



## The Biomedicine Expanded Content Outline

(Effective January 1, 2012)

Note to Candidate: This document serves as a guide to assist in examination preparation for candidates who have met NCCAOM eligibility requirements. Below is the content outline for the Biomedicine module, along with the Knowledge, Skills and Abilities (KSA) statements.

**Please note:** In regards to Clean Needle Technique (CNT), the Biomedicine module focuses on universal precautions and emergency situations in comparison to the Acupuncture with Point Location module which focuses on actual needling and its emergencies (e.g., needle angle and depth).

### Domain A: Western Medical Assessment (55% of total exam)

#### Sub Domain A1: History-taking (5%)

- Skill and ability to conduct a medical interview
- Knowledge of relevance of history

#### A 1 (a): Identifying information

- Knowledge of information required in a medical file
- Ability to obtain required identifying information (e.g., name, address, age, marital status, etc.)

#### A 1 (b): Chief complaint and present illness

- Knowledge of risk factors
- Ability to obtain information regarding chief complaint (e.g., onset, frequency, severity, duration, functional changes, aggravation and amelioration of symptoms, and response to treatment)
- Ability to obtain information on current medications (prescription and non-prescription)
- Ability to obtain information on herbs and supplements
- Ability to utilize patient self-report of medications and supplements to expand on medical history
- Ability to obtain information on allergy and intolerance (e.g., medications, supplements, food, environmental factors, type of reaction)



**A 1 (c): Past medical history**

- Knowledge of risk factors
- Ability to obtain information regarding past medical history (e.g., previous surgeries, past medical treatments), including risk factors

**A 1 (d): Family history**

- Knowledge of risk factors (e.g., genetics, familial, etc.)
- Ability to obtain pertinent information of immediate family

**A 1 (e): Personal and social history**

- Knowledge of risk factors
- Ability to obtain pertinent information regarding personal and social history, including risk factors
- Ability to obtain information on other treatments (e.g., naturopathic, chiropractic, bodywork, yoga, meditation, acupuncture, physical and occupational therapy, etc.)
- Ability to obtain information on occupational and socio-economic history (e.g., cultural, environmental factors)
- Ability to obtain information regarding past and present lifestyle (e.g., exercise, diet, stress, sexually transmitted diseases (STDs), etc.)
- Ability to obtain information regarding the use of tobacco, alcohol, and recreational drugs
- Ability to make appropriate recommendations/referrals regarding lifestyle

**A 1 (f): System review**

- Knowledge of system review
- Ability to obtain information relating to system review (e.g., ear, nose, and throat (ENT), respiratory, gastrointestinal, self exams, etc.)

**Sub Domain A2: Physical assessment, pathology and diagnostics (35%)**

- Knowledge of what constitutes a physical exam
- Skill in performing a physical exam
- Ability to differentiate abnormal findings from normal findings
- Ability to make appropriate referral



**A 2 (a): Vital signs, weight, and nutritional status**

- Knowledge of normal and abnormal blood pressure readings, pulses, temperature and respiration rates
- Skill and ability to obtain vital signs
- Ability to differentiate normal and abnormal values and make referral when necessary
- Ability to determine abnormal weight (obesity and anorexia)
- Knowledge of morbidity associated with abnormal weight (e.g., cardiology, dermatology, endocrinology (diabetes), reproduction, gastrointestinal, neurology, oncology, psychiatry, orthopedics, urology)
- Skills and ability to address and/or refer complications due to weight

**A 2 (b): Organ assessment and system pathology**

- Knowledge of anatomy and physiology
- Knowledge of terminology associated with common pathologies
- Knowledge of normal and abnormal structures and functions of the respiratory, cardiovascular, urogenital, reproductive, nervous, integumentary, musculoskeletal and gastrointestinal systems
- Ability to recognize abnormalities in the above systems (e.g., diarrhea, nausea, bleeding, vomiting)

**A 2 (c): Orthopedic evaluation**

- Knowledge of normal and abnormal structure and function of musculoskeletal system
- Knowledge of the causes of motor dysfunction (e.g., ligament injury, muscle or joint dysfunction)

**A 2 (c) (1): Measurement of strength**

- Knowledge of muscle grading scale
- Ability to assess muscle strength

**A 2 (c) (2): Reproduction of pain or other signs that reproduces symptoms**

- Knowledge of pain patterns (sharp stabbing, dull aching, etc.)
- Ability to discriminate pain patterns (referred pain, local pain)



- Ability to palpate painful structures for patterns of tenderness
- Ability to assess intensity of pain (e.g., visual analog scale, numerical scale)

**A 2 (c) (3):** Trigger and motor points

- Knowledge of the theory of trigger and motor points

**A 2 (c) (4):** Assessment of range of motion

- Knowledge of range of motion associated with each joint
- Ability to recognize normal range of motion and comprehend the implications of an abnormal range of motion

**A 2 (d): Neurological evaluation**

- Knowledge of central and peripheral nervous system (e.g., brain, autonomic, spinal cord, peripheral nerves)
- Ability to distinguish upper from lower motor neuron lesions (e.g., increase or decrease reflexes; flaccid or rigid muscles)
- Knowledge of normal and abnormal neurological functions (e.g., motor, sensory, cognitive functions; reflexes, balance and coordination) and when to make appropriate referrals
- Ability to perform a reflex assessment
- Ability to recognize gross changes in cognitive function (e.g., confusion, disorientation)
- Ability to recognize alterations in balance and coordination
- Ability to recognize altered sensory functions (e.g., light touch and pin-prick sensation)
- Ability to recognize altered motor function (e.g., muscle weakness)

**A 2 (e): Diagnostic testing**

**A 2 (e) (1):** Imaging studies

- Knowledge of commonly used medical imaging studies (e.g., X-ray, MRI, CT, PET, colonoscopy, cystoscopy, bronchoscopy, etc.)
- Ability to read and understand the impression section of medical imaging reports
- Ability to understand the relevance of imaging findings to the patient's medical condition



**A 2 (e) (2): \*\* Laboratory studies**

- Knowledge of commonly used medical laboratory studies (complete blood count, basic metabolic panel, urinalysis, liver panel, cardiac panel, thyroid panel, pregnancy test, and reproductive hormones)  
**\*\* normal ranges will not be tested**
- Ability to understand the relevance of laboratory findings to the patient's medical condition
- Understand the terminology associated with abnormal laboratory values (e.g., anemia, thrombocytopenia, neutropenia, leukocytosis, etc.)

**Sub Domain 3: Ominous signs and patient referral (15%)**

- Knowledge of ominous signs
- Understand the need for emergency referral
- Knowledge of when to refer to a Western medical practitioner

**A 3 (a): Medical**

- Ability to recognize and manage signs and symptoms that require co-management and/or referral (e.g., anaphylaxis, cardiac arrest, fainting, respiratory arrest, bleeding, cancer, etc.)

**A 3 (b): Mental health**

- Ability to recognize symptoms and signs of mental and/or emotional disorders (e.g., suicide, eating disorders, etc.) and make appropriate referral

**A 3 (c): Abuse**

- Ability to recognize potential signs of abuse (e.g., domestic, sexual, elder, child) and make appropriate referral

**Domain B: Pharmaceuticals and Supplementations (15% of total exam)**

**Sub Domain B1: Pharmaceuticals**



**B 1 (a): Classification of prescription and non-prescription (OTC) medications**

- Knowledge of major classifications and sub-classifications (e.g., anticoagulants, antidepressants, antibiotics, antilipidemic, antihypertensive, diuretics, corticosteroids, hormones, narcotics, drugs of abuse)
- Ability to reference medications according to brand or generic names

**B 1 (b): Common mechanisms of action, action and side effects of prescription and non-prescription (OTC) medications, including drugs of abuse**

- Knowledge of actions and common side effects of major drug categories (e.g., SSRI, beta-blockers, opiates, amphetamines)
- Knowledge of mechanisms of major categories (e.g., SSRI, loop diuretic, beta-blocker)
- Ability to reference common actions, precautions and side effects
- Ability to recognize adverse drug reactions and make appropriate referral
- Knowledge of routes of administration (e.g., intravenous, oral, subcutaneous)
- Knowledge of the effects of the use of tobacco, alcohol, and street drugs

**Sub Domain B2: Supplements**

**B 2 (a): Classification of dietary supplements**

- Knowledge of major classifications (e.g., vitamins, minerals, amino acids, anti-oxidants, commonly used supplements)
- Ability to reference supplements to a reliable source

**B 2 (b): Known mechanisms of action and side effects of supplements**

- Knowledge of actions and common side effects of major categories (e.g., fat soluble, water soluble vitamins, phyto-estrogens, minerals)
- Ability to reference common actions and side effects
- Ability to recognize signs and symptoms associated with excess or deficient states
- Ability to recognize adverse reactions to supplements (e.g., diarrhea associated with ascorbic acid, niacin flush)



## Domain C: Safety (15% of total exam)

### Sub Domain C1: CPR and office emergencies

- Knowledge of CPR
- Ability to perform CPR
- Ability to manage office emergencies (e.g., organ puncture, seizures, fainting, burns, etc.)

### Sub Domain C2: Bloodborne pathogens and communicable diseases

- Knowledge of bloodborne and airborne pathogens (e.g., HBV, HCV, HIV)
- Knowledge of communicable diseases (e.g., airborne, oral-fecal, vector)
- Knowledge of infectious diseases [e.g., Methicillin resistant *Staphylococcus aureus* (MRSA), *Mycobacterium tuberculosis*, Vancomycin resistant *Enterococci* (VRE)]
- Knowledge of universal precautions
- Ability to apply universal precautions

## Domain D: Practice Management Issues (15% of total exam)

### Sub Domain D1: Legal and ethical issues

#### D 1 (a): Federal and state regulations

##### D 1 (a) (1): Occupational Safety & Health Administration (OSHA)

- Knowledge of applicable federal and state requirements (e.g., use of biohazard containers)
- Ability to follow rules, regulations and reporting

##### D 1 (a) (2): Health Insurance Portability and Accountability Act (HIPAA)

- Knowledge of HIPAA compliance requirements

##### D 1 (a) (3): Reporting requirements

- Knowledge of mandated reportable conditions (e.g., elder and child abuse, infectious diseases, bioterrorism)
- Knowledge to report in accordance with state laws

##### D 1 (a) (4): Business operations



- Knowledge of state/city requirements
- Knowledge of the definition and purpose of ICD codes
- Knowledge of the definition and purpose of CPT<sup>®</sup> codes
- Knowledge of insurance requirements (e.g., general liability, malpractice insurance)
- Ability to comply with local, state, and federal laws (e.g., taxation, business license, fire and safety codes)

**D 1 (a) (5):** Maintenance of proper medical records

- Knowledge of the components of various formats of medical records and report writing (e.g., SOAP notes, progress report, etc.)
- Ability to appropriately chart treatments, progress and document adverse events
- Ability to maintain medical records in accordance with the law
- Ability to write medical and legal reports

**D 1 (a) (6):** Licensure requirements

- Knowledge of state laws and rules
- Ability to complete and maintain license and certification requirements

**D 1 (b): Ethical issues**

- Knowledge of *NCCAOM<sup>®</sup> Code of Ethics* and awareness of other codes of ethics (e.g., professional boundaries, informed consent, advertisement)

**Sub Domain D2: Other practice management issues**

**D 2 (a): Communication with patients and other professionals (e.g., third party payers, other healthcare providers, attorneys, etc.)**

- Knowledge of medical terminology
- Ability to communicate effectively (e.g., use of appropriate language)

**D 2 (b): NCCAOM rules and regulations**

- Knowledge of NCCAOM rules and regulations
- Ability to comply with policies (e.g., self reporting disciplinary action, record update, CEU)



## Biomedicine Examination Bibliography

The Content Outline is the primary resource for studying for this examination. The purpose of this Bibliography is only to provide the candidate with suggested resources to utilize in preparation for the examination. Candidates should feel free to consider other resources that cover the material in the Content Outline.

*There is no single text recommended by NCCAOM. All NCCAOM modules and examinations reflect practice in the United States as determined by the most recent job analysis.*

*NCCAOM's item writers and examination development committee members frequently use the following texts as resources; however, the sources used are not limited to the books listed here. The NCCAOM® does not endorse any third-party study/preparation guide.*

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National Certification Commission  
for Acupuncture and Oriental Medicine

