**APPENDIX 1**

**IASP Medical Curriculum Content Outline(28)**

1. **Multidimensional Nature of Pain**
   1. Definition of pain
      1. Biological significance of pain (survival value)
      2. Relationship between acute and chronic pain
      3. Distinction between nociceptive, nociplastic, and neuropathic pain
      4. Pain as a public health problem
      5. Epidemiology: Societal consequences
   2. Ethical issues
      1. The right to receive treatment for pain
      2. Pain disability and litigation
      3. Pain in children
      4. Pain and opiate dependence
      5. Pain research in humans and animals
   3. Basic sciences
      1. Neuroanatomy and Neurophysiology of Pain
         1. Peripheral receptors, afferent fibers, transduction and transformation, peripheral sensitization
         2. Spinal terminations and spinal processing of nociceptive information, spinal reflexes, ascending tracts, transmitters (peptides and amino acids)
         3. Brainstem mechanisms of pain (autonomic reflexes, ascending reticular activating system)
         4. Thalamic nuclei, nociceptive cortical network, cortical reorganization
         5. Descending control of nociceptive information and pain modulation
         6. Central sensitization
         7. Genetics in relation to pain mechanisms
      2. Pharmacology of Pain
         1. Basic pharmacology of local anesthetics
         2. Basic pharmacology of nonsteroidal anti-inflammatory agents
         3. Basic pharmacology of opioids
         4. Basic pharmacology of medicines licensed for neuropathic pain
         5. Basic pharmacology of other relevant analgesic medicines
      3. Psychology of Pain
         1. Affective, cognitive, behavioral, and developmental aspects
         2. Pain attribution., self-esteem, self-efficacy, and perceived self-control
         3. Interpersonal issues, sick role, illness behavior (normal and abnormal), the role of the family
         4. The influence of political, governmental, and social welfare programs
         5. Cultural differences in pain meanings and treatment approaches
         6. Illness behaviors associated with pain (denial and amplification)
         7. Pain as a coded message of psychosocial distress
2. **Pain Assessment and Measurement**
   1. The validity, reliability, sensitivity, specificity, and clinical utility of methods for:
      1. The measurement of pain, disability, associated distress, and suffering
      2. Quantitative sensory testing in relation to specific mechanisms
      3. Assessment of pain relief and functional improvement (sleep, work, self-care, etc.)
3. **Management of Pain**
   1. General principles
      1. The measurement, quantification, and recording of pain
      2. The multimodal approach (multidisciplinary pain clinics)
      3. The clinician-patient relationship
   2. Clinical pharmacology
      1. Nonsteroidal anti-inflammatory agents and antipyretics
      2. Systemic and spinal opioids, endorphins
      3. Local anesthetics
      4. Medicines indicated for neuropathic pain
      5. Other medicines active against neuropathic pain (e.g., anticonvulsants, antidepressants)
   3. Psychotherapeutic and behavioral approaches
      1. Individual, family, and group psychotherapy
      2. Cognitive-behavioral therapy
      3. Relaxation techniques (biofeedback, etc.)
      4. Hypnotherapy, operant approach, stress management
   4. Physical therapy
      1. Exercise and other active treatments
      2. Manual therapy and other physical medicine treatments
   5. Neuromodulation techniques
      1. Transcutaneous nerve stimulation
      2. Brain and spinal cord stimulation
      3. Acupuncture
      4. Pulsed radiofrequency
   6. Nerve blocks (image guided)
      1. Local anesthetics
      2. Neurolytic solutions
      3. Ablative Radiofrequency
   7. Surgical techniques
      1. Nerve decompression
      2. Neurosurgical techniques
      3. Orthopedic techniques
4. **Clinical Conditions**
   1. Etiology, diagnosis, multidisciplinary management, economic impact, medico-legal, and compensation issues within:
      1. Emergency-service pain
      2. Postoperative pain
      3. Chronic primary pain syndromes
      4. Chronic pain related to cancer or its treatment
      5. Chronic postsurgical or posttraumatic pain
      6. Neuropathic pain
      7. Headache and facial pain syndromes
      8. Musculoskeletal pain
      9. Visceral pain
   2. Specific pain issues related to:
      1. Children and infants (signs of pain, evaluation and management, physiology, acute and chronic pain)
      2. Elderly
      3. Developmentally challenged
      4. Pregnancy, childbirth, and breastfeeding
      5. The opioid tolerant patient
      6. Substance use disorders

**APPENDIX 2**

**Pain management domains and core developed by an Interprofessional Consensus Summit(23)**

**Domain 1: Multidimensional Nature of Pain: What Is Pain?**

1.1. Explain the complex, multidimensional, and individual-specific nature of pain.

1.2. Present theories and science for understanding pain.

1.3. Define terminology for describing pain and associated conditions.

1.4. Describe the impact of pain on society.

1.5. Explain how cultural, institutional, societal, and regulatory influences affect assessment and management of pain.

**Domain 2: Pain Assessment and Measurement: How Is Pain Recognized?**

2.1. Use valid and reliable tools for measuring pain and associated symptoms to assess and reassess related outcomes as appropriate for the clinical context and population.

2.2. Describe patient, provider, and system factors that can facilitate or interfere with effective pain assessment and management.

2.3. Assess patient preferences and values to determine pain-related goals and priorities.

2.4. Demonstrate empathic and compassionate communication during pain assessment.

**Domain 3: Management of Pain: How Is Pain Relieved?**

3.1. Demonstrate the inclusion of patients and others, as appropriate, in the education and shared decision-making process for pain care.

3.2. Identify pain treatment options that can be accessed in a comprehensive pain management plan.

3.3. Explain how health promotion and self-management strategies are important to the management of pain.

3.4. Develop a pain treatment plan based on benefits and risks of available treatments.

3.5. Monitor effects of pain management approaches to adjust the plan of care as needed.

3.6. Differentiate physical dependence, substance use disorder, misuse, tolerance, addiction, and nonadherence.

3.7. Develop a treatment plan that takes into account the differences between acute pain, acute-on-chronic pain, chronic/persistent pain, and pain at the end of life.

**Domain 4: Clinical Conditions: How Does Context Influence Pain Management?**

4.1. Describe the unique pain assessment and management needs of special populations.

4.2. Explain how to assess and manage pain across settings and transitions of care.

4.3. Describe the role, scope of practice, and contribution of the different professions within a pain management care team.

4.4. Implement an individualized pain management plan that integrates the perspectives of patients, their social support systems, and health care providers in the context of available resources.

4.5. Describe the role of the clinician as advocates in assisting patients to meet treatment goals.

**APPENDIX 3**

Medline search strategy was:

((((((((((pain) AND medical student) AND knowledge)) OR (((pain) AND medical student) AND attitude)) OR (((pain) AND Medical student) AND skills)) OR (((pain) AND medical student) AND curriculum)) OR (((pain) AND undergraduate medical education) AND attitude)) OR (((pain) AND undergraduate medical education) AND knowledge)) OR (((pain) AND undergraduate medical education) AND skills)) OR (((pain) AND undergraduate medical education) AND curriculum)