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DIAGNOSTIC ACCURACY OF EARLY BIOMARKERS FOR ACUTE CORONARY SYNDROME (ACS)

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OBJECTIVES

Background: Current practice for suspected ACS involves troponin testing 10-12 hours after symptom onset to diagnose myocardial infarction (MI)

Aim: To estimate the diagnostic accuracy of early biomarkers for MI to determine if an earlier, accurate decision was possible

Rationale: Early discharge of patients with no or low risk of ACS will result in cost savings and reduced healthcare and patient burden

METHODS

- Systematic review of diagnostic cohort studies of patients presenting with suspected ACS
- Intervention: Presentation comparison of early troponin I and T; Heart-type Fatty Acid Binding Protein (HFABP); ischaemia modified albumen (IMA) and myoglobin
- Reference or Gold standard: Universal definition of MI (troponin at 10-12 hours)
- Meta-analysis was conducted using Bayesian Markov chain Monte Carlo simulation

RESULTS

Compared with the gold standard, sensitivity and specificity at the 99th percentile threshold were:

Biomarker	Sensitivity (%)	Specificity (%)	Number of studies in analysis
Troponion T	**77**	**93**	**10**
Troponin I	**80**	**91**	**4**
HFABP (quantitative)	**81**	**80**	**8**
HFABP (qualitative)	**68**	**92**	**9**
IMA	**77**	**39**	**4**
Myoglobin	**62**	**83**	**14**

KEY MESSAGES

- Early troponin I and T and HFABP have modest sensitivity and specificity for MI at presentation, when compared with the gold standard
- Estimates are subject to substantial uncertainty and primary data are subject to substantial heterogeneity.
- High sensitivity troponin assays appears to be the most cost-effective strategy at presentation, but more research on this assay is required

Figure 1: Meta-analysis of studies of troponin I

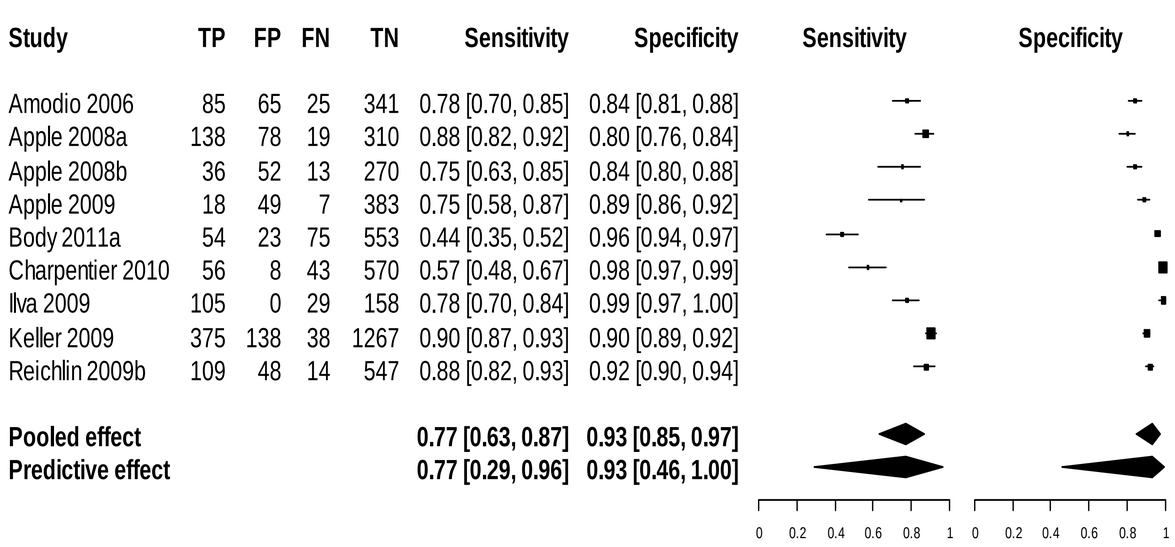
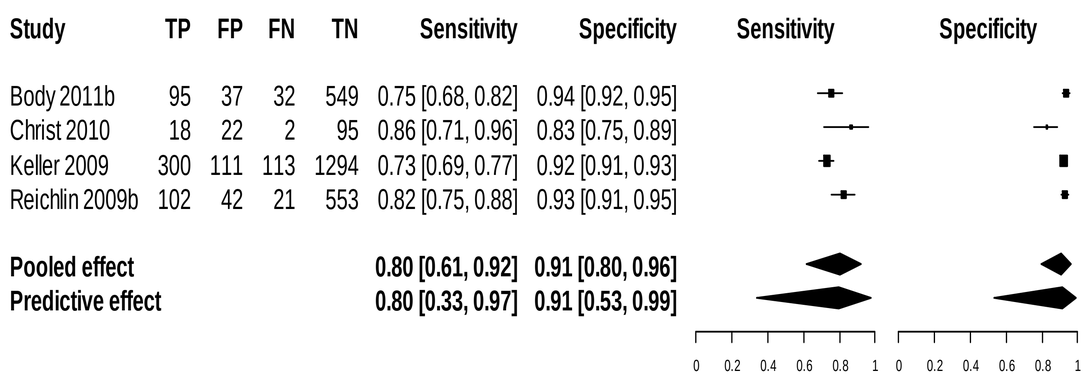


Figure 2: Meta-analysis of studies of troponin T



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