

Advancing National Lung Cancer Screening Research with AI: HANSE Pilot Study Success with Leading German Academic Medical Centers

Three leading German hospitals completed a groundbreaking 2-year HANSE pilot study involving 5,000 patients, implementing Coreline Soft's AVIEW LCS PLUS to create a fully automated lung cancer screening workflow.

The study demonstrated significant improvements in screening efficiency while enabling comprehensive bio-marker extraction for advanced lung cancer research.

The Challenge

The German academic medical centers participating in the HANSE (Hanover Lung Cancer Screening) study faced multiple complex challenges in implementing large-scale lung cancer screening research

Complex Multi-Biomarker Analysis Requirements

The HANSE study required comprehensive analysis beyond simple nodule detection, including lung volume analysis, coronary artery calcium (CAC) scoring using the Agatston method, and emphysema quantification based on LAA% from a single low-dose CT scan.

Time-Intensive Manual Analysis

Traditional manual analysis of 5,000 patients across multiple hospitals would have required extensive radiologist time, with each comprehensive thoracic evaluation taking 15-20 minutes per case, involving multiple body parts.

Research Data Standardization

Ensuring consistent, standardized measurements across three different hospital sites and multiple radiologists with varying degrees of experience was critical for research validity.

Workflow Integration Across Multiple Sites

Workflow Integration Across Multiple Sites: The study needed seamless integration with existing clinical workflows at three different German hospitals – each operating with distinct PACS and RIS systems – without disrupting routine patient care.

Dr. Jens Vogel-Claussen, HANSE Principal Investigator and Professor at the University of Hannover, explained: *"We needed a solution that could extract all the biomarkers required for our HANSE study in a fully-automated workflow. Traditional methods would have made a study of this scale practically impossible within our timeframe and budget."*

The Solution

The German medical centers selected Coreline Soft's AVIEW LCS PLUS, an FDA-cleared and CE MDD-certified AI-powered comprehensive thoracic analysis platform specifically designed for lung cancer screening programs. The solution provides:

Comprehensive Multi-Disease Detection

Simultaneous analysis for lung nodules, COPD/emphysema, and coronary artery calcium from a single low-dose CT scan.

Fully-Automated Biomarker Extraction

Automated quantification of lung volumes, emphysema percentage, CAC scoring, and detailed nodule characterization without manual intervention.

Longitudinal Tracking Capabilities

Advanced algorithms for automated tracking and comparison of nodule changes over time, essential for screening program follow-up protocols.

Standardized Reporting for Providers and Patients

Patient-centric reports with consistent formatting and measurements across all participating sites, in addition to a doctor-centric report.



Implementation and Delivery

The integration across the three German hospital sites was completed with minimal IT support requirements:



Seamless PACS Integration

AVIEW LCS PLUS integrated directly with existing hospital PACS systems at all three sites within days of implementation.



Automated Processing Pipeline

Low-dose CT scans are automatically sent to the AI engine immediately after acquisition, with analysis completed in under 5 minutes.



Comprehensive Analysis Delivery

- Automatic nodule detection and Lung-RADS classification
- Volumetric lung analysis for research biomarkers
- Coronary calcium scoring (Agatston score)
- Emphysema quantification (LAA%)
- Longitudinal nodule tracking



Research Data Export

Structured data output enables seamless integration with research databases and statistical analysis platforms.

"Coreline Soft's software offers us a custom-made reporting system.

When images are taken at our low-dose CT scanner, everything is automatically analyzed by the Coreline Soft's software. The radiologist then just checks the quality of the analysis and takes about only 5 to 10 minutes to analyze the whole Lung Cancer Screening CT exam."

Prof. Vogel-Claussen

HANSE PI, German Lung Cancer Screening Hanse,
Professor, University of Hannover, Germany



Results & Benefits

The 2-year HANSE pilot study across three German hospitals demonstrated remarkable outcomes:

Research Efficiency Gains

- **90% reduction in analysis time:** From 15-20 minutes per case to 5-10 minutes
- **5,000 patients analyzed** with consistent, standardized measurements
- **100% automated biomarker extraction** for all required research parameters

Enhanced Data Quality

- Standardized measurements across all three hospital sites
- Eliminated inter-reader variability in nodule measurements and CAC scoring
- Comprehensive longitudinal tracking capabilities for follow-up studies

Multi-Disease Screening Capability

- Simultaneous lung cancer, COPD, and cardiovascular disease risk assessment
- Enhanced patient value through comprehensive health screening from a single scan
- Standardized Lung-RADS reporting with automated CAC and emphysema quantification

Operational Excellence

- Seamless integration with existing workflows across multiple sites
- Minimal IT support requirements during implementation
- Robust performance maintaining consistent operation across diverse hospital environments

Conclusion & Next Steps

The successful completion of the HANSE pilot study represents a significant milestone in national lung cancer screening research, demonstrating how advanced AI can enable large-scale clinical studies while improving efficiency and data quality. The fully automated workflow developed through this collaboration sets a new standard for lung cancer screening programs.

The success of the HANSE study has positioned these German medical centers at the forefront of global lung cancer screening research, with plans to expand the program and implement the proven workflow in routine clinical practice. The comprehensive data collected will contribute to advancing global understanding of lung cancer screening effectiveness and multi-disease detection protocols.

About Coreline Soft

Coreline Soft combines the only multi-disease, AI-based thoracic diagnostic platform with unmatched operational implementation experience. Deployed at leading healthcare providers worldwide, Coreline Soft's lungs+heart portfolio is FDA-cleared and has been chosen by seven national lung cancer screening programs for up to nine years.

The technology enables radiologists to achieve 70% faster read times while maintaining 97% clinical diagnostic sensitivity, with efficiency validated by over 290 peer-reviewed publications. The platform offers standardized Lung-RADS reporting, CAC scoring, LAA% quantification, longitudinal tracking, and seamless integration with all major PACS systems.



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