



Solid Organ Transplantation Pharmacy Content Outline

Definition and Target Audience

Solid Organ Transplantation Pharmacists provide evidence-based, patient-centered medication therapy management and care for patients throughout all phases of solid organ transplantation at all ages and in various healthcare settings.

Solid Organ Transplantation Pharmacists have the specialized knowledge and expertise needed to manage complex medication regimens unique to the solid organ transplantation population in addition to clinical and regulatory needs not encountered in any other pharmacy specialty. Solid Organ Transplantation Pharmacists are specially trained to design, recommend, implement, monitor, and modify pharmacotherapeutic plans to optimize outcomes. They review, analyze, and reevaluate multifaceted clinical and outcomes data in order to provide quality care and assess program, process, and protocol effectiveness. Finally, they provide education and counseling throughout the transitions of care.

Domains

1. Clinical Skills and Therapeutic Management (65% of examination)
2. Administration and Practice Development (15% of examination)
3. Information Management and Education (15% of examination)
4. Public Health (5% of examination)

Domain 1: Clinical Skills and Therapeutic Management (65%)

1. Evaluate patients for living donation or transplantation using appropriate assessment methods and resources in order to identify pharmacologic risks, contraindications, and other considerations.

Knowledge of:

- a. Organ-specific criteria for living donation
- b. Organ-specific criteria for transplant listing
- c. Pharmacologic risks (e.g., anticoagulation, drug interactions, adherence, intolerance)
- d. Non-pharmacologic risks (e.g., comorbid diseases, immunologic risk, social support)

2. Interpret pertinent health-related information in accordance with evidence, standards, and guidelines throughout all phases of transplant-related care in order to determine if and when modifications to therapy are warranted.

Knowledge of:

- a. Diseases leading to end-stage organ failure
- b. Common comorbid conditions
- c. Medication history
- d. Medication reconciliation
- e. Allergy and drug intolerance history
- f. Pertinent clinical data (e.g., laboratory and microbiologic data, pathology results)
- g. Immunologic risk
- h. Organ function
- i. Integrity of drug absorption, distribution, metabolism, and elimination processes

3. Individualize treatment plans in accordance with evidence, standards, and guidelines.

Knowledge of:

- a. Immunomodulation
- b. Evidence-based regimens for desensitization
- c. Evidence-based regimens for induction
- d. Evidence-based regimens for maintenance
- e. Evidence-based regimens for management of rejection
- f. Immunologic event monitoring
- g. Drug-related safety, efficacy, and tolerability monitoring
- h. Pre- and post-transplantation infections
- i. Pre- and post-transplantation malignancies
- j. Allograft-specific complications
- k. Non-immunologic post-transplantation complications
- l. Nonadherence
- m. Pharmacogenetics and pharmacogenomics
- n. Medication management in special populations

4. Facilitate continuity of care by communicating pertinent patient information during transitions of care in order to avoid medication-related errors and complications.

Knowledge of:

- a. Role and responsibilities of healthcare team members
- b. Errors during transition
- c. Challenges with transition between programs (e.g., pediatric to adult, one transplant center to another)
- d. Challenges with transition between settings (e.g., inpatient to outpatient, facility to facility)
- e. Challenges with co-management (e.g., multi-organ transplant recipients, community v. transplant providers)

5. Advocate for access to medications using prescription drug plans and other resources.

Knowledge of:

- a. Barriers in the prescription process (e.g., prior authorization, formulary)
- b. Prescription coverage
- c. Patient assistance programs (e.g., grants, free drugs, copay cards, vouchers)
- d. Role of specialty pharmacies in transplantation

6. Implement a plan to overcome patient-specific barriers to care using continuous assessment.

Knowledge of:

- a. Strategies for assessing patients' readiness and willingness to participate in their own care
- b. Strategies for assessing adherence
- c. Patient and caregivers' health literacy
- d. Cultural competence and how it may affect the care of patients (e.g., culture, belief systems)
- e. Humanistic factors (e.g., quality of life, end of life) and how they may affect the care of patients
- f. Barriers to care (e.g., language, vision/hearing impaired, support)
- g. Medical insurance plans and coverage (e.g., provider networks, ancillary services)

Domain 2: Administration and Practice Development (15%)

1. Establish sustained, collaborative, professional relationships with members of the interdisciplinary transplant team and consultant services in order to promote patient care across the continuum.

Knowledge of:

- a. Regulations, strategies, and resources surrounding collaborative practice agreements
 - b. Principles in establishing a scope of practice protocol
 - c. Identifying interprofessional roles and relationships
 - d. Strategies for implementing effective collaborative relationships
 - e. Strategies for communicating healthcare-related recommendations
 - f. Steps involved in continuity of care within healthcare systems
 - g. Appropriate documentation of patient care activities and recommendations in accordance with policies and guidelines
2. Establish institutional guidelines, policies, procedures, and formularies that are consistent with evidence, regulation, and/or current practice guidelines and standards in collaboration with other stakeholders in order to facilitate patient care.

Knowledge of:

- a. Evidence-based standards of care and clinical pathways
 - b. Cost effective treatment protocols and alternative and therapeutic interchange options
 - c. Considerations for evaluating the need for protocol development
 - d. Considerations for institutional drug use (e.g., formulary management, Pharmacy and Therapeutics Committee, special order drug systems)
 - e. Organizations, agencies, and accrediting bodies and their requirements (e.g., Centers for Medicare and Medicaid Services, United Network for Organ Sharing)
 - f. Policy and procedure utilization in practice settings
3. Participate in quality improvement activities in order to enhance the safety and effectiveness of medication-use processes in solid organ transplantation.

Knowledge of:

- a. Quality improvement opportunities, activities, and tools
 - b. Metrics for evaluating medication use
 - c. Medication safety principles pertinent to patients
 - d. Quality measures
4. Monitor compliance with guidelines, policies, procedures, and formularies in partnership with institutional leadership in order to identify shortcomings and implement performance improvement initiatives.

Knowledge of:

- a. Regulatory standards (e.g., Centers for Medicare and Medicaid Services, United Network for Organ Sharing/Organ Procurement and Transplantation Network, Scientific Registry for Transplant Recipients)
 - b. Metrics and tools (e.g., plan-do-study-act, root cause analysis, medication use evaluation)
 - c. Development and implementation of monitoring strategies
 - d. Methods used in performing data audits
 - e. Strategies for reporting data
5. Implement processes for cost effective care focusing on continuous quality improvement, patient safety, and outcomes in order to justify modifications in transplantation pharmacy services.

Knowledge of:

- a. Components of sustainable business models and related metrics (e.g., cost benefit analysis, cost effectiveness analysis, return on investment, clinical outcomes analyses)
- b. Continuous quality improvement processes

- c. Literature evaluating medication errors and patient safety (e.g., Institute of Medicine report, Beers criteria)
- d. Principles of medication use evaluation
- e. Process for reporting adverse drug reactions, medication errors, and incidents
- f. Quality measures

Domain 3: Information Management and Education (15%)

1. Evaluate biomedical literature with regard to study design, statistical analysis, and applicability of results to the solid organ transplantation population.

Knowledge of:

- a. Biomedical search strategies
- b. Implications of study design, methodology, and statistical analysis on generalizability
- c. Transplant study endpoints
- d. Clinical application and limitations of published data and reports

2. Influence the body of transplant knowledge for the purpose of improving patient outcomes and medication use, either at the institutional level or nationally.

Knowledge of:

- a. Institutional review board requirements
- b. Research study design
- c. Publication and review process
- d. Drug development and approval process

3. Educate solid organ transplant candidates, recipients, donors, and caregivers on issues related to medications and medication adherence.

Knowledge of:

Education-related considerations (e.g., age, health literacy, culture)

- a. Education-related techniques (e.g., teach-back, participatory)
- b. Risk factors for non-adherence
- c. Strategies for improving adherence
- d. Interviewing strategies
- e. Home monitoring
- f. Pregnancy and contraception
- g. Proper drug storage, handling, and disposal

4. Disseminate information regarding public health initiatives in order to promote health, safety, and wellness in transplant patients.

Knowledge of:

- a. Principles and practices of disease prevention (e.g., immunization, tobacco cessation)
- b. Clinical practice guidelines and national initiatives (e.g., Healthy People 2020)
- c. Clinical practice guidelines for health maintenance and screenings

5. Educate healthcare professionals, trainees, and other stakeholders concerning medication-related issues associated with the care of transplant patients.

Knowledge of:

- a. Pertinent literature, evidence-based treatment guidelines, and consensus statements
- b. Publications by professional societies (e.g., American Society of Health-System Pharmacists, The International Society for Heart and Lung Transplantation, American College of Clinical Pharmacy, American Society of Transplantation)
- c. Principles and methods for educating pharmacists, trainees, and other healthcare professionals on transplantation-related issues

- d. Risk evaluation and mitigation strategies

Domain 4: Public Health (5%)

- 1. Use population-level data to develop, implement, and assess practices or strategies for addressing health promotion and disease prevention.

Knowledge of:

- a. Immunization guidelines (e.g., Advisory Committee on Immunization Practices, Infectious Diseases Society of America, American Society of Transplantation)
- b. Principles and practices of wellness, disease prevention, and treatment (e.g., smoking cessation, cancer screening, sexually transmitted infections)

- 2. Provide information and guidance to the public regarding organ donation and allocation.

Knowledge of:

- a. Transplant disparities (e.g., age, race, distance from transplant center, socioeconomic)
- b. Allocation scoring systems
- c. Community outreach (e.g., dispelling myths surrounding donation, living donor education)
- d. Cultural competence