

UK FIRST ROBOTIC-ASSISTED LUNG BIOPSY PROCEDURES PERFORMED

- *NHS clinicians perform first UK procedures using robotic-assisted bronchoscopy system*
 - *Ion is robotic-assisted bronchoscopy system from Intuitive*
- *Robotic technology could help transform early diagnosis of suspected lung cancer*

OXFORD, UK, 7 August 2023: A robotic-assisted bronchoscopy system that could help transform early diagnosis of suspected lung cancer in patients is being used in the UK for the first time as part of a clinical study in the NHS.

The Ion Endoluminal System (Ion) from Intuitive, a global technology leader in minimally invasive care, could help improve precision when taking tissue biopsies of lung nodules, meaning patients could get diagnoses much faster.

Ion uses unique shape-sensing technology and robotic-assistance to enable clinicians to access deep, hard-to-reach areas of the lung and remove tissue for biopsy with greater precision and accuracy. Its minimally invasive approach means there may be less risk for patients than some existing biopsy techniques.

Now for the first time in the UK, NHS clinicians at the Royal Brompton Hospital and St Bartholomew's Hospital are participating in a clinical study to determine how Ion could best benefit patients and the NHS. Each site will recruit approximately 50 patients with small lung nodules located in areas that are challenging to reach via traditional bronchoscopy.

Charlie Dean, Senior Vice President and General Manager of Endoluminal at Intuitive said: "We're delighted to be working with clinicians in the UK to demonstrate the value that Ion could bring to the overall lung cancer patient pathway. The healthcare system in the UK is a hub of innovation and Ion's entry here will be an important first step to wider patient access in Europe.

"With plans underway for the UK's first targeted national lung cancer screening programme, improving the early diagnosis of cancers is rightly a top priority. We hope that our Ion platform can play a role in delivering the ambitions set out when it comes to earlier diagnosis and better outcomes for patients in the UK and beyond."

Lung cancer is the most common cause of cancer death in the UK,^[i] and more than two-thirds of cases are diagnosed at a late stage of progression.^[ii]

Diagnosing lung cancer often requires biopsy of lung nodules, which are often found in tight spaces and narrow airways that may be hard to reach. Due to the current challenges of removing tissue for biopsy of early-stage nodules in hard-to-reach areas, some patients with suspected lung cancer may undergo long periods of 'watchful waiting,' while their nodule is monitored but not definitively diagnosed by biopsy, causing related anxiety^[iii] and delaying access to earlier treatment options.

Mr Kelvin Lau, Consultant Thoracic Surgeon for St Bartholomew's Hospital, said: "The UK is leading the world in rolling out a national lung cancer screening programme. However, only some of the lung nodules identified during screening are cancerous and need treatment. Current biopsy techniques

carry risk and are not always accurate, and many patients end up waiting for a repeat scan. The uncertainty of the wait causes anxiety and could allow a cancer to grow and spread.

“With this shape-sensing robotic technology, I have the precision and stability to lock onto a very small lung nodule and obtain an accurate biopsy quickly and safely. This could transform early diagnosis and treatment, reduce the need for repeat scans and treat lung cancer earlier.”

Professor Pallav Shah, consultant respiratory physician based at Royal Brompton Hospital, said: “The expanding national lung cancer screening programme in England will increase the number of suspicious nodules detected on CT scans at an earlier stage which will need to be biopsied to determine a diagnosis.

“We know that an earlier diagnosis of lung cancer leads to significantly improved outcomes for our patients. When we see patients with cancerous lung nodules of more than 30mm, their five year survival rate is around 68%, but if we are able to detect these nodules at a smaller size, when they are less than 10mm in size, we are looking at a 92% survival rate.^[iv]

“This new technology is transformative for us as clinicians because it allows us to access and biopsy nodules of less than 10mm in size in difficult to reach areas of the lungs. The chance of a cure for these patients is therefore vastly improved.”

There are over 400 Ion systems installed in U.S. hospitals,^[v] and Intuitive continues to explore its applications in other countries including in the UK and across Europe and beyond.

Dr. Oliver Wagner, Vice President and Medical Officer of Endoluminal at Intuitive said: “Lung cancer represents a worldwide health crisis, characterized by distressing survival rates, even after surgical intervention. Within Europe, the UK has emerged as a pioneering force in transforming the clinical outcomes for individuals diagnosed with lung cancer.

“We are in full support of early nodule lung detection and diagnosis and our aim is to bring about a positive transformation in the care pathways for lung cancer, ultimately leading to improved prognosis and well-being of patients.”

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Notes to editors

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Photos available [here](#)

About Intuitive

Intuitive (Nasdaq: ISRG), headquartered in Sunnyvale, California, with UK and Ireland headquarters in Oxford, UK, is a global leader in minimally invasive care and the pioneer of robotic-assisted surgery. Our ground-breaking technologies include the da Vinci surgical system and the Ion endoluminal system. Digital intelligence allows us to unite our advanced systems, progressive learning, and value-enhancing services to help physicians and their teams optimize care delivery to support the best outcomes possible. At Intuitive, we envision a future of care that is less invasive and profoundly better, where diseases are identified early and treated quickly, so patients can get back to what matters most. For more information, please visit: <https://www.intuitive.com/en-gb>

About the Ion Endoluminal System

Ion has an ultra-thin, ultra-manoeuvrable robotic catheter which enables clinicians to reach small lesions in all 18 segments of the lung and its unprecedented stability enables the precision needed for minimally invasive lung biopsy procedures.

During a procedure using the Ion system, a physician will insert the Ion fully articulating catheter into the patient's lung via the mouth and throat through an endotracheal tube, which may have fewer complications than biopsy approaches that use a needle inserted from outside the body.

Information provided by the Ion Endoluminal System or its components should be considered guidance only and not replace clinical decisions made by a trained physician.

Individuals' outcomes may depend on a number of factors, including but not limited to patient characteristics, disease characteristics and/or physician/surgeon experience.

Some products, features or technologies may not be available in all countries. Please contact your local Intuitive representative for product availability in your region. Refer to the product specific User Manual for indications, contraindications, warnings and other product information.

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⁽ⁱ⁾ Cancer Research UK. Lung Cancer Mortality. Available at: <https://www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/lung-cancer#heading-One> Last accessed: August 2023

⁽ⁱⁱ⁾ Cancer Research UK. Proportion of Cancer Cases By Stage at Diagnosis, 2020. Available at: <https://crukancerintelligence.shinyapps.io/EarlyDiagnosis/> Last accessed: August 2023

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^[iv] Kay FU, Kandathil A, Batra K, Saboo SS, Abbara S, Rajiah P. Revisions to the Tumor, Node, Metastasis staging of lung cancer (8th edition): Rationale, radiologic findings and clinical implications. World J Radiol 2017; 9(6): 269-279 [PMID: 28717413 DOI: 10.4329/wjr.v9.i6.269]

^[v] as of Q2 2023 <https://isrg.intuitive.com/static-files/3130adf9-a2fc-4394-a35b-5d9a1902cc37>