

1. Michel Aubé MD, Associate professor of Neurology, Montreal Neurological Hospital. Clinical supervisor to guide learning in headache medicine. Clinical research project supervisor.

Founder Headache Medicine Program McGill University
Co-founder of the MUHC Headache clinic
Active Clinical practice specializing in headache
Clinical and basic science studies in headache

2. Lucy Vieira MD FRCP (C), Assistant Professor of Neurology, Montreal General Hospital and Montreal Neurological Hospital. Clinical supervisor to guide learning in headache medicine. Clinical research project supervisor.

Co-founder of the MUHC Headache clinic
Active clinical practice specializing in headache
Member of the American and International Headache Societies
90% of activities are clinical
Strengths: active interest in teaching headache medicine and developing the resources and activities of the MUHC headache clinic.

| Names of the Teaching Faculty: Pain Division

1. Yoram Shir MD, Professor, Department of Anaesthesia and Edwards Chair in Clinical Pain, McGill University.

Montreal General Hospital. Clinical supervisor to guide learning in pain medicine. Clinical research project supervisor.
Director – MUHC Alan Edwards Pain Management Unit
Active Clinical practice specializing in pain
Clinical and basic science studies in pain

2. Roderick Finlayson, MD, Associate Professor, Department of Anaesthesia
3. Mary-Ann Fitzcharles, MD, Associate Professor, Department of Medicine
4. Angela Genge, MD, Assistant Professor, Department of Neurology & Neurosurgery
5. Dr. Line Jacques, Associate Professor, Department of Neurology & Neurosurgery
6. Dr. Bobbi Popovec, MD, Assistant Professor, Department of Anaesthesia
7. Mark Ware, MD, Assistant Professor, Departments of Family Medicine and Anaesthesia

Academic Facilities

Headache Division:

Facilities for clinical pursuits: The Fellow will see new patients referred with headache disorders and his/her own follow up patients within the clinical areas of the MNH and MGH. The fellow will review and discuss each case with by Dr. Aube or Vieira after he/she has finished seeing the patient. There are excellent facilities in

both institutions. The Fellow will have access to be able to review imaging and other test results and to discuss cases with other specialists that may be involved in the department of neurology, radiology, neurosurgery or pain.

Facilities for academic pursuits: The Fellow will conduct a clinical research project under the supervision of Drs Aube and Vieira. The vast resources of McGill will be at his/her disposal for literature searches, and other forms of guidance. Important journals are also available in hard copy at the MNH and/or MGH libraries including Headache, Cephalalgia, Neurology, JAMA, and BRAIN. The fellow will also be provided with a list of material that he/she should cover. The fellow will be encouraged to attend important international headache meetings as well. The fellow will be shown how to conduct occipital nerve blocks by Dr. Aube or Vieira. The fellow will have the opportunity to assess how these and other therapeutic interventions may be applied to patient care.

Pain Division

Facilities for clinical pursuits: The Fellow will see new patients referred with chronic pain disorders and his/her own follow up patients within the clinical areas of the MGH. The fellow will review and discuss each case with Dr. Shir or a delegate after he/she has finished seeing the patient. There are excellent ambulatory clinic and treatment facilities on the MGH campus. The Fellow will have access to be able to review imaging and other test results and to discuss cases with other specialists that may be involved in the department of neurology, radiology, neurosurgery or pain.

Facilities for academic pursuits: The Fellow will conduct a clinical research project under the supervision of Dr. Shir. The vast resources of McGill will be at his/her disposal for literature searches, and other forms of guidance. Important journals are also available in hard copy at the MGH library. The fellow will also be provided with a list of material that he/she should cover. The fellow will be encouraged to attend important international pain meetings as well. The fellow will be shown various interventional treatments by Dr. Shir. The fellow will have the opportunity to assess how these and other therapeutic interventions may be applied to patient care.

Fellow Duties and Responsibilities

- The fellow will not be expected to take call nor cover any inpatient service. The fellow may occasionally be asked to see a hospitalized headache patient for specialized consultation under the guidance of the respective supervisors.
- The Fellow will not be asked to supervise residents but will be encouraged to participate whenever possible in discussions of cases seen by residents in the headache clinic or the Alan Edwards Pain Management Unit.
- The fellow will be expected to spend some clinical time with Drs. Aube and Vieira (about 70%) and with Dr. Shir at the Alan Edwards Pain Management Unit (about 30%). In addition, about one day a week will be set aside for the fellow to work on his/her clinical research project.
- **Headache Division:** The outpatient clinic responsibilities include 2 half day clinics with Dr. Vieira and 3 half day clinics with Dr. Aube and 2-3 half day clinics with Dr. Shir.

- **Pain Division:** The outpatient clinic responsibilities include assessment and ongoing follow-up of chronic pain patients, appropriate consultations with and referrals to other multidisciplinary team members, ensuring continuity of care for assigned patients, developing treatment plans, communications with pain authorities both in and out of the MUHC, being available to respond in case of pain crisis with assigned patient. All under the supervision of the assigned staff doctor.
- The teaching responsibilities towards residents consist of actively participating in the discussions of patients being reviewed by the staff. In addition, the fellow would be expected to present occasionally at the monthly Headache Forum and the weekly Alan Edwards Pain Management Unit Rounds, which are widely attended by residents.
- The fellow might also participate in specific seminars directed towards particular groups such as emergency residents, or to discuss certain areas with groups of residents (ie: journal club regarding articles on headache and chronic pain).
- Support staff available to the fellow:
 - **Headache division:** secretarial support is available at both institutions.
 - **Pain division:** secretarial support is available at the MGH Campus. A nurse clinician is assigned full-time to the MUHC Alan Edwards Pain Management Unit and a clinical nurse specialist is available for consultations as needed. The Centre's Clinical Research Unit will support clinical research activities.
- Proposed meetings to be attended by the fellow: the fellow should attend the meeting of the American Headache society in 2012 or 2013 as well as the Annual Canadian Pain society meeting and the World Congress on Pain.
- The fellow will be expected to conduct a clinical research project and write up at least an abstract by the end of his/her fellowship year. If the research project will need to continue beyond the year, he/she will be expected to participate in the final analysis of the data and the preparation of a manuscript for submission for publication.

Curriculum

- The Intended case load for the Fellow shall be: 2 -3 new patients and 2 follow up patients per half day clinic. This should give ample time for reflexion and review of each case with the supervising staff. The fellow will thus see 12 to 18 new patients and 12 follow up patients per week which should give him/her adequate exposure to different types of patients with headache disorders and chronic pain disorders.
- The fellow will gain access to a variety of headache and pain patients referred from the community, emergency room, and less so from other subspecialties. For the headache patients, the majority will be migraine (many of these with probable chronic migraine) which is typical for headache subspecialty clinics. The fellow will also see the full gamut of primary headache disorders and many secondary headache disorders. The fellow will code each case he/she sees according to the International Classification of Headache disorders and this will be entered into a searchable database which can be reviewed at different intervals to ensure that there is a balance of cases.

- The fellow will be given a detailed list of areas that he/she is expected to cover through self study over the course of the fellowship. The fellow will also be supplied with seminal articles and any other articles of interest that come up for discussion in relation to patients seen in the clinic.
- There will be a monthly conference called the Headache Forum in which the fellow or one of the staff presents a case and reviews the literature or presents a review of an area of literature or presents original research. Twice a month there will be a meeting of the Headache group to discuss the diagnosis and/or management of a particularly refractory headache patient – one person will present the case and then the team will discuss treatment approaches for that patient. In some cases outside members may be asked to participate including pain clinicians and neurosurgeons.
- The Fellow will be expected to attend and actively participate in all of these conferences and present at several of the monthly conferences. He/she may also present at the twice monthly patient review and may participate in other seminars as discussed above such as journal club with the residents around the subject of headache.

Evaluation

- Fellows will be under the direct supervision of Drs. Aubé, Vieira and Shir and be provided with regular feedback.
- Fellows will meet formally on a monthly basis with the supervisors to discuss progress.
- Fellows will be evaluated informally regularly during clinic and in-patient experiences and be provided with feedback
- Formal written evaluations will be provided every 3 months.

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McGill

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Department of Neurology and Neurosurgery Fellowship in Headache and Pain (General and Specific Objectives)

1. Medical Expert/Clinical Decision-Maker

General Requirements

- Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- Access and apply relevant information to clinical practice.
- Demonstrate effective consultation services with respect to patient care, education and legal opinions
- Demonstrate a thorough grasp of and respect for the roles and responsibilities of multidisciplinary professionals in the treatment of chronic pain.

Specific Requirements

Provide scientifically based, comprehensive and effective diagnosis and management for patients with headache disorders and chronic pain.

Clinical:

For a patient with a headache disorder, the fellow will be able to:

- Obtain a complete neurological and/or pain history from adults obtaining a collateral history where necessary
- Perform an appropriate physical/neurological examination.
- Formulate an appropriate provisional diagnosis and differential diagnosis of the problem. In the case of a headache disorder, codify the diagnosis according to the criteria of the ICHD-2.
- Identify potentially important co-morbidities pertinent to the headache/pain disorder.
- Outline an appropriate plan of laboratory investigation.

- Outline an appropriate initial therapeutic plan and a plan designed to follow patient adherence and response to the therapeutic plan.
- Outline an appropriate multidisciplinary treatment plan for the patient's headache/pain condition and ensure that the patient is put in contact with the relevant professionals.
- Be prepared to evaluate the results of the initial therapeutic plan and revise it if appropriate while ensuring continuity of care.
- Exhibit appropriate clinical judgment in outlining a differential diagnosis and an investigative and therapeutic plan, taking into account matters such as the patient's age, biopsychosocial health, risk and cost of investigative procedures, risk and cost of therapeutic interventions, and epidemiology of the disease.

Technical Skills

- To learn/review detailed, practical anatomy of mechanisms involved in headache, facial pain and chronic pain.
- To learn/review detailed pathophysiological mechanisms involved in primary headache disorders, neuralgias, secondary headache disorders and chronic pain.
- To learn/review detailed pharmacological mechanisms in pain transmission and modulation.
- Other technical skills related to the fellowship including lumbar puncture, occipital nerve blocks, trigger-point injections, Botox injections.

Knowledge

(*Specific content to be covered is found in Appendix I)

General Outline

- Have an understanding of the Epidemiology and co-morbidity of headache and pain disorders
- Acquire and understand the neuroanatomic principles and pathological substrates of primary and secondary headache disorders as well as disorders causing chronic pain.
- Become familiar with the neurophysiological principles, including the basic mechanisms of primary and secondary headache disorders and pain transmission and modulation.
- Learn classification and diagnosis of headache disorders according to the International classification of headache disorders II
- Learn classification and diagnosis of pain disorders.
- Learn the clinical neuropharmacology related to all molecules used to treat headache and pain.
- Learn how non-pharmacological interventions may be applied to the treatment of patients with headache and chronic pain including:

psychotherapies, physical therapies, peripheral blocks, implantable devices and surgical procedures.

2. Communicator

General Requirements

- Establish therapeutic relationships with patients/families.
- Obtain and synthesize relevant history from patients/families/communities.
- Listen effectively.
- Discuss appropriate information with patients/families and the health care team.

Specific Requirements

Communicate effectively with patients, their families and medical colleagues (particularly referring physicians), and other health care professionals in both the inpatient and outpatient settings. The fellow will:

- Communicate effectively and regularly with patients and their families.
- Be considerate and compassionate in communicating with patients and families; willingly provide accurate information appropriate to the clinical situation, with a reasonable attempt at prognosis.
- Learn to write concise reports of the clinical findings with conclusions and recommendations comprehensible to the non-specialist.
- Communicate effectively and appropriately with the nurses and paramedical personnel.
- When ordering investigative procedures, ensure there has been adequate communication about the patient with the person who will actually be doing and/or reporting the diagnostic study.

3. Collaborator

General Requirements

- Consult effectively with other physicians and health care professionals.
- Contribute effectively to other interdisciplinary team activities.

Specific Requirements

Be an effective teacher of other physicians (including medical students and house officers), other health care personnel, and patients. The fellow will:

- Provide instruction to medical students and more junior physicians at a level appropriate to their clinical education and professional competence.
- Willingly share knowledge with others with whom they are associated, thus ensuring the most effective delivery of health care to patients.
- Participate in weekly case discussion meetings with multidisciplinary team.

4. Manager

General Requirements

- Utilize resources effectively to balance patient care, learning needs, and outside activities.
- Allocate finite health care resources wisely.
- Work effectively and efficiently in a health care organization.
- Utilize information technology to optimize patient care, life-long learning and other activities.

Specific Requirements

Be proficient in professional skills related to the diagnosis and treatment of headache and pain disorders.

Demonstrate the following professional skills in time management:

- Recognize that effective use of time depends upon punctuality.
- Recognize that effective use of time requires planning.
- Develop speed as well as accuracy in clinical skills.
- Reserve time for reading and keeping current with the neurological and pain related literature.
- Establish routines for carrying out regular activities and adhere to them.

Maintain complete and accurate medical records:

- Record and maintain a complete and accurate medical record for every patient seen; this record will include the patient's history and the findings on physical examination (including the neurological examination), a differential diagnosis, a provisional diagnosis. Effectively coordinate the work of the health care team.
- Indicate, by the treatment plan, that for the optimal treatment of many patients with neurological disorder, a team approach is necessary -- members of the team may include nurses, rehabilitation personnel (physiotherapists, occupational therapists, speech therapists, etc.), psychologists, social workers, etc.
- Identify where an important role(s) can be played by disease focused lay groups with regard to helping the patient and/or family and to facilitate its happening.

5. Health Advocate

General Requirements

Identify the important determinants of health affecting patients.

Contribute effectively to improved health of patients and communities.

Recognize and respond to those issues where advocacy is appropriate.

Specific Requirements

Learn about community resources and related patient support groups; provide assistance to access programs (e.g. home care, occupational and physiotherapy, drug plans, application for nursing homes etc) and participate in their activities.

Educate, be able to generate and access information (e.g. printed material, video tapes web sites) and be available as a resource person to counsel patients effectively on neurological and pain disorders.

Counsel patients on the importance of taking responsibility for their own well-being and recognize the important determinants predisposing to worsening of their symptoms

Understand the role of national and international bodies (e.g. American Headache society, the International Headache society, the Quebec Chronic Pain Association, the Canadian Pain Coalition, the Chronic Pain Association of Canada, the American Chronic Pain Association, the International Association for the Study of Pain) in the promotion of biopsychosocial health, neurological health, and the prevention, detection, and treatment of headache and pain disorders.

6. Scholar

General Requirements

Develop, implement and monitor a personal continuing education strategy.

Critically appraise sources of medical information.

Facilitate learning of patients, house staff/students and other health professionals.

Pass on knowledge of Neurological approaches to other members of the multidisciplinary team.

Contribute to development of new knowledge.

Learn about the ethics of pain management and research

Specific Requirements

Be able to critically assess the neurological and pain literature as it relates to patient diagnosis, investigation and treatment:

- Develop criteria for evaluating neurological literature.
- Critically assess the neurological literature using these criteria.
- Be familiar with the design of experimental and observational studies, especially randomized controlled trials.
- Be able to calculate absolute risk reductions, relative risk reductions and numbers needed to treat or harm.

Be able to participate in clinical or basic science studies as a member of a research team:

- Be able to describe principles of good research.
- Use the above principles, and be able to judge whether a research project is properly designed.
- Be prepared to present research findings to peers at local, national or international conferences.

Be able to participate in the clinico-academic activities of the MUHC Pain Centre:

- Attend academic Pain Rounds regularly and participate in the discussions.
- Present at Pain Rounds at least once during the course of the fellowship period.
- Attend Pain **Fora (Forum?)** organized by the MUHC Pain Centre (usually twice a year).

7. Professional

General Requirements

Deliver highest quality care with integrity, honesty and compassion.

Exhibit appropriate personal and interpersonal professional behaviours with patients/families, peer residents and other health care professionals.

Practice medicine ethically consistent with obligations of a physician.

Specific Requirements

Demonstrate personal and professional attitudes consistent with a consulting physician role:

- Periodically review his/her own personal and professional performance against national standards set for the specialty.

- Be willing to include the patient in discussions concerning appropriate diagnostic and management procedures.
- Show appropriate respect for the opinions of fellow consultants and referring physicians in the management of patient problems and be willing to provide means whereby differences of opinion can be discussed and resolved.

Be willing and able to appraise accurately his/her own professional performances and show that he/she recognizes his/her own limitations with regard to skill and knowledge by appropriately consulting other physicians and paramedical personnel when caring for the patient.

Be willing and able to keep his/her practice current through reading and other modes of continuing medical education and develop a habit of maintaining current his/her clinical skill and knowledge base through continuing medical education.

Appendix I

Content of areas to be covered during the Headache and Pain Medicine Fellowship.

Core Headache Curriculum for fellows:

Adapted from the Core Curriculum of the United Council of Neurological Subspecialties (http://www.ucns.org/certification/pdfs/core_curr_head.pdf) (accessed January 2008)

1. Epidemiology and Comorbidity
 - a. Headache
 - i. Primary
 - ii. Secondary

 - b. Migraine
 - i. Prevalence and incidence – Canada and International
 - ii. Demography including gender and ethnic/racial difference
 - iii. Genetics
 1. CADASIL
 2. Familial hemiplegic migraine
 3. Migraine with aura
 - iv. Burden of disease
 1. Economic impact
 - v. Pharmacoeconomics

B. Comorbidities of Migraine

1. Neurologic
 - a. Stroke including CADASIL
 - b. Sleep
2. Psychiatric
 - a. Depression
 - b. Anxiety
3. Other

II. Anatomy and Physiology

A. Pain Mechanisms

1. Peripheral and central trigeminal pain physiology and anatomy
 - a. Trigeminal nerve including ganglia and trigeminovascular connections
 - 1) central processing of nociceptive signaling from the trigeminal nucleus caudalis (TNC)
 - b. Central processing of head and face pain via the ventral thalamus, and somatosensory cortex
2. Nociceptive neurotransmission
 - a. 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
 - b. Mechanisms of trigeminal neuropathy including but not limited to myofascial pain of the face and head
3. Peripheral and central sensitization
 - a. Cutaneous allodynia and migraine (Burstein)
4. Pain modulation pathways and central antinociceptive network
 - a. Hypothalamus
 - b. Periaqueductal gray

- c. Raphe nuclei
 - d. Locus Coeruleus
 - e. Limbic system
- B. Pathophysiology
1. Head and face pain models
 - a. Animal
 - b. Human
 2. Individual disorders
 - a. Migraine
 - 1) The Sensitive Brain
 - 2) Aura
 - 3) Migraine headache – history of hypotheses
 - 4) Migraine headache – central transmission
 - 5) Serotonin
 - b. Tension type headache
 - 1) Episodic tension type headache and migraine without aura
 - c. Cluster headache and Trigeminal Autonomic Cephalalgias (TACS)
 - 1) Human models
 - 2) Imaging
 - 3) CPH
 - 4) SUNCT
 - d. Neuralgias of the head and face
 - 1) Trigeminal Neuralgia (Tic Doloureux)
 - i. Implications of medical therapies including carbamazepine
 - ii. Imaging
 - iii. Surgical/vascular decompression
 - 2) Occipital Neuralgia
 - e. Post-traumatic headache
 - f. Headache attributed to sinus or dental disease
 - 1) Pain referral patterns
 - 2) Pathways
 - g. Abnormalities of cerebrospinal fluid pressure
 - 1) Pathobiology
 - 2) Imaging
 - 3) Pathophysiologic correlation with symptoms
 - i. Idiopathic intracranial hypertension
 - ii. Spontaneous or provoked intracranial hypotension.
- C. Headache Pharmacology

III. Headache Classification and Diagnosis

- A. International Classification of Headache Disorders – 2 (ICHD-2)
 1. Principles of classification
- B. Primary and Secondary Headache Differentiation
 1. Primary Headache. At completion, the trainee must demonstrate the ability to:
 - a. Distinguish headaches of primary origin from those resulting from secondary cause.
 - b. Describe the differences among the primary headache types and make appropriate diagnosis based on evidence-based criteria.
 - c. Diagnose the primary headaches in a non-acute, out patient setting.
 - d. Assess the severity of disease on the basis of headache type, frequency, severity, associated symptoms and comorbid features complicating diagnosis and treatment
 2. Secondary Headache

- a. Acute Headache. At completion, the trainee must demonstrate the ability to:
 - 1) 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.).
 - 2) Assess the patient with acute headache and concurrent medical or neurologic complaints.
 - 3) Discuss the probable diagnosis in a patient presenting with a chief complaint of acute headache.
 - 4) Direct the evaluation and care of acute headache.
 - 5) Guide treatment and appropriate follow-up of patients presenting with a chief complaint of acute headache.
- b. Secondary Subacute and Chronic Headache. At completion, the trainee must demonstrate the ability to:
 - 1) Rule in secondary causes of headache, especially those with reliable historical, physical examination and/or test-related features (red flags) (e.g. temporal arteritis, high and low cerebrospinal fluid pressure, traumatic brain injury, trigeminal neuralgia, meningitis, etc.).
 - 2) Assess the patient with subacute, non-recurrent headache and concurrent medical or neurologic complaints.
 - 3) Discuss the differential diagnosis in a patient presenting with complaint of subacute headache.
 - 4) Direct the evaluation and care of subacute non-recurrent headache including interpretation of test findings and results.
 - 5) Guide treatment and appropriate follow-up care of patients with secondary headache including considerations for concurrent medical, neurologic or surgical disease.
 - 6) Discuss the natural history of post-traumatic headache in patients with mild to moderate head injury.
 - 7) Discuss the evaluation of patients presenting with headache or facial pain associated with cranial nerve complaints.

C. Primary Headache

1. Migraine

- a. Discuss 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
- b. Describe the epidemiology of migraine in America.

2. Tension Type

3. Cluster and Trigeminal Autonomic Cephalalgias

4. Neuralgias

5. Chronic Daily Headache

D. Secondary Headache, including but not limited to:

- 1. Stroke
- 2. Venous Sinus thrombosis
- 3. Arteritis
- 4. Arterial dissection
- 5. Brain Tumor
- 6. Sinusitis
- 7. Meningitis and encephalitis
- 8. Intracranial Pressure abnormalities
- 9. Toxic and metabolic
- 10. Disorders of homeostasis (see Chapter 10 ICHD-2)

11. Medication overuse
12. Dental, temporomandibular joint disorders
 - a. Myofascial Pain
13. Cervicogenic

IV. Evaluation and Diagnostic Testing

- A. History and Physical Examination
 1. An adequate knowledge of general neurology is required to critically evaluate the history and physical examination of the patient presenting with headaches
- B. Imaging
 1. Computed tomography (CT), CT angiography
 2. Magnetic resonance imaging (MRI), MR angiography, MR venography
 3. CT and MRI myelography
 4. Catheter angiography
- C. Lumbar Puncture
 1. Diagnostic
 2. Therapeutic
- D. Radionuclide Cisternography
- E. Electroencephalography (EEG) (See American Academy of Neurology Practice Guidelines)
- F. Other
 1. Polysomnography
 2. Tissue biopsy
 3. Blood tests
 4. Electrocardiogram, echocardiogram

V. Treatment

- A. Principles of Disease Management and Evidence Based Practice
 1. Outline the general principles underlying the ICHD-2 (Cephalalgia 24 {Supp 1}. 2004) of the International Headache Society
 2. US Headache Consortium Guidelines for headache diagnosis and treatment.
- B. Patient Communication
 1. Education
 2. Counseling
- C. Therapeutic Modalities
 1. Behavioral and non-pharmacologic
 2. Pharmacologic
 3. Physical techniques including but not limited to nerve blocks, cervical facet joint injections, trigger point injections, botulinum toxin, chemodenervation, acupuncture, physical therapy, exercise
- D. Advanced Therapies
 1. Parenteral therapy
 2. Inpatient treatment
 3. Ablative therapy (trigeminal rhizotomy, trigeminal section)
 4. CNS treatments (e.g. shunts, deep brain stimulation)
 5. PNS treatments (e.g. occipital nerve stimulation)
- E. Individual Disorders
 1. Primary headaches
 - a. Migraine
 - 1) Acute, symptomatic and rescue
 - i. Specific
 1. Triptan
 - a. Indications
 - b. Contraindications
 2. Ergots including Dihydroergotamine
 - ii. Non-specific

1. NSAID
 2. Analgesic
 3. Dopaminergic
 - iii. Medications associated with Overuse (Rebound)
 - 2) Preventive
 - i. Indications
 - ii. Comorbidity and contraindications
 - iii. Know the major classes of preventives of migraine including beta-adrenergic blockers, Tricyclic antidepressants, calcium channel blockers, anticonvulsants and atypical
 - iv. Understand the use of methysergide
 - b. Tension Type Headache
 - c. Trigeminal Autonomic Cephalalgias
 - 1) Cluster
 - i. Episodic
 - ii. Chronic
 - 2) Paroxysmal Hemicrania and Indomethacin
 - 3) SUNCT
 - d. Other Primary Headaches
 - 1) Exercise
 - 2) Coital
 - e. Neuralgias including Trigeminal Neuralgia
 2. Secondary headaches
 - a. Idiopathic Intracranial Hypertension
 - b. Intracranial Hypotension
 - 1) Post-dural puncture
 - 2) Spontaneous
 - c. Disorders of homeostasis including sleep apnea
 - d. Medication overuse
 3. Chronic daily headache (primary and second
 - a. Outpatient treatment
 - b. Indications for inpatient treatment
 - 1) Protocols including repetitive dose parenteral therapy, behavioral management and detoxification.
- F. Special Populations
1. Pediatric
 - a. Pharmacologic
 - b. Behavioral
 2. Pregnancy
 3. Elderly
 4. Concurrent medical illness

Core Pain Curriculum for fellows: (International Association for the Study of Pain)

General

- Pain anatomy and physiology
- Pharmacology of pain transmission and modulation
- The development of pain systems
- Understand designing, reporting, and interpreting clinical pain research studies, including evidence based medicine
- Ethics of pain management and research

Pain assessment and psychological aspects of pain

- Pain measurement
- Placebo and pain
- Nerve function tests
- Pain epidemiology
- Psychosocial and cultural aspects of pain
- Sex and gender issues in pain

Treatment

- Pharmacology
- Psychological and behavioral treatments
- Interventional pain management
- Stimulation produced analgesia
- Surgical pain management
- Physical medicine and rehabilitation
- Work rehabilitation
- Complementary therapies

Taxonomy of pain syndromes

Special cases

- Pain in infants, children and adolescents
- Pain medicine in cognitively impaired patients
- Pain relief in substance abusers