

**Clinical Practice Statement:  
Is an Unenhanced CT Scan of the Abdomen and Pelvis Accurate  
in Diagnosing Acute Appendicitis in Adults? (6/1/10)**

Reviewed and approved by the AAEM Clinical Practice Committee.

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With the advent of more sophisticated CT scanners, imaging without contrast (unenhanced) is increasingly utilized in the evaluation of adults with suspected acute appendicitis. Oral contrast presents a significant delay to imaging. Intravenous contrast presents the small, but real risks of allergic reaction and contrast nephropathy. There is sufficient literature to support the use of unenhanced CT of the abdomen and pelvis (CT AP) to evaluate adults for acute appendicitis.

There are no large, prospective, randomized studies directly comparing the diagnostic accuracy of CT AP with contrast and unenhanced CT in the setting of acute appendicitis. However there are separate studies that address the accuracy of CT AP with IV and/or oral contrast or unenhanced CT AP, separately.

Three studies were of sufficient quality (all Grade C) to address the question of accuracy of unenhanced CT AP. One study of 300 patients by Lane MJ, et al found non-contrast CT had an accuracy of 94% (sensitivity 90%; specificity 97%).<sup>4</sup> Another study by MacKersie AB, et al. revealed an accuracy of 95.6% (sensitivity 98%; specificity 95.1%).<sup>6</sup> Ege G, et al studied 91 patients with suspected appendicitis and found an accuracy of 97% (sensitivity of 96%; specificity of 98%).<sup>22</sup>

CT AP with IV and/or oral contrast is generally cited to be 94-97% accurate in the diagnosis of acute appendicitis.<sup>9,10, 14,15</sup>

Given that the reported accuracy of enhanced and unenhanced CT AP for the diagnosis of acute appendicitis in adults are both in the high 90<sup>th</sup> percentile, unenhanced CT AP is an accurate imaging modality in the diagnosis of acute appendicitis in adults. However, if the Emergency Physician has a Radiology consultant who is not comfortable reading an unenhanced CT for this indication, the Emergency Physician may find it necessary to administer contrast to facilitate care of the patient.