Examination Specifications
Critical Care Pharmacy
Board of Pharmacy Specialties

Name of Credential	BPS Board-Certified Critical Care Pharmacist
Certification-Issuing Body	Board of Pharmacy Specialties
Designation Awarded	BCCCP
Level of Proficiency	Specialty Certification
Target Population	Pharmacists who specialize in the delivery of patient care services as integral members of interprofessional teams, working to ensure the safe and effective use of medications in critically ill patients
Program Purpose	To validate that the pharmacist has the advanced knowledge and experience to optimize clinical outcomes by quickly assessing clinical data and delivering direct patient care to the critically ill patients
Eligibility Requirements	• Graduation from a pharmacy program accredited by the Accreditation Council for Pharmacy Education (ACPE) or a program outside the United States that qualifies the individual to practice in the jurisdiction • Current, active license or registration to practice pharmacy in the United States or another jurisdiction • One of the following, within the past 7 years: o At least 4 years of specialty area practice with at least 50% of time spent in the scope defined by the exam content outline o Completion of PGY1 pharmacy residency and at least 2 years of specialty area practice experience with at least 50% of time spent in the scope defined by the exam content outline o Completion of PGY1 pharmacy residency and PGY2 pharmacy residency in Critical Care Pharmacy *Residency programs must be accredited by or deemed candidate status by the American Society of Health-System Pharmacists (ASHP) for PGY1, PGY2, and International Pharmacy Practice Residency Programs, or accredited by the Canadian Pharmacy Residency Board (CPRB) for year-1 programs.*
ECO Creation Date	April 2017

This document serves as examination specifications and certification scheme according to the respective requirements of the NCCA 2021 and ISO-IEC 17024:2012 standards.

For more information about the BCCCP examination program, please refer to the BPS website and candidate's guide: www.bpsweb.org/specialty-exams/candidates-guide/.

Examination Content Outline

1	Clinical Knowledge and Application
1.1	Collect information about a patient's present illness, allergies, and past medical, surgical, social, and family histories by using interviews and medical records to ensure safe and effective use of medications
1.1.1	Process for collecting pertinent patient data
1.1.2	Electronic health records and comparable paper-based records
1.1.3	Relationship between critical illness and pre-existing conditions (e.g., endocrine disorders, cardiovascular diseases, infectious diseases)
1.2	Perform a comprehensive reconciliation of a patient's current and past medications by using data collected from interviews and medical records to determine the pharmacotherapy plan
1.2.1	The principles and process of medication reconciliation
1.2.2	Appropriateness of prescription medications and self-care (e.g., over-the-counter medications, dietary supplements, complementary and alternative medicines)
1.2.3	Adverse drug reactions
1.2.4	Drug interactions (e.g., drug-drug, drug-nutrient, drug-disease)
1.2.5	Barriers to care (e.g., nonadherence, psychosocial status, socioeconomic status)
1.2.6	Patient-specific factors (e.g., culture, religion, quality of life)
1.2.7	Transitions of care
1.3	Integrate relevant data from physical examinations, vital signs, laboratory studies, imaging studies, procedures, advanced critical care monitoring, and other pertinent information by using clinical reasoning to comprehensively assess a patient's physiological condition and severity of illness
1.3.1	Diagnosis, pathophysiology, epidemiology, and risk factors of disease states and clinical conditions
1.3.2	Changes in patient clinical status (e.g., hemodynamics, organ dysfunction, nutrition)
1.3.3	Methods for obtaining, interpreting, and analyzing pertinent patient data
1.3.4	Diagnostic tests and findings
1.3.5	Medical and surgical devices and therapies (e.g., renal replacement therapies, cardiopulmonary bypass, mechanical ventilator)
1.3.6	Pharmacokinetics and pharmacodynamics
1.3.7	Relationship between nutrition status and disease states

1.4	Develop therapeutic regimens by using patient-specific data and evidence-based medicine to implement a prioritized pharmacotherapy plan that ensures optimal resource utilization and patient outcomes
1.4.1	Pharmacology
1.4.2	Evidence-based literature and clinical practice guidelines
1.4.3	Pharmacodynamics and pharmacokinetics (e.g., effects of hypothermia, hypermetabolic states, volume status, altered absorption)
1.4.4	Alterations in anatomy and physiology (e.g., trauma, surgery or congenital causes) that affect medication therapy
1.4.5	Disease states and patient-specific factors impacting drug selection (e.g., nutrition, organ dysfunction)
1.4.6	Pharmacoeconomics (e.g., cost effectiveness, cost minimization, stewardship)
1.4.7	Pharmacogenomics
1.4.8	Medical emergencies
1.5	Collaborate as a member of an interprofessional team by using effective strategies to establish patient-centered and family-centered goals of care
1.5.1	Interprofessional scopes of practice
1.5.2	Healthcare resources (e.g., institutional, community, payer)
1.5.3	Techniques for collaboration, documentation, and communication within and outside the critical care setting
1.5.4	Effects of culture, language and language proficiency, education level, comprehension, home environment, and disabilities on educational needs
1.5.5	Preventive and supportive care measures
1.5.6	Goals of care and disposition (e.g., rehabilitation, palliative care, end-of-life care)
1.5.7	Medical emergencies
1.6	Facilitate the administration of medications to patients by assessing availability, route, compatibility, stability, and medication delivery technology to ensure timeliness, safety, and effectiveness
1.6.1	Routes of administration for medications, fluids, and nutrition
1.6.2	Alterations in absorption based on disease state
1.6.3	Drug-drug, drug-nutrient, and drug-disease interactions
1.6.4	Drug delivery considerations (e.g., vascular, enteral, neuraxial)
1.6.5	Drug compatibility and stability

1.6.6	Drug availability (e.g., formulary considerations, drug shortages)
1.6.7	Medication delivery technology (e.g., smart pumps, automated dispensing cabinets)
1.7	Monitor a patient's response to therapeutic regimens by using appropriate data in order to evaluate progress toward the goals of care, modify the plan of care as needed, and minimize adverse outcomes
1.7.1	Monitoring techniques (e.g., hemodynamic, neurologic, cardiovascular)
1.7.2	Outcome indicators for pharmacotherapy of disease states
1.7.3	Disease progression or resolution
1.7.4	Therapeutic drug monitoring
1.7.5	Drug interactions
1.7.6	Adverse drug events
1.7.7	Reassessment and modification of therapeutic regimens
1.8	Communicate pertinent information by using effective oral and written strategies to ensure continuous and quality care
1.8.1	Transitions of care
1.8.2	Strategies for engaging, communicating with, and educating patients, families, and members of the interprofessional team
1.8.3	Approaches for obtaining and documenting patient data
1.8.4	Tools and resources
2	Practice Management, Policy, and Quality Improvement
2.1	Implement operational and clinical pharmacy services consistent with best practices to promote appropriate and efficient medication use
2.1.1	Needs assessment related to pharmacy services
2.1.2	Application of evidence-based literature in designing institutional guidelines and policies
2.1.3	Resources (e.g., financial, technological, human) necessary to care for patients
2.1.4	Telemedicine
2.1.5	Competency development
2.2	Promote the role and optimal use of critical care pharmacists to key stakeholders by documenting performance metrics, quality improvement, safety, and clinical interventions to demonstrate cost effectiveness and to maintain and expand services

2.2.1	Metrics for evaluating quality of pharmacy services (e.g., length of ICU stay, mortality, cost effectiveness, days of therapy per adjusted patient day)
2.2.2	Pharmacoeconomic analysis
2.2.3	Return on investment
2.2.4	Resource utilization (e.g., stewardship principles)
2.3	Perform quality improvement activities by reviewing current practices and conducting a needs analysis to enhance the safety and effectiveness of medication use processes
2.3.1	Needs assessment related to quality of care
2.3.2	Medication use and monitoring systems (e.g., Risk Evaluation and Mitigation Strategies, Vaccine Adverse Event Reporting System, FDA MedWatch, Institute for Safe Medication Practices alerts)
2.3.3	Quality standards and metrics (e.g., risk adjusted mortality, medication errors)
2.3.4	Risk mitigation strategies (e.g., failure mode effects analysis, root cause analysis)
2.4	Evaluate compliance with institutional policies, accreditation standards, and regulatory requirements by auditing current practices to ensure integrity and quality of care
2.4.1	Principles of a medication use evaluation
2.4.2	Regulatory and accrediting bodies and their requirements (e.g., Food and Drug Administration, The Joint Commission, Centers for Medicare and Medicaid Services)
2.4.3	Quality measures (e.g., core measures, Hospital Consumer Assessment of Healthcare Providers and Systems, Agency for Healthcare Research and Quality)
2.4.4	Laws and regulations pertaining to scope of practice
2.5	Collaborate with interprofessional groups by serving on committees and contributing to local, regional, and national initiatives to improve quality of care
2.5.1	Policy and guideline development pertaining to interprofessional care
2.5.2	Interprofessional organizations
2.5.3	Strategies for collaborating (e.g., conflict resolution, negotiation)
2.5.4	Expertise of interprofessional team members
2.6	Develop formulary management strategies through the Pharmacy and Therapeutics Committee and other appropriate channels to improve cost effectiveness, resource utilization, and risk mitigation
2.6.1	Role and responsibilities of a Pharmacy and Therapeutics Committee
2.6.2	Drug monograph and class review
2.6.3	Criteria for use

2.6.4	Drug shortage management strategies
2.7	Optimize health information technology by using clinical informatics to improve pharmacotherapeutic decision support and minimize patient harm
2.7.1	Drug delivery and distribution technology (e.g., automated dispensing cabinets, inventory management systems, electronic pharmacy workflow managers)
2.7.2	Intelligent intravenous infusion devices
2.7.3	Barcode medication administration
2.7.4	Electronic health records
2.7.5	Computerized provider order entry
2.7.6	Clinical decision support
2.7.7	Health information exchanges
2.7.8	Alerts and alert fatigue (e.g., drug-drug, drug-dose, drug-disease, duplicate therapy)
3	Evidence-Based Medicine, Scholarship, Education, and Professional Development
3.1	Employ drug information skills by retrieving biomedical literature and evaluating design methodology, statistical analysis, and results to practice evidence-based medicine
3.1.1	Literature search strategies and resources
3.1.2	Research design, methodology, and statistical analysis
3.1.3	Clinical application and limitations of published data and reports
3.2	Contribute to the critical care body of knowledge by participating in research, delivering presentations, publishing, participating in the peer review process, or engaging in other scholarly activities to advance practice
3.2.1	Regulations and IRB requirements for human subjects research
3.2.2	Methods for disseminating critical care knowledge and scholarly activity (e.g., presentations, manuscripts, newsletters, abstracts, posters)
3.2.3	Biomedical literature publication and review processes
3.3	Provide interprofessional education through formal and informal methods of dissemination to improve awareness, understanding, and patient outcomes
3.3.1	Interprofessional roles, responsibilities, communication, and teamwork
3.3.2	Formal and informal educational techniques (e.g., continuing education programs, in-services, practice-based teaching)
3.4	Educate patients and caregivers on medication therapy by using effective communication strategies to enhance understanding
3.4.1	Techniques and principles of educating patients and caregivers

3.4.2	Communication strategies and barriers
3.5	Provide education for practicing pharmacists, post-graduate trainees, and students through didactic and experiential methods to promote best practice
3.5.1	Instructional methods (e.g., didactic, simulation)
3.5.2	Preceptor roles employed in practice-based teaching: direct instruction, modeling, coaching, and facilitation
3.5.3	Assessment and evaluation techniques
3.6	Mentor pharmacists, post-graduate trainees, and students by using formal and informal methods to promote professional growth
3.6.1	Mentorship theories, principles, and methods
3.7	Engage in continuous professional development through activities such as self-assessment and service to professional organizations to maintain and enhance proficiency
3.7.1	Professional organizations and opportunities for involvement
3.7.2	Principles of self-assessment and personal change
3.7.3	Standards and position papers regarding critical care pharmacy practice
3.7.4	Relevant certifications and credentials

The examination content outline is a product of a job analysis (aka role delineation study) that includes facilitation of discussions with a representative panel of 15-20 subject matter experts who identify competencies required for safe and effective pharmacy practice in this specialty area as well as a validation survey soliciting endorsement of the identified competencies from certified pharmacists in this specialty area. The job analysis process is conducted every 5 years to help ensure that the competencies in the examination content outline reflect current pharmacy practice in the specialty area.

Examination Administration and Scoring

	Number of Examination Items	Certification Exam	Recertification Exam
1	Clinical Knowledge and Application	114	65
2	Practice Management, Policy, and Quality Improvement	26	15
3	Evidence-Based Medicine, Scholarship, Education, & Professional Dev.	35	20
	TOTAL	**175**	**100**

	Certification Exam	Recertification Exam
Exam Administration Time	4 hours 23 minutes	2 hours 30 minutes
Minimum Score	200	200
Minimum Passing Score	500	500
Maximum Score	800	800

The certification examination is split into two parts with an optional break (up to 30 minutes) in between. Part 1 consists of 100 items (2 hours 30 minutes) and Part 2 consists of 75 items (1 hour 53 minutes).

Maintenance of Certification

Recertification Requirements	Pharmacists who earn the BPS Board-Certified Critical Care Pharmacist (BCCCP) designation will be required to maintain their certification over a 7-year period by completing one of the following recertification pathways: • Achieving a passing score on the BCCCP recertification examination in their seventh year following initial certification • Earning 100 hours of BPS-approved continuing pharmacy education (CPE) credit provided by the professional development programs offered by the American College of Clinical Pharmacy (ACCP) and/or the American Society of Health-System Pharmacists (ASHP), and/or the Society of Critical Care Medicine (SCCM). *The Critical Care Pharmacy Preparatory Review and Recertification Course offered by any of the approved providers may only be completed for recertification credit up to two times, in nonconsecutive years, during the 7-year recertification cycle.*
Ethics and Professionalism	The Board of Pharmacy Specialties ascribes to the belief that certification carries an obligation for ethical behavior and professionalism necessary in all conduct. Candidates or certificants who are found to have exhibited unethical behavior or lack of professionalism may be prevented from pursuing certification or may be subject to suspension or withdrawal of certification, at the discretion of the Board of Pharmacy Specialties. Please refer to the BPS Ethics and Professionalism Policy: https://www.bpsweb.org/wp-content/uploads/2015/11/ethics.pdf