

# An observational study of Donor Ex Vivo Lung Perfusion in UK lung transplantation: DEVELOP-UK

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**Disclaimer:** This report contains transcripts of interviews conducted in the course of research and contains language that may offend some readers.

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## Plain English summary

### Ex-vivo lung perfusion for lung transplant

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## Plain English summary

**D**onor lungs are frequently found to be unsuitable for transplantation. Ex vivo lung perfusion, known as EVLP, is a process that involves circulating a nutrient solution through the lungs, and attaching them to a ventilator machine once they have been removed from the donor. EVLP allows unsuitable donor lungs to be assessed outside the body to see if their function can be improved to make them suitable for transplantation.

The Donor Ex Vivo Lung Perfusion in UK lung transplantation study was designed to test if EVLP could safely increase lung transplant activity at an acceptable cost to the NHS. The aim was to find out if patients transplanted with a perfused donor lung were as likely to survive for 1 year after surgery as those receiving standard donor lungs. A total of 53 donor lungs were assessed ex vivo and 18 were transplanted. Twelve patients (67%) were alive after 1 year, compared with 80% of 184 patients who received standard donor lungs.

Patients who received an EVLP transplant had longer intensive care stays and needed more specialist support of the lungs, but recovered at a similar time to the standard transplant group. A lung transplant performed using perfused lungs costs about £35,000 more than a standard transplant. In addition to the type of transplant, an important determinant of cost was quality of life when an individual joined the waiting list. Those who received perfused lungs waited less time for a transplant, and patients felt that this was an acceptable technology to use. An exploratory model estimated the cost-effectiveness, and the results suggested that incorporating EVLP lung transplants into the NHS lung transplant service would not be cost-effective, as we found that the rate of converting lungs from unsuitable to suitable for transplant was low and that the rate of complications after transplantation was high.

The deaths that occurred after EVLP were not directly related to the perfusion process; they were due to recognised complications that can occur in any lung transplant patient. The small number of patients transplanted with perfused lungs compared with the number who received standard lungs limits conclusions, but the technique did improve access to lung transplant at an increased cost.

Further research is needed to improve the way in which suitability of donor lungs for EVLP reconditioning is decided and to assess why there is higher risk after transplanting EVLP donor lungs.



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