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Image retrieval for the improvement of the radiology workflow in diagnosing pulmonary pathologies

Objective

Problem: the diagnosis of interstitial pneumonias is complicated and time consuming for radiologists

Goal: increase productivity and diagnostic performance of radiologists when reading computed tomography (CT) scans with possible IPs

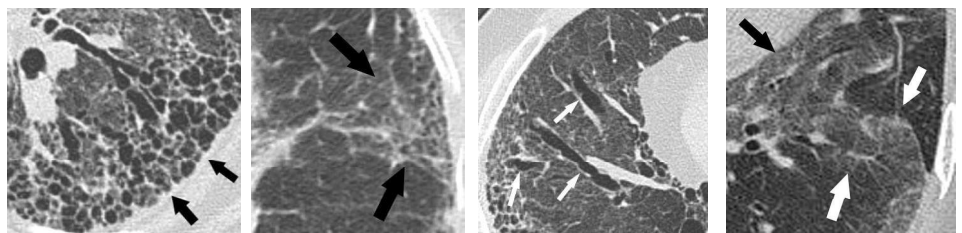


Figure 1: Different CT patterns of interstitial pneumonias

Methods

Measuring the increase of productivity and performance:

Radiologists reading 100 chest CTs with IPs or differential diagnoses thereof will be assessed with and without the image retrieval tool based on components from contextflow.

Measured parameters:

- **Diagnostic accuracy** – is the most probable diagnosis correct?
- **Diagnostic completeness** – are the differential diagnoses correct?
- **Diagnostic confidence** – what is the radiologist's subjective confidence of the finalized report?
- **Diagnostic time** – time from start until completion of a CT scan

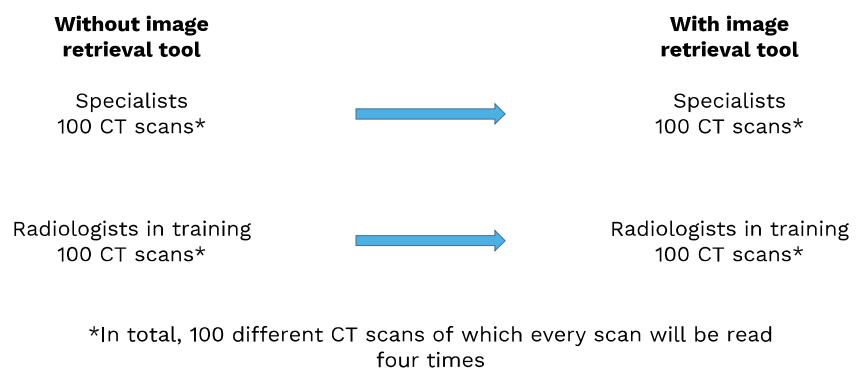


Figure 2. Tool for the provision of contextual imaging and non-imaging data, including similar cases, heatmaps of the distribution of pathological lung alterations and informational sources.

Left column: marking of a region of interest (ROI)

Middle column: matching cases, statistics and distribution of a visual pattern

Right column: case relevant information and references