

2022 ACCP/ASHP Solid Organ Transplantation Pharmacy Preparatory Review Course

Learning Objectives

Transplant Immunology 1.25 hours

LO#1: Differentiate between components of innate and adaptive immunity.

LO#2: Review lymphocyte activation, differentiation and effect mechanisms.

LO#3: Discuss pathways of allorecognition, transplant rejection and injury.

LO#4: Assess immunologic risk of rejection.

LO#5: Describe pathways to immunologic tolerance of allograft.

Induction and Management of Acute Cellular Rejection 1.0 hour

LO#1: Outline the principles of induction immunosuppression and how these agents can be used for different organs.

LO#2: Compare and contrast the available induction agents; specifically focusing on mechanism of action, ease of administration, adverse events and economic impact.

LO#3: Evaluate the efficacy of induction therapy among the different organs.

LO#4: Design an evidence-based induction regimen centered on donor, recipient and transplant characteristics.

LO#5: Compare and contrast the agents available for the treatment of acute cellular rejection.

LO#6: Assess the optimal therapeutic options for management of acute cellular rejection.

Maintenance of Immunosuppression Part One 1.5 hours

LO#1: Differentiate between the pharmacokinetic profiles of immunosuppressive medication formulations utilized in solid organ transplantation.

LO#2: Select the appropriate method for therapeutic drug monitoring of immunosuppressive medications.

Maintenance of Immunosuppression Part One (Cont)

LO#3: Design an initial immunosuppression regimen for a solid organ transplant recipient utilizing a patient's pharmacogenomic data.

LO#4: Revise an immunosuppression regimen for a solid organ transplant recipient based on the presence of pertinent drug-drug interactions.

LO#5: Assess patient-specific data to identify immunosuppression-related adverse effects.

LO#6: Design an appropriate monitoring plan for immunosuppressive medications.

Kidney Transplantation 1.0 hour

LO#1: Evaluate effects of nonadherence on long-term allograft survival.

LO#2: Assess non-pharmacologic and pharmacologic risks of patients undergoing kidney transplant evaluation.

LO#3: Distinguish between absolute and relative contraindications to kidney transplant.

LO#4: Differentiate pathophysiology of and design management strategies for allograft specific complications.

LO#5: Design modifications to therapy that account for patient-specific factors, immunologic risk, and complications after kidney transplant.

LO#6: Assess barriers after kidney transplant and implement strategies to improve adherence.

Liver Transplantation 1.0 hour

LO#1: Describe diagnoses that may lead to referral for liver transplantation.

LO#2: Identify indications and contraindications for liver transplantation.

LO#3: Create a medication regimen for a liver transplant recipient taking into account immunologic risks and comorbid conditions.

LO#4: Summarize the presentation and management of common immunologic and non-immunologic complications after liver transplantation.

LO#5: Evaluate potential causes of medication non-adherence after liver transplantation.

Pancreas and Islet Cell Transplantation and Intestinal Transplantation 1.0 hour

Pancreas and Islet Cell

LO#1: Demonstrate an understanding for common complications of pancreas transplantation and develop strategies to prevent or treat these complications.

LO#2: Devise a monitoring strategy to evaluate exocrine and endocrine function after pancreas transplantation.

LO#3: Compare and contrast the advantages and disadvantages of pancreas and islet cell transplantation.

Intestinal

LO#1: Describe the etiologies of intestinal transplantation.

LO#2: List the current trends in immunosuppression for small bowel transplantation.

LO#3: Discuss the common complications observed after small bowel transplantation.

Heart Transplantation 1.0 hour

LO#1: Describe common indications that may lead to heart transplantation.

LO#2: Identify pre-transplant risk factors that may impact outcomes after heart transplantation.

LO#3: Describe heart techniques for rejection surveillance.

LO#4: Understand heart specific pathologic findings.

LO#5: List and discuss heart specific post-transplant complications and strategies for management.

Lung Transplantation 1.0 hour

LO#1: Describe diagnoses that may lead to end-stage lung disease and referral for lung transplantation.

LO#2: Identify indications, absolute contraindications, and relative contraindications for lung transplantation.

LO#3: Formulate a medication regimen for a lung transplant recipient, taking into account immunologic risks and needs, preventative needs, and comorbid diseases.

LO#4: Explain the objective testing used to evaluate lung allograft function.

Lung Transplantation (contd)

LO#5: Summarize the presentation and management of common immunologic complications after lung transplantation.

LO#6: Summarize the presentation and management of common non-immunologic complications after lung transplantation.

Maintenance of Immunosuppression Part Two 2.0 hours

Kidney

LO#1: Create an evidence-based maintenance regimen for a kidney transplant recipient that accounts for patient-specific factors.

LO#2: Evaluate the role of extended-release tacrolimus formulations and novel immunosuppression regimens.

Liver

LO #1: Evaluate maintenance immunosuppression regimens for liver transplant recipients that account for patient-specific factors.

LO#2: Design evidence based maintenance immunosuppression regimens for liver transplant recipients.

Pancreas and Islet Cell

LO#1: Design a maintenance immunosuppression regimen for the prevention of rejection after pancreas transplant.

LO#2: Design a maintenance immunosuppression regimen for the prevention of rejection after islet cell transplant.

Heart

LO#1: Describe common immunosuppression approaches in heart transplantation.

LO#2: Discuss alternate approaches to immunosuppression.

Lung

LO#1: Compare and contrast the benefit, risk, and role of each maintenance immunosuppressant medication in lung transplantation.

LO#2: Design evidence-based maintenance immunosuppression regimens for lung transplant recipients.

Infection Prevention and Management in Solid Organ Transplant Patients 1.25 hours

LO#1: Develop appropriate pre-transplant serologic testing recommendations and interpretation of these results.

LO#2: Identify risk factors associated with post-transplant infections and the epidemiology and timing of these infections.

LO#3: Design strategies to prevent post-transplant opportunistic infections, including prophylaxis regimens and monitoring parameters.

LO#4: Formulate treatment plans for bacterial, viral, and fungal infections in solid-organ transplant recipients.

LO#5: Develop monitoring plans for patients receiving antimicrobials, complete with management of adverse effects and intolerances.

Prevention and Management of Malignancy in Solid Organ Transplant Patients 1.0 hour

LO#1: Demonstrate the common pathogenesis of and risk factors for types of malignancy after solid organ transplant.

LO#2: Distinguish between the types of malignancy that are of increased risk before and after solid organ transplant.

LO#3: Assess preventative strategies for malignancy after transplantation.

LO#4: Diagram an overview of immunosuppression management in the setting of malignancy.

LO#5: Compare common treatment approaches to common malignancies after transplantation, including non-melanoma skin cancer, post-transplant lymphoproliferative disorder, and Kaposi's sarcoma.

Primary Care of the Solid Organ Transplant Patient 1.0 hour

LO #1: Apply general principles and practices of disease prevention to solid organ transplant recipients.

LO #2: Outline unique patient populations that require additional disease screening.

Primary Care of the Solid Organ Transplant Patient (Cont)

LO #3: Create an immunization plan for a solid organ transplant recipient in both the pre and post-transplant setting.

LO #4: Identify reputable resources for public education and awareness on organ transplantation including organ donation.

Special Considerations in Pediatric and Geriatric Transplant Populations 2.0 hours

Pediatrics

LO#1: Discuss practical differences of medication use in children with emphasis on pharmacokinetics, formulations, and monitoring of commonly used immunosuppressants.

LO#2: Describe the etiologic differences for organ disease and discuss associated complications after solid organ transplant in children.

LO#3: Design a pharmacotherapeutic treatment plan for pediatric patients undergoing intended ABO incompatible organ transplantation.

LO#4: Formulate an immunization plan for a pediatric organ transplant candidates.

Geriatrics

LO #1: Compare outcomes of transplant recipients by age group.

LO #2: Evaluate geriatric candidates for transplant based on guideline recommendations.

LO#3: Distinguish pharmacokinetic differences among geriatric transplant recipients.

LO#4: Design an immunosuppression regimen for a geriatric transplant recipient.

2022 ACCP/ASHP Ambulatory Care Pharmacy Preparatory Review and Recertification Course - Trial Design and Biostatistics 2.5 hours

LO#1: Describe hypothesis testing and state the meaning of and distinguish between p values and confidence intervals, and measures of central tendency and data spread.

LO#2: Define, compare, and contrast the concepts of internal and external validity, causation, association, bias, and confounding in trial design. Select strategies to eliminate or control for bias and improve internal and external validity.

LO#3: Compare and contrast the advantages and disadvantages of various study designs (e.g., prospective, retrospective, case-control, cohort, cross-sectional, randomized controlled clinical trials, systematic review, meta-analysis).

LO#4: Determine why a statistical test is appropriate or not appropriate, given the sample distribution, data type, and study design. Interpret statistical and clinical significance for results from commonly used statistical tests.

LO#5: Define and evaluate odds ratio, risk/incidence rate, relative risk, number needed to treat, number needed to harm, and other risk estimates.

Continuity of Care and Managing Transitions of Care in the Transplant Patient 1.25 hours

LO#1: Describe the role of the pharmacist in obtaining an accurate medication, allergy and immunization history and the importance of proper medication reconciliation in solid organ transplant recipients at all stages of the transplant process.

LO#2: Identify challenges in assessing readiness of a pediatric patient to transition to the adult transplant care team.

LO#3: Evaluate the unique role of a pharmacist in the transition of solid organ transplant recipients between healthcare settings as it relates to medication error reduction, cost avoidance, and hospital readmission.

LO#4: Summarize the common obstacles and potential solutions to proper medication adherence post-transplant including health literacy, cultural competence and language and sensory barriers.

LO#5: Differentiate between various medication access resources in solid organ transplant recipients.

Transplant Regulations and Performance Improvement 1.25 hours

LO#1: Review regulations for solid organ transplantation (SOT) programs.

LO#2: Compose policies and procedures for SOT pharmacists that are consistent with transplant regulatory requirements.

LO#3: Identify opportunities for SOT pharmacists to participate in Quality Assessment and Performance Improvement (QAPI) activities to enhance the safety and effectiveness of medication-use process in SOT.

LO#4: Evaluate compliance with institutional SOT guidelines in order to identify areas failing to meet expectations and implement performance improvement initiatives.

LO#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.

LO#6: Diagram involvement of SOT pharmacists in collaborative relationships with interdisciplinary transplant team to promote quality patient care across the continuum.

Transplant Resources, Patient Education and Transplant Study Endpoints 1.0 hour

Lo#1: List key government organizations and transplant societies that influence the practice of solid organ transplantation.

LO#2: Compare practice-defining guidelines within the field of solid organ transplantation.

LO#3: Assess patients' barriers to understanding their medication regimen and adapt education strategy to foster patient competency.

LO#4: Describe appropriate monitoring strategies for transplant medications requiring REMS participation.

LO#5: Formulate an appropriate contraceptive regimen for a female transplant recipient of childbearing age.

LO#6: Evaluate patient risk factors for non-adherence and implement a plan to improve compliance.

LO#7: Review transplant study end points used in the literature to establish efficacy of clinical intervention.