CLINICAL SPECIALTY GUIDE

RIGHT UPPER LOBE

RIGHT MIDDLE/LOWER LOBE

LEFT UPPER LOBE

LEFT LOWER LOBE

IMPORTANT SAFETY INFORMATION

LOBECTOMY

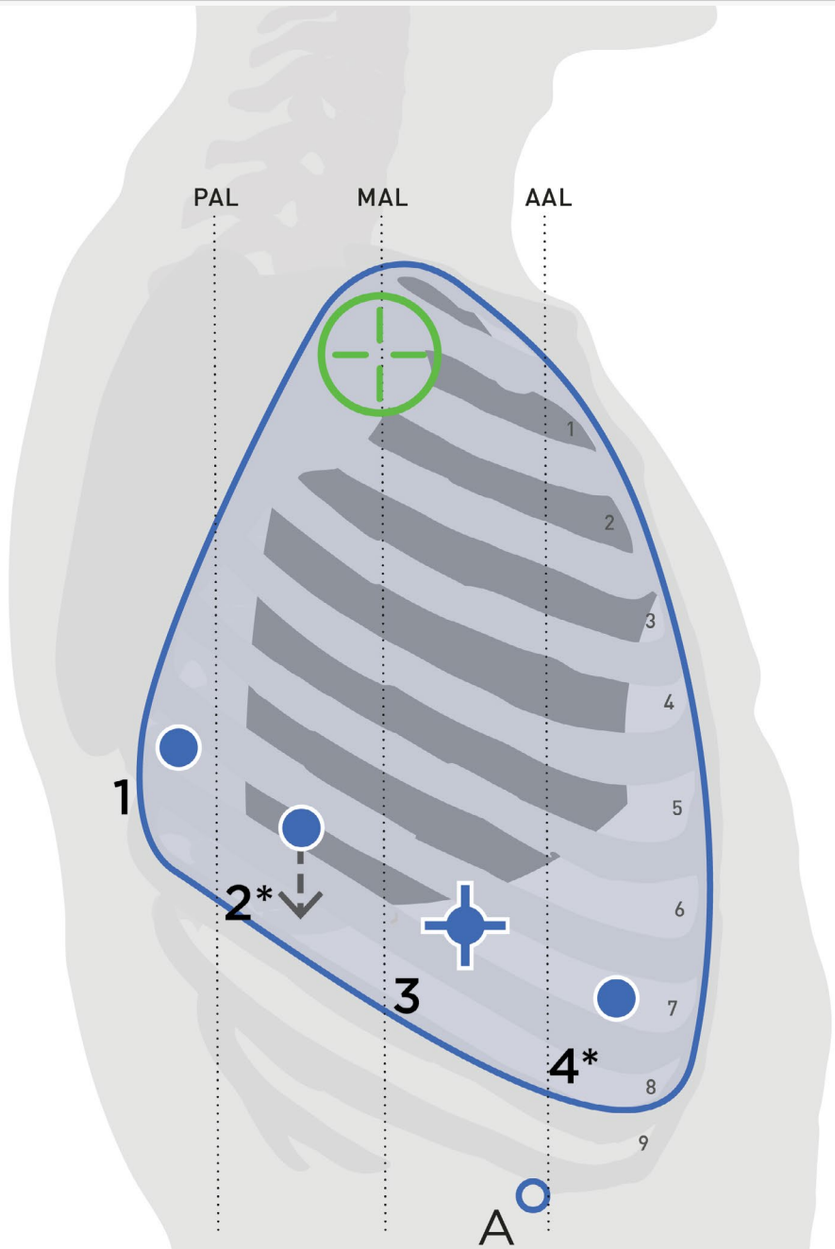
For use with the *da Vinci Xi* Surgical System.

Developed with, reviewed and approved by Daniel Oh, MD, based on consensus from high-volume thoracic surgeons in the United States

LOBECTOMY

RIGHT UPPER LOBE

APPROACH:
PATIENT
RIGHT



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

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.

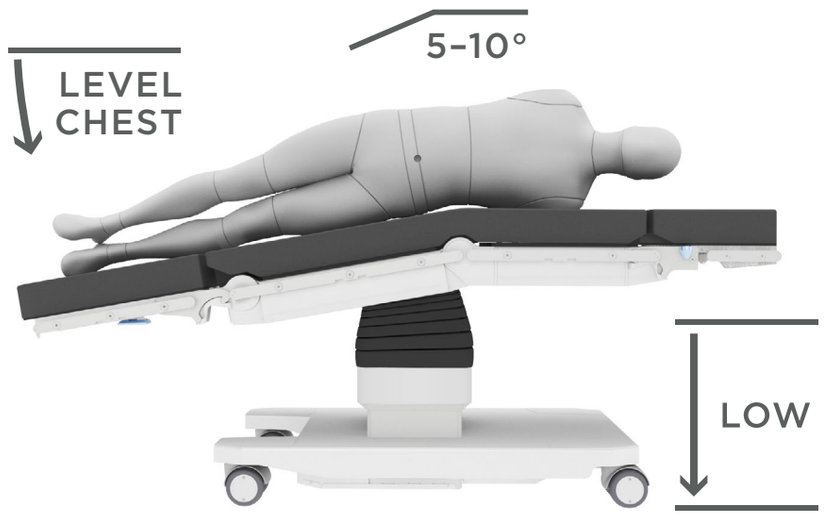
NOTE

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

PN 1042555-USrA 12/2017

LOBECTOMY

RIGHT UPPER LOBE



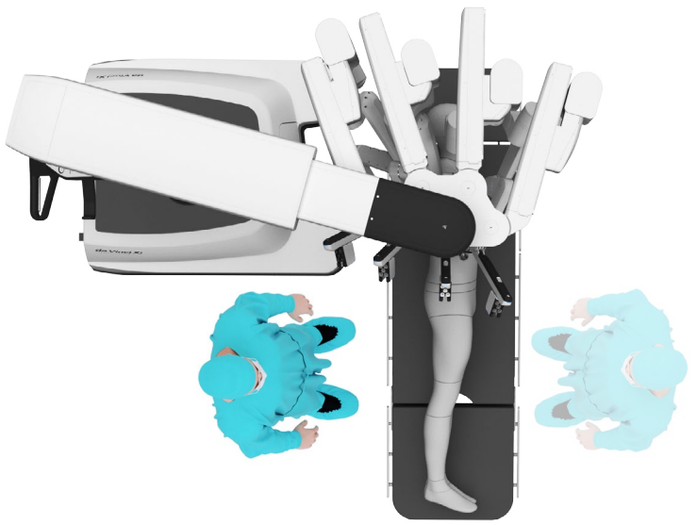


TABLE PREPARATION

- 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.

PN 1042555-USrA 12/2017

LOBECTOMY

RIGHT UPPER LOBE

PROCEDURE STEPS AND INSTRUMENTS

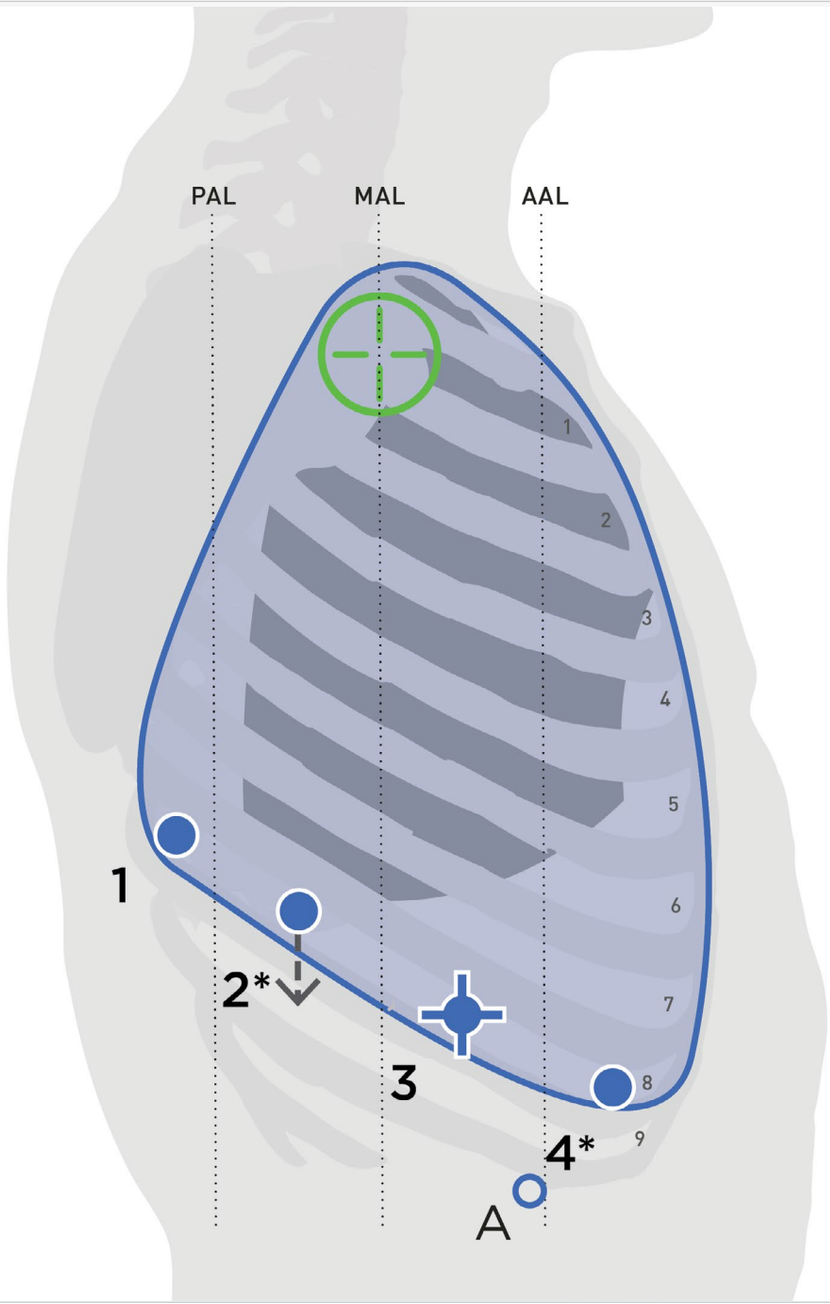
PROCEDURE STEPS				PRIMARY *ENDOWRIST*® INSTRUMENT				SECONDARY *ENDOWRIST*® INSTRUMENT			
				ARM 1	ARM 2	ARM 3	ARM 4	ARM 1	ARM 2	ARM 3	ARM 4
1			Divide the inferior pulmonary ligament	Tip-Up Fenestrated Grasper (470347)	Cadiere Forceps (470049)	0° *da Vinci* Endoscope (470026)	Long Bipolar Grasper (470400)	Small Graptor™ (Grasping Retractor) (470318)	Fenestrated Bipolar Grasper (470205)	30° *da Vinci* Endoscope (470027)	Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)
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				*Endowrist* Stapler 30 or 45				
		b	Dissect and divide the truncus anterior pulmonary artery branch				Fenestrated Bipolar Grasper				
		c	Dissect and divide the posterior ascending pulmonary artery branch				*Endowrist* Stapler 30 or 45				
		d	Dissect and divide the bronchus				Fenestrated Bipolar Grasper				
9	Posterior Approach	a	Dissect and divide the posterior ascending pulmonary artery branch				*Endowrist* Stapler 30 or 45				
		b	Dissect and divide the bronchus				Fenestrated Bipolar Grasper				
		c	Dissect and divide the truncus anterior pulmonary artery branch				*Endowrist* Stapler 30 or 45				
		d	Dissect and divide the superior pulmonary vein				Fenestrated Bipolar Grasper				
10			Dissect station 10R, 4R, and 2R lymph nodes				Long Bipolar Grasper (470400)				

PN 1042555-USrA 12/2017

LOBECTOMY

RIGHT MIDDLE/LOWER LOBE

APPROACH:
PATIENT
RIGHT



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

PORT PLACEMENT

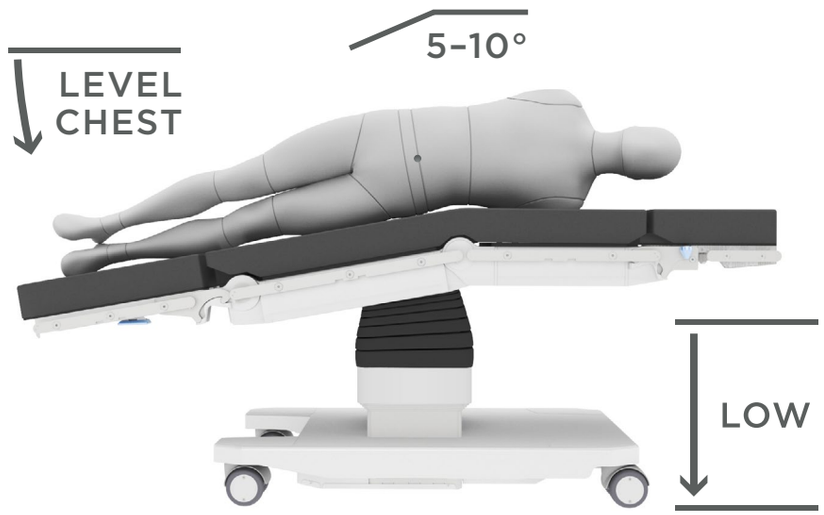
1. Place initial endoscope port 3 in 8th Intercostal Space (ICS), between the Mid Axillary Line (MAL) and Anterior Axillary Line (AAL).
2. Inspect workspace with endoscope.
3. Insufflate to 6-8 mmHg.
4. Place ports 1 and 2 in the 8th ICS, posterior to port 3. Maintain 6-10 cm spacing between ports. Maintain 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.

LOBECTOMY

RIGHT MIDDLE/LOWER LOBE



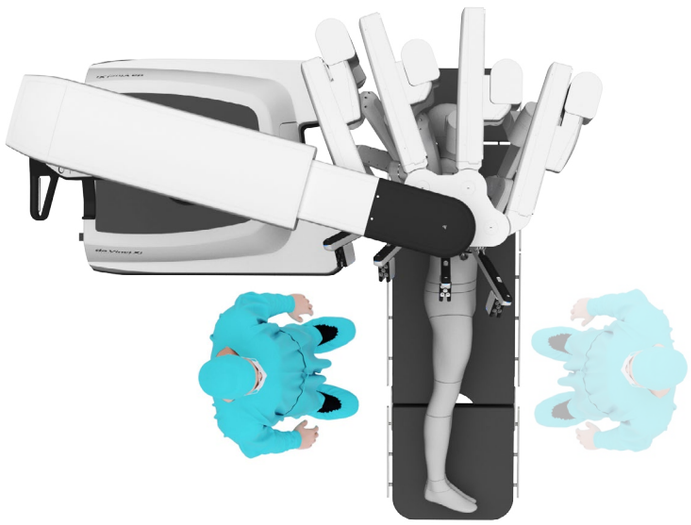


TABLE PREPARATION

- 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.

PN 1042555-USrA 12/2017

LOBECTOMY

RIGHT MIDDLE LOBE

PROCEDURE STEPS AND INSTRUMENTS

PROCEDURE STEPS		PRIMARY *ENDOWRIST*® INSTRUMENT				SECONDARY *ENDOWRIST*® INSTRUMENT			
		ARM 1	ARM 2	ARM 3	ARM 4	ARM 1	ARM 2	ARM 3	ARM 4
1	Divide the inferior pulmonary ligament	Tip-Up Fenestrated Grasper (470347)	Cadiere Forceps (470049)	0° *da Vinci* Endoscope (470026)	Long Bipolar Grasper (470400)	Small Graptor™ (Grasping Retractor) (470318)	Fenestrated Bipolar Grasper (470205)	30° *da Vinci* Endoscope (470027)	Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)
2	Dissect station 8 and 9 lymph nodes								
3	Open the posterior hilum								
4	Dissect station 7 lymph nodes								
5	Dissect anterior hilum								
6	Dissect station 11 lymph nodes and fissure								
7	Dissect and divide the pulmonary vein				*EndoWrist*® Stapler 30 (470530 or 470430) or *EndoWrist* Stapler 45 (470298)		*EndoWrist* Stapler 30 or 45		
8	Dissect and divide the bronchus						Fenestrated Bipolar Grasper (470205)		
9	Dissect and divide the pulmonary artery branches Optional: divide pulmonary artery branches early if fissure is favorable						*EndoWrist* Stapler 30 or 45		
10	Dissect station 10R, 4R, and 2R lymph nodes				Long Bipolar Grasper (470400)		Fenestrated Bipolar Grasper (470205)		

PN 1042555-USrA 12/2017

LOBECTOMY

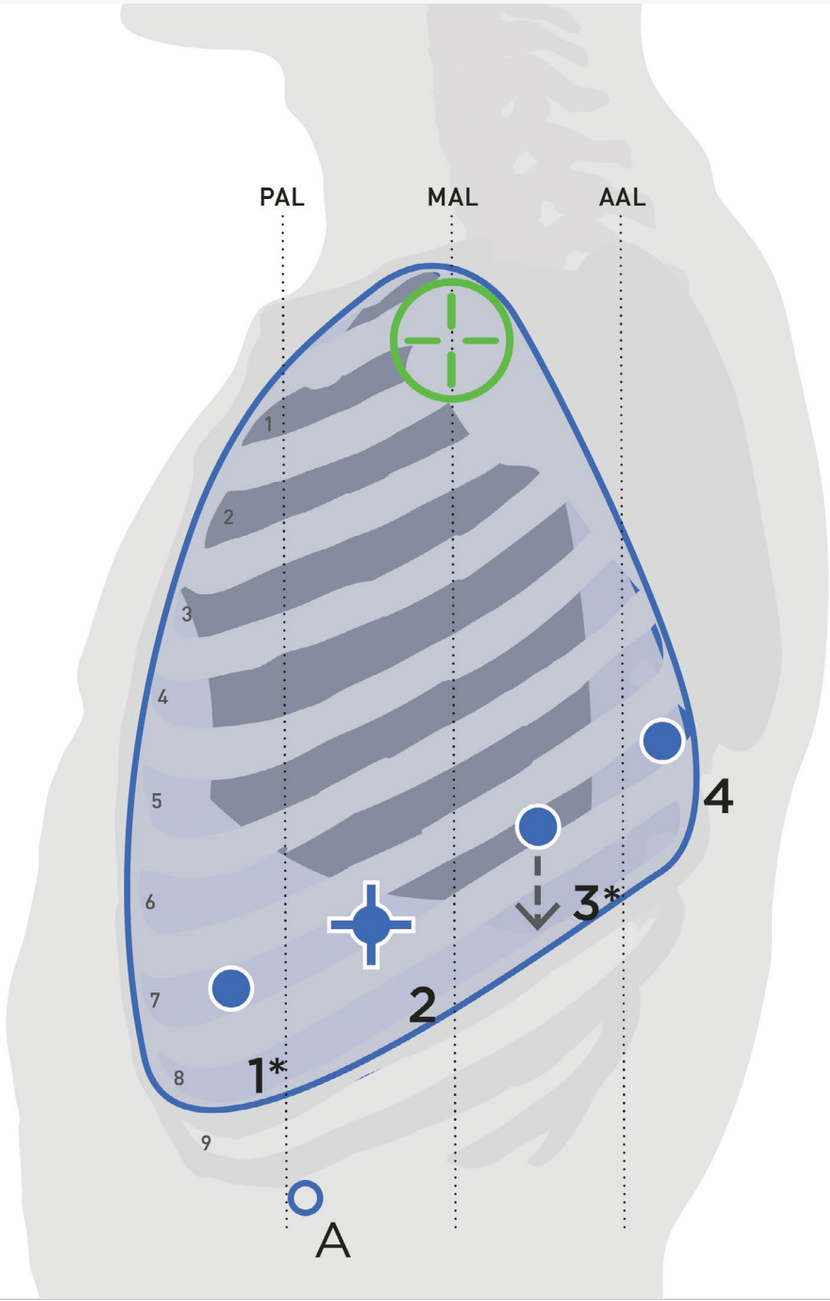
RIGHT LOWER LOBE

PROCEDURE STEPS AND INSTRUMENTS

PROCEDURE STEPS		PRIMARY *ENDOWRIST*® INSTRUMENT				SECONDARY *ENDOWRIST*® INSTRUMENT			
		ARM 1	ARM 2	ARM 3	ARM 4	ARM 1	ARM 2	ARM 3	ARM 4
1	Divide the inferior pulmonary ligament	Tip-Up Fenestrated Grasper (470347)	Cadiere Forceps (470049)	0° *da Vinci* Endoscope (470026)	Long Bipolar Grasper (470400)	Small Graptor™ (Grasping Retractor) (470318)	Fenestrated Bipolar Grasper (470205)	30° *da Vinci* Endoscope (470027)	Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)
2	Dissect station 8 and 9 lymph nodes								
3	Open the posterior hilum								
4	Dissect station 7 lymph nodes								
5	Identify the juncture of the right upper lobe bronchus and bronchus intermedius								
6	Dissect station 11 lymph nodes for posterior fissure exit point								
7	Complete fissure dissection				*EndoWrist*® Stapler 30 (470530 or 470430) or *EndoWrist* Stapler 45 (470298)				
8	Dissect and divide the pulmonary artery branches								
9	Dissect and divide the pulmonary vein								
10	Dissect and divide the bronchus								
11	Dissect station 10R, 4R, and 2R lymph nodes				Long Bipolar Grasper (470400)				

PN 1042555-USrA 12/2017

LOBECTOMY



APPROACH: PATIENT LEFT

* Ports 1 and 3 may be repurposed as an *EndoWrist*® Stapler port

↓ Port 3 may be shifted inferior one ICS to accommodate stapler length

LEFT UPPER LOBE

PORT PLACEMENT

1. Place initial endoscope port 2 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 3 and 4 in the same ICS, posterior to port 2. Maintain 6-10 cm spacing between ports. Maintain a minimum 4 cm spacing between port 4 and spine.
5. Place port 1 in the same ICS, anterior to port 2. Maintain 6-10 cm spacing between ports.
6. Place 12 or 15 mm assistant port triangulated between ports 1 and 2 at the junction of the diaphragm and chest wall.

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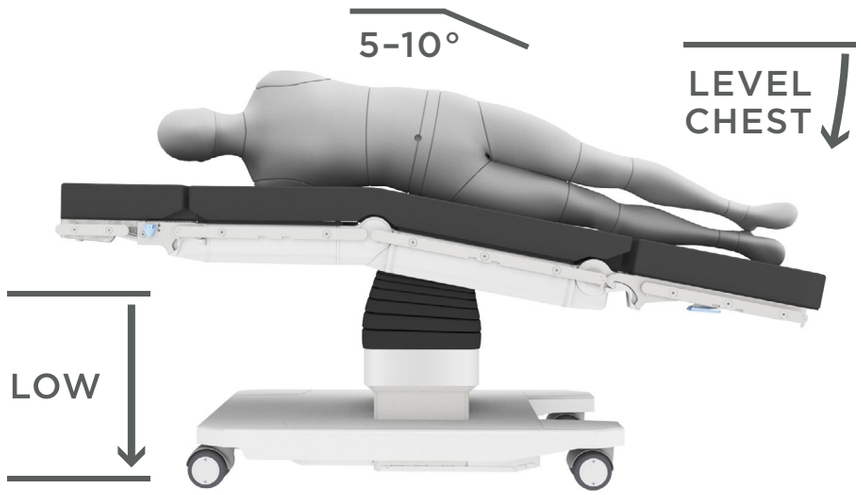
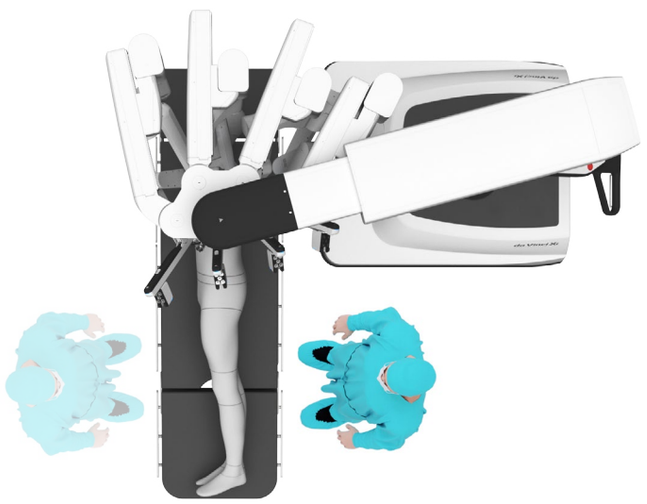
PN 1042555-USrA 12/2017

LOBECTOMY

LEFT UPPER LOBE





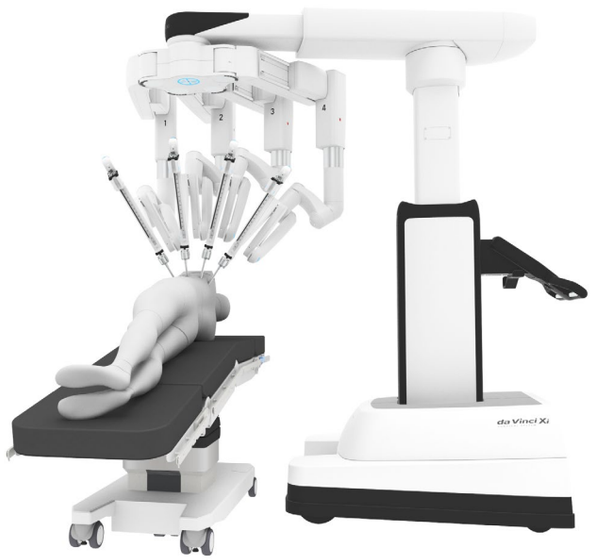


TABLE PREPARATION

- Flex: 5–10°
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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.

LOBECTOMY

LEFT UPPER LOBE

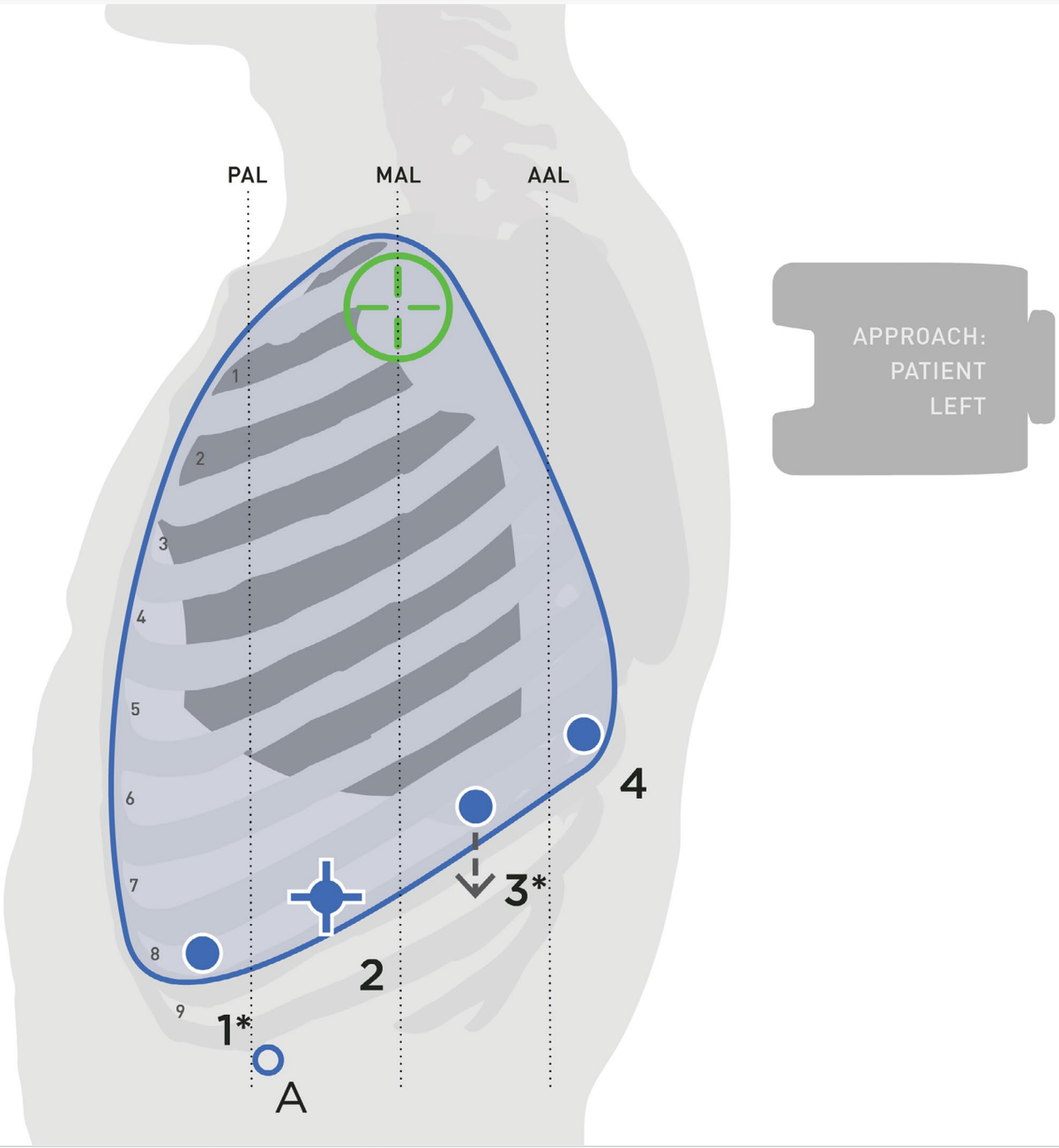
PROCEDURE STEPS AND INSTRUMENTS

	PROCEDURE STEPS	PRIMARY *ENDOWRIST*® INSTRUMENT ARM 1	PRIMARY *ENDOWRIST*® INSTRUMENT ARM 2	PRIMARY *ENDOWRIST*® INSTRUMENT ARM 3	PRIMARY *ENDOWRIST*® INSTRUMENT ARM 4	SECONDARY *ENDOWRIST*® INSTRUMENT ARM 1	SECONDARY *ENDOWRIST*® INSTRUMENT ARM 2	SECONDARY *ENDOWRIST*® INSTRUMENT ARM 3	SECONDARY *ENDOWRIST*® INSTRUMENT ARM 4
1	Divide the inferior pulmonary ligament	Cadiere Forceps (470049)						Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)	Small Graptor™ (Grasping Retractor) (470318)
2	Dissect station 8 and 9 lymph nodes		0° *da Vinci* Endoscope (470026)	Long Bipolar Grasper (470400)	Tip-Up Fenestrated Grasper (470347)	Fenestrated Bipolar Grasper (470205)	30° *da Vinci* Endoscope (470027)		
3	Open the posterior hilum								
4	Dissect station 7 lymph nodes								
5	Identify the posterior fissure and ongoing pulmonary artery for fissure exit point								
6	Complete station 11 lymph nodes and fissure dissections								
7	Dissect and divide the posterior branch of the pulmonary artery	*Endowrist* Stapler 30 (470530 or 470430) or *Endowrist* Stapler 45 (470298)						*Endowrist* Stapler 30 or 45	
8	Dissect and divide the lingular branch of the pulmonary artery								
9	Dissect and divide the superior pulmonary vein								
10	Dissect and divide the apical pulmonary artery branch								
11	Dissect and divide the bronchus Optional: Divide the bronchus before the apical pulmonary artery branch	Cadiere Forceps (470049)						Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)	
12	Dissect station 10L, 5, and 6 lymph nodes								

PN 1042555-USrA 12/2017

LOBECTOMY

LEFT LOWER LOBE



APPROACH: PATIENT LEFT

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PORT PLACEMENT

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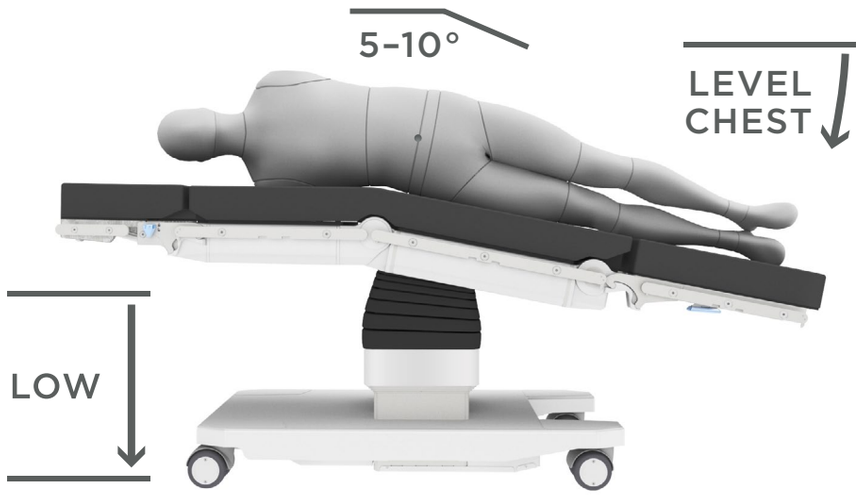
LEFT LOWER LOBE



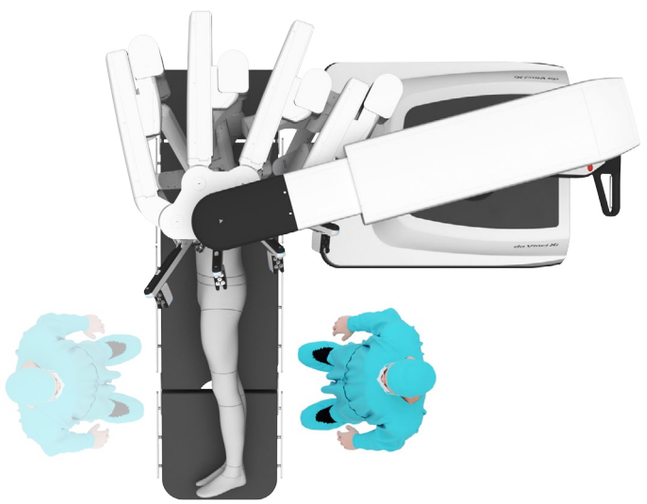


TABLE PREPARATION

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SYSTEM DEPLOYMENT

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PN 1042555-USrA 12/2017

LOBECTOMY

LEFT LOWER LOBE

PROCEDURE STEPS AND INSTRUMENTS

	PROCEDURE STEPS	PRIMARY *ENDOWRIST*® INSTRUMENT ARM 1	PRIMARY *ENDOWRIST*® INSTRUMENT ARM 2	PRIMARY *ENDOWRIST*® INSTRUMENT ARM 3	PRIMARY *ENDOWRIST*® INSTRUMENT ARM 4	SECONDARY *ENDOWRIST*® INSTRUMENT ARM 1	SECONDARY *ENDOWRIST*® INSTRUMENT ARM 2	SECONDARY *ENDOWRIST*® INSTRUMENT ARM 3	SECONDARY *ENDOWRIST*® INSTRUMENT ARM 4
1	Divide the inferior pulmonary ligament	Cadiere Forceps (470049)						Maryland Bipolar Forceps (470172) or Curved Bipolar Dissector (470344)	Small Graptor™ (Grasping Retractor) (470318)
2	Dissect station 8 and 9 lymph nodes		0° *da Vinci* Endoscope (470026)	Long Bipolar Grasper (470400)	Tip-Up Fenestrated Grasper (470347)	Fenestrated Bipolar Grasper (470205)	30° *da Vinci* Endoscope (470027)		
3	Open the posterior hilum								
4	Dissect station 7 lymph nodes								
5	Identify the posterior fissure and ongoing pulmonary artery for fissure exit point								
6	Complete station 11 lymph nodes and fissure dissections								
7	Dissect and divide the pulmonary artery branch	Endowrist Stapler 30 (470530 or 470430) or EndoWrist Stapler 45 (470298)							
8	Dissect and divide the inferior pulmonary vein								
9	Dissect and divide the bronchus								
10	Dissect station 10L, 5, and 6 lymph nodes	Cadiere Forceps (470049)							

PN 1042555-USrA 12/2017

IMPORTANT SAFETY INFORMATION

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.

IMPORTANT SAFETY INFORMATION

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.