Job Analysis

Ambulatory Care Pharmacy (BCACP)

March 2024

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 2024 to develop the content outline and other specifications for the specialty certification examination for pharmacists who specialize in ambulatory care 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 ambulatory care pharmacy specialty practice area. The outcome of this study was the creation of an examination blueprint that will be used to construct the ambulatory care 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	**Patient Assessment**	**29%**
1A	Clinical Assessment	18%
1B	Patient-Specific Factors	11%
2	**Therapeutics and Patient Management**	**50%**
2A	Pharmacotherapy	16%
2B	Therapeutic Implementation	18%
2C	Therapeutic Outcomes and Monitoring	16%
3	**Professional Practice**	**21%**
3A	Quality of Care	12%
3B	Practice Management	9%

Introduction

The Board of Pharmacy Specialties (BPS) performed a job analysis in 2024 to develop the content outline and other specifications for the specialty certification examination for pharmacists who specialize in ambulatory care 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 of 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 ambulatory care pharmacy
2. Development, administration, and analysis of a survey to other qualified pharmacists who are currently engaged in ambulatory care 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 22 subject-matter experts in ambulatory care 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. Five subject-matter experts in ambulatory care 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 interviews took place on 11-14 December 2023. 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 ambulatory care pharmacy. The dates of the meetings were 12 January and 26 January 2024.

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 14 task statements that describe the work activities performed by an ambulatory care pharmacist.

1	Evaluate patient medical history, medication history, present illness, clinical status, social determinants of health, and other patient characteristics
2	Establish goals of care in collaboration with the patient, caregivers, and/or interprofessional healthcare team
3	Develop person-centered therapeutic plans in alignment with evidence-based medicine, practice guidelines, and goals of care
4	Optimize medication selection and adherence based on patient characteristics (e.g., ability, comorbidities, and preferences) and medication characteristics (e.g., routes of administration, access)
5	Monitor and evaluate response to individualized person-centered care plan
6	Modify individualized care plan in response to clinical status, goals of care, and other patient factors
7	Utilize health information technology and clinical informatics to optimize pharmacotherapeutic decisions
8	Develop and/or provide healthcare education and counseling to patients, caregivers, and/or members of the general public
9	Develop and/or provide healthcare education and support to pharmacists, learners, and members of the interprofessional healthcare team
10	Participate in healthcare quality improvement, safety, and/or public health initiatives
11	Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice
12	Develop healthcare protocols, medication formularies, and pharmacy services
13	Engage in professional development in ambulatory care practice, such as healthcare committee involvement, scholarly activities, and continuing education
14	Evaluate clinical literature and its applicability to ambulatory care practice

The panel identified three content domains that describe the key high-level components of ambulatory care pharmacy. Across the three content domains, the panel identified seven content sub-domains and developed 30 knowledge areas that describe specific job knowledge associated with the practice of ambulatory care 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	**Patient Assessment**
1A	Clinical Assessment
1A1	Risk Factors and Etiology of Common Health Conditions
1A2	Assessment and Screening Process
1A3	Laboratory and Diagnostic Testing
1A4	Pharmacodynamics and Pharmacokinetics (e.g., liver and kidney function, pharmacogenomics)
1A5	Medication Reconciliation
1B	Patient-Specific Factors
1B1	Social Determinants of Health
1B2	Patient Engagement (e.g., rapport-building, motivational interviewing, shared decision-making, person-centered care)
1B3	Goals of Care and Goals of Treatment
2	**Therapeutics and Patient Management**
2A	Pharmacotherapy
2A1	Initiation of Pharmacotherapy
2A2	Titration/Optimization of Pharmacotherapy
2A3	De-escalation of Pharmacotherapy
2A4	Discontinuation of Pharmacotherapy
2B	Therapeutic Implementation
2B1	Non-Pharmacologic Treatments (e.g., lifestyle modifications)
2B2	Preventative Care
2B3	Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)
2B4	Care Coordination
2B5	Patient and Caregiver Education and Counseling
2C	Therapeutic Outcomes and Monitoring
2C1	Therapeutic Targets
2C2	Therapeutic and Physiological Monitoring
2C3	Adverse Drug Events and Drug Interactions
2C4	Medication Adherence (e.g., addressing barriers, measurement tools)
3	**Professional Practice**
3A	Quality of Care
3A1	Public and Population Health
3A2	Continuity of Care
3A3	Ethics and Patient Advocacy
3A4	Medication Safety and Stewardship
3B	Practice Management
3B1	Professional Practice Standards and Regulations
3B2	Research Methods and Statistics
3B3	Quality Management and Process Improvement
3B4	Clinical Informatics (e.g., clinical decision support, alerts, workflows)
3B5	Pharmacoeconomics (e.g., formulary management, cost effectiveness, resource utilization, reimbursement and billing)

The panel also helped create a definition of the ambulatory care pharmacist, the target population for the BCACP credential, and a statement describing the purpose of the BCACP credentialing program.

The BPS Board-Certified Ambulatory Care Pharmacist (BCACP) program is a credential for pharmacists who provide integrated and accessible healthcare services to patients in outpatient settings with an emphasis on comprehensive disease state and medication management, patient education, and continuity of care.
The purpose of the BCACP program is to validate that the pharmacist has the advanced knowledge, skills, and experience necessary to optimize healthcare outcomes and enhance continuity of care by providing evidence-based, individualized, and comprehensive care to patients in outpatient 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
1														
1A														
1A1	X													
1A2	X				X	X								
1A3	X				X	X								
1A4	X		X	X	X	X								
1A5	X					X								
1B														
1B1	X	X	X	X		X								
1B2	X	X	X	X		X		X						
1B3		X	X	X	X	X								
2														
2A														
2A1			X	X		X								
2A2			X	X		X								
2A3			X	X		X								
2A4			X	X		X								
2B														
2B1			X			X		X						
2B2			X											
2B3			X	X		X								
2B4		X	X			X								
2B5			X	X		X		X						
2C														
2C1		X	X	X	X	X								
2C2			X	X	X	X								
2C3			X	X	X	X								
2C4	X		X	X	X	X								
3														
3A														
3A1								X	X	X				
3A2		X			X			X						
3A3		X						X		X				
3A4									X	X	X	X		
3B														
3B1									X	X	X	X	X	X
3B2										X	X		X	X
3B3										X	X	X	X	
3B4							X			X	X	X		
3B5										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 ambulatory care pharmacy practice? How important is this knowledge area to ambulatory care 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 ambulatory care pharmacy practice? How frequently is this knowledge used in ambulatory care 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 8-14 February 2024. 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 20 February to 18 March 2024. All pharmacists who hold the BCACP credential were directly invited via email to complete the online survey. The survey was also

disseminated through the following affiliate organizations: American College of Clinical Pharmacy (ACCP) and American Society of Health-System Pharmacists (ASHP).

The survey yielded 244 usable responses. Responses were not used if the survey was not completed (*n*=363) or if the respondent indicated spending less than 50% of their pharmacy practice in ambulatory care (*n*=19).

Responses to Demographic Questions		
Percentage of Time in BCACP practice area	**Mean = 91.0 | SD = 15.7**	***n***
50 – 75		22
76 – 99		18
100		164
Post-graduate Pharmacy Residency Programs		***n***
PGY1 Pharmacy		148
PGY1 Managed Care Pharmacy		4
PGY1 Community-Based Pharmacy		31
PGY2 Ambulatory Care Pharmacy		101
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		0
PGY2 Emergency Medicine Pharmacy		0
PGY2 Geriatric Pharmacy		2
PGY2 Health System Pharmacy Administration and Leadership		1
PGY2 Infectious Diseases Pharmacy		0
PGY2 Internal Medicine Pharmacy		1
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		1
PGY2 Pediatric Pharmacy		1
PGY2 Pharmacotherapy		0
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 (e.g., PGY1 Ambulatory Care, PGY2 Family Medicine, specialty residency in primary care)		16

BPS Certifications		*n*	
BCACP - Ambulatory Care		232	
BCCCP - Critical Care		1	
BCCP - Cardiology		3	
BCEMP - Emergency Medicine		0	
BCGP - Geriatric		8	
BCIDP - Infectious Diseases		0	
BCNP - Nuclear		0	
BCNSP- Nutrition Support		0	
BCOP - Oncology		0	
BCPP - Psychiatric		1	
BCPPS - Pediatric		0	
BCPS - Pharmacotherapy		19	
BCSCP - Compounded Sterile Preparations		0	
BCTXP - Solid Organ Transplantation		0	
Years of Experience in Pharmacy	**Mean = 11.3 | SD = 7.5**	***n***	**%**
0-5		47	19.26%
6-10		100	40.98%
11-15		48	19.67%
16-20		20	8.20%
20+		29	11.89%
Time Spent in Professional Role		***n*** **(>50%)**	**Average %**
Direct Patient Care		181	66.91%
Administration / Management		17	16.85%
Teaching / Precepting		1	13.16%
Research / Scholarship		0	3.96%
Other		0	4.30%
Primary Practice Setting		***n***	**%**
Academic Institution / Educational Institution		8	3.28%
Academic Medical Center or Hospital		22	9.02%
Children's Hospital		0	0.00%
Community Hospital		9	3.69%
Community Pharmacy		5	2.05%
Home Infusion / Ambulatory Infusion		0	0.00%
Hospice		0	0.00%
Hybrid Academic-Community Hospital		0	0.00%
Integrated Health System / Accountable Care Organization		14	5.74%
Investigational Drug Service		0	0.00%
Long-Term Care Pharmacy		0	0.00%
Managed Care		6	2.46%
Outpatient Clinic / Ambulatory Clinic		141	57.79%

Pharmaceutical Industry	0	0.00%
Specialty Pharmacy	1	0.41%
Governmental Healthcare Facility / Veterans Affairs Hospital	30	12.30%
Other (e.g., tribal health, remote monitoring, digital chronic care management)	8	3.28%
Location of Primary Practice	***n***	**%**
AK	1	0.41%
AL	4	1.64%
AR	4	1.64%
AZ	6	2.46%
CA	11	4.51%
CO	9	3.69%
DC	1	0.41%
DE	2	0.82%
FL	6	2.46%
GA	4	1.64%
HI	1	0.41%
IA	2	0.82%
IL	6	2.46%
IN	7	2.87%
KS	5	2.05%
KY	6	2.46%
LA	4	1.64%
MA	6	2.46%
MD	4	1.64%
ME	1	0.41%
MI	13	5.33%
MN	15	6.15%
MO	8	3.28%
MS	2	0.82%
MT	2	0.82%
NC	15	6.15%
NE	6	2.46%
NH	3	1.23%
NV	1	0.41%
NY	6	2.46%
OH	9	3.69%
OK	3	1.23%
OR	10	4.10%
PA	6	2.46%
SC	5	2.05%
SD	1	0.41%
TN	5	2.05%

TX	13	5.33%
UT	4	1.64%
VA	7	2.87%
VT	1	0.41%
WA	5	2.05%
WI	10	4.10%
WV	4	1.64%
Which credentials not issued by BPS do you currently hold?	***n***	
Asthma Educator Specialist (AE-C)	4	
Board Certified Medication Therapy Management Specialist (BCMTMS)	3	
Board-Certified in Advanced Diabetes Management (BC-ADM)	13	
Certified Diabetes Care and Education Specialist (CDCES)	29	
HIV Pharmacist (AAHIVP)	5	
Tobacco Treatment Specialist (TTS)	10	
Other	16	
Which form(s) of prescriptive authority do you have in your current role? Select all that apply and leave blank if none.	***n***	
Patient-Specific Dependent Prescription Authority	41	
Population-Based Dependent Prescription Authority	170	
Independent Prescription Authority according to Governmental Protocol	45	
Independent Prescription Authority according to Standard of Care	28	

Mean Ratings for Task Statements		Importance	Frequency
1	Evaluate patient medical history, medication history, present illness, clinical status, social determinants of health, and other patient characteristics	4.73	4.85
2	Establish goals of care in collaboration with the patient, caregivers, and/or interprofessional healthcare team	4.50	4.62
3	Develop person-centered therapeutic plans in alignment with evidence-based medicine, practice guidelines, and goals of care	4.78	4.79
4	Optimize medication selection and adherence based on patient characteristics (e.g., ability, comorbidities, and preferences) and medication characteristics (e.g., routes of administration, access)	4.73	4.78
5	Monitor and evaluate response to individualized person-centered care plan	4.56	4.61
6	Modify individualized care plan in response to clinical status, goals of care, and other patient factors	4.55	4.55
7	Utilize health information technology and clinical informatics to optimize pharmacotherapeutic decisions	3.57	3.71
8	Develop and/or provide healthcare education and counseling to patients, caregivers, and/or members of the general public	4.26	4.29
9	Develop and/or provide healthcare education and support to pharmacists, learners, and members of the interprofessional healthcare team	3.80	3.67
10	Participate in healthcare quality improvement, safety, and/or public health initiatives	3.45	3.06
11	Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice	3.71	3.28
12	Develop healthcare protocols, medication formularies, and pharmacy services	3.36	2.92
13	Engage in professional development in ambulatory care practice, such as healthcare committee involvement, scholarly activities, and continuing education	3.35	3.22
14	Evaluate clinical literature and its applicability to ambulatory care practice	3.98	3.74

Mean Ratings for Task Statements		IMPO	FREQ
1	**Patient Assessment**		
1A	Clinical Assessment		
1A1	Risk Factors and Etiology of Common Health Conditions	3.77	3.98
1A2	Assessment and Screening Process	3.96	4.08
1A3	Laboratory and Diagnostic Testing	4.37	4.48
1A4	Pharmacodynamics and Pharmacokinetics (e.g., liver and kidney function, pharmacogenomics)	4.29	4.31
1A5	Medication Reconciliation	4.57	4.68
1B	Patient-Specific Factors		
1B1	Social Determinants of Health	4.01	3.98
1B2	Patient Engagement (e.g., rapport-building, motivational interviewing, shared decision-making, person-centered care)	4.58	4.66
1B3	Goals of Care and Goals of Treatment	4.39	4.50
2	**Therapeutics and Patient Management**		
2A	Pharmacotherapy		
2A1	Initiation of Pharmacotherapy	4.55	4.58
2A2	Titration/Optimization of Pharmacotherapy	4.68	4.74
2A3	De-escalation of Pharmacotherapy	4.45	4.19
2A4	Discontinuation of Pharmacotherapy	4.40	4.13
2B	Therapeutic Implementation		
2B1	Non-Pharmacologic Treatments (e.g., lifestyle modifications)	4.25	4.29
2B2	Preventative Care	4.13	4.09
2B3	Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)	3.91	3.88
2B4	Care Coordination	3.91	3.93
2B5	Patient and Caregiver Education and Counseling	4.61	4.68
2C	Therapeutic Outcomes and Monitoring		
2C1	Therapeutic Targets	4.29	4.40
2C2	Therapeutic and Physiological Monitoring	4.32	4.35
2C3	Adverse Drug Events and Drug Interactions	4.55	4.45
2C4	Medication Adherence (e.g., addressing barriers, measurement tools)	4.56	4.58
3	**Professional Practice**		
3A	Quality of Care		
3A1	Public and Population Health	3.61	3.47
3A2	Continuity of Care	4.06	3.99
3A3	Ethics and Patient Advocacy	3.88	3.59
3A4	Medication Safety and Stewardship	4.04	3.64
3B	Practice Management		
3B1	Professional Practice Standards and Regulations	3.75	3.40
3B2	Research Methods and Statistics	3.05	2.77
3B3	Quality Management and Process Improvement	3.55	3.33
3B4	Clinical Informatics (e.g., clinical decision support, alerts, workflows)	3.24	3.00
3B5	Pharmacoeconomics (e.g., formulary management, cost effectiveness, resource utilization, reimbursement and billing)	3.70	3.58

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 8.74, as the primary factor explaining 29.15% of the variability in importance ratings. All subsequent factors had eigenvalues of 3.13 or less and each explained less than 10.42% 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 was reconvened on 29 March 2024 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 ambulatory care pharmacy.

The panelists agreed to retain all the task statements developed. The panelists made an edit to Task 12 which now reads: Develop and/or update healthcare protocols, medication formularies, and/or pharmacy services.

The panelists agreed to retain all but one of the knowledge statements developed (3B4: Clinical Informatics) because it had lower ratings and the panel agreed that ambulatory care pharmacists were users of clinical decision support but did not need the specialized knowledge for designing clinical decision support. Knowledge Area 3B2 (Research Methods and Statistics) was edited to encompass the knowledge needed for pharmacists to evaluate the applicability of research findings so it now reads: Literature Evaluation (e.g., research methods, statistics, applicability).

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	Final % Weight
1	**Patient Assessment**	**29%**
1A	Clinical Assessment	18%
1B	Patient-Specific Factors	11%
2	**Therapeutics and Patient Management**	**50%**
2A	Pharmacotherapy	16%
2B	Therapeutic Implementation	18%
2C	Therapeutic Outcomes and Monitoring	16%
3	**Professional Practice**	**21%**
3A	Quality of Care	12%
3B	Practice Management	9%

See Appendix D for the final Examination Content Outline.

Appendix A – Subject Matter Experts

Job Analysis Committee

Name	Credentials	Post-Licensure Experience	Job Title	Employer/ Affiliation	Location
Alyssa Puia	PharmD, BCACP, CDCES, TTS	4 Years	Clinical Pharmacist	Holyoke Health Center Inc.	MA
Amanda Woods	PharmD, BCACP, CDCES, CPP, DPLA	10 Years	Clinical Pharmacy Manager	Atrium Health	NC
Andrea Larson	PharmD, CPh, BCACP	15 Years	Clinical Pharmacist	Cleveland Clinic Indian River Hospital	FL
Aya Hines	PharmD, BCACP	5 Years	Digital Medicine Senior Clinical Pharmacist	Ochsner Health	LA
Brandon Sucher	PharmD, BCACP, CDCES, AE-C	22 Years	Professor of Pharmacy Practice	Regis University School of Pharmacy	CO
Brittany Wheeler	PharmD, MPH, BCACP, BCCP	9 Years	Clinical Pharmacy Specialist	VA Augusta Health Care System	GA
Caitlin Brown	PharmD, BCACP, TTS	4 Years	Ambulatory Care Pharmacy Clinical Specialist	University of Arkansas for Medical Sciences	AR
Cassandra Shields	PharmD, BCACP, CDCES	13 Years	Clinical Pharmacy Supervisor	Salina Family Healthcare Center	KS
Christie Schumacher	PharmD, BCACP, BCCP, BCPS, CDCES, BC-ADM, FCCP	15 Years	Professor, Pharmacy Practice / Ambulatory Care Clinical Pharmacy Specialist	Midwestern University College of Pharmacy and Advocate Health	IL
Clark Kebodeaux	PharmD, BCACP	13 Years	Clinical Associate Professor	University of Kentucky College of Pharmacy	KY
Emily Tang	PharmD, BCACP	3 Years	Clinical Pharmacist II	Yale New Haven Health	CT

Janee Kegerize	PharmD, BSPS, BCACP, BCPS	9 Years	Clinical Pharmacist Practitioner	Department of Veterans Affairs	OH
Jennifer Stanislaw	PharmD, BCACP	5 Years	Assistant Clinical Professor	Oregon State University/Oregon Health and Sciences University College of Pharmacy	OR
Jessica Merrey	PharmD, MBA, BCACP, BCGP, BCPS	16 Years	Lead Clinical Pharmacy Specialist, Ambulatory Care	The Johns Hopkins Hospital	MD
Julia Lees	PharmD, BCACP	6 Years	Ambulatory Care Clinical Pharmacist	Philadelphia College of Osteopathic Medicine	PA
Katherine Montag Schafer	PharmD, BCACP, CDCES	10 Years	Associate Professor	University of Minnesota	MN
Lauren Pamulapati	PharmD, BCACP	8 Years	Assistant Professor/Clinical Pharmacist	Virginia Commonwealth University (VCU) School of Pharmacy	VA
Nicholas Lehman	PharmD, BCACP	20 Years	Associate Professor	Drake University College of Pharmacy & Health Sciences	IA
Nora Sharaya	PharmD, BCACP, BCPS, BC-ADM, TTS	10 Years	Clinical Pharmacy Specialist-Ambulatory Care	Community Health Network	IN
S. Rochelle Sullivan	PharmD, BCACP	17 Years	Clinical Pharmacy Specialist	Department of Veterans Affairs	SC
Taryn Mondiello	PharmD, BCACP, AE-C	8 Years	Clinical Pharmacy Specialist, Chronic Disease Management Clinic	Barnes-Jewish Hospital	MO
Tavajay Campbell	PharmD, BCACP, CDCES	6 Years	Assistant Professor of Pharmacy Practice	Belmont University	TN
Timothy Hosni Amin	PharmD, BCACP	3 Years	Clinical Ambulatory Care Pharmacist	Summit Health, part of VillageMD	NJ

Job Analysis Interviewees

Name	Credentials	Post-Licensure Experience	Job Title	Employer/ Affiliation	Location
Christie Schumacher	PharmD, BCACP, BCCP, BCPS, CDCES, BC-ADM, FCCP	15 Years	Professor, Pharmacy Practice / Ambulatory Care Clinical Pharmacy Specialist	Midwestern University College of Pharmacy and Advocate Health	IL
Marissa Salvo	PharmD, BCACP, FCPA	14 Years	Associate Clinical Professor of Pharmacy Practice	UConn School of Pharmacy	CT
Michael Andrews	PharmD, BCACP, BCPS	16 Years	Clinical Pharmacy Specialist, Formulary Manager	Veterans Affairs	CO
Nathan Kennedy	PharmD, BSPS, BCACP	9 Years	Professor / Clinical Pharmacist / Director of Clinical Care	Upstream Pharmacy	NC
Noushin Aminjavahery	PharmD, BCACP	13 Years	Ambulatory Clinical Pharmacist	Veteran's Hospital	CA

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

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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

Interviews → Committee Develops ECO (you are here) → Survey Development → Survey Administration → Survey Analysis → Committee Finalizes ECO

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

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"

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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

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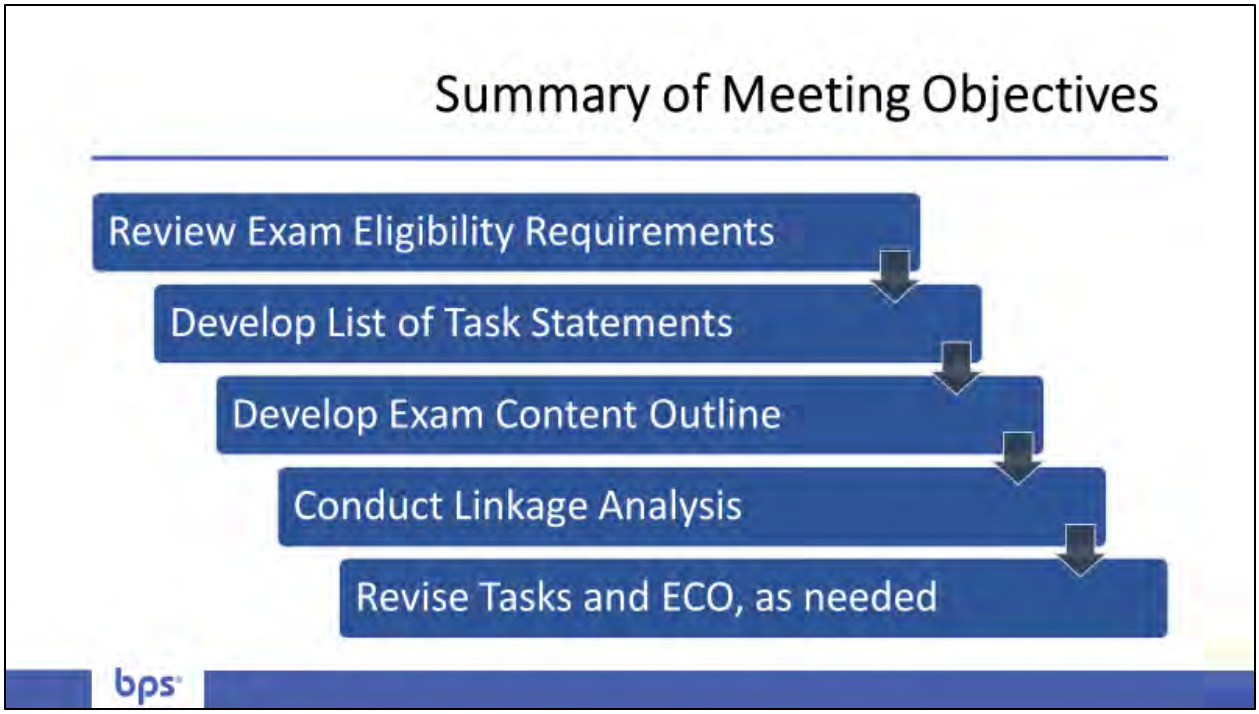

Appendix C – Survey Text

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BPS 2024 Ambulatory Care Pharmacy (BCACP) Job Analysis Survey

Survey Introduction

The Board of Pharmacy Specialties (BPS) is conducting a Job Analysis for the Board-Certified Ambulatory Care Pharmacist (BCACP) 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 ambulatory care pharmacy.

Survey respondents will be prompted to rate each task and knowledge area on its importance to ambulatory care 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

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BPS 2024 Ambulatory Care Pharmacy (BCACP) Job Analysis Survey

Task Statements

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

	Importance	Frequency
Evaluate patient medical history, medication history, present illness, clinical status, social determinants of health, and other patient characteristics		
Establish goals of care in collaboration with the patient, caregivers, and/or interprofessional healthcare team		
Develop person-centered therapeutic plans in alignment with evidence-based medicine, practice guidelines, and goals of care		
Optimize medication selection and adherence based on patient characteristics (e.g., ability, comorbidities, and preferences) and medication characteristics (e.g., routes of administration, access)		

Monitor and evaluate response to individualized person-centered care plan		
Modify individualized care plan in response to clinical status, goals of care, and other patient factors		
Utilize health information technology and clinical informatics to optimize pharmacotherapeutic decisions		
Develop and/or provide healthcare education and counseling to patients, caregivers, and/or members of the general public		
Develop and/or provide healthcare education and support to pharmacists, learners, and members of the interprofessional healthcare team		
Participate in healthcare quality improvement, safety, and/or public health initiatives		
Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice		
Develop healthcare protocols, medication formularies, and pharmacy services		
Engage in professional development in ambulatory care practice, such as		

healthcare committee involvement, scholarly activities, and continuing education		
Evaluate clinical literature and its applicability to ambulatory care practice		

What task associated with ambulatory care pharmacy is missing from this list, if any?

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BPS 2024 Ambulatory Care Pharmacy (BCACP) Job Analysis Survey

Knowledge Areas

Please rate each knowledge area in the Patient Assessment content domain according to its importance to ambulatory care pharmacy practice and the frequency of its use in ambulatory care pharmacy practice.

	Importance	Frequency
Risk Factors and Etiology of Common Health Conditions		
Assessment and Screening Process		
Laboratory and Diagnostic Testing		
Pharmacodynamics and Pharmacokinetics (e.g., liver and kidney function, pharmacogenomics)		
Medication Reconciliation		
Social Determinants of Health		
Patient Engagement (e.g., rapport-building, motivational interviewing, shared decision-making, person-centered care)		
Goals of Care and Goals of Treatment		

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

	Importance	Frequency
Initiation of Pharmacotherapy		
Titration/Optimization of Pharmacotherapy		
De-escalation of Pharmacotherapy		
Discontinuation of Pharmacotherapy		
Non-Pharmacologic Treatments (e.g., lifestyle modifications)		
Preventative Care		
Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)		
Care Coordination		
Patient and Caregiver Education and Counseling		
Therapeutic Targets		
Therapeutic and Physiological Monitoring		
Adverse Drug Events and Drug Interactions		
Medication Adherence (e.g., addressing barriers, measurement tools)		

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

	Importance	Frequency
Public and Population Health		
Continuity of Care		
Ethics and Patient Advocacy		
Medication Safety and Stewardship		
Professional Practice Standards and Regulations		
Research Methods and Statistics		
Quality Management and Process Improvement		
Clinical Informatics (e.g., clinical decision support, alerts, workflows)		
Pharmacoeconomics (e.g., formulary management, cost effectiveness, resource utilization, reimbursement and billing)		

What knowledge area associated with ambulatory care pharmacy is missing from this list, if any?

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BPS 2024 Ambulatory Care Pharmacy (BCACP) Job Analysis Survey

Survey Respondent Demographics

What percentage of your professional practice is spent in ambulatory care pharmacy?

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

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

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

What is your primary practice setting?

- ◯ Academic Institution / Educational Institution
- ◯ Academic Medical Center or Hospital
- ◯ Children's Hospital
- ◯ Community Hospital
- ◯ Community Pharmacy
- ◯ Home Infusion / Ambulatory Infusion
- ◯ Hospice
- ◯ Hybrid Academic-Community Hospital
- ◯ Integrated Health System / Accountable Care Organization
- ◯ Investigational Drug Service
- ◯ Long-Term Care Pharmacy
- ◯ Managed Care
- ◯ Outpatient Clinic / Ambulatory Clinic
- ◯ Pharmaceutical Industry
- ◯ Specialty Pharmacy
- ◯ 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

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

Direct Patient Care	
Administration / Management	
Teaching / Precepting	
Research / Scholarship	
Other	

Which credential not issued by BPS do you currently hold? Select all that apply and leave blank if none.

- [ ] Asthma Educator Specialist (AE-C)
- [ ] Board Certified Medication Therapy Management Specialist (BCMTMS)
- [ ] Board-Certified in Advanced Diabetes Management (BC-ADM)
- [ ] Certified Diabetes Care and Education Specialist (CDCES)
- [ ] HIV Pharmacist (AAHIVP)
- [ ] Tobacco Treatment Specialist (TTS)
- [ ] Other (please specify)

Which form(s) of prescriptive authority do you have in your current role? Select all that apply and leave blank if none.

- [ ] Patient-Specific Dependent Prescription Authority (e.g., hospital protocol)
- [ ] Population-Based Dependent Prescription Authority (e.g., Collaborative Practice Agreement)
- [ ] Independent Prescription Authority according to Governmental Protocol (e.g., State-Based Protocols)
- [ ] Independent Prescription Authority according to Standard of Care (e.g., Independent Prescribing)

BPS 2024 Ambulatory Care Pharmacy (BCACP) 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	**Patient Assessment**	29%
1A	Clinical Assessment	18%
1A1	Risk Factors and Etiology of Common Health Conditions	
1A2	Assessment and Screening Process	
1A3	Laboratory and Diagnostic Testing	
1A4	Pharmacodynamics and Pharmacokinetics (e.g., liver and kidney function, pharmacogenomics)	
1A5	Medication Reconciliation	
1B	Patient-Specific Factors	11%
1B1	Social Determinants of Health	
1B2	Patient Engagement (e.g., rapport-building, motivational interviewing, shared decision-making, person-centered care)	
1B3	Goals of Care and Goals of Treatment	
2	**Therapeutics and Patient Management**	50%
2A	Pharmacotherapy	16%
2A1	Initiation of Pharmacotherapy	
2A2	Titration/Optimization of Pharmacotherapy	
2A3	De-escalation of Pharmacotherapy	
2A4	Discontinuation of Pharmacotherapy	
2B	Therapeutic Implementation	18%
2B1	Non-Pharmacologic Treatments (e.g., lifestyle modifications)	
2B2	Preventative Care	
2B3	Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)	
2B4	Care Coordination	
2B5	Patient and Caregiver Education and Counseling	
2C	Therapeutic Outcomes and Monitoring	16%
2C1	Therapeutic Targets	
2C2	Therapeutic and Physiological Monitoring	
2C3	Adverse Drug Events and Drug Interactions	
2C4	Medication Adherence (e.g., addressing barriers, measurement tools)	
3	**Professional Practice**	21%
3A	Quality of Care	12%
3A1	Public and Population Health	
3A2	Continuity of Care	
3A3	Ethics and Patient Advocacy	
3A4	Medication Safety and Stewardship	
3B	Practice Management	9%
3B1	Professional Practice Standards and Regulations	
3B2	Literature Evaluation (e.g., research methods, statistics, applicability)	
3B3	Quality Management and Process Improvement	
3B4	Pharmacoeconomics (e.g., formulary management, cost effectiveness, resource utilization, reimbursement and billing)	

Job Analysis

Ambulatory Care Pharmacy (BCACP)

June 2024

ADDENDUM

On 12 June 2024, the Board of Pharmacy Specialties (BPS) Board of Directors voted to amend the examination content outline based on the recommendation by the Ambulatory Care Pharmacy (BCACP) Specialty Council. The following changes were made:

- Domain 1 (Patient Assessment) and 2 (Therapeutics and Patient Management) were combined and renamed (Patient Care). All domains, subdomains, and content areas were re-numbered accordingly.

- The weights at the subdomain level were removed from the examination content outline. Please note that each examination form is constructed according to established weights at the subdomain level, but those weights are not presented to the public.

See below for a copy of the original and updated versions of the examination content outline.

Original Examination Content Outline

1	**Patient Assessment**	29%
1A	Clinical Assessment	18%
1A1	Risk Factors and Etiology of Common Health Conditions	
1A2	Assessment and Screening Process	
1A3	Laboratory and Diagnostic Testing	
1A4	Pharmacodynamics and Pharmacokinetics (e.g., liver and kidney function, pharmacogenomics)	
1A5	Medication Reconciliation	
1B	Patient-Specific Factors	11%
1B1	Social Determinants of Health	
1B2	Patient Engagement (e.g., rapport-building, motivational interviewing, shared decision-making, person-centered care)	
1B3	Goals of Care and Goals of Treatment	
2	**Therapeutics and Patient Management**	50%
2A	Pharmacotherapy	16%
2A1	Initiation of Pharmacotherapy	
2A2	Titration/Optimization of Pharmacotherapy	
2A3	De-escalation of Pharmacotherapy	
2A4	Discontinuation of Pharmacotherapy	
2B	Therapeutic Implementation	18%
2B1	Non-Pharmacologic Treatments (e.g., lifestyle modifications)	
2B2	Preventative Care	
2B3	Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)	
2B4	Care Coordination	
2B5	Patient and Caregiver Education and Counseling	
2C	Therapeutic Outcomes and Monitoring	16%
2C1	Therapeutic Targets	
2C2	Therapeutic and Physiological Monitoring	
2C3	Adverse Drug Events and Drug Interactions	
2C4	Medication Adherence (e.g., addressing barriers, measurement tools)	
3	**Professional Practice**	21%
3A	Quality of Care	12%
3A1	Public and Population Health	
3A2	Continuity of Care	
3A3	Ethics and Patient Advocacy	
3A4	Medication Safety and Stewardship	
3B	Practice Management	9%
3B1	Professional Practice Standards and Regulations	
3B2	Literature Evaluation (e.g., research methods, statistics, applicability)	
3B3	Quality Management and Process Improvement	
3B4	Pharmacoeconomics (e.g., formulary management, cost effectiveness, resource utilization, reimbursement and billing)	

Updated Examination Content Outline

1	**Patient Care**	**79%**
1A	Clinical Assessment	
1A1	Risk Factors and Etiology of Common Health Conditions	
1A2	Assessment and Screening Process	
1A3	Laboratory and Diagnostic Testing	
1A4	Pharmacodynamics and Pharmacokinetics (e.g., liver and kidney function, pharmacogenomics)	
1A5	Medication Reconciliation	
1B	Patient-Specific Factors	
1B1	Social Determinants of Health	
1B2	Patient Engagement (e.g., rapport-building, motivational interviewing, shared decision-making, person-centered care)	
1B3	Goals of Care and Goals of Treatment	
1C	Pharmacotherapy	
1C1	Initiation of Pharmacotherapy	
1C2	Titration/Optimization of Pharmacotherapy	
1C3	De-escalation of Pharmacotherapy	
1C4	Discontinuation of Pharmacotherapy	
1D	Therapeutic Implementation	
1D1	Non-Pharmacologic Treatments (e.g., lifestyle modifications)	
1D2	Preventative Care	
1D3	Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)	
1D4	Care Coordination	
1D5	Patient and Caregiver Education and Counseling	
1E	Therapeutic Outcomes and Monitoring	
1E1	Therapeutic Targets	
1E2	Therapeutic and Physiological Monitoring	
1E3	Adverse Drug Events and Drug Interactions	
1E4	Medication Adherence (e.g., addressing barriers, measurement tools)	
2	**Professional Practice**	**21%**
2A	Quality of Care	
2A1	Public and Population Health	
2A2	Continuity of Care	
2A3	Ethics and Patient Advocacy	
2A4	Medication Safety and Stewardship	
2B	Practice Management	
2B1	Professional Practice Standards and Regulations	
2B2	Literature Evaluation (e.g., research methods, statistics, applicability)	
2B3	Quality Management and Process Improvement	
2B4	Pharmacoeconomics (e.g., formulary management, cost effectiveness, resource utilization, reimbursement and billing)	