Job Analysis

Cardiology Pharmacy (BCCP)

April 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 cardiology 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 cardiology pharmacy specialty practice area. The outcome of this study was the creation of an examination blueprint that will be used to construct the cardiology 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	**Cardiovascular System**	**16%**
1A	Cardiovascular Functioning	6%
1B	Cardiovascular Disease	10%
2	**Therapeutics and Patient Management**	**57%**
2A	Patient Assessment	15%
2B	Therapeutic Implementation	23%
2C	Treatment Outcomes and Monitoring	19%
3	**Professional Practice**	**27%**
3A	Quality of Care	15%
3B	Practice Management	12%

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 cardiology 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 cardiology pharmacy
2. Development, administration, and analysis of a survey to other qualified pharmacists who are currently engaged in cardiology 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 20 subject-matter experts in cardiology 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. See Appendix A for the qualifications and professional characteristics of the panelists.

The panel met via teleconference on 23 January 2025 occasion to develop, define, and update the tasks performed and knowledge required to practice as a specialist in cardiology pharmacy. The panelists were first 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 a cardiology pharmacist.

1	Evaluate patient medical history, medication history, present illness, clinical status, health risks, social determinants of health, and other pertinent patient characteristics
2	Establish goals of care in collaboration with the patient, caregivers, and/or interprofessional healthcare team
3	Develop patient-centered therapeutic plans in alignment with evidence-based medicine, practice guidelines, and goals of care
4	Evaluate and optimize patient medication regimen by assessing availability, route, compatibility, stability, costs, and medication-delivery technology
5	Monitor and evaluate patient progress toward goals of care and goals of treatment
6	Modify therapeutic plans in response to changes in clinical status, goals of care, goals of treatment, and other pertinent patient factors
7	Optimize continuity of care by identifying necessary resources, facilitating transitions of care, and/or making referrals to other healthcare services
8	Develop and provide healthcare education and counseling to patients, caregivers, family members, and/or members of the general public
9	Provide healthcare education and support to other pharmacists, pharmacy learners, and members of the interprofessional healthcare team
10	Participate in healthcare quality improvement and safety initiatives
11	Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice
12	Develop and/or utilize drug-selection strategies to improve cost effectiveness, resource utilization, and risk mitigation
13	Utilize health information technology and clinical informatics to optimize pharmacotherapeutic decisions
14	Engage in professional development and advocacy in the cardiology pharmacy specialty area, such as healthcare committee involvement, scholarly activities, and continuing education
15	Evaluate clinical literature and its applicability to cardiology pharmacy practice

The panel identified three content domains that describe the key high-level components of cardiology pharmacy. Across the three content domains, the panel identified six content sub-domains and developed 31 knowledge areas that describe specific job knowledge associated with the practice of cardiology 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	**Cardiovascular System**
1A	Cardiovascular Functioning, Disease, and Risk Factors
1A1	Anatomy and Physiology of the Cardiovascular System
1A2	Risk Factors for Cardiovascular Disease
1A3	Etiology of Cardiovascular Disease
1A4	Disease Progression of Cardiovascular Disease
1A5	Common Comorbidities with Cardiovascular Disease
2	**Therapeutics and Patient Management**
2A	Treatment Planning
2A1	Clinical Assessment
2A2	Diagnosis and Diagnostic Testing
2A3	Pharmacodynamics, Pharmacokinetics, and Pharmacogenomics
2A4	Care Planning (e.g., shared decision-making, goals of care, expected treatment outcomes)
2A5	Social Determinants of Health
2B	Therapeutic Implementation
2B1	Pharmacotherapy (e.g., prescription medications, OTC medications, supplements, herbals)
2B2	Non-Pharmacologic Interventions (e.g., lifestyle modification, cardiac devices)
2B3	Interprofessional Care Coordination
2B4	Medication Reconciliation and Optimization
2B5	Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)
2B6	Patient and Caregiver Education and Counseling
2C	Treatment Outcomes and Monitoring
2C1	Therapeutic Targets and Endpoints
2C2	Therapeutic and Physiological Monitoring
2C3	Adverse Drug Events
2C4	Drug Interactions
2C5	Medication Adherence
3	**Professional Practice**
3A	Quality of Care
3A1	Population Health and Preventative Care
3A2	Continuity of Care
3A3	Clinical Practice Guidelines
3A4	Anticoagulation Stewardship
3A5	Quality Management and Process Improvement

3B	Practice Management
3B1	Literature Evaluation (e.g., research, statistics, applicability)
3B2	Professional Practice Standards, Guidelines, and Regulations
3B3	Ethics and Patient Advocacy
3B4	Pharmacoeconomics
3B5	Clinical Informatics

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

The BPS Board-Certified Cardiology Pharmacist (BCCP) program is a credential for pharmacists who specialize in the optimization of patient care by ensuring safe and effective use of medications in patients with or at risk for cardiovascular disease.
The purpose of the BCCP program is to validate that the pharmacist has the advanced knowledge, skills, and experience to optimize patient outcomes and cardiovascular health by focusing on the prevention and treatment of cardiovascular disease.

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		X	X						
1A3	X		X					X	X						
1A4	X		X		X	X			X						
1A5	X		X					X	X						
2															
2A															
2A1	X	X	X	X	X	X									

2A2	X		X		X	X			X							
2A3	X		X	X	X	X			X							
2A4	X	X	X	X	X	X	X									
2A5	X	X	X			X	X	X								
2B																
2B1	X	X	X	X	X	X		X	X							X
2B2	X	X	X	X		X			X							
2B3		X	X			X	X		X							
2B4	X		X	X		X										
2B5			X	X		X			X							
2B6		X						X								
2C																
2C1	X	X	X		X	X			X							
2C2		X	X		X	X										
2C3	X	X	X		X	X										
2C4	X	X	X		X	X										
2C5	X	X	X		X	X										
3																
3A																
3A1	X	X						X		X				X		
3A2		X					X									
3A3			X						X	X	X			X	X	
3A4			X							X						
3A5										X	X					
3B																
3B1			X						X		X	X		X	X	
3B2			X						X	X	X			X	X	
3B3								X								
3B4				X								X				
3B5										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 cardiology pharmacy practice? How important is this knowledge area to cardiology 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 cardiology pharmacy practice? How frequently is this knowledge used in cardiology 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 4-11 February 2025. Pilot testers identified one typographical error and did not identify any other necessary changes. See Appendix C for a copy of the final survey text.

The survey was open and available from 18 February to 27 March 2025. All pharmacists who hold the BCPP 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, American Society of Health-System Pharmacists.

The survey yielded 82 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 cardiology pharmacy.

Responses to Demographic Questions		
Percentage of Time in Cardiology Pharmacy	**Mean = 87.99 | SD = 16.06**	***n***
50 – 75		19
76 – 99		22
100		41
Pharmacy Residency Programs Completed		***n***
PGY1 Pharmacy		58
PGY1 Managed Care Pharmacy		0
PGY1 Community-Based Pharmacy		0
PGY2 Ambulatory Care Pharmacy		2
PGY2 Cardiology Pharmacy		38
PGY2 Clinical Pharmacogenomics		0
PGY2 Community-Based Pharmacy Administration and Leadership		0
PGY2 Corporate Pharmacy Administration and Leadership		0
PGY2 Critical Care Pharmacy		2
PGY2 Emergency Medicine Pharmacy		1
PGY2 Geriatric Pharmacy		0
PGY2 Health System Pharmacy Administration and Leadership		0
PGY2 Infectious Diseases Pharmacy		0
PGY2 Internal Medicine Pharmacy		4
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		6
BPS Certifications		***n***
BCACP - Ambulatory Care		4
BCCCP - Critical Care		4
BCCP - Cardiology		70

BCGP - Geriatric		0	
BCEMP - Emergency Medicine		0	
BCIDP - Infectious Diseases		0	
BCNP - Nuclear		0	
BCNSP - Nutrition Support		0	
BCOP - Oncology		0	
BCPP - Psychiatric		0	
BCPPS - Pediatric		0	
BCPS - Pharmacotherapy		35	
BCSCP - Compounded Sterile Preparations		0	
BCTXP - Solid Organ Transplantation		1	
Years of Experience in Pharmacy	**Mean = 13.71 |SD = 9.22**	***n***	**%**
0-5		13	15.85%
6-10		28	34.15%
11-15		13	15.85%
16-20		12	14.63%
20+		16	19.51%
Years of Experience in Cardiology Pharmacy	**Mean = 9.85 |SD = 8.29**	***n***	**%**
0-5		28	34.15%
6-10		30	36.59%
11-15		11	13.41%
16-20		4	4.88%
20+		9	10.98%
Time Spent in Professional Role		***n*** **(>50%)**	**Average %**
Direct Patient Care		55	64.46%
Administration / Management		1	10.39%
Teaching / Precepting		0	15.50%
Research / Scholarship		0	8.60%
Other		0	1.05%
Primary Practice Setting		***n***	**%**
Academic Institution / Educational Institution		6	7.32%
Academic Medical Center or Hospital		35	42.68%
Children's Hospital		1	1.22%
Community Hospital		19	23.17%
Hospice		0	0.00%
Hybrid Academic-Community Hospital		4	4.88%
Integrated Health System / Accountable Care Organization		1	1.22%
Investigational Drug Service		0	0.00%
Outpatient Clinic / Ambulatory Clinic		8	9.76%
Pharmaceutical Industry		0	0.00%
Specialty Pharmacy		0	0.00%

Governmental Healthcare Facility / Veterans Affairs Hospital	4	4.88%
Other	4	4.88%
Time Spent Managing Patients with Each Disease State	***n (>50%)***	**%**
Anticoagulation	10	15.90%
Arrhythmias	2	8.49%
Atherosclerotic Cardiovascular Disease	6	11.87%
Cardiovascular Critical Care (e.g., stroke, shock, cardiopulmonary arrest, surgery)	13	10.98%
Dyslipidemia	1	5.89%
Heart Failure	28	22.49%
Hypertension	3	6.80%
Mechanical Assistance Devices	1	4.57%
Peripheral Arterial Disease	0	2.88%
Primary Prevention	0	1.94%
Pulmonary Hypertension	2	3.26%
Transplant	3	2.90%
Other	2	2.04%

	Mean Ratings for Task Statements	Importance	Frequency
1	Evaluate patient medical history, medication history, present illness, clinical status, health risks, social determinants of health, and other pertinent patient characteristics	4.70	4.78
2	Establish goals of care in collaboration with the patient, caregivers, and/or interprofessional healthcare team	4.15	4.20
3	Develop patient-centered therapeutic plans in alignment with evidence-based medicine, practice guidelines, and goals of care	4.84	4.77
4	Evaluate and optimize patient medication regimen by assessing availability, route, compatibility, stability, costs, and medication-delivery technology	4.60	4.52
5	Monitor and evaluate patient progress toward goals of care and goals of treatment	4.24	4.33
6	Modify therapeutic plans in response to changes in clinical status, goals of care, goals of treatment, and other pertinent patient factors	4.60	4.52
7	Optimize continuity of care by identifying necessary resources, facilitating transitions of care, and/or making referrals to other healthcare services	4.00	3.76
8	Develop and provide healthcare education and counseling to patients, caregivers, family members, and/or members of the general public	4.18	3.79
9	Provide healthcare education and support to other pharmacists, pharmacy learners, and members of the interprofessional healthcare team	3.96	3.66
10	Participate in healthcare quality improvement and safety initiatives	3.72	3.33
11	Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice	3.84	3.45
12	Develop and/or utilize drug-selection strategies to improve cost effectiveness, resource utilization, and risk mitigation	3.63	3.48
13	Utilize health information technology and clinical informatics to optimize pharmacotherapeutic decisions	3.17	3.10
14	Engage in professional development and advocacy in the cardiology pharmacy specialty area, such as healthcare committee involvement, scholarly activities, and continuing education	3.34	3.09
15	Evaluate clinical literature and its applicability to cardiology pharmacy practice	4.33	4.21

Mean Ratings for Knowledge Areas		Importance	Frequency
1	**Cardiovascular System**		
1A	Cardiovascular Functioning, Disease, and Risk Factors		
1A1	Anatomy and Physiology of the Cardiovascular System	4.22	4.16
1A2	Risk Factors for Cardiovascular Disease	4.04	4.21
1A3	Etiology of Cardiovascular Disease	3.76	3.90
1A4	Disease Progression of Cardiovascular Disease	4.17	4.23
1A5	Common Comorbidities with Cardiovascular Disease	4.16	4.28
2	**Therapeutics and Patient Management**		
2A	Treatment Planning		
2A1	Clinical Assessment	4.16	4.23
2A2	Diagnosis and Diagnostic Testing	3.56	3.77
2A3	Pharmacodynamics, Pharmacokinetics, and Pharmacogenomics	4.18	4.17
2A4	Care Planning (e.g., shared decision-making, goals of care, expected treatment outcomes)	4.01	3.89
2A5	Social Determinants of Health	3.68	3.51
2B	Therapeutic Implementation		
2B1	Pharmacotherapy (e.g., prescription medications, OTC medications, supplements, herbals)	4.55	4.54
2B2	Non-Pharmacologic Interventions (e.g., lifestyle modification, cardiac devices)	3.89	3.71
2B3	Interprofessional Care Coordination	4.10	4.16
2B4	Medication Reconciliation and Optimization	4.41	4.29
2B5	Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)	3.76	3.76
2B6	Patient and Caregiver Education and Counseling	4.30	4.13
2C	Treatment Outcomes and Monitoring		
2C1	Therapeutic Targets and Endpoints	4.43	4.33
2C2	Therapeutic and Physiological Monitoring	4.40	4.34
2C3	Adverse Drug Events	4.40	4.17
2C4	Drug Interactions	4.62	4.50
2C5	Medication Adherence	4.32	4.16
3	**Professional Practice**		
3A	Quality of Care		
3A1	Population Health and Preventative Care	3.43	3.23
3A2	Continuity of Care	3.95	3.84
3A3	Clinical Practice Guidelines	4.56	4.56
3A4	Anticoagulation Stewardship	4.16	4.11
3A5	Quality Management and Process Improvement	3.65	3.51
3B	Practice Management		
3B1	Literature Evaluation (e.g., research, statistics, applicability)	4.22	4.09
3B2	Professional Practice Standards, Guidelines, and Regulations	3.99	3.94
3B3	Ethics and Patient Advocacy	3.59	3.15
3B4	Pharmacoeconomics	3.00	2.83
3B5	Clinical Informatics	2.98	2.83

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 12.10, as the primary factor explaining 39.05% of the variability in importance ratings. All subsequent factors had eigenvalues of 2.78 or less and each explained less than 8.96% 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 scheduled to reconvene on 3 April 2025 via teleconference to review the results of the survey and to finalize the exam content outline. Because only three panelists attended, the results of the survey were reviewed but no decision-making took place. Instead, ten members of the specialty council met on 22 April 2025 to review the results of the survey and to finalize the exam content outline. See Appendix A for a summary of the qualifications of the specialty council members who participated in the final job analysis meeting.

The specialty council members 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 cardiology pharmacy.

The specialty council members agreed to retain all the task statements developed.

The specialty council members agreed to retain all the knowledge statements developed. They added clarifying examples to 3B4 (Pharmacoeconomics) and 3B5 (Clinical Informatics). They separated "Preventative Care" from 3A1 (Population Health) and placed it in sub-domain 2B. They split domain one (Cardiovascular System) into two sub-domains (1A - Cardiovascular Functioning; 1B - Cardiovascular Disease) and moved the knowledge areas into either section.

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 of Criticality Values	Final Percentage Weight
1	Cardiovascular System	**84.64**	**16%**
1A	Cardiovascular Functioning	32.20	6%
1B	Cardiovascular Disease	52.43	10%
2	Therapeutics and Patient Management	**286.43**	**57%**
2A	Patient Assessment	77.01	15%
2B	Therapeutic Implementation	114.03	23%
2C	Treatment Outcomes and Monitoring	95.39	19%
3	Professional Practice	**138.09**	**27%**
3A	Quality of Care	76.95	15%
3B	Practice Management	61.13	12%

See Appendix D for the final Examination Content Outline.

Appendix A – Subject Matter Experts

Job Analysis Panel

Name	Credentials	Years Experience	Job Title	Employer/ Affiliation	Location	Practice Setting	Sub-specialty
Ohoud Almalki	PharmD, EMBA, BCCP, BCPS	8 Years	Associate professor	Taif university	Saudi Arabia	Academic Institution	Critical Care Cardi-ology
Tariq Al-Saleh	BCCP	9 Years	Consultant Pharmacist	Maximum Heathcare	CA	Outpatient/ Ambulatory Clinic	Heart Failure
Nicasia D'Allesandro	PharmD, BCCP	2 Years	Cardiology Clinical Pharmacist Practitioner	West Palm Beach VAHCS	FL	Outpatient/ Ambulatory Clinic	Heart Failure
Wafaa Ewas	BCCP	4 Years	Clinical Pharmacist	El-Shrouk General Hospital	Egypt	Governmental Healthcare Facility	Critical Care Cardi-ology
Katie Greenlee	PharmD, BCCP	23 Years	Cardiology Clinical Specialist	Cleveland Clinic Main Campus	OH	Academic Medical Center/ Hospital	Other
Kimberly Hall	PharmD, BCCP, BCPS	3 Years	Clinical Pharmacist, Cardiology	Inova Fairfax Medical Campus, Inova Schar Heart and Vascular	VA	Academic Medical Center/ Hospital	Other
Brian Hancock	PharmD, BCCP, BCPS	5 Years	Clinical Pharmacist Specialist	Baptist Health	KY	Community Hospital	Heart Failure
Zachary Klick	PharmD, BCACP, BCCP, BCPS	7 Years	Cardiology Pharmacist	Atrium Health Wake Forest Baptist	NC	Academic Medical Center/ Hospital	Heart Failure
Melanie Madorsky	PharmD, BCCCP, BCCP, BCPS	8 Years	Clinical Pharmacy Specialist	Memorial Hermann Texas Medical Center	TX	Academic Medical Center/ Hospital	Critical Care Cardi-ology

Said Nabil	BPharm, PharmD, MS, BCCP	4 Years	Clinical Pharmacy Resident	Abu Dhabi Health Services Company	United Arab Emirates	Governmental Healthcare Facility	Heart Failure
Emily Powell	PharmD, BCCP, BCPS	2 Years	Pharmacist	Huntsville Hospital	AL	Outpatient/ Ambulatory Clinic	Heart Failure
Adele Robbins	PharmD, BCCP	13 Years	Clinical Pharmacy Specialist	Emory Healthcare	GA	Hybrid Academic-Community Hospital	Critical Care Cardi-ology
Megan Robinson	PharmD, BCCP, BCPS	5 Years	Clinical Pharmacist	Bryan Medical Center	NE	Community Hospital	Critical Care Cardi-ology
Anthony Ross	PharmD, BCPS	2 Years	Clinical Pharmacy Specialist, Cardiothoracic Intensive Care	Cleveland Clinic	OH	Academic Medical Center/ Hospital	Critical Care Cardi-ology
Christina Ruggia-Check	PharmD, BCCP, BCPS, BCTXP	24 Years	Clinical Pharmacy Specialist - CV Surgery/Heart Failure/Heart Transplant	Temple University Hospital	PA	Academic Medical Center/ Hospital	Critical Care Cardi-ology
Evan Sasson	PharmD, BA, BCCP, BCPS	8 Years	Associate Director of Pharmacotherapy Services	Wyckoff Heights Medical Center	NY	Community Hospital	Heart Failure
Haseeb Sattar	Pharm D, MPhil, PhD, BCCP, BCPS	5 Years	Associate Profesor	Urban Vocational College of Sichuan	Pakistan	Academic Medical Center/ Hospital	Heart Failure
Marwan Sheikh-Taha	PharmD, BCCP, BCPS	22 Years	Inpatient Cardiology / Internal medicine Pharmacist	Lebanese American University	Lebanon	Academic Institution	Other
Anil Soni	PharmD, BCCP, BCPS	3 Years	Clinical pharmacist I	Advocate	IL	Community Hospital	Heart Failure
Israa Yaseen	BSPharm, BCCP	11 Years	Senior Cardiology Clinical Pharmacy Specialist	Baghdad Heart Center, Medical City	Iraq	Academic Medical Center/ Hospital	Heart Failure

Specialty Council

Name	Credentials	Years Expe-rience	Job Title	Employer/ Affiliation	Location	Practice Setting	Sub-specialty
Rhynn Soderstrom	PharmD, BCPS, BCCP	11 Years	Cardiology Pharmacy Specialist	Children's Hospital Colorado	CO	Hospital	Pediatric
Caitlin Gibson	PharmD, BCPS, BCCP	12 Years	Associate Professor	Virginia Common-wealth University	VA	Academic Institution	Acute Care
Azita H. Talasaz	PharmD, PhD, FCCP, BCCP, BCPS	14 Years	Research Faculty Member	Long Island University	NY	University-based Hospital	Heart Failure
Joel C. Marrs	PharmD, MPH, BCACP, BCCP, BCPS, CHC, CLS, FAHA, FASHP, FCCP, FNLA	21 Years	Clinical Pharmacy and Translational Sciences Professor; Coordinator for Clinical Outreach	University of Tennessee Health Science Center	TN	Academic Institution	Heart Failure
Katherine Crawford	PharmD, BCCP, AACC	15 Years	Clinical Pharmacist in Cardiology	Riverside Methodist Hospital, Ohio Health	OH	Community Hospital	Athero-sclerotic Cardiovascular Disease
Andrew J. Smith	PharmD, BCCP, BCPS, FCCP	25 Years	Clinical Professor	University of Missouri at Kansas City	MO	Academic Institution	Heart Failure
Heidi Brink	PharmD, BCPS, BCCP	10 Years	Clinical Pharmacy Supervisor; Pharmacist Specialist	Nebraska Medicine	NE	Medical Center	Pulmonary Hyper-tension
Danielle Blais	PharmD, BCPS, BCCP, FCCP	22 Years	Lead Cardiology Specialty Practice Pharmacist	Richard M. Ross Heart Hospital	OH	Medical Center	Critical Care Cardiology
Maria C. Coyle	PharmD, FCCP, BCPS, BCACP, CLS	21 Years	Associate Professor	The Ohio State University	OH	Academic Institution	Cardiac Risk Prevention
Thomas Szymanski	BA, PharmD	6 Years	Clinical Pharmacy Specialist	WVU Medicine JW Ruby Memorial Hospital	WV	Hospital	Critical Care Cardiology

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 → Survey Development → Survey Administration → Survey Analysis → Committee Finalizes ECO

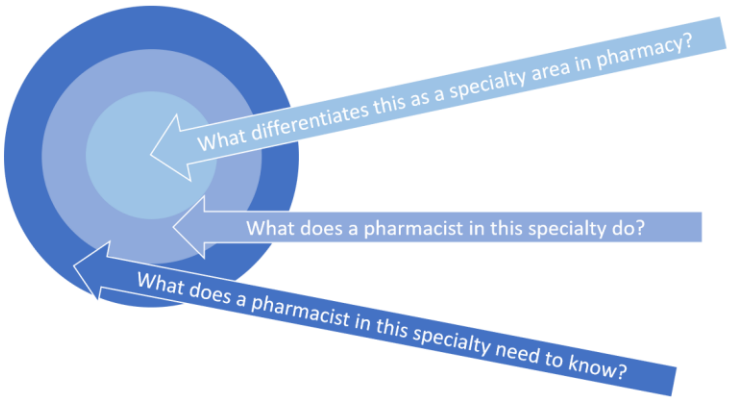
you are here

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

Subdomains
Meaningful Divisions within the Domain

Knowledge Areas
The Knowledge Assessed by Exam Items

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

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.

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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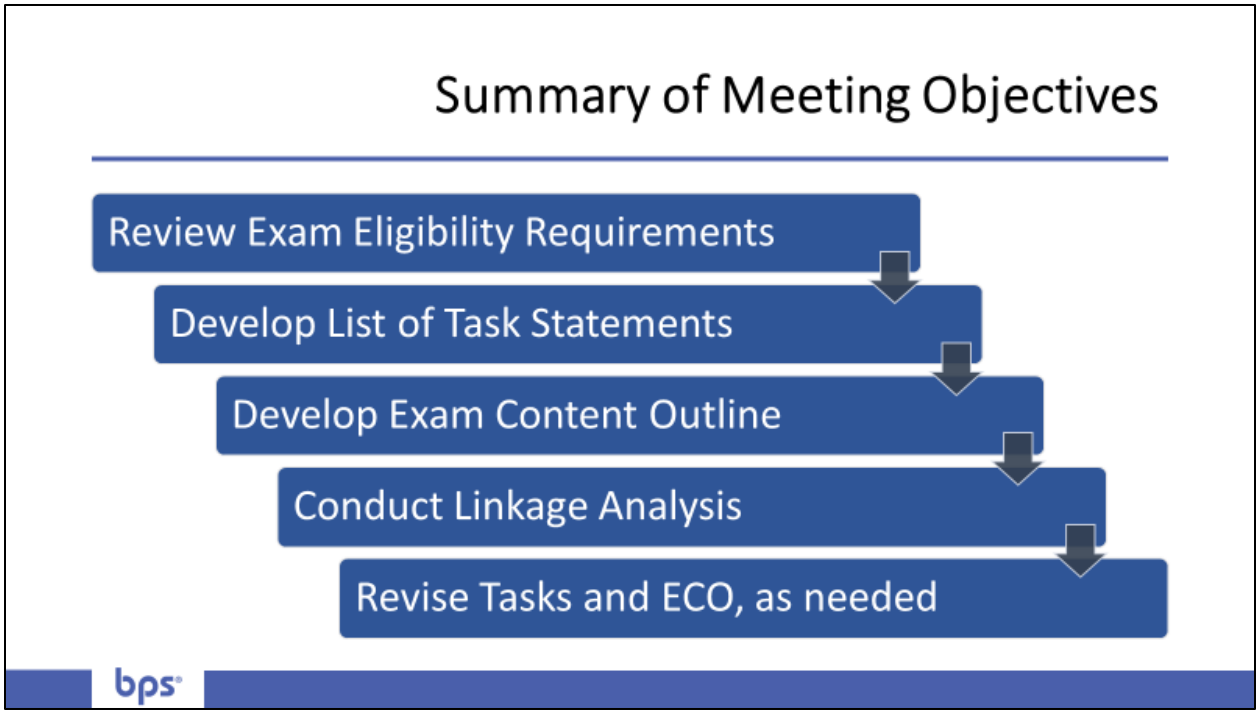

Appendix C – Survey Text

BPS Cardiology Pharmacy (BCCP) Job Analysis Survey

Survey Introduction

The Board of Pharmacy Specialties (BPS) is conducting a Job Analysis for the Board-Certified Cardiology Pharmacy (BCCP) 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 cardiology pharmacy.

Survey respondents will be prompted to rate each task and knowledge area on its importance to cardiology 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 Cardiology Pharmacy (BCCP) Job Analysis Survey

Task Statements

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

	Importance	Frequency
Evaluate patient medical history, medication history, present illness, clinical status, health risks, social determinants of health, and other pertinent patient characteristics		
Establish goals of care in collaboration with the patient, caregivers, and/or interprofessional healthcare team		
Develop patient-centered therapeutic plans in alignment with evidence-based medicine, practice guidelines, and goals of care		
Evaluate and optimize patient medication regimen by assessing availability, route, compatibility, stability, costs, and medication-delivery technology		
Monitor and evaluate patient progress toward goals of care and goals of		

treatment		
Modify therapeutic plans in response to changes in clinical status, goals of care, goals of treatment, and other pertinent patient factors		
Optimize continuity of care by identifying necessary resources, facilitating transitions of care, and/or making referrals to other healthcare services		
Develop and provide healthcare education and counseling to patients, caregivers, family members, and/or members of the general public		
Provide healthcare education and support to other pharmacists, pharmacy learners, and members of the interprofessional healthcare team		
Participate in healthcare quality improvement and safety initiatives		
Evaluate, establish, and/or align policies and practices according to accreditation standards, regulatory requirements, and evidence-based practice		
Develop and/or utilize drug-selection strategies to improve cost effectiveness, resource utilization, and risk mitigation		
Utilize health information technology and clinical informatics to optimize pharmacotherapeutic decisions		

Engage in professional development and advocacy in the cardiology pharmacy specialty area, such as healthcare committee involvement, scholarly activities, and continuing education		
Evaluate clinical literature and its applicability to cardiology pharmacy practice		

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

BPS Cardiology Pharmacy (BCCP) Job Analysis Survey
Knowledge Areas

Please rate each knowledge area in the Cardiovascular Functioning, Disease, and Risk Factors content domain according to its importance to cardiology pharmacy practice and the frequency of its use in cardiology pharmacy practice.

	Importance	Frequency
Anatomy and Physiology of the Cardiovascular System		
Risk Factors for Cardiovascular Disease		
Etiology of Cardiovascular Disease		
Disease Progression of Cardiovascular Disease		
Common Comorbidities with Cardiovascular Disease		

Please rate each knowledge area in the Therapeutics and Patient Management: Treatment Planning content domain according to its importance to cardiology pharmacy practice and the frequency of its use in cardiology pharmacy practice.

	Importance	Frequency
Clinical Assessment		
Diagnosis and Diagnostic Testing		
Pharmacodynamics, Pharmacokinetics, and Pharmacogenomics		
Care Planning (e.g., shared decision-making, goals of care, expected treatment outcomes)		
Social Determinants of Health		

Please rate each knowledge area in the Therapeutics and Patient Management: Therapeutic Implementation content domain according to its importance to cardiology pharmacy practice and the frequency of its use in cardiology pharmacy practice.

	Importance	Frequency
Pharmacotherapy (e.g., prescription medications, OTC medications, supplements, herbals)		
Non-Pharmacologic Interventions (e.g., lifestyle modification, cardiac devices)		
Interprofessional Care Coordination		
Medication Reconciliation and Optimization		
Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)		
Patient and Caregiver Education and Counseling		

Please rate each knowledge area in the Therapeutics and Patient Management: Treatment Outcomes and Monitoring content domain according to its importance to cardiology pharmacy practice and the frequency of its use in cardiology pharmacy practice.

	Importance	Frequency
Therapeutic Targets and Endpoints		
Therapeutic and Physiological Monitoring		
Adverse Drug Events		
Drug Interactions		
Medication Adherence		

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

	Importance	Frequency
Population Health and Preventative Care		
Continuity of Care		
Clinical Practice Guidelines		
Anticoagulation Stewardship		
Quality Management and Process Improvement		
Literature Evaluation (e.g., research, statistics, applicability)		
Professional Practice Standards, Guidelines, and Regulations		
Ethics and Patient Advocacy		
Pharmacoeconomics		
Clinical Informatics		

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

BPS Cardiology Pharmacy (BCCP) Job Analysis Survey

Survey Respondent Demographics

What percentage of your professional practice is spent in cardiology 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?

How many years of experience do you have in cardiology pharmacy?

What is your primary practice setting?

- ◯ Academic Institution / Educational Institution
- ◯ Academic Medical Center or Hospital
- ◯ Children's Hospital
- ◯ Community Hospital
- ◯ Hospice
- ◯ Hybrid Academic-Community Hospital
- ◯ Integrated Health System / Accountable Care Organization
- ◯ Investigational Drug Service
- ◯ Outpatient Clinic / Ambulatory Clinic
- ◯ Pharmaceutical Industry
- ◯ Specialty Pharmacy
- ◯ Governmental Healthcare Facility / Veterans Affairs Hospital
- ◯ Other (please specify)

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

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

What percentage of your time do you spend managing patients with each disease state?

Anticoagulation	
Arrhythmias	
Atherosclerotic Cardiovascular Disease	
Cardiovascular Critical Care (e.g., stroke, shock, cardiopulmonary arrest, surgery)	
Dyslipidemia	
Heart Failure	
Hypertension	
Mechanical Assistance Devices	
Peripheral Arterial Disease	
Primary Prevention	
Pulmonary Hypertension	
Transplant	
Other	

BPS Cardiology Pharmacy (BCCP) 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	**Cardiovascular System**	**16%**
1A	Cardiovascular Functioning	6%
1A1	Anatomy and Physiology of the Cardiovascular System	
1A2	Etiology of Cardiovascular Disease	
1B	Cardiovascular Disease	10%
1B1	Risk Factors for Cardiovascular Disease	
1B2	Disease Progression of Cardiovascular Disease	
1B3	Common Comorbidities with Cardiovascular Disease	
2	**Therapeutics and Patient Management**	**57%**
2A	Patient Assessment	15%
2A1	Clinical Assessment	
2A2	Diagnosis and Diagnostic Testing	
2A3	Pharmacodynamics, Pharmacokinetics, and Pharmacogenomics	
2A4	Care Planning (e.g., shared decision-making, goals of care, expected treatment outcomes)	
2A5	Social Determinants of Health	
2B	Therapeutic Implementation	23%
2B1	Pharmacotherapy (e.g., prescription medications, OTC medications, supplements, herbals)	
2B2	Non-Pharmacologic Interventions (e.g., lifestyle modification, cardiac devices)	
2B3	Preventative Care	
2B4	Interprofessional Care Coordination	
2B5	Medication Reconciliation and Optimization	
2B6	Medication Delivery (e.g., routes of administration, delivery devices, anatomic alterations)	
2B7	Patient and Caregiver Education and Counseling	
2C	Treatment Outcomes and Monitoring	19%
2C1	Therapeutic Targets and Endpoints	
2C2	Therapeutic and Physiological Monitoring	
2C3	Adverse Drug Events	
2C4	Drug Interactions	
2C5	Medication Adherence	
3	**Professional Practice**	**27%**
3A	Quality of Care	15%
3A1	Population Health	
3A2	Continuity of Care	
3A3	Clinical Practice Guidelines	
3A4	Anticoagulation Stewardship	
3A5	Quality Management and Process Improvement	
3B	Practice Management	12%
3B1	Literature Evaluation (e.g., research, statistics, applicability)	
3B2	Professional Practice Standards, Guidelines, and Regulations	
3B3	Ethics and Patient Advocacy	

3B4	Pharmacoeconomics (e.g., drug shortages, P&T, staffing)
3B5	Clinical Informatics (e.g., order sets, EHRs, clinical decision support)