009 DECISION-ANALYSIS MODELLING OF THE EFFECTS OF THROMBOPROPHYLAXIS FOR PEOPLE WITH LOWER LIMB IMMOBILISATION FOR INJURY

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Background Pharmacological thromboprophylaxis reduces the risk of symptomatic venous thromboembolism (VTE) in people with lower limb immobilisation due to injury but can increase the risk of bleeding. We used decision-analytic modelling to compare the risks and benefits of thromboprophylaxis and determine the overall benefit of treatment.

Method and results A decision-analytic model was developed to simulate the management of a cohort of people with lower limb immobilisation due to injury according to different thromboprophylaxis strategies, including thromboprophylaxis for all and thromboprophylaxis for none. Costs were estimated from the perspective of the UK National Health Service and Personal Social Services. A six-month decision tree was used to model rates of prophylaxis, VTE events (pulmonary embolism [PE], deep vein thrombosis [DVT]) and major bleeds). A Markov model with a lifetime horizon was used to extrapolate costs and QALY losses associated with chronic complications following VTE or bleeding events. The health states included within the Markov model captured the risk of post-thrombotic syndrome (PTS) following VTE and the risk of chronic thromboembolic pulmonary hypertension (CTEPH) following PE. QALYs were estimated by applying estimates of health utility to life expectancy after each of the events in the model.

Conclusions The results suggest that the combined rate of serious acute adverse outcomes (intracranial haemorrhage [ICH], death from VTE or bleeding) would be around 1 in 4000 regardless of thromboprophylaxis use. As shown in table 1, the short-term benefits of thromboprophylaxis lie in reducing the rates of non-fatal PE, symptomatic DVT and asymptomatic DVT, with associated longer-term benefits of reduced risks of PTS and CTEPH. Overall, thromboprophylaxis is estimated to result in 0.015 additional QALYs per patient.

		No prophylaxis	Prophylaxis
Outcomes at 6 months per 100,000 patients	Fatal PE	12	7
	Fatal bleed	9	12
	Non-fatal ICH	5	8
	Other major bleed	26	35
	Non-fatal PE	415	225
	Symptomatic DVT	907	492
	Asymptomatic DVT	7052	3820
Outcomes at 5 years per 100,000 patients	PTS	1859	1007
	PE survivor with CTEPH	11	6
	PE survivor without CTEPH	397	215
	ICH survivor	5	7
	Dead (any cause)	1133	1129

Abstract 009 Figure 1 Predicted clinical outcomes per 100,000 patients with lower limb immobilisation due to injury

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Our findings suggest that the benefits of thromboprophylaxis lie in reducing long-term consequences of VTE rather than reducing the risk of acute serious adverse events.

010 DIAGNOSTIC ACCURACY OF PULMONARY EMBOLISM (PE) RULE-OUT STRATEGIES IN PREGNANCY

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Recent studies suggest that combinations of clinical probability assessment and D-dimer can safely rule out suspected PE in pregnant women. Van der Pol (NEJM 2019) reported that a pregnancy-modified YEARS algorithm and D-dimer ruled out PE in 195/498 (39%) and Righini (Ann Intern Med 2018) reported that the Geneva score and D-dimer ruled out PE in 46/395 (12%) without adverse outcome. We undertook a secondary analysis of pregnant women with suspected PE prospectively recruited to the DiPEP study to determine the diagnostic accuracy of these strategies.

The DiPEP study collected data and blood samples from pregnant/postpartum women with suspected PE across 11 UK hospitals and with diagnosed PE from all UK hospitals over 18 months. We selected prospectively recruited pregnant women who had definitive diagnostic imaging for analysis. We used clinical data and D-dimer results to determine whether the van der Pol and Righini strategies would recommend further investigation and imaging results to determine whether this would detect or miss PE.

We analysed 219 prospectively enrolled patients, including 12 (4.6%) with PE. The van der Pol strategy indicated no PE in 96/219 (43.8%), but this would have included 5/12 false negative cases with PE. Sensitivity for PE was 58.3% (95% CI 28.6–83.5%) and specificity 44.0% (37.1–51.0%). The Righini strategy indicated no PE in 46/219 (21.0%) but this would have missed 3/12 cases with PE. Sensitivity was 75.0% (21.9–98.7%) and specificity 20.8% (15.6–27.1%).

Strategies using clinical probability and D-dimer do not accurately rule out PE in pregnancy. The absence of adverse events in the published management studies may reflect lack of statistical power to detect clinically important adverse event rates. We therefore recommend against using clinical probability assessment and D-dimer testing to rule out suspected PE in pregnancy.

011 HIGH-SENSITIVITY CARDIAC TROPONIN ON PRESENTATION TO RULE OUT MYOCARDIAL INFARCTION (HISTORIC): A STEPPED-WEDGE CLUSTER RANDOMISED CONTROLLED TRIAL

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Background High-sensitivity troponin (hs-cTn) assays enable MI to be ruled out earlier, but the effectiveness and safety of this approach is uncertain. We compared a conventional pathway using the 99th centile and serial testing at presentation and at 6–12 hours, with a rapid rule out pathway that uses lower hs-cTn concentrations to risk stratify patients at presentation and earlier serial testing.

Method and results A 6-centre stepped-wedge, cluster RCT was completed, evaluating the efficacy/safety of implementation of a rapid rule out pathway using a hs-cTnI assay. Consecutive patients were identified, with suspected ACS who had a hs-cTnI concentration within the normal range at presentation in 3 phases. During the validation phase, patients were assessed using the standard care pathway with serial hs-cTnI testing at presentation and 6–12 hours. All centres were randomized in a stepped-wedge fashion to the novel pathway, where MI is ruled out if hs-cTnI is <5 ng/L at presentation or between 5 ng/L and the 99th centile with a change <3 ng/L at 3 hours. Sequential hypothesis testing evaluated the superiority of the novel pathway for a primary efficacy endpoint of length of stay, and non-inferiority for a primary safety endpoint of MI or cardiac death 30 days following discharge.

Conclusions From Nov 2014 to Dec 2016, 36,322 patients with suspected ACS and hs-cTnI concentrations <99th centile at presentation were identified. All patients were followed up for at least one year. Median lengths of stay and the proportion with MI or cardiac death 30 days following discharge before and after implementation of the pathway will be reported. Non-inferiority for the primary safety endpoint will be concluded if the upper limit of the one-sided 95% CI is below the non-inferiority margin of 0.5%. The proportion of patients discharged directly from ED and proportion with MI or cardiac death one year following discharge will be reported.

012 OUTCOMES FOLLOWING CONFIRMED MYOCARDIAL INJURY IN PATIENTS WITH ATRIAL FIBRILLATION: A POST HOC SUBGROUP ANALYSIS OF THE HIGH-STEACS TRIAL

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Troponin rise in patients with atrial fibrillation may be falsely attributed to oxygen demand-supply mismatch rather than acute atherothrombotic events requiring urgent percutaneous coronary intervention. The purpose of this study was to compare the differences in clinical presentation, management and outcomes between patients in atrial fibrillation and sinus rhythm presenting to the Emergency Department with a suspected acute coronary syndrome. This is the first report to describe the atrial fibrillation patient population recruited to the High-STEACS trial.

Patients recruited to the *High-Sensitivity Troponin in the Evaluation of patients with suspected Acute Coronary Syndromes* (High-STEACS) trial from three sites across South East Scotland with confirmed myocardial injury diagnosed by high-sensitivity cardiac troponin I were included in a *post hoc* subgroup analysis (n=3597). Baseline patient characteristics, coronary revascularisation treatment and one-year mortality

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