CLINICAL SPECIALTY GUIDE

RIGHT UPPER LOBE

RIGHT MIDDLE/LOWER LOBE

LEFT UPPER LOBE

LEFT LOWER LOBE

IMPORTANT SAFETY INFORMATION

LOBECTOMY
For use with the da Vinci Xi Surgical System.
Developed with, reviewed and approved by Daniel Oh, MD, based on consensus from high-volume thoracic surgeons in the United States.
PORT PLACEMENT

1. Place initial endoscope port 3 in 7th or 8th Intercostal Space (ICS), between the Mid Axillary Line (MAL) and Anterior Axillary Line (AAL).
2. Inspect workspace with endoscope.
3. Insufflate to 6-8 mmHg.
4. Place ports 1 and 2 in the same ICS, posterior to port 3. Maintain 6-10 cm spacing between ports. Maintain a minimum 4 cm spacing between port 1 and spine.
5. Place port 4 in the same ICS, anterior to port 3. Maintain 6-10 cm spacing between ports.
6. Place 12 or 15 mm assistant port triangulated between ports 3 and 4 at the junction of the diaphragm and chest wall.

NOTE
Ports may be shifted according to habitus of patient or the position of the internal anatomy.

* Ports 2 and 4 may be repurposed as an EndoWrist® Stapler port
↓ Port 2 may be shifted inferior one ICS to accommodate stapler length
TABLE PREPARATION

- Flex: 5-10°
- Reverse Trendelenburg: To level chest
- Height: As low as possible

SYSTEM DEPLOYMENT

- **Deploy for Docking**
  - Select Anatomy: Thoracic
  - Select Cart Location: Patient Right
  - Hold down “Deploy for Docking”
- **Drive Cart to Endoscope Port**
  - Position Patient Cart base at level of patient shoulder/upper back
- **Target**
  - Uppermost aspect of the thoracic cavity
- **Perform Manual Arm Adjustments**

**NOTE**
Patient Cart approach from the patient front or head may also be used depending on operating room layout.
## PROCEDURE STEPS AND INSTRUMENTS

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<th>PROCEDURE STEPS</th>
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<th>SECONDARY ENDOWRIST® INSTRUMENT</th>
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<td>ARM 2</td>
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<td></td>
<td>ARM 3</td>
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<tr>
<td>1. Divide the inferior pulmonary ligament</td>
<td>Tip-Up Fenestrated Grasper (470347)</td>
<td>Long Bipolar Grasper (470400)</td>
</tr>
<tr>
<td>2. Dissect station 8 and 9 lymph nodes</td>
<td>Cadiere Forceps (470049)</td>
<td>Fenestrated Bipolar Grasper (470205)</td>
</tr>
<tr>
<td>3. Open the posterior hilum</td>
<td>0° da Vinci Endoscope (470026)</td>
<td>Small Graptor™ (Grasping Retractor) (470318)</td>
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<tr>
<td>4. Dissect station 7 lymph nodes</td>
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<td>30° da Vinci Endoscope (470027)</td>
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<tr>
<td>5. Identify juncture of right upper lobe bronchus and bronchus intermedius</td>
<td><strong>Endowrist Stapler 30</strong> (470530 or 470430) or <strong>Endowrist Stapler 45</strong> (470298)</td>
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<tr>
<td>6. Dissect station 11 lymph nodes for posterior fissure exit point</td>
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<td>7. Complete fissure dissection</td>
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<td>8. Anterior Approach</td>
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<td></td>
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<tr>
<td>c. Dissect and divide the posterior ascending pulmonary artery branch</td>
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<td>d. Dissect and divide the bronchus</td>
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<tr>
<td>9. Posterior Approach</td>
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<tr>
<td>a. Dissect and divide the posterior ascending pulmonary artery branch</td>
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<td></td>
</tr>
<tr>
<td>10. Dissect station 10R, 4R, and 2R lymph nodes</td>
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</tr>
</tbody>
</table>

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**PROCEDURE STEPS AND INSTRUMENTS**

**PROCEDURE STEPS**

1. Divide the inferior pulmonary ligament
2. Dissect station 8 and 9 lymph nodes
3. Open the posterior hilum
4. Dissect station 7 lymph nodes
5. Identify juncture of right upper lobe bronchus and bronchus intermedius
6. Dissect station 11 lymph nodes for posterior fissure exit point
7. Complete fissure dissection
8. **Anterior Approach**
   a. Dissect and divide the superior pulmonary vein
   b. Dissect and divide the truncus anterior pulmonary artery branch
   c. Dissect and divide the posterior ascending pulmonary artery branch
   d. Dissect and divide the bronchus
9. **Posterior Approach**
   a. Dissect and divide the posterior ascending pulmonary artery branch
   b. Dissect and divide the bronchus
   c. Dissect and divide the truncus anterior pulmonary artery branch
   d. Dissect and divide the superior pulmonary vein
10. Dissect station 10R, 4R, and 2R lymph nodes

**PRIMARY ENDOWRIST® INSTRUMENT**

- ARM 1: Tip-Up Fenestrated Grasper (470347)
- ARM 2: Cadiere Forceps (470049)
- ARM 3: 0° da Vinci Endoscope (470026)
- ARM 4: Long Bipolar Grasper (470400)

**SECONDARY ENDOWRIST® INSTRUMENT**

- ARM 1: **Endowrist Stapler 30** (470530 or 470430) or **Endowrist Stapler 45** (470298)
- ARM 2: Fenestrated Bipolar Grasper
- ARM 3: Small Graptor™ (Grasping Retractor) (470318)
- ARM 4: Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)
PORT PLACEMENT

1. Place initial endoscope port 3 in 8th Intercostal Space (ICS), between the Mid Axillary Line (MAL) and Anterior Axillary Line (AAL).

2. Inspect workspace with endoscope.

3. Insufflate to 6-8 mmHg.

4. Place ports 1 and 2 in the 8th ICS, posterior to port 3. Maintain 6-10 cm spacing between ports. Maintain a minimum 4 cm spacing between port 1 and spine.

5. Place port 4 in the 8th ICS, anterior to port 3. Maintain 6-10 cm spacing between ports.

6. Place 12 or 15 mm assistant port triangulated between ports 3 and 4 at the junction of the diaphragm and chest wall. Optional: place assistant port triangulated between ports 2 and 3 for right middle lobe procedures.

NOTE
Ports may be shifted according to habitus of patient or the position of the internal anatomy.
**TABLE PREPARATION**

- Flex: 5-10°
- Reverse Trendelenburg: To level chest
- Height: As low as possible

**SYSTEM DEPLOYMENT**

- **Deploy for Docking**
  - Select Anatomy: Thoracic
  - Select Cart Location: Patient Right
  - Hold down “Deploy for Docking”

- **Drive Cart to Endoscope Port**
  - Position Patient Cart base at level of patient shoulder/upper back

- **Target**
  - Uppermost aspect of the thoracic cavity

**NOTE**

Patient Cart approach from the patient front or head may also be used depending on operating room layout.
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<td>Dissect anterior hilum</td>
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<td>Dissect station 11 lymph nodes and fissure</td>
<td>EndoWrist Stapler 30 or 45</td>
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<td>7</td>
<td>Dissect and divide the pulmonary vein</td>
<td>30° da Vinci Endoscope (470027)</td>
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<tr>
<td>8</td>
<td>Dissect and divide the bronchus</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Dissect and divide the pulmonary artery branches Optional: divide pulmonary artery branches early if fissure is favorable</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Dissect station 10R, 4R, and 2R lymph nodes</td>
<td>Long Bipolar Grasper (470400)</td>
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## PROCEDURE STEPS AND INSTRUMENTS

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<td>11. Dissect station 10R, 4R, and 2R lymph nodes</td>
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PORT PLACEMENT

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2. Inspect workspace with endoscope.

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NOTE
Ports may be shifted according to habitus of patient or the position of the internal anatomy.
TABLE PREPARATION
› Flex: 5–10°
› Reverse Trendelenburg: To level chest
› Height: As low as possible

SYSTEM DEPLOYMENT
› Deploy for Docking
  » Select Anatomy: Thoracic
  » Select Cart Location: Patient Left
  » Hold down “Deploy for Docking”
› Drive Cart to Endoscope Port
  » Position Patient Cart base at level of patient shoulder/upper back
› Target
  » Uppermost aspect of the thoracic cavity
› Perform Manual Arm Adjustments

NOTE
Patient Cart approach from the patient front or head may also be used depending on operating room layout.
## Procedure Steps and Instruments

### Procedure Steps

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<td>2</td>
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<td>30° da Vinci Endoscope (470027)</td>
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<tr>
<td>3</td>
<td>Open the posterior hilum</td>
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<td>Fenestrated Bipolar Grasper (470205)</td>
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<td>4</td>
<td>Dissect station 7 lymph nodes</td>
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<td>5</td>
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<td>6</td>
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<td>7</td>
<td>Dissect and divide the posterior branch of the pulmonary artery</td>
<td>0° da Vinci Endoscope (470026)</td>
<td>Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)</td>
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<td>8</td>
<td>Dissect and divide the lingular branch of the pulmonary artery</td>
<td>Long Bipolar Grasper (470400)</td>
<td>30° da Vinci Endoscope (470027)</td>
</tr>
<tr>
<td>9</td>
<td>Dissect and divide the superior pulmonary vein</td>
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<td>10</td>
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<td>Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)</td>
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<td>11</td>
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<td>Cadiere Forceps (470049)</td>
<td>30° da Vinci Endoscope (470027)</td>
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<td>12</td>
<td>Dissect station 10L, 5, and 6 lymph nodes</td>
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↓ Port 3 may be shifted inferior one ICS to accommodate stapler length
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## LOBECTOMY

### LEFT LOWER LOBE

### PROCEDURE STEPS AND INSTRUMENTS

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<td>2</td>
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<tr>
<td>3</td>
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<td>4</td>
<td>Dissect station 7 lymph nodes</td>
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<td>Complete station 11 lymph nodes and fissure dissections</td>
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**PRIMARY ENDOWRIST® INSTRUMENT**

- **ARM 1**: Cadiere Forceps (470049)
- **ARM 2**: 0° da Vinci Endoscope (470026)
- **ARM 3**: Long Bipolar Grasper (470400)
- **ARM 4**: Tip-Up Fenestrated Grasper (470347)

**SECONDARY ENDOWRIST® INSTRUMENT**

- **ARM 1**: Fenestrated Bipolar Grasper (470205)
- **ARM 2**: 30° da Vinci Endoscope (470027)
- **ARM 3**: Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)
- **ARM 4**: Small Graptor™ (Grasping Retractor) (470318)
Financial Disclosure
Dr. Oh has received compensation from Intuitive Surgical for consulting and/or educational services. He is also employed by Intuitive Surgical as Associate Medical Officer.

Surgical risks
Surgical risks for Pulmonary Resection (Wedge Resection, Segmentectomy, Lobectomy) include: persistent air leak, pneumonia, prolonged mechanical ventilation >48 hours, atrial fibrillation, acute respiratory distress syndrome (ARDS), chylothorax, re-intubation, arrhythmias, bronchopleural fistula, phrenic nerve injury, esophageal injury, difficulty breathing, collapsed lung, pulmonary volvulus, recurrent laryngeal nerve injury leading to vocal cord dysfunction.

Thoracic Procedures
The friable nature of pulmonary tissue enhances the risk of vascular, bronchiolar or other injury that will be difficult to control when using this device. Published clinical experience as well as clinical studies performed to support this marketing clearance have demonstrated that even surgeons considered expert in laparoscopy/thoracoscopy have substantial learning curves of 10 to 12 cases (Falk, et al., Total endoscopic computer enhanced coronary artery bypass grafting, Eur J Cardiothorac Surg 2000; 17: 38-45).

Serious complications may occur in any surgery, including da Vinci® Surgery, up to and including death. Examples of serious or life-threatening complications, which may require prolonged and/or unexpected hospitalization and/or reoperation, include but are not limited to, one or more of the following: injury to tissues/organs, bleeding, infection and internal scarring that can cause long-lasting dysfunction/pain.

Risks specific to minimally invasive surgery, including da Vinci® Surgery, include but are not limited to, one or more of the following: temporary pain/nerve injury associated with positioning; a longer operative time, the need to convert to an open approach, or the need for additional or larger incision sites. Converting the procedure could result in a longer operative time, a longer time under anesthesia, and could lead to increased complications.

Contraindications applicable to the use of conventional endoscopic instruments also apply to the use of all da Vinci instruments.

For Important Safety Information, indications for use, risks, full cautions and warnings, please also refer to www.davincisurgery.com/safety and www.intuitivesurgical.com/safety.

Individual surgical results may vary.
da Vinci Xi® System Precaution Statement
The demonstration of safety and effectiveness for the specific procedure(s) discussed in this material was based on evaluation of the device as a surgical tool and did not include evaluation of outcomes related to the treatment of cancer (overall survival, disease-free survival, local recurrence) or treatment of the patient’s underlying disease/condition. Device usage in all surgical procedures should be guided by the clinical judgment of an adequately trained surgeon.

It is the responsibility of the owner of the da Vinci Surgical System to properly train and supervise its personnel to ensure that the instruments and accessories are properly cleaned, disinfected and sterilized as required by the User’s Manual. The da Vinci products should not be used in a clinical setting unless the institution has verified that these products are properly processed in accordance with the da Vinci System User’s Manual.

The EndoWrist Stapler 30 and 45 Instruments and Reloads are intended to be used with the da Vinci Xi Surgical System (IS4000) for resection, transection, and/or creation of anastomoses in General, Thoracic, Gynecologic and Urologic surgery. The EndoWrist Staplers 30 and 45 are indicated for adult use, and the EndoWrist Stapler 30 is indicated for pediatric use. The devices can be used with staple-line or tissue-buttressing materials.

The EndoWrist Stapler 30 and 45 Instruments and Reloads should not be used on tissue such as the liver or spleen, where tissue compressibility is such that clamping of the instrument would be destructive. Do not use the EndoWrist Stapler 30 and 45 Instruments or Reloads on the aorta.

The EndoWrist Stapler 30 and 45 for the da Vinci Xi System (IS4000) are not compatible for use with the da Vinci, da Vinci S, or da Vinci Si Surgical Systems.

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