Patients with no imaging and those undergoing U/S followed by CT were excluded from analysis to minimize confounding by imaging indication.

Results: Of 6169 subjects, CT alone was performed in 30.4% (1873) and U/S alone in 29.7% (1832). The NAR was 4.9% (92) for CT and 7.2% (132) for U/S. Patients undergoing no imaging (26.6%; 1644) and those having both U/S and CT (13.4%; 829) had NARs of 4.3% (70) and 7.8% (64) respectively. Among male patients U/S was non-inferior to CT (NAR 5.1% vs 4.7%, p=0.003). U/S did not achieve non-inferiority to CT among all patients (p=0.39), among females (10.2% vs 5.3%, p=0.02), or in the age groups (2-5 years (16.6% vs. 5.3%, p=0.05), 6-10 years (6.4% vs 4.7%, p=0.18), or 11-17 years (6.5% vs 4.9%, p=0.07).”

Conclusion: In our analysis, U/S was non-inferior to CT for negative appendectomy among male pediatric patients, further supporting the first-line use of U/S in age and gender stratified diagnostic pathways for suspected appendicitis. Among females, imaging decisions for suspected appendicitis should balance the risks of negative appendectomy against those of radiation-induced malignancy.

Background: The AHA 2015 guidelines for CPR and ECC recognized the potential benefits of focused transthoracic echocardiography to diagnose potentially reversible causes of cardiac arrest. The diagnostic information provided by echocardiography may be utilized to predict the resuscitation outcomes of patients with cardiac arrest.

Objectives: We conducted a meta-analysis to summarize the evidence regarding the accuracy of focused transthoracic echocardiography to predict outcomes in patients who have sustained cardiac arrest.

Methods: The MEDLINE, EMBASE and the Cochrane Library databases were searched for studies published from inception to October 2015. The medical subject heading (MeSH) and text words for the term “echocardiography” were combined with the MeSH term “cardiopulmonary resuscitation”. Exclusion criteria included reviews, letters, editorials, case reports, comments, and animal studies. Two reviewers extracted and verified the data independently. Using a bivariate meta-analysis model with a 95% confidence interval (CI), we calculated the pooled sensitivity, specificity, positive and negative likelihood ratios of focused transthoracic echocardiography to predict Return of Spontaneous Circulation (ROSC), survival to hospital admission, and survival to hospital discharge.

Results: Out of 835 articles identified, 20 studies met the inclusion criteria for further review, and 15 studies contained sufficient data extractable for outcome prediction. The pooled sensitivity, specificity, and positive and negative likelihood ratios were 0.95 (95% CI: 0.68-0.99), 0.77 (95% CI: 0.59-0.88), 4.1 (95% CI: 2.2-7.7) and 0.06 (95% CI: 0.04-0.51) for prediction of ROSC in 9 studies; 0.78 (95% CI: 0.62-0.88), 0.74 (95% CI: 0.62-0.84), 3.0 (95% CI: 2.0-4.7) and 0.30 (95% CI: 0.16-0.54) for prediction of survival to hospital admission in 6 studies; and 0.78 (95% CI: 0.48-0.93), 0.68 (95% CI: 0.44-0.85), 2.4 (95% CI: 1.4-4.3) and 0.33 (95% CI: 0.13-0.81) for prediction of survival to hospital discharge in 5 studies.

Conclusion: Echocardiography should not be utilized independently to predict patient outcome given its poor to moderate positive likelihood ratio. The significantly low negative likelihood ratio in the outcomes across our study groups may help determine response to resuscitation and may assist with appropriate allocation of resuscitation resources.