



Royal College  
of Physicians



Society for Cardiothoracic Surgery  
in Great Britain and Ireland

# National Lung Cancer Audit

## Lung cancer consultant outcomes publication 2016

(for the 2013 audit period)

In association with:



The University of  
Nottingham

UNITED KINGDOM • CHINA • MALAYSIA



HQIP

Healthcare Quality  
Improvement Partnership

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The Society for Cardiothoracic Surgery in Great Britain and Ireland (SCTS) was founded in 1934. A self-funding organisation, it is the representative body for cardiac and thoracic surgery in the United Kingdom and Ireland. The Society has pioneered the collection and publication of surgical outcomes data. It has maintained and published a registry of thoracic surgery since 1980 through a network of audit leads in each thoracic surgical unit. SCTS currently contributes to national audits in both children's and adult heart surgery and lung cancer surgery.

### **Healthcare Quality Improvement Partnership**

The *Lung cancer consultant outcomes publication* for England is commissioned by the Healthcare Quality Improvement Partnership (HQIP) as part of the National Clinical Audit Programme (NCA). HQIP is led by a consortium of the Academy of Medical Royal Colleges, the Royal College of Nursing and National Voices. Its aim is to promote quality improvement, and in particular to increase the impact that clinical audit has on healthcare quality in England and Wales. HQIP holds the contract to manage and develop the NCA Programme, comprising more than 30 clinical audits that cover care provided to people with a wide range of medical, surgical and mental health conditions. The programme is funded by NHS England, the Welsh government and, with some individual audits, also funded by the Health Department of the Scottish Government, DHSSPS Northern Ireland and the Channel Islands.

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| Target audience      | General public; lung cancer patients, their families and their carers; NHS staff in lung cancer multidisciplinary teams; hospital managers and chief executives; commissioners; lung cancer researchers.   |
| Description          | This is the second lung cancer consultant outcomes publication on individual activity of surgeons or their specific contribution to lung care. The data relates to patients diagnosed with lung cancer who underwent surgery during the period between 1 January and 31 December 2013. |
| Related publications | National Lung Cancer Audit annual reports: <a href="http://www.rcplondon.ac.uk/NLCA">www.rcplondon.ac.uk/NLCA</a>  |
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Thank you to all the lung cancer teams that have contributed data to the audit; without your considerable efforts, this report would not be possible.

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## **Foreword**

Despite many advances in new lung cancer treatment, surgery remains the first choice of treatment for patients with early stage disease who are fit enough to have an operation. The number of operations performed for lung cancer has increased significantly since 2005, which reflects the enthusiasm of the thoracic surgical units in England to offer this potentially curative treatment to more patients than ever before. On this background, it is extremely reassuring that this report demonstrates very high levels of patients surviving their operations, which does not differ significantly between units despite the increased number of operations performed.

The National Lung Cancer Audit team is committed to working together with the Society for Cardiothoracic Surgery in Great Britain and Ireland to enhance the collection and analysis of data to allow future reports to include additional indicators of quality, together with adjustment that takes into account the casemix of lung cancer patients seen in different parts of the country. By doing this we aim to improve the quality of the audit and its usefulness to clinical teams in understanding their own performance, which we hope will increase the number of successful lung cancer operations even further, while maintaining the current high levels of post-operative survival.

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## Introduction

The consultant outcomes publication is an NHS England initiative, managed by the Healthcare Quality Improvement Partnership (HQIP), to publish quality measures at the level of individual consultant doctor using national clinical audit and administrative data. The aims of publishing these results are to:

- reassure patients that the quality of clinical care is high
- assist patients in having an informed conversation with their consultant or GP about the procedure or operation they may have
- provide information to individuals, teams and organisations to allow them to monitor and improve the quality of the clinical care they provide locally and nationally.

This publication summarises the outcomes of individual consultant thoracic and cardiothoracic surgeons who carry out surgery for lung cancer in England. It has been prepared from data collected annually by the National Lung Cancer Audit (NLCA) in collaboration with the Society for Cardiothoracic Surgery in Great Britain and Ireland (SCTS).

This is the second report on individual activity of surgeons or their specific contribution to lung cancer care. The data relates to patients diagnosed with lung cancer who underwent surgery during the period between 1 January and 31 December 2013.

## Outcome measures

The following outcomes are reported for surgeons and their hospitals:

- the number of operations carried out by all the specialist hospitals that provide surgery for lung cancer
- the names of the consultant surgeons and how many operations each surgeon completed
- the proportion of patients that survive at 30 days and 90 days after their operation.

## Resection rates

Unfortunately, it has not been possible to calculate resection rates for this report. The resection rate for lung cancer is the number of operations performed by a surgical unit expressed as a proportion of the lung cancer population served by that unit.

A surgical unit's resection rate might affect its survival rates, for example if the unit operates on particularly high-risk or complex patients. This is therefore an important measure of quality and is key to ensuring that surgical centres continue to operate on as many lung cancer patients as possible.

We plan to include this indicator in the next report which will relate to patients treated in 2014. Surgical resection rates for all hospitals in England are reported in the NLCA annual reports which are available via the RCP website: [www.rcplondon.ac.uk/NLCA](http://www.rcplondon.ac.uk/NLCA).

## Background

### The NLCA

The NLCA was initiated in 2004 with the aim to provide information for lung cancer diagnosis and treatment. It is the most comprehensive audit of lung cancer anywhere in the world and it is estimated that over 98% of patients with lung cancer in England are captured by the audit process for analysis. NHS hospitals are expected to submit the details for all lung cancer patients, including patients undergoing lung cancer surgery, to the NLCA. Further information linking these details to individual surgeons is collected from each surgical unit. The surgical unit also has the opportunity to check that the data set are accurate before publication. This work is facilitated by collaborative working between the NLCA and SCTS.

### Organisation of lung cancer services

Treatment plans for lung cancer patients are discussed and agreed by lung cancer multidisciplinary teams (MDTs) which are present at every acute hospital in England. Due to the complexity of the surgery and after-care required, lung cancer surgery is performed in specialist thoracic and cardiothoracic surgical units. In 2013 there were 28 such hospitals in England (see appendix 1).

### Lung cancer treatment

Treatment plans for lung cancer patients are based on four key factors:

- 1 The type of lung cancer found on biopsy. Surgery is generally recommended for patients with a type of lung cancer called non-small cell cancer.
- 2 The extent of disease (stage) at presentation. Unfortunately, approximately two-thirds of lung cancer patients present with lung cancer that has already spread outside of the lung which means it is not possible to remove all of the cancer by an operation. Surgery is the first choice of treatment for patients who present with early stage lung cancer as it offers the best chance of a cure.
- 3 The presence of other serious diseases, in addition to lung cancer. Lung cancer patients often have diseases such as emphysema and heart disease, which means that they may not be fit enough to cope with major lung surgery.
- 4 Patient preference. Some patients decide that they do not wish to have a certain form of lung cancer treatment, including surgery. Lung cancer multidisciplinary teams will always support patients in the decision-making process and respect the final decision that a patient makes regarding their treatment.



## Understanding the data

The results are divided into the following three areas of activity and outcomes for patients presenting with lung cancer in the 12-month period between January and December 2013.

### Surgical data

- Total number of operations for lung cancer and type of operation
- The names of the surgeons working in each surgical unit and the numbers of operations per surgeon (this is available online at [www.nhs.uk](http://www.nhs.uk) and <http://scts.org/patients/thoracic/data.aspx>).
- 30-day and 90-day survival after lung cancer surgery for each unit.

### 30 and 90 survival rates

These survival figures have been produced for surgical units, not for individual surgeons. This is because there is no reliable method currently available for taking into account the different casemix of patients that individual surgeons operate on. Publishing unadjusted survival data for individual surgeons are likely to demonstrate differences due to patient factors, as opposed to the operation itself.

Surgical units often work as a team, perhaps with some members specialising in more advanced tumours or more complex surgery. For these reasons, we believe the best assessment of the quality of care is to look at the results of the whole team or unit combined.

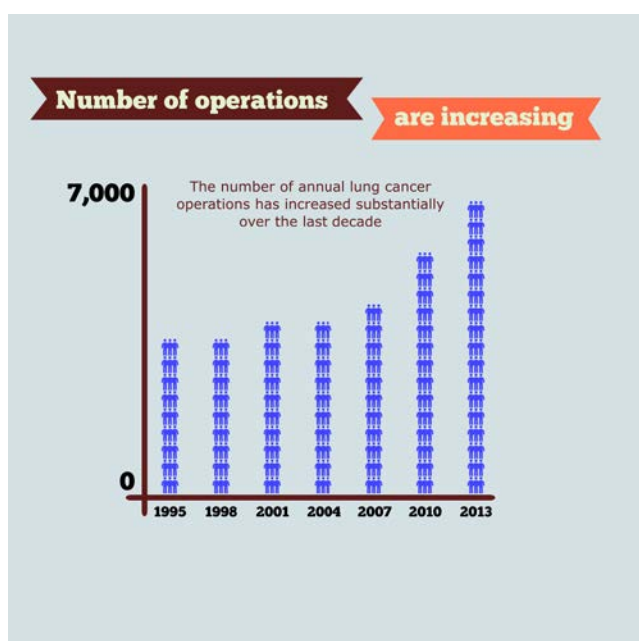
## Results

### Total number of operations for lung cancer

According to the NLCA, 4,389 lung cancer patients in England had surgery for lung cancer in 2013. The data were returned to surgical units for validation. The surgical units reviewed the data against their own records and returned 4,947 patient records (three records for one patient and two records for 37 patients, giving a total of 4,986 records). After exclusions, 4,895 records for 4,870 patients were included in the final dataset for publication.

The number of lung cancer operations has increased over the last decade. The following chart uses data from the whole of the UK and Ireland, collected by the SCTS thoracic registry project. The numbers are therefore higher than the LCCOP figures, which apply only to operations within English NHS hospitals.

**Figure 1: Changes in number of lung cancer operations**



### Types of lung cancer operation performed in 2013

The proportion of surgical operation type is shown in table 1. The vast majority of operations performed were to remove part of a lung (wedge, segment or lobe). Only a very few operations were performed to remove the whole lung (pneumonectomy) as this is a much bigger operation which can have a significantly greater impact on patients.

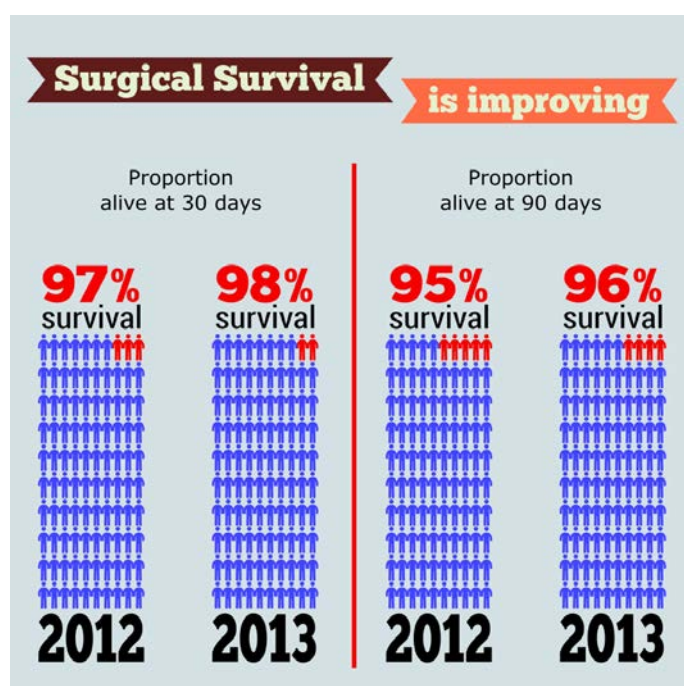
**Table 1: Types of lung cancer operation performed in 2013**

| Type of surgery   | Percentage |
|---|------------|
| Bilobectomy / lobectomy / sleeve resection                      | 75.9%      |
| Wedge and multiple wedge resection / segmental resection        | 16.7%      |
| Carinal resection / lung resection with resection of chest wall | 1.2%       |
| Pneumonectomy   | 5.8%       |
| Other open resection on lungs                                   | 0.4%       |

### 30 and 90 day survival rates

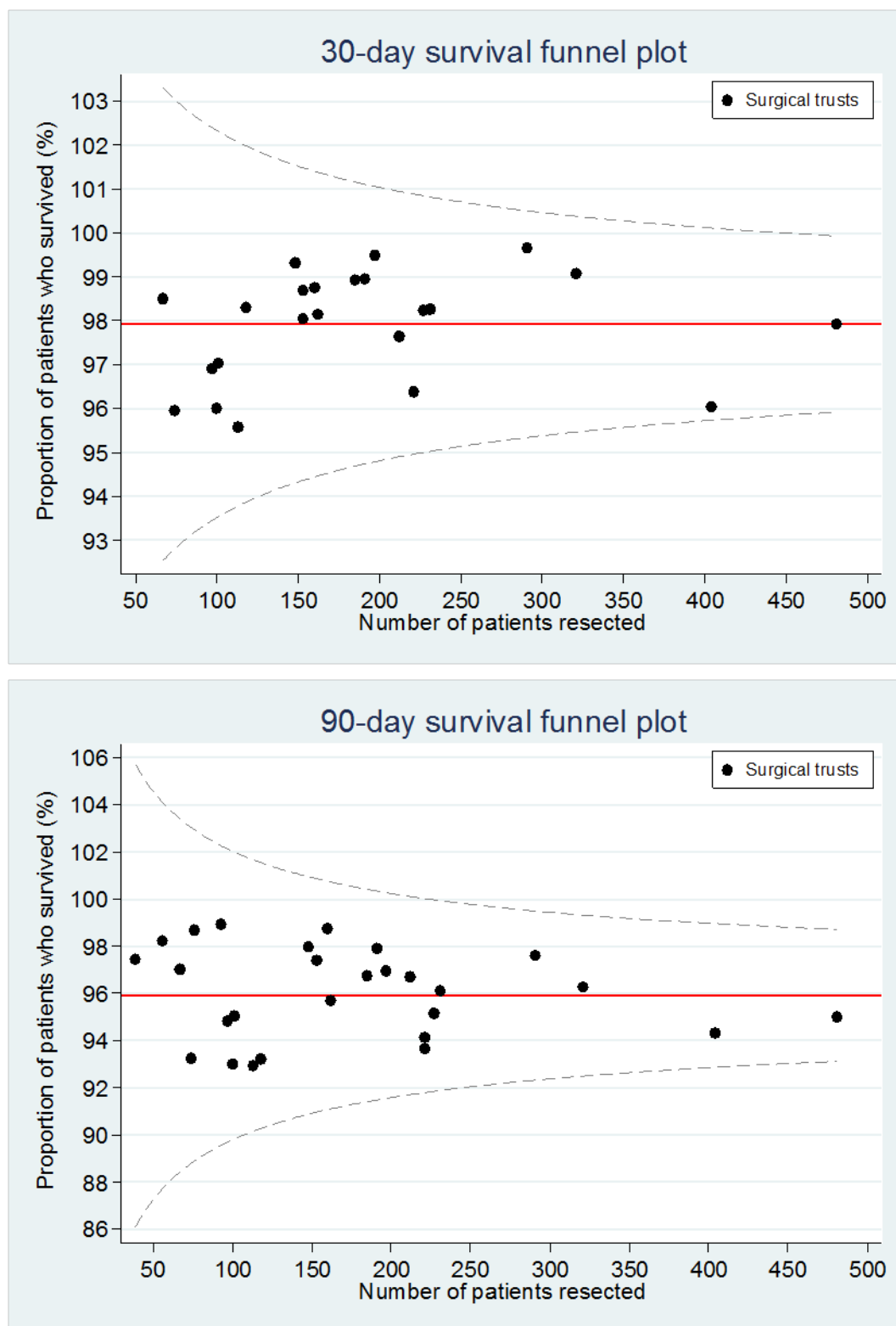
Results show that survival rates following lung cancer surgery in England are very high. 98% of patients are alive at 30 days and 96% are alive at 90 days following surgery. These results have improved since our last report (figures 1 and 2). Changes in peri-operative care, for example adoption of enhanced recovery pathways, and changes in the kind of operations performed might be contributing to this improvement.

**Figure 2:** Changes in 30 and 90 day survival



Survival rates were similar across all surgical units. Figure 3 shows that all units are within expected levels of survival both at 30 and 90 days.

**Figure 3: 30 and 90 day post-operative survival by surgical unit.** The dotted lines signify the level of survival that would be outside the expected range. The funnel plot does not include units with 100% survival.



Detailed results, listed by hospital trust, are available at MyNHS and NHS Choices: [www.nhs.uk](http://www.nhs.uk) and the SCTS website: <http://scts.org/patients/thoracic/data.aspx>



## Appendix 1: Surgical units in England

| Trust code | Hospital  | NHS Trust  |
|------------|---|--|
| R1H        | St Bartholomew's Hospital                               | Barts Health NHS Trust                           |
| RDD        | Basildon University Hospital                            | Basildon and Thurrock University Hospital NHS FT |
| RXL        | Blackpool Victoria Hospital                             | Blackpool Teaching Hospitals NHS FT              |
| RJ1        | Guy's Hospital  | Guy's and St Thomas' NHS FT                      |
| RR1        | Heartlands Hospital                                     | Heart of England NHS FT                          |
| RWA        | Castle Hill Hospital                                    | Hull and East Yorkshire Hospitals NHS Trust      |
| RYJ        | Hammersmith Hospital                                    | Imperial College Healthcare NHS Trust            |
| RR8        | St James's Hospital                                     | Leeds Teaching Hospitals NHS Trust               |
| RBQ        | Liverpool Heart and Chest Hospital                      | Liverpool Heart and Chest NHS Foundation Trust   |
| RM1        | Norfolk and Norwich University Hospital                 | Norfolk and Norwich University Hospitals NHS FT  |
| RX1        | Nottingham University Hospitals NHS Trust – City Campus | Nottingham University Hospital NHS Trust         |
| RTH        | John Radcliffe Hospital                                 | Oxford University Hospitals NHS Trust            |
| RGM        | Papworth Hospital                                       | Papworth Hospital NHS FT                         |
| RK9        | Derriford Hospital                                      | Plymouth Hospitals NHS Trust                     |
| RT3        | Royal Brompton Hospital                                 | Royal Brompton and Harefield NHS FT              |
| RT3        | Harefield Hospital                                      | Royal Brompton and Harefield NHS FT              |
| RH8        | Royal Devon and Exeter Hospital (Wonford)               | Royal Devon and Exeter NHS FT                    |
| RHQ        | Northern General Hospital                               | Sheffield Teaching Hospitals NHS FT              |
| RTR        | The James Cook University Hospital                      | South Tees Hospitals NHS FT                      |
| RJ7        | St George's Hospital (London)                           | St George's Healthcare NHS Trust                 |
| RTD        | Freeman Hospital  | The Newcastle Upon Tyne Hospitals NHS FT         |
| RL4        | New Cross Hospital                                      | The Royal Wolverhampton NHS Trust                |
| RRV        | University College Hospital                             | University College London Hospitals NHS FT       |
| RA7        | Bristol Royal Infirmary                                 | University Hospital Bristol NHS FT               |
| RJE        | Royal Stoke University Hospital                         | University Hospital of North Midlands NHS Trust  |

|     |                                |  |
|-----|--------------------------------|--|
| RM2 | Wythenshawe Hospital           | University Hospital of South Manchester NHS FT           |
| RHM | Southampton General Hospital   | University Hospital Southampton NHS FT                   |
| RKB | University Hospital (Coventry) | University Hospitals Coventry and Warwickshire NHS Trust |
| RWE | Glenfield Hospital             | University Hospitals of Leicester NHS Trust              |

## Appendix 2: Glossary

|   |   |
|---|---|
| <b>Biopsy</b>                             | Removal and examination of tissue, usually microscopic, to establish a precise (pathological) diagnosis.  |
| <b>Carinal resection</b>                  | Removal of the part of the wind pipe at the point that it divides into the left and right lungs.  |
| <b>Casemix</b>                            | Refers to the different characteristics of patients seen in different hospitals (for example age, sex, disease stage, social deprivation and general health). Knowledge of differing casemix enables a more accurate method of comparing quality of care ( <b>casemix adjustment</b> ). |
| <b>Casemix adjustment</b>                 | A statistical method of comparing quality of care between organisations that takes into account important and measurable patient characteristics.   |
| <b>Diagnosis</b>                          | Confirming the presence of the disease (see <b>pathological diagnosis</b> ).  |
| <b>Enhanced Recovery Pathway</b>          | Initiatives to improving patient outcomes and speeding up a patient's recovery after surgery.   |
| <b>Hospital trust</b>                     | An organisation providing secondary healthcare services in England. A hospital trust may be made up of one or several hospitals within a region.  |
| <b>Lobe resection</b>                     | The removal of one lobe of the lung.  |
| <b>MDT</b>                                | Multidisciplinary team; a group of healthcare professionals working in a coordinated manner for patient care.   |
| <b>NLCA</b>                               | National Lung Cancer Audit.   |
| <b>Non-small-cell lung cancer (NSCLC)</b> | A group of types of lung cancer sharing certain characteristics, which makes up 85–90% of all lung cancers. Includes squamous carcinoma and adenocarcinoma. See also <b>small-cell lung cancer</b> .  |
| <b>Pathological diagnosis</b>             | Refers to a diagnosis of cancer based on pathological examination of a tissue (histology) or fluid (cytology), as opposed to a diagnosis based on clinical assessment or non-pathological investigation.  |
| <b>Performance status (PS)</b>            | A systematic method of recording the ability of an individual to undertake the tasks of normal daily life compared with that of a healthy person.   |
| <b>Peri-operative care</b>                | The care that is given before, during and after surgery.  |
| <b>Pneumonectomy</b>                      | Removal of a whole lung.  |
| <b>Resection</b>                          | The surgical treatment of a lung cancer, where a surgeon removes a tumour.  |
| <b>RCP</b>                                | Abbreviation for the Royal College of Physicians, the professional body of doctors practising general medicine and its subspecialties.  |
| <b>Secondary care</b>                     | Care provided by a hospital, as opposed to that provided in the community by a GP and allied staff (primary care).  |
| <b>Segmentectomy</b>                      | A resection of a segment of the lung.   |
| <b>Small-cell lung cancer (SCLC)</b>      | A type of lung cancer making up around 10–15% of all lung cancers. See also <b>non-small-cell lung cancer</b> .   |
| <b>Squamous carcinoma</b>                 | A type of cancer arising from cells that line body cavities.  |
| <b>Staging/stage</b>                      | The anatomical extent of a cancer.  |



|                           |   |
|---------------------------|---|
| <b>Surgical resection</b> | An operation to remove abnormal tissues or organs.  |
| <b>Surgical unit</b>      | A department within a hospital that provides surgery for lung cancer patients   |
| <b>Wedge resection</b>    | A lung resection in which only the lesion and a small piece of lung are removed (as opposed to a lobectomy or segmentectomy). |



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