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Update on Coronary CT Angiography
New Clinical Trial Evidence

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ICER's 2008 appraisal of coronary CT angiography (CCTA) evaluated the evidence on comparative clinical effectiveness and comparative value in multiple settings, including evaluation of acute chest pain in the emergency department (ED). ICER's original rating of the evidence on CCTA relative to standard triage in this setting was based on data from a small, single-center randomized clinical trial in very low-risk individuals[1] as well as multiple observational studies. Collectively, these studies showed that CCTA's negative predictive value allowed for speedier discharge from the ED in many subjects with no deleterious effects on the rate of major cardiovascular events or death.

Recently, findings from two large, multicenter randomized clinical trials of CCTA vs. standard ED evaluation were published.[2,3] These trials enrolled nearly 2500 patients at 14 sites, and unlike the earlier trial, included patients at intermediate risk of acute coronary syndromes. Findings were very similar between the two studies. CCTA was found to significantly increase the percentage of patients discharged home from the ED relative to standard care, and reduced time in hospital by 7-8 hours on average. There were no deaths at 28-30 days in either study, and no statistically-significant differences in rates of major cardiovascular events. In one study, however, patients in the CCTA arm received more downstream diagnostic testing than those receiving standard evaluation;[3] the increased costs from additional testing eliminated any savings from earlier discharge in the CCTA arm, and average total strategy costs were found to be similar between the groups.

ICER previously found the evidence on comparative clinical effectiveness to be "Comparable" between CCTA and standard triage care in the ED setting; these recent findings confirm the original rating. The original rating for comparative value was "High", however, based primarily on evidence of earlier ED discharge. In light of these recent data on increased resource use following CCTA, we would recommend changing CCTA's comparative value rating to "Reasonable/Comparable".

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[1] Goldstein JA, Gallagher MJ, O'Neill WW, et al. A randomized controlled trial of multi-slice coronary computed tomography for evaluation of acute chest pain. *J Am Coll Cardiol* 2007;49:863–71.

[2] Litt HI, Gatsonis C, Snyder B, et al. CT angiography for safe discharge of patients with possible acute coronary syndromes. *N Engl J Med* 2012;366:1393-1403.

[3] Hoffmann U, Truong QA, Schoenfeld DA, et al. Coronary CT angiography versus standard evaluation in acute chest pain. *N Engl J Med* 2012;367:299-308.