USER REPORT

Region Syddanmark
Sygehus Lillebælt

AI AS INDISPENSABLE SUPPORT

ADVANCE Chest CT reduces workload and ensures faster, more accurate diagnoses at Lillebælt Hospital

Radiologists are under ever-increasing pressure: rising patient numbers, more complex diagnoses and a growing shortage of specialist staff. At Lillebælt Hospital, a regional hospital in the south of Denmark, the radiology department is overcoming these challenges with the support of AI.

Dr. Jakob Möller, Head Physician Lillebælt Hospital

Lillebælt Hospital was formed in 2008 through the merger of the hospitals in Kolding, Vejle, Middelfart, Fredericia and Give. Today it still operates three sites in Kolding, Vejle and Middelfart. With a total of 17 departments and nine institutes, the facility treats around 60,000 inpatients and 520,000 outpatients every year. The radiology department is particularly busy in pulmonary imaging. “Many of our patients have pulmonary nodules, which we monitor over the course of the disease to find out whether it is lung cancer,” explains Head Physician Dr. Jakob Møller. Follow-up care after oncological procedures also involves a high number of check-ups. “If a new nodule is detected in an operated patient, we have to find out quickly whether it is malignant.”

Velje Sygehus

The department uses high-resolution CT technology to diagnose interstitial lung diseases and emphysema in the best possible way. The challenge is particularly great in pneumology: many patients are referred there in order to measure nodules and decide whether further testing for lung cancer is necessary. This requires a high degree of precision and comparability of images over long periods of time.

AI AS SUPPORT FOR RADIOLOGISTS

“The biggest challenge in the future will be the increasing number of examinations. We won't suddenly have more radiologists, but we will have more patients with cancer and therefore more check-ups and follow-up examinations,” says Dr. Møller. “So we need to treat more patients with the same resources - and this is exactly where AI helps us.”

The technology supports radiologists in particular with repetitive tasks such as measuring nodules. “AI does the tedious work that radiologists don’t like to do and gives us time for more important tasks - for example, developing new

protocols or taking part in multidisciplinary conferences with clinicians." Dr. Møller sees great potential for young doctors in particular: "They can learn from AI by using comparative data and developing a feel for pathological patterns more quickly."

In Vejle, where a particularly large number of patients with cancer or suspicious nodules are examined, the benefits are already clear to see. The number of follow-up examinations for lung nodules are increasing, and a faster, more accurate assessment is essential in order to initiate the right treatment in good time. "I think that AI can help us to deliver high quality, even if the work pressure continues to increase," emphasizes Dr Møller.

INTUITIVE OPERATION AND SEAMLESS INTEGRATION ARE CRUCIAL

For AI to be used in daily routine, it must be understandable and easy to use. "We want our radiologists to be able to see immediately whether there are any conspicuous areas in the image that require closer examination," emphasizes Dr Møller. The team particularly appreciates the visual processing provided by contextflow: "One of the really nice functions is the graphical representation of nodule development over time. A growing structure is displayed in a changing curve in red - so we know immediately what we need to pay attention to."

However, the integration into the existing workflow could still be improved. "We currently receive a secondary capture in the PACS, but a deeper integration into our Philips Vue PACS would be desirable. We are already in talks about this," reports Dr. Møller. The aim is to integrate the AI results into the existing system as seamlessly as possible. Deeper integration could further increase efficiency by eliminating unnecessary work steps and allowing radiologists to focus more on analyzing the relevant image data.

The hospital has been testing ADVANCE Chest CT for six months. Dr. Møller is particularly impressed by the volumetric analysis of lung nodules. "In its guidelines, the British Thoracic Society recommends volumetry for the follow-up care of nodules - we are not yet implementing this across the board because it is too time-consuming for radiologists to measure nodules in three planes." But this is exactly where AI comes in: "With contextflow, it's much faster, and we will no longer miss any slow-growing nodules."

Kolding Sygehus

CONTEXTFLOW AS AN IMPORTANT AND RELIABLE PARTNER

An important aspect for the radiologists is the close cooperation with the manufacturer. "We have worked with several AI companies - including for fracture detection, vascular measurements and MRI prostate analyses," explains Dr. Møller. "At contextflow, we experience a particularly good exchange. I have made several suggestions for improvements, and it is impressive to see how quickly these are incorporated into new versions. We feel very well looked after."

Dr. Møller is convinced that AI will not replace radiologists - but radiologists who work with AI will replace those who do not. "The technology helps us to work more efficiently and precisely and ultimately provide better care for our patients," says the head radiologist.

The pulmonologists at Lillebælt Hospital in particular welcome the use of AI. "They are very interested in us using the BTS score to assess nodules. The combination of proven guidelines and modern AI support could further improve the quality of diagnostics."