logistically unable to come in person to a post-baseline comprehensive visit to achieve partial data collection instead of entirely missed visit.*

### **1- Lifetime mTBI Identification and Diagnosis Structured Interview** [mTBI(s), number and severity cause (blast vs. other)]

- Potential Concussive Events (PCEs) Mapping: modification of The Ohio State University Traumatic Brain Injury Identification Method (OSU TBI-ID) validated screening tool
- Concussion (mTBI) diagnostic structured interview of every PCE using validated VCU rCDI
- DoD injury report information (MACE, PDHA, PDHRA, ANAM): electronic records search.
- Final diagnostic determination that incorporates open-ended portions of interview and medical records to confirm or overturn the preliminary automated algorithm diagnosis from the VCU rCDI followed by rigorous expert central review and quality assurance process.
- Comprehensive lifetime mTBI history profile is generated from above process with date, context, mechanism, and severity (LOC/PTA status) of all historical mTBIs. The table below depicts this and can be created separately or combined for deployment and non-deployment time periods. Follow-up visits determine any additional new mTBIs.

<b>mTBI History Profile</b>		
<b>mTBI without PTA or LOC</b>	<b>mTBI with PTA but no LOC</b>	<b>mTBI with LOC (&amp; PTA)</b>
None	None	None
Single	Single	Single
Multiple, total #	Multiple, total #	Multiple, total #

### **2- Personal Fixed Factors**

- Demographics, age, highest level of completed education using The CDC Behavioral Risk Factor Surveillance System (BRFSS) core battery, section 8.1-8.4, 8.6-8.8, 8.11-8.12, 8.24-8.25
- Past health using selected items from TBIMS Pre-injury History Questionnaire (TBIMS PIHQ). [Baseline only]
- Genotyping: at baseline only, blood will be collected to assay for multiple genetic variants that have been reproducibly associated with chronic effects of neurotrauma including: *APOE*, *DRD2*, *COMT*, *MAO-A*, *BDNF*, *DAT1*. Genotyping at other alleles will be carried out as more information becomes available regarding their association with neurodegenerative disorders after TBI, per Biomarkers Core.

### **3- Environmental Factors**

- Military history including service years/duration, branch, rank, and times/locations of all combat deployments using the DCoE/DVBIC 15 yr. study General Assessment Form.
- Combat exposure; Deployment Risk and Resiliency Inventory, Version 2, Section D; Combat Experiences (DRRI-2-D) [Repeated after Baseline only for participants who have been redeployed after baseline data collection.]
- Social support; DRRI-2-Section O, Post-deployment Social Support Scale (DRRI-2-O): A shortened version with only relevant items will be used for longitudinal evaluations.
- Subconcussive Brain Insult Exposures:
  - Contact Sports History Questionnaire (CSHQ): Self-report measure of organized sports participant history focusing on football, hockey, and boxing as a gauge of exposure to subconcussive athletic head impacts
  - Military Training Head Jolt Exposure Questionnaire (MTHJEQ): Brief self-report measure of military career exposure to activities associated with repetitive subconcussive forces to the head; also queries neurotoxin exposure and PTSD history. Developed by CENC investigators specifically for this study.
  - Blast Exposure Threshold Survey (BETS): brief self-report questionnaire developed by the JPC-5 Exposures Standards Working Group to standardize the calculation of lifetime exposure of military personnel to blast overpressure

### **4 - Moderating Factors**

- Effort & Exaggeration; Medical Symptom Validity Test (MSVT)
- Self-efficacy; The General Self Efficacy (GSE) Scale
- Resiliency; The TBI-QOL resilience module:
- PTSD; see below
- Alcohol use; Alcohol Use Disorders Test-Consumption (AUDIT-C)
- Illicit substances use/misuse; Drug Abuse Screening Test 10 item version (DAST-10)

### **5 – Post-concussion Symptoms**

- Neurobehavioral Symptom Inventory (NSI)

### **6 – Neuro-Sensory and Pain Symptoms**

- Hearing: Hearing Handicap Inventory for Adults, Screening version (HHIA-S)
- Tinnitus: Tinnitus Functional Index (TFI)
- Dizziness: Dizziness Handicap Inventory, Screening version (DHI-S)
- Headache: Headache Impact Test Short Form (HIT-6)
- Body Pain: NIH Toolbox (PROMIS version) Pain Intensity, and TBIQol Pain Interference module, short-form

### **7 – Comorbidities and Mental Health**

- Sleep disorders:
  - The Pittsburg Sleep Quality Index (PSQI):
  - The STOP BANG
- Depression (PHQ-9); Patient Health Questionnaire Depression Scale (PHQ-9)
- PTSD:
  - PTSD Checklist for DSMV (PCL-5):
  - Clinician-Administered PTSD Scale for DSM5 (CAPS-5)
- Fatigue: TBIQoL module, short-form
- Anger: TBIQoL module, short-form
- Anxiety: TBIQoL module, short-form
- General Co-Morbidities: The CDC Behavioral Risk Factor Surveillance System (BRFSS)

## **8 - Participation, Activity, and Global Outcome Rating Scales**

- Global Outcome
  - Extended Glasgow Outcome Scale – Extended (GOS-E)
- Participation
  - TBI-QOL module
  - Select items from The Community Reintegration of Injured Service Members (CRIS)
- Employment
  - Modified Abbreviated Employment Module
- Life Satisfaction
  - Satisfaction With Life Scale (SWLS)

## **9 - Dementia Assessment Tool**

- Clinical Dementia Rating (CDR) Structured Interviews and mental status examination