

# IASP Curricula Outline on Pain for Dentistry

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## Introduction

Pain is a multidimensional and complex phenomenon that requires comprehensive and ongoing assessment and effective management. The multidimensional nature of orofacial pain requires an interdisciplinary approach to assessment and management. All health care professionals need to serve as advocates for the person in pain and ensure that pain management is based on evidence-based standards and guidelines and ethical principles. Traditionally, Dentistry has focused on the prevention, diagnosis and management of intraoral and orofacial pain.

This means that dental students need to be knowledgeable about (orofacial) pain mechanisms, the epidemiology of pain, barriers to effective pain control, the variety of orofacial pain conditions, and variables which influence the patients' perception of and response to pain. They should be trained to apply valid and reliable methods of clinical pain assessment and to adequately master the range of available methods for the alleviation of orofacial pain.

## Principles

The following principles guide the pain curriculum for the entry level dentist:

1. Pain is a multidimensional experience requiring comprehensive and ongoing assessment and effective management.
2. Dentists play an essential role in the prevention, diagnosis and management of intraoral and orofacial pain.

## Objectives

Dentists at the completion of this pain curriculum will be able to:

1. Provide an adequate diagnosis of intraoral and orofacial pain
2. Perform a comprehensive pain assessment including its impact on the patient
3. Adequately manage the pain and evaluate the effectiveness of those actions

## Curriculum Content Outline (Entry-level, predoctoral)

### I. Multidimensional Nature of Pain

#### A. Introduction

1. Pain as a public health problem
2. Pain as an obstacle to optimal dental care
3. Epidemiology, societal consequences
4. Economic impact
5. Medico-legal, ethical, and compensation issues

#### B. Definition of Pain

1. Relationship between acute, incident, breakthrough and chronic pain
2. Pain terms

3. Philosophical issues
  4. Historical aspects of the study of pain
  5. Biological significance of acute pain (survival value) versus chronic pain
- C. Peripheral and Central Mechanisms of Pain Transmission and Pain Modulation

1. Theories of pain
2. Peripheral distribution of the trigeminal nerve and other nerves of the head and neck, the anatomic relations of the structures which they innervate, and their primary central connections
3. Receptors and afferents of the trigeminal system, non-neural (e.g., glia) mechanisms
4. Brainstem
5. Thalamus and cerebral cortex
6. Features that distinguish the trigeminal system from the spinothalamic and dorsal column lemniscal systems, e.g., the proportion of myelinated to unmyelinated fibers, the occurrence of sites (e.g., tooth pulp, cornea) predominantly or exclusively innervated by nociceptive afferents, the bilateral and disproportionately large representation of the orofacial region in higher levels of the somatosensory system, the nuclear and subnuclear organization of the trigeminal brainstem complex
7. Related motor centers and mechanisms underlying orofacial movement
8. Segmental and brain centers modulating pain transmission
9. Neurochemicals involved in pain transmission and control
10. Genetic aspects
11. Affective, cognitive, behavioral, developmental and aging aspects
12. Interpersonal and psychosocial issues; illness behavior; the influence of political, governmental, and social welfare programs

## II. Pain Assessment and Measurement

1. Measurement of pain, as well as disability, associated distress, and suffering
2. Assessment of pain relief
3. Patient evaluation (psychological and physical status)
4. Objective tests and procedures, e.g., physical exam, tooth vitality tests, radiographs, microbiology, hematology, serology, nerve blocks, chair-side sensory tests, etc.

## III. Management of Pain

### A. Control of preoperative and operative pain and apprehension

1. Non-pharmacological methods
  - a. Psychological and behavioral methods
  - b. Interpersonal strategies of patient management
  - c. Hypnosis, acupuncture, etc.
2. Pharmacological methods – analgesics
  - a. Review of physiologic and pharmacologic considerations
  - b. Selection of agents
  - c. Techniques of administration
  - d. Prevention, recognition and management of complications and emergencies, including principles of advanced life support
3. Pharmacological methods – local anesthesia
  - a. Review of anatomic and physiologic considerations
  - b. Selection of agents
  - c. Technique of injections
  - d. Prevention, recognition and management of complications and emergencies, including principles of advanced life support
4. Pharmacological methods – conscious sedation (anti-anxiety treatments)
  - a. Review of related cardiovascular, respiratory, and central nervous system physiology and pathophysiology and psychopathology
  - b. Selection of agents
  - c. Techniques of administration
  - d. Prevention, recognition, and management of complications and emergencies, including the principles of advanced life support
5. Overview of general anesthesia and deep sedation
6. Interaction of pharmacological and psychological methods

### B. Control of postoperative pain and apprehension

1. Use of appropriate instructions and interpersonal strategies
2. Selection of appropriate pharmacological agents based on procedures and patient's psychological background

## IV. Clinical Conditions

### A. Taxonomy of orofacial pain

1. Familiarity with the classification of acute pain and chronic orofacial pain syndromes, the principles upon which it is based, and the application to specific cases is required.
2. The IASP classification of chronic pain syndromes (Bogduk & Merskey 1994) and DSM IV Classification of Somatoform Disorders (Diagnostic and Statistical Manual of Mental Disorders (4th Ed)

B. Diagnostic features, etiology, mechanisms and management of orofacial pain associated with:

1. Specific sites, e.g., tooth, TMJ, muscle, mucosa, skin, sinus, bone
2. Infections, e.g., herpes, candidiasis
3. Non-dental referral, e.g., earache, cardiac, headache
4. Orofacial referral patterns
5. Orofacial pain conditions
  - a. Trigeminal neuralgia
  - b. Glossopharyngeal neuralgia
  - c. Postherpetic neuralgia
  - d. Temporomandibular Disorders
  - e. Oral dysesthesia, burning mouth syndrome
  - f. Atypical facial pain, atypical odontalgia, etc.
  - g. Orofacial malignancy
  - h. Headaches, e.g., migraine, cluster headache
  - i. Peripheral nerve injury and deafferentation pain
  - j. Others, e.g., carotidynia

## Appendix

### Curriculum Outline on Orofacial Pain

#### I. Anatomical, physiological, and psychological aspects of orofacial pain

1. To have a broad general knowledge of the anatomy and physiology of the orofacial structures, particularly of the peripheral nerve distribution of the major trigeminal nerve trunks and other cranial nerves, the anatomic relations of the structures they innervate, and their primary central connections.
2. Be familiar with the commonalities between the trigeminal system and the spinal and lemniscal systems that make current concepts of neurobiology, nociceptive transmission and its control applicable to the trigeminal system.
3. Similarly, be aware of features that distinguish these systems, e.g., in the trigeminal system, the proportion of myelinated to unmyelinated fibers and the properties of some of these fibers are different from those in spinal nerves; the occurrence of sites (e.g., tooth pulp, cornea) in the orofacial region that are predominantly or exclusively innervated by nociceptive afferents; the bilateral and disproportionately large representation of the orofacial region in higher levels of the somatosensory system; the exquisite sensibility of orofacial tissues.
4. Be familiar with psychological, psychosocial, genetic and environmental factors associated with orofacial pain and other pain conditions.

#### II. Diagnosis of orofacial pain

A. To have a broad general knowledge of the major diagnostic features and possible etiological, epidemiological, and pathophysiological aspects of pain associated with:

1. Specific sites: tooth and surrounding structures, temporomandibular joint, muscle, mucosa, sinus, bone, salivary glands
2. Orofacial pain conditions including cranial neuralgias and neuropathic pain, temporomandibular disorders, neurovascular and other headaches, idiopathic pain conditions such as burning mouth syndrome, atypical odontalgia, atypical facial pain.

B.

1. Be familiar with the general principles of taking a structured orofacial pain history and carrying out a clinical examination of the orofacial region and adjacent structures.
2. Be aware that there are objective and validated tests and procedures used for differential diagnosis of many of the above but that some diagnostic approaches still lack reliability, validity, specificity, or sensitivity. Tests and procedures include tooth pulp vitality and tooth percussion tests, muscle palpation tests, salivary tests, quantitative sensory and neurophysiological tests, and other physical exams; behavioral and psychosocial assessments; radiographs and other imaging techniques; microbiological and serological tests; biopsies; and controlled nerve blocks.
3. Be aware of the common orofacial patterns of pain referral. Also be aware that orofacial pain may sometimes be referred from remote sites (e.g., earache, cardiac pain, intracranial lesions).

#### III. Management of orofacial pain

A. Be aware of the current evidence-based management approaches, and their indications and contra-indications, for the different types of orofacial pain noted in section II. Some of the commonly used therapeutic approaches include pharmacological agents, surgery, physical medicine, and multidisciplinary management, including cognitive behavioral approaches, as well as the use of support groups. Be able to inform the patient on these topics.

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Sharav Y, Benoliel R. Orofacial Pain and Headache, Mosby Elsevier 2001

Zakrzewska, J. Harrison S.D. Assessment and management of orofacial pain, Elsevier, 2002

## Additional Resource

### Postdoctoral Curriculum

#### I. Multidimensional Nature of Pain

A. Representative and associated non-dental syndromes and conditions, e.g., phantom pain, causalgia, cancer pain, arthritis, reflex CRPS I and II, fibromyalgia, etc.

B. Pain in special contexts

1. Postoperative pain (including prophylaxis)
2. The harmful effects of unrelieved severe acute pain
3. Children and infants (signs of pain, evaluation and management, physiology, acute and chronic pain)
4. Cancer-related pain (death and dying, palliative care)
5. Aged patients
6. Intellectually impaired patients
7. Occupational issues (e.g., use syndromes, post-traumatic stress disorders)

C. General anesthesia and deep sedation

1. Survey of agents used and their proper selection
2. Survey of adjunctive agents and rationale for their use
  - a. Anticholinergics
  - b. Sedatives
  - c. Analgesics
  - d. Muscle relaxants
3. Indications and contraindications for use of general anesthesia in ambulatory patients
4. Patient selection and preparation
5. Complications associated with use of general anesthesia and deep sedation

#### II. Pain Assessment and Measurement (Examination, differential diagnosis, and clinical decision analysis in orofacial pain)

1. Fundamental examination and diagnostic principles in medicine and dentistry
2. Radiological interpretation of soft and hard tissue components of the masticatory system
3. Neurological interpretation of acute and chronic pain disorders including quantitative sensory testing
4. Predictors of and treatment outcome measures in orofacial pain disorders

#### III. Management of chronic pain

1. General principles
  - a. The measurement, quantification and recording of pain
  - b. The multiperspective approach (multidisciplinary pain clinics)
  - c. The clinician-patient relationship
2. Clinical pharmacology
  - a. Nonsteroidal anti-inflammatory drugs
  - b. Systemic and spinal opioids
  - c. Local anesthetics
  - d. Other drugs (anticonvulsants; antidepressants; agents influencing 5-HT, endorphins, and other endogenous neurochemicals)
3. Neurostimulation techniques
  - a. Transcutaneous nerve stimulation
  - b. Acupuncture
4. Nerve blocks
  - a. Local anesthesia
  - b. Neurolytic solutions
5. Neurosurgical techniques
  - a. Nerve decompression
  - b. Neurectomy
  - c. Sympathectomy
  - d. DREZ

- e. Tractotomy
- f. Others
- 6. Psychosocial and behavioral approaches
  - a. Individual, family and group psychotherapy
  - b. Cognitive-behavioral therapy
  - c. Relaxation techniques (biofeedback, etc.)
  - d. Hypnotherapy, operant approach, stress management
- 7. Physical therapy
  - a. Exercise, massage, heat, hydrotherapy, etc.