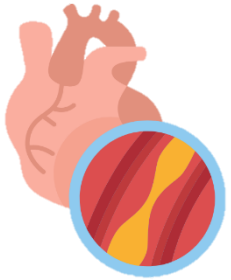
Acute Coronary Syndrome Secondary Prevention (PRIME Pilot)

They are divided into two categories, NSTEMI, in which a minor artery is completely blocked or a major artery is partially blocked, or STEMI, resulting from complete occlusion. Management requires rapid diagnosis and a procedure to restore blood flow.

AI provides an opportunity to maximise the impact of population health management approaches through targeted precision prevention. Embracing these advances means applying the full scope of therapeutic advancements and digital technology to pre-empt disease and enhance treatment of those at highest risk. The vision is to embed the risk calculator into the electronic health record, to automatically calculate risk and alert any clinician to high risk patients requiring preventative therapies.

1. Heart attacks (myocardial infarction /MI) is caused by sudden, reduced blood flow to the heart.



2. People that have had MI are at very high risk of further heart attacks, stroke and death within 5 years of diagnosis.

3. King's College Hospital is a heart attack centre treating 500 people a year with STEMI. One in four people will suffer further events in their lifetime.

4. Using AI, patient records have been analysed to compare people who have repeat heart attacks with those that don't. Key clinical features have been identified to form a novel risk estimation algorithm to identify people at highest risk of a repeat heart attack.

5. Following admission with STEMI, the algorithm will be used to identify people at greatest risk of further MI. They will be invited for follow up in a dedicated 'one-stop' CVD risk prevention clinic at 6 weeks. The clinic will ensure early and equitable state-of-the-art preventative therapy

6. People with CVD are highly likely to have or develop other long term conditions. Patients will be discharged to community based cardio-metabolic hubs for long term MDT multi-morbidity management with cardiology, nephrology, diabetes, pharmacy, mental health and GP input.

7. Using local data, we have conservatively calculated c. 39 preventable cardiac events per year. Through determining the mean time for repeat events, we know that NSTEMI prevention will deliver an in-year benefit at 6 months. STEMI prevention will be realised in 2-5 years. At a cost of £55k per year, this clinic is a financially and clinically effective prevention strategy.

8. The algorithm is currently being validated on GSTT patient records. Analysis is expanding to explore the impact of race and deprivation, and to link to procedural datasets to understand the efficacy of available therapies.

Each heart attack causes significant physical and psychological distress. Despite its prevalence and the associated burden of mortality, heart attacks are preventable. Early and judicious management of modifiable risk factors can dramatically reduce recurrent events and there are new and advanced therapies that offer significant clinical effect and can drastically slow disease progression and reduce risk.

Using 12 years local data, we have determined the recurrent event rate for patients at KCH. The median time for repeat events following STEMI is 190 days (6 months) for NSTEMI and 841 days (2.3 years for) STEMI. Each year this equates to 67 NSTEMI and 8 repeat STEMI, and overall c. 39 preventable events per year. *This is a conservative estimate that hasn't been able to account for patients treated elsewhere for their repeat event, or patients who had their first event in 2020 and haven't reached the time period for a repeat event.*