

**BOARD OF PHARMACY SPECIALTIES  
PEDIATRIC PHARMACY SPECIALIST CERTIFICATION  
CONTENT OUTLINE/CLASSIFICATION SYSTEM  
FINALIZED SEPTEMBER 2017/**FOR USE ON FALL 2018 EXAMINATION AND FORWARD****

**UNDERSTANDING THE CONTENT OUTLINE/CLASSIFICATION SYSTEM**

The following domains, tasks and knowledge statements were delineated by the BPS Pediatric Pharmacy Practice Analysis Taskforce and validated through a role delineation study, conducted in 2017 and form the basis for the pediatric specialty certification examination starting in Fall 2018. 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 Pediatric Pharmacy Specialty Council and approved by the BPS Board of Directors.

Each of the major areas/domains of Pediatric Pharmacy practice noted below will be tested. Questions will not be grouped by domain. Items testing each domain are distributed throughout the total examination. Please note that this examination will SAMPLE a candidate's knowledge rather than trying to test all of his/her knowledge.

Here is a brief primer to understand the structure of the content outline/classification system.

**Domains:** A domain is a major responsibility or duty. You can think of a domain as a major heading in an outline format. You will see the domains displayed as black bars on the outline. Three domains are included in the content outline and are noted below.

1. Patient Management (57 percent of examination)
2. Practice Management and Medication Safety (21% of the examination)
3. Information Management, Research, and Education (17% of the examination)
4. Public Health and Patient Advocacy (5% of the examination)

**Tasks:** A task statement defines an activity that elaborates on the domain or subdomain. The set of task statements in a domain offer a comprehensive and detailed description of the domain. You will see the tasks are light gray bars on the outline.

**Knowledge Statement:** For each task, it is valuable to understand what knowledge and skills are essential to competent performance. The set of knowledge statements clarifies the expectations for newly certified pharmacists. You will find the knowledge statements under each task statement.

**Domain 1: Patient Management** (about 57% of the exam)

**Tasks**

Tasks related to the comprehensive management of a pediatric patient including collecting, interpreting, and integrating pertinent clinical data; and designing, implementing, monitoring, and modifying patient-specific plans of care for pediatric patients in collaboration with the healthcare team.

**For the Pediatric Patient:**

- 1.1 Collect patient-specific information on which to base safe and effective medication therapy.
- 1.2 Analyze and interpret collected patient information.

- 1.3 Identify and prioritize current or potential patient-specific medical, medication, and nutrition related problems. Establish therapeutic goals with healthcare team and patient/caregivers.
- 1.4 Design, recommend, implement, and document age and developmentally appropriate cost-effective therapeutic regimen with healthcare team and patient/caregivers.
- 1.5 Design and implement a plan to monitor the safety and efficacy of a therapeutic regimen, and adjust as necessary.
- 1.6 Participate in the management of pediatric emergencies (e.g., NRP, PALS).
- 1.7 Reconcile medications as necessary across the continuum of care including on admission, transfer, discharge, and during outpatient encounters.
- 1.8 Identify and manage barriers to successful transitions of care (e.g., social barriers, prior authorization, payment considerations).
- 1.9 Identify patients with needs beyond the scope of the pediatric pharmacy specialist and refer as appropriate (e.g., emergency department, urgent care, specialists).

**Knowledge of:**

- k1.1 Normal growth and development
- k1.2 Age- and developmentally-appropriate interviewing techniques for patients and caregivers
- k1.3 Essential components of a medical history which may include age, history of present illness (HPI), past medical history (PMH), and maternal and birth history
- k1.4 Essential components of a medication history for appropriate reconciliation which may include primary pharmacy, allergies, herbal and dietary supplements, current medications, dosage form preference, and immunization status
- k1.5 Essential components of a social history which may include day care attendance, siblings, smoke exposure, home environment, smoking, substance abuse, and sexual activity
- k1.6 Essential components of a nutritional history which may include height, weight, head circumference, BMI, diet, and enteral/parenteral needs
- k1.7 Relevant clinical and laboratory data and results of diagnostic procedures
- k1.8 Pathophysiology, epidemiology, risk factors, diagnosis, prevention, and evidence-based treatment of common diseases and conditions in pediatric patients
- k1.9 Calculation and appropriate application of equations for body surface area, creatinine clearance, and ideal body weight from birth to adult
- k1.10 Calculation of fluid requirements and appropriate fluid selection including the use of alligation calculations when necessary
- k1.11 Urine output calculation for body weight and appropriate output per age
- k1.12 Methods for assessment of hepatic function in pediatric populations
- k1.13 Normal laboratory values and vital signs from birth to adult
- k1.14 Age-associated differences in pathophysiology and clinical manifestations of disease states across patient populations

- k1.15 Age-specific pharmacokinetic and pharmacodynamic differences in neonates, infants, children, and adolescents
- k1.16 Pharmacogenomic considerations
- k1.17 Appropriate use of medications for off-label indications
- k1.18 Clinical or therapeutic implications of placental transfer of medications or other substances to the fetus and neonate
- k1.19 Influence of medications on the production of breast milk
- k1.20 Excretion of medications and other substances in breast milk and pertinent implications
- k1.21 Appropriate dosing based on age and body size
- k1.22 Medication dosing in extracorporeal membrane oxygenation, hepatic and renal dysfunction including renal replacement therapies
- k1.23 Pediatric-specific drug interactions and adverse effects
- k1.24 Interpretation and implication of laboratory sampling (e.g., blood volume, location site,)
- k1.25 Age appropriate management of urgencies/emergencies, including toxicologic emergencies
- k1.26 Age appropriate or disease specific selection of enteral and or parenteral products
- k1.27 Childhood immunization considerations
- k1.28 Factors affecting acquisition and adherence to the treatment regimen across the spectrum of care
- k1.29 Specialty needs of pediatric patients requiring referral to other providers
- k1.30 Pediatric specific scoring systems and their application to patient care
- k1.31 Appropriate treatment of various pain syndromes in a variety of settings, which may include palliative or hospice care

## **Domain 2: Practice Management and Medication Safety** (about 21% of the exam)

### **Tasks**

Tasks related to advancing pediatric pharmacy practice; and recommending, designing, implementing, and monitoring systems and policies to optimize the care of pediatric patients as part of an interdisciplinary care team or health care system.

- 2.1 Develop and implement systems to ensure appropriate drug delivery throughout the medication use process.
- 2.2 Collaborate in the selection, implementation, and maintenance of equipment/technology and decision support involved in the medication use process.
- 2.3 Develop and maintain a preferred formulary and ensure appropriate pediatric dosing is incorporated in all formulary monographs.
- 2.4 Adopt, adapt or develop evidence-based practice guidelines and protocols for the management of pediatric patients in accordance with health system policies and procedures.
- 2.5 Anticipate, prevent, review, and report medication use events (e.g., trigger review, root cause analysis, failure mode and effects analysis, MedWatch, Vaccine Adverse Event Reporting System [VAERS]) in order to assess need for system changes.
- 2.6 Perform continuous quality improvement activities aimed at enhancing safety and cost-effectiveness of medication use.
- 2.7 Document the clinical and financial impact of pediatric pharmacy services.

### **Knowledge of:**

- k2.1 Medication safety considerations (e.g., Institute for Safe Medication Practices [ISMP], Joint Commission, Food and Drug Administration [FDA], United States Pharmacopoeia [USP])
- k2.2 Relevant position statements, white papers, and national guidelines
- k2.3 Pediatric-specific considerations in the design or improvement of medication use processes (e.g., computerized physician order entry [CPOE], infusion pumps, electronic medical record [EMR], bar code scanning, automated dispensing cabinets, formulary management)
- k2.4 Impact of medication administration devices and techniques on drug delivery (e.g., inhalers/spacers, intravenous and enteral tubing, subcutaneous needle devices,, atomizers, closed system transfer devices)
- k2.5 Appropriate references to support the medication use process in pediatric pharmacy practice (e.g., preparation of formulations, dosing considerations)
- k2.6 Considerations when selecting developmentally-appropriate dosage forms
- k2.7 Metrics for evaluating quality and regulatory compliance of pediatric pharmacy services (e.g., patient/caregiver satisfaction, length of stay, readmission, medication errors, interventions)
- k2.8 Management and conservation strategies related to drug shortages

**Domain 3: Information Management, Research, and Education** (about 17% of the exam)

**Tasks**

Tasks related to retrieval, generation, interpretation, and dissemination of knowledge related to pediatric pharmacy, and the education of healthcare providers, trainees, patients and caregivers.

3.1 Educate healthcare professionals, trainees, and students concerning safe and effective use of medications and other issues related to the care of the pediatric patient.

3.2 Provide medication counseling to patients/caregivers regarding the safe and effective use of medications, adverse effects, and the importance of adherence to the treatment regimen.

3.3 Contribute to the pediatric body of knowledge (e.g., conduct or participate in research, deliver presentations, participate as a peer reviewer, publish).

3.4 Retrieve and interpret biomedical literature with regard to study methodology, statistical analysis, study results, and applicability to pediatric pharmacy practice.

3.5 Develop and maintain a pediatric-specific medical reference library.

**Knowledge of:**

k3.1 Principles and methods of educating pharmacists, technicians, trainees, and other healthcare professionals regarding pediatric pharmacy-related issues

k3.2 Age- and developmentally-appropriate patient/caregiver education principles, tools, and counseling techniques

k3.3 Health literacy and cultural considerations in educating patients/caregivers

k3.4 Research design, methodology, statistical analysis, and clinical application of published data

k3.5 Regulatory, IRB, human subjects safety requirements and concerns for conducting research in the pediatric population (e.g., consent, assent, investigational drugs, risk)

k3.6 Dissemination of pediatric information and scholarly activity (e.g., presentations, manuscripts, newsletters, abstracts, posters)

k3.7 Pediatric-specific references

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

**Tasks**

Tasks related to providing preventive health services, public health information, and advocacy for the pediatric patient population.

- 4.1 Advocate for public health initiatives to promote health, safety, and wellness.
- 4.2 Advocate for the availability of age-appropriate formulations, safety and efficacy studies, and product labeling.
- 4.3 Educate the public regarding the importance of health, safety, and wellness (e.g., poison prevention, vaccination, safe and effective medication use, antimicrobial stewardship, substance abuse/misuse).
- 4.4 Advocate for pediatric pharmacy practice and advanced training through professional organizations.
- 4.5 Facilitate access to care and treatment in times of crisis (e.g., financial need, disaster, drug shortage, public health threat)

**Knowledge of:**

- k4.1 Healthcare disparities in pediatric patients
- k4.2 Emergency preparedness and drug shortage resources
- k4.3 Public health resources (e.g., Women, Infants, and Children [WIC], Vaccines for Children [VFC], free health clinics)
- k4.4 Public health initiatives and legislation to improve the overall well-being of children (e.g., smoking cessation, child proof caps, poison prevention, Best Pharmaceuticals for Children Act)
- k4.5 Resources that improve access to medications and other therapies (e.g., patient assistance programs, specialty and compounding pharmacies, orphan drug programs )
- k4.6 Roles and resources of professional organizations related to advocacy for pediatric pharmacy practice
- k4.7 Value of advanced pediatric training and certification and the role of the pediatric pharmacy specialist