Job Analysis

Emergency Medicine Pharmacy (BCEMP)

May 2025

Board of Pharmacy Specialties®

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Executive Summary

The Board of Pharmacy Specialties (BPS) performed a job analysis, a multi-method approach into defining a job role or competency area in terms of the relevant tasks and associated knowledge areas, in 2025 to develop the content outline and other specifications for the specialty certification examination for pharmacists who specialize in emergency medicine pharmacy. In accordance with relevant professional and accreditation standards, the study consisted of three major phases:

1. Definition of tasks and knowledge areas
2. Development, administration, and analysis of a survey
3. Finalization of the exam content outline

This report provides evidence for the exam content outline developed and its applicability to the emergency medicine pharmacy specialty practice area. The outcome of this study was the creation of an examination blueprint that will be used to construct the emergency medicine pharmacy specialty certification examination such that it aligns with the competencies identified and in equal proportions across all forms (versions) of the examination.

Examination Content Domains and Subdomains		
1	**Emergency Medicine**	**17%**
1A	Emergency Medicine Operations	8%
1B	Medical Therapies and Devices	9%
2	**Therapeutics and Patient Management**	**66%**
2A	Patient Assessment	13%
2B	Pharmacotherapy	33%
2C	Therapeutic Implementation, Outcomes, and Monitoring	20%
3	**Professional Practice**	**17%**
3A	Quality of Care	9%
3B	Practice Management	8%

Introduction

The Board of Pharmacy Specialties (BPS) performed a job analysis in 2025 to develop the content outline and other specifications for the specialty certification examination for pharmacists who specialize in emergency medicine pharmacy.

A job analysis[1], sometimes called a role delineation study or practice analysis in healthcare certification settings, is a multi-method approach to defining a job role or competency area in terms of the relevant tasks or work activities and the associated competencies (operationalized as knowledge, skills, and abilities) and/or other attributes. Indeed, job analysis can also be thought of as referring to a family of related approaches to establishing the foundations of content validity[2] for an assessment[3], in this case applied to the assessment of competencies associated with a specialty area in the licensed practice of pharmacy. A job analysis is considered a multi-method approach because it incorporates both qualitative and quantitative evidence in support of the definition the practice area in question. The job analysis consisted of three major phases:

1. Definition of tasks and knowledge areas, organized in a content outline format and completed by an assembled panel of qualified pharmacists who are currently engaged in emergency medicine pharmacy
2. Development, administration, and analysis of a survey to other qualified pharmacists who are currently engaged in emergency medicine pharmacy, requesting their ratings either endorsing the inclusion or exclusion of each task and knowledge area identified by the committee
3. Finalization of the exam content outline, completed by the assembled panel and with consideration given to the survey results to help determine the retention, discard, or editing of knowledge and task lists, as well as the relative weights assigned to each content area

The study described in this report was conducted according to the Standards for Educational & Psychological Testing[4] and applicable accreditation standards (NCCA[5] and ISO/IEC 17024[6]). The subsequent sections describe the methods, results, and outcomes of the study, complemented by appendices which describe the qualifications and professional characteristics of the subject matter experts who contributed to this study, the actual text of the survey administered, and the final exam content outline produced by this study.

[1] Sackett, P.R., Laczo, R.M. (2003). Job and Work Analysis. Handbook of Psychology.
[2] Cronbach, L.J., Meehl, P.E. (1955). Construct Validity in Psychological Tests. Psychological Bulletin, 52(4), 281-302.
[3] Kane, M.T. (2013). Validating the Interpretations and Uses of Test Scores. Journal of Educational Measurement, 50(1), 1-73.
[4] American Educational Research Association, the American Psychological Association, National Council on Measurement in Education. (2014). Standards for Educational & Psychological Testing.
[5] National Commission for Certifying Agencies. (2014). Standards for the Accreditation of Certification Programs.
[6] International Organization for Standardization, International Electrotechnical Commission. (2012). Conformity Assessment: General Requirements for Bodies Operating Certification of Persons.

1. Definition of Tasks and Knowledge

BPS assembled a panel that consisted of 21 subject-matter experts in emergency medicine pharmacy, who were representative of the diversity of professional characteristics within the specialty with respect to practice setting, patient populations served, years of experience, and geographic dispersion within the United States. One additional subject-matter experts in emergency medicine pharmacy were interviewed individually on a 1-hour teleconference. See Appendix A for the qualifications and professional characteristics of the job analysis panel and interviewees.

The interview took place on 3 January 2025. The interview questions focused on changes in the specialty area, key competency areas, and any limitations of the outgoing examination content outline that should be addressed by the job analysis.

The panel met via teleconference on two occasions to develop, define, and update the tasks performed and knowledge required to practice as a specialist in emergency medicine pharmacy. The dates of the meetings were 30 January 2025 and 26 February 2025.

On the first session, the panelists were oriented to the objectives of the study and the meeting, and then were presented a draft examination content outline and list of associated tasks that drew from the outgoing examination content outline and the interview notes. See Appendix B for the presentation used to orient the job analysis panelists.

The panel developed 15 task statements that describe the work activities performed by an emergency medicine pharmacist.

1	Assess clinical and diagnostic findings, patient history, risk factors, social determinants of health, and/or other relevant patient characteristics
2	Triage and prioritize the treatment of patients according to acuity and urgency of patient presentations
3	Collaborate with the patient, caregivers, and/or interprofessional healthcare team to establish treatment goals
4	Design a therapeutic plan based on patient characteristics, acuity, available pharmacology, treatment goals, and best available evidence
5	Participate in the preparation and delivery of pharmacotherapy and adjunctive therapies at the patient bedside
6	Monitor and evaluate patient response to treatment and modify care plan accordingly
7	Utilize clinical decision support and other health information technology to optimize treatment decisions
8	Develop and implement plans for transitions of care and changes in patient disposition, including procedures for discharge, transfers, referrals, and follow-up
9	Participate in inventory management, contingency planning, emergency preparedness, establishment of pharmacy services, and personnel management
10	Evaluate literature and other published information to determine the quality and applicability to emergency medicine

11	Develop and implement healthcare protocols, clinical decision support, medication formularies, medication order review, and emergency medicine pharmacy services
12	Participate in quality improvement, safety, and/or public health initiatives, including the review of adverse drug events and medication errors
13	Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice guidelines
14	Develop and/or provide healthcare education to patients, caregivers, members of the general public, pharmacists, learners, and/or other healthcare professionals
15	Engage in professional development, such as professional advocacy, committee involvement, scholarly activities, and continuing education

The panel identified three content domains that describe the key high-level components of emergency medicine pharmacy. Across the three content domains, the panel identified seven content sub-domains and developed 52 knowledge areas that describe specific job knowledge associated with the practice of emergency medicine pharmacy. In some cases, the panelists wrote examples in parenthesis, which are meant to be non-exhaustive, to help better illustrate the intended scope of the knowledge area listed.

1	**Emergency Medicine**
1A	Emergency Medicine Operations
1A1	Pre-Hospital and Emergency Medical Services
1A2	Triage and Prioritization
1A3	Patient Follow-Up Processes
1A4	Toxicology / Poison Centers
1B	Medical Therapies and Devices
1B1	Mechanical/Assisted Ventilation
1B2	Mechanical Circulatory Support (e.g., VADs, ECMO, mechanical CPR)
1B3	Renal Replacement Therapies
1B4	Lines, Tubes, and Drains
1B5	Infusion Devices
1B6	Medication Delivery Devices (e.g., inhalers, epipens, atomizers)
2	**Therapeutics and Patient Management**
2A	Patient Assessment
2A1	Clinical Assessment and Screening
2A2	Laboratory and Diagnostic Testing
2A3	Pathophysiology
2A4	Pharmacokinetics, Pharmacodynamics, and Pharmacogenomics
2A5	Social Determinants of Health
2A6	Considerations for Special Populations (e.g., age group, extremes of weight, pregnancy/lactation, critical illness, immunocompromised)
2B	Pharmacotherapy
2B1	Pharmacotherapy for Cardiology
2B2	Pharmacotherapy for Dermatology
2B3	Pharmacotherapy for Endocrinology
2B4	Pharmacotherapy for Gastroenterology, Genitourinary, and Obstetrics

2B5	Pharmacotherapy for Immunology, Oncology, and Hematology
2B6	Pharmacotherapy for Infectious Diseases
2B7	Pharmacotherapy for Nephrology and Hepatology
2B8	Pharmacotherapy for Neurology
2B9	Pharmacotherapy for Otolaryngology and Ophthalmology
2B10	Pharmacotherapy for Pain and Sedation
2B11	Pharmacotherapy for Psychiatric Emergencies
2B12	Pharmacotherapy for Pulmonology
2B13	Pharmacotherapy for Resuscitation
2B14	Pharmacotherapy for Toxicology
2B15	Pharmacotherapy for Trauma and Burns
2C	Therapeutic Implementation, Outcomes, and Monitoring
2C1	Medication Preparation and Delivery
2C2	Therapeutic Outcomes and End-Points
2C3	Resuscitation and Stabilization
2C4	Infectious Diseases and Antimicrobial Stewardship
2C5	Therapeutic and Pharmacokinetic Monitoring
2C6	Adverse Drug Events and Drug Interactions
2C7	Interprofessional Care Coordination
2C8	Patient Disposition and Transitions of Care
2C9	Patient and Caregiver Education and Counseling
3	**Professional Practice**
3A	Quality of Care
3A1	Medication Safety (e.g., REMS, VAERS, barcodes, ISMP)
3A2	Risk Mitigation (e.g., failure mode effects analysis, root cause analysis)
3A3	Healthcare Regulations and Standards (e.g., FDA, TJC, CMS, NIOSH, USP<800>)
3A4	Quality Management and Process Improvement
3A5	Formulary and Inventory Management (e.g., automated dispensing cabinets, medication shortages, antidote inventory)
3A6	Informatics and Clinical Decision Support Systems
3B	Practice Management
3B1	Professional Practice Standards and Guidelines
3B2	Statistics and Research Methods (e.g., biostatistics, bioethics, research design)
3B3	Literature Evaluation (e.g., applicability to practice, levels of evidence)
3B4	Interprofessional Healthcare Collaboration (e.g., policy development, debriefing)
3B5	Alternative Healthcare Delivery Modalities (e.g., remote order verification, tele-neuro, offsite consulting)
3B6	Disaster Healthcare Management

The panel also helped create a definition of the emergency medicine pharmacist, the target population for the BCEMP credential, and a statement describing the purpose of the BCEMP credentialing program.

The BPS Board-Certified Emergency Medicine Pharmacist program is a credential for pharmacists who specialize in providing and supporting patient care at the bedside in emergency medicine settings.
The purpose of the BPS Board-Certified Emergency Medicine Pharmacist program is to validate that the pharmacist has the advanced knowledge, skills, and experience necessary to provide high-quality patient care and optimize therapeutic outcomes in emergency medicine settings.

The panel also refined a list of demographic questions to be provided to survey respondents which would help better understand the professional characteristics of the respondent sample, which is described in more detail in the next section.

Lastly, the panel engaged in a linkage analysis, which is an exercise to identify the inter-relationships among the knowledge areas and tasks. Each panelist was asked to individually develop a linkage matrix in which tasks are listed as columns and knowledge areas as rows, and an x-mark indicating that the knowledge area is required for performance of the task. Individual matrices were aggregated such that any proposed linkage (x-mark) by more than half of the panelists was counted in the final (consensus) linkage matrix.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1															
1A															
1A1		X	X						X						
1A2	X	X	X												
1A3	X		X			X		X							
1A4	X	X	X	X					X			X			
1B															
1B1	X		X	X	X	X									
1B2	X		X	X	X										
1B3	X		X	X	X						X				
1B4				X	X										
1B5	X				X										
1B6	X			X	X						X			X	
2															
2A															
2A1	X	X	X	X		X									
2A2	X	X	X	X		X		X							
2A3	X	X	X	X		X									
2A4	X		X	X		X	X	X							
2A5	X		X					X							
2A6	X		X	X	X	X		X		X				X	

2B															
2B1	X		X	X	X	X		X		X	X			X	X
2B2	X		X	X		X		X		X	X			X	X
2B3	X		X	X		X		X		X	X			X	X
2B4	X		X	X	X	X		X		X	X			X	X
2B5	X		X	X	X	X		X		X	X			X	X
2B6	X		X	X	X	X		X		X	X			X	X
2B7	X		X	X	X	X		X		X	X			X	X
2B8	X	X	X	X	X	X		X		X	X			X	X
2B9	X		X	X		X		X		X	X			X	X
2B10	X	X	X	X	X	X		X		X	X			X	X
2B11	X		X	X	X	X		X		X	X			X	X
2B12	X	X	X	X	X	X		X		X	X			X	X
2B13	X	X	X	X	X	X		X		X	X			X	X
2B14	X		X	X	X	X		X	X	X	X			X	X
2B15	X	X	X	X	X	X		X		X	X			X	X
2C															
2C1		X			X				X		X				
2C2			X	X		X		X			X				
2C3	X	X	X	X	X	X									
2C4	X		X	X	X	X					X	X		X	
2C5	X		X	X		X	X	X			X	X			
2C6	X		X	X		X	X					X		X	
2C7			X	X		X		X						X	
2C8			X	X				X							
2C9			X					X						X	
3															
3A															
3A1											X	X	X		X
3A2											X	X	X		X
3A3									X		X	X	X		X
3A4									X		X	X	X		X
3A5									X		X		X		X
3A6							X		X		X	X	X		
3B															
3B1									X	X	X		X		X
3B2										X	X		X		X
3B3										X	X		X	X	X
3B4									X		X	X	X	X	X
3B5							X				X				
3B6									X		X		X		X

2. Survey Administration and Analysis

A survey was created for the purpose of soliciting ratings of endorsement from the larger practitioner population. Survey results are used to validate the appropriateness of the knowledge areas and tasks developed by the panelists and to inform content weighting decisions. The survey was developed with the following components:

- Description of the purpose of the survey
- Definition of the target population identified by the specialty practice area
- Respondent ratings of endorsement for the task statements
- Respondent ratings of endorsement for the knowledge areas
- Demographic questions that assess survey respondents' professional qualifications
- Open field for any additional comments

The ratings of endorsement from the survey respondents were solicited using two scales: Importance and Frequency. Each scale consists of a prompt for task statement, prompt for knowledge areas, and numerical responses with an associated text anchor (description).

Importance	How important is this task to emergency medicine pharmacy practice? How important is this knowledge area to emergency medicine pharmacy practice?
0	not at all / not applicable
1	of very little importance
2	somewhat important
3	moderately important
4	very important
5	critically important
Frequency	How frequently is this task performed in emergency medicine pharmacy practice? How frequently is this knowledge used in emergency medicine pharmacy practice?
0	not at all / not applicable
1	very rarely
2	rarely
3	occasionally
4	often
5	very often

The survey was pilot tested with a sample that consisted of the job analysis panelists, the specialty examination council, and BPS staff persons. The pilot test was conducted during the dates of 6-14 March 2025. Pilot testers did not identify any necessary changes. See Appendix C for a copy of the final survey text.

The survey was open and available from 18 March 2025 to 21 April 2025. All pharmacists who hold the BCEMP credential were directly invited via email to complete the online survey.

The survey yielded 113 usable responses. Responses were not used if the survey was not completed or if the respondent indicated spending less than 50% of their pharmacy practice in emergency medicine.

Responses to Demographic Questions			
Percentage of professional practice in emergency medicine pharmacy Mean = 91.72 | SD = 14.09		***n***	
50 – 75		16	
76 – 99		27	
100		70	
Time Spent in Professional Role		***n*** **(>50%)**	**Average %**
Direct Patient Care: Emergency Response		3	21.40%
Direct Patient Care: Bedside Patient Care		2	23.79%
Direct Patient Care: Order Verification and Dispensing		2	20.70%
Public Health (e.g., culture follow-up, wellness checks)		0	8.08%
Administration / Management / Medication Stewardship		0	8.97%
Teaching / Precepting		0	11.49%
Research / Scholarship		0	4.69%
Years of Experience in Pharmacy	Mean = 10.59 |SD = 6.72	***n***	**%**
0 to 5		27	23.89%
6 to 10		43	38.05%
11 to 15		24	21.24%
16 to 20		13	11.50%
20+		6	5.31%
Years of Experience in emergency medicine pharmacy	Mean = 7.82 |SD = 4.54	***n***	**%**
0 to 5		35	30.97%
6 to 10		53	46.90%
11 to 15		20	17.70%
16 to 20		4	3.54%
20+		1	0.88%
BPS Certifications		***n***	
BCACP - Ambulatory Care		0	
BCCCP - Critical Care		23	
BCCP - Cardiology		0	
BCEMP - Emergency Medicine		102	
BCGP - Geriatric		1	
BCIDP - Infectious Diseases		1	
BCNP - Nuclear		0	
BCNSP- Nutrition Support		0	
BCOP - Oncology		0	

BCPP - Psychiatric	0	
BCPPS - Pediatric	0	
BCPS - Pharmacotherapy	63	
BCSCP - Compounded Sterile Preparations	0	
BCTXP - Solid Organ Transplantation	0	
Post-graduate pharmacy residency programs	***n***	
PGY1 Pharmacy	100	
PGY1 Managed Care Pharmacy	1	
PGY1 Community-Based Pharmacy	1	
PGY2 Ambulatory Care Pharmacy	0	
PGY2 Cardiology Pharmacy	0	
PGY2 Clinical Pharmacogenomics	0	
PGY2 Community-Based Pharmacy Administration and Leadership	0	
PGY2 Corporate Pharmacy Administration and Leadership	0	
PGY2 Critical Care Pharmacy	11	
PGY2 Emergency Medicine Pharmacy	42	
PGY2 Geriatric Pharmacy	0	
PGY2 Health System Pharmacy Administration and Leadership	0	
PGY2 Infectious Diseases Pharmacy	0	
PGY2 Internal Medicine Pharmacy	0	
PGY2 Investigational Drugs and Research	0	
PGY2 Medication Use Safety and Policy	0	
PGY2 Neurology	0	
PGY2 Oncology Pharmacy	0	
PGY2 Palliative Care / Pain Management Pharmacy	0	
PGY2 Pediatric Pharmacy	0	
PGY2 Pharmacotherapy	1	
PGY2 Pharmacy Informatics	0	
PGY2 Population Health Management and Data Analytics Pharmacy	0	
PGY2 Psychiatric Pharmacy	0	
PGY2 Solid Organ Transplant Pharmacy	0	
PGY2 Specialty Pharmacy Administration and Leadership	0	
Other	5	
Primary Practice Setting	***n***	**%**
Academic Institution / Educational Institution	7	6.19%
Academic Medical Center or Hospital	32	28.32%
Children’s Hospital	1	0.88%
Community Hospital	62	54.87%
Free-Standing Emergency Department	0	0.00%
Hybrid Academic-Community Hospital	7	6.19%
Integrated Health System / Accountable Care Organization	0	0.00%

Governmental Healthcare Facility / Veterans Affairs Hospital	3	2.65%
Other	1	0.88%
Location of Primary Practice	***n***	**%**
AL	3	2.65%
AZ	3	2.65%
CA	5	4.42%
CO	1	0.88%
CT	1	0.88%
DC	1	0.88%
FL	9	7.96%
GA	3	2.65%
IA	2	1.77%
ID	4	3.54%
IL	4	3.54%
IN	2	1.77%
KY	2	1.77%
LA	1	0.88%
MD	3	2.65%
ME	1	0.88%
MN	9	7.96%
MO	3	2.65%
NC	8	7.08%
ND	1	0.88%
NE	3	2.65%
NJ	2	1.77%
NM	2	1.77%
NY	4	3.54%
OH	8	7.08%
OR	1	0.88%
PA	3	2.65%
SC	1	0.88%
TN	6	5.31%
TX	9	7.96%
UT	1	0.88%
VA	5	4.42%
WA	2	1.77%

Mean Ratings for Task Statements		Importance	Frequency
1	Assess clinical and diagnostic findings, patient history, risk factors, social determinants of health, and/or other relevant patient characteristics	4.50	4.62
2	Triage and prioritize the treatment of patients according to acuity and urgency of patient presentations	4.65	4.66
3	Collaborate with the patient, caregivers, and/or interprofessional healthcare team to establish treatment goals	4.58	4.69
4	Design a therapeutic plan based on patient characteristics, acuity, available pharmacology, treatment goals, and best available evidence	4.70	4.73
5	Participate in the preparation and delivery of pharmacotherapy and adjunctive therapies at the patient bedside	4.52	4.39
6	Monitor and evaluate patient response to treatment and modify care plan accordingly	4.45	4.35
7	Utilize clinical decision support and other health information technology to optimize treatment decisions	3.65	3.85
8	Develop and implement plans for transitions of care and changes in patient disposition, including procedures for discharge, transfers, referrals, and follow-up	3.38	3.31
9	Participate in inventory management, contingency planning, emergency preparedness, establishment of pharmacy services, and personnel management	3.57	2.94
10	Evaluate literature and other published information to determine the quality and applicability to emergency medicine	4.22	3.96
11	Develop and implement healthcare protocols, clinical decision support, medication formularies, medication order review, and emergency medicine pharmacy services	4.01	3.50
12	Participate in quality improvement, safety, and/or public health initiatives, including the review of adverse drug events and medication errors	3.71	3.20
13	Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice guidelines	3.76	3.20
14	Develop and/or provide healthcare education to patients, caregivers, members of the general public, pharmacists, learners, and/or other healthcare professionals	3.84	3.58
15	Engage in professional development, such as professional advocacy, committee involvement, scholarly activities, and continuing education	3.05	2.96
16	Assess clinical and diagnostic findings, patient history, risk factors, social determinants of health, and/or other relevant patient characteristics	4.50	4.62
17	Triage and prioritize the treatment of patients according to acuity and urgency of patient presentations	4.65	4.66

Mean Ratings for Knowledge Statements		IMPO	FREQ
1	**Emergency Medicine**		
1A	Emergency Medicine Operations		
1A1	Pre-Hospital and Emergency Medical Services	3.50	3.71
1A2	Triage and Prioritization	4.26	4.37
1A3	Patient Follow-Up Processes	3.47	3.54
1A4	Toxicology / Poison Centers	4.31	3.59
1B	Medical Therapies and Devices		
1B1	Mechanical/Assisted Ventilation	3.86	3.79
1B2	Mechanical Circulatory Support (e.g., VADs, ECMO, mechanical CPR)	3.29	2.56
1B3	Renal Replacement Therapies	2.97	2.66
1B4	Lines, Tubes, and Drains	3.50	3.66
1B5	Infusion Devices	3.70	3.81
1B6	Medication Delivery Devices (e.g., inhalers, epipens, atomizers)	3.84	3.62
2	**Therapeutics and Patient Management**		
2A	Patient Assessment		
2A1	Clinical Assessment and Screening	4.13	4.25
2A2	Laboratory and Diagnostic Testing	4.44	4.68
2A3	Pathophysiology	4.21	4.16
2A4	Pharmacokinetics, Pharmacodynamics, and Pharmacogenomics	4.26	4.31
2A5	Social Determinants of Health	3.26	3.35
2A6	Considerations for Special Populations (e.g., age group, extremes of weight, pregnancy/lactation, critical illness, immunocompromised)	4.33	4.21
2B	Pharmacotherapy		
2B1	Pharmacotherapy for Cardiology	4.59	4.64
2B2	Pharmacotherapy for Dermatology	2.65	2.65
2B3	Pharmacotherapy for Endocrinology	4.01	3.89
2B4	Pharmacotherapy for Gastroenterology, Genitourinary, and Obstetrics	4.01	3.80
2B5	Pharmacotherapy for Immunology, Oncology, and Hematology	3.37	3.11
2B6	Pharmacotherapy for Infectious Diseases	4.87	4.93
2B7	Pharmacotherapy for Nephrology and Hepatology	3.76	3.73
2B8	Pharmacotherapy for Neurology	4.57	4.56
2B9	Pharmacotherapy for Otolaryngology and Ophthalmology	2.94	2.92
2B10	Pharmacotherapy for Pain and Sedation	4.76	4.81
2B11	Pharmacotherapy for Psychiatric Emergencies	4.46	4.40
2B12	Pharmacotherapy for Pulmonology	4.30	4.30
2B13	Pharmacotherapy for Resuscitation	4.95	4.60
2B14	Pharmacotherapy for Toxicology	4.65	3.92
2B15	Pharmacotherapy for Trauma and Burns	4.35	3.70
2C	Therapeutic Implementation, Outcomes, and Monitoring		
2C1	Medication Preparation and Delivery	4.42	4.43
2C2	Therapeutic Outcomes and End-Points	3.95	3.88

2C3	Resuscitation and Stabilization	4.88	4.53
2C4	Infectious Diseases and Antimicrobial Stewardship	4.62	4.67
2C5	Therapeutic and Pharmacokinetic Monitoring	3.69	3.54
2C6	Adverse Drug Events and Drug Interactions	4.19	3.89
2C7	Interprofessional Care Coordination	4.24	4.20
2C8	Patient Disposition and Transitions of Care	3.49	3.42
2C9	Patient and Caregiver Education and Counseling	3.54	3.20
3	**Professional Practice**		
3A	Quality of Care		
3A1	Medication Safety (e.g., REMS, VAERS, barcodes, ISMP)	3.58	3.24
3A2	Risk Mitigation (e.g., failure mode effects analysis, root cause analysis)	3.51	2.61
3A3	Healthcare Regulations and Standards (e.g., FDA, TJC, CMS, NIOSH, USP<800>)	3.34	2.82
3A4	Quality Management and Process Improvement	3.79	3.45
3A5	Formulary and Inventory Management (e.g., automated dispensing cabinets, medication shortages, antidote inventory)	3.83	3.74
3A6	Informatics and Clinical Decision Support Systems	3.30	3.05
3B	Practice Management		
3B1	Professional Practice Standards and Guidelines	3.88	3.65
3B2	Statistics and Research Methods (e.g., biostatistics, bioethics, research design)	3.16	2.85
3B3	Literature Evaluation (e.g., applicability to practice, levels of evidence)	4.12	3.83
3B4	Interprofessional Healthcare Collaboration (e.g., policy development, debriefing)	4.06	3.74
3B5	Alternative Healthcare Delivery Modalities (e.g., remote order verification, tele-neuro, offsite consulting)	2.37	2.11
3B6	Disaster Healthcare Management	3.72	2.04

An exploratory factor analysis[7] using maximum likelihood extraction and varimax rotation[8] was performed on the importance ratings provided for the knowledge areas. One factor emerged, with an eigenvalue of 12.89, as the primary factor explaining 24.79% of the variability in importance ratings. All subsequent factors had eigenvalues of 3.12 or less and each explained less than 6.00% of the variability in importance ratings. This provides additional evidence for the consistency of the knowledge areas developed and their applicability to the intended measurement construct.

[7] Thompson, B. (2004). Exploratory and confirmatory factor analysis: Understanding concepts and applications. American Psychological Association: Washington DC.

[8] Kaiser, H. (1958). The varimax criterion for analytic rotation in factor analysis. Psychometrika, 23(3).

3. Finalization of Exam Content Outline

The job analysis panel reconvened on 8 May 2025 via teleconference to review the results of the survey and to finalize the exam content outline.

The panelists reviewed the results of the survey demographic questions and deemed the respondent sample to be representative of the target population, which are pharmacists specializing in emergency medicine pharmacy.

The panelists agreed to retain all the task statements developed, but removed the phrase “procedures for” on Task 8 so that it now reads: Develop and implement plans for transitions of care and changes in patient disposition, including discharge, transfers, referrals, and follow-up.

The panelists agreed to retain all but two of the knowledge statements developed. 2B2 (Pharmacotherapy for Dermatology) was removed due to low ratings and the panel agreed that 2B15 (Pharmacotherapy for Trauma and Burns) covered the key components of dermatology already. 3B5 (Alternative Healthcare Delivery Modalities) was removed as well due to low ratings and the panel agreed that this was an early emerging topic and may be more widespread in 5-10 years.

Lastly, the panelists were tasked with determining the content weighting, the proportion of examination content to be distributed to each content domain and sub-domain. The sum of the mean criticality ratings for the knowledge areas in each domain was tabulated and compared against the sum of the mean criticality ratings for all knowledge areas.

	Content Domains and Subdomains of ECO	Sum Criticality	% Weight
1	**Emergency Medicine**	**131.11**	**17%**
1A	Emergency Medicine Operations	59.37	8%
1B	Medical Therapies and Devices	71.74	9%
2	**Therapeutics and Patient Management**	**500.54**	**66%**
2A	Patient Assessment	103.34	13%
2B	Pharmacotherapy	248.11	33%
2C	Therapeutic Implementation, Outcomes, and Monitoring	149.09	20%
3	**Professional Practice**	**129.40**	**17%**
3A	Quality of Care	67.66	9%
3B	Practice Management	61.74	8%

See Appendix D for the final Examination Content Outline.

Appendix A – Subject Matter Experts

Name	Credentials	Years of Experience	Job Title	Employer/ Affiliation	Practice Setting	Subspecialty	Location
Heather Blue	PharmD, BCEMP, BCPS, FMSHP	17	Associate Professor and Clinical Pharmacist	University of Minnesota College of Pharmacy	Community Hospital	Acute/Critical Care	MN
Kara Boyko Frandson	PharmD, CLS, BCEMP, BCPS	19	Clinical Pharmacist	Bryan Health	Community Hospital	Acute/Critical Care	NE
Leanna Brucker (Winnick)	PharmD, BCEMP, BCPS	5	Clinical Pharmacist	County of Santa Clara Health System	Governmental Healthcare Facility	Pediatric Patient Population	CA
Kathryn Engle	PharmD, BCEMP, BCPS	9	Emergency Medicine Clinical Pharmacist	Penn State Health	Community Hospital	Acute/Critical Care	PA
Meghan Fischer	PharmD, BCEMP, BCPS	6	Clinical pharmacist	OSF healthcare	Academic Medical Center/Hospital	Acute/Critical Care	IL
Haden Geiger	PharmD, BCEMP	6	Clinical Specialist, Emergency Medicine	Atrium Health	Community Hospital	Acute/Critical Care	NC
Thomas Gregory	PharmD, BCEMP, BCPS, FASPE	20	Clinical Pharmacy Specialist	Cox Health	Community Hospital	Trauma	MO
Nupur Harkness	PharmD, MPA, BCEMP, BCPS	9	Pharmacist	Unitypoint Health	Academic Medical Center/Hospital	Acute/Critical Care	IA
Neely Hudson	PharmD, BCEMP, BCPS	5	Emergency Medicine Clinical Pharmacy Specialist	WellStar MCG (formerly Augusta University Medical Center)	Academic Medical Center/Hospital	Acute/Critical Care	GA

Anne Huynh	PharmD, BCEMP	10	Emergency Medicine Pharmacist	VA Long Beach Healthcare System	Governmental Healthcare Facility	Geriatric Patient Population	CA
Kevin Mercer	PharmD, MPH, BCCCP, BCEMP, BCPS, CPH	7	Assistant Professor of Practice	The University of Texas at Austin College of Pharmacy	Community Hospital	Toxicology	TX
Christina Metrejean	PharmD, BCEMP	6	Emergency Medicine Clinical Pharmacy Specialist	Our Lady of the Lake Regional Medical Center	Academic Medical Center/Hospital	Acute/Critical Care	LA
Benjamin Miles	PharmD, BCEMP, BCPS	17	Clinical Pharmacist Specialist	Sibley Memorial Hospital - Johns Hopkins Medicine	Community Hospital	Acute/Critical Care	DC
Allison Mogensen	PharmD, BCEMP, BCPS	9	Clinical Pharmacy Specialist, Emergency Medicine	Yale New Haven Hospital	Academic Medical Center/Hospital	Toxicology	CT
Elisabeth Palmer	PharmD, BCCCP, BCEMP, BCPS	10	Acute Care Pharmacist Clinical Specialist- Emergency Medicine	Banner Estrella Medical Center	Community Hospital	Acute/Critical Care	AZ
Lance Ray	PharmD, BCEMP, BCPS	18	Clinical Pharmacy Specialist - Emergency Medicine	Denver Health	Academic Medical Center/Hospital	Acute/Critical Care	CO
Alyssa Robertson	PharmD, BCCCP, BCEMP, BCPS	12	Clinical Pharmacist Specialist	WellSpan York Hospital	Community Hospital	Acute/Critical Care	PA
Erin Sadek	BS, PharmD, BCEMP	7	Clinical Pharmacy Specialist - Emergency Medicine	Trinity Health Ann Arbor	Community Hospital	Acute/Critical Care	MI
Brittany Turner	PharmD, BCEMP, BCPS	9	Clinical Pharmacist	TriHealth Bethesda North Hospital	Other	Trauma	OH

Michelle Wang Nesdill	PharmD, BCEMP, BCPS	8	Emergency Medicine Pharmacist / EM PGY2 RPD	Atrium Health Cabarrus	Community Hospital	Acute/Critical Care	NC
Lauren Wright	PharmD, BCEMP	5	Emergency Medicine Clinical Pharmacist	Baptist Medical Center South	Community Hospital	Acute/Critical Care	AL

Appendix B – Orientation Presentation

Job Analysis

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Job Analysis

A job analysis is often called a role delineation study or practice analysis in healthcare certification settings

The key points of inquiry in a Job Analysis are:

- ✓ **Definition of Target Population**
- ✓ **Tasks Performed**
- ✓ **Competencies Required**

The outcome is an exam content outline, which is used for creation of exams that reflect current practice and to identify to other stakeholders the scope of the exam

bps

Multi-Method Approach

Both quantitative and qualitative methods are used in an RDS, which helps bolster the defensibility of the process and outcomes

Qualitative
- Interviews with Practitioners
- Focus Group with Practitioners

Quantitative
- Survey Administration and Analysis

Here is what the process looks like in sequence

bps

Multiple Levels of Analysis

Consider how you would describe a job role to someone

All three levels help define the scope

But only the outer layer is the level at which an examinee is assessed

bps

Exam Content Outline

An ECO is a grouping of examination content areas in a hierarchical list

Exam Content Outline Structure and Components		(Somewhat Silly) Example
1	Content Domain	Chocolate
1A	Content Subdomain	History
1A1	Knowledge Area	Mesoamerican Usage
1A2	Knowledge Area	European Adaptation
1A3	Knowledge Area	Modern Production
1B	Content Subdomain	Types
1B1	Knowledge Area	Milk Chocolate
1B2	Knowledge Area	Dark Chocolate
1B3	Knowledge Area	White Chocolate

Domains:

The Major Aspects of Practice Area

Meaningful Divisions within the Domain

The Knowledge Assessed by Exam Items

Each of these should be written such that they can be preceded by the phrase "Knowledge of"

bps

Context Is Key

In addition to creation of an ECO, we will develop an inventory of task statements.

- These tasks identify the objectives and responsibilities of the role.
- These tasks provide the context in which the knowledge is applied.
- Tasks need not be grouped into content domains.
- Tasks will not be used to classify exam items nor determine what is tested.

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Linkage Analysis

A linkage matrix looks something like this

	1	2	3	4	5	6	7	8	9
1A1						x		x	
1A2					x				
1A3				x					x
1B1			x	x					
1B2			x				x		
1C1	x	x							
1C2		x					x		x

Purpose of the Linkage Matrix

- demonstrate which knowledge areas are required for each task
- demonstrate that the knowledge areas are indeed practice-based
- help identify gaps in either inventory
- help identify tasks or knowledge that are superfluous or out-of-scope

Helpful Hints

- An x-mark means that the specific knowledge is needed to perform that specific task.
- For example, knowledge of different types of chocolate is needed to *Develop Chocolate Recipes* but history of chocolate is not needed for that same task.

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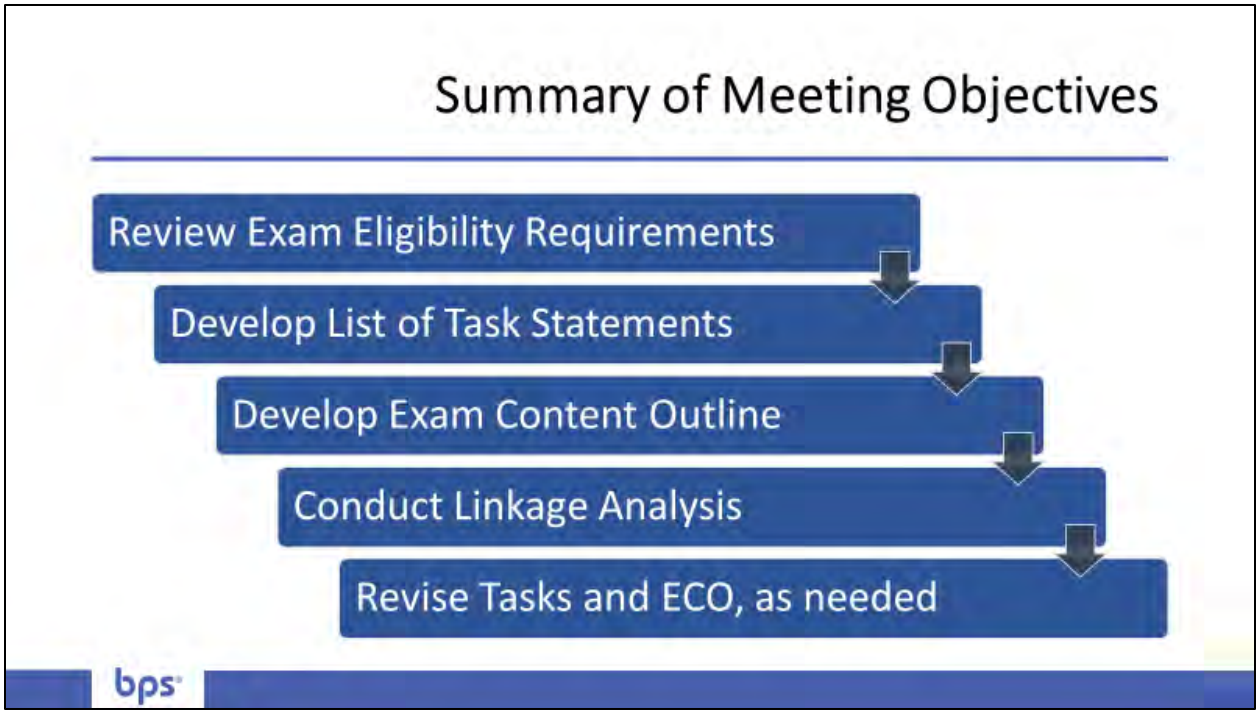
Confidentiality

Although the outcomes of the Job Analysis will eventually be summarized in a public-facing document, please do not disclose information about our deliberations or work in progress

Any information other than that provided by BPS can give an unfair advantage or disadvantage to examinees, thereby threatening the validity of the exam

When asked about your involvement, simply direct prospective examinees and other stakeholders to official channels (BPS website) for information about the certification program

bps



Appendix C – Survey Text

BPS 2025 Emergency Medicine Pharmacy (BCEMP) Job Analysis Survey

Survey Introduction

The Board of Pharmacy Specialties (BPS) is conducting a Job Analysis for the Board-Certified Emergency Medicine Pharmacy (BCEMP) certification program to develop an updated examination content outline, which serves as a blueprint for the certification exam and the scope for recertification and eligibility purposes.

As part of this Job Analysis, we request your participation in this survey to provide ratings and feedback for the tasks and knowledge areas identified as representing current pharmacy practice in emergency medicine pharmacy.

Survey respondents will be prompted to rate each task and knowledge area on its importance to emergency medicine pharmacy practice and its frequency of use.

Additionally, respondents will be asked a few demographic questions to better understand the respondent sample's professional qualifications - but no personally identifiable information will be solicited.

Responses will only be reviewed in aggregate and will not be used for any other purpose than the Job Analysis.

Your participation is expected to take 15 to 30 minutes in total.

Those who complete the survey are eligible for entry into a raffle for one of ten $25 Amazon gift cards.

If you have any questions about this survey, please feel free to contact ja@aphanet.org.

Are you willing to participate in this survey and provide your responses to BPS?

◯ Yes

◯ No

BPS 2025 Emergency Medicine Pharmacy (BCEMP) Job Analysis Survey

Task Statements

Please rate each task statement according to its importance to emergency medicine pharmacy practice and the frequency of its performance in emergency medicine pharmacy practice.

	Importance	Frequency
Assess clinical and diagnostic findings, patient history, risk factors, social determinants of health, and/or other relevant patient characteristics		
Triage and prioritize the treatment of patients according to acuity and urgency of patient presentations		
Collaborate with the patient, caregivers, and/or interprofessional healthcare team to establish treatment goals		
Design a therapeutic plan based on patient characteristics, acuity, available pharmacology, treatment goals, and best available		

evidence		
Participate in the preparation and delivery of pharmacotherapy and adjunctive therapies at the patient bedside		
Monitor and evaluate patient response to treatment and modify care plan accordingly		
Utilize clinical decision support and other health information technology to optimize treatment decisions		
Develop and implement plans for transitions of care and changes in patient disposition, including procedures for discharge, transfers, referrals, and follow-up		
Participate in inventory management, contingency planning, emergency preparedness, establishment of pharmacy services, and personnel management		
Evaluate literature and other published information to determine the quality and applicability to emergency medicine		
Develop and implement healthcare		

protocols, clinical decision support, medication formularies, medication order review, and emergency medicine pharmacy services		
Participate in quality improvement, safety, and/or public health initiatives, including the review of adverse drug events and medication errors		
Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice guidelines		
Develop and/or provide healthcare education to patients, caregivers, members of the general public, pharmacists, learners, and/or other healthcare professionals		
Engage in professional development, such as professional advocacy, committee involvement, scholarly activities, and continuing education		

What task associated with emergency medicine pharmacy is missing from this list, if any?

BPS 2025 Emergency Medicine Pharmacy (BCEMP) Job Analysis Survey

Knowledge Areas

Please rate each knowledge area in the Emergency Medicine content domain according to its importance to emergency medicine pharmacy practice and the frequency of its use in emergency medicine pharmacy practice.

	Importance	Frequency
Pre-Hospital and Emergency Medical Services		
Triage and Prioritization		
Patient Follow-Up Processes		
Toxicology / Poison Centers		
Mechanical/Assisted Ventilation		
Mechanical Circulatory Support (e.g., VADs, ECMO, mechanical CPR)		
Renal Replacement Therapies		
Lines, Tubes, and Drains		
Infusion Devices		
Medication Delivery Devices (e.g., inhalers, epipens, atomizers)		

Please rate each knowledge area in the Therapeutics and Patient Management content domain according to its importance to emergency medicine pharmacy practice and the frequency of its use in emergency medicine pharmacy practice.

	Importance	Frequency
Clinical Assessment and Screening		
Laboratory and Diagnostic Testing		
Pathophysiology		
Pharmacokinetics, Pharmacodynamics, and Pharmacogenomics		
Social Determinants of Health		
Considerations for Special Populations (e.g., age group, extremes of weight, pregnancy/lactation, critical illness, immunocompromised)		
Pharmacotherapy for Cardiology		
Pharmacotherapy for Dermatology		
Pharmacotherapy for Endocrinology		
Pharmacotherapy for Gastroenterology, Genitourinary, and Obstetrics		
Pharmacotherapy for Immunology, Oncology, and Hematology		
Pharmacotherapy for Infectious Diseases		
Pharmacotherapy for Nephrology and Hepatology		
Pharmacotherapy for Neurology		
Pharmacotherapy for Otolaryngology and Ophthalmology		
Pharmacotherapy for Pain and Sedation		
Pharmacotherapy for Psychiatric Emergencies		
Pharmacotherapy for Pulmonology		
Pharmacotherapy for Resuscitation		

Pharmacotherapy for Toxicology		
Pharmacotherapy for Trauma and Burns		
Medication Preparation and Delivery		
Therapeutic Outcomes and End-Points		
Resuscitation and Stabilization		
Infectious Diseases and Antimicrobial Stewardship		
Therapeutic and Pharmacokinetic Monitoring		
Adverse Drug Events and Drug Interactions		
Interprofessional Care Coordination		
Patient Disposition and Transitions of Care		
Patient and Caregiver Education and Counseling		

Please rate each knowledge area in the Professional Practice content domain according to its importance to emergency medicine pharmacy practice and the frequency of its use in emergency medicine pharmacy practice.

	Importance	Frequency
Medication Safety (e.g., REMS, VAERS, barcodes, ISMP)		
Risk Mitigation (e.g., failure mode effects analysis, root cause analysis)		
Healthcare Regulations and Standards (e.g., FDA, TJC, CMS, NIOSH, USP<800>)		
Quality Management and Process		

Improvement		
Formulary and Inventory Management (e.g., automated dispensing cabinets, medication shortages, antidote inventory)		
Informatics and Clinical Decision Support Systems		
Professional Practice Standards and Guidelines		
Statistics and Research Methods (e.g., biostatistics, bioethics, research design)		
Literature Evaluation (e.g., applicability to practice, levels of evidence)		
Interprofessional Healthcare Collaboration (e.g., policy development, debriefing)		
Alternative Healthcare Delivery Modalities (e.g., remote order verification, tele-neuro, offsite consulting)		
Disaster Healthcare Management		

What knowledge area associated with emergency medicine pharmacy is missing from this list, if any?

BPS 2025 Emergency Medicine Pharmacy (BCEMP) Job Analysis Survey

Survey Respondent Demographics

What percentage of your professional practice is spent in emergency medicine pharmacy?

What percentage of your time do you spend in each area?

Direct Patient Care: Emergency Response	
Direct Patient Care: Bedside Patient Care	
Direct Patient Care: Order Verification and Dispensing	
Public Health (e.g., culture follow-up, wellness checks)	
Administration / Management / Medication Stewardship	
Teaching / Precepting	
Research / Scholarship	

How many years of experience do you have as a pharmacist?

How many years of experience do you have in emergency medicine pharmacy?

Which BPS certifications do you currently hold? Select all that apply and leave blank if none.

- [ ] BCACP - Ambulatory Care
- [ ] BCCCP - Critical Care
- [ ] BCCP - Cardiology
- [ ] BCEMP - Emergency Medicine
- [ ] BCGP - Geriatric
- [ ] BCIDP - Infectious Diseases
- [ ] BCNP - Nuclear
- [ ] BCNSP- Nutrition Support
- [ ] BCOP - Oncology
- [ ] BCPP - Psychiatric
- [ ] BCPPS - Pediatric
- [ ] BCPS - Pharmacotherapy
- [ ] BCSCP - Compounded Sterile Preparations
- [ ] BCTXP - Solid Organ Transplantation

Which post-graduate pharmacy residency programs have you completed? Select all that apply and leave blank if none.

- [ ] PGY1 Pharmacy
- [ ] PGY1 Managed Care Pharmacy
- [ ] PGY1 Community-Based Pharmacy
- [ ] PGY2 Ambulatory Care Pharmacy
- [ ] PGY2 Cardiology Pharmacy
- [ ] PGY2 Clinical Pharmacogenomics
- [ ] PGY2 Community-Based Pharmacy Administration and Leadership
- [ ] PGY2 Corporate Pharmacy Administration and Leadership
- [ ] PGY2 Critical Care Pharmacy

- [ ] PGY2 Emergency Medicine Pharmacy
- [ ] PGY2 Geriatric Pharmacy
- [ ] PGY2 Health System Pharmacy Administration and Leadership
- [ ] PGY2 Infectious Diseases Pharmacy
- [ ] PGY2 Internal Medicine Pharmacy
- [ ] PGY2 Investigational Drugs and Research
- [ ] PGY2 Medication Use Safety and Policy
- [ ] PGY2 Neurology
- [ ] PGY2 Oncology Pharmacy
- [ ] PGY2 Palliative Care / Pain Management Pharmacy
- [ ] PGY2 Pediatric Pharmacy
- [ ] PGY2 Pharmacotherapy
- [ ] PGY2 Pharmacy Informatics
- [ ] PGY2 Population Health Management and Data Analytics Pharmacy
- [ ] PGY2 Psychiatric Pharmacy
- [ ] PGY2 Solid Organ Transplant Pharmacy
- [ ] PGY2 Specialty Pharmacy Administration and Leadership
- [ ] Other: please specify

What is your primary practice setting?

- ◯ Academic Institution / Educational Institution
- ◯ Academic Medical Center or Hospital
- ◯ Children's Hospital
- ◯ Community Hospital
- ◯ Free-Standing Emergency Department
- ◯ Hybrid Academic-Community Hospital
- ◯ Integrated Health System / Accountable Care Organization
- ◯ Governmental Healthcare Facility / Veterans Affairs Hospital
- ◯ Other (please specify)

Where is your primary practice located?

State or Territory (if in United States) -- select state --

Nation/Country

BPS 2025 Emergency Medicine Pharmacy (BCEMP) Job Analysis Survey

Thank You

Please provide any feedback or comments about the survey here.

Those who complete the survey are eligible for entry into a raffle for one of ten $25 Amazon gift cards. If you would like to be entered into the raffle, please enter your email address below. Your email address will be used for the sole purpose of sending your gift card if you win.

Thank you very much for your interest and participation!

Appendix D – Exam Content Outline

1	**Emergency Medicine**	17%
1A	Emergency Medicine Operations	8%
1A1	Pre-Hospital and Emergency Medical Services	
1A2	Triage and Prioritization	
1A3	Patient Follow-Up Processes	
1A4	Toxicology / Poison Centers	
1B	Medical Therapies and Devices	9%
1B1	Mechanical/Assisted Ventilation	
1B2	Mechanical Circulatory Support (e.g., VADs, ECMO, mechanical CPR)	
1B3	Renal Replacement Therapies	
1B4	Lines, Tubes, and Drains	
1B5	Infusion Devices	
1B6	Medication Delivery Devices (e.g., inhalers, epipens, atomizers)	
2	**Therapeutics and Patient Management**	66%
2A	Patient Assessment	13%
2A1	Clinical Assessment and Screening	
2A2	Laboratory and Diagnostic Testing	
2A3	Pathophysiology	
2A4	Pharmacokinetics, Pharmacodynamics, and Pharmacogenomics	
2A5	Social Determinants of Health	
2A6	Considerations for Special Populations (e.g., age group, extremes of weight, pregnancy/lactation, critical illness, immunocompromised)	
2B	Pharmacotherapy	33%
2B1	Pharmacotherapy for Cardiology	
2B2	Pharmacotherapy for Endocrinology	
2B3	Pharmacotherapy for Gastroenterology, Genitourinary, and Obstetrics	
2B4	Pharmacotherapy for Immunology, Oncology, and Hematology	
2B5	Pharmacotherapy for Infectious Diseases	
2B6	Pharmacotherapy for Nephrology and Hepatology	
2B7	Pharmacotherapy for Neurology	
2B8	Pharmacotherapy for Otolaryngology and Ophthalmology	
2B9	Pharmacotherapy for Pain and Sedation	
2B10	Pharmacotherapy for Psychiatric Emergencies	
2B11	Pharmacotherapy for Pulmonology	
2B12	Pharmacotherapy for Resuscitation	
2B13	Pharmacotherapy for Toxicology	
2B14	Pharmacotherapy for Trauma and Burns	
2C	Therapeutic Implementation, Outcomes, and Monitoring	20%
2C1	Medication Preparation and Delivery	
2C2	Therapeutic Outcomes and End-Points	

2C3	Resuscitation and Stabilization	
2C4	Infectious Diseases and Antimicrobial Stewardship	
2C5	Therapeutic and Pharmacokinetic Monitoring	
2C6	Adverse Drug Events and Drug Interactions	
2C7	Interprofessional Care Coordination	
2C8	Patient Disposition and Transitions of Care	
2C9	Patient and Caregiver Education and Counseling	
3	**Professional Practice**	17%
3A	Quality of Care	9%
3A1	Medication Safety (e.g., REMS, VAERS, barcodes, ISMP)	
3A2	Risk Mitigation (e.g., failure mode effects analysis, root cause analysis)	
3A3	Healthcare Regulations and Standards (e.g., FDA, TJC, CMS, NIOSH, USP<800>)	
3A4	Quality Management and Process Improvement	
3A5	Formulary and Inventory Management (e.g., automated dispensing cabinets, medication shortages, antidote inventory)	
3A6	Informatics and Clinical Decision Support Systems	
3B	Practice Management	8%
3B1	Professional Practice Standards and Guidelines	
3B2	Statistics and Research Methods (e.g., biostatistics, bioethics, research design)	
3B3	Literature Evaluation (e.g., applicability to practice, levels of evidence)	
3B4	Interprofessional Healthcare Collaboration (e.g., policy development, debriefing)	
3B5	Disaster Healthcare Management	