

CONTENT OUTLINE FOR THE PHARMACOTHERAPY CERTIFICATION EXAMINATION

The following domains, tasks and knowledge statements were delineated by the BPS Specialty Council on Pharmacotherapy and validated through a role delineation study. The proportion of examination items allotted to each domain was determined through analysis and discussion of the results of the role delineation study by the Specialty Council.

Each of the major areas/domains of Pharmacotherapy practice noted below will be tested. Questions will not be grouped by domain. Rather, items testing each domain are distributed throughout the total examination. Please note this examination will **SAMPLE** a candidate's knowledge rather than try to test all of his/her knowledge.

The test items in Domain 1 that deal with patient-specific pharmacotherapy focus on the therapeutic areas listed in the *Systems and Patient-Care Problems* section of this document (e.g., Cardiovascular, Endocrine, Infectious Diseases, etc.). Test items in Domain 1 that deal with age-specific problems are reflected across all organ systems and patient-care problems. There is a mixture of chronic and acute care pharmacotherapy problems, with several questions that are not specific to a patient acuity level.

Domain 1: Patient-specific Pharmacotherapy (60% of exam)

Tasks:

1. Collect patient-specific data to identify problems and individualize care
 - a. Review patient data regarding history, physical assessment, working diagnosis, laboratory and other diagnostic tests, and orders regarding drug therapy
 - b. Perform patient assessments (for example, physical examination, point of care testing)
 - c. Obtain information from patient, family, and health-care team members
 - d. Obtain additional pertinent data
2. Interpret data to identify problems
 - a. Interpret subjective and objective data
 - b. Identify drug-related problems
 - c. Develop/update a problem list
3. Design an individualized therapeutic plan
 - a. Determine and prioritize prevention and treatment goals
 - b. Consider ethical, cultural, legal, economic, quality of life and safety issues
 - c. Select drug and/or non-drug interventions
 - d. Identify potential for drug-drug, drug-disease, drug-nutrient, drug-device, and/or drug-laboratory interactions
4. Implement a therapeutic plan in collaboration with other health care professionals
 - a. Evaluate and resolve patient or health-care-system problems in the implementation of a patient's therapeutic plan
 - b. Administer drugs
 - c. Order diagnostic and/or laboratory tests
 - d. Perform diagnostic and/or laboratory tests
 - e. Communicate a therapeutic plan to health care professionals
 - f. Document a therapeutic plan
5. Educate patient and/or caregiver regarding a therapeutic plan
 - a. Identify and prioritize patient education needs
 - b. Recognize patient education barriers
 - c. Select and use appropriate educational method(s)
 - d. Assess patient's knowledge/skill acquisition

6. Monitor and modify a therapeutic plan
 - a. Monitor a therapeutic plan by collecting and interpreting data
 - b. Modify a therapeutic plan as needed

Knowledge of:

1. Anatomy and physiology
2. Disease state knowledge (prognosis; pathophysiology; epidemiology; etiology; risk factors; pathogenesis; signs and symptoms; diagnostic criteria; pharmacotherapy; pharmacokinetics; pharmacodynamics; pharmacoeconomics; pharmacogenomic; pharmaceuticals; drug-drug, drug-laboratory, drug-nutrient, drug-device, and drug-disease interactions; adverse drug effects; non-drug treatment; drug administration)
3. Disease/drug monitoring parameters (physical examination, laboratory and point of care tests, diagnostic tests, therapeutic goals)
4. Evidence-based practice guidelines
5. Patient education principles and methods
6. Health literacy
7. Regulatory requirements related to prescribing and monitoring specific drugs (e.g., methadone, isotretinoin, REMS programs)
8. Federal regulations related to patients' rights and protections (e.g., privacy, child/adult protective services, advance directives, living will, power of attorney, do not resuscitate)
9. Ethical issues
10. Formats used to document pharmacotherapy recommendations and follow-up
11. Humanistic factors or outcomes (e.g., patient satisfaction, quality of life)
12. Cultural competence and sensitivity
13. Health promotion and disease prevention
14. Complementary and alternative medicine

Domain 2: Retrieval, Generation, Interpretation and Dissemination of Knowledge in Pharmacotherapy (25% of exam)

Tasks:

1. Identify and retrieve relevant biomedical literature
2. Interpret biomedical literature with regard to study design and methodology, statistical analysis, and significance of reported data and conclusions
3. Educate health care professionals, students, patients, and the public
4. Conduct research to generate clinical, economic, humanistic or translational knowledge applicable to patient care
5. Prepare and disseminate new knowledge (e.g., original research, review articles, case reports, abstracts, reviews and monographs)

Knowledge of:

1. Primary, secondary, and tertiary references
2. Search strategies
3. Information resources
4. Biostatistical methods
5. Internal and external validity
6. Clinical and statistical significance
7. Principles and methods of educating health care students and professionals
8. Role modeling, mentoring, and coaching techniques
9. Knowledge/skills assessment techniques
10. Research hypothesis generation
11. Research design and methodology
12. Protocol and proposal development
13. Regulatory requirements for the conduct of research (e.g., HIPAA, IRB, OSHA, NIH)
14. Data management
15. Design of publications for dissemination of new knowledge

Domain 3: Systems and Population-based Pharmacotherapy (15% of exam) Tasks:

1. Document and report new, unusual, or severe pharmacotherapeutic events (e.g., adverse reactions, drug interactions, medication errors, drug/device/assay defects)
2. Collect and interpret data to characterize/identify health system and/or public health related problems
3. Design, justify, and garner support for health system and/or public health-related initiatives
4. Implement health system and/or public health-related initiatives
5. Measure and monitor outcomes of health system and/or public health-related initiatives

Knowledge of:

1. National regulatory and accrediting agency requirements for preventing, tracking, and reporting new, unusual, or severe pharmacotherapeutic events
2. Process/procedures for reporting to the FDA and other organizations new, unusual or severe adverse events related to drugs and/or devices
3. Evidence-based clinical practice and patient-care standards
4. Comparative effectiveness research/reviews
5. Health system-based standards and Federal regulations (e.g., TJC, NCQA, OSHA, CMS, HEDIS, LEAPFROG, HIPAA, FDA)
6. Principles of medication-use evaluation and prevention of drug-related injury
7. Performance improvement process
8. Principles of formulary and drug use system management
9. Ethical issues (industry interactions, conflict of interest, disclosure)
10. Continuity of patient care (e.g., medication reconciliation, in-home medication use)

SYSTEMS AND PATIENT-CARE PROBLEMS

Bone/Joint and Rheumatology

- Fibromyalgia
- Osteoarthritis
- Gout/Hyperuricemia
- Osteoporosis
- Rheumatoid arthritis
- Systemic Lupus Erythematosus

Cardiovascular

- Acute coronary syndromes
- Advance cardiac life support
- Arrhythmias
- Cardiopulmonary resuscitation
- Coronary artery disease
- Dyslipidemia
- Heart failure
- Hypertension
- Peripheral arterial disease
- Primary pulmonary hypertension
- Septic shock
- Thromboembolic disorders
- Valvular heart disease

Dermatologic

- Acne
- Burns
- Dermatitis
- Decubitus ulcers

- Psoriasis
- Urticaria

Endocrine

- Adrenal disorders
- Diabetes insipidus
- Diabetes mellitus
- Obesity
- Parathyroid disorders
- Polycystic ovary syndrome
- SIADH
- Thyroid disorders

Eyes, Ears, Nose, and Throat

- Allergic rhinitis
- Glaucoma
- Macular degeneration
- Vertigo

Fluid and Electrolyte/Nutrition

- Acid-base disorders
- Electrolyte abnormalities
- Nutritional deficiencies

Gastrointestinal

- Constipation
- Diarrhea
- Chronic liver disease and cirrhosis
- Gastroesophageal reflux disease
- Gastrointestinal bleeding
- Hepatitis
- Inflammatory bowel disease
- Irritable bowel syndrome
- Malabsorption syndrome
- Nausea/vomiting
- Pancreatitis
- Peptic ulcer disease
- Stress Ulcer Prophylaxis

Genitourinary

- Prostatic hyperplasia
- Sexual dysfunction
- Urinary incontinence

Hematologic

- Anemias
- Clotting factor disorder
- Disseminated intravascular coagulation
- Sickle cell disease
- Thrombocytopenia

Immunologic

- Allergy/anaphylaxis
- Angioedema
- Organ transplantation
- Stevens-Johnson syndrome

Infectious Diseases

- Antimicrobial prophylaxis
- Bone and joint infections
- Central nervous system infections
- Ear infections
- Febrile neutropenia
- Fungal infections
- Gastrointestinal infections
- Gynecologic infections
- Human Immunodeficiency Virus infection
- Infectious endocarditis
- Intra-abdominal infections
- Lung abscess
- Ophthalmic infections
- Prostatitis
- Respiratory tract infections
- Sepsis
- Sexually transmitted diseases
- Sinusitis
- Skin and soft tissue infections
- Tuberculosis
- Urinary tract infections

Neurological

- Central nervous system hemorrhage
- Cerebral ischemia (including ischemic stroke)
- Dementia
- Epilepsy
- Headache/migraine
- ICU sedation/paralysis/delirium
- Neuromuscular diseases
- Parkinson's disease
- Pain
- Peripheral neuropathy
- Spinal-cord injuries/abnormalities
- Status epilepticus
- Traumatic brain injury
- Tremors

Obstetrics/Gynecology

- Chronic disease in pregnancy
- Contraception
- Endometriosis
- Infertility
- Lactation
- Menopausal symptoms
- Menstrual disorders
- Pregnancy-related disease

Oncology

- Breast cancer
- Colon cancer

- Gynecological cancers
- Leukemia
- Lung cancer
- Prostate cancer
- Skin cancer
- Supportive care (e.g., preventing / treating complications associated with malignancy or treatment)

Psychiatric

- Anxiety disorders
- Attention deficit disorders
- Bipolar disorders
- Depressive disorders
- Drug/alcohol overdose/withdrawal
- Schizophrenia
- Sleep disorders
- Substance abuse

Renal

- Acute renal failure
- Chronic kidney disease
- Dialysis (managing associated complications and drug dosing)
- Nephrolithiasis

Pulmonary

- Adult respiratory distress syndrome
- Asthma
- Chronic obstructive lung disease
- Respiratory failure
- Sleep apnea

Health Maintenance/Public Health

- Bioterrorism
- Health advice, education, or instruction
- Immunizations
- Lifestyle modification
- Patient safety
- Routine health screening