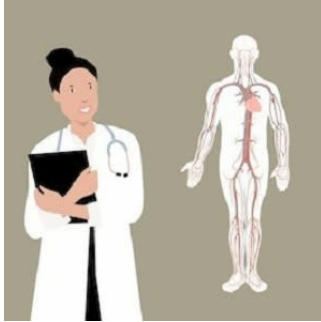## EHR-driven radiology workflow increases efficiency

Researchers in the U.S. performed an objective and subjective evaluation of a large, academic radiology department's transition to electronic health record (EHR)-centred workflow. Multiple metrics were compared from before and after the move to EHR-driven workflow. Results show that moving radiology workflow to the EHR improved efficiency, was favourable to radiologists, and enhanced examination prioritisation.

Radiology workflow encompasses the cycle of image ordering, acquisition, and interpretation. With implementation of a common EHR at Duke University Medical Center, the radiology department migrated much of its workflow from a picture archiving and communications system (PACS) to the EHR. In the former, reading worklists, examination information, and radiology reports were viewed in the PACS. Patient clinical information was obtained via the EHR, which was housed in a separate application. The shift to EHR-driven workflow moved nearly all aspects of workflow to the EHR.

In the current study, researchers hypothesised that certain workflow measures would be significantly improved after the switch but that others might not improve. Examination ordering and reading priority data were obtained for 30 days both before and after the transition. Sixteen radiologists were observed opening a computed tomography (CT) examination, and time to open, mouse clicks, and keystrokes were recorded. Information available to the radiologist during interpretation was also compared. Additionally, a 12-question survey was sent out to the residents and faculty both before and after the transition.

The study found that implementation of an eight-level reading priority system increased worklist granularity and improved identification of more urgent studies to read. Radiologists opened CT studies in PACS-driven workflow in 52.4 ± 16.9 seconds using 9.5 ± 3.9 clicks and 6.3 ± 2.9 keystrokes, compared to 17.3 ± 9.5 seconds, 4.8 ± 1.5 clicks, and 0.1 ± 0.3 keystrokes in EHR-driven workflow (p < 0.001 for each measure).

Also, with the EHR-centred workflow, more information was available to the radiologist during examination interpretation, and 54.7% of radiologists rated the ease of use of the new system as good or very good (compared to 4.2% for the old system, p < 0.001).

Examinations at Duke University Medical Center had previously been labelled as routine or stat based on selection by the ordering clinician, with more than half of examinations ordered as stat. The meaning of stat had eroded, and while a select few stat examinations had additional visual flags that would impart extra urgency (i.e., code stroke or the highest level of trauma), most stat examinations were indistinguishable on a worklist.

Following the shift to EHR-driven workflow, exam prioritisation shifted dramatically. Providers still ordered examinations stat or routine, and this piece of data continued to dictate the priority in which examinations were obtained. However, technologists then assigned a reading priority level of 1–8 to each examination, levels based on preset definitions that allowed for more granular data on a reading worklist. Worklists were sorted by reading priority rather than ordering status, allowing radiologists to readily identify the most urgent study available.

Notably, radiologists described feeling less burdened regarding tasks within the EHR (such as looking for clinical notes) after the switch.

Source: Academic Radiology
Image credit: pixabay

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