

HEADACHE MEDICINE CORE CURRICULUM

(Note: this document has not been adopted by the United Council for Neurologic Subspecialties and is currently under review: June 2005)

I. CORE CURRICULUM

A. Traditional Curriculum Components

The following outline describes the core curriculum as approved by the Committee on Sections of the AAN. Trainees will be expected to use this outline as a guideline for subject areas as they progress through rotations and programs.

1. Definitions
 - a. Primary Headache: a head pain syndrome with associated symptoms and/or signs whose historical occurrence or phenomenology occurs in the absence of intra-cranial or systemic pathology.
 - b. Secondary Head or Face Pain: a head or face pain syndrome with or without associated symptoms and/or signs whose historical occurrence or phenomenology occurs in temporal association with intra-cranial, extra-cranial or systemic pathology.
2. Segments
 - a. ANATOMY AND PHYSIOLOGY
 - b. CLASSIFICATION OF HEADACHE
 1. General/Nosologic
 - a. ICHD
 - b. US Headache Consortium
 2. Secondary Headache
 3. Primary Headache
 - a. Migraine
 1. Aura and cortical spreading depression
 2. Headache and associated features
 3. Treatment
 - a. Acute
 - b. Preventive
 - b. Tension Type Headache
 - c. Cluster Headache and other Headaches of Short Duration
 - d. Other Headaches Unassociated with structural abnormalities of the brain
 4. Pediatric Headache
3. Appendix A outlines each segment, describing the required performance base
4. Diagnostic and Treatment Methods
Trainees must understand the theory, risks, benefit, contraindications, practical applications and suitable criteria for referral in relation to the following procedures and techniques
 - a. Imaging

1. CT
 2. MRI
 3. X-Ray
 - b. Lumbar puncture
 1. Diagnostic
 2. Therapeutic
 - c. Nerve blocks
 - d. Facet injections
 - e. Trigger point injections
 - f. Botulinum toxin/chemodenerivation
 - g. Infusion therapies
 - h. Ablative therapies
 - i. Acupuncture
 - j. Behavioral therapies
 1. Biofeedback and relaxation
 2. Cognitive behavioral therapy
 3. Physical and manipulative therapies
 - k. Integrative therapies
 1. Supplements and herbal
5. Participation in Headache Research
The training in Headache Medicine must provide the opportunity for active trainee participation in research projects pertinent to Headache Medicine.
 6. Gain experience and instruction in the establishment of Headache Centers including issues regarding outcomes, quality of care and disease management.
 7. Information technology and database management
 8. The trainee must understand the role of the consultant according to the instruction of faculty and directors.
 9. Conferences must be organized, held, and attended regularly. The number of trainees will necessarily limit these, though the faculty will encourage the trainee to actively seek inclusion in institutional grand rounds, multidisciplinary conferences and departmental trainee teaching seminars.
 10. The trainee must take an integral part in the teaching of Headache Medicine to trainees, medical students and other health-care professionals.
 11. Quality improvement and evaluation.

B. Goals

1. The overall intent of the educational program and its component parts is to provide the advanced knowledge required for best practice of Headache Medicine. Domains of knowledge must include:
 - a. Clinical Practice
 - b. Teaching
 - c. Clinical Science
 - d. Basic Science

2. In each domain, published knowledge is available to train practitioners and to introduce the concepts necessary for further study in any of the designated areas for the purpose of creating practitioners, clinician scientists and researchers. The ultimate goal of this enterprise is to improve the care of all headache patients

C. Objectives for Trainees

1. *Clinical and Research Objectives*
The specific skills or changes in behavior which trainees should be able to demonstrate upon completion of the program include the following: a headache specialist should be able to care for routine and complex headache patients of all types and should be competent to design research studies capable of advancing basic knowledge and quality improvements in the area of patient care.
2. *Teaching Objectives*
The ability to teach others the scope of necessary knowledge appropriate for their area of family practice, internal medicine, etc. follow upon the attainment of the above skills and changes in behavior. These functions, taken together, are fundamental to the perceived need of a Neurologic Sub-specialty Area (NSA) in Headache Medicine.

D. Methods of Training to be Used

1. Training will occur in the facilities of the training institution. In the absence of a subspecialty headache clinic, the trainee will work in close physical association with the Program Director and/or mentor. Training activities should include Didactic, Clinical Methodological and Research Techniques including clinical trials.
2. General requirements
At least 80% of the time should be spent in supervised outpatient and inpatient care.
 - a. In-patient needs
If not available at the primary institution, inpatient headache care should be available by Preceptorship
 - b. Ambulatory care requirements
 1. A variety of patients from diverse demographic segments should be available
 2. The presence of full time clinics in neurology (for non-neurologist trainees) dental/oral surgery, otolaryngology, neurosurgery, ophthalmology, general medicine and family practice is recommended to insure that the diagnostic spectrum of headache types will be represented. If the presence of a full-time clinic is not available:
 - a. Elective time in these clinical areas must be available at an affiliated facility providing the above resources.
 - b. Percentage time in these clinical areas must be determined on the basis of the primary subspecialty of the program or medical director and the needs of the new graduate from residency.
3. Preferred availability of multi-disciplinary teams

- a. Ideally this offers the best opportunity for training, especially for psychological assessment and management of facial pain and headache as a chronic pain disorder

4. Affiliations

- a. Recognized expertise in Headache Medicine outside of the primary, academic institution should be utilized in order to provide instruction in clinic development and practice management

E. Methods of Evaluation For Individual Programs

1. Program success will be measured by both internal and external metrics. These should include, but not be limited to:
 - a. Pass rate on sub-specialty examination.
 - b. Contributions to general knowledge in the disease management area.
 - c. Recognition by the ruling bodies of the UCNS, AHS and specialty associations of origin for non-neurologists.
 - d. National recognition of mentors.
 - e. Fulfillment of dynamically defined, competency based evaluations using on-site and off-site evaluation teams including regular review by UCNS and UCNS Accreditation Council where appropriate

F. Methods of Feedback For Individual Programs

1. Feedback will be provided by internal review from departmental and institutional sources to include the depth of commitment of the institution of origin using standard metrics from other recognized specialties (space, faculty development, financial support and research time).
2. Standard channels for external feedback as defined by UCNS and UCNS Accreditation Council. On and offsite review will be used for continuous quality improvement.

Appendix A. Core Curriculum for Trainee in Headache Medicine

The Core Curriculum for Headache Medicine Training in Headache Medicine should adequately address the following core concepts:

The mechanism of migraine and the applicability of this mechanism to acquired headache

The pathophysiology of the recognized subtypes of head pain including cluster headache, trigeminal neuralgia and tension type headache

The classification of headache including the International Headache Society Classification

The neuroanatomy, neurophysiology and neurochemistry of the processes underlying head pain syndromes and associated problems including comorbidity, neuropsychiatry and cerebral vascular disease.

An adequate knowledge of general neurology is required to critically evaluate the history and physical examination of the patient presenting with headaches.

The adequate teaching of Headache Medicine requires extensive knowledge of the epidemiology, economic and pharmacology of migraine and the other headaches.

Secondary or symptomatic headache will present either with unique features and associations. Symptoms and signs typical of the underlying disorder can frequently help in their diagnosis. A headache specialist must be facile in the diagnosis of these illnesses.

Definitions

Primary Headache: a head pain syndrome with associated symptoms and/or signs whose historical occurrence or phenomenology occurs in the absence of intra-cranial or systemic pathology.

Secondary Head or Face Pain: a head or face pain syndrome with or without associated symptoms and/or signs whose historical occurrence or phenomenology occurs in temporal association with intra-cranial or systemic pathology.

Content of subjects to be taught

ANATOMY AND PHYSIOLOGY

- Know the peripheral ramifications of the Trigeminal nerve, including the ganglia and trigeminovascular connections.
- Know the common conditions associated with dysfunction in the peripheral branches of the trigeminal system including cutaneous nociception, muscular, osseous/and extradural sources (sinuses and teeth), and dural structures including blood vessels
- Know the presumed mechanisms of trigeminal neuropathy, myofascial pain of the face and head and the implications of the central processing of nociceptive input from the structures involved.
- Be aware of the existence of Exteroceptive Temporalis muscle Suppression, and its utility for diagnosing headache of various types.
- Understand the importance of the central processing of nociceptive signaling from the trigeminal nucleus caudalis (TNC) and the structures of the descending inhibitory pathways including the Periaqueductal Gray (PAG), median and dorsal raphe, and the Red Nucleus.
- Know the pathways for central processing of head and face pain via the ventral thalamus, and somatosensory cortex.

CLASSIFICATION OF HEADACHE

- Know the general principles underlying the International Classification of Headache Disorders (ICHD) 2nd edition (Cephalalgia 24 {Supp 1}. 2004) of the International Headache Society.
- Know the concept of primary and secondary headache.
- Be aware of the existence of AAN endorsed Headache Consortium guidelines for Headache diagnosis and treatment.

Acute Headache

- Know the steps necessary to rule out headache associated with acute morbidity and mortality (e.g. acute subarachnoid hemorrhage {ASAH}, Pheochromocytoma, acute glaucoma, Acute frontal, ethmoid or sphenoid sinusitis, meningitis with fever, giant cell arteritis, etc.).
- Know the assessment of the patient with acute headache and concurrent medical or neurologic complaints.
- Know the probable diagnosis in a patient presenting with a chief complaint of acute headache.
- Direct the evaluation and care of acute headache.
- Guide treatment and appropriate follow-up of patients presenting with a chief complaint of acute headache.

Secondary Subacute and Chronic Headache

- Know the steps necessary to rule in secondary causes of headache, especially those with reliable historical, physical examination and/or test-related features (e.g. temporal arteritis, high and low cerebrospinal fluid pressure, traumatic brain injury, trigeminal neuralgia, meningitis, etc.).
- Know the assessment of the patient with subacute, non-recurrent headache and concurrent medical or neurologic complaints.
- Know the probable differential diagnosis in a patient presenting with complaint of subacute headache.
- Direct the evaluation and care of subacute non-recurrent headache including interpretation of test findings and results.
- Guide treatment and appropriate follow-up care of patients with secondary headache including considerations for concurrent medical, neurologic or surgical disease.
- Evaluate the secondary headaches associated with neurologic disease including cerebrovascular accidents other than ASAH.
- Discuss the natural history of post-traumatic headache in patients with mild to moderate head injury.
- Discuss the evaluation of patients presenting with headache or facial pain associated with cranial nerve complaints.
- Direct the assessment and treatment of conditions associated with neuralgic pain of the head (e.g. Trigeminal Neuralgia, Occipital Neuralgia, Glossopharyngeal Neuralgia, etc.).
- Assess the patient with complaints referable to the temporomandibular joint including Myofascial Pain and Dysfunction.

Primary Headache

- Distinguish headaches of primary origin from those resulting from secondary cause.
- Describe the differences among the primary headache types and make appropriate diagnosis based on evidence-based criteria.
- Diagnose the primary headaches in a non-acute, out patient setting.
- Assess the severity of disease on the basis of headache type, frequency, severity, associated symptoms and comorbid features complicating diagnosis and treatment.

MIGRAINE

- Know the ICHD criteria for migraine without aura, migraine with aura, and the subtypes of migraine including basilar, familial hemiplegic and migrainous stroke, and its implications for treatment.
- Know the epidemiology of migraine in America.
- Know the neurovascular theories of migraine and their importance for treatment.
- Know the genetics of Familial Hemiplegic Migraine and its implications for Migraine with and without aura
- Describe the significance of central and peripheral serotonin receptors and the relevance of current acute and preventive treatments for migraine.
- Develop a treatment plan for patients with migraine with and without aura based on clinical presentation and evidence based Guidelines.
- Evaluate the patient with chronic headache and develop appropriate test/treat strategies including behavioral and complimentary therapies.
- Know the use of inpatient strategies for treating status migrainosis and chronic daily headache including repetitive dose DHE-45, behavioral management and detoxification.

Migraine Aura

- Know the hypothesis of Cortical Spreading Depression (CSD) and its possible importance in migraine aura
- Know the implications of the work of Lashley suggesting cortical spreading depression in humans as the underlying mechanism of migraine aura.
- Be aware of the imaging evidence for cortical, subcortical and brainstem changes in provoked and unprovoked migraine with aura.
- Understand the implications of electrophysiological evidence showing failure of extinction to repetitive stimuli in patients with migraine with and without aura.
- Be aware of the growing body of evidence from imaging studies confirming cortical activation before and during migraine headache.

Migraine Headache

- Know the influence of Wolff's vascular theory in determining the importance of the vascular structures of the head for migraine generation.
- Know the importance of the Trigeminovascular hypothesis of Migraine (Moskowitz) and it's components including the trigeminal nerve, the dural blood vessels, and the vasoactive peptides, Substance P and the kinins.
- Know the experimental evidence supporting the prime mediation of migraine via specific serotonin receptors including 5HT1D α , β and 5HT1B.
- Know the presumed sites of action of the triptans including possible central mediation of neuronal firing rates in the TNC.
- Be aware of the growing body of evidence from imaging studies for the existence of activation in other structures including the nucleus of the solitary tract, red nucleus and frontal/temporal areas mediating pain response.
- Understand the underlying principles of cutaneous allodynia, its relevance to migraine diagnosis and treatment, and its correlates in chronic pain.

Treatment of Migraine

- Be aware of the US Headache Consortium Guidelines for the Treatment of Migraine.

Acute Treatment

- Understand the difference between acute, symptomatic and rescue treatment of migraine.
- Know the mechanism of action of the triptans and the exclusionary criteria for use in adults.
- Be aware of the general considerations for use of the different triptans.

- Know the appropriate use of non-steroidal anti-inflammatory drugs (NSAIDs) and other short acting analgesics in the treatment of acute migraine attacks.
- Be able to treat a well-diagnosed migraine patient.
- Understand the implications of frequent analgesic use and analgesic rebound.

Preventive Treatment

- Know the major classes of preventives of migraine including beta-adrenergic blockers, Tricyclic antidepressants, calcium channel blockers, anticonvulsants and atypicals.
- Understand the use of methysergide.

TENSION TYPE HEADACHE

- Know the ICHD criteria for Episodic and Chronic Tension Type Headache.
- Differentiate Episodic Tension Type Headache from Migraine without Aura.
- Assess the complex patients with frequent headache and recognize the presence or absence of analgesic rebound.
- Develop a plan of treatment for the patient with Chronic Tension Type Headache and frequent headache.

CLUSTER HEADACHE, TRIGEMINAL AUTONOMIC CEPHALAGIAS AND OTHER HEADACHES OF SHORT DURATION

- Know the ICHD criteria for Episodic and Chronic Cluster Headache.
- Describe the appropriate historical/clinical features of patients presenting with Episodic Cluster Headache
- Distinguish Cluster Headache from other headaches of short duration (e.g. Chronic Paroxysmal Hemicrania (CPH), “Ice pick pain”, etc.)
- Develop treatment plans for patients with Episodic and Cluster Headache.
- Know the importance of indomethacin in the treatment of primary headaches and its appropriate use.

OTHER HEAD AND FACIAL PAIN UNASSOCIATED WITH STRUCTURAL ABNORMALITIES OF THE BRAIN

- Discuss the evaluation and treatment of patients presenting with neuralgic pain in the head and face.
- Understand and direct the evaluation and treatment of patients with Trigeminal Neuralgia and the other named neuralgias of the head and face (e.g. occipital, Glossopharyngeal, etc.).
- Evaluate the patient with exercise induced or coital headache, and develop appropriate diagnostic and treatment strategies for those conditions.

PEDIATRIC HEADACHE

- Discuss the evaluation of pediatric patients presenting with acute headache unassociated with systemic or neurologic complaints or findings.
- Understand the presentation of pediatric patients with precursors and equivalents of migraine.
- Develop appropriate testing strategies and treatment for pediatric patients presenting with subacute and chronic headache.
- Coordinate multidisciplinary evaluation and care of the pediatric patient with significant social, familial or personal complications and comorbidities.