

Lung cancer screening: A game changer

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For a long time, lung cancer was only discovered when it was almost too late for those affected. A new lung cancer screening program is now helping to change the situation - giving millions of people a real chance of early diagnosis and treatment.

A patient – let's call him Rolf Müller, in his early 60s, a long-time smoker – is sitting in the waiting room of his family doctor this morning. It is a routine visit – no complaints, no specific reason. His elevated risk profile becomes evident in the course of the consultation. The doctor decides to refer him for a computed tomography (CT) scan, as a precautionary measure. What the scan reveals is totally unexpected and comes as a real shock to Müller: a shadow on the lung. A chance finding – as is so often the case. The patient's disease is already at an advanced stage, as is typical for many other affected people. The therapeutic options are now generally limited, with only one form of treatment often remaining, which buys the patient time but can no longer cure him.

Lung cancer is one of the most dangerous diseases – not primarily due to a lack of therapies, but because the disease is often only discovered very late. There are generally no symptoms in the early stages, and the disease causes hardly any discomfort. This means that diagnoses are often made late when metastases are frequently already present. Until now, patients have generally only been referred for radiological examination of the lungs if they present with clear symptoms such as a persistent cough or coughing up blood, if there is a clear indication – or if they are referred by chance. As a result, around 45,000 people in Germany die from the disease every year. This doesn't have to be the case – because the earlier lung cancer is detected, the better the chances of it being treated.

Screening: A game changer and turning point in early detection

Since April, this situation has fundamentally changed. The new legally enshrined lung cancer screening program provides structured access to early detection for high-risk patients for the first time. Here, too, the starting point is a consultation with the family doctor, followed by a referral to a radiology practice for a low-dose CT scan. The lungs are examined using significantly lower levels of radiation, while still creating high-resolution cross-sectional images of the organ. Tumors or suspicious nodules are usually easy to spot in these images. The target group covers heavy and long-time smokers – whether active or former – aged 50 to 75. They can now all be referred for targeted screening, regardless of symptoms, in order to detect any changes at an early stage.

The aim of the screening program is clear: To detect diseases before symptoms arise and it's too late. The crucial difference is that it is now a systematic, risk-based approach that determines the time of diagnosis rather than a chance discovery or certain symptoms. "Early detection has a clear aim: To spot lung cancer at an early stage when a cure or long-term treatment to keep it in check is still possible," says Chief Physician Prof. Torsten Bauer, Head of the certified Lung Cancer Center at the Helios Hospital Emil von Behring in Berlin.

The treatment pathway is fundamentally different

This fundamentally changes the course of treatment for our patient. Accordingly, we have to tell his story differently from this point on. Müller is identified as a high-risk patient at an early stage and specifically referred for screening. If the CT reveals any abnormality, a clearly structured treatment pathway follows for him. "Those with a positive screening result or one that requires further

investigation after the CT scan should contact a specialized lung cancer center as soon as possible. These centers have the necessary experience and high-tech equipment to provide a reliable diagnosis and the right therapy,” advises Prof. Bauer. Helios operates around a dozen such highly specialized lung centers, which are closely networked with other hospitals and medical practices. Seven of them are certified. “At Helios, we treat over 32,000 cases of lung cancer a year and give our patients access to our experts – regardless of the location,” says Prof. Frederick Palm, Helios Medical Consultant.

Lung cancer centers use high-precision modern procedures - such as the Ion robot-assisted bronchoscopy system

Decisions about individual treatment are always made on an interdisciplinary basis at these lung cancer centers, with knowledge pooled from across very different branches of medicine. High-precision modern procedures – such as AI – are also used at the specialized lung cancer centers. The radiological findings from the lung cancer screening process are evaluated here with the aid of artificial intelligence, including the Ion robot-assisted bronchoscopy system. This pushes the boundaries of what is medically possible. A total of five locations – the Helios Lung Cancer Centers in Berlin, Bonn/Siegburg, Krefeld/Duisburg, Wiesbaden, and, from April, Erfurt – use the innovative Ion bronchoscopy system for diagnostics, which enables the treating physicians to penetrate particularly deep into the lung in a minimally invasive process and take samples of suspicious tissue with pinpoint accuracy. “The new robotic system for bronchoscopy is a game changer. We can use it to get to the deepest lung tissue and can even reach millimeter-sized suspicious nodules and take samples. This has not been possible with endoscopy until now,” explains Dr. Joanna Krist, Senior Pulmonary Physician in Heckeshorn Lung Clinic at Helios Hospital Emil von Behring in Berlin. Read more about Ion in the box.

Helios provides end-to-end care

The lung cancer screening program thus makes it possible to create an end-to-end care concept – and precisely therein lies one of Helios’ strengths. The hospital network, which operates around 80 hospitals in Germany, combines state-of-the-art radiological diagnostics with therapy wherever possible at its specialized lung cancer centers. If the suspicion of lung cancer is confirmed, then everything happens very quickly: Taking an interdisciplinary approach, lung specialists, thoracic surgeons, oncologists, and radiologists get together on the tumor board to decide on the optimal individual treatment plan for each patient. “Various options are considered, depending on the stage of the cancer. They range from minimally invasive surgery to radiotherapy, chemotherapy, or immunotherapy,” says Prof. Torsten Bauer. If the treatment plan requires an operation, the tumor can be removed in a minimally invasive procedure using the da Vinci robotic assistance system.

Screening has the potential to benefit 5.5 million people across Germany

The new screening program could potentially benefit 5.5 million people in Germany. At the same time, a new end-to-end care concept has been created, in which early detection, diagnosis, therapy, and aftercare are closely interlinked and pick up the patients. In an ideal scenario, these interlinked steps mean that those affected will get a much earlier diagnosis, the option of starting treatment earlier, a less invasive procedure, and a better chance of being cured. Helios is one of the few networks that can cover the entire clinical treatment pathway with highly specialized cancer centers. The situation has fundamentally changed for our patient. Whereas he may previously have died of his illness because the cancer was discovered much too late, he now benefits from a clearly structured treatment pathway from early detection to highly professional treatment, significantly improving his chances of survival – not least because there are players like Helios who are ideally

prepared for such scenarios.

New online self-testing offers quick guidance

Those interested in screening can take a new online test to find out whether an investigation for early lung cancer detection is an option for them. [Self-test link](#)

How the Ion system works

The ion endoluminal system is a robot-assisted bronchoscopy system used to diagnose pulmonary nodules. It enables doctors to target even the smallest nodules, even if they are located deep in the tissue or at the outer peripheries, making it possible to investigate difficult-to-access areas.

Before the procedure with the Ion software, a three-dimensional model of the lungs – known as a “digital twin” – is created on the basis of CT images. This serves as a navigation aid and shows the medical team the optimal route to the abnormality. During the investigation, an ultrathin, maneuverable catheter is inserted into the lungs via the airways. Its position can be tracked in real time thanks to modern sensor technology.

The catheter is parked at the potentially cancerous site. Instruments used to take tissue samples can then be inserted. The tissue can then be removed with millimeter precision and sent for further analysis.

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