Indications and Conditions for In-Theater Post-Injury Neurocognitive Assessment Tool (NCAT) Testing

Background and Introduction

In accordance with Section 1673 of the NDAA HR 4986, signed into law in January of 2008, the Secretary of Defense was instructed to establish a protocol for the pre-deployment assessment and documentation of the cognitive functioning of Service Members deployed outside the United States. In advance of definitive evidence of superiority for any single Neuro-Cognitive Assessment Tool (NCAT), the Automated Neuropsychological Assessment Metrics (ANAM) was chosen by a DoD expert consensus panel as an interim instrument to implement this program pending further evaluation of computerized neurocognitive assessment tools. The DoD has successfully implemented a pre-deployment NCAT program utilizing the ANAM. According to the Traumatic Brain Injury Center of Excellence (TBICoE), predeployment cognitive baseline results are being obtained for deploying Service Members (SMs).

Baseline or pre-deployment ANAM testing, mandated within 12 months before deployment, provides a reference point for neurocognitive testing following traumatic brain injury. To support the practical use of ANAM as an assessment tool for Service Members sustaining concussion, the Army Neurocognitive Assessment Branch (NCAB) Office has distributed ANAM capable laptops for use by theater providers.

Additionally, the Defense Health Information Management System (DHIMS) has been working closely with the TBICoE NCAT office and Service Points of Contact (POCs) to create a web accessible system that can be incorporated into the Army MC4 laptop image issued to deploying providers to enhance theater ANAM testing and facilitate more rapid access to pre-deployment baseline studies to assist in the clinical neurocognitive assessment of the injured SM.

There is general consensus that a subset of SMs diagnosed with concussion may benefit from post-injury NCAT testing. Clarification of the indications for post-injury neurocognitive testing, optimal conditions for testing, and who should be administering and interpreting the test, has been requested by theater providers.

The following Clinical Recommendations are intended to offer guidance to providers regarding the effective use of NCAT testing following a TBI. These recommendations are based on the proceedings of a December 2010 Expert Panel convened by TBICoE that included clinical subject matter experts representing all four Military Services and the Department of Veteran's Affairs. The Clinical Recommendations were reviewed and approved by the DoD TBI Quad Service Cell.

Clinical Recommendations

- Post injury assessment with ANAM should be considered as one component of a comprehensive evaluationand return to duty (RTD) assessment when a concussion is accompanied by symptoms lasting longer than 24hours, post-traumatic amnesia (PTA) of any duration, or a loss of consciousness. The test can also be repeatedserially following post-injury symptom resolution to document neurocognitive recovery to pre-deployment ANAMlevels and to further inform the RTD assessment.
- Post-injury NCAT testing should only be used as one component of a thorough clinical evaluation by a qualified provider. It should not be used in isolation for clinical decision making since it was not designed for thediagnosis of concussion. Ideally, a psychologist would be available for cognitive evaluations, including evaluation with ANAM.
- ANAM should only be administered in a quiet, comfortable setting with no distractions. The SM should be well rested prior to ANAM testing and other medical conditions should be adequately addressed so as to not interfere with the ANAM testing procedure. For example, testing should be avoided when the SM is experiencing a severe headache, anxiety, sleep deprivation, or is reporting or exhibiting side effects of their current medications.
- SMs with a mild concussion, no LOC, and rapidly resolving (within 1-2 hours) symptoms do not routinely benefit from NCAT as part of a RTD assessment. Clinicians should use best clinical judgment based on the status of the concussed SM in conjunction with an assessment of the operational environment in determining the need and practicality of referring the SM for an NCAT.

- When a post-injury NCAT is considered appropriate, the initial study should be administered between 24-72 hours after injury whenever possible.
- For SMs who remain symptomatic, serial NCAT testing (every 3-4 days) can be used to monitor cognitive recovery from a concussion. It should be noted that cognitive recovery alone should not be the sole basis of RTD decision making.
- A provider to psychologist/neuropsychologist tele-consultation can be used to help interpret the post-injury NCAT test scores, assuming a qualified provider or technician administered the NCAT in the remote location.

Conclusion

NCAT is a useful and effective tool for the assessment of Service Members following the diagnosis of concussion/mTBI. ANAM has been selected as the current NCAT test of choice for the DoD pre-deployment NCAT program and ANAM capabilities are available for use in the deployed setting. NCAT is best utilized as one component of a comprehensive assessment for the Service Member with clinically confirmed concussion/mTBI. It should not be used as a screening or diagnostic tool for the exposed Service Member prior to an actual diagnosis of concussion/mTBI. When used properly, the NCAT can provide valuable clinical insight, particularly regarding neurocognitive deficits, and is a tool to be considered in the setting of concussion/mTBI with persistent symptoms when it can be administered within the appropriate time frame and under acceptable conditions.

As with all clinical decisions, field and operational circumstances may at times require divergence from these recommendations.

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