

# Title ; Evaluation of the Current Urgency-Based Lung Allocation System in Korea with Simulation of the Eurotransplant Lung Allocation Score

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## Abstract

### Purpose

Due to the shortage of lung donors relative to the number of patients waiting for lung transplantation (LTx), more than one-third of patients on the waitlist have died without receiving LTx in Korea. Therefore, the importance of fair and effective allocation policies has been emphasized. This study investigated the characteristics of the current urgency-based allocation system in Korea by simulating the Eurotransplant lung allocation score (ET-LAS) using a nationwide multi-institutional registry for LTx in Korea.

### Materials and Methods

This study used data from the Korean Organ Transplantation Registry (KOTRY), along with additional retrospective data for ET-LAS calculation. A total of 194 patients were included in this study between January 2015 and December 2019. The Korean urgency definition classifies an LTx candidate as having statuses 0–3 according to urgency. The ET-LAS was analyzed according to the Korean urgency status.

### Results

In total, 92 patients received lung transplants at status 0, 85 at status 1, and 17 at status 2/3. The ET-LAS showed a bimodal distribution with distinct peaks corresponding to status 0 and non-status 0. There was no significant difference in the ET-LAS among non-status 0 patients. In logistic and decision tree analyses, oxygen supplementation methods, particularly oxygen masks and high-flow nasal cannulas, were significantly associated with a high ET-LAS ( $\geq 50$ ) among non-status 0 patients.

### Conclusion

Simulation of the ET-LAS with KOTRY data showed that the Korean urgency definition may not allocate lungs by urgency, especially for patients in non-status 0; therefore, it needs to be revised.