

## Brain Injury Medicine Examination Outline

Approximate Target Weights

### Class I: Type of Problem/Organ System

#### A. Traumatic brain injury by severity (15%)

1. Mild (concussion)
  - a. Sports
  - b. Nonsports
  - c. Repetitive
2. Moderate/severe
  - a. Coma
  - b. Minimally conscious
  - c. Vegetative state (unresponsive wakefulness syndrome)
3. Brain death

#### B. Traumatic brain injury by pattern (7%)

1. Penetrating
2. Nonpenetrating
  - a. Focal
  - b. Diffuse axonal injury
  - c. Brainstem
3. Blast injury

#### C. Other neurologic disorders (12%)

1. Dual diagnosis – TBI and spinal cord injury
2. Ischemia
3. Hemorrhage
4. Anoxia
5. Infectious
6. Autoimmune
7. Endocrine/metabolic syndromes
8. Tumor

#### D. Systemic manifestations (19%)

1. Cardiovascular
  - a. Cardiac disorders
  - b. Vascular disorders/injury
  - c. Hypertension/autonomic dysfunction
2. Pulmonary
  - a. Pneumonia
  - b. Tracheostomy care
3. GU/GI
  - a. Bladder
  - b. Bowel
  - c. Sexuality/reproduction
4. Soft tissue and orthopedic conditions
  - a. Heterotopic ossification
  - b. Fractures
  - c. Soft tissue and nerve injuries
5. Endocrine/metabolic/hormonal
6. Nutrition issues

#### 1. Neurological complications

- a. Spasticity
- b. Hydrocephalus
- c. Seizures
- d. Posture and balance disorders
- e. Movement disorders
- f. Gait disorders
- g. Dysphagia and aspiration
- h. Paralysis and weakness

#### 2. Physical complications

- a. Contracture
- b. Pressure injuries
- c. Bed rest and deconditioning
- d. Fatigue

#### 3. Cognitive and sensory dysfunction

- a. Executive function
- b. Speech and language
- c. Hearing impairment
- d. Anosmia
- e. Vestibular dysfunction
- f. Visual dysfunction
- g. Attention/memory/amnesia
- h. Agnosia
- i. Sleep disorders

#### 4. Behavioral disorders

- a. Impulse control (inc sexuality, violence, aggression)
- b. Agitation/restlessness
- c. Lability
- d. Apathy

#### 5. Psychiatric/psychological

- a. Mood disorders
- b. Substance abuse disorder
- c. Dementia or pseudodementia
- d. Posttraumatic stress disorder
- e. Other psych (inc suicide, personality disorders, anxiety)

#### 6. Pain

- a. Headache
- b. Complex regional pain syndrome
- c. Myofascial pain

#### F. Basic science (7%)

#### E. Rehabilitation problems and outcomes (40%)

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**Class II: Focus of Question/Patient Management**

**A. Patient evaluation and diagnosis (28%)**

1. Physical examination, signs, and symptoms
2. Diagnosis and etiology
3. Diagnostic procedures
  - a. Gait analysis
  - b. Lab studies
  - c. Cerebrospinal fluid analysis
  - d. Neuroimaging
  - e. Musculoskeletal and other imaging
4. Functional evaluation
  - a. Assessment scales
  - b. Outcome and functional scales
  - c. Neuropsychological testing
5. Electrodiagnosis
  - a. Electroencephalogram
  - b. Evoked potentials

**B. Prognosis/risk factors (12%)**

1. Premorbid
2. Injury-related
3. Treatment-related (inc safety)

**C. Patient management (50%)**

1. Clinical decision-making
2. Therapeutic exercise
  - a. Motor control
  - b. Mobility and range of motion
  - c. Strength and endurance
  - d. Functional electrical stimulation
  - e. Exercise/activity
3. Pharmacologic interventions
  - a. Analgesics
  - b. Anticonvulsants
  - c. Antispasticity agents (oral, IM)
  - d. Antibiotics
  - e. Sedatives/hypnotics
  - f. Stimulants
  - g. Antidepressants
  - h. Antipsychotics
  - i. Anxiolytics, mood stabilizers
  - j. Cognitive enhancers
  - k. Antifatigue agents
4. Procedural/interventional
  - a. Intracranial pressure monitoring
  - b. Surgery
  - c. Neuromodulation (inc intrathecal therapies and central/peripheral nervous system stimulation)

5. Equipment and assistive technology

- a. Assistive technology (inc augmentative communication, environmental controls)
  - b. Orthoses, casting, splinting
  - c. Mobility aids
6. Behavioral/psychological/environmental
    - a. Behavioral modification
    - b. Psychotherapy/counseling
    - c. Family issues (inc parenting)
    - d. Cognitive rehabilitation therapy
    - e. Biofeedback
    - f. Environmental modification
  7. Reintegration
    - a. Vocational
    - b. Educational
    - c. Avocational
    - d. Resource allocation
    - e. Family systems
    - f. Driving
  8. Complementary/alternative therapies
  9. Ethics, legal, capacity issues, advocacy

**D. Applied science (10%)**

1. Anatomy
  - a. Cortex
  - b. Subcortical
  - c. Brainstem/cranial nerves
  - d. Cerebellum
  - e. Peripheral nerves
  - f. Musculoskeletal
2. Physiology
3. Pathology
4. Kinesiology and biomechanics
5. Genetics, biomarkers, and proteomics
6. Epidemiology and public health/prevention
7. Nutrition
8. Research methods
9. Growth, development, and aging