



Infectious Diseases Pharmacy Content Outline June 2017

The following domains, tasks and knowledge statements were delineated by the BPS Infectious Disease Pharmacy Practice Analysis Taskforce 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 BPS Infectious Disease Pharmacy Practice Analysis Taskforce and approved by the BPS Board of Directors.

Each of the major areas/domains of BPS Infectious Disease Pharmacy practice noted below will be tested. Questions will not be grouped by domain on the exam. Rather, items testing each domain are distributed throughout the total examination. Please note this examination will SAMPLE a candidate's knowledge rather than trying to test all of his/her knowledge. Examination items will address problems and situations reflective of the full range of practice.

Domain 1: Patient Care and Therapeutics (about 50% of the exam)

Related to comprehensive Infectious Diseases pharmacotherapy management for a patient including collecting, interpreting, and integrating pertinent data; and designing/modifying, implementing, and monitoring patient-specific plans of care continuum.

- 1.1 Collect and organize patient-specific information (e.g., demographics, medical history, infection risks), disease-specific information, and microbiologic and laboratory reports needed to design an infectious diseases pharmacotherapeutic plan.
- 1.2 Identify and recommend additional tests/procedures which need to be performed in order to design an infectious diseases pharmacotherapeutic plan.
- 1.3 Interpret, analyze, and integrate patient-specific information, disease-specific information and microbiologic and laboratory reports in order to design an infectious disease pharmacotherapeutic plan.
- 1.4 Design/modify, recommend, and implement an appropriate infectious disease pharmacotherapeutic plan based on patient-specific data, antibiogram data, and best available evidence.
- 1.5 Design/modify, recommend, and implement a monitoring plan to assess patient's response to and potential adverse outcomes of infectious disease pharmacotherapeutic plan.
- 1.6 Develop preventative or a postexposure therapy plan for patients with increased risk for infection.
- 1.7 Educate and provide counseling to patients/caregivers regarding the safe and effective use of antimicrobials and preventative therapies, monitoring for therapeutic and adverse outcomes, and the importance of adherence to the infectious disease pharmacotherapeutic plan.

Knowledge of:

k1.1 Pathophysiology and epidemiology of infections including:

- k 1.1.1 Bone and joint infections
- k 1.1.2 Cardiovascular infections
- k 1.1.3 Central nervous system infections
- k 1.1.4 Gastrointestinal infections
- k 1.1.5 HIV-infection and AIDS (including opportunistic infections)
- k 1.1.6 Infections of reproductive organs
- k 1.1.7 Intra-abdominal infections
- k 1.1.8 Lower respiratory tract infections
- k 1.1.9 Ophthalmologic infections
- k 1.1.10 Sepsis
- k 1.1.11 Sexually transmitted diseases
- k 1.1.12 Skin and soft tissue infections
- k 1.1.13 Tuberculosis and other mycobacterial infections
- k 1.1.14 Upper respiratory tract infections
- k 1.1.15 Urinary tract infections
- k 1.1.16 Viral hepatitis

- 1.2 Pharmacotherapies related to specific infectious diseases (e.g., bacterial, fungal, viral)
- 1.3 Pharmacokinetics and pharmacodynamics of antimicrobials (e.g. anti-fungals)
- 1.4 Pharmacology of antimicrobials
- 1.5 Pharmacology of vaccines
- 1.6 Pharmacology of biological response modifiers (e.g., TNF inhibitors, colony stimulating factors)
- 1.7 Mechanisms of pathogen resistance
- 1.8 Antimicrobial drug interactions
- 1.9 Complications of antimicrobials
- 1.10 Complications of vaccines
- 1.11 Spectrum of activity of antimicrobials
- 1.12 Structure and characteristics of pathogenic microorganisms
- 1.13 Basic microbiology laboratory procedures
- 1.14 Clinical laboratory tests in ID (e.g., rapid diagnostic testing, RPR, antibody concentrations)
- 1.15 Diagnostic and therapeutic procedures in ID (e.g., lumbar puncture, paracentesis)
- 1.16 Factors that alter the risk of infection
- 1.17 Immunologic response to infection
- 1.18 Immunologic therapy (e.g., immunoglobulin, Mannose Binding Lectin)
- 1.19 Outpatient parenteral antimicrobial therapy
- 1.20 Therapeutic monitoring of antimicrobials
- 1.21 Factors that may impact response to therapy (e.g., dose optimization, penetration of antimicrobials, source control, immune status)
- 1.22 Antimicrobial de-escalation
- 1.23 Measures to monitor response to antimicrobial therapy (e.g., resolution of signs and symptoms, laboratory data, readmission, development of drug resistance)
- 1.24 Patient and caregiver education and counseling techniques
- 1.25 Antimicrobial allergy and cross-reactivity
- 1.26 Antimicrobial desensitization

- 1.27 Preventive therapies (e.g., infection prophylaxis, vaccines, behavior modification)
- 1.28 Factors to consider when differentiating infection from non-infection
- 1.29 Considerations in special populations (e.g., geriatrics, pediatrics, obesity)
- 1.30 Facilitation across transitions of care
- 1.31 Considerations in drug delivery

Domain 2: Education, Research and Scholarship (about 20% of the exam)

Related to generation, interpretation, and dissemination of knowledge related to infectious disease pharmacy, and the education of current and future healthcare professionals.

2.1 Provide infectious diseases education, training, and mentorship for pharmacy students, residents, and fellows; and pharmacists.

2.2 Provide education and guidance to professionals and/or trainees in other health professions concerning infectious diseases pharmacotherapy.

2.3 Critically evaluate infectious diseases literature in both the basic and clinical sciences with regard to study design, statistical analysis, study results, and applicability to patient care and policy development.

2.4 Contribute to infectious diseases body of knowledge (e.g., participate in research, deliver poster/platform presentations, publish, participate in the peer review process).

2.5 Participate in continuous professional development related to infectious diseases pharmacy practice.

Knowledge of:

k2.1 Principles and methods of educating, training and mentoring pharmacists, pharmacy students, residents and fellows

k2.2 Principles and methods of educating and communicating with other healthcare professionals

k2.3 Appropriate resources for infectious disease information

k2.4 Research study design and methodology, including those specific to ID (e.g., Monte Carlo simulation, microbiologic surveillance, time-kill)

k2.5 Statistical methods

k2.6 Clinical application and limitations of published data and reports

k2.7 Regulatory and ethical issues related to conducting research

k2.8 Venues and processes for disseminating knowledge (e.g., audience-specific medical writing, publication, presentation)

k2.9 Mechanisms for continuing professional development in ID pharmacy

Domain 3: Antimicrobial Stewardship and Practice Management (about 25% of the exam)

Related to advancing antimicrobial stewardship and to managing infectious diseases policies and guidelines designed to optimize the care of patients in collaboration with the healthcare team.

- 3.1 Monitor and evaluate institutional antimicrobial usage, susceptibility trends and/or infection rates.
- 3.2 Participate in the development of antibiogram(s) (e.g., institution-specific, unit-specific).
- 3.3 Develop/modify institutional infectious disease treatment guidelines/pathways by incorporating national guidelines, surveillance data, and best available evidence.
- 3.4 Develop/modify and recommend institutional policies to promote appropriate use of antimicrobials (e.g., formulary restrictions, criteria for use).
- 3.5 Collaborate in the development of institutional infection prevention policies.
- 3.6 Establish collaborative relationships within the institution (e.g., microbiology, infection prevention, infectious diseases)
- 3.7 Evaluate and foster compliance with infectious diseases-related standards established by national accrediting and regulatory agencies (e.g., Joint Commission, CMS, NHSN).
- 3.8 Lead quality improvement initiatives (e.g., MUE, medication safety, timing of antibiotics) in the area of infectious diseases.
- 3.9 Justify and document clinical and financial value of infectious diseases pharmacy services.

Knowledge of:

- k3.1 Antibiogram design and development
- k3.2 Antimicrobial stewardship strategies
- k3.3 Antimicrobial resistance trends
- k3.4 Metrics for antimicrobial use
- k3.5 Clinical practice guidelines for ID (e.g., IDSA, SHEA, CDC)
- k3.6 Methods for developing and evaluating clinical practice guidelines
- k3.7 Infection control and prevention strategies
- k3.8 Metrics for infection control
- k3.9 National accreditation and regulatory organizations and requirements (e.g., Joint Commission, CMS, NHSN)
- k3.10 Quality improvement strategies (e.g., MUE, FMEA, root cause analysis)
- k3.11 Roles of infection control and prevention, microbiology and ID divisions/departments
- k3.12 Collaboration strategies and consensus building
- k3.13 Metrics for evaluating value of ID pharmacy services
- k3.14 Pharmacoeconomic assessment of antimicrobials

Domain 4: Public Health and Advocacy (about 5% of the exam)

Related to preventive health services, public health information, and advocacy for vaccination and prudent antimicrobial use.

4.1 Provide information to the public on infectious diseases, risk/benefits of antimicrobial therapy, and infection prevention.

4.2 Support public health services targeted at the prevention of infectious diseases (e.g., vaccines, HIV testing, STD education).

4.3 Advocate for adult and child vaccination.

4.4 Advocate for prudent antimicrobial use.

Knowledge of:

k4.1 Public health information resources related to infectious diseases

k4.2 Public health services related to infectious diseases

k4.3 CDC notifiable infectious diseases

k4.4 Populations at risk for infection

k4.5 ACIP immunization recommendations and schedules

k4.6 Strategies for advocating vaccination and prudent antimicrobial use

k4.7 Professional organizations and their roles and resources related to patient advocacy (e.g., Immunization Action Coalition, IDSA, ASHP, APhA, SIDP)

k4.8 Screening guidelines for infectious diseases (e.g. HIV, STDs, tuberculosis)

k4.9 Agents that have the potential to become epidemic or pandemic

k4.10 Emerging infectious diseases

k4.11 History of vaccine preventable diseases