

Thoracic surgery service specification

Evidence Synthesis and recommendations for the NHS England Clinical Panel

Recommendation

That the Clinical Panel accepts in full the CRGs recommendation in the specification that all thoracic units should aspire to carry out at least 150 primary lung cancer resections per year, and that no unit should provide a lung cancer surgical service where less than 70 primary lung cancer resections are provided per year. This recommendation aligns with the best available clinical evidence relating to volume-outcome generalizable to clinical settings in England.

1. Background

Following the Thoracic CRG meeting in September 2015, it was agreed that PHE would undertake an evidence synthesis to ascertain the level and scope of current clinical evidence relating to volume-outcome for primary lung resection and other procedures set out in the thoracic specification.

2. Methods

A PICO was developed aligning with the CRGs draft specification and procedure terminology. PHE then searched NICE, MEDLINE, EMBASE, NICE Evidence, NHIR Horizon Scanning centre, NHIR journals library, and Google for relevant papers and references. A full list of results and search strategy can be found in Appendix 1. Search results and papers were screened by the Public Health Lead for the thoracic CRG to remove duplicates and assess key studies.

3. Results

A total of 99 references were identified (Appendix 1) following exclusion of a large number of papers relevant to procedures out of the scope of this specification 32 references were included in the evidence synthesis summarised in Appendix 1. Duplicate papers were also excluded. A large proportion of the papers included were either focussed on generic volume-outcome within surgery, specific procedures in the context of an individual high volume centres (often focussed within international settings).

Table 1 identifies 13 papers which incorporate papers of potential greater clinical relevance to the question relating to lung cancer or thoracic centre outcomes, and in the case of one specific paper, the situation in England based on linked cancer registry and Hospital Episode statistics data. This paper, Luchtenborg et al (2014) is the study cited in the service specification to support the recommendation relating to numbers of primary lung resections.

Table 1. Study type and key references (excluding case series results and clinical guidelines)

Study type	Key references
Systematic Review	Von et al (2012), study reports high volume benefits in relation to post-op mortality, but no significant differences in survival differences.
Generalisable Epidemiological study	Luchtenborg et al (2014). Concludes that high procedure volume is strongly associated with improved survival after lung cancer surgery. Under 70 procedures per centre per year statistically significantly worse outcomes. >150 procedures significantly improved outcomes. Between 70-150 non-significant differences. Improved outcomes remain even after adjusting for complexity and high risk patients. Magnitude of association was greatest in the early postoperative period.
Other key volume outcome references for lung resection (<i>et al</i> unless otherwise specified)	<p>n=8 David (2015), Wakeman (2015), Smith (2015), Al Shahap (2015), Falcoz (2014), Sartipy (2014), Park (2012), Kozower (2012)</p> <p>Abstract review provides some assurance in relation to conclusions between volume and outcome for primary lung resections.</p> <p>However, they do not provide the robust surgical activity analysis which is generalizable to England settings as per the data presented in Luchtenborg et al.</p>
Other key volume-outcome generic references	Pieper (2013), Reames (2014), Anderson (2014)

**Public Health Lead, Cancer Programme of Care, NHS England
February 2016**