SHARP

Scottish Lipid Forum

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SHARP & SCOTTISH LIPID FORUM ANNUAL MEETING

PROGRAMME

CRIEFF HYDRO HOTEL

21 - 22 NOVEMBER 2024

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Welcome

On behalf of the Organising Committee it is our pleasure to welcome you to the 2024 Annual Meeting of SHARP and the SLF. We look forward to seeing you all at our traditional two-day conference in the Crieff Hydro Hotel.

The last few years have not been easy for SHARP and the SLF. The COVID-19 pandemic forced us to remote working and virtual conferences. In 2021 we went back to an in-person meeting in Edinburgh but to test the waters, we went for a one-day conference only. After the huge success of last year's meeting we feel that it is now the right time to return to Crieff and host a two-day event.

We are excited about this year's programme and hope you share our excitement. Unfortunately, cardiovascular and metabolic diseases remain the major health challenge in Scotland and elsewhere. But fortunately, we have a wide range of world-leading experts in the prevention, diagnosis and management of cardiovascular and metabolic diseases in Scotland and the wider UK who share their expert knowledge with us in Crieff. We are very grateful to colleagues for joining us this year.

We listened to suggestions from our membership and developed a programme that addresses the key elements of cardiovascular and metabolic diseases and importantly, the prevention of these conditions. Like more than 30 years ago, when SHARP was founded, we will address hypertension, lipid disorders, diabetes and obesity, heart disease and stroke. The topics of our Annual Meeting have not changed in the last decades but obviously there has been enormous progress in our approach to these conditions.

We are particularly grateful to Prof. David McAllister who will give this year's keynote lecture. David will help us to understand how clinical trials inform clinical practice and why the evidence if not always as good as it could be. The keynote lecture sets the scene for our topical sessions with lectures and panel discussions by leading experts in their fields. We also decided to have more original presentations this year which will feature throughout the sessions. This will not only give colleagues at earlier stages of their careers the opportunity to present their work; it will in fact share the latest research findings with the SHARP and SLF community. These presentations are in addition to poster presentations and the three oral presentations that will compete for the prestigious SHARP Prize.

The two-day format will also bring the popular SHARP Workshops back. We are well aware how much time it takes to prepare these events and are grateful to colleagues who run these workshops and share their clinical expertise with us.

We are sure that the beautiful environment in Crieff will stimulate exchange and discussion among delegates. The dinner on Thursday night will provide an excellent opportunity to celebrate, exchange thoughts and renew friendships. And with our Patron Dr James Robson giving an after-dinner address, it will certainly be a most enjoyable event.

We would like to thank everybody who contributed to this year's Annual Meeting, in the preparation of the programme, by delivering lectures and workshops, by sharing their original research with us, by providing sponsorship and by attending, asking questions and discussing the latest developments in cardiovascular and metabolic diseases.

Best wishes

Professor Christian Delles
SHARP Chair

Dr Jonathan Malo
Scottish Lipid Forum Chair

SHARP Scottish Lipid Forum

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Agenda

THURSDAY 21ST NOVEMBER

Time	Description	Location
08:30	Registration & Exhibition	Foyer / Ballroom / Loggia
09:10	Welcome & Session 1	Drawing Room
11:00	Refreshment Break & Exhibition	Ballroom / Loggia
11:30	Workshops	Various
12:30	Lunch	Meikle Restaurant / Ballroom / Loggia
13:30	Keynote Lecture	Drawing Room
14:00	Session 2	Drawing Room
15:15	Refreshment Break & Exhibition	Ballroom / Loggia
15:45	Session 3	Drawing Room
17:00	Closing Remarks	Drawing Room
17:15	Novartis Sponsored Symposium	Drawing Room
19:00	Drinks Reception & Exhibition	Ballroom / Loggia
19:30	Annual Dinner	Ferntower Suite

FRIDAY 22ND NOVEMBER

Time	Description	Location
08:30	Registration & Exhibition	Foyer / Ballroom / Loggia
09:00	Welcome & Session 4	Drawing Room
10:30	Refreshment Break & Exhibtion	Ballroom / Loggia
11:00	Workshops	Various
12:30	Lunch	Meikle Restaurant / Ballroom / Loggia
13:30	Session 5	Drawing Room
15:30	Closing remarks and adjourn	Drawing Room

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Thursday Morning Programme

Session 1: Hypertension

Time: 09:10 - 11:00
Room: Drawing Room

09:10 **Welcome**
Professor Christian Delles, SHARP Chair & Dr Jonathan Malo, SLF Chair

09:15 **Guidelines**
Professor Ian Wilkinson, Professor of Therapeutics /
Director of Cambridge Clinical Trials Unit, University of Cambridge

09:30 **Gestational hypertension**
Dr Marie Freel, Consultant Endocrinologist
Queen Elizabeth University Hospital, Glasgow

09:45 **Blood pressure in the elderly**
Professor James Sheppard, Professor of Applied Health Data Science
University of Oxford

10:00 **New drugs, new interventions**
Professor Isla Mackenzie, Professor of Cardiovascular Medicine
University of Dundee

10:15 **Management of type 2 diabetes**
Dr Gemma Currie, Consultant Endocrinologist
Glasgow Royal Infirmary

10:30 **Panel Discussion**

10:40 **Acute Coronary Syndrome Secondary Prevention Management and Communication With Primary Care: Recommendations vs Reality.**
Dr Lucy Davidson, NHS Ayrshire and Arran

10:50 **Allopurinol therapy and incidence of osteoarthritis outcomes in patients with ischaemic heart disease in a prospective randomised controlled trial – the Allopurinol and Cardiovascular Outcomes in Patients with Ischaemic Heart Disease (ALL-HEART) study.**
Miss Shreya Kannan, Medical Student, University of Dundee

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Refreshment Break & Exhibition

Time: 11:00 - 11:30
Room: Ballroom & Loggia

We invite all delegates to take advantage of the Refreshment Break by visiting our exhibitor stands and exploring the poster display. This is a wonderful opportunity to network with fellow attendees and engage with our valued sponsors, whose generous support makes this meeting possible.

View the poster display featuring the SHARP Prize & studentship projects. It's a fantastic chance to discover innovative research and connect with the talented individuals behind their work.

EXHIBITORS

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Thursday's Workshops

Time: **11:30 - 12:30**

Please make sure to attend your assigned workshop, as indicated on your delegate badge. Space in the workshops is limited, so it's important to stay with your designated group. Each workshop will last 30 minutes, and you will have the opportunity to attend two workshops.

01

Cardiometabolic risk in primary care

Dr Kevin Fernando, GP Partner
North Berwick Health Centre

Room: TBC

02

Hypertension

Professor Ian Wilkinson
Professor of Therapeutics/Director of Cambridge Clinical Trials Unit
University of Cambridge

Room: TBC

03

FH genetic screening in Scotland - a mini update/review

Dawn O'Sullivan
Deputy Head of Genetics & Molecular Pathology Laboratory Services
NHS Grampian

Room: TBC

04

Thrombosis and Embolism

Dr Catherine Bagot, Consultant Haematologist
Glasgow Royal infirmary

Room: TBC

05

Type 2 diabetes in primary care

Dr Gemma Currie, Consultant Endocrinologist
Glasgow Royal Infirmary

Room: TBC

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Lunch & Exhibition

Time: 12:30 - 13:30
Room: Meikle Restaurant, Ballroom & Loggia

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KEYNOTE LECTURE

Clinical trials in cardiometabolic medicine: are they representative and does it matter?

Time: 13:30 - 14:00
Room: Drawing Room

Professor David McAllister
Professor of Clinical Epidemiology and Medical Informatics
University of Glasgow

David graduated in 2002 and worked in hospital medicine until 2010, including doctoral research funded by Chest, Heart and Stroke Scotland at the University of Edinburgh and a stint at Columbia University. In 2011, he transitioned to public health medicine, publishing influential work in cardiovascular, respiratory, and diabetes epidemiology. In 2016, he received a Wellcome Intermediate Clinical Fellowship and the Wellcome-Beit Prize, moving to the University of Glasgow to study treatment effectiveness in multimorbidity.

During the COVID-19 pandemic, David was seconded to Public Health Scotland, where he focused on healthcare workers, teachers, and care home residents. He currently serves as an Honorary Consultant in Public Health Medicine and is a member of the health technology assessment committee for NICE. His research interests include using novel statistical methods and secondary analysis of clinical trial and routine healthcare data to enhance healthcare decision-making for those with multimorbidity and clinical frailty.

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Scottish Lipid Forum

Thursday afternoon programme

Session 2: Lipids

Time: 14:00 - 15:15
Room: Drawing Room

14:00 **Gene editing to inactivate hepatic PCSK9**
Professor Riyaz Patel, Consultant Cardiologist
University College London & St Bartholomew's Hospital

14:15 **National FH service in Wales - an update**
Professor Dev Datta, Consultant in Metabolic Medicine
Cardiff and Vale University Health Board

14:30 **Targeted community-based risk factor measurement**
Mr Stuart Brown, Deputy Head of Prevention
Chest, Heart & Stroke Scotland

14:45 **Lp(a), a Scottish perspective**
Dr Maurizio Panarelli, Consultant Clinical Biochemist (Medical)
Glasgow Royal Infirmary

15:00 **Panel discussion**

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Refreshment Break & Exhibition

Time: 15:15 - 15:45
Room: Ballroom & Loggia

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Scottish Lipid Forum

Thursday afternoon programme

Session 3: Clots & Bleeds

Time: 15:45 - 17:00
Room: Drawing Room

15:45 **Clots in small and large veins**
Dr Catherine Bagot, Consultant Haematologist
Glasgow Royal infirmary

16:00 **New interventions in stroke**
Professor Jesse Dawson, Professor of Stroke Medicine
University of Glasgow

16:15 **Intracerebral haemorrhage**
Professor Mary Joan MacLeod, Professor and Honorary Consultant Physician
University of Aberdeen

16:30 **Panel Discussion**

16:40 **Clinical audit: Adherence to guidelines regarding the co-prescription of simvastatin and amlodipine in primary care.**
Miss Marta Lipinska, Medical Student (ScotGEM), University of St. Andrews

16:50 **Cascade testing for Lp(a) in NHS Highland.**
Dr Rosemary Clarke, Consultant Medical Biochemist, NHS Highland

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Scottish Lipid Forum

NOVARTIS

NOVARTIS SPONSORED SYMPOSIUM

Evolution of Lipid Lowering Therapies

Time: **17:15 - 18:15**
Room: **Drawing Room**

The Novartis symposium will discuss the Cardiovascular disease burden and unmet need in LDL-C lowering; Introduction to the Lipid Pathway in NHS Tayside; Leqvio efficacy and real world experience through case study presentations.

Chair — Dr Jonathan Malo, Consultant Chemical Pathologist
Royal Infirmary Edinburgh

Speakers — Prof Isla Mackenzie
Professor of Cardiovascular Medicine and Honorary Consultant Physician
University of Dundee

Prof Dev Datta, Consultant in Metabolic Medicine
University Hospital Llandough

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SHARP Scottish Lipid Forum

Thursday evening programme

Time: 19:00
Room: Ballroom & Ferntower Suite

Drinks Reception

Join us for the Drinks Reception starting at 19:00 in the Ballroom. This is another excellent opportunity to engage with our exhibitors & explore the poster display. Enjoy a relaxed atmosphere as you network with colleagues.

Annual Dinner

Our Annual Dinner will be held in the Ferntower Suite. This setting provides a chance to unwind and continuing conversations with peers and colleagues. It's the perfect setting to celebrate our shared achievements and foster new connections.

We are delighted to welcome back Dr. James Robson, patron of SHARP, as our after-dinner speaker.

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SHARP Scottish Lipid Forum

Friday morning programme

Session 4: Obesity and diabetes

Time: 09:00 - 10:30
Room: Drawing Room

09:00 **Welcome**
Professor Christian Delles, SHARP Chair & Dr Jonathan Malo, SLF Chair

09:05 **Impact of Dapagliflozin on Epicardial Fat in Heart Failure**
Mohmmad Alghamdi, University of Dundee

09:15 **Reducing Cardiovascular disease (CVD) risk in the agricultural sector.**
Mrs Irene Scott, General Practice Nurse/Queen's Nurse, Inverkeithing Medical Group

09:30 **Scottish CVD Reduction Bundle**
Professor Brian Kennon, Consultant Diabetologist
NHS Greater Glasgow and Clyde / Scottish Government

09:45 **Management of type 1 diabetes**
Professor Rory McCrimmon, Dean & Professor of Experimental Diabetes and Metabolism
School of Medicine, University of Dundee

10:00 **Management of obesity**
Professor Naveed Sattar, Professor of Cardiometabolic Medicine
University of Glasgow

10:15 **Panel Discussion**

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Refreshment Break & Exhibition

Time: 10:30 - 11:00
Room: Ballroom & Loggia

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Friday's Workshops

Time: **11:00 - 12:30**

Please make sure to attend your assigned workshop, as indicated on your delegate badge. Space in the workshops is limited, so it's essential to stick to your assigned group. Each workshop will last 30 minutes, and you will have the opportunity to attend three workshops.

01

ECG cases

Professor Rachel Myles, Professor of Cardiac Electrophysiology & Honorary Consultant Cardiologist, University of Glasgow

Room: TBC

02

Lipid management in primary care

Dr Lyn Ferguson, Consultant and Honorary Senior Clinical Lecturer Metabolic Medicine, NHS Greater Glasgow and Clyde / University of Glasgow

Room: TBC

03

Cardiovascular risk prediction and ASSIGN 2

Professor Paul Welsh, Professor of Molecular Epidemiology University of Glasgow

Room: TBC

04

Cardiovascular Health, the Menopause, and HRT: changes over time

Dr Jenifer Sassarini, Consultant Gynaecologist and Honorary Senior Clinical Lecturer, NHS Greater Glasgow and Clyde and University of Glasgow

Room: TBC

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Lunch & Exhibition

Time: 12:30 - 13:30
Room: Meikle Restaurant, Ballroom & Loggia

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SHARP Scottish Lipid Forum

Friday afternoon programme

Session 5: Update on the heart

Time: 13:30 - 15:30
Room: Drawing Room

13:30 **Microvascular angina**
Dr Richard McFarlane, Clinical Lecturer in Cardiology
University of Glasgow

13:45 **Inherited cardiac conditions**
Professor Rachel Myles, Professor of Cardiac Electrophysiology & Honorary Consultant Cardiologist, University of Glasgow

14:00 **The kidneys and the heart**
Professor Neeraj Dhaun. Professor of Nephrology
University of Edinburgh

14:15 **Panel Discussion**

14:30 **Clinical Profile and Outcomes in Hypertrophic Cardiomyopathy: Findings from the Tayside Inherited Cardiac Condition Clinic (ICC) Study.**
Miss Victoria Lamour, 3rd Year Medical Student, University of Dundee

14:40 **Cardiac troponin I and T ratio and risk of cardiovascular or non-cardiovascular events: findings from the Generation Scotland Scottish Family Health Study.**
Dr Marie de Bakker, Postdoctoral Researcher, University of Edinburgh

14:50 **An Audit of the NT-proBNP Heart Failure Diagnostic Pathway to Help Identify Patients with Suspected Heart Failure with Preserved Ejection Fraction (HFpEF).**
Miss Samruddhi Lele, Medical Student, University of Dundee

15:00 **SHARP Prize Presentation**

15:30 Closing remarks and adjourn

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Partnering for Change: Perth Grammar School joins us at our Annual Meeting.

We are excited to welcome S2 pupils to this year's conference as part of our ongoing partnership with Perth Grammar School. As many of you may know from our social media and newsletter, we received a generous donation of £3,000 from Perth Grammar School and The Wood Foundation. This funding was secured through the efforts of two students who participated in the Youth Philanthropy Initiative (YPI), successfully winning the grant for their chosen charity, SHARP.

Christian Delles recently visited Perth Grammar School for the YPI launch, where he presented on the significant impact this initiative has had on SHARP. Continuing our collaboration, we have invited faculty and students to join us at this year's meeting, where we will host a dedicated workshop on Basic Life Support led by Mr. John Ramsay, Resuscitation Officer at the University of Dundee.

We are truly inspired by the dedication of these young students and their commitment to making a difference. Their passion illustrates the impact that the next generation can have on improving community health.

We also extend our heartfelt gratitude to Sir Ian Wood and The Wood Foundation for their support of the YPI, which empowers young people to engage in meaningful philanthropic efforts. This, in turn, enables charities like SHARP to continue their vital work.

We encourage you to take a moment to connect with these students during the breaks and share your insights and experiences. Your engagement can inspire the next generation and greatly enhance their understanding of our work.

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SHARP Studentships

These talented students embarked on their research projects this summer, and we were excited to see their contributions to advancing cardiovascular health. We appreciate it if you take the time to view their work and engage with them!

Isla Jackson
University of Glasgow

Knowledge and Perceptions of Nicotine, Nicotine replacement therapies and Electronic Cigarettes amongst Healthcare professionals in the UK.

Shona M'gadzah
University of St. Andrews

Does a complex prompt after the diagnostic accuracy of common cardiovascular conditions by GPT-4?

Katie McConnell
University of Glasgow

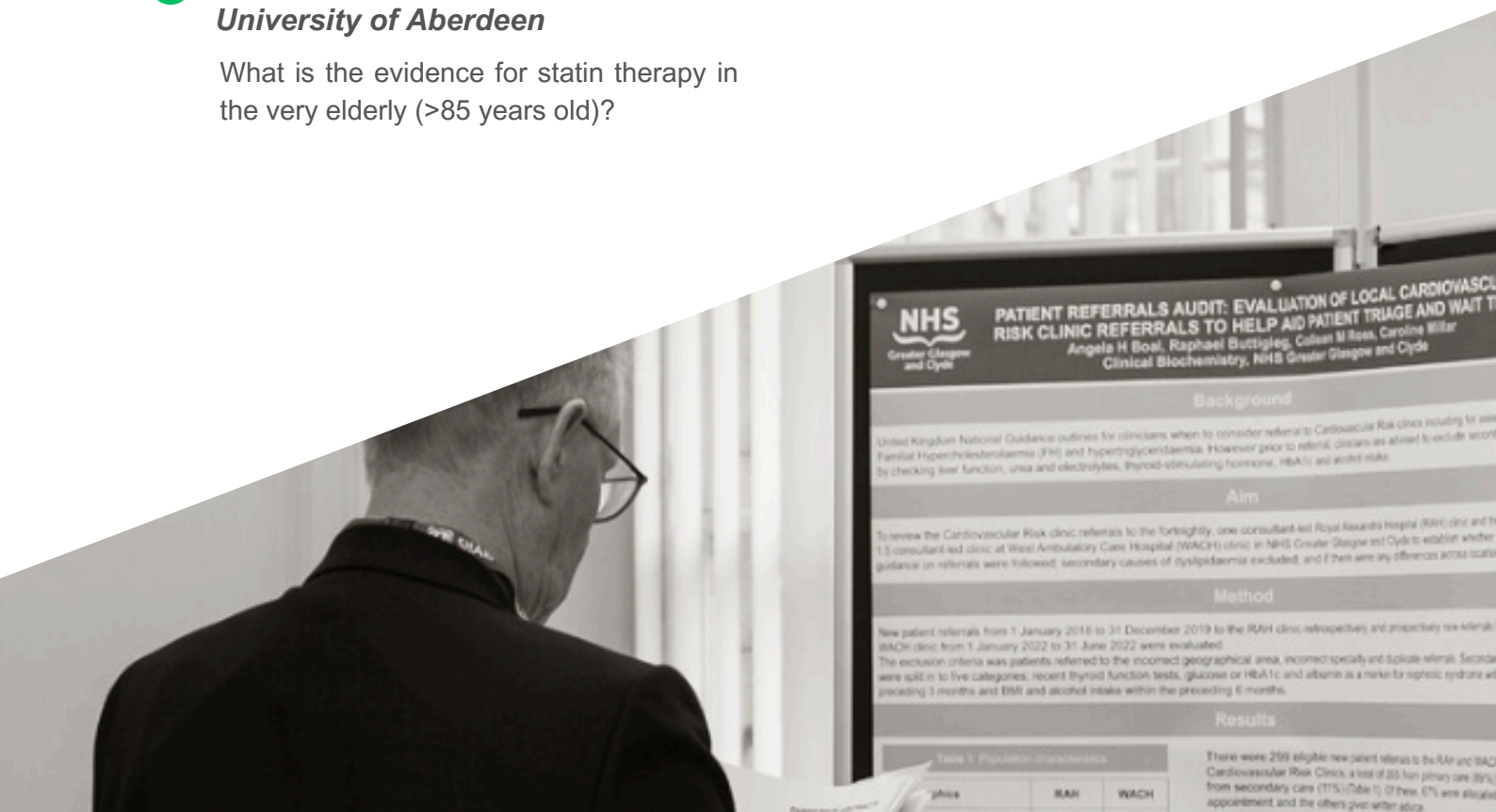
What do stroke survivors want to know (and what are we telling them)?

Andrew MacLeod
University of Dundee

Endothelial cell dysfunction links type 2 diabetes and ferroptosis: An Ironclad mechanism?

Vinci Pabellan
University of Aberdeen

What is the evidence for statin therapy in the very elderly (>85 years old)?



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SHARP Prize abstracts

These posters are all in the running to win the Best Poster and Oral Prize, with £500 awarded to the winners to support their educational pursuits and further their research endeavours.

Title:	Impact of Dapagliflozin on Epicardial Fat in Heart Failure
Authors:	Mohmmad Alghamdi, Jagdeep Singh, Chim Lang, Ify Mordi and Faisel Khan
Affiliations:	University of Dundee

Introduction: Epicardial adipose tissue (EAT) accumulation is linked to adverse outcomes in heart failure with preserved ejection fraction, but its role in heart failure with reduced ejection fraction (HFrEF) is less clear. The relationship between EAT thickness and outcomes in patients with both diabetes and heart failure remains uncertain. Sodium-glucose cotransporter 2 (SGLT2) inhibitors like dapagliflozin improve outcomes in heart failure and diabetes, though their mechanisms of benefit are not fully understood. This study aimed to assess whether dapagliflozin reduces EAT in patients with type 2 diabetes and HFrEF.

Methods: We analysed individuals with type 2 diabetes and HFrEF from the REFORM trial who were randomised to receive either dapagliflozin or a placebo for 12 months. Cardiac magnetic resonance (CMR) scans were conducted at baseline and after 12 months and EAT was measured using 4-chamber cine images. Measurements were made at end-diastole and blinded to randomisation status.

Results: 47 participants completed the study (23 placebo, 24 dapagliflozin). Baseline characteristics, including EAT thickness, BMI, heart rate, and blood pressure, were comparable between groups. Baseline EAT was similar in both groups (placebo: 11.54 cm^2, dapagliflozin: 11.74 cm^2, p=0.414). After 12 months, dapagliflozin significantly reduced EAT compared to placebo (1.21 cm^2 vs. 0.09 cm^2, p=0.007).

Conclusion: Dapagliflozin significantly reduced EAT in patients with type 2 diabetes and HFrEF compared to placebo. This reduction in EAT may contribute to the beneficial effects of dapagliflozin in heart failure management.

SHARP Prize abstracts

Title:	Comparing the Impact of Surgical and Transcatheter Aortic Valve Replacement Methods on the Incidence of Post-Operative Pacemaker Implantation
Authors:	Marcel Al-Horoub (4MB, BMSc)
Affiliations:	Centre for Anatomy & Human Identification (CAHID)

Introduction: Aortic stenosis (AS) is a severe symptomatic narrowing of the aortic valve, which affects 12% of over 75-year-olds. The primary cause is Calcific Aortic Valve Disease (CAVD). To improve AS survival, aortic valve replacement (AVR) is undertaken through a surgical (SAVR) or transcatheter (TAVR) method. Recently, TAVR has become the most used method of AVR, with continual expansion of the patient group receiving the procedure. Between the methods, a common complication exists that causes excess mortality: development of post procedural conduction disorders, which require permanent pacemaker implantation (PPMI). Various risk factors can predispose to this: pre-existing conduction disorders (eg left and right bundle branch block, LBBB and RBBB respectively), valve oversizing, short membranous septum (MS) length of the heart (which the AV node and bundle branches run through), and deep valve implantation. The literature describes novel techniques of measuring the MS to optimise TAVR implantation depth. This reduces the higher risk of PPMI historically associated with TAVR. However, this association comes from analysis done on older, 1st generation TAVR valves. This systematic review aims to clarify if this historical association is accurate, by comparing post-procedure PPMI incidence between SAVR to the latest TAVR valves.

Methods: Three electronic databases yielded 838 articles. After duplication filtering and manual abstract review, 13 single arm retrospective studies matched inclusion criteria with a pool of 874 SAVR patients and 29,950 TAVR patients. SPSS was used to conduct independent samples T-tests for homogeneity of the only consistent pre-operative risk factors reported among these studies for post procedure conduction abnormality, LBBB and RBBB. A meta-analysis of proportions with a random effects model (DerSimeon-Laird) with Freeman-Tukey double arcsine transformation was done using Jamovi (MAJOR) to compare rates of PPMI between SAVR and TAVR.

Results: SPSS T-tests yielded results that lacked significance ($p>0.05$), suggesting homogeneity of LBBB and RBBB among studies.
Mean post procedure PPMI rate of 16% (95% CI, 8-24%) for SAVR and 39% (95% CI, 35-43%) for TAVR were reported from a meta-analysis of proportions done in each respective method group. Lack of confidence interval overlap between these two results suggests a significant difference between the rates of post procedure PPMI.

Conclusion: TAVR has a higher rate of post procedure PPMI when compared to SAVR, even in the latest (non-1st generation) valves. More research is required to mitigate this common complication of conduction disorders that require PPMI. This can take the form of guidelines to standardise TAVR implantation depth, informed by individual patient anatomical MS length.

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SHARP Prize abstracts

Title:	Case Series: assessment of two anti-HMG-CoA reductase antibody-associated immune-mediated necrotising myopathy patients in a Scottish Lipid Clinic.
Authors:	Angela H Boal, Caroline Millar
Affiliations:	Clinical Biochemistry, NHS Greater Glasgow and Clyde

Introduction: Anti-hydroxy-methyl-glutaryl-coenzyme A reductase (HMGCR) antibody-associated immune-mediated necrotising myopathy (IMNM) is a rare condition with limited data about clinical features and alternative lipid-lowering therapeutic options.

Methods: We retrospectively reviewed two patients with HMGCR-associated IMNM treated at our Lipid Clinic.

Results: We manage two female patients A and B; aged 65 and 74 with probable polygenic hypercholesterolaemia. Both first experienced muscular symptoms 5-6 years after Atorvastatin introduction with peak creatine kinase (CK) 8331U/L and 7414U/L. Initial imaging found no evidence of malignancy or active myositis. Patient B's muscle biopsy showed no necrosis but regeneration, presumed due to recent statin cessation. Subsequently HMGCR antibodies were strongly positive, >200CU and 359.5CU.

Patient A initially responded to statin cessation but 10 months later was admitted with progressive lower limb weakness. Over 3 years, she has required varying doses of glucocorticoids, intravenous immunoglobulins, Methotrexate and Rituximab. Patient B commenced Methotrexate 6 years after presentation.

For hypercholesterolaemia, Ezetimibe was initially prescribed. Patient A's CK rose from 280U/L to 2124U/L over 8 months, and it is currently withheld. Patient B's transaminases recently rose, and Ezetimibe has been withheld. However, she did not have a significant CK rise in 4 years of use but developed weakness after 3 years. She recently started Evolocumab 140mg fortnightly.

Conclusion: Despite stopping statins multiple years ago, both patients continue to have significant issues requiring immunosuppressants. It is unclear if Ezetimibe has directly affected muscle or liver function, but we will continue monitoring. Further treatment options being considered include PCSK9 inhibitor therapy which Patient B recently commenced.

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SHARP Prize abstracts

Title:	Cascade testing for Lp(a) in NHS Highland.
Authors:	Rosemary E. J. Clarke, Nichola M. Shaw
Affiliations:	Lipid Clinic, Raigmore Hospital, NHS Highland

Introduction: 'HEART UK consensus statement on Lipoprotein(a): A call to action' advises 'Serum Lipoprotein(a) levels should be measured in those with: b) first degree relatives with raised serum Lp(a) levels (> 200 nmol/L)'. Lp(a) is measured in mg/dL in NHS Scotland; 90 mg/dL approximates to 200 nmol/L. There is currently no genetic support within the NHS for this cascade testing which is not carried out anywhere else in Scotland.

Methods: Over period January 2021 - June 2024, 28 patients with Lp(a) > 90mg/dL under the care of our lipid clinic were given letters to pass to their first degree relatives about Lp(a) testing.

Any GP referring to our lipid clinic saying their patient had one of these letters had their referral accepted.

Results: 22 patients presented for cascade testing. 5 unknown what relative caused query; all Lp(a) <90 mg/dL. The remaining 17 patients are shown in table below:

Index Lp(a) mg/dL	Relative Lp(a) mg/dL	Relative Lp(a) mg/dL	Relative Lp(a) mg/dL
94.6	16.6		
97	34.2	113.5	
100.9	43.7	48.6	
101.9	80.8	54.7	
119.2	89.4	71.2	68.9
135	73.6		
155.7	127.8	98.9	196.6
178.4	141.2		
200.3	89.2	40.2	

Conclusion: This represented a large workload for lipid clinic with just 5 patients identified. Only four of these were new to lipid clinic service.

This work will form part of the SCBN lipid subgroup discussions around consensus Lp(a) management across Scotland.

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SHARP Prize abstracts

Title:	Acute Coronary Syndrome Secondary Prevention Management and Communication With Primary Care: Recommendations vs Reality.
Authors:	Dr Lucy Davidson
Affiliations:	NHS Ayrshire and Arran

Introduction: Globally, Acute Coronary Syndrome (ACS) is associated with significant morbidity and mortality. Evidence suggests this is due to the risk of recurrent ischaemic events linked to suboptimal secondary prevention management1. This audit aimed to assess and improve crucial components of secondary prevention ACS measures.

Methods: A retrospective analysis of discharged, cardiology patient records, in University Hospital Crosshouse, within February 2024, was undertaken. Patients were selected from their discharge letter diagnosis; ACS, NSTEMI, STEMI, unstable angina and MI. Clinical portal was used to screen cardiovascular (CV) risk factors and diseases linked to cardiovascular disease (CVD), review optimisation of secondary prevention medications and communication with GPs regarding follow-up plans. Data was compared against NICE guidelines and recommendations2. An intervention was designed and implemented for 4-weeks (May/June 2024). Another plan-do-study-act(PDSA) cycle was completed post-intervention and results compared to baseline audit results.

Results: Altogether, 26 patients were included in the baseline audit and 29 in the re-audit. Screening of CVD risk factors and associated conditions improved following intervention; 50% vs 72% for hyperlipidaemia and 38% vs 76% for diabetes. Optimisation of cardioprotective medications improved following the intervention. Commencement of the recommended statin agent and dosing increased from 46% to 60%. Figures demonstrated improvements in discharge letter communication regarding duration of DAPT (50% vs 90%), post-ACS follow-up (31% vs 93%) and follow-up lipids/liver function (8% vs 52%).

Conclusion: ACS patients had suboptimal secondary prevention management. Education and reinforcement of current recommended standards improved practice. However, a sustainable intervention, such as a discharge care plan, is required.

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SHARP Prize abstracts

Title:	Cardiac troponin I and T ratio and risk of cardiovascular or non-cardiovascular events: findings from the Generation Scotland Scottish Family Health Study.
Authors:	Marie de Bakker1, Paul Welsh2, Naveed Sattar2, Bertil Lindahl3, Ola Hammarsten4, Torbjørn Omland5,6, Archie Campbell7, Caroline Hayward8, Cathie LM Sudlow9,10, Nicholas L Mills1,10, Dorien M Kimenai1*, Kai M Eggers3*
Affiliations:	1) British Heart Foundation Centre for Cardiovascular Science, University of Edinburgh, United Kingdom. 2) School of Cardiovascular & Metabolic Health, University of Glasgow, Glasgow, United Kingdom. 3) Department of Medical Sciences and Uppsala Clinical Research Center, Uppsala University, Uppsala, Sweden. 4) Department of Clinical Chemistry, Sahlgrenska University Hospital, Göteborg, Sweden. 5) Department of Cardiology, Akershus University Hospital, Lørenskog, Norway. 6) K.G. Jebsen Centre for Cardiac Biomarkers, University of Oslo, Oslo, Norway. 7) Centre for Genomic and Experimental Medicine, Institute of Genetics and Cancer, University of Edinburgh, Edinburgh, United Kingdom. 8) MRC Human Genetics Unit, Institute of Genetics and Cancer, University of Edinburgh, Edinburgh, United Kingdom. 9) British Heart Foundation Data Science Centre, Health Data Research UK, London, United Kingdom. 10) Usher Institute, University of Edinburgh, United Kingdom. * These authors contributed equally.

Introduction: Emerging evidence suggests that the ratio between cardiac troponin I and T may provide information on the risk of adverse outcomes in individuals with cardiovascular disease. Whether the cardiac troponin I/T ratio provides prognostic insights in the general population is unknown.

Methods: The cardiac troponin I/T ratio was calculated in 8,855 participants (43% females, median age 56 years) from the Generation Scotland Study where both cardiac troponin I and T concentrations were above the limit of blank. Cause-specific Cox proportional hazard models were used to estimate the associations between the troponin I/T ratio and the primary outcome of cardiovascular or non-cardiovascular death.

Results: The median cardiac troponin I/T ratio was 0.5 (25th-75th percentile, 0.3-0.8) and median follow-up was 11.4 (10.8-12.7) years. Individuals with a ratio in the highest tertile (≥0.64) were more likely to be male with a higher body mass index and systolic blood pressure, and a history of cardiovascular disease. Those in the lowest ratio tertile (<0.38) were more likely to be smokers or have diabetes. After adjustment for cardiovascular risk factors, the ratio was positively associated with cardiovascular death (per doubling increase, HR 1.16 [95% CI, 1.06-1.28]), while an inverse association was observed for non-cardiovascular death (HR 0.89 [95% CI, 0.81-0.99], Figure).

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SHARP Prize abstracts

Title:	Cardiac troponin I and T ratio and risk of cardiovascular or non-cardiovascular events: findings from the Generation Scotland Scottish Family Health Study. **CONTINUED**

Conclusion: The cardiac troponin I/T ratio is positively associated with cardiovascular death in the general population, while inversely associated with non-cardiovascular death. Measuring both troponin I and T and calculating their ratio may provide valuable information regarding the risk of both cardiovascular and non-cardiovascular mortality to guide management.

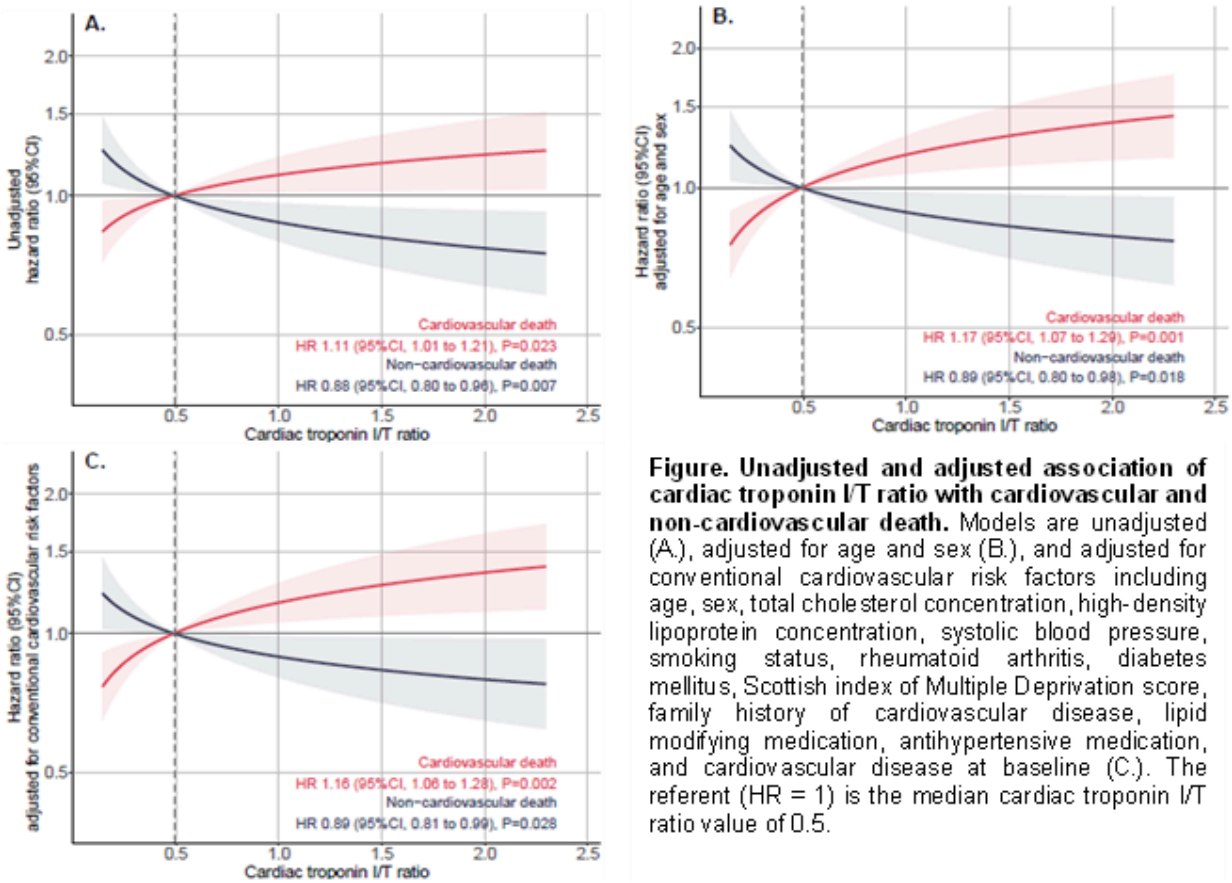

Figure. Unadjusted and adjusted association of cardiac troponin I/T ratio with cardiovascular and non-cardiovascular death. Models are unadjusted (A.), adjusted for age and sex (B.), and adjusted for conventional cardiovascular risk factors including age, sex, total cholesterol concentration, high-density lipoprotein concentration, systolic blood pressure, smoking status, rheumatoid arthritis, diabetes mellitus, Scottish index of Multiple Deprivation score, family history of cardiovascular disease, lipid modifying medication, antihypertensive medication, and cardiovascular disease at baseline (C.). The referent (HR = 1) is the median cardiac troponin I/T ratio value of 0.5.

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SHARP Prize abstracts

Title:	Efficacy of Inclisiran in real-world clinical practice.
Authors:	Prashasthi Devaiah 1, Professor Jacob George 2
Affiliations:	1. School of Medicine, University of Dundee 2. Department of Clinical Pharmacology, Ninewells Hospital, NHS Tayside

Introduction: Reducing low density lipoprotein cholesterol (LDL-c) is associated with lower risk of cardiovascular (CV) events. Inclisiran, a small interfering ribonucleic acid (siRNA) that inhibits hepatic synthesis of proprotein convertase subtilisin–kexin type 9 (PCSK9), is a novel therapeutic agent to lower LDL-c in high-risk dyslipidaemic patients. 1

Methods: This audit assesses real-world efficacy of Inclisiran prescribed to 23 patients from NHS Tayside Cardiovascular Risk Clinic between 2022 and 2024. 4/23 patients were excluded, being lost to follow-up/scheduled review post audit timeframe.

Total cholesterol (TC) and LDL-c levels at baseline, and 6-month post Inclisiran were assessed. Lipid levels of 3/19 patients switched from Inclisiran to mABs were reviewed.

Results: Patients achieved mean reduction in TC of 28% and LDL-c of 36% at 6 months post-Inclisiran administration. In comparison, a previous audit (2023) revealed patients on anti-PCSK9 mABs (Evolocumab/Alirocumab) achieved mean reduction of 39% in TC and 55% in LDL-c, post 6-month administration2. (Fig1)

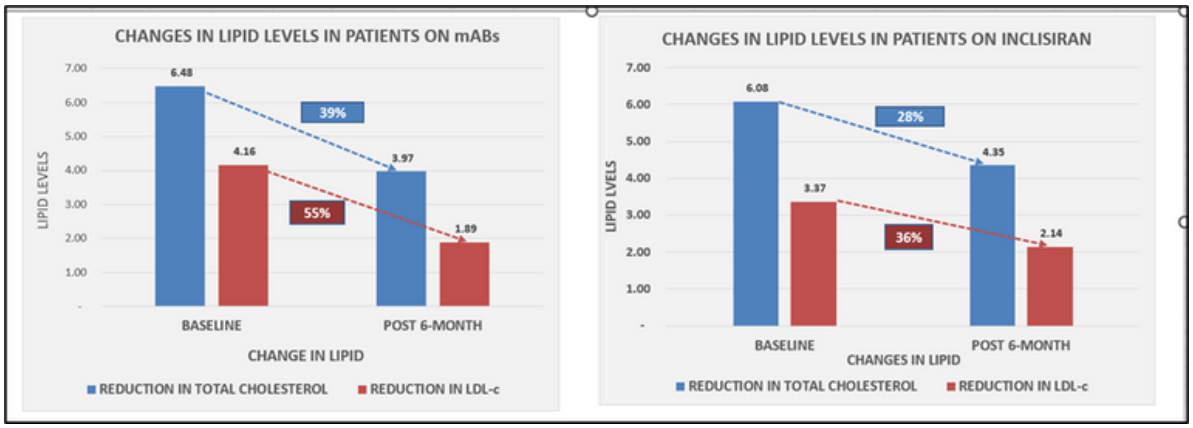

Fig 1-Concentration of total cholesterol and low-density lipoprotein-cholesterol (LDL-C), at baseline and 6 months for anti-PCSK9 mABs (audit in 2023) and Inclisiran.

SHARP Prize abstracts

Title:	Efficacy of Inclisiran in real-world clinical practice. **CONTINUED**

Results: Patients switched from Inclisiran to mABs achieved a further 26% reduction in TC and 19% in LDL-c, although numbers were small.(Fig2).

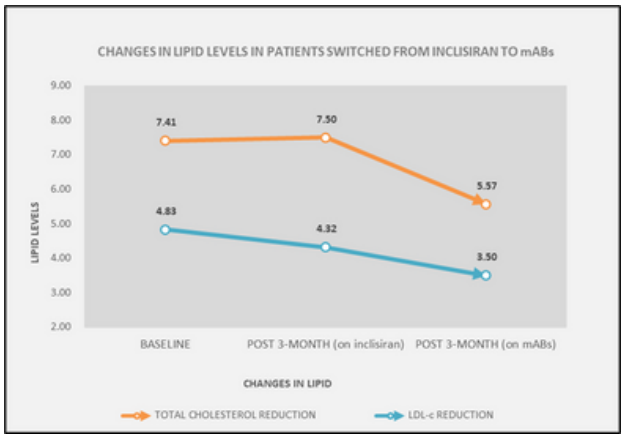

Fig 2–Changes in lipid profile for patients who switched from Inclisiran to anti-PCSK9 mABs.

Conclusion: Both mABs and Inclisiran demonstrate reduction in LDL-c. In this audit, greater reduction was observed in mABs compared to Inclisiran. Clinicians can make patient-centred decisions between a favourable dosing regimen (biannual for Inclisiran vs fortnightly for mABs) for improved patient compliance versus increased efficacy of Evolocumab/Alirocumab.

The ORION-4 event-driven outcomes trial will determine if Inclisiran reduces CV events.3 Future clinical audits assessing long-term real-world efficacy of Inclisiran, might clarify if Inclisiran is a therapeutic option to reduce CV events.4

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SHARP Prize abstracts

Title:	RealHOPE - Establishing a knowledge base for real-world handling of protein drugs to improve processes and education.
Authors:	Angela Flynn, *Ulla Elofsson, Isla S Mackenzie.
Affiliations:	MEMO Research, Division of Cardiovascular Research, University of Dundee. *RISE Research Institutes of Sweden, Stockholm, Sweden.

Introduction: Protein medications have dramatically improved the lives of people with conditions such as diabetes (eg insulin) and hypercholesterolaemia (eg evolocumab, alirocumab). Not enough is currently understood about the real-world handling of protein medications and the implications of this. The 4 year IMI RealHOPE programme aims to build knowledge and improve the real-world handling of protein drugs.

Methods: The goals of RealHOPE are to:

- understand real-life handling of protein drugs, by generating, collecting, and analysing qualitative and quantitative data
- develop tools and methods for simulation of real-life events that mimic the effects on drug product quality.
- develop new technologies for safer handling of protein drugs at hospital pharmacies.
- create educational materials for healthcare providers and patients to improve the safety and handling of protein drugs.

Results: RealHOPE has already identified areas of real-world protein medication handling where improvements in processes or education could be valuable. For example, many patients report issues when travelling with their medications. Targeted educational materials for pharmacists, nurses and patients are in development. A study using smart labels to monitor the handling of protein medications by patients is in progress in Dundee.

Conclusion: RealHOPE will address important real-world issues in the handling of protein medications and disseminate knowledge and educational materials to improve handling in future.

This project has received funding from the Innovative Medicines Initiative 2 Joint Undertaking (JU) under grant agreement N° 101007939 (RealHOPE). This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and EFPIA.

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SHARP Prize abstracts

Title:	Assessment of Coronary Artery Calcification in Thoracic CT scans of Patients with Bronchiectasis.
Authors:	Khalid Hakami (1), Abdullah Arafah (2), Kateryna Viligorska (1), Prasad Guntur (1), James Chalmers (1), Faisel Khan (1)
Affiliations:	1. University of Dundee, School of Medicine 2. Prince Sattam Bin Abdulaziz University, School of Medicine

Introduction: Cardiovascular disease (CVD) is an important co-existing condition with bronchiectasis. Coronary artery calcification (CAC) can be identified on routine chest computed tomography (CT). The presence of CAC can serve as a predictor of prospective coronary events.

Methods: A retrospective evaluation of 73 (33 male 40 female) baseline and follow-up thoracic CT scans for patients with bronchiectasis from the BRIDGE study. The analysis was conducted to determine the presence of CAC using a semi-quantitative Weston method. Consequently, the correlation between bronchiectasis severity index (BSI) and CAC was assessed.

Results: At baseline, 56 patients had CAC, with 31 patients (55.4%) having moderate CAC and 14 patients (25%) having mild CAC. At follow-up, the majority of patients continued to show calcification, with 60.7% classified as having moderate or severe CAC. 18 patients (24.7%) showed an increase in CAC severity from baseline to follow-up. Patients with severe CAC were older ($P<0.00001$). follow-up CAC severity showed a significant positive association with bronchiectasis severity whereas baseline CAC severity does not.

Conclusion: CAC was prevalent in bronchiectasis patients, with a significant association between follow-up CAC severity and bronchiectasis severity. This suggests that CAC progression over time is a better predictor of severe bronchiectasis than initial CAC levels, highlighting the need for cardiovascular monitoring in patients with bronchiectasis.

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SHARP Prize abstracts

Title:	Heart Failure Nurse Service overcomes clinical inertia in prescribing of guideline directed medical therapy in patients with chronic cardiorenal syndrome.
Authors:	Muhammad S Hussain1, Andrew S Oswald1, Mya L Win1, Yi J Liew1, Adel Dihoun1, Jill Nicholls2, Rebecca Newey 2, Elizbeth Baird 2, Gillian Smith 2, Claire Garland 2, Filippo Pigazzani1, Faisel Khan1,Anna-Maria Choy1, Ify R Mordi1, Chim C Lang1
Affiliations:	1. Division of Molecular and Clinical Medicine, School of Medicine, University of Dundee, Scotland, UK 2. Heart Failure Nurse Liaison Services, NHS Tayside

Introduction: Recent ESC position statement regarding worsening renal failure recommends the use of blood urea monitoring of patients with heart failure with reduced ejection fraction (HFrEF).

Methods: Electronic health records of patients referred to the Heart Failure Nurse Service (HFNS) were analysed and a urea/creatinine ratio was determined.

Results: Data from 338 patients [mean age 72.3 ± 15.6 years; 218 (64.5%) males] were analysed. Of these, 112 (33.1%) had chronic kidney disease (CKD) with eGFR <60 ml/min/1.73m2 at the time of referral and 181 (53.6%) had CKD on discharge from the HFNS. During follow-up, 132 (39%) had further HF admission and 76 (22.5%) died. While an eGFR < 60 ml/min/1.73m2 at discharge was associated with a twofold increased risk of death (OR 2.4, 95% CI 1.1-5.3, p=0.029), a bUCR > 100mmol/l at discharge was associated with a four-times greater risk of death (OR 4.2, 95% CI 2.2-7.9, p <0.001).

Conclusion: Blood urea/creatinine ratio is an important predictor of outcome in patients with HFrEF.

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SHARP Prize abstracts

Title:	Heart Failure Nurse Service overcomes clinical inertia in prescribing of guideline directed medical therapy in patients with renal impairment.
Authors:	Muhammad S Hussain1, Andrew S Oswald1, Mya L Win1, Yi J Liew1, Adel Dihoun1, Jill Nicholls2, Rebecca Newey 2, Elizbeth Baird 2, Gillian Smith 2, Claire Garland 2, Filippo Pigazzani1, Faisel Khan1,Anna-Maria Choy1, Ify R Mordi1, Chim C Lang1
Affiliations:	1. Division of Molecular and Clinical Medicine, School of Medicine, University of Dundee, Scotland, UK 2. Heart Failure Nurse Liaison Services, NHS Tayside

Introduction: The presence of renal impairment (RI) often influences the decision to start, up-titrate, or discontinue disease modifying heart failure (HF) therapies. Multiple efforts have been made to overcome this clinical inertia, one of which is the introduction of specialist HF nurse service.

Methods: We analysed records of patients referred to the Tayside HF Nurse Service (HFNS) in 2022. RI was defined as eGFR <60 ml/min/1.73m2. Guideline directed medical therapy (GDMT) was defined as commencement and attempt at up-titration of the 4 pillars of HF therapy: Renin angiotensin system blockers, beta-blocker, mineralocorticoid antagonist and SGLT2 inhibitor.

Results: Among 338 patients [mean age 72.3 ± 15.6 years; 218 (64.5%) males, 110 (32.5%) had RI at referral. There was no difference in the proportion of patients on 3 or 4 GDMT between patients with (71%) or without RI(66%) on discharge.

Conclusion: The presence of RI did not impact on the initiation, up-titration and maintenance of GDMT by the THFNS.

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SHARP Prize abstracts

Title:	Allopurinol therapy and incidence of osteoarthritis outcomes in patients with ischaemic heart disease in a prospective randomised controlled trial – the Allopurinol and Cardiovascular Outcomes in Patients with Ischaemic Heart Disease (ALL-HEART) study: an exploratory post-hoc analysis.
Authors:	Shreya Kannan, Rebecca J Barr, Nicola Greenlaw*, Ian Ford*, Isla S Mackenzie on behalf of the ALL-HEART study group.
Affiliations:	MEMO Research, Division of Cardiovascular Research, School of Medicine, University of Dundee. *The Robertson Centre for Biostatistics, University of Glasgow.

Introduction: Osteoarthritis (OA) is a leading cause of joint disability. Studies have suggested that some anti-inflammatory drugs may reduce OA progression. Allopurinol, a xanthine oxidase inhibitor, reduces uric acid levels and inflammation but it is not clear whether it influences OA outcomes. This exploratory post-hoc analysis using the Allopurinol and Cardiovascular Outcomes in Patients with Ischaemic Heart Disease (ALL-HEART) study investigated whether allopurinol was associated with a reduction in OA-related outcomes when compared to usual care.

Methods: The ALL-HEART study was a randomised controlled trial of allopurinol therapy (up to 600mg daily) versus usual care. Pharmacovigilance data was used to identify participants who had a total hip or knee replacement (THR/TKR - primary outcome) or had OA significant enough to be reported as a serious adverse event (SAE - secondary outcome). Outcomes were compared between groups using Cox proportional hazards models and analysed as time to first event.

Results: Of the 5721 participants in the modified intention-to-treat analysis, 52 in the allopurinol (1.82%) and 62 in the usual care group (2.16%) had a THR/TKR during the study, with no significant difference between the groups (HR 0.89; 95% CI 0.62–1.29; p=0.54). Similarly, no significant difference was found regarding the OA SAEs (HR 0.89; 95% CI 0.68–1.16; p=0.38).

Conclusion: This exploratory post-hoc analysis of the ALL-HEART study found no difference in time to first TKR/THR, or other OA-related SAEs between the allopurinol and usual care groups in patients with ischaemic heart disease, although it may have been underpowered to detect such a change.

The ALL-HEART study was funded by NIHR HTA (11/36/41)
SK was supported by a SHARP summer studentship (2023) and a DCAT summer studentship (2024) for this work.

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SHARP Prize abstracts

Title:	Preeclampsia and subsequent risk of cancer.
Authors:	Golnaz Kheradkhah, Christian Delles
Affiliations:	School of Cardiovascular and Metabolic Health, College of Medical, Veterinary and Life Sciences, University of Glasgow, Glasgow, UK.

Introduction: Preeclampsia, a hypertensive disorder of pregnancy, poses significant risks to maternal and foetal health and is associated with long-term health outcomes for women. This study aims to investigate the link between preeclampsia and subsequent cancer risks, focussing on various types of cancer such as breast, endometrial, and ovarian cancers. Understanding this association could contribute to improved preventive strategies for women affected by preeclampsia.

Methods: A narrative literature review was conducted adhering to PRISMA guidelines. Data were gathered from Scopus, PubMed, and other databases, reviewing studies up until April 2024. A total of 26 studies met the inclusion criteria, encompassing cohort and case-control studies that examined cancer incidence post-preeclampsia. Quality assessment was performed using the Newcastle-Ottawa Scale (NOS), and relevant data on study design, population, and outcomes were extracted and synthesised.

Results: The findings suggest a complex relationship between preeclampsia and cancer risk. Several studies indicate that preeclampsia may reduce the risk of certain cancers, such as hormone receptor-positive breast cancer, possibly due to anti-angiogenic and hormonal mechanisms. However, increased risks were observed for endometrial and ovarian cancers. The genetic and inflammatory pathways potentially linking preeclampsia to cancer remain areas of interest, with further research required.

Conclusion: The relationship between preeclampsia and cancer risk is multifaceted, influenced by hormonal, genetic, and inflammatory mechanisms. While some cancers may have reduced incidence following preeclampsia, others may see increased risks. These findings underscore the need for personalised cancer screening and preventive strategies for women with a history of preeclampsia, alongside further longitudinal studies to unravel the biological underpinnings of these associations.

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SHARP Prize abstracts

Title:	The use of ACEI/ARBs alongside NSAIDS in CKD patients.
Authors:	Keanu Koekemoer, Heather Churchill-Evans, Siobhan Smith
Affiliations:	University of St. Andrews.

Introduction: CKD is a major contributor to global mortality, with hypertension (HTN) being a common cause. HTN increases strain on the cardiovascular system and kidneys, accelerating damage. Evidence supports the use of ACEIs and ARBs to slow CKD progression and reduce BP, critical in managing hypertensive patients. However, NSAIDs are contraindicated due to nephrotoxicity, impacting renal function.

This audit assessed ACEI or ARB use alongside NSAIDs in CKD stage 3-5 patients at the Lomond practice, comparing prescribing patterns with national and local guidelines. While no explicit guidelines advise against this combination, NSAID use in CKD stage 3-5 is generally contraindicated, especially in patients with HTN.

Methods: An audit cycle meant that all tasks were divided. Percentages were taken of patients prescribed a NSAID alongside an ACEI/ARB (data obtained via EMIS), and later a percentage of those patients also prescribed diuretics. The data was further compared to national and regional data to establish Lomond Practice, Glenrothes prescribing habits.

Results: 76% of patients were prescribed an ACEI/ARB alongside a NSAID, and 38% were prescribed the Triple Whammy. A t-test comparing the practice to the rest of Fife and Scotland obtained a p-value < 0.05, rejecting the H0.

Conclusion: Data exhibited that NSAIDs alongside an ACEI/ ARB may be over-prescribed in CKD 3-5 patients. Additionally, triple therapy with NSAIDs, ACEI/ARB and diuretics are prescribed more frequently in Lomond Practice than other practices within Fife and wider Scotland- contrary to prescribing guidelines. Demanding prescription reviews to mitigate exacerbation of CKD in such patients.

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SHARP Prize abstracts

Title:	Clinical Profile and Outcomes in Hypertrophic Cardiomyopathy: Findings from the Tayside Inherited Cardiac Condition Clinic (ICC) Study.
Authors:	Victoria Lamour*, Arash Dehkordi*1, Andrew PM Lang, Yi Liew, Mya Win, Ify Mordi, Chim C Lang, Anna Maria Choy *joint first authors.
Affiliations:	University of Dundee, (1)University of Georgia.

Introduction: Hypertrophic cardiomyopathy (HCM) is heart muscle disease that is defined by left ventricular (LV) hypertrophy (LVH) in the absence of abnormal cardiac loading and is predominantly caused by autosomal dominant mutations in sarcomeric protein genes. Understanding the spectrum of disease, symptom burden and natural history is critical for effective patient management. This study aims to assess the clinical, genetic and imaging profiles in patients diagnosed with HCM in the ICC registry in Tayside to better understand disease progression.

Methods: Clinical data from 242 patients (mean age 63.1± 15.1years, 67% male) with phenotypic HCM in the Tayside ICC service were reviewed. Genetic testing results, symptoms, co-morbidities, imaging data and cardiac events were gathered from medical records. Specific phenotypic HCM features of septal wall thickness, apical hypertrophy and outflow tract gradient of >30mmHg at rest or >50mmHg with Valsalva were collected.

Results: Of the 242 patients with phenotypic HCM, 189 (78%) were index cases. Genotyping was done in 232 patients and pathogenic variants were detected in 85 (37%) patients. Symptom burden was high with 149 (61%) patients reporting at least one symptom of breathlessness, palpitations, chest pain or dizziness. Comorbidity was common, with 60% of patients having more than 1 comorbidity and atrial fibrillation was found in 64(27%) at the time of presentation. Left ventricular outflow tract obstruction was found in only 9% of patients. Gene negative patients were older (mean (SD) 67 (13.2) vs 56 (1.6) P<0.001) and were more symptomatic of dyspnoea (32 vs 18%, P<0.02) and chest pain (30 vs 17%, P<0.05). There were 22 deaths over the 9.5 years of follow up. There were 4 deaths from sudden cardiac death and 4 from heart failure which occurred in the gene positive group. There was a preponderance of non-cardiovascular deaths in the gene negative cohort.

Conclusion: Our Tayside ICC study reveals that HCM is associated with significant morbidity and mortality and that atrial fibrillation is a frequent finding. In contrast to previous reports, left ventricular outflow tract obstruction is not frequent and does not account for the symptom burden in HCM. HCM associated with pathogenic variants appears to have worse outcomes from sudden death and heart failure.

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SHARP Prize abstracts

Title:	An Audit of the NT-proBNP Heart Failure Diagnostic Pathway to Help Identify Patients with Suspected Heart Failure with Preserved Ejection Fraction (HFpEF).
Authors:	Samruddhi Lele, Janice Lim, Rui Y Na, Sohaib Mahmood, Omoh G Izedome Memeh, Mya Win, Yi Liew, Anna-Maria Choy, Ify R Mordi, Chim C Lang.
Affiliations:	Division of Molecular & Clinical Medicine, School of Medicine, University of Dundee

Introduction: NT-proBNP plays a crucial role in diagnosing heart failure (HF), especially HF with reduced ejection fraction (HFrEF). Recently, its utility has expanded to diagnosing HF with preserved ejection fraction (HFpEF). The 2021 European Society of Cardiology (ESC) algorithm and HFA-PEFF score offer a structured diagnostic approach for HFpEF, integrating clinical, echocardiographic, and biochemical markers. This study aimed to apply the ESC algorithm and HFA-PEFF score to identify HFpEF patients and evaluate their outcomes.

Methods: We retrospectively reviewed electronic health records and echocardiograms of NHS Tayside patients from March 2022 to March 2023, selecting those with NT-proBNP >1000 pg/mL. Patients were categorized using the ESC diagnostic algorithm. A Kaplan-Meier analysis was performed to assess survival outcomes between patient groups.

Results: Out of 590 patients (mean age 79.5 years ± 10 years, 53% male), 538 had an echocardiogram, and 320 (59.5%) had preserved LVEF (>50%). Of these, 34 (6.3%) had an HFA-PEFF score ≥5, indicating a definitive HFpEF diagnosis, while 127 (23.6%) had scores of 2-4, requiring further investigations. Patients with preserved LVEF were older (mean age 80.3 years) and had higher rates of transient ischemic attacks (TIA). Notably, those with HFA-PEFF scores ≥5 had comparable early mortality to HFrEF, highlighting the severity of HFpEF despite preserved ejection fraction.

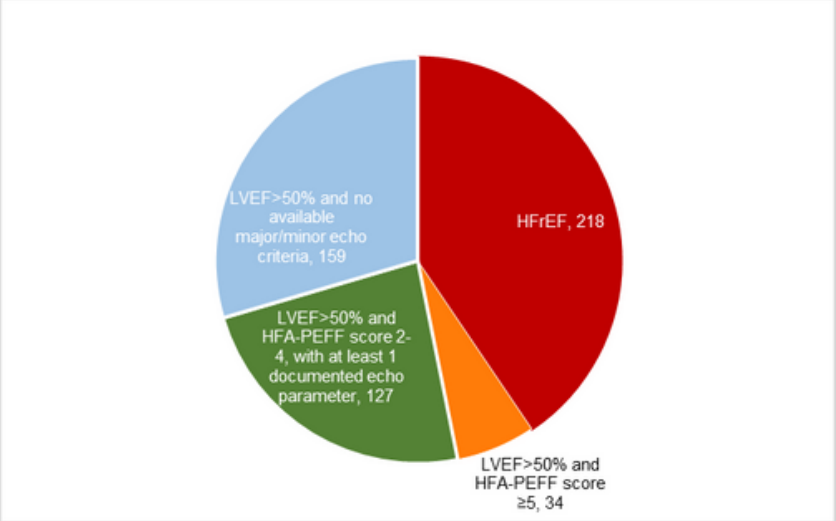

Figure 1: Patient Groups Identified

SHARP Prize abstracts

Title:	An Audit of the NT-proBNP Heart Failure Diagnostic Pathway to Help Identify Patients with Suspected Heart Failure with Preserved Ejection Fraction (HFpEF). **CONTINUED**

Results: Table 1: Results of Initial Patient Demographics and Co-Morbidities

	All patients with NT-proBNP>1000pg/ml and echocardiography performed	HFrEF	LVEF>50% and HFA-PEFF score =5	LVEF>50% and HFA-PEFF score 2-4, with at least 1 documented echo parameter	LVEF>50% and no available major/minor echo criteria	p value using ANOVA test/ CHI-Squared Test
Total number of patients	538	218 (40.5%)	34 (6.3%)	127 (23.6%)	159 (29.6%)	-
Average NT pro-BNP (pg/ml)	3844	5293	2499	2393	3304	P<0.001 (ANOVA)
Average age (years)	79.3±10	77.8 ±1.39	80.0 ± 2.8	78.7±1.46	81.6 ± 1.34	P=0.001
Males and Female	53.2% M (286) 46.8% F (252)	59.6% M (130) 40.4% F (88)	50% M (17) 50% F (17)	49.6% M (63) 50.4% F (64)	47.8% M (76) 52.2% F (83)	P=0.01 (CHI-squared test)
Atrial Fibrillation	61.3% (330)	56.9% (124)	55.9 % (19)	60.6% (77)	69.2% (110)	NA
IHD or ACS	34.6% (186)	40.8% (89)	32.4% (11)	29.1% (37)	30.8% (49)	
TIA	18.2% (98)	14.7% (32)	32.4% (11)	17.3% (22)	20.8% (33)	
Hypertension	63.6% (342)	61.9% (135)	52.9% (18)	66.1% (84)	66.0% (105)	
CKD	45.0% (241)	47.7% (104)	38.2% (13)	42.5% (54)	44.0% (70)	
Diabetes Mellitus	25.5% (137)	27.5% (60)	26.5% (9)	22.0% (28)	25.2% (40)	
Obesity	62.1% (334)	66.1% (144)	17.6% (6)	66.9% (85)	66.3% (99)	
COPD	18.0% (97)	17.4% (38)	8.82% (3)	15.0% (19)	23.2% (37)	

Table 2: Results of Analysis of Outcomes in Deceased Patients

	Reduced EF (n=47)	Preserved EF (n=66)
Average NT-proBNP (pg/mL)	7,978.1 (range: 1,089-35,000)	4,397.0 (range: 1,027-35,000)
Average Time Post-Raised NT-proBNP (months)	9.1 (range: <1-23)	9.7 (range: <1-23)
Number of Deaths < 1 month	2 (4.3%)	2 (3.0%)
Cardiac Cause of 1st Admission	21 (44.7%)	19 (28.8%)
Cardiac Cause of Death	32 (68.1%)	36 (54.5%)
Non-Cardiac Cause of 1st Admission	26 (55.3%)	47 (71.2%)
Non-Cardiac Cause of Death	15 (31.9%)	30 (45.5%)

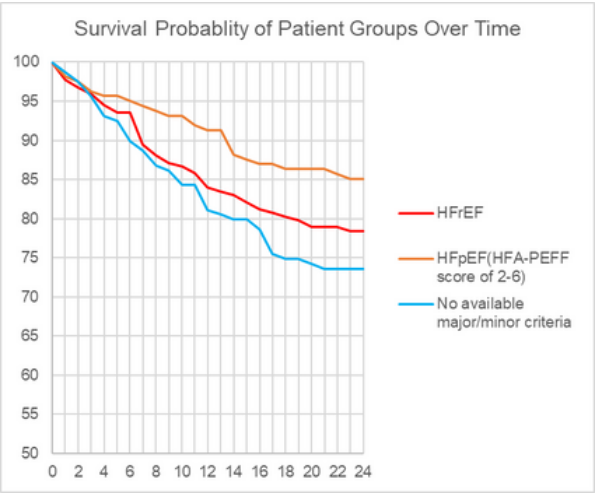

Figure 2: Kaplan Meier Analysis of the Patient Groups

Conclusion: The ESC algorithm effectively identified HFpEF patients, revealing high early mortality rates similar to those with HFrEF. Notably, the cardiac death rate in the HFpEF group (54.5%) was comparable to that of the HFrEF group (68.1%), underscoring the need for vigilant management in HFpEF despite preserved ejection fraction.

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SHARP Prize abstracts

Title:	Clinical audit: Adherence to guidelines regarding the co-prescription of simvastatin and amlodipine in primary care.
Authors:	Andrew Gilmer; Breanna Goodburn Hawdon; Kwang Lee; Marta Lipinska
Affiliations:	University of St Andrews.

Introduction: This audit aimed to measure the performance of a medical practice in Fife at meeting the current guidelines on dose-adjustment for the co-prescription of simvastatin and amlodipine. When co-prescribed, simvastatin should be reduced to 20 mg due to the risk of myalgia and rhabdomyolysis.

Methods: A literature review was performed, and the standards were set out. The practice pharmacist conducted a search to find all the relevant patients. Then, the data was collected as to the doses of the drugs, whether there was a dose adjustment made, if any of these patients reported myalgia, and if they had been consulted on the potential side effects of these drugs.

Results: It was found that 91.42% of the patients were on the correct dose of simvastatin, meaning 3 out of 35 patients were on a dose of simvastatin which contradicted the NICE guidelines. It also transpired that 4 patients had complained about myalgia, which may be related to the drug interaction. Simvastatin dose reduction to 20 mg was carried out in 57.14% (20/35) of patients in the past. Finally, in 65.71% (23/35) of patients, no discussion about side effects was recorded.

Conclusion: The results indicated the need to review the 3 patients on too high a dose of simvastatin, as well as those complaining of myalgia. Furthermore, the side effects of medication interactions and a potential switch to a different statin should be discussed. Some improvements to the practice were also suggested, such as regular meetings discussing guideline changes and consistency in keeping medical records.

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SHARP Prize abstracts

Title:	The Secret Life of Statins: Increasing Statin Prescription in Diabetic Patients.
Authors:	Ceciley MacGregor, Heather Sherriffs, Daniel Martin, Laura Rak
Affiliations:	Gillbrae Medical Practice

Introduction: SIGN guidelines recommend statin therapy in patients with diabetes aged >40 years (1). Evidence from the Scottish Care Information Diabetes Collaboration (SCI-DC) demonstrates that there is suboptimal statin prescription in this patient group (2). The Secret Life of Statins is a quality improvement project undertaken by medical students with the aim to increase the percentage of patients at Gillbrae Medical Practice with Type 1 or Type 2 Diabetes Mellitus aged between 50–60 years old that are prescribed statins to 75% to align with Scottish Government aspiration for diabetes care.

Methods: We monitored the impact of our improvements through EMIS web searches to measure percentage of patient prescribed statins both before and during our project. We worked with stakeholders at the practice to understand the problem and tested multiple changes focusing on identifying patients in need of statin therapy through system alerts and improving patient and prescriber knowledge through information sessions and resources explaining the benefits of statin therapy and outlining the guidelines.

Results: During the 3-month course of the project, statin prescription increased from 67.2% to 71.9% of the target patient population, and the project median of 68.1% was 3.5% higher than the baseline median of 64.6%. The project also increased prescriber confidence and identification of ‘at risk’ patients who had diabetes but were not prescribed statins.

Conclusion: The improvements will enhance the delivery of quality care by Gillbrae Medical practice by optimising therapy for patients with diabetes. It also has the potential to lessen future service pressures from complications of diabetes (3-5).

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SHARP Prize abstracts

Title:	Utilising The NTproBNP Heart Failure Diagnostic Pathway To Help Identify Patients With Suspected Cardiac Amyloidosis.
Authors:	Sohaib Mahmood, Omoh G Izedome Memeh, Janice Lim, Rui Y Na, Samruddhi Lele, Anna-Maria Choy, Ify Mordi, Chim C Lang.
Affiliations:	University of Dundee

Introduction: Cardiac amyloidosis (CA) is an infiltrative condition resulting from the intracardiac deposition of amyloid fibrils. Evidence suggests that CA is an under recognised cause of heart failure (HF) and patients with CA face significant diagnostic delay. The European Society Cardiology (ESC) CA Working Group has proposed a screening tool utilising the presence of left ventricular hypertrophy and red flag features to help identify patients with possible CA. We have assessed the utility of this screening tool in the NTproBNP HF diagnostic pathway to determine if it could help identify patients with suspected CA.

Methods: Following Caldecott Guardian approval, we conducted a retrospective case review analysing the electronic records of patients referred through the NTproBNP HF pathway in Tayside. The ESC screening criteria was utilised to identify patients with red flag symptoms consistent with CA.

Results: Between March 2022–March 2023, 590 patients referred through the NTproBNP pathway (mean age 80±10 years, male 53%, 54% had preserved LV function) were identified to have NTproBNP values of >1000 pg/ml. Of these, 132 (22%) patients (mean age 80±10 years, male 60%, 58% preserved LV function) met the ESC screening criteria for suspected CA. 3 (2%) patients had a confirmed diagnosis of CA (2 ATTR, 1AL). All these 3 patients had presented with ≥3 red flags. 70 (53%) patients had 1 red flag symptom, 43 (33%) had 2 red flags and 14% (19/132) had ≥3 red flags.

Conclusion: Our study has shown the potential utility of the NTproBNP pathway in order to identify patients with suspected CA.

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SHARP Prize abstracts

Title:	Vascular Stiffness and Uterine Artery Resistance Index in Pregnancy.
Authors:	Lola Roan Reid1, Therese McSorley2, Kirsteen Paterson2, Siobhan Moore 2, Christian Delles1, Stella Daskalopoulou3, Helen Casey1 on behalf of the PULSE Investigators.
Affiliations:	1) University of Glasgow, Glasgow, UK; 2) NHS Greater Glasgow and Clyde, Glasgow, UK; 3) McGill University, Montreal, Canada.

Introduction: Pre-eclampsia (PE) is a leading cause of adverse maternal and fetal morbidity and mortality. Identifying women at high risk of PE early in pregnancy is vital to instigate aspirin as preventative medication and initiate close monitoring to ultimately improve outcomes. Current practice advises women at high risk of PE to undergo second trimester uterine artery Doppler (UAD). However, UAD has been reported to have variable predictive ability.

Methods: The early Prediction of preeclampsia Using arteriaL Stiffness in high-risk prEgnancies; a multinational study (PULSE study), led by McGill University in Montreal, explores the value of pulse wave velocity (PWV), a marker of vascular stiffness, to predict PE. Women also undergo second trimester UAD. Here we report preliminary results of the first 285 women recruited in Glasgow to the PULSE study.

Results: The mean age of women was 35.5±5.0 years. PWV was 5.64±0.86 m/s in the first and 5.75±0.88 m/s in the second trimester. UAD-derived Resistance index (RI) was 0.63±0.14 on the left and 0.61±0.14 on the right side. We found no correlation between RI assessed and PWV in the first trimester (left: r=0.03, p=0.36; right: r=-0.03, p=0.32) or in the second semester (left: r=0.01, p=0.45; right: r=0.12, p=0.07).

Conclusion: At this stage of the study we cannot provide information about the predictive value of PWV or UAD for PE. However, the two measures are not correlated with each other, suggesting that they provide information on different aspects of vascular function and structure in pregnancy.

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SHARP Prize abstracts

Title:	Reducing Cardiovascular disease (CVD) risk in the agricultural sector.
Authors:	Irene Scott GPN QN
Affiliations:	RSABI

Introduction: The Royal Scottish Agricultural Benevolent Institute (RSABI) offer physical health monitoring and individualised support by running Health Huts for those involved in Scottish Agriculture.Research from Stirling University (2023) state that farmers are likely to focus primarily on looking after the livestock and upkeep of the business side of the farm and looking after themselves and their own health comes second. The Health Hut started in 2023 initially at agricultural events such as shows but has recently expanded to livestock auction markets across Scotland.

Methods: Blood pressures (BP) are monitored, allowing an opportunity for people to be aware of what hypertension is as well as lifestyle changes that can be made to reduce cardiovascular disease amongst a cohort of the population that do not attend their General Practice due their work commitments. Completing this monitoring also allows an opportunity to discuss any other health concerns that people have. Advice or signposting to their General Practice is given.

Results: From June 2023 to September 2024 a total of 1647 BPs have been taken from both male and females, all in the age range of over 18 to late 80s who are involved in Scottish agricultural.

From these figures 1 in 3 male BPs and 1 in 6 female BPs have been raised. All these people received individualised advice from a health professional setting goals on what lifestyle changes that they could complete to reduce their CVD risk. Feedback has been received that some people have taken action if their BP remains raised and visited their General Practice for further assessment.

Conclusion: Awareness of the risk of CVD amongst Scotland's agricultural workers has been raised by monitoring provided by RSABI's Health Hut. Supportive education has been given to a large proportion of attendees, helping them to make positive choices to reduce their CVD risk.

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SHARP Prize abstracts

Title:	Experience of bempedoic acid in combination with ezetimibe in lipid clinic patients in NHS Highland.
Authors:	Nichola M. Shaw, Rosemary E. J. Clarke.
Affiliations:	Lipid Clinic, Raigmore Hospital, NHS Highland.

Introduction: Bempedoic acid has Scottish Medicines Consortium(SMC) approval for use in combination with ezetimibe for patients who are statin intolerant, or in whom a statin is contraindicated, and are not eligible for PCSK9 inhibitors.

Methods: Over a 20 month period statin intolerant patients were referred to the lipid clinic for consideration of bempedoic acid in addition to ezetimibe. Patients who were initiated on bempedoic acid were followed up over approximately four months to ensure safety and effectiveness for each individual.

Results:

17 patients were referred to the lipid clinic for consideration of bempedoic acid.

13 patients were commenced on treatment and 4 did not commence treatment due to either wishing to retry a statin, personal reasons or awaiting treatment for anaemia.

7 patients continued on treatment and 6 discontinued treatment. Reasons for discontinuation included becoming eligible for PCSK9 inhibitor, diarrhoea, muscle pain, bloating and rash or skin effects.

Blood results at 3 months after starting bempedoic acid showed a percentage reduction from baseline nonHDL cholesterol of between 7.3 and 43%.

Conclusion: Bempedoic acid and ezetimibe in combination resulted in a reduction in non HDL cholesterol levels and it appears an effective alternative for patients who are statin intolerant.

From experience with this patient group we plan to consider primary care initiation with appropriate monitoring.

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SHARP Prize abstracts

Title:	A review of patients receiving Inclisiran therapy within NHS Ayrshire and Arran.
Authors:	Dr Kelly Scott (Specialty Doctor) and Dr Suzanne MacKenzie (Consultant Biochemist)
Affiliations:	Department of Biochemistry, NHS Ayrshire and Arran

Introduction: Coronary Heart Disease remains a leading cause of death in Scotland1. Low density lipoprotein cholesterol (LDL-C) is a modifiable risk factor2. Inclisiran, a lipid lowering injectable therapy, was accepted in Scotland in July 2021 for specialist use only in patients at high cardiovascular risk2,3.

Within NHS Ayrshire and Arran there are 7 patients receiving Inclisiran to treat hypercholesterolaemia. In all cases it is monotherapy due to patient intolerance or contraindication to oral lipid lowering agents. We reviewed this case series focussing on efficacy and tolerability.

Methods: Patients receiving Inclisiran therapy were identified. Peak pre- and post-treatment LDL-C levels were calculated using the Sampson Equation as, in 2 cases, the LDL-C could not be calculated using the Freidewald Equation due to hypertriglyceridaemia. Data was collected on August 29th 2024.

Results:

Patient	1	2	3	4	5	6	7
Prevention	Secondary (ASCVD)	Secondary (ASCVD)	Secondary (ASCVD)	Primary (FH)	Secondary (ASCVD)	Secondary (ASCVD)	Secondary (ASCVD)
Peak LDL-C **(Friedewald)**	4.8	Incalculable	5.5	10.6	4.8	5.3	3.7
Post inclisiran LDL-C **(Friedewald)**	3.2	Incalculable	3	Incalculable	1	2.2	1.7
Peak LDL-C **(Sampson)**	4.82	4.69	5.34	9.82	4.84	5.32	3.82
Post inclisiran LDL-C **(Sampson)**	3.15	2.92	3.08	2.7	1.34	2.38	2.0
Improvement (%) **(Sampson)**	32.6	47.5	42.3	72.5	72.3	55.3	47.6
Time between first dose inclisiran and current lipid profile (days)	102	61	189	181	50	20	22

LDL-C meas
ASCVD: Atherosclerotic Cardiovascular Disease
FH: Familial Hypercholesterolaemia

Table of results of LDL-C levels in patients following Inclisiran therapy

Following Inclisiran one patient developed hyperthyroidism (positive thyroid receptor antibody). It is uncertain if this is related to Inclisiran therapy. This was reported to Novartis Pharmaceuticals but no other cases have been described worldwide.

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SHARP Prize abstracts

Title:	A review of patients receiving Inclisiran therapy within NHS Ayrshire and Arran. **CONTINUED**

Conclusion: The data isn't standardised but efficacy is excellent. These results demonstrate an improvement reducing the LDL-C levels by 34.6 - 72.5% (mean 52.9%). Novartis report that in Phase 3 trials Inclisiran has demonstrated a sustained reduction in LDL-C of up to 52% after 17 months2.

This cohort of patients have tolerated Inclisiran well. Whilst the long term benefits remain uncertain, with large scale trials ongoing2, this is a promising new drug for primary and secondary prevention of ASCVD when PCSK9i have not been tolerated.

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2. FDA approves Novartis Leqvio® (inclisiran), first-in-class siRNA to lower cholesterol and keep it low with two doses a year | Novartis https://www.novartis.com/news/media-releases/fda-approves-novartis-leqvio-inclisiran-first-class-sirna-lower-cholesterol-and-keep-it-low-two-doses-year (accessed August 29th 2024)

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SHARP Prize abstracts

Title:	Audit of CRT device implants in NHS Lothian; Is there a role for Left Bundle Branch Area Pacing?
Authors:	Keeran Vickneson, Cesario Pancinha, Colin Stirrat.
Affiliations:	Centre for Cardiovascular Science, Royal Infirmary of Edinburgh

Introduction: In 2021, the National Audit of Cardiac Rhythm Management detailed quality improvement metrics to improve cardiac rhythm management in the UK. The primary aim of this study was to examine current CRT device implants in NHS Lothian. The secondary aim is to comment on the role that novel Left Bundle Branch Area Pacing (LBBAP) might have within this field.

Methods: Patients who underwent a first CRT implant between March 2022 to February 2024, were included in the audit. The appropriateness of the CRT device implant was evaluated against the ESC recommendations. Efficacy was quantitatively determined by degree of QRS reduction achieved. Complications and re-intervention rates were analysed by operator and cumulatively.

Results: There was a total of 185 first CRT implants over two years. Mean procedural time was 105.8±33.9 minutes and screening dose was 1436±1484 Gy cm2. In symptomatic patients with HF in sinus rhythm, length of QRS was reduced by 15.5±12.2%, with the greatest benefit seen in patients with baseline QRS ≥150ms. Re-intervention rates were at 4.6% per year following CRT implant, lower than the national average of 6%. There was failure of LV lead deployment in 12 (6.5%) implants, due to coronary sinus dissection, tamponade or inability cannulate coronary sinus or identifying an appropriate target vein. 6 (3.5%) CRT implants did not meet ESC criteria for implantation.

Conclusion: The CRT service in NHS Lothian currently meets standards set out by the National Audit. LBBAP may offer some advantages in selected patient groups. Reduction in procedure times, radiation dose, cost and improvement in paced QRS duration and clinical outcomes are potential benefits that may be seen. A re-audit following set-up on LBBAP is planned.

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SHARP Prize abstracts

Title:	A Process of Care Audit: Investigating whether patients at Scoonie medical Practice receive a liver function test within three months of starting a statin prescription.
Authors:	Michalis Psarros, Jack Sangster, Vedika Vyas, Olivia Whittle Wright
Affiliations:	ScotGEM, University of St Andrews, University of Dundee

Introduction: The prevalence of statin prescriptions in primary and secondary care has significantly increased due to chronic conditions requiring statins. NICE guidelines recommend that statin medication initiation requires a three-month follow-up liver function test (LFT) to identify evidence of hepatocellular damage. This audit aims to investigate whether Scoonie Medical Practice is adhering to the recommended NICE guidelines and identify if the source of a patient's prescription affects their follow-up LFTs.

Methods: Patient data was collected and analysed to identify which patients received LFTs within the first three-months of statin initiation, and the source of prescription. Inclusion and exclusion criteria were applied, and we compared the data to the NICE Guidelines and our set standard.

Results: 45 patients were included, with 56% of those patients found to have a confirmed LFT. Three different sources of patient prescription were identified within the sample size. These included 29% new patients, 47% existing patients and 24% patients initiated in a secondary healthcare setting. Within these groups, 61.5% of new patients, 76.2% of existing patients, and 9.1% of patients initiated through secondary healthcare settings had received an LFT within the three-month follow-up period. A chi-squared test identified a significant difference between the different prescription routes (P-value = 0.0012) and whether they received an LFT within the first three months medication initiation.

Conclusion: Overall, the frequency of LFT follow-ups after statin initiation at Scoonie Medical Practice varies depending on the prescribing route. Recommendations have been suggested to improve compliance with the NICE guidelines and improve patient quality of care.

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