CASE STUDY

HealthLytix

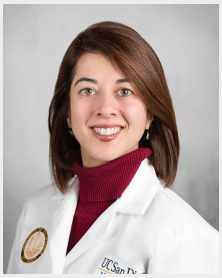
A precision health company

Increased Productivity, Efficiency and Reporting Accuracy of an Academic Neuroradiologist when Reading Head CTs

When Dr. Nikdokht Farid reads head CT scans, they're often misaligned with the patient's head either tilted or rotated. It's a common but frustrating problem with significant implications. In the Trauma and Emergency departments, up to 50% of these patients have positioning issues as a result of trauma, cervical spine collars, and/or altered mental status.

"Reading those images can be difficult because we rely heavily on properly aligned images in order to identify the abnormalities on a head CT. It can be a challenge as well to compare these scans over time," said Farid, Associate Professor of Radiology in the Neuroradiology division at the University of California, San Diego. If the technologists have time, they reformat the images to correct for misalignment. The downside to this manual process is inconsistency amongst the technologists, and it takes time away from the technologist's primary responsibility of scanning patients. Technologists are busy, especially in these acute care settings, and optimal reformatting depends on their skill and expertise. The reality is that they simply do not have the time to do this for every case.

These challenges were addressed with the implementation of CT CoPilot from HealthLytix. Dr. Farid noticed several immediate benefits due to the ability of the software to automatically align and reformat each head CT scan as it is acquired. "I immediately noticed that I was more efficient and accurate when reading head CT scans which had CT CoPilot reformats. There was no longer variability in alignment and the reformats were done automatically in real time, so I had consistent reformats available for interpretation every time," Farid said.



"CT CoPilot quickly and automatically provides correctly aligned images, which enables me to read head CT scans faster and more confidently. It has increased my productivity and has become indispensable in my interpretation of head CTs."

– Dr. Nikdokht Farid, Associate Professor of Radiology, Neuroradiology Division, UC San Diego Health

Productivity improvements were another benefit. "The automation of CT CoPilot has been huge for us," Farid said, as increasing workload is always a challenge. CT CoPilot enables the radiologist to read scans faster and more accurately. Technologists gain efficiency as well, with more time for scanning and focusing on patients, as they're not realigning and reformatting scans manually.

Rapid Visual Assessment

Another benefit Farid noted from using CT CoPilot was the ability to quickly identify differences between serial scans acquired at different times, due to the automated subtraction images that CT CoPilot provides. "That's been especially helpful for rapid qualitative assessment of changes in ventricular volume," Farid said. Before using CT CoPilot, if a radiologist suspected a subtle change in ventricular volume, the radiologist would use their PACS tools to manually measure each relevant image for confirmation, thereby reducing productivity and introducing possible measurement errors, exacerbated by misalignment of images and inter-operator variability.

The trauma and surgical teams have also benefitted from the subtraction images, as they use these images for rapid assessment of ventricular volume which allows them to make clinical and surgical management decisions in real time, even before they may have a formal radiologic assessment. "They can quickly scroll through the subtracted images and are able to more confidently visualize changes in ventricular volume, which may inform treatment planning," Farid said.

Addressing Clinical Challenges

CT CoPilot also helps the radiologist identify subtle changes in volume of intracranial hemorrhages, mass effect, and midline shift in patients who have suffered from head trauma, hypertensive hemorrhage, or aneurysmal rupture. Before Co Pilot, the radiologist manually measured changes in midline shift. "CT CoPilot automatically calculates midline shift which ensures consistent longitudinal quantitative measurements," said Farid. "and this is very valuable to the treating physician."

In short, CT CoPilot has proven to be a highly valuable tool in the interpretation of head CTs, improving radiologist efficiency and accuracy by providing automatically aligned reformats as well as improving detection of change over serial scans by automatically providing subtraction images. "The benefits have been so clear," said Farid, "that CT CoPilot has become indispensable in my interpretation of head CTs".

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