



## LAS: practical information

The Lung Allocation Score (LAS) determines the ranking order in which offers are made to patients waiting for a lung transplant. According to this allocation policy, the patient with the highest LAS will be the first one to receive the lung offer. The score is constructed from estimates of each patient's medical urgency prior to transplantation and the probability of success after transplantation. Since the system is based on a 'net benefit' concept it will give priority to patients who are most urgently in need of a transplant and who are expected to receive the greatest benefit.

Since December 10, 2011, the allocation of donor lungs from Germany is based upon LAS. In addition, the international exchange of donor lungs between all Eurotransplant countries are based upon LAS. Since April 22, 2014, the allocation of donor lungs from the Netherlands is also based upon LAS.

### Consequences

As the international exchange of lung donors will be based upon LAS, all lung transplant centers are advised to apply for a LAS score for their patients.

If no valid LAS data are entered in the Thoracic Clinical Profile (TCP), the patient receives a LAS = 0. Hence, if the patient would have been eligible for the international donor (negative total balance between patient and donor country), the patient with a LAS = 0 will be ranked at the end of the list.

### How does it work?

In order to calculate a LAS, clinical information of each transplant candidate such as lab values, test results and disease diagnoses is required. This data is used in a formula to estimate a candidate's medical urgency and the probability of prolonged survival after transplantation. The results are used to calculate a score, ranging from 0 to 100, where a high score results in a high ranking.

### Data needed to calculate a LAS

Factor	Absolutely required to add a new candidate to waiting list	Zero score is assigned if data are missing	Value assigned if data are missing
Lung diagnosis	X		
Date of birth	X		
Height and weight	X		
Diabetes			No diabetes
Supplemental oxygen			0 L
6 MWT			46 m
PAPsys			20 mm Hg
PAPmean			15 mm Hg
PCWP			5 mm Hg

FVC (% pred)		150
Serum creatinine		10 mg/dl
Functional status	X	
Assisted ventilation	X	
PCO2		40 mm Hg

In addition, the Eurotransplant Thoracic Advisory Committee (EThAC) has decided that the following data must also be submitted as this will enable Eurotransplant to further study a future adaptation of the LAS system: bilirubin, duration of ventilation, coagulopathy, extracorporeal support, 6MWT\* end-saturation.

### Up-to-date data and tests

The data or tests need to be up to date in order to be accepted for calculating a LAS score. Data for high LAS patients should not be older than 3 days and data for low LAS patients should not be older than 7 days.

### LAS types

Type	Score	Valid for	Audit?
Low LAS	0-50	90 days (Germany) 180 days (all other countries)	Original data will be checked to a random audit schedule (except for the Netherlands). A notification in TCP will appear if your patient was selected for this audit
High LAS	≥ 50	14 days	Original data from all patients will be checked. A notification in TCP will appear that data from your patient will be audited
Exceptional LAS (1)		56 days	
Estimated value (2)			
Approved Combined Organ (3)			

Evaluation by the Review Board

#### 1) Exceptional LAS

In rare cases it might occur that the calculated LAS does not reflect the perceived idea of transplant benefit for a particular transplant candidate. In these cases, it is possible to apply for an exceptional LAS. This can be done by proposing an alternative LAS value accompanied with a detailed description of the underlying reasoning. Every proposal for an exceptional LAS value will be evaluated by the LAS Review Board. In case the auditors agree with the suggested exceptional LAS value, the value will then be assigned to the patient. In case the auditors disagree, the requesting center is asked to propose a different exceptional LAS value, which will thereafter be evaluated by the Review Board.

## **2) Estimated value (six-minute walk test [6-MWT])**

If a patient cannot perform a 6MWT, the transplant center can suggest an estimated value for this test. The Review Board will evaluate these cases in a similar way as described for the exceptional LAS values.

## **3) Approved Combined Organ (ACO)**

Patients listed for lung(s) in combination with a liver, pancreas or intestine have to apply for an ACO status. As an integral part of the application for this ACO status an exceptional LAS value can be requested in case the calculated LAS is not deemed appropriate.

These ACO candidates will all be evaluated by the Review Board according to the procedure described above.

## **Pediatric patients**

Children <12 years, on the waiting list for a lung transplant in Eurotransplant, receive a LAS of 100. It is not necessary to enter a request for these children until their 12<sup>th</sup> birthday.

## **Requesting procedures**

If a new patient is registered on the lung transplant waiting list, the registration wizard in ENIS will automatically send you to TCP in order to enter a LAS request.

For patients, already on the lung transplant waiting list, please go to TCP via the Eurotransplant member site (Applications/Thoracic Clinical Profile), or via the buttons 'Thoracic Clinical Profile' in the ENIS Organ/Lung screens in order to enter a LAS request.

## **Requesting procedures/ Monitoring LAS and onwards**

- LAS requests will be visible in your work list in TCP.
- Enter requests for exceptional LAS, estimated value and ACO (only ACO-lung) in TCP.
- TCP will remind you to update a LAS request, by showing them in your work list, in the column 'Due Date' (same as you are used to from the HU)
- TCP will remind you to enter a LAS request for a child that is approaching its 12<sup>th</sup> birthday