Defense Health Agency ®

Department of Defense

Anomalous Health Incidents

Clinical Recommendation

Assessment and Management of Reported Anomalous Health Incidents: Clinical Recommendation for Primary Care Managers

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Introduction

Anomalous Health Incidents

Anomalous Health Incident (AHI) is the term used to describe a constellation of unexplained and sudden symptoms, including the acute onset of audio-vestibular sensory phenomena, that several federal government personnel have reported since 2016. AHI currently lacks a known etiology or pathogenesis. AHI has also been referred to as:

- Havana syndrome
- Unconventionally acquired brain injury (UBI)

AHI and its potentially associated symptoms currently lack evidence-based, objective diagnostic criteria that can discriminate AHI from other medical conditions. Therefore, the medical community relies on expert opinion from providers who care for most reported AHI cases.

"Assessment and Management of AHI: Clinical Recommendations for Primary Care Managers (PCMs)" is based on current evidence and the expertise of a panel of authorities. This framework allows PCMs to effectively evaluate and treat patients with AHI while standardizing the assessment and documentation of this condition. Promoting clarity and consistency aims to enhance future analysis and improve patient outcomes in primary care.

As always, providers should make treatment decisions based on professional expertise and sound clinical judgment, and exercise best practices in accordance with the patient's clinical presentation.

Clinical Algorithm for Primary Care Management of AHI

Providers may consult with the NICoE AHI Information Line at 301-319-3710 option 6 Monday—Friday, 8 a.m. to 5 p.m. ET or email inbox at dha.bethesda.j-11.mbx.nicoe-ubi@health.mil Monitored Daily: Response time 24-48 hrs

Reported AHI Sensory Event

Assess for Red Flags and consider referral to higher level of care

Provide the patient with DHA Form 244 AHI Standard Medical Assessment * to complete **as close to time of injury as possible** and document in medical record

Is the patient still experiencing symptoms?

No

- Refer to the National Intrepid Center of Excellence (NICoE) for AHI virtual assessment to ensure standard documentation of symptoms.
- NICoE may consent for patient participation in the AHI Patient Registry.

Yes

Conduct standardized Physical Exam, Laboratory Studies, and Neuroimaging

Treat abnormal findings and provide Symptom-Guided Management

Refer to NICoE for AHI virtual assessment and care coordination

Document event using Coding Guidance and provide patient education

Always remind patients to notify counterintelligence personnel about incident (patient to contact their supervisor with any questions)

*DHA Form 244 is accessible via the CAC-enabled DHA Forms Library, linked above.

AHI Sensory Events

AHI sensory events may be described as, but are not limited to, any of the below descriptions. Sensory events warrant full medical evaluation and consideration of workup as directed by the AHI Clinical Recommendation:

- Sudden experience of pressure, loud sounds, or other auditory phenomena concurrently or immediately preceding the new onset of one or more symptoms, including, but not limited to, those listed in the table below
- Symptoms may improve upon moving away from where symptoms began and may or may not be experienced by others in the same area

AND

- Symptoms are not fully explained by other apparent environmental or medical conditions

Reported New Onset Symptoms Associated with AHI Sensory Events
• Cognitive problems (e.g., attention problems, difficulty concentrating, brain fog, disorientation) • Headache and/or head pressure • Nausea • Otologic symptoms (e.g., ear pain, tinnitus, fullness, pressure, hearing loss) • Vestibular dysfunction (e.g., dizziness, vertigo, imbalance, illusion of movement) • Vision changes (e.g., double vision, blurred vision)

Red Flags

☑ Assess patient for red flags and consider urgent medical evaluation to higher level of care or emergency intervention for sign/symptoms including, but not limited to, the following:

Red Flags
• Glasgow Coma Scale score <13 • Witnessed loss of consciousness or deteriorating level of consciousness • Seizure • Severe or worsening headache • Repeated vomiting • Focal weakness • Ataxia • Unequal pupils • Double vision or loss of vision • Inability to recognize people or disoriented to place • Increased restlessness, combativeness, or agitated behavior • Abnormal speech • Sudden unilateral hearing loss or unilateral tinnitus • Other severe systemic symptoms (e.g., chest or acute abdominal pain, shortness of breath, etc.)

Environmental or Medical Conditions

AHI is rare compared to other medical conditions and currently lacks objective findings. Given that more prevalent medical conditions are more likely to occur in patients, it is essential to consider these common diagnoses when evaluating individuals who have experienced an AHI sensory event. Additionally, patients may have both an AHI and other medical conditions simultaneously.

Consider the following in your differential diagnosis when conducting the AHI workup. Please note that this is not an all-inclusive list:

- Acute anxiety disorder
  - Note: AHI can be frightening and cause anxiety reactions even in people who do not have a history of anxiety disorders.
- Alcohol intoxication
- Benign paroxysmal positional vertigo (BPPV)
- Cerumen impaction
- Drug intoxication
- Eustachian tube dysfunction
- Functional neurologic disorder
- Infection (e.g., acute otitis media, meningitis, encephalitis)
- Labyrinthitis
- Meniere's disease
- Migraine headache, to include atypical migraine (e.g., vestibular, ocular)
  - Note: AHI can be associated with migraine-like headaches, including atypical migraine, in people who do or do not have a history of migraine.
- Persistent postural-perceptual dizziness (patients with symptoms greater than 3 months)
- Seizure, including more subtle complex partial seizures without convulsions, and post-ictal state
- Shingles, post herpetic neuralgia, or complications thereof
- Sinus infection
- Stroke/Transient Ischemic Attack (TIA)
- Vestibular neuritis

Physical Examination, Laboratory Studies, and Neuroimaging

Conduct a symptom-focused physical examination following standard practice and document findings in the medical record. Consider additional evaluations in your assessment based on the patient's clinical presentation.

The PCM should order a standard laboratory panel and neuroimaging for all patients who report an AHI sensory event. Symptoms and clinical judgment should guide further laboratory studies, imaging, or evaluations. The recommendations below are not exhaustive and are based on medical literature and consensus from an expert working group on AHI across multiple disciplines.

Standard AHI Evaluation

Standard AHI Evaluation
(Conduct for all AHI patients)

Physical Exam	Laboratory Panel	Neuroimaging
• Symptom-focused physical examination as per standard practice • Full neurologic exam • Cranial nerve evaluation with a strong focus on abnormal eye movements and auditory/otologic findings • Motor function and balance • Sensory evaluation • Mental status exam • Deep tendon reflexes • Gait and coordination	• Complete Blood Count (CBC) • Comprehensive Metabolic Panel (CMP) • Thyroid Stimulating Hormone (TSH) • Thyroxine (Free T4) • Erythrocyte Sedimentation Rate (ESR) • C-Reactive Protein (CRP)	• Magnetic Resonance Imaging (MRI) Brain without contrast (Request diffusion weighted imaging in the MRI order)

Additional Symptom-Guided Evaluation

Additional Symptom-Guided Evaluation

Symptom Domain	Signs and Symptoms	Evaluation Considerations	Additional Study Considerations
Cognitive and Behavioral	• Difficulty remembering • Mental fog • Difficulty concentrating • Feeling slowed • Irritability • Feeling more emotional	• Patient Health Questionnaire- 9 (PHQ-9) • Generalized Anxiety Disorder -7 (GAD-7) • Consider ordering a computerized neurocognitive assessment (NCAT) to compare to baseline. Baseline tracking used in the MHS is the Automated Neurocognitive Assessment Metric (ANAM). • Consider standardized cognitive evaluations (e.g., Montreal Cognitive Assessment [MoCA], Standard Assessment for Concussion [SAC]) • Consider evaluation for sleep disturbances. • Consider endocrine workup/referral.	• B12/Folate • 25-Hydroxy Vitamin D • Urinalysis • Urine drug or heavy metal screen (in appropriate context, with clinical indication)
Balance and Vestibular	• Balance problems • Dizziness • Nausea • Lightheadedness	• Dix-Hallpike and roll tests to evaluate for BPPV • Extra-ocular eye movements and note nystagmus • Horizontal and vertical saccades • Dizziness Handicap Inventory (DHI) • Activities-Specific Balance Scale (ABC)	• B12/Folate • 25-Hydroxy Vitamin D • MRI Brain with Internal Auditory Canals (IACs) with and without contrast

			• Nerve conduction studies for balance or gait abnormalities • Consider orthostatic blood pressure testing for lightheadedness.
Visual and Oculomotor	• New vision changes • Light sensitivity • Difficulty reading • Diplopia	• Fundoscopic examination • Extra-ocular eye movements and note nystagmus • Horizontal and vertical saccades	• Visual acuity evaluation
Auditory	• Sound sensitivity • Tinnitus • Hearing concerns • Ear pressure	• Otoscopic evaluation for infection, cerumen impaction • Weber/Rinne Test • Tinnitus Hearing Survey	• Audiogram • MRI Brain with IACs with and without contrast for unilateral tinnitus and/or with clinical indication after audiogram
Sleep	• Drowsiness or fatigue • Decreased sleep duration • Trouble falling asleep	• Upper airway evaluation and Mallampati scoring • Neck circumference • Consider additional sleep evaluations based on patient presentation (e.g., Pittsburgh Sleep Quality Index [PSQI], Insomnia Severity Index [ISI], Epworth Sleepiness Scale [ESS]). • Consider endocrine workup/referral to endocrinology.	• Polysomnography • Iron panel if clinical suspicion for restless leg syndrome • 25-Hydroxy Vitamin D
Headache	• Headache with cognitive tasks • Photophobia • Phonophobia	• Fundoscopic evaluation • Headache Impact Test-6 (HIT-6) • Consider endocrine workup/referral to endocrinology.	• 25-Hydroxy Vitamin D • Computed Tomography (CT) of the head if red flags are present • Visual acuity evaluation

Symptom Guided Management

There is insufficient evidence to recommend a specific treatment for patients with reported AHI. Treatment should be symptom-driven and typically involves an interdisciplinary approach and collaboration amongst specialties. PCMs should initiate recommended specialty referrals and employ primary care management strategies based on symptom presentation. The additional clinical resources provided are established guidelines used across the DOD and VA. While they are not specifically designed explicitly for the management of reported AHI, they may be useful in guiding symptom management.

Symptom-Guided Management*

Symptom Domain	Signs and Symptoms	Primary Care Management Strategies	Additional Resources
Cognitive and Behavioral	• Difficulty remembering • Mental fog • Difficulty concentrating • Feeling slowed • Irritability • Feeling more emotional	• Refer immediately to behavioral health or emergency department for any concerns about harm to self or others. • Consider acute intervention in cases of acute stress reaction: education, reassurance of safety. • Consider mindfulness, deep breathing and relaxation, exercise. • Consider guidance on an alternative work schedule to allow for periodic breaks during the day. • Consider follow up ANAM and comparison to baseline.	• Primary Care Behavioral Health Clinical Pathways • TBICoE Cognitive Rehabilitation CR • VA/DOD PTSD and ASD CPG
Balance and Vestibular	• Balance problems • Dizziness • Nausea	• Control nausea with short-term use of anti-emetics if needed. • Evaluate and treat benign paroxysmal positional vertigo or other underlying cause of dizziness. • Initiate early referral to audiology and physical therapy. • Consider common migraine treatments, as well as migraine variants such as ocular migraine and vestibular migraine.	• TBICoE Dizziness and Visual Disturbances after TBI CR
Visual and Oculomotor	• New vision problems • Light sensitivity • Difficulty reading • Diplopia	• Take breaks. Patients should follow the 20/20/20 rule: Every 20 minutes, look at something at least 20 feet away for 20 seconds especially when reading, watching television, or using an electronic device. • Reduce glare. Instruct patients to use natural light whenever possible. • Patients may benefit from temporary use of tinted lenses, use of night shift mode on electronic devices, or other blue light filters.	• TBICoE Dizziness and Visual Disturbances after TBI CR • Eye and Vision Care Following Blast Exposure and/or Traumatic Brain Injury: CR for the Eye Care Provider
Auditory	• Sound sensitivity • Tinnitus • Hearing concerns • Ear pressure	• Evaluate and treat for underlying cause of symptoms, such as cerumen impaction or medication-induced tinnitus. • Initiate early referral to audiology.	• DoD Tinnitus Clinical Practice Recommendation
Sleep	• Drowsiness or fatigue • Decreased sleep duration • Trouble falling asleep	• Provide patient education on healthy sleep practices. • Evaluate for and limit the use of caffeine, alcohol, nicotine, and other substances that can impact sleep architecture.	• TBICoE Sleep Disturbances Following mTBI CR
Headache	• Headache with cognitive tasks • Photophobia • Phonophobia	• Consider common migraine treatments, as well as migraine variants such as vestibular migraine.	• TBICoE Headache Following mTBI CR • VA/DOD CPG for Headache

*Consider endocrine referral or workup with clinical concern/indication. See TBICoE Neuroendocrine Dysfunction Fact Sheet for additional guidance in the mTBI patient population.

NICoE Referral Guidance and AHI Information Line

The National Intrepid Center of Excellence (NICoE) in Bethesda, Md., is an interdisciplinary, holistic clinic within the Defense Intrepid Network (DIN) and the MHS specializing in traumatic brain injury (TBI) care and brain health. NICoE currently serves as the primary care site for patients with potential AHI.

All patients reporting AHI should be referred to the NICoE for an AHI virtual assessment to ensure standard documentation of symptoms.

Referrals via MHS GENESIS:
For referrals via MHS GENESIS, select "Brain Injury Medicine" from the dropdown menu and indicate "MTF-MTF referral to NICoE Bethesda (DMIS 6224) for AHI Evaluation" in comments.

NICoE providers may refer patients to sub-specialty providers or to another DIN location based on the patient's clinical presentation or geographic location. Specialty services available through the NICoE and the DIN include behavioral health, audiology, vestibular physical therapy, cognitive rehabilitation services, neurology, and sleep medicine, and others. Specialty availability may vary by location.

The NICoE AHI Information Line and **AHI Provider Inbox** are also available for clinical consultation and decision-making support for acute and chronic care of patients with reported AHI across the MHS.

NICoE Information Line and Provider Inbox

AHI Information Line	AHI Provider Inbox
301-319-3710 Option 6 Hours of Operation: Monday—Friday, 8 a.m. to 5 p.m. ET	Dha.bethesda.j-11.mbx.nicoe-ubi@health.mil Monitored Daily: Response time 24 – 48 hours

AHI Patient Registry

The purpose of the AHI Patient Registry is to provide performance improvement-driven data collection and analysis of patient medical data related to reported AHI. Knowledge and characteristics of these incidents can be expanded for further advancements in the diagnosis, treatment, and outcomes of AHI-affected individuals.

Participation in the AHI Patient Registry is voluntary and does not affect a patient's access to medical care. To participate, both individual and agency consent must be documented using the DHA Form 245: AHI Patient Registry Consent, accessible via the DHA Forms Library. The NICoE or designated ISC is responsible for completing the consent process.

An AHI Patient Registry Frequently Asked Questions document is available to support providers in obtaining consent for patients to participate AHI Patient Registry.

Coding Guidance

The full health impacts of AHIs are not well characterized. To identify, characterize, track, and improve AHI-related health care in the MHS, use the following sequence for the first coding line when documenting the patient healthcare encounter in MHS GENESIS.

Additional Symptom-Guided Evaluation (Conduct for all AHI patients)
ICD-10 Codes

Primary AHI Codes	R44.9, unspecified symptoms and signs involving general sensations and perceptions, or R29.90, unspecified symptoms and signs involving the nervous system
Secondary Symptom Codes	Code presenting symptoms that appear to be associated with the AHI event (e.g., R51.9 headache, R42 dizziness, R00.2 palpitations)

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Additional Resources

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