

MONARCH™ BIBLIOGRAPHY

Clinical Outcome

1. Murgu S, et al. *Safety results from multi-center observational real-world robotic bronchoscopy (TARGET) study*. Chest 164.4 (2023): A5248-A5250.
2. Patel P, et al. *Diagnostic accuracy and procedural outcomes for peripheral pulmonary lesion biopsy: comparing transthoracic needle aspiration to cone-beam computed tomographic bronchoscopy*. Chest 164.4 supplement (2023): A5294-A5295.
3. Khan F, et al. *Diagnostic outcomes of robotic-assisted bronchoscopy for pulmonary lesions in a real-world multicenter community setting*. BMC Pulmonary Medicine 23.1 (2023): 1-14.
4. Iwamoto SK, et al. *Novel approaches utilizing robotic navigational bronchoscopy: a single institution experience*. J Robotic Surg (2022).
5. Murgu S, et al. *Demographic and Lesion Characteristics in the First 443 Subjects Enrolled in a Multicenter Observational Real-World Robotic Bronchoscopy Study: Interim Results From TARGET*. AABIP (2022). Poster.
6. Agrawal A, et al. *Factors Associated with Diagnostic Accuracy of Robotic Bronchoscopy with 12-month Follow-Up*. The Annals of Thoracic Surgery (2022).
7. Ekeke CN, et al. *Lung Nodule Evaluation Using Robotic-Assisted Bronchoscopy at a Veteran's Affairs Hospital*. Journal of Clinical Medicine 10.16 (2021): 3671.
8. Chen AC, et al. *Robotic bronchoscopy for peripheral pulmonary lesions: a multicenter pilot and feasibility study (BENEFIT)*. Chest 159.2 (2021): 845-852.
9. Chaddha U, et al. *Robot-assisted bronchoscopy for pulmonary lesion diagnosis: results from the initial multicenter experience*. BMC Pulmonary Medicine 19.1 (2019): 1-7.

Methodological Research

10. Vachani A, et al. *The Effect of Definitions and Cancer Prevalence on Diagnostic Yield Estimates of Bronchoscopy: A Simulation-based Analysis*. Ann Am Thorac Soc. (2023) Oct 20(10): 1491-1498.
11. Ali MS, et al. *Diagnostic Performance and Safety Profile of Robotic-assisted Bronchoscopy: A Systematic Review and Meta-Analysis*. Ann Am Thorac Soc. 28 September 2023. PMID: 37769170.

12. Kops SEP, et al. *Diagnostic yield and safety of navigation bronchoscopy: a systematic review and meta-analysis*. Lung Cancer (2023): 107196.
13. Vachani A, et al. *Diagnostic Yield of Technologies for Biopsy of Lung Lesions: Using an Advanced Optimization Approach to Compare Single-Arm Bronchoscopy Trials*. Chest 162.4 (2022): A2118-A2119.
14. Pyarali FF, et al. *Robotic-assisted Navigation Bronchoscopy: A Meta-Analysis of Diagnostic Yield and Complications*. Journal of Bronchology & Interventional Pulmonology. 13 September 2023. PMID: 37700435.
15. Vachani A, et al. *The impact of alternative approaches to diagnostic yield calculation in studies of bronchoscopy*. Chest. 2022 May 1;161(5): 1426-8.

Compatibility Studies

Cryobiopsy

16. Matus I, and Patel J. *Safety and feasibility of ultrathin probe transbronchial lung cryobiopsy without balloon blocker via robotic bronchoscopy in the evaluation of peripheral lung lesions: a retrospective pilot study*. ERJ Open Research 9.3 (2023).

CBCT

17. Patel, P, et al. *Diagnostic accuracy and procedural outcomes for peripheral pulmonary lesion biopsy: comparing transthoracic needle aspiration to cone-beam computed tomographic bronchoscopy*. CHEST 164.4 supplement (2023): A5294-A5295.
18. Cumbo-Nacheli G, et al. *Robotic-assisted Bronchoscopy and Cone-beam CT: A Retrospective Series*. Journal of Bronchology & Interventional Pulmonology 29.4 (2022): 303-306.
19. Chan JWY, et al. *Robotic Assisted-Bronchoscopy With Cone-Beam CT ICG Dye Marking for Lung Nodule Localization: Experience Beyond USA*. Frontiers in Surgery, 9 (2022).
20. Monterroso C, et al. *A Case Series of Intra-Procedure Cone Beam Computed Tomography Utilizing Monarch™ Robotic Navigational Bronchoscopy*. American Journal of Respiratory and Critical Care Medicine (2020) 201:A6780.

Lung Vision

21. Hedstrom G, and Wagh A. *Combining Real-Time 3-D Imaging and Augmented Fluoroscopy with Robotic Bronchoscopy for Diagnosis of Peripheral Lung Nodules*. Chest 162.4 (2022): A2082.

22. Wagh A, et al. *Combining the Use of Robotic Bronchoscopy with Augmented Fluoroscopy to Diagnose Peripheral Pulmonary Lesions*. Clin Oncol 6 (2021): 1811.

Dye Marking

23. Iwamoto, SK, et al. *Novel approaches utilizing robotic navigational bronchoscopy: a single institution experience*. J Robotic Surg (2022).
24. Chan JWY, et al. *Robotic Assisted-Bronchoscopy With Cone-Beam CT ICG Dye Marking for Lung Nodule Localization: Experience Beyond USA*. Frontiers in Surgery 9 (2022).
25. Chhaya R, et al. *The Use of Robotic Bronchoscopy for Visceral Pleura Marking Prior to Surgical Resection of Pulmonary Nodules*. Journal of Pulmonary & Respiratory Medicine Volume 10:4 (2020).

Real-Time Microscopic Imaging - nCLE

26. Manley CJ, et al. *Robotic bronchoscopic needle-based confocal laser endomicroscopy to diagnose peripheral lung nodules*. Respirology (2022).

Practice Management Studies

27. Khan F, et al. *Community hospital experience with robotic bronchoscopy: an analysis of utilization patterns*. Chest 164.4 Supplement (2023): A5222.
28. Ost DE, et al. *Quantifying the Economic Value of Improvements in Diagnostic Accuracy of Advanced Bronchoscopy Procedures*. ATS (2023).

MONARCH Case Studies

Small Nodules

29. Renuka R, et al. *High diagnostic yield in sampling sub-centimeter peripheral pulmonary nodules with robotic-assisted bronchoscopy*. Chest 160.4 (2021): A2039.

Malakoplakia Diagnosis

30. Kim J, et al. *Robotic-Assisted Bronchoscopy to Diagnose Pulmonary Malakoplakia. Interesting and Challenging Cases in Interventional Pulmonology*. ATS (2021). Poster.

Cavitary Pulmonary Lesions

31. Caro LG, and Thomas JM. *Robotic-Assisted Bronchoscopy: A Potential New Tool For Cavitary Pulmonary Lesions*. Chest 162.4 (2022): A2094.

MONARCH Feasibility Studies

32. Ho E, et al. *The Feasibility of Using the “Artery Sign” for Pre-Procedural Planning in Navigational Bronchoscopy for Parenchymal Pulmonary Lesion Sampling*. Diagnostics 12.12 (2022): 3059.
33. McCandless M, et al. *A soft robot for peripheral lung cancer diagnosis and therapy*. Soft Robotics 9.4 (2022): 754-766.
34. Murgu SD. *Robotic assisted-bronchoscopy: technical tips and lessons learned from the initial experience with sampling peripheral lung lesions*. BMC Pulmonary Medicine 19.1 (2019): 1-8.
35. Rojas-Solano JR, Ugalde-Gamboa L, and Machuzak M, *Robotic bronchoscopy for diagnosis of suspected lung cancer: a feasibility study*. Journal of Bronchology & Interventional Pulmonology 25.3 (2018): 168.

Preclinical MONARCH Studies

36. Chen AC, et al. *Accuracy of a robotic endoscopic system in cadaver models with simulated tumor targets: ACCESS study*. Respiration 99.1 (2020): 56-61.
37. Chen AC, and Gillespie CT. *Robotic endoscopic airway challenge: REACH assessment*. The Annals of Thoracic Surgery 106.1 (2018): 293-297.

Guidelines

38. Bhadra K, et al. *Lung navigation ventilation protocol to optimize biopsy of peripheral lung lesions*. Journal of Bronchology & Interventional Pulmonology 29.1 (2022): 7-17.

CT-To-Body Divergence

39. Reisenauer J, et al. *Combining Shape-Sensing Robotic Bronchoscopy With Mobile Three-Dimensional Imaging to Verify Tool-in-Lesion and Overcome Divergence: A Pilot Study*. Mayo Clinic Proceedings: Innovations, Quality & Outcomes 6.3 (2022): 177-185.
40. Pritchett MA, et al. *Virtual or reality: divergence between preprocedural computed tomography scans and lung anatomy during guided bronchoscopy*. Journal of Thoracic Disease 12.4 (2020): 1595.

Robotic-Assisted Bronchoscopy Reviews

41. Ortiz-Jaimes G, and Reisenauer J. *Real-World Impact of Robotic-Assisted Bronchoscopy on the Staging and Diagnosis of Lung Cancer: The Shape of Current and Potential Opportunities*. *Pragmat Obs Res* (2023) 14:75-94. PMID: 37694262; PMCID: PMC10492559.
42. Ho E, Grady H, and Septimiu M. *Robotic bronchoscopy in diagnosing lung cancer—the evidence, tips and tricks: a clinical practice review*. (2023).
43. Agrawal AD, Hogarth DK, and Septimiu M. *Robotic bronchoscopy for pulmonary lesions: a review of existing technologies and clinical data*. *Journal of Thoracic Disease* 12.6 (2020): 3279.
44. Cicienia J, Avasarala SK, and Gildea TR. *Navigational bronchoscopy: a guide through history, current use, and developing technology*. *Journal of Thoracic Disease* 12.6 (2020): 3263.
45. Fielding D, and Masahide O. *Technologies for targeting the peripheral pulmonary nodule including robotics*. *Respirology* 25.9 (2020): 914-923.
46. Kumar A, et al. *Robotic Bronchoscopy for Peripheral Pulmonary Lesion Biopsy: Evidence-Based Review of the Two Platforms*. *Diagnostics* 11.8 (2021): 1479.
47. Ho E, et al. *What should we realistically expect from robotic bronchoscopy in the near future?* *Journal of Thoracic Disease* 13.1 (2021): 405.

Indications for Use: The MONARCH™ bronchoscope and MONARCH™ Platform and its accessories are intended to provide bronchoscopic visualization of and access to patient airways for diagnostic and therapeutic procedures. **Important Safety Statement:** Complications from bronchoscopy may include breathing difficulty, vocal cord spasm, hoarseness, slight fever, vomiting, dizziness, bronchial spasm, infection, low blood oxygen, bleeding from biopsied site, or an allergic reaction to medications. More serious complications from bronchoscopy may include collapsed lung, respiratory failure, hemorrhage, burns, heart attack or cardiac arrhythmia.