Methods In this retrospective cohort analysis, patients with confirmed ACS from 1st June 2022 to 31st May 2023 were identified from our local Myocardial Ischaemia National Audit Project (MINAP) dataset. Lipid profile, baseline demographic and medical therapy data were collected from our Trust online laboratory reporting system, healthcare summary records and correspondence. Data was analysed using GraphPad Prism and Microsoft Excel.

Results Of the 343 patients included in the study, mean age was 67.9 years, 67.7% were male and 12.2% had previously diagnosed dyslipidaemia (table 1). 72.9% met the NICE target, and 34.6% met the ESC target.

During admission for ACS 12.0% of patients had a lipid profile taken and 31.2% had a lipid profile <3 months following discharge (table 2). 2.9% of patients had a lipid profile both during admission and <3 months of discharge. 88.8% of patients were discharged on a statin, 3.8% on combination or newer lipid lowering therapies, and 7.4% on no lipid lowering therapy at all. Of the 301 patients discharged on a statin, 18.6% reported an intolerance or side effect. 64.3% reduced their statin dose or were prescribed an alternative statin, 5.4% were started on Ezetimibe. 23.2% received no alternative lipid lowering therapy agent.

Conclusion This data demonstrates that NICE and ESC 3 month lipid targets are not being met in post ACS patients at our institution. Given the availability of new lipid lowering therapies, this study highlights that improvements in both serial lipid profile monitoring and prescription of novel therapies can be made to reduce risk of future cardiovascular events.

Conflict of Interest None

224 AN ACTIONABLE, EXPLAINABLE, AND BIOLOGICALLY PLAUSIBLE AI-ECG RISK ESTIMATION PLATFORM FOR DIABETES MELLITUS

[1]Libor Pastika*, [1]Arunashis Sau*, [2]Ewa Sieliwonczyk, [1]Konstantinos Patlatzoglou, [3]Kathryn A McGurk, [3]Sadia Khan, [3]Danilo Mandic, [3]James Ware, [1]Nicholas S Peters, [4]Daniel B Kramer, [5]Jonathan Waks Waks, [1]Fu Siong Ng. *[1]National Heart & Lung Institute, 72 Du Cane Road, London, LND W12 0NN, UK; [2]*Joint First Author, National Heart & Lung Institute; [3]Imperial College London; [4]National Heart & Lung Institute, Imperial College; [5]Beth Israel Deaconess Medical Center*

10.1136/heartjnl-2024-BCS.216

Background With the rising incidence of Type 2 Diabetes Mellitus (T2DM) and the number of undiagnosed cases, there is an urgent need for innovative strategies for early identification of individuals at higher risk. To address this, we explore the utility of deep learning applied to 12-lead electrocardiograms (ECGs) for predicting the risk of incident T2DM in non-diabetic individuals, offering a novel approach for early detection and risk stratification.

Methods The AI-ECG model, developed on the Beth Israel Deaconess Medical Center (BIDMC) dataset of 1.1 million ECGs and externally validated in the UK Biobank (UKB, N = 65,606), employs a residual neural network architecture tailored for a discrete-time survival model. Model performance was evaluated using the concordance index (C-index), and its enhancement of traditional risk factors was assessed via likelihood ratio tests (LRT) and net reclassification index (NRI). We also explored associations with clinical and echocardiographic features through a phenome-wide association study (PheWAS), and with genetic loci through a genome-wide association study (GWAS).

Results The model predicted future T2DM in non-diabetic outpatient individuals with a C-index of 0.666 (0.658–0.675) in BIDMC and 0.689 (0.663–0.715) in UKB. The model showed consistent performance in both sexes, across ethnic groups, and BMI categories, except for patients aged ≥ 65. An improved performance was noted in individuals aged < 65, with a C-index of 0.691 (0.681, 0.701) and 0.765 (0.730, 0.797) in UKB. Adding the AI-ECG model to age, sex, BMI, and ECG parameters significantly enhanced predictive accuracy in the BIDMC cohort ($p < 0.0001$). Similarly, adding the model to the American Diabetes Association (ADA) risk score in the UKB substantially improved predictive accuracy ($p < 0.0001$). The continuous Net Reclassification Improvement (NRI) was 0.30 (0.22–0.40) for the BIDMC and 0.35 (0.21–0.47) for the UKB.

The PheWAS and echocardiographic analyses identified significant associations between model predictions and a range of cardiac and non-cardiac phenotypes, including lipid profiles, glycaemic control, blood pressure, as well as echocardiographic measures of cardiac structure and function. This was substantiated by the GWAS study, highlighting genes associated with left ventricular structure, left atrial function, myocardial mass, blood pressure, T2DM, and HbA1C.

Conclusion We have developed an AI-ECG model capable of predicting the risk of future T2DM in non-diabetic outpatient populations, validated in both primary and secondary care cohorts. The model enhances T2DM risk prediction and stratification when integrated with traditional risk factors and scores. Its application in primary care settings holds promise for the early identification of individuals at higher risk of T2DM, enabling timely interventions and personalised management.

Conflict of Interest None

225 LIPID MANAGEMENT IN SECONDARY PREVENTION OF ACUTE CORONARY SYNDROMES: A SINGLE-CENTRE RETROSPECTIVE OBSERVATIONAL STUDY

Alexander Clark*, Joshua Sellars, Lwin Tin. *Salford Royal Hospital, Salford Royal Hospital, Salford, GTM M6 8HD, UK*

10.1136/heartjnl-2024-BCS.217

Background Non-high density lipoprotein cholesterol (non-HDL C) is a major risk factor for atherosclerotic cardiovascular disease, and optimising management of lipids in secondary prevention of acute coronary syndromes (ACS) is crucial for improving long-term outcomes. Greater Manchester regional guidance recommends initiation of high intensity statin therapy post ACS and a target non-HDL C of <2.5 mmol/L within 3 months of initiating treatment.

This retrospective analysis of a large university teaching hospital (Salford Royal) in Greater Manchester, UK, investigates the current reduction in non-HDL cholesterol achieved and aims to identify opportunities for improving lipid management.

Methods Retrospective analysis of medical records for patients diagnosed with ACS between 01/01/21 to 30/06/23 with a baseline non-HDL cholesterol level during admission was performed. The absolute and percentage reduction in non-HDL C for each patient with a follow-up test at 2–6 months was

Heart: first published as 10.1136/heartjnl-2024-BCS.216 on 27 May 2024. Downloaded from http://heart.bmj.com/ on March 6, 2026 by guest. Protected by copyright, including for uses related to text and data mining, AI training, and similar technologies.