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NEWS

RSNA Press Release

Cutting-Edge Image Display System Yields More Incidental Findings

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OAK BROOK, Ill.—Use of PACS (Picture Archiving and Communication System) increases occurrence of incidental findings on radiologic studies, according to a new report published in the November issue of the journal *Radiology*.

How best to handle incidental findings-those lying outside the area of interest-has always been a concern to radiologists, who must balance the potential benefit of discovering an unexpected and important disease process against the patient anxiety and added cost posed by the need to investigate these findings. This has become a particular challenge with the advent of PACS. To learn just how many incidental findings can be expected and the clinical implications of follow-up, Steven C. Wagner, M.D., William B. Morrison, M.D., and colleagues from the Department of Radiology at Thomas Jefferson University Hospital in Philadelphia used magnetic resonance imaging (MRI) of the lumbar spine, an area that encompasses major abdominal organs, as a prototype imaging exam. "This is a common examination, and anatomically, there are many nearby structures in which incidental findings may be identified," said Dr. Wagner.

PACS replaces the usual hard-copy images, which often are cropped to the region of interest, with soft-copy images that are easily displayed, transmitted, stored and viewed (even remotely) on specially designed work stations. Viewing parameters are easily manipulated to fit the viewer's preference. This approach is less time-consuming than the traditional method and has demonstrated the potential to make radiology departments more productive. However, soft-copy studies usually contain all the uncropped and unprocessed images from the examination, including those used to localize the anatomy of interest and images that were repeated to correct for patient motion. Localizer images, with their wide field of view, depict body structures outside the area of clinical concern and are especially likely to yield incidental findings.

Dr. Wagner and his colleagues reviewed 500 consecutive lumbar spine MRI reports for each of five years, beginning one year before PACS was introduced. A total of 202 incidental findings were identified over the five-year period. Incidental findings rose from 3.8% of patients before the PACS was in place to a high of 10.6% in the first post-PACS year. The

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most common sites of these findings were the kidney, pelvis, liver, lungs and lymph nodes. Follow-up studies were recommended for only five patients before PACS and for a high of 27 afterwards (also in the first post-PACS year). While nearly all of the 202 incidental findings represented benign lesions, four were found to be occult (previously hidden) malignancies and one was occult metastatic disease. Apart from the direct cost of follow-up imaging, incidental findings may require added physician visits and lab tests.

"As radiologists get used to seeing these incidental findings and checking results of the recommended follow-up exams, we will learn to a certain extent what needs follow-up and what doesn't," said Dr. Morrison. "Undoubtedly, however, certain questionable lesions always will need further evaluation."

Present policy is for the radiologist to discuss any incidental findings and their possible significance with the referring physician, who then discusses the findings and implications with the patient before recommending any further testing.

Although Dr. Wagner acknowledges that PACS may stimulate the ordering of additional diagnostic exams for benign entities, he concluded, "The occasional discovery of occult malignant disease indicates that PACS may have a positive impact on the quality of medical care."

"Ultimately," the authors stated, "patients, physicians and policymakers will need to evaluate the cost-to-benefit ratio to determine the appropriateness of pursuing incidental findings."

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"Picture Archiving and Communication System: Effect on Reporting of Incidental Findings." Collaborating with Drs. Wagner and Morrison on this study were John A. Carrino, M.D., Mark E. Schweitzer, M.D., and Henry Nothnagel, all from the Department of Radiology at Thomas Jefferson University Hospital in Philadelphia.

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