calibrated even when this was corrected. The CAD consortium model (ESC 2013 guidelines), slightly under-estimated average CAD risk, but performed well once this was accounted for lower margin presents histogram of number of patients with each predicted risk score

90 HEAD-TO-HEAD COMPARISON SHOWS POOR PERFORMANCE OF BOTH DIAMOND-FORRESTER AND PRYOR MODELS IN PREDICTING CORONARY ARTERY DISEASE IN CHEST PAIN PATIENTS: A SINGLE CENTRE EXPERIENCE IN A LARGE COHORT OF PATIENTS

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Background An optimal investigation strategy for patients with suspected angina pectoris (AP) remains elusive. UK and ESC guidelines use historical prediction models to guide management after the likelihood of coronary artery disease (CAD) is estimated by symptoms, demographics and risk factors profile (NICE UK guidelines – Pryor model) or by demographics and symptoms only (ESC guidelines – Diamond Forrester model). Data are accumulating suggesting that these prediction models grossly overestimate CAD prevalence in today patients. This is a prospective study to assess the actual CAD prevalence in patients referred to a chest pain clinic, as defined by either obstructive CAD or a positive functional test and the comparative performance of the two models in predicting CAD in these patients.

Methods 1376 consecutive patients (age: 58±12 years) were reviewed in a dedicated chest pain clinic. Patients were assigned to five estimated CAD likelihood groups: **<10%, 10%–29%, 30%–60%, 61%–90% and>90%** using the NICE model and to three CAD likelihood groups: **<15%, 15%–85%** and **>85%** using the ESC model. Patients were diagnosed as having CAD when either obstructive (>70%) coronary stenoses were demonstrated by invasive angiogram or CTCA or a functional test was positive. The observed CAD prevalence was compared with the predicted one by the two models. Investigation strategies concordance between the NICE and ESC pathways was checked with kappa statistics and comparative diagnostic performance was assessed with ROCs.

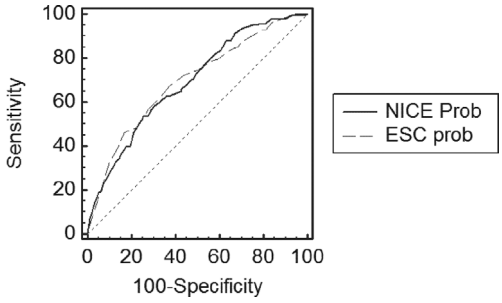
Results 652 pts. (47%) had non-anginal CP, 412 pts. (30%) had atypical AP and 312 (23%) had typical AP. 417 pts (30%) were not investigated for CAD due to non-anginal symptoms and/or low CAD probability. Investigations were completed in 858/959 pts. The actual CAD prevalence was **21%** vs. a NICE (Pryor) model predicted one of 53% and an ESC (Diamond-Forrester) model predicted one of 36% ($p<0.001$). There was poor agreement (*kappa*=0.07) between the two pathways as to investigations strategies, with the NICE pathway directing a much higher proportion of patients to invasive angiography when compared with the ESC one: 498/1386 (36%) vs. 51/1386 (4%), $p<0.0001$, respectively. Both models had modest predictive abilities with AUCs of 0.695 and 0.693, respectively (p=ns) – Figure 1: Comparison of ROCs for CAD likelihood scores by the NICE and the ESC models.

Conclusions 1. The overall prevalence of CAD in patients referred for suspected AP is significantly lower than expected by using either NICE or ESC endorsed historical model.

2. The use of risk factors profile in addition to demographics and symptoms characteristics does not improve diagnostic accuracy and increases the degree of overestimation.

3. The present NICE pathway directs a much higher proportion of patients to invasive angiography than the ESC one

4. The present results emphasise the need to develop updated prediction models.



Abstract 90 Figure 1

91 HOW USEFUL ARE RECENT STUDIES USING THE DIAMOND-FORRESTER RISK MODEL TO ASSESS CHEST PAIN?

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Background The conventional method to assess stable chest pain of recent onset is to classify the nature of the chest pain, and then apply a risk model to predict the probability that it is caused by obstructive coronary artery disease (CAD), as recommended in American, European and NICE guidelines. The European and NICE guidelines are derived from the 1979 Diamond-Forrester risk model (DFRM), although this has been criticised for overestimating the risk of CAD. We hypothesised that recent studies would be more consistent and useful than earlier studies in diagnosing CAD.

Methods We performed a systematic literature search on studies published on MEDLINE and EMBASE until Nov 2016. Searched terms were *Diamond Forrester* and *coronary artery disease*. Overlapping studies and review articles were excluded. Data on the nature of chest pain and presence of CAD was independently extracted by both authors. Crude relative risks (CRR) of CAD were calculated by comparing typical angina and atypical angina respectively to non-anginal chest pain or pain free as the reference, and not taking into account demographics or cardiovascular risk factors.

Results 10 studies (n=31,528) were eligible for analysis (mean age 59±10, 54% male), as shown in Table 1; these used a variety of different methods to diagnose CAD. Table 2 shows that compared to the original DFRM, more recent studies tended to use cohorts that had larger of patients with atypical angina and non-anginal chest pain with positive diagnoses of CAD varying dramatically; such as of those with typical angina the%age with CAD ranged from 9%–88%. There was