

Traumatic Brain Injury Clinical Decision Support application

Abstract

The TBI CDS application is a solution that will aid rehabilitation and TBI care providers in delivering the most appropriate treatments for Veterans by assessing treatment strategies and rapidly incorporating new clinical guidelines. The application capability, i.e., the clinical decision support system, provides treatment recommendations based on patient progress while standardizing data collected from rehabilitation and TBI treatments, allowing rapidly evolving clinical guidelines to be shared between clinicians at VA Polytrauma Rehabilitation Centers (PRCs) and with partners at the Department of Defense (DoD). The TBI CDS application will eliminate the need for the collection of paper forms for 52,000 TBI CDS patients per year, thereby streamlining data collection and storage while facilitating data analysis and decision-making.

The web TBI CDS application is made up of a set of screens (menus, forms, assessment instruments, assessment planning, outcome review, graphical display of trends) organized in logical workflows to support appropriate treatment of traumatic brain injury and polytrauma patients in need of rehabilitation services. The solution's graphical user interface (GUI) will be supported by a system of interrelated databases that will provide the ability to record, store, and exchange data among the various elements of the system's backend design. It is integrated with VistA/CPRS through MDWS, where the master electronic health records are saved. The TBI CDS database will store the instrument results and scores by patient, rehabilitation program and clinical setting.

The application will feature the following high-level functional areas:

- **Clinical Decision Support (CDS) Diagnostics**, providing the ability for clinical users to access and complete TBI- and rehabilitation-related evaluation and assessment forms
- **CDS Electronic Health Record (EHR) Integration**, providing the ability for clinical users to access and integrate data from the VA EHR, currently comprised of the Veterans Health Information Systems and Technology Architecture (VistA) and the Computerized Patient Record System (CPRS), without manual retrieval and transfer of data between systems
- **Clinician Mode**, providing the ability for clinical users to complete patient encounters, enter assessment data, and write notes back to CPRS
- **Decision Support System**, providing the ability for clinical users to view automated, context-appropriate recommendations to help facilitate patient diagnosis, treatment and monitoring based on established clinical guidelines
- **CDS Reports**, providing the ability to generate recurring and ad hoc reports of data gathered in TBI CDS and related applications
- **Statistical Analysis**, providing the ability to integrate TBI data into statistical analysis tools for research purposes