OPTN Lung Transplantation Committee
Meeting Summary
August 14, 2025
Conference Call

Matthew Hartwig, MD, Chair
Dennis Lyu, MD, Vice Chair

Introduction

The Lung Transplantation Committee (Committee) met via Webex teleconference on 8/14/2025 to discuss the following agenda items:

1. Finalization of OASIM Research Questions
2. Massachusetts Institute of Technology (MIT) Policy Optimization

The following is a summary of the Committee's discussions.

1. OASIM Research Questions

The Committee reviewed and approved the final set of research questions to guide the Scientific Registry of Transplant Recipients (SRTR) in developing the thoracic organ allocation simulation model (OASIM). These questions aim to evaluate transplant access and outcomes across various candidate subgroups.

Summary of discussion

Decision #1: The Committee approved submitting a list of OASIM research questions to the SRTR to support development of thoracic OASIM.

Committee members discussed the proposed primary and secondary research questions, which included metrics such as transplant rate, waiting list mortality, post-transplant survival, and travel distance. Subgroup analyses were proposed for age, diagnosis, blood type, and prior living donor status.

A member with pediatric expertise raised a key point regarding pediatric transplant outcomes, suggesting stratification of post-transplant survival based on whether pediatric recipients received lungs from pediatric or adult donors. The member noted a recent decline in one-year survival rates among pediatric recipients and emphasized the need to explore donor age as a contributing factor. There was confirmation that this stratification would be added to the research questions, and potential limitations due to small sample sizes were acknowledged.

After a review period, the Committee expressed support for submitting the finalized questions to SRTR.

Next steps

SRTR will develop thoracic OASIM using the Committee's input; OASIM is estimated to be ready for the Committee to request simulation modeling around March 2026.

2. Massachusetts Institute of Technology Policy Optimization

Massachusetts Institute of Technology (MIT) researchers presented an introductory demonstration of their organ allocation policy optimization tools, including simulation dashboards and rating scale design methodologies. The presentation focused on how optimization can support equitable access by refining rating scales for biological disadvantages such as height and blood type.

Summary of discussion

No decisions were made.

Policy Optimization: Tools to support candidate biology work

The MIT team introduced a simulation model capable of rapidly evaluating tens of thousands of policy variations. They showcased a dashboard that allows users to adjust attribute weights and simulate outcomes, as well as a rating scale design tool that iteratively refines scoring functions to meet specific equity goals.

Committee members were particularly interested in how these tools could be applied to lung allocation, especially in designing rating scales that account for biological disadvantages. Several forms of rating scales were discussed:

- Separate rating scales for height and blood type
- Joint rating scales that consider both attributes simultaneously
- Multi-factor rating scales incorporating donor-recipient size matching

The Vice Chair asked whether all proposed rating scale forms could be evaluated before selecting a preferred model. MIT confirmed that all forms could be simulated and compared for impact.

The Chair and others emphasized the importance of interpretability, preferring rating scales based on raw height values over percent incompatibility tables. The Committee also discussed the potential use of predicted total lung capacity (PTLC) as a more accurate surrogate for chest cavity size, though concerns were raised about its limitations in pediatric and elderly populations.

Rating scale design discussion

The Committee engaged in a philosophical and technical discussion about rating scale design, focusing on how best to equalize access while accounting for clinical realities.

Members debated whether rating scales should aim to equalize access across height groups or chest cavity size, with general agreement that chest cavity size is the more clinically relevant factor. However, due to data limitations, height remains the most practical surrogate.

Some members emphasized the need to incorporate diagnostic group into rating scale design, noting that diseases like Chronic Obstructive Pulmonary Disease (COPD) and Idiopathic Pulmonary Fibrosis (IPF) affect chest cavity size differently. Members discussed a three-dimensional rating scale—incorporating blood type, height (or PTLC), and diagnostic group—would best reflect the complexity of biological disadvantages.

A member raised concerns about the limitations of PTLC formulas, noting that actual lung volumes in patients with advanced disease often differ significantly from predicted values. The member suggested allowing transplant centers to specify acceptable PTLC ranges for individual patients. A member with pediatric expertise added that ideal donor-recipient PTLC ratios vary by disease group and should be considered in modeling.

Despite limitations, the Committee generally supported using PTLC as a more informative metric than height alone, especially for adult candidates. Pediatric candidates may require alternative approaches due to the lack of validated PTLC formulas.

Next steps

The Committee will review initial simulation results in an upcoming meeting.

Upcoming Meetings

- September 11, 2025, teleconference, 5PM ET

Attendance

- **Committee Members**
  - Matthew Hartwig
  - Dennis Lyu
  - Marie Budev
  - Brian Keller
  - Ed Cantu
  - Heather Strah
  - Wayne Tsuang
  - Lara Schaheen
  - Josepha Tusa
  - Jackie Russe
  - Tina Melicoff
  - Jody Kieler
  - Stephen Huddleston
  - Jordan Hoffman
  - David Erasmus
- **HRSA Representatives**
  - None
- **SRTR Staff**
  - Maryam Valapour
  - Nicholas Wood
  - Maria Masotti
- **UNOS Staff**
  - Kelley Poff
  - Kaitlin Swanner
  - Sara Rose Wells
  - Susan Tlusty
  - Chelsea Hawkins
  - Samantha Weiss
  - Keighly Bradbrook
  - Tatenda G. Mupfudze
- Guest attendees
  - Thomas Athey, MIT
  - Eli Pivo, MIT