The picture archiving and communications system (PACS) is currently the standard platform to manage medical images but lacks analytical capabilities.

Yepes-Calderon et al developed an automatic method to retrieve the medical data and access it at a voxel level, decrypted and uncompressed that allows analytical capabilities while not perturbing the system's daily operation. Additionally, the strategy is secure and vendor independent. Cerebral ventricular volume is important for the diagnosis and treatment of many neurological disorders. A significant change in ventricular volume is readily recognized, but subtle changes, especially over longer periods of time, may be difficult to discern. Clinical imaging protocols and parameters are often varied making it difficult to use a general solution with standard segmentation techniques. Presented is a segmentation strategy based on an algorithm that uses four features extracted from the medical images to create a statistical estimator capable of determining ventricular volume. When compared with manual segmentations, the correlation was 94% and holds promise for even better accuracy by incorporating the unlimited data available. The volume of any segmentable structure can be accurately determined utilizing the machine learning strategy presented and runs fully automatically within the PACS [1].

1)
Yepes-Calderon F, Nelson MD, McComb JG. Automatically measuring brain ventricular volume within PACS using artificial intelligence. PLoS One. 2018 Mar 15;13(3):e0193152. doi: 10.1371/journal.pone.0193152. eCollection 2018. PubMed PMID: 29543817.