Cleveland Clinic thoracic surgeons treat patients with a wide variety of diseases of the lung and esophagus. The staff is composed of specialists in lung and esophageal cancer, lung failure, airway disease, swallowing disorders, and other diseases. Diagnosis and treatment approaches include the most advanced techniques, such as minimally invasive surgery.

**General Thoracic Surgery Volume and In-Hospital Mortality**

2014 Volume ($N = 1492$)

2010 – 2014

In 2014, Cleveland Clinic surgeons performed 1492 thoracic procedures. The in-hospital mortality rate was 1.4%.
Cleveland Clinic thoracic surgeons perform a variety of procedures to treat patients with even the most complex diseases. In 2014, the most common procedures were pulmonary operations.

“Other” category includes thymectomies, wedge resections, tumor surgeries, paraesophageal hiatal hernia repairs, and thyroidectomies.

Cleveland Clinic surgeons performed 350 pulmonary resections in 2014. The in-hospital mortality rate was 0.6%.
Many of the procedures Cleveland Clinic thoracic surgeons perform can be done using both open and video-assisted (VATS) techniques. The use of VATS or robotic techniques are associated with less postoperative pain, a shorter length of stay, and faster return to normal activities.
Lobectomy for Stage I Lung Cancers
2014 Volume (N = 86)
2010 – 2014

Cleveland Clinic surgeons use video-assisted/robotic techniques whenever appropriate for patients having lobectomies. These procedures are less invasive than open procedures and can help improve outcomes.

Pulmonary Resection In-Hospital Mortality
2014 Volume (N = 350)
2010 – 2014

The in-hospital mortality rate for patients who had pulmonary resection procedures at Cleveland Clinic in 2014 was 0.30%, which was lower than the expected rate of 1.30%.

Source: Data from the UHC Clinical Data Base/Resource Manager™ used by permission of UHC. All rights reserved.
Pulmonary Resection for Lung Cancer, Combined Morbidity and Mortality
January 2012 – December 2014

Cleveland Clinic surgeons performed 604 pulmonary resections from 2012 through 2014. The risk-adjusted rates for morbidity and mortality were among the best in the country.

<table>
<thead>
<tr>
<th>Eligible procedures</th>
<th>Unadjusted rate</th>
<th>Risk-adjusted rate (95% CI)</th>
<th>Standardized incidence ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>604</td>
<td>5.0%</td>
<td>4.8% (3.5-6.4)</td>
<td>0.65 (0.46-0.86)</td>
</tr>
</tbody>
</table>


● = STS mean participant score

Lobectomy for Lung Cancer, Composite Quality Rating
2014

<table>
<thead>
<tr>
<th>Participant Score (95% Confidence Interval)</th>
<th>STS Mean Participant Score</th>
<th>Participant Rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>98.2% (97.48, 98.81)</td>
<td>97.0%</td>
<td>★★★</td>
</tr>
</tbody>
</table>


● = STS mean participant score

Lobectomy Length of Stay
2014

The median length of stay was lower among patients who had video-assisted lobectomies compared with those who had open procedures.
Esophageal Surgery Volume and In-Hospital Mortality
2014 Volume (N = 192)
2010 – 2014

Cleveland Clinic thoracic surgeons performed 192 esophageal procedures in 2014 and achieved a lower-than-expected in-hospital mortality rate (1.56% vs 3%).

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Esophagectomy In-Hospital and 30-Day Mortality
2014

Both the in-hospital and 30-day mortality rates for esophagectomy were 0% at Cleveland Clinic in 2014. The expected rates were 3.10% and 2.8%, respectively.

Outcomes 2014

Thoracic Surgery (continued)

Esophagectomy for Esophageal Cancer, Combined Morbidity and Mortality
July 2011 – June 2014

<table>
<thead>
<tr>
<th>Eligible procedures</th>
<th>Unadjusted rate</th>
<th>Risk-adjusted rate (95% CI)</th>
<th>Standardized incidence ratio (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>142</td>
<td>21.1%</td>
<td>22.0% (16.1-28.9)</td>
<td>0.80 (0.58-1.05)</td>
</tr>
</tbody>
</table>

Cleveland Clinic surgeons performed 142 esophagectomy procedures for patients with esophageal cancer from July 2011 to June 2014. The combined morbidity and mortality risk-adjusted rate was better than the national average.

Distribution of Esophageal Surgeries by Indication (N = 192)

The majority of esophageal surgeries at Cleveland Clinic in 2014 were to treat patients with esophageal cancer and complex paraesophageal hernias who have had multiple failed operations.