The Challenge
Heart attacks occur in over 80,000 people per year across England. Improved prognosis following heart attacks has resulted in increasing numbers of survivors. However, these survivors remain at high risk of further cardiovascular disease. How best to treat them in the long term has been the subject of recent clinical trials, leading to new recommendations for extended dual antiplatelet therapy (DAPT).

The Research
Dual antiplatelet therapy refers to the combination of aspirin with a second aspirin-like but stronger drug. It is used to reduce the risks of future heart attack. However, DAPT is associated with bleeding harms (haemorrhage) which can range from minor nosebleeds to fatal bleeding on the brain. Therefore, patients and clinicians must carefully balance benefits and harms before initiating long-term DAPT.

The Results
Researchers at the Farr Institute sought to develop tools that assess and aid the decision to undergo long-term DAPT in heart attack survivors by weighing up potential benefits and harms. They developed and validated the tools using electronic health records from 18,000 heart attack survivors aged 18 years and above from 220 general practices across England with their data linked to their respective hospital and death records. The tools use information including demographics, medical history, clinical biomarkers (e.g. systolic blood pressure) and prior medications to predict the likelihood of developing further cardiovascular disease (the benefits of DAPT) and serious bleeding (the harms of DAPT) and can distinguish between patients at different levels of risks.

Taking into account patient and clinician values or ‘weights’ towards the benefits and harms of DAPT (i.e. they may prefer to prevent further cardiovascular disease over avoiding potential bleeding harms and vice versa) using estimates from the tools it is possible to determine whether the potential for benefits exceeds the risk of harms.

The Impact
Using real-world data to develop tools aimed at personalising treatment decisions demonstrated the potential to ensure treatment for those who most require the benefits while preventing unnecessary harms.

For more information about heart attacks visit:
www.nhs.uk/conditions/Heart-attack

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