



To refer a patient or request a consult, call (312) 942-6642

## Rush University System for Health

# Navigational Bronchoscopy at Rush

Electromagnetic navigational bronchoscopy (ENB) combined with digital tomosynthesis is a new, innovative method for localizing lung nodules for biopsy using tomosynthesis enhancements. This is a minimally invasive option for patients who require diagnostics of lung lesions. This new system is part of the ILLUMISTE™ Platform from Medtronic.

Rush uses advanced technologies to enhance standard bronchoscopy. With the new system, a three-dimensional roadmap of the lungs is generated to guide the proceduralist. Using electromagnetic sensors, instruments are tracked in real-time as they are guided to the optimal location. The precision of the procedure is further enhanced with high resolution interoperative imaging. This allows our physicians to navigation to previously unreachable distal regions of the lungs and safely sample suspicious lesions and facilitates placement of fiducial markers.

This technology enhances the ability for physicians to diagnose and potentially treat a variety of lung diseases, including lung cancer. Additional benefits of this approach to lung diagnostic is the ability to biopsy mediastinal lymph nodes to provide highly valuable staging information during the same, safe procedure.

## What are the advantages of ENB?

ENB allows physicians to perform highly focused, minimally invasive pulmonary bronchial procedures and is a novel option for patients who would otherwise have to undergo more invasive biopsy techniques. ENB can also be used in patients with lung cancer to place radio markers which help oncologists target radiation to lung tumors. These markers can also be placed around pulmonary nodules to aide in tactile localization by the thoracic surgeon at the time of the nodule resection.

This technology has been shown to significantly increase the diagnostic yield for small peripheral pulmonary nodules. This improved yield translates to catching more lung cancers in earlier, more treatable stages. There is also a reduced risk of complications, like bleeding or puncturing the lung compared to other minimally invasive techniques. Bronchoscopy is a safe procedure that allows physicians to diagnose, stage, and facilitate treatment of lung cancer.

Learn more:  
[rush.edu/thoracic-surgery-services](https://rush.edu/thoracic-surgery-services)

## Locations

Our providers are available to see ENB patients at our Rush main campus located at:

**Rush University Medical Center**  
1620 W Harrison St.  
Chicago, IL 60612

## Our team



**James Katsis, MD**



**Prema Nanavaty, MD**

## What are the benefits of the ILLUMISITE™ Platform?

Rush uses the ILLUMISITE™ Platform from Medtronic to allow physicians to reach even the smallest suspicious lung lesions. The provider can sample multi nodules during the sample procedure for a thorough patient evaluation and potentially improved outcomes.

There are four distinct benefits of this platform:

- Provides a minimally invasive option for lung biopsies, offering an option for patients who are not always able to tolerate invasive surgical procedures.
- Enhances interoperative visibility of suspicious tissue in the lungs which translates to higher diagnostic yield.
- Enables doctors to sample tissue in multiple areas of nodules, helping to obtain adequate tissue collection from many nodules to aid in optimal staging in complex patients.
- Allows expanded access for physicians to reach lesions that do not have airway entry points through utilizing state-of-the-art innovative tools, enabling doctors to reach nodules that are outside the airways.

## How does the ILLUMISITE™ Platform work and correct for CT-to-body divergence?

CT-to-body divergence is the discrepancy between the static pre-op CT scan and the dynamic breathing lung. Regardless of navigation technology, this can affect the accuracy of the biopsy. CT-to-body divergence can also be caused by atelectasis (small area of lung collapse), body position, and ventilation techniques used in the procedure. Our interventional pulmonologists are well versed in a variety of biopsy techniques to evaluate and compensate for these factors that may impact CT-to-body divergence.

The ILLUMISITE™ Platform uses fluoroscopic navigation technology which aids in correcting for CT-to-body divergence by visually enhancing nodules and allowing alignment of the catheter to the nodule during the procedure. And this allows for the most important thing – to be in the correct location prior to biopsy. There is continuous guidance which helps maintain alignment to the target, giving doctors confidence throughout the biopsy to sample multi-directionally.

## Who is the ideal patient?

Ideal patients are those who have indeterminate lung nodules, meaning they have a spot on their CT scan that could be cancerous and the scan alone cannot determine this.

## Why refer your patients here?

**Nationally recognized clinical care:** *U.S. News & World Report* ranks Rush University Medical Center 28th in the nation for pulmonology and lung surgery.

**Best-in-class thoracic surgery:** The expertise and excellence of our lung cancer care extends from the pulmonology program to the thoracic surgery department onto our oncologists. We hold the honor of performing more than 1000 lung surgeries each year, and have the most experience in Chicago using video-assisted thoracoscopic surgery (VATS), a minimally invasive surgical procedure to diagnose and treat lung cancer and other thoracic conditions. Dr. James Katsis, an interventional pulmonologist, has also published the largest case series on fluorooscopic navigation bronchoscopy in the nation to date. The Rush Lung Center is well known for our cutting edge technologies, excellent quality of care, and high safety standards.

