

2.09 A Micro-Costing Analysis of Lung Volume Reduction Surgery from a National Tertiary Referral Centre

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Background: Lung volume reduction surgery (LVRS) is a clinically effective palliation procedure for chronic obstructive pulmonary disease (COPD) patients. LVRS has recently been commissioned by NHS England. In this study, a costing model was developed to analyse cost and resource implications of different LVRS procedures.

Methods: Three pathways were defined by their surgical procedures: bronchoscopic endobronchial valve insertion (EBV-LVRS), video-assisted (VATS-LVRS), and robotic-assisted LVRS (RATS-LVRS). The costing model considered use of hospital resources from the LVRS decision until 30-days after hospital admission. The model was calibrated with data obtained from an observational study, electronic health records, and expert opinion.

Results: VATS-LVRS was associated with the lowest cost at €12,896 per patient (Table 1).

Conclusions: In the future, service commissioning agencies, hospital management and physicians can use this framework to determine their modifiable resource use (composition of surgical teams, use of staff and consumables, planned length of stay, and revision rates for EBV-LVRS) and to assess the potential cost implications of changes in these parameters.

Keywords: Cost-analysis, Lung volume reduction surgery, chronic obstructive pulmonary disease

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Mean cost per patient for different surgical modalities (2021-Euros)

<i>Resources</i>	<i>EBV - LVRS</i>	<i>VATS - LVRS</i>	<i>RATS - LVRS</i>
<i>Staff cost</i>	844	1,435	1,642
<i>Consumables cost</i>	7,554	3,980	4,093
<i>Capital cost</i>	46	37	934
<i>Post OP cost</i>	3,147	4,062	3,994
<i>Complication cost*</i>	4,006	3,381	2,642
<i>Total cost per case</i>	15,598	12,896	13,305

Table 1: Mean cost per patient by cost driver and total

**Complications included any medical condition which would lead to increased LOS, re-intervention in theatre, re-admission and for EBV-LVRS revision rates.*