Echelon Flex™

Backed by peer-reviewed, real-world evidence

ECHELON FLEX™ Powered Staplers are backed by large-scale, real-world, peer-reviewed evidence demonstrating improved outcomes.

Since 2017, the use of Echelon FLEX™ Powered Staplers has demonstrated an association with improved clinical and economic outcomes—across tissue types, patient populations and countries—in bariatric and thoracic procedures.

Demonstrated improved results

- Reduced hemostasis-related complications
- Reduced hospital costs
- Improved efficiency

Backed by large-scale, real-world evidence

- 5 studies
- 4 countries
- 700+ hospitals
- 40+ authors
- 41,500+ patients

1 Based on literature search performed May 2019. Large-scale is defined as sample size greater than 3,500 cases.


Reduced hemostasis-related complications and reduced hospital costs in laparoscopic sleeve gastrectomy

**Hemostasis-related complications**

- Reduced from 2.24% to 0.61%
- Improvement up to 73%

**Total median hospital costs**

- Reduced from $10,487 to $9,771
- Reduction of 7%

**ECHELON FLEX™ Powered Stapler with GST Reloads vs. Medtronic Signia™ with Tri-Staple™ Reload**

<table>
<thead>
<tr>
<th>Comparative effectiveness assessment of two powered surgical stapling platforms in laparoscopic sleeve gastrectomy: a retrospective matched study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Johnson BH, Johnston S, Elangovanraaj N, Fortin S, Fryrear R II, Roy S</td>
</tr>
<tr>
<td><em>Value in Health</em> 2020; 23 Suppl 1S188-9</td>
</tr>
</tbody>
</table>


2. Retrospective analysis of median total hospital cost outcomes from 982 laparoscopic sleeve gastrectomy cases between March 1, 2017 and December 31, 2018 from Premier Healthcare Database ($9,771 vs. $10,487, p<0.001).
Reduced hemostasis-related complications, reduced hospital costs and improved efficiency in laparoscopic bariatric procedures

<table>
<thead>
<tr>
<th>Hemostasis-related complications¹</th>
<th>Total hospital costs²</th>
<th>OR time³</th>
</tr>
</thead>
<tbody>
<tr>
<td>47% n = 21,466</td>
<td>13% n = 21,466</td>
<td>14% n = 21,466</td>
</tr>
</tbody>
</table>

**ECHELON FLEX™ Powered Stapler with GST Reloads vs. Medtronic Endo GIA™ with Tri-Staple™ Reload**

Comparison of economic and clinical outcomes between patients undergoing laparoscopic bariatric surgery with powered vs. manual endoscopic surgical staplers

Roy S, Yoo A, Yadalam S, Fegelman EJ, Kalsekar I, Johnston SS
*Journal of Medical Economics* 2017;20(4):423-33

**Use of Ethicon powered staplers was associated with fewer bleeding/transfusion complications (1.61%) compared to Medtronic non-powered staplers (3.05%), p=0.010, in laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass procedures. Based on retrospective analysis of 21,466 cases from the Premier Perspective® Hospital Database.**

**Use of Ethicon powered staplers was associated with lower overall hospital costs ($12,261) compared to Medtronic non-powered staplers ($14,038), p=0.022, in laparoscopic sleeve gastrectomy and Roux-en-Y gastric bypass procedures. Based on retrospective analysis of 21,466 cases from the Premier Perspective® Hospital Database.**

**Use of Ethicon powered staplers was associated with shorter OR time (133 minutes) compared to Medtronic non-powered staplers (154 minutes), p=0.011, in laparoscopic Sleeve Gastrectomy and Roux-en-Y Gastric Bypass procedures. Based on retrospective analysis of 21,466 cases from the Premier Perspective® Hospital Database.**
Reduced hemostasis-related complications in pulmonary artery transection

**Bleeding**

<table>
<thead>
<tr>
<th>ECHELON FLEX™ PVS cases</th>
<th>Medtronic Endo GIA™ iDrive™ cases</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No bleeding</strong></td>
<td><strong>18% bleeding</strong></td>
</tr>
</tbody>
</table>

n = 176

ECHELON FLEX™ Powered Vascular Stapler vs. Medtronic Endo GIA™ iDrive™ with Tri-Staple™ Reload

The impact of endoscopic stapler selection on bleeding at the vascular stump in pulmonary artery transection

Tsunezuka Y, Tanaka N, Fujimori H
*Medical Devices: Evidence and Research* 2020;13:41-4

Reduced hemostasis-related complications, reduced hospital costs and improved efficiency in VATS lobectomy

ECHELON FLEX™ Powered Stapler with GST Reloads and ECHELON FLEX™ Powered Vascular Stapler vs. non-powered staplers

Clinical and economic benefits associated with the use of powered and tissue-specific endoscopic staplers among the patients undergoing thoracoscopic lobectomy for lung cancer


2 Park SY, Kim DJ, Nam CM, et al. Clinical and Economic benefits Associated with the Use of Powered and Tissue-specific Endoscopic Staplers Among Patients Undergoing Thoracoscopic Lobectomy for Lung Cancer. Journal of Medical Economics. DOI: 10.1080/13696998.20191634081. Review of 275 cases between 2008 and 2016 from Yonsei University College of Medicine, Seoul, Korea ($12,281 vs. $10,822; p<0.0001).

3 Park SY, Kim DJ, Nam CM, et al. Clinical and Economic benefits Associated with the Use of Powered and Tissue-specific Endoscopic Staplers Among Patients Undergoing Thoracoscopic Lobectomy for Lung Cancer. Journal of Medical Economics. DOI: 10.1080/13696998.20191634081. Review of 275 cases between 2008 and 2016 from Yonsei University College of Medicine, Seoul, Korea ($12,281 vs. $10,822; p<0.0001).
### Reduced hemostasis-related complications, reduced hospital costs and improved efficiency in VATS lobectomy

<table>
<thead>
<tr>
<th></th>
<th>Bleeding complications</th>
<th>Total hospital costs</th>
<th>Length of stay</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powered staplers vs. non-powered staplers, n = 3,759</td>
<td>47%&lt;sup&gt;1&lt;/sup&gt;</td>
<td>9%&lt;sup&gt;2&lt;/sup&gt;</td>
<td>17%&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>Ethicon powered staplers vs. Medtronic non-powered staplers, n = 3,006</td>
<td>41%&lt;sup&gt;4&lt;/sup&gt;</td>
<td>9%&lt;sup&gt;5&lt;/sup&gt;</td>
<td>14%&lt;sup&gt;6&lt;/sup&gt;</td>
</tr>
<tr>
<td>ECHELON FLEX™ Powered Vascular Stapler + another Ethicon powered stapler vs. Medtronic non-powered staplers, n = 1,051</td>
<td>66%&lt;sup&gt;7&lt;/sup&gt;</td>
<td>No difference</td>
<td>14%&lt;sup&gt;8&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

**ECHELON FLEX™ Powered Stapler with GST Reloads and ECHELON FLEX™ Powered Vascular Stapler vs. Medtronic non-powered staplers**

#### Impact of powered and tissue-specific endoscopic stapling technology on clinical and economic outcomes of video-assisted thoracic surgery lobectomy procedures: a retrospective, observational study

Miller D, Roy S, Kassis E, Yadalam S, Ramisetti S, Johnston S

*Advances in Therapy* 2018;35(5):707-23

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Reduced perioperative air leaks in physiologic lung model

**ECHELON FLEX™ Powered Stapler with GST Reloads vs. Medtronic Endo GIA™ with Tri-Staple™ Reload**

Preclinical quantification of air leaks in a physiologic lung model: effects of ventilation modality and staple design


*Medical Devices: Evidence and Research* 2018;11:433-42

110 porcine lung sets

Read full study

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**Home**

**Bariatric**

- **US 2020**
  - Reduced hemostasis-related complications and reduced hospital costs in laparoscopic sleeve gastrectomy

- **US 2017**
  - Reduced hemostasis-related complications, reduced hospital costs and improved efficiency in laparoscopic bariatric procedures

**Thoracic**

- **Japan 2020**
  - Reduced hemostasis-related complications in pulmonary artery transection

- **Korea 2019**
  - Reduced hemostasis-related complications, reduced hospital costs and improved efficiency in VATS lobectomy

- **US 2018**
  - Reduced hemostasis-related complications, reduced hospital costs and improved efficiency in VATS lobectomy

- **US 2018**
  - Reduced perioperative air leaks in physiologic lung model

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1 Staple line air leaks in porcine lungs using a physiologically-based exvivo lung chamber model. ECHELON FLEX™ GST System vs. Endo GIA™ with Tri-Staple™ Technology. 20% vs. 44%; GST 45 Blue & Green reloads vs. Tri-Staple™ 45 Purple & Black, (n=110). Based on similar design features between ECHELON GST45 & GST60, no significant difference in performance is expected.
ECHELON ➤ Backed by evidence

Learn more at: ethicon.com/evidence