



**ISHLT ACADEMY  
CORE COMPETENCIES  
IN LUNG TRANSPLANTATION**

**TUESDAY, APRIL 10, 2018  
HERMES**

**7:55 AM – 5:45 PM**



**SCIENTIFIC PROGRAM COMMITTEE**

- CHAIR:** Lorriana Leard, MD, UCSF Medical Center, San Francisco, CA, USA  
**CO-CHAIR:** Göran Dellgren, MD, PhD, Sahlgrenska University Hospital, Goteborg, Sweden  
**CO-CHAIR:** Daniel Dilling, MD, Loyola University Medical Center, Maywood, IL, USA

**FACULTY**

- Göran Dellgren, MD, PhD, Sahlgrenska University Hospital, Goteborg, Sweden  
Daniel Dilling, MD, Loyola University Medical Center, Maywood, IL, USA  
Allan R. Glanville, MBBS, MD, FRACP, St. Vincent's Hospital, Sydney, Australia  
Kate Gould, FRCPath, Freeman Hospital, Newcastle Upon Tyne, United Kingdom  
Mark Greer, MB Bch, Hannover Medical School, Hannover, Germany  
Ramsey Hachem, MD, Washington University School of Medicine, St. Louis, MO, USA  
Matthew Hartwig, MD, Duke University Medical Center, Durham, NC, USA  
Marshall I. Hertz, MD, University of Minnesota, Minneapolis, MN, USA  
David Hormuth, MD, St. Mary's Medical Group, Indianapolis, IN, USA  
Lorriana Leard, MD, UCSF Medical Center, San Francisco, CA, USA  
Erika D. Lease, MD, University of Washington, Seattle, WA, USA  
Lianne G. Singer, MD, FRCPC, Toronto General Hospital, Toronto, ON, Canada  
Laurie D. Snyder, MD, Duke University Medical Center, Durham, NC, USA  
Sofya Tokman, MD, Norton Thoracic Institute, Phoenix, AZ, USA  
Geert M. Verleden, MD, PhD, University Hospital Gasthuisberg, Leuven, Belgium  
Robin Vos, MD, PhD, University Hospital Gasthuisberg, Leuven, Belgium

## COURSE SUMMARY

The Core Competency Course in Lung Transplantation will provide a detailed examination of the clinical practice of lung transplantation today. Through focused presentations with an emphasis on clinical practice, the course will provide historical context and cover candidate selection, donor management and organ procurement, post-transplant management and complications.

## PRACTICE GAPS

1. The technology available to support the clinical practice of lung transplantation has progressed significantly in the past seven years with advanced innovations available to support patients undergoing lung transplantation, to evaluate donor lungs, and to support patients in the immediate post-operative period. This course will address the application of these technologies in clinical practice.
2. Advanced understanding of the presentations of both acute and chronic allograft dysfunction has led to improved description and recognition of the signs of antibody mediated rejection, obstructive chronic lung allograft dysfunction and restrictive allograft syndrome that all specialists caring for lung transplant patients need to be able to recognize.
3. Clinicians involved in the care of lung transplant patients are seeking a comprehensive review of the available evidence and consensus opinion about the evaluation and management of lung transplant patients.

## TARGET AUDIENCE

While all members are invited to enroll, this course is primarily designed to benefit health care professionals who are in the early stages of their careers, are in training, are part of a new program, or who desire an update on the current state of the field. The information presented is intended to provide a strong foundation of the core competencies of lung transplantation, rather than as a detailed update for those who are already proficient in the field.

## EDUCATIONAL NEED

This course meets the practitioner's educational need for a concise review of clinical knowledge and essential professional skills to facilitate best practice of surgical and medical aspects involved in the care of patients during assessment as candidates and as recipients of lung transplantation.

## LEARNING OBJECTIVES

At the conclusion of this meeting, participants will have improved competence and professional performance in their ability to:

1. Explain in detail how to evaluate and list potential candidates for lung transplantation.
2. Discuss perioperative management of the donor, lung procurement and operative strategies including use of extracorporeal life support and ex-vivo lung perfusion.
3. Recognize the most common post-transplant complications, including immediate post-operative complications, acute and chronic allograft dysfunction, infections and other systemic complications.
4. Describe the immunosuppressive and preventative medication regimens utilized in lung transplant recipients, the rationale for their use and their potential complications.

## ACCREDITATION STATEMENT

The International Society for Heart and Lung Transplantation (ISHLT) is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to provide continuing medical education for physicians.

## CREDIT DESIGNATION STATEMENT

ISHLT designates this live activity for a maximum of *7.25 AMA PRA Category 1 Credits*.™ Physicians should claim only the credit commensurate with the extent of their participation in the activity.

## ANCC CREDIT

AMEDCO is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation.

This course is co-provided by AMEDCO and ISHLT. Maximum of 7.25 contact hours.

## DISCLOSURE

Current guidelines state that participants in CME activities must be made aware of any affiliation or financial interest that may affect the program content or a speaker's presentation. Planners, Faculty and Chairs participating in this meeting are required to disclose to the program audience any real or apparent conflict(s) of interest related to the content of their presentations or service as Chair/Planner. These disclosures will be distributed at the meeting. Additionally, all speakers have been asked to verbally disclose at the start of their presentation if a product they are discussing is not labeled for the use under discussion or is still investigational.

# SCIENTIFIC PROGRAM SCHEDULE

## 7:00 AM – 7:55 AM

REGISTRATION AND MORNING COFFEE

## 7:55 AM – 8:00 AM

### WELCOME AND OVERVIEW

**Lorriana Leard, MD**, UCSF Medical Center, San Francisco, CA, USA

## 8:00 AM – 9:00 AM

### SESSION 1: LUNG TRANSPLANTATION: GETTING FROM HERE TO THERE – HISTORY, CANDIDATE AND DONOR SELECTION

**Chair: Lorriana Leard, MD**

## 8:00 AM *History of Lung Transplantation*

**Marshall I. Hertz, MD**, University of Minnesota, Minneapolis, MN, USA

#### Teaching/Discussion Points:

1. Context and historic background for lung transplantation
2. Indications and expected outcomes in lung transplantation
3. Current challenges and limitations associated with lung transplantation
4. Utility of the ISHLT registry report and resources

## 8:15 AM *Lung Transplant Candidacy, Selection and Listing, Including Allocation Systems*

**Allan R. Glanville, MBBS, MD, FRACP**, St. Vincent's Hospital, Sydney, Australia

#### Teaching/Discussion Points

1. General and disease-specific considerations for lung transplant referral and evaluation
2. Appropriate and cost effective testing, cancer screening, vaccination, consultation and multi-disciplinary support of the lung transplant candidate
3. Importance of informed consent for transplantation, high risk donor acceptance and research participation
4. Current understanding of risks associated with anti-HLA antibodies, elevated panel reactive antibody screens, and desensitization therapies
5. Lung donor allocation systems around the world and their relationship to the urgent inpatient lung transplant evaluation

## 8:30 AM *Lung Allograft Donation and Procurement*

**Göran Dellgren, MD, PhD**, Sahlgrenska University Hospital, Goteborg, Sweden

#### Teaching/Discussion Points

1. Physiologic implications of donor brain death, basic pathophysiology and donor certification issues
2. Types of donors as relevant to lung transplantation (DBD, DCD)
3. Optimal donor management for lung allograft preservation
4. Procurement procedures and how to recognize possible adverse events
5. Options for allograft optimization including Ex Vivo Lung Perfusion (EVLV)

## 8:45 AM *Q&A with Panel*

## 9:00 AM – 10:00 AM

### SESSION 2: SURGICAL AND POST-OPERATIVE MANAGEMENT OF LUNG TRANSPLANT RECIPIENTS

**Chair: Göran Dellgren, MD, PhD**

## 9:00 AM *Surgical Options and Procedural Issues in Lung Transplantation*

**David Hormuth, MD**, St. Mary's Medical Group, Indianapolis, IN, USA

#### Teaching/Discussion Points

1. Principles and practice of size matching between donor and recipient
2. Options and choice of surgical incision
3. Technical aspects of surgical implantation including anastomotic techniques

## 9:15 AM *The Role of ECMO – To ECMO or not to ECMO, that is the Question!*

**Göran Dellgren, MD, PhD**, Sahlgrenska University Hospital, Goteborg, Sweden

#### Teaching/Discussion Points

1. Technical aspects of extracorporeal mechanical oxygenation (ECMO) and selection of peripheral vs. central, and veno-venous vs. venous-pulmonary vs. veno-arterial
2. Indications and contraindications for ECMO as a bridge to transplant
3. Indications for use of ECMO intraoperatively
4. Role of ECMO support after lung transplantation

**9:30 AM** *Surgical Complications and Post-OP Management after Lung Transplantation***Matthew Hartwig, MD**, Duke University Medical Center, Durham, NC, USA**Teaching/Discussion Points**

1. Differential diagnosis and treatment strategies for graft failure in the early postoperative period
2. Management of pleural complications after lung transplantation
3. Diagnostic and treatment strategies for bronchial, pulmonary artery and pulmonary venous complications
4. Potential cardiac complications (such as atrial fibrillation and pericardial effusions) and therapeutic approaches in post lung transplant recipients

**9:45 AM** *Q&A with Panel***10:00 AM – 10:30 AM**

COFFEE BREAK

**10:30 AM – 11:30 AM****SESSION 3: DEALING WITH REJECTION**Chair: **Daniel Dilling, MD****10:30 AM** *Acute Cellular Rejection (ACR)***Mark Greer, MB Bch**, Hannover Medical School, Hannover, Germany**Teaching/Discussion Points**

1. Clinical presentation of ACR
2. Detection, evaluation and diagnosis, including the role for surveillance bronchoscopy
3. Pathologic grading system for ACR
4. Clinical Implications of ACR

**10:45 AM** *Antibody Mediated Rejection (AMR)***Ramsey Hachem, MD**, Washington University School of Medicine, St. Louis, MO, USA**Teaching/Discussion Points**

1. Consensus definitions for AMR
2. Potential monitoring systems for assessment of Donor Specific Antibodies, histopathology changes and C4D staining
3. Therapeutic challenges

**11:00 AM** *Chronic Lung Allograft Dysfunction (CLAD)***Geert M. Verleden, MD, PhD**, University Hospital Gasthuisberg, Leuven, Belgium**Teaching/Discussion Points**

1. Current understanding of CLAD
2. Clinical phenotypes of obstructive vs. restrictive chronic lung allograft dysfunction
3. Potential therapeutic approaches
4. Role for re-transplantation in patients with CLAD

**11:15 AM** *Q&A with Panel***11:30 AM – 1:00 PM**

LUNCH BREAK

*(a box lunch is included in the registration fee)***1:00 PM – 2:00 PM****SESSION 4: MANAGING THE MEDS – IMMUNOSUPPRESSION AND THE SYSTEMIC EFFECTS**Chair: **Lorriana Leard, MD****1:00 PM** *Induction and Maintenance Immunosuppression***Daniel Dilling, MD**, Loyola University Medical Center, Maywood, Illinois, USA**Teaching/Discussion Points**

1. Options for induction therapy and potential complications
2. Evidence for the triple agent immunosuppression regimen that is used most commonly in lung transplant recipients
3. Classes of immunosuppression medication and the most common side effects
4. Monitoring of levels of the calcineurin inhibitors; appropriate range of levels
5. Genetic variants that may affect absorption and metabolism of immunosuppressive medications
6. Drug-drug interactions with the calcineurin inhibitors

**1:15 PM** *Hematologic Disorders Following Lung Transplant***Lorriana Leard, MD**, UCSF Medical Center, San Francisco, CA, USA**Teaching/Discussion Points**

1. Major causes of leukopenia post lung transplantation
2. Potential etiologies for thrombocytopenia
3. Reasons for anemia post lung transplantation
4. Treatment options for drug-induced cytopenias and thresholds for intervention



**1:30 PM** *Gastrointestinal Issues Post Lung Transplant***Matthew Hartwig, MD**, Duke University Medical Center, Durham, NC, USA**Teaching/Discussion Points**

1. Etiologies behind the common gastrointestinal symptoms patient have post lung transplantation
2. Different immunosuppressive and prophylactic medications that are often associated with gastrointestinal side effects and liver toxicity
3. Significance of GERD in lung transplant recipients and its association with BOS (chronic rejection)
4. Gastrointestinal issues that are important to Cystic Fibrosis patients who have undergone lung transplantation
5. Risk factors for bowel perforation and pneumatosis intestinalis post lung transplantation
6. Incidence, diagnosis and management of *C. Difficile* in post lung transplant patients

**1:45 PM** *Q&A with Panel***2:00 PM – 3:00 PM**  
**SESSION 5: BUGS AND THEIR DRUGS – PROPHYLAXIS, DIAGNOSIS AND MANAGEMENT OF INFECTIONS AFTER LUNG TRANSPLANT****Chair: Göran Dellgren, MD, PhD****2:00 PM** *Bacterial and Mycobacterial Infections in Lung Transplantation***Kate Gould, FRCPath**, Freeman Hospital, Newcastle Upon Tyne, United Kingdom**Teaching/Discussion Points**

1. Evaluation of immunity and pulmonary/non-pulmonary infections in the lung transplant candidate
2. Significance and evaluation of bacterial and mycobacterial infections in the lung donor
3. Impact of the surgical disruption of the normal pathways of innate lung immunity on the development of infection in the lung transplant recipient
4. Implications of donor derived infections

**2:15 PM** *Fungal Infections in Lung Transplant Recipients***Erika D. Lease, MD**, University of Washington, Seattle, WA, USA**Teaching/Discussion Points**

1. Role of antifungal prophylaxis, particularly in the context of geographic variance of endemic fungal infections
2. Epidemiology of aspergillus colonization vs. infection and review therapy
3. Emergence of more resistant fungal infections in solid organ transplant recipients
4. Prophylaxis and management of endemic fungal infections (*Coccidioides*, *Histoplasma*, etc.)

**2:30 PM** *Viral Pathogens from A to V (Adenovirus, CMV, EBV, HSV, RSV, and VZV)***Laurie D. Snyder, MD**, Duke University Medical Center, Durham, NC, USA**Teaching/Discussion Points**

1. CMV status, prophylaxis vs. preemptive therapy
2. CMV disease manifestations, therapeutic approach, resistance and prognosis
3. Significance of respiratory viral infections and their management
4. Management of viral infections such as Herpes Simplex Virus (HSV) and Varicella Zoster (VZV)

**2:45 PM** *Q&A with Panel***3:00 PM – 3:30 PM**  
COFFEE BREAK**3:30 PM – 4:30 PM**  
**SESSION 6: MALEVOLENT MALIGNANCIES****Chair: Daniel Dilling, MD****3:30 PM** *Skin Cancer in Lung Transplant Recipients***Sofya Tokman, MD**, Norton Thoracic Institute, Phoenix, AZ, USA**Teaching/Discussion Points**

1. Incidence of skin cancer in lung transplant recipients
2. Causes of increased risk for transplant patients
3. Skin cancer surveillance strategies and initial management
4. Treatment approaches specific to lung transplant recipients

**3:45 PM** *Post Transplant Lymphoproliferative Disease (PTLD) in Thoracic Transplantation*

**Laurie D. Snyder, MD**, Duke University Medical Center, Durham, NC, USA

**Teaching/Discussion Points**

1. Incidence of PTLT in lung transplant recipients
2. How to recognize and diagnose pulmonary and extrapulmonary presentations of PTLT
3. Role of Epstein Barr Virus (EBV) in PTLT
4. Priorities in management and first line treatment regimens

**4:00 PM** *Lung Cancer and Other Malignancies in Lung Transplant Recipients*

**Geert M. Verleden, MD, PhD**, University Hospital Gasthuisberg, Leuven, Belgium

**Teaching/Discussion Points**

1. Incidence of malignancies (that are not skin cancer or PTLT) in lung transplant recipients
2. Risk factors for certain types of malignancies and screening strategies for at risk patients (Cystic Fibrosis patients for GI malignancies, HPV positive patients for cervical/anal dysplasia)
3. Management strategies for lung cancers identified at time of transplant and lung cancers that develop in native lung
4. Management of immunosuppression regimens in patients with malignant disease

**4:15 PM** *Q&A with Panel*

**4:30 PM – 5:30 PM**  
**SESSION 7: LIFE AFTER TRANSPLANT**

**Chair: Lorriana Leard, MD**

**4:30 PM** *Management of the Metabolic Complications – Diabetes, Hypertension and Osteoporosis*

**Daniel Dilling, MD**, Loyola University Medical Center, Maywood, Illinois, USA

**Teaching/Discussion Points**

1. Metabolic consequences of prolonged immunosuppression therapy
2. Optimal management of diabetes mellitus following solid organ transplantation
3. Transplant specific issues regarding management of hypertension
4. Appropriate diagnostic and therapeutic management for osteoporosis

**4:45 PM** *Reproductive Health after Lung Transplantation – Contraception, Fertility and Pregnancy*

**Robin Vos, MD, PhD**, University Hospital Gasthuisberg, Leuven, Belgium

**Teaching/Discussion Points**

1. Implications of fertility and pregnancy in a lung transplant recipient, including risks to the transplant recipient, organ and fetus
2. Medical care considerations during pregnancy for lung transplant recipients
3. Literature regarding outcomes for pregnancies post-transplant
4. Family planning options for patients undergoing transplantation
5. Contraception recommendations and potential contraindications

**5:00 PM** *This is My Life – Outcomes and Quality of Life Post Transplant*

**Lianne G. Singer, MD, FRCPC**, Toronto General Hospital, Toronto, ON, Canada

**Teaching/Discussion Points**

1. Post-transplant outcomes
2. Health Related Quality of Life before and after lung transplant
3. Long term outcomes after lung transplantations
4. Determinants of Health Related Quality of Life (HRQOL) and potential interventions that could further improve HRQOL in lung transplant recipients

**5:15 PM** *Q&A with Panel*

**5:30 PM** *COURSE SUMMARY AND ASSESSMENT*

**Lorriana Leard, MD**, UCSF Medical Center, San Francisco, CA, USA

**5:45 PM** *ADJOURN*