

touchCARDIO Meeting Proceedings



STARs
Strategic Therapeutic and Evidence-based Research

AA
Arrhythmia Alliance

AFA
AF Association

www.heartrhythmalliance.org

ABSTRACTS

Heart Rhythm Congress 2026
11–13 October

www.touchCARDIO.com

Contents

Young Investigators Competition

- 6 Young Investigators Competition – Clinical Science
- 9 Young Investigators Competition – Basic Scientist

Abstracts

- 13 Oral Abstracts – Evolving Frontiers and Arrhythmia Mechanisms
- 20 Oral Abstracts – Arrhythmia Clinical
- 25 Oral Abstracts - Allied and Service Development
- 31 Oral Abstracts - Devices, Mapping and Ablation
- 38 Moderated Posters 1
- 48 Moderated Posters 2
- 58 Posters 1
- 95 Posters 2
- 120 Posters 3
- 150 Paediatric Abstracts

Contents – Abstracts

Contents

6	1/Mapping the gateways: a three-dimensional atlas of left atrial ganglionated plexi and the role of electrogram features in cardioneuroablation
7	2/Hybrid Versus Catheter Ablation for Persistent Atrial Fibrillation and Heart Failure: The HALT AF Randomised Trial
8	3/Acute procedural outcomes of Opto-DeEP mapping-guided ventricular tachycardia ablation: an interim analysis of a prospective single-centre cohort
9	4/Thermal Effects and Extramyocardial Injury with Clinical Pulse-Field Ablation Systems
10	5/Artificial Intelligence-Enabled Electrocardiogram Risk Estimation for Ventricular Arrhythmia Prediction in Dilated Cardiomyopathy: An External Validation Study
11	6/Chamber-specific epicardial adipose tissue and adverse outcomes in patients with atrial fibrillation
12	7/Concordant electrical and structural atrial remodeling confers 26 fold higher odds of atrial fibrillation: a fourphenotype classification
13	8/Clinical Characteristics and Ablation Outcomes in Patients With Right Atrial Cardiomyopathy
14	9/A High-Definition Unipolar Intracardiac Electrogram Processing Algorithm
15	10/Association of GLP-1 Receptor Agonist Therapy with Atrial Fibrillation Risk in Patients with Stage 3–4 Chronic Kidney Disease
16	11/Explainable Machine Learning for AF Detection Using ECG Remodeling Markers: False Positives Reveal Subclinical Atrial Myopathy
17	12/Tau20-RETROMapping system reliably identifies organised wavefronts during Atrial Fibrillation to produce live beat-to-beat activation maps
18	13/Outcomes in catheter ablation and conservative management after ICD therapies in patients with structural heart disease: a single-centre real-world experience
19	14/HCM-SCD risk change and arrhythmic outcomes after mavacamten therapy in hypertrophic obstructive cardiomyopathy
20	15/Does the Cartosound FAM automated algorithm generate a more accurate reconstruction of left atrial anatomy than conventional manual assessment of intracardiac echocardiography?
22	16/Pacing-Induced Severe Functional Mitral Regurgitation After “Ablate and Pace” With a Leadless Pacemaker: Reversal With Endocardial Resynchronisation
23	17/SCOPE-15: Syncope Comorbidity Outcomes and Pacemaker Evolution – A 15-Year Retrospective Cohort Study of ILR Monitoring
24	18/Fixation Beats Do Not Predict Physiological Conduction System Capture in Left Bundle Branch Area Pacing
25	19/Clinical Outcomes of Consultant Cardiac Physiologist–Led Pacemaker Generator Replacement: A Retrospective SingleCentre Comparison
26	20/My Heart Passport: Pilot Evaluation of a Web-Based, Patient-Held Digital Implant Passport for Patients with Cardiac Implantable Electronic Devices
27	21/Hywel Dda University Health Board Podiatry and Arrhythmia Service Atrial Fibrillation detection project - Cutting out the middleman in Arrhythmia detection
28	22/Comparison of the Efficacy and Safety of Three Single-Shot Techniques for Atrial Fibrillation Ablation – Retrospective Analysis of 535 Consecutive Patients
29	23/Outcomes of CRT Upgrade in Right Ventricular Paced Patients Who Develop Heart Failure: A 12-Year Single-Centre Survival Analysis
30	24/Opportunistic Atrial Fibrillation Case Finding During Influenza Vaccination Clinics in a Deprived Primary Care Network: A Service Evaluation from South Tees, England
31	25/Contemporary therapy, device allocation and cardiovascular magnetic resonance characteristics in the first 515 patients randomised in the BRITISH trial
32	26/Volt™ PFA for AF ablation under conscious sedation: the Freeman experience



33	27/Predicting Left Ventricular Ejection Fraction Change Using ECG-only Criteria at Conduction System Pacing Implant
34	28/Single-centre experience of Pulsed Field Ablation for Atrial fibrillation using the circular array catheter: a retrospective propensity score-matched cohort analysis
36	29/Clinical outcomes of cardiac implantable electronic device lead noise according to specialist-defined phenotypes: a tertiary device complications clinic experience
37	30/Early conduction system pacing (CSP) in patients with presumed left bundle branch block-induced cardiomyopathy
38	31/The Creation and Testing of a Novel Patient Experience Survey for Cardiac Device Procedures
39	32/Economic Evaluation of Pulsed Field, Cryoballoon and Very High-Power Short-Duration Ablation for Atrial Fibrillation: A Real-World Analysis
40	33/Real-world clinicians feedback on 5944RL rotatable connector use during conduction system pacing
41	34/Subcutaneous Versus Transvenous Implantable Cardioverter-Defibrillator Therapy: An Updated Systematic Review and Meta-Analysis
42	35/Real-world post-stroke implantable loop recorder (ILR) monitoring: atrial fibrillation (AF) detection yield and burden on NHS cardiology service workload
43	36/Identification of Patients Who May Need Consideration of ICD Deactivation: Cracking the Codes
45	37/Economic Benefits of CSP Compared with Conventional CRT-P Implantation
46	38/Two-Year Outcomes and Real-World Impact of a Primary Care Community Palpitations Pathway Using Zenicor ECG Monitoring
47	39/Implementing a Novel Digitally Enabled Pathway for Electronic Patient Reported Outcome Measures (ePROMs) collection Before and After AF ablation
48	40/Use of beta blockers after pacemaker implant and previous ablation of atrial fibrillation predicted survival from all-cause death in patients considered for pacemaker and AV node ablation
49	41/Feasibility and Early Outcomes Using the Novel FARAPOINT™ Focal Pulsed Field Ablation Catheter Across a Spectrum of Cardiac Dysrhythmias: A Single-Centre Experience
50	42/Misinterpreting the Signals: Sense-B Noise and Inappropriate S-ICD Therapy
51	43/Real-World Comparison of Leadless Pacemaker Platforms: An Evaluation of Procedural Learning Curves, Battery Longevity and Clinical Outcomes
52	44/OCKHAMTM guided AF ablation
53	45/Inappropriate Electrical Storm from P-Wave Oversensing (PWOS)
54	46/From large bore venous access to early mobilisation and same-day discharge: Perclose ProGlide™ experience in leadless pacemaker implantation
55	47/From emergency triage to specialist syncope units: a structured review of care models and their implications for diagnosis and management of syncope
56	48/Triage of Direct-Access GP Holter Referrals: Reducing Low-Yield 24-Hour Monitoring Through an Evidence-Based Ambulatory ECG Pathway
58	49/Catheter ablation for ventricular tachycardia in a UK non-surgical centre: procedural safety and medium-term outcomes
60	50/If It Ain't Broke, Don't Book: The Case for Alert-Based Device Follow-Up
61	51/Clinical Coding of Syncope and Transient Loss of Consciousness: Methodological Implications for Cross-Country Comparisons
62	52/Cardiac Device Implantation Complicated by Superior Vena Cava Syndrome: A Case of Successful Brachiocephalic Venoplasty
63	53/Zero fluoroscopy, zero leads ablations: a feasibility study of supraventricular tachycardia and atrial flutter ablations in a single tertiary centre
64	54/Atrial Fibrillation: Symptom Burden, Psychological Impact, and Potential Mindfulness Use in Managing Uncertainty. A Patient and Public Involvement (PPI) Study
65	55/Not All CIED procedures carry the same risk: Benchmarking Device-specific complications rate against EHRA standards in 865 consecutive procedures
66	56/Fluoroscopy-Free Electrophysiology: A Single-Centre Observational Experience of SVT Ablation Using Three-Dimensional Electroanatomical Mapping
69	57/Contact Matters! Excellent Results of Pulsed Field Ablation for Atrial Fibrillation Using Medtronic PulseSelect and Abbott EnSite NavX Mapping System
70	58/A retrospective clinical research audit at UHW: Evaluating the appropriateness of PPI timing following TAVI and the clinical impact of current pacing guidelines.



73	59/Implantable Loop Recorders in Routine Practice: Diagnostic Yield, Appropriateness and Time to Device Upgrade in a Single-Centre Audit
75	60/Comparative Haemodynamic and Electrical Effects Of Left Bundle Branch Area Pacing From The Right And Left Ventricular Septum
77	61/Left bundle area pacing via persistent left-sided superior vena cava
84	62/WITHDRAWN
85	63/Feasibility study of GLP-1 analogues for the optimisation of Outcomes in high BMI patients undergoing Ablation for Atrial Fibrillation (GOAL-AF)
86	64/CMR-ECGI Reveals Electrical Remodeling related to Myocardial Fibrosis in Aging Populations (MyoFit46)
87	65/Cardiac sarcoidosis in the young: The impact of a cardiac MRI service on care
88	66/WITHDRAWN
90	67/Beyond Arrhythmia Detection: Can 72 Hour Holter Monitoring Reveal Underlying Cardiovascular Physiology?
91	68/Does piecewise linear histogram matching improve automated multi-label segmentation of late gadolinium enhanced cardiac MRI using nnUNet?
92	69/Real-world experience of an amiodarone-led DCCV service: balancing the risks and benefits
93	70/How Have Outcomes of Persistent Atrial Fibrillation Ablation Changed With Time and New Technologies? A Meta-analysis and Meta-regression
94	71/Automated segmentation of late gadolinium enhanced cardiac MRI using radiomics
95	72/Electrostructural Discordance: ECG-Predicted Left Atrial Diameter Identifies Novel Atrial Phenotypes with Opposite Risks of Incident Atrial Fibrillation
96	73/ElectroStructural Phenotypes of FirstDegree AV Block: A Translational Study of Atrial Cardiomyopathy and Incident Atrial Fibrillation
97	74/Timeliness of Implanted Cardioverter Defibrillator deactivation for patients at the end of life
98	75/WITHDRAWN
99	76/The possibilities of catheter ablation for patients with persistent atrial fibrillation: how do we do it?
100	77/Developing Artificial Intelligence-enhanced electrocardiography models to detect electrolyte and haemoglobin abnormalities
101	78/Elective electrical cardioversion for atrial arrhythmias in district general hospitals – interpreting the substrate
102	79/Evaluating Psychological Intervention in Patients with ICDs: Outcomes from a Multidisciplinary Clinical Health Psychology Service
103	80/The Shora AF Signature: A Novel QRS Voltage Variability Index for Atrial Fibrillation Detection — Computational Validation Using the PhysioNet MIT-BIH Atrial Fibrillation Database
104	81/Predicting One-Year Mortality After Cardiac Resynchronisation Therapy in Patients Hospitalised for Heart Failure: A Novel Risk Score
105	82/Changes in AF ripple frequency and cycle length following pulmonary vein isolation: insights for targeted AF ablation?
106	83/Interpretable evidence-chain artificial intelligence for clinician-reviewable 12-lead electrocardiogram diagnosis
108	84/Electrical performance and documentation quality in left bundle branch area pacing: a single-centre retrospective audit and service improvement project
110	85/Introducing Left Bundle Branch Area Pacing in a District General Hospital: Procedural Success, Learning Curve and Early Outcomes
111	86/Improving the Appropriateness and Clinical Utility of Holter Monitoring in Patients Presenting with Syncope/Collapse: A Two-Cycle Quality Improvement Project
112	87/Hidden in the Coronary Sinus: When Posteroseptal Pathways Refuse to Ablate
113	88/WITHDRAWN
114	89/GLP-1/GIP Receptor Agonists Are Associated With Reduced Atrial Fibrillation-Related Interventions and Cardiovascular Outcomes in Obesity Without Diabetes: A Target Trial Emulation
115	90/Real-World Implementation of Left Bundle Branch Area Pacing in Routine Clinical Practice: A Single Centre Audit of Procedural Success and Early Outcomes
116	91/WITHDRAWN
117	92/Preprocessing heterogeneity in machine learning for wearable ECG: a scoping review with a transparency score and novel reporting framework
118	93/Abolition of Multifocal Atrial Ectopy and Atrial Tachycardia Following Targeted Ganglionated Plexus Ablation: A Case



Report

- 119 94/Benchmarking General Purpose Artificial Intelligence for Accessory Pathway Localisation on 12 Lead Electrocardiograms
- 120 95/When close to the cliff's end... better don't lose synchrony
- 122 96/Optimising Remote Monitoring of Cardiac Implantable Electronic Devices: A Service Evaluation of Alert Burden and Workflow Patterns at Leeds Teaching Hospitals NHS Trust
- 123 97/Post op analgesia for cardiac devices
- 125 98/Clinical Utility of 24-Hour Holter Monitoring for Palpitations Referred from Primary Care: A Service Evaluation
- 126 99/Impact of Pacing Strategy on Right Ventricular Function: A Comparison of RV Apical Pacing and Left Bundle Branch Area Pacing
- 127 100/Digital Pre-Assessment using NHS App for Implantable Loop Recorder Implantation
- 128 101/Conduction System Pacing Versus Biventricular Pacing in Heart Failure with Reduced Ejection Fraction: An Updated Systematic Review and Meta-Analysis of Randomized Controlled Trials
- 129 102/Breaking the "Invisible Wall": Optimized Pacemaker Programming for a Competitive Athlete with High-Grade AV Block
- 130 103/WITHDRAWN
- 133 104/Dual-Energy Lattice-Tip Ablation Versus Focal Radiofrequency Ablation for Drug-Refractory Ventricular Tachycardia: Early Single-Centre Comparative Experience
- 134 105/Early Transvenous Lead Failure Following Subpectoral Dual Chamber Pacemaker Implantation: A Proposed Mechanism of Pectoralis Major Compression
- 135 106/Identifying novel biomarkers in Pacemaker Induced Cardiomyopathy
- 136 107/Improving Compliance with BMI Eligibility Criteria for Atrial Fibrillation Ablation: A Clinical Audit and Quality Improvement Project.
- 137 108/WITHDRAWN
- 138 109/Variability of battery longevity in cardiac implantable electronic devices: Accuracy of predicted battery longevity from follow-up to elective replacement indication.
- 139 110/A Case to Remember: Cardiac Memory Mimicking Diffuse Myocardial Ischaemia Following Permanent Ventricular Pacing
- 141 111/Do Digital Wearables Increase Detectability of Atrial Fibrillation?
- 142 112/Implementation of a Digital ECG Pathway using GE MAC VU360 and MUSE integration to Improve workflow Efficiency and Reduce Paper use
- 143 113/ARNI and SGLT2 inhibitors and ventricular arrhythmia in ICD and CRT-D recipients with heart failure: A Time-dependent Cohort analysis
- 144 114/Rate-related programming in people with cardiac resynchronisation therapy (CRT) - a single-centre observational analysis of current practice.
- 145 115/Lyme Carditis Presenting as Severe Sinus Node Dysfunction and Cardiac Arrest: A Rare Case of Persistent Conduction Disease Requiring Permanent Pacing
- 146 116/Development of a program for predicting the risks of arrhythmia recurrence after minimally invasive ablation procedures "RAFA-score" with integration algorithms of machine learning
- 147 117/Audit on the indications and outcomes of patients undergoing implantable loop recorders at a district general Hospital
- 148 118/Emergency Internal Jugular AVEIR Leadless Pacemaker Implantation in an Octogenarian to enable treatment of Hospital-Acquired Pneumonia - a case study.
- 149 119/An uncommon cause for syncope. A Vasospastic angina related ventricular tachycardia
- 150 120/Intra-atrial Re-entrant Tachycardia with Slow Ventricular Response in a Child with Repaired Aortic Coarctation
- 151 121/Collapse and aborted sudden death in a child: perseverance prevails in retrieving data from the AED memory and reveals the exact cause
- 152 122/Physical activity motivation in children and adolescents diagnosed with Long QT Syndrome and Catecholaminergic Polymorphic Ventricular Tachycardia
- 153 123/Narrow Complex Tachycardia; a shocking case defies standard emergency intervention
- 154 124/Wide complex tachycardia – to treat or not to treat?
- 155 125/The Sawtooth Plot Twist: Atrial Flutter Unmasked in a LatePreterm Neonate
- 156 126/A Technology Gap in Wearable Pre-Syncope Detection: A Structured Review of Multimodal Sensing for Advance Warning During Ambulatory Activity
- 157 127/Transplacental Management of Refractory Fetal Supraventricular Tachycardia in One Fetus of a Dichorionic Diamniotic Twin Pregnancy that post natal showed to be PJRT



Young Investigators Competition – Clinical Science

1/Mapping the gateways: a three-dimensional atlas of left atrial ganglionated plexi and the role of electrogram features in cardioneuroablation

touchCARDIO Meeting Proceedings. 2026:1;abstr1

Authors: M Zuhair (Presenting Author),¹ J Tonko,¹ D Keene,¹ J Kay,¹ L Malcolm-Lawes,¹ J Chow,¹ R Khiani,² M Dani,¹ P Taraborrelli,³ P Eardley,³ Z Whinnett,¹ N Kaza,¹ B Lim¹ and A Naraen¹

1. Imperial College London, London, UK; 2. Royal Free NHS Foundation Trust, London, UK; 3. Imperial College NHS Foundation Trust, London, UK

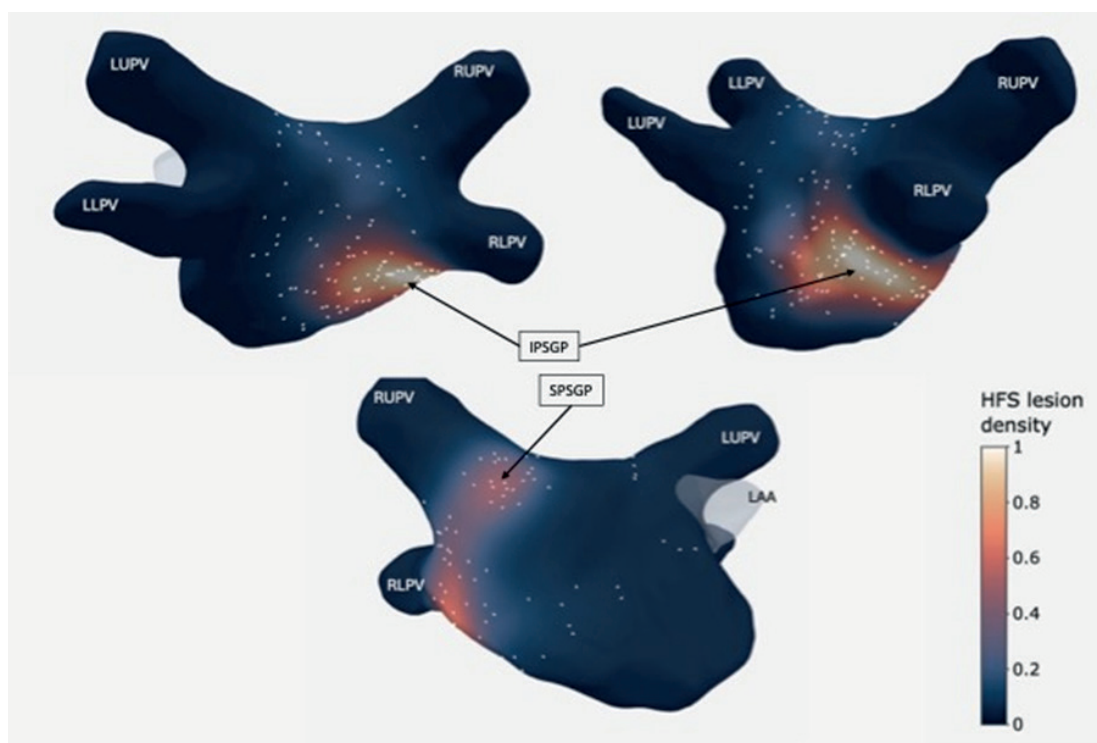
Introduction: Cardioneuroablation (CNA) treats cardioinhibitory vasovagal syncope by ablating left atrial ganglionated plexi (GPs) that relay vagal input to the sinoatrial (SAN) and atrioventricular (AVN) nodes. High-frequency stimulation (HFS) is the standard functional localisation method but requires a dedicated stimulator, prolongs procedures and induces atrial fibrillation. We assessed whether routinely acquired electrogram (EGM) features can discriminate GP from non-GP sites, and constructed a composite anatomical atlas of functionally defined gateway GPs.

Methods: In this single-centre prospective study, 25 patients underwent CNA with high-density left atrial mapping (EnSite X, HD Grid). HFS (40 Hz) defined GP-positive (GP+) and GP-negative (GP-) sites. EnSite-derived peak frequency, omnipolar conduction velocity, fractionation and voltage, plus offline EGM duration and Shannon entropy, were spatially matched to HFS sites (1.5 and 3 mm radii). Lesion-level univariable and multivariable logistic regression tested association with GP+ status. All GP+ sites were transposed onto a single template geometry and rendered as a Gaussian kernel-density heat map.

Results: Mean age was 31 years and 60% were male. GP+ sites clustered reproducibly into two foci: an anterosuperior paraseptal cluster around the right upper pulmonary vein (superior paraseptal GP, the SAN gateway) and an inferior paraseptal cluster between the right inferior pulmonary vein and mitral annulus (inferior paraseptal GP, the AVN gateway), with highest density at the inferior paraseptal GP (Figure 1). On univariable analysis, EGM duration (OR 1.46), fractionation (OR 1.40) and Shannon entropy (OR 1.24) were associated with GP+ status (all $p < 0.05$). On multivariable analysis only EGM duration (OR 1.42, $p < 0.001$) and fractionation (OR 1.30, $p = 0.010$) remained independent, with modest discrimination and substantial overlap between groups. Peak frequency, conduction velocity and voltage were not significant.

Conclusions: Functionally defined GPs cluster reproducibly at the paraseptal gateway plexi, supporting an atlas-based anatomical reference for CNA. Routinely available EGM features, principally duration and fractionation, show statistically significant but only modest discrimination of GP sites and are best used as adjuncts rather than standalone localisation tools, with HFS or extracardiac vagal stimulation retained for functional confirmation. □

Figure 1





Young Investigators Competition – Clinical Science

2/Hybrid Versus Catheter Ablation for Persistent Atrial Fibrillation and Heart Failure: The HALT AF Randomised Trial

touchCARDIO Meeting Proceedings. 2026;1;abstr2

Authors: Q Ahmed (Presenting Author),¹ ER Behr,¹ S White,¹ Z Zuberi,² M Sohal,² M Specterman,² A Bajpai,² S Sharma,³ I Beeton,³ K Mallek,³ M Al-Obaidi,³ R Sharma,² M Saba,² A Momin² and RA Kaba¹

1. City, St George's, University of London, London, UK; 2. St Georges Hospital, London, UK; 3. Ashford & St Peters Hospital NHS Trust, Surrey, UK

Introduction: Atrial fibrillation (AF) and heart failure (HF) with impaired left ventricular ejection fraction (LVEF <50%) together confer greater morbidity and mortality than either condition alone. Catheter ablation (CA) improves outcomes, but recurrent atrial arrhythmia remains common after endocardial-only CA for persistent AF. Convergent epicardial-endocardial hybrid ablation (HA) has demonstrated greater rhythm durability in selected populations but has not been tested in a dedicated randomised trial in patients with impaired LVEF.

Methods: HALT AF was a UK multicentre randomised trial with blinded endpoint adjudication. Adults undergoing first-time ablation for persistent or long-standing persistent AF, LVEF <50%, and moderate-to-severe left atrial (LA) dilatation were randomised 1:1 to HA or CA after optimisation of AF and HF therapy. Both strategies mandated pulmonary vein isolation (PVI) and posterior wall isolation (PWI); radiofrequency or pulsed-field energy was permitted. The primary efficacy endpoint was freedom from AF, atrial flutter, or atrial tachycardia >30 seconds off Class I/III antiarrhythmic drugs after a 3-month blanking period through 12 months from ablation-strategy completion, analysed by Poisson regression, adjusted for age and sex randomisation strata, in the modified intention-to-treat (m-ITT) population. The primary safety endpoint was 30-day major adverse cardiac events (MACE). Secondary analyses assessed AF burden, rhythm durability, cardiac remodelling, and patient-reported outcomes.

Results: HALT AF met its primary efficacy endpoint. Of 150 randomised patients, 132 underwent ablation and entered the m-ITT population (66 HA, 66 CA). Primary endpoint success at 12 months was 80.3% (53/66)

with HA versus 62.1% (41/66) with CA. In the prespecified adjusted analysis, HA reduced the risk of primary endpoint failure by 47% (RR 0.53; 95% CI 0.30–0.94; $p=0.029$), with an adjusted increase in success of 17.8 percentage points (95% CI 2.3–33.2), corresponding to an NNT of 6. Time-to-event analysis was consistent (adjusted Cox HR 0.51; 95% CI 0.26–0.99; $p=0.048$). Late failure after 6-month success occurred in 3.6% with HA versus 21.2% with CA (adjusted RR 0.17; 95% CI 0.04–0.72; $p=0.016$), supporting more durable rhythm control with HA. Twelve-month arrhythmia burden was lower with HA (adjusted mean difference -21.3 percentage points; $p=0.002$). In exploratory analysis, the treatment effect favouring HA persisted after adjustment for endocardial energy source and ablation year (RR for primary failure 0.45; 95% CI 0.23–0.87; $p=0.018$). Thirty-day MACE occurred in 4.5% with HA and 1.5% with CA. Patient-reported outcomes favoured HA across AF-specific, HF-specific and generic health measures: AFEQT +8.09 points ($p=0.017$), MLHFQ -10.81 points ($p=0.003$) and EQ-5D VAS +11.13 points ($p<0.001$). HA was associated with modestly greater LA reverse remodelling (adjusted LA volume index difference -4.1 mL/m²; $p=0.049$). LVEF improved in both arms, from 36.8% to 54.4% with HA and from 35.4% to 53.0% with CA.

Conclusions: HALT AF is the first randomised trial of hybrid ablation dedicated to patients with persistent AF and impaired LVEF. In a strategy-level comparison targeting PVI and PWI, HA achieved superior and more durable rhythm control than CA, with lower arrhythmia burden, better patient-reported outcomes and greater reduction in left atrial volume index; substantial left ventricular recovery was observed in both groups. □



Young Investigators Competition – Clinical Science

3/Acute procedural outcomes of Opto-DeEP mapping-guided ventricular tachycardia ablation: an interim analysis of a prospective single-centre cohort*touchCARDIO Meeting Proceedings. 2026:1;abstr3*

Authors: *R Siang* (Presenting Author),¹ J Al-Sheikhli,² J Mayer,³ M Thant,¹ XZ Wang,² I Patchett,¹ K Manoharan,⁴ J Silberbauer,⁴ P Lambiase,⁵ F Minhaz,² C O'Shea² and T Dhanjal²

1. UHCW NHS Trust, Coventry, UK; 2. University of Warwick, Coventry, UK; 3. UHNM, Stoke-on-Trent, UK; 4. Royal Sussex County Hospital, Hove, UK; 5. Barts Heart Centre, London

Introduction: Decremental evoked potential (DeEP) mapping is a functional substrate mapping method to guide ventricular tachycardia (VT) ablation. Recent mechanistic studies suggest DeEPs are best defined by ≥ 20 ms decrement in electrogram duration following an S2 extrastimulus, with optimal S2 coupling intervals confirmed at 400 ms or VT cycle length at this decrement threshold. This remains to be validated in prospective clinical studies. The Opto-DeEP study addresses this gap, aiming to determine the acute procedural success of Opto-DeEP mapping-guided VT ablation in a prospective single-centre cohort.

Methods: This is a single-arm, prospective analysis of 15 consecutive participants with structural heart disease who underwent DeEP-mapping-guided VT ablation. DeEP mapping was performed by delivering an S2 extrastimulus from the right ventricular apex at a coupling interval equivalent to 400 ms or the VT cycle length. Areas demonstrating decrement >50 ms were labelled Blue DeEPs and those with 20–50 ms decrement Green DeEPs. Tier-based DeEP-guided ablation targeting Blue DeEPs followed by Green DeEPs was performed. Acute procedural success was defined as non-inducibility of any sustained monomorphic VT on end-procedure VT induction.

Results: Fifteen participants undergoing Opto-DeEP VT ablation between April and September 2025 were analysed (mean age 68 ± 14 years;

87% male; mean LVEF $34\% \pm 13$; 6 ischaemic cardiomyopathies, 6 non-ischaemic cardiomyopathy, 3 mixed cardiomyopathies). LV access was achieved via a transseptal approach in all participants. Most underwent endocardial mapping, with epicardial mapping performed in 20% (3/15). DeEPs were identified in all 15 participants (100%). Targeted ablation strategies comprised combined Blue and Green DeEPs ($n=7$), Blue DeEPs only ($n=7$) and Green DeEPs only ($n=1$). Five participants have further VT inducible post-DeEP ablation and underwent additional operator guided strategy as per protocol. Final VT induction was performed in all 15 participants, with acute non-inducibility achieved in 13/15 (86%). Post-ablation remap was performed in 12/15, with complete elimination of all targeted DeEPs in 12/12 (100%) of those remapped. The combined acute endpoint (non-inducibility and complete DeEP elimination) was achieved in 12/15 (80%). One participant sustained a procedural complication (access-site haematoma), managed conservatively.

Conclusion: DeEP-mapping-guided VT ablation using a standardised Opto-DeEP protocol was feasible and safe, with DeEPs identified in all participants and complete targeted-substrate elimination in every patient undergoing remap. These findings support continued recruitment to the Opto-DeEP study and provide the procedural foundation for evaluating medium-term arrhythmia outcomes. □

Figure 1

Per-participant DeEP Ablation According to DeEP Subgroups, Distribution and Acute Outcomes
(Total cases analysed, as per-protocol $n = 15$)

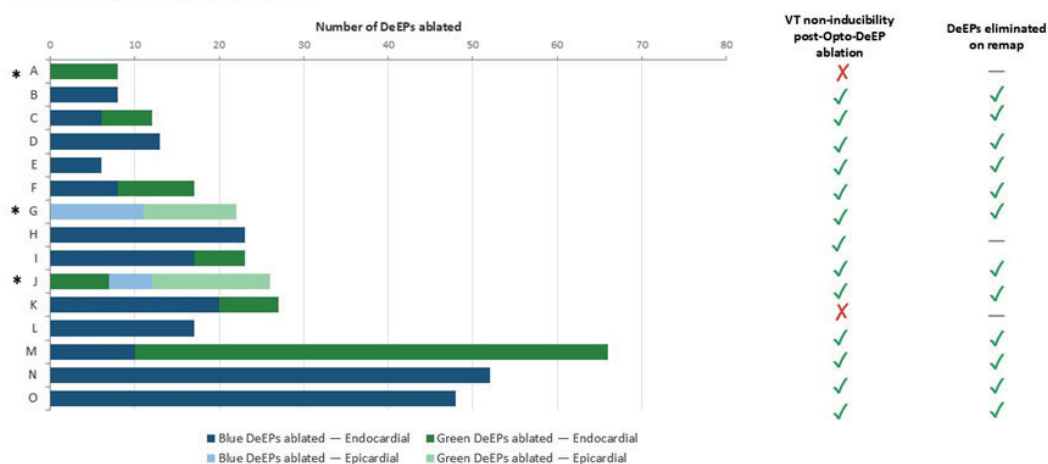


Figure 1. demonstrates per-participant DeEP ablation and acute outcomes. Each horizontal bar = number of DeEPs ablated per patient. Colour = DeEP gradient (blue = >50 ms decrement, green = 20–50 ms); shade = region (darker = endocardial, lighter = epicardial). ✓ : Yes / ✗ : No / — : Not assessed at the post-Opto-DeEP ablation. 86.7% (13/15) had VT non-inducibility post Opto-DeEP ablation, 12/12 (100%) had complete targeted DeEP substrate elimination.

* highlights cases in which epicardial DeEP mapping was performed.



Young Investigators Competition – Basic Scientist

4/Thermal Effects and Extramycocardial Injury with Clinical Pulse-Field Ablation Systems

*touchCARDIO Meeting Proceedings. 2026:1;abstr4*Authors: *JS Gill* (Presenting Author),¹ C Saija,² V Sagar,¹ K Rhode,² L Leung¹ and M Gallagher¹

1. St George's Hospital, London, UK; 2. King's College London, London, UK

Introduction: Pulse-field ablation (PFA) is regarded as a non-thermal ablation modality, but as the volume of procedures using PFA has increased, there has been an increasing recognition of complications that would not be expected in a tissue-selective modality. Thermal effects from PFA, which do not show tissue preference may be the cause for this. The experiments described aim to:

- (1) Identify thermal effects of clinical PFA systems using a novel thermochromic hydrogel.
- (2) Compare these effects across different PFA systems
- (3) Identify whether thermal effects could be the mechanism of non-cardiac injury during PFA.

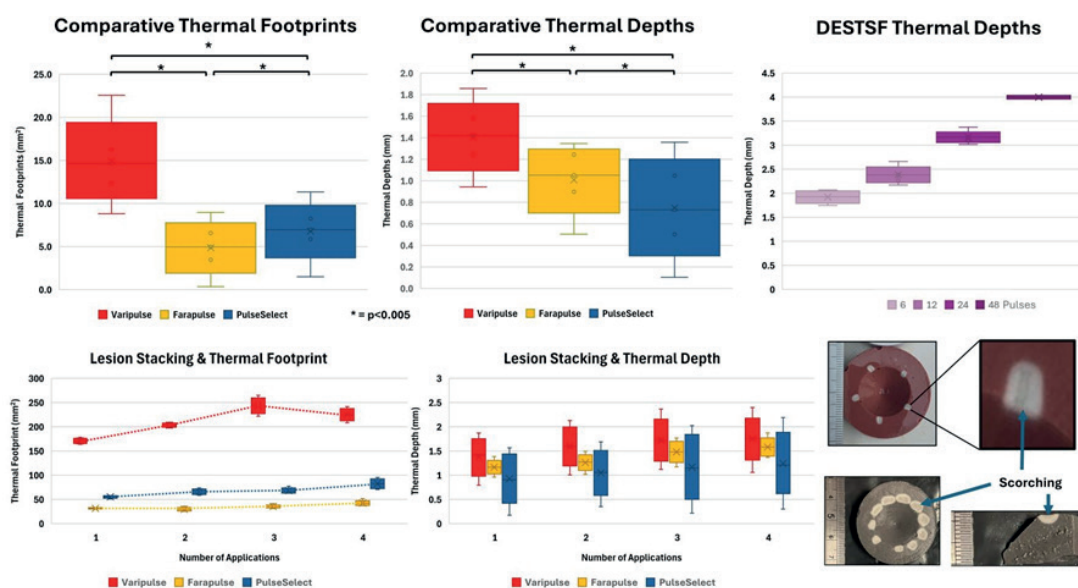
Methods: The thermochromic hydrogel undergoes sustained colour change when the target temperature (50°C or 60°C) is reached allowing direct visualisation of the thermal footprint and depth. Lesion sets using a variable loop catheter (VP), circular over-the-wire catheter (PS), pentaspline catheter (FP), lattice catheter (S9), and a 3.5mm tip dual-energy catheter (DESTSF) were performed. Protocols included single and stacked applications with variation of force, irrigation, voltage and orientation. The hydrogel lesions were analysed en-face and by section using digital image analysis.

Results: All catheters other than the S9 had significant thermal effects. With a single application, the VP catheter had the largest mean surface footprint (156.1mm²) and DESTSF had the largest thermal depth (3.53mm). The PS and FP catheters had smaller, though significant footprints and

depths (PS 55.4mm² & 1.1mm, FP 29.8mm² & 1.05mm, $p < 0.005$). The S9 catheter had no thermal footprints at 50°C with clinical settings, though some thermal effects were observed when individual PFA parameters were maximised. Increasing irrigation trended to reduce thermal footprint but this did not achieve statistical significance in all catheters. Increasing voltage increased thermal footprint, but changes in force had minimal effect on lesion footprint and depth. Stacked lesions incrementally increased thermal lesion footprint and depth in all catheters except the S9. A perpendicular orientation had a larger thermal footprint but shallower thermal depth than parallel in the point-by-point catheters. Thermal depths of up to 4.0mm were observed with stacked applications on the 60°C hydrogel. Scorching of the hydrogel, indicative of temperatures well in excess of 60°C was observed with the VP and FP catheters, suggesting the possibility of char formation in vivo. No scorching was observed with the other catheters.

Conclusions: There are significant thermal footprints observed from PFA application and there are significantly different thermal effects from the different systems tested. Temperatures exceeding 60°C have been demonstrated which is comparable to radiofrequency ablation. Transmural thermal atrial lesions are possible from PFA application and this may explain the mechanism of injury in some reports of collateral non-myocardial tissue damage. Scorching and char may be indicative of the possible mechanism of CVA during PFA application and there appears to be a relationship between scorched area and published individual catheter stroke risks. □

Figure 1





Young Investigators Competition – Basic Scientist

5/Artificial Intelligence-Enabled Electrocardiogram Risk Estimation for Ventricular Arrhythmia Prediction in Dilated Cardiomyopathy: An External Validation Study

touchCARDIO Meeting Proceedings. 2026:1;abstr5

Authors: M Morgan (Presenting Author),¹ H Aggour,¹ B Zeidaabadi,¹ J Barker,¹ A Birdi,¹ K Patlatzoglou,¹ G R Khattak,¹ J Huo,¹ A El-Medany,² D Kramer,³ J Waks,³ N Peters,⁴ A Sau,⁴ F S Ng² and A Varnava⁵

1. Imperial College London, London, UK; 2. Imperial College London, Imperial College Healthcare NHS Trust, Chelsea and Westminster Hospital NHS Foundation Trust, London, UK; 3. Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA; 4. Imperial College London, Imperial College Healthcare NHS Trust, London, UK; 5. Imperial College Healthcare NHS Trust, London, UK

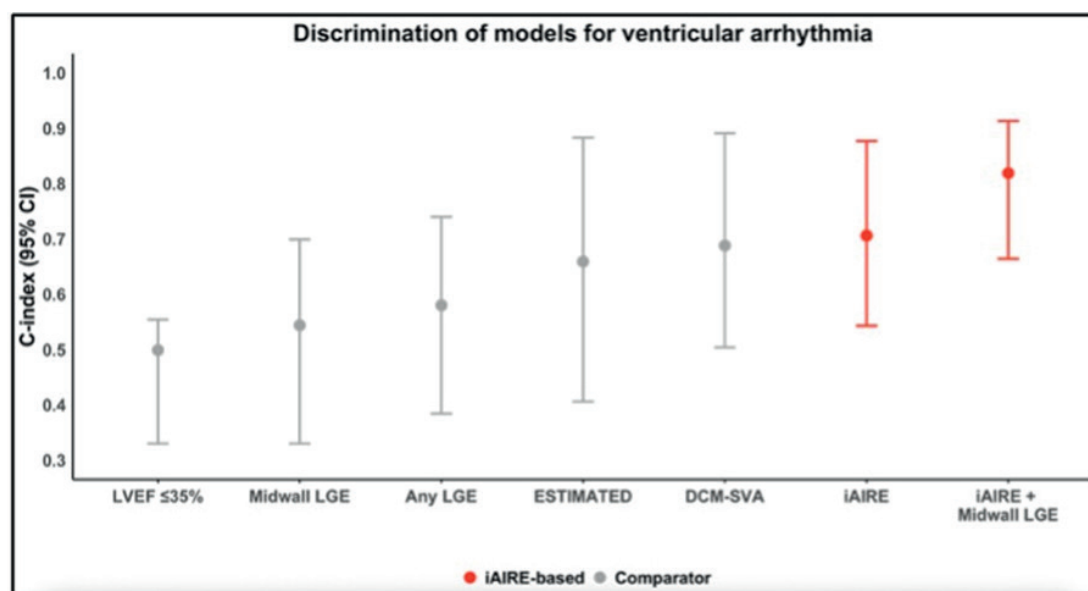
Introduction: One-third of total deaths in dilated cardiomyopathy (DCM) are attributed to sudden cardiac death (SCD), commonly caused by ventricular arrhythmias (VAs). Current risk stratification tools for VAs in DCM remain inadequate. This study aimed to evaluate a suite of image-based artificial intelligence-enabled electrocardiogram (AI-ECG) models (image-based AI-ECG Risk Estimator, iAIRE) for predicting future VAs and other important cardiovascular outcomes in DCM.

Methods: This retrospective study utilised the Imperial Cardiac Conditions Registry (ISRCTN17200091) and included patients with a confirmed diagnosis of DCM. iAIRE predictions were performed using electrocardiogram images. We compared iAIRE model performance to conventional tools for VA risk stratification including left ventricular ejection fraction (LVEF), cardiac MRI-derived presence of late gadolinium enhancement (LGE) and midwall LGE, as well as two validated clinical risk scores (DCM-SVA and ESTIMATED). The primary outcome was incident VA. Secondary outcomes included incident atrial fibrillation (AF), heart failure (HF) and all-cause mortality.

Results: A total of 19 VA events occurred (7.9%) in the final study population (n=242). iAIRE-VA demonstrated the highest independent discriminative performance with a concordance index (C-index) of 0.71 (95% CI 0.54-0.88). This was comparable to the DCM-SVA (0.69) and ESTIMATED (0.66) risk scores, and superior to LGE (0.58), midwall LGE (0.55) and LVEF $\leq 35\%$ (0.50). Combining iAIRE-VA with midwall LGE improved discriminative performance (C-index 0.82; partial likelihood ratio test $p = 0.043$). iAIRE-AF, iAIRE-HF and iAIRE-mortality showed overall moderate to good discriminative performance with C-indices of 0.68 (95% CI 0.53-0.83), 0.79 (95% CI 0.63-0.94) and 0.77 (95% CI 0.69-0.85) respectively.

Conclusion: iAIRE shows promise as a risk stratification tool for cardiovascular outcomes in DCM, including VA. Combining iAIRE-VA with midwall LGE improved predictive performance, suggesting that iAIRE may provide complementary electrophysiological value beyond traditional markers. Future work should prospectively evaluate iAIRE within real-world populations to assess its clinical utility in DCM. □

Figure 1





Young Investigators Competition – Basic Scientist

6/Chamber-specific epicardial adipose tissue and adverse outcomes in patients with atrial fibrillation

touchCARDIO Meeting Proceedings. 2026:1;abstr6

Authors: C Sillett (Presenting Author), E Peralta, P Ganesan, S Bandyopadhyay, B Wu, P Clopton, AJ Rogers, K Nieman and SM Narayan
Stanford Cardiovascular Institute, Stanford, CA, USA

Introduction: Atrial fibrillation (AF) is associated with adverse outcomes including heart failure (HF) and AF progression. Cardiac epicardial adipose tissue (EAT) is associated with both AF and HF through local inflammatory and paracrine effects, however it is unclear how chamber-specific EAT relates to outcomes. We hypothesized that chamber-specific EAT phenotypes are differently associated with future AF cardioversion and HF hospitalisation following AF ablation.

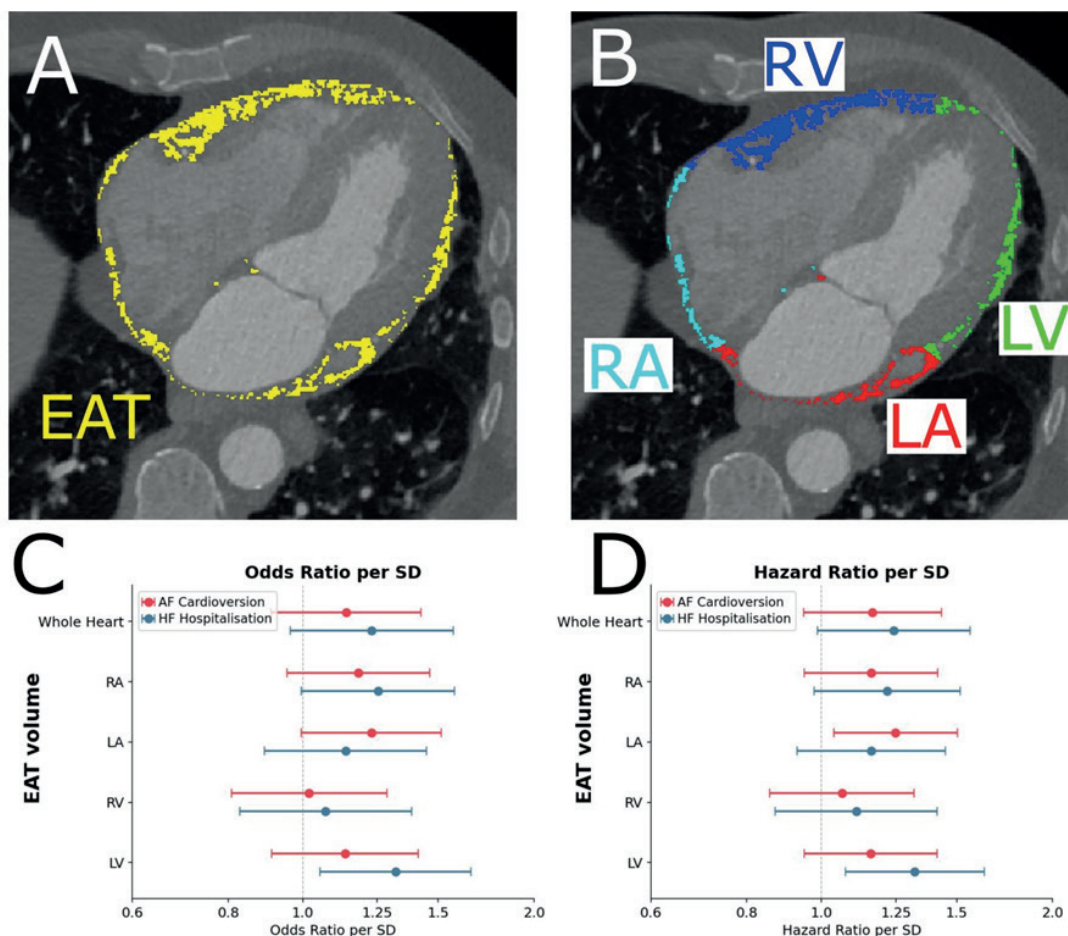
Methods: Patients with AF who underwent coronary computed tomography angiography (CCTA) for pre-ablation workup were retrospectively identified. Total cardiac EAT volume was segmented automatically from CCTA scans using a Hounsfield Unit range [-190, -30] within the pericardium (Figure A). Chamber-specific EAT depots were assigned firstly based upon separation into peri-atrial versus peri-ventricular EAT using the atrioventricular plane, and secondly using the nearest Euclidean distances to the left atrium (LA), right atrium (RA),

left ventricle (LV) and right ventricle (RV) (Figure B). Cardioversion for AF events were blanked for 90 days post-date of CCTA to avoid detection of planned ablation events as false positives.

Results: Among 1,628 patients with 5-year follow-up, 77 underwent AF cardioversion and 60 experienced HF hospitalization. Greater LV EAT was associated with future HF hospitalization (HR: 1.32 per SD, $P=0.008$; OR: 1.32 per SD, $P=0.016$) while LA EAT trended towards association with risk of future cardioversion (hazard ratio, HR: 1.25 per SD increase, $P=0.018$; odds ratio, OR: 1.23 per SD increase, $P=0.054$). In contrast, whole-heart EAT demonstrated weaker associations than chamber-specific metrics (Figures C and D) with both endpoints.

Conclusions: Chamber-specific EAT depots may vary in associations with AF and HF progression following AF ablation. These findings may provide mechanistic insight into atrial and ventricular remodeling and disease phenotypes. □

Figure 1



A: Total epicardial adipose tissue (EAT) overlaid on a coronary computed tomography angiogram (CCTA). B: Chamber-specific EAT. C: Odds ratios for whole-heart and chamber-specific EAT with respect to AF cardioversion (red) and HF hospitalisation (blue) within 5-year follow-up. D: Hazard ratios with respect to time-to-event data



Oral Abstracts – Evolving Frontiers and Arrhythmia Mechanisms

7/Concordant electrical and structural atrial remodeling confers 26 fold higher odds of atrial fibrillation: a fourphenotype classification

touchCARDIO Meeting Proceedings. 2026:1;abstr7

Authors: Dr Chandran (Presenting Author)

The First Affiliated Hospital of Dalian Medical University, Dalian, China

Background: Current risk assessment for atrial fibrillation (AF) treats atrial remodeling as a single process. However, electrical remodeling (detected by ECG) and structural remodeling (left atrial diameter enlargement) may occur independently. The prognosis of patients with discordant phenotypes—abnormal ECG with normal LAD or normal ECG with enlarged LAD—is unknown.

Methods: We retrospectively included 11,146 consecutive patients from a single tertiary center (2015–2024) who underwent both ECG and echocardiography. Four mutually exclusive phenotypes were defined: Reference (normal ECG, normal LAD), Electrical-only (abnormal ECG, normal LAD), Structural-only (normal ECG, enlarged LAD), and Concordant abnormal (abnormal ECG, enlarged LAD). The primary outcome was prevalent AF. Logistic regression, bootstrap resampling, 10-fold cross-validation, net reclassification improvement (NRI), integrated discrimination improvement (IDI), calibration, and decision curve analysis were used.

Results: Phenotype distribution: Reference 43.7%, Electrical-only 43.2%, Structural-only 4.4%, concordant abnormal 10.2%. AF prevalence

increased stepwise: Reference 1.1%, Electrical-only 4.3%, Structural-only 4.4%, and concordant abnormal 21.4%. Adjusted for age, sex, hypertension and diabetes, odds ratios (OR) versus Reference were: Electrical-only 3.65 (95% CI 2.74–5.00), Structural-only 4.31 (95% CI 2.32–7.03), Concordant abnormal 25.80 (95% CI 19.41–35.19). Adding the phenotype to a clinical model increased the AUC from 0.631 to 0.817 (bootstrap 95% CI 0.801–0.833). Ten-fold cross-validated AUC was 0.814±0.018. NRI was 0.964 (95% CI 0.866–1.067) and IDI 0.077 (95% CI 0.069–0.087). Calibration and decision curves showed good performance. Subgroup analyses confirmed consistent risk across sex, age, hypertension and diabetes.

Conclusions: A simple four-phenotype classification based on routine ECG and LAD measurement robustly stratifies AF risk. Patients with discordant remodeling have an intermediate risk (~4-fold higher odds), while those with concordant abnormalities have a markedly elevated risk (26-fold higher odds, 21% prevalence). This classification substantially improves discrimination and reclassification over clinical risk factors alone, offering an actionable tool for AF risk stratification in everyday practice. Prospective validation is warranted. □



Oral Abstracts – Evolving Frontiers and Arrhythmia Mechanisms

8/Clinical Characteristics and Ablation Outcomes in Patients With Right Atrial Cardiomyopathy

*touchCARDIO Meeting Proceedings. 2026;1;abstr8*Authors: H Jing (Presenting Author), L Hengli and T Yu

The First Affiliated Hospital of Nanchang Medical College (Jiangxi Provincial People's Hospital), Nanchang, China

Background: Right atrial cardiomyopathy (RACM) is characterized by extensive right atrial structural and electrical remodeling. Data regarding catheter ablation outcomes in this population are limited.

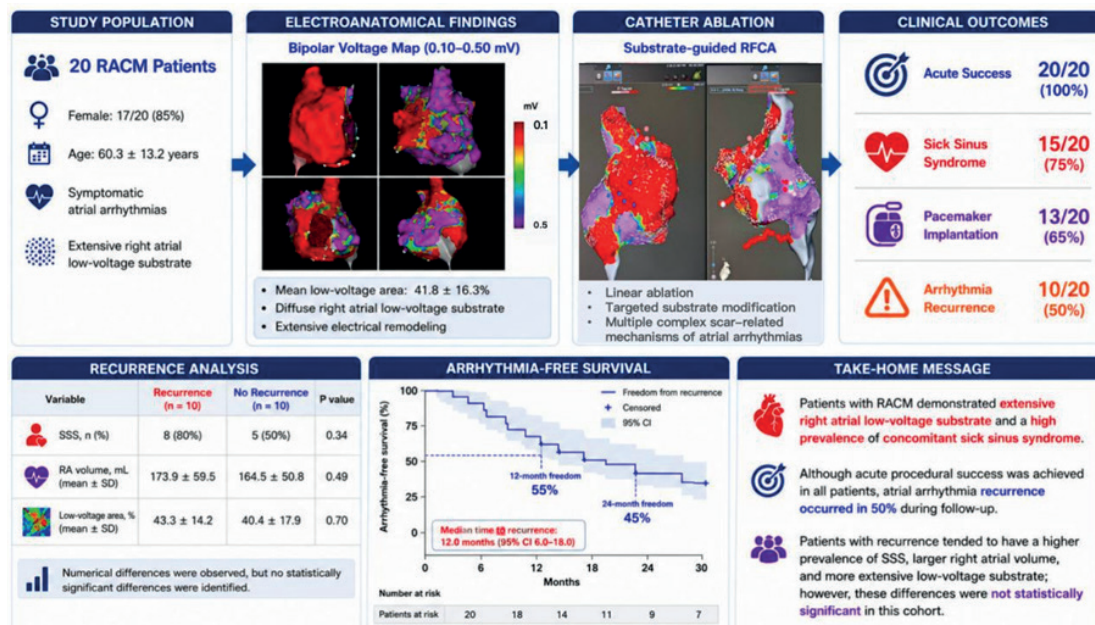
Methods: We retrospectively analyzed 20 consecutive patients with RACM who underwent radiofrequency catheter ablation for symptomatic atrial arrhythmias. RACM was identified by extensive right atrial low-voltage areas (0.10–0.50 mV) on three-dimensional electroanatomical mapping. Clinical characteristics, electrophysiological findings, procedural outcomes, and follow-up data were evaluated. The primary endpoint was recurrence of atrial arrhythmias during follow-up.

Results: The mean age was 60.3 ± 13.2 years, and 17 patients (85%) were female. The mean low-voltage area accounted for $41.8 \pm 16.3\%$ of the total right atrial surface. Sick sinus syndrome (SSS) was present in 15 patients (75%), and 13 patients (65%) underwent permanent pacemaker implantation. Although the acute procedural success was achieved in all patients (20/20, 100%), mapping and ablation were technically difficult, and there were multiple complex scar-related mechanisms underlying atrial arrhythmias.

During follow-up, atrial arrhythmia recurrence occurred in 10 patients (50%). Compared with patients without recurrence, those with recurrence had a numerically higher prevalence of SSS (80% vs. 50%, $p=0.34$), larger right atrial volume (173.9 mL vs. 164.5 mL, $p=0.49$), and a greater extent of low-voltage substrate (43.3% vs. 40.4%, $p=0.70$). However, no statistically significant differences were identified between the two groups. Kaplan–Meier analysis demonstrated a gradual decline in arrhythmia-free survival over time.

Conclusions: Patients with RACM exhibited extensive right atrial low-voltage substrate and a high prevalence of concomitant SSS. Although acute procedural success was achieved in all patients, arrhythmia recurrence remained common during follow-up. In this cohort, recurrence was not significantly associated with right atrial volume, low-voltage area extent, or the presence of SSS. Further studies with larger sample sizes are needed to better characterize long-term outcomes in patients with RACM. □

Figure 1





Oral Abstracts – Evolving Frontiers and Arrhythmia Mechanisms

9/A High-Definition Unipolar Intracardiac Electrogram Processing Algorithm

touchCARDIO Meeting Proceedings. 2026:1;abstr9

Authors: [QZ Zheng](#) (Presenting Author), [OSJ Jones](#) and [NL Linton](#)
Imperial College London, London, UK

Introduction: Conventional intracardiac mapping is based mainly on bipolar electrograms (the potential difference between two intracardiac electrodes in proximity). Although bipolar recordings provide effective common-mode noise rejection, they are dependent on electrode orientation and spacing. Bipolar electrograms reduce the information contained in each unipolar electrogram: morphology (for example a QS pattern if present) is lost and temporal information can be obscured. Improved filtering of unipolar electrograms may preserve more information about local myocardial activities, enabling a higher definition of intracardiac electrograms. In this work, we aim to develop a unipolar electrogram processing framework to perform multichannel filtering while preserving the relationship between electrograms.

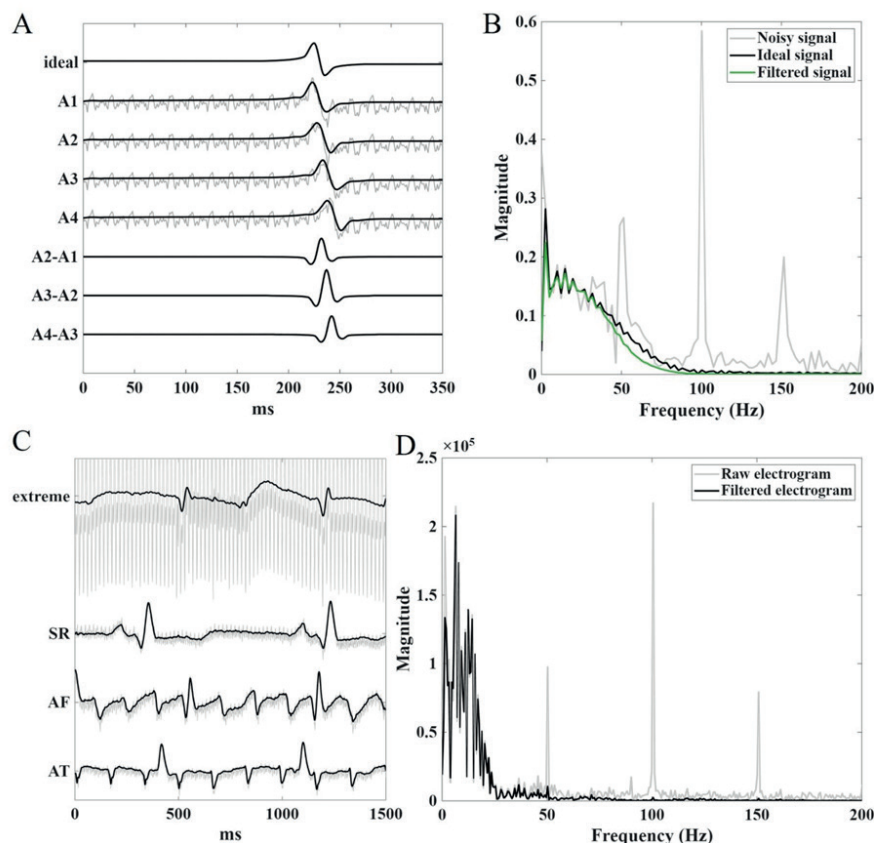
Methods: We formulated an observation-model extension of the Savitzky-Golay filter in which unipolar signals are estimated from noisy linear measurements, including unipolar and bipolar channels. A measurement weighting approach preserved low-frequency unipolar content and also preserved high-frequency bipolar content. The method was evaluated on simulated electrograms and recordings from clinical cases, acquired using a 6×6 grid catheter (OPTRELL™, Boston Scientific).

Results: Simulated unipolar electrograms with an ideal activation morphology were generated according to the electrode configuration of

OPTRELL™. Noise from a clinical recording (in a section without cardiac activity) was added to each unipolar signal but the bipolar signals were preserved noise-free. Electrograms from the beginning 4 electrodes on row A were used for the result presentation (A1-A4). *Figure A* shows that the noise has been heavily filtered while retaining the unipolar morphology. The signal-to-noise ratio (SNR) increased from 1.5 to 26.7 dB, while the filtered signal achieved 97.8% cross-correlation with the ideal signal at zero lag and a normalized root mean square error of 0.025. *Figure B* further illustrates that the 60 Hz noise can be filtered without cutting the frequency components of the activation electrogram. Recordings of five patients with atrial fibrillation (AF), atrial tachycardia (AT), or sinus rhythm (SR) were evaluated. The results shown in *Figure C* demonstrate that the algorithm enables high-definition processing of unipolar electrograms across AF, AT, and SR morphologies, including an extreme noisy case. On average, the SNR increased from 6.6 ± 0.2 to 26.5 ± 1.8 dB; in the extreme case, it increased from 0.12 to 18.3 dB. *Figure D* further demonstrates that the noise components in the spectrum can be cut off without affecting the activation pattern.

Conclusions: The unipolar intracardiac electrogram processing algorithm enables noise reduction on the unipolar electrogram while preserving the clinically important information. □

Figure 1





Oral Abstracts – Evolving Frontiers and Arrhythmia Mechanisms

10/Association of GLP-1 Receptor Agonist Therapy with Atrial Fibrillation Risk in Patients with Stage 3–4 Chronic Kidney Disease

touchCARDIO Meeting Proceedings. 2026:1;abstr10

Authors: B Alyav¹, B Daminov² and R Igamberdieva (Presenting Author)¹

1. The Republican Specialized Scientific and Practical Medical Center for Therapy and Medical Rehabilitation, Tashkent, Uzbekistan;

2. Tashkent State Medical University, Tashkent, Uzbekistan

Introduction: Chronic kidney disease (CKD) stages C3–C4 is associated with an increased risk of atrial fibrillation (AF) due to chronic inflammation, activation of the renin-angiotensin-aldosterone system, oxidative stress, and progressive atrial myocardial remodeling. Glucagon-like peptide-1 receptor agonists (GLP-1RA) have proven cardiorenal effects, but their potential role in the prevention of AF in patients with CKD has been poorly studied. The aim of the study is to evaluate the effect of GLP-1RA therapy on the risk of developing atrial fibrillation in patients with CKD stage C3–C4.

Methods: The study included 2557 patients with CKD stage C3–C4 who were being monitored at the Republican Specialized Scientific and Practical Medical Center for Nephrology and Kidney Transplantation. Patients were divided into two groups based on whether they were receiving GLP-1RA (semaglutide) as part of their standard treatment. The observation period lasted from January 2022 to March 2025. All patients underwent a comprehensive clinical and laboratory examination, including an assessment of renal function (estimated glomerular filtration rate, albuminuria level), anthropometric parameters, inflammatory markers (high-sensitivity C-reactive protein), oxidative stress parameters, as well as an echocardiographic assessment of the structural and functional state of the heart and the volume of epicardial adipose tissue. The primary endpoint was the development of new-onset atrial fibrillation, and secondary endpoints included cardiorenal outcomes, including CKD progression, changes in albuminuria, body

weight, inflammatory markers, and oxidative stress. Statistical analysis was performed using Cox proportional hazards models, calculating hazard ratios (HR) and 95% confidence intervals (CI).

Results: Analysis of the study showed that semaglutide use was associated with a 42% reduction in the risk of new-onset AF compared with the control group (HR 0.59; 95% CI 0.41–0.83, $p=0.005$). The data indicate statistically significant improvements in cardiorenal parameters with GLP-1RA therapy. Patients experienced an average 11% decrease in body weight from baseline ($p<0.001$), a 34% decrease in albuminuria (HR 0.68; 95% CI 0.52–0.82; $p<0.001$), a 33% decrease in high-sensitivity C-reactive protein ($p<0.001$), and a 22% decrease in oxidative stress ($p<0.05$). The study showed that epicardial adipose tissue volume decreased by 24% ($p<0.01$). Semaglutide therapy was associated with a 27% decrease in the risk of CKD progression (HR 0.77; 95% CI 0.64–0.89, $p<0.001$). The risk of thromboembolic complications associated with AF was reduced by 44% (HR 0.56; 95% CI 0.48–0.69; $p<0.001$). These data suggest that reductions in body weight, albuminuria, inflammation, oxidative stress, and epicardial adipose tissue volume with GLP-1RA therapy may contribute to a reduction in atrial structural and electrical remodeling.

Conclusions: In patients with CKD stages C3–C4, GLP-1RA therapy was associated with a reduced risk of developing AF and improved cardiorenal outcomes. These data suggest a potential role for GLP-1RA in preventing AF in patients at high cardiovascular risk. □



Oral Abstracts – Evolving Frontiers and Arrhythmia Mechanisms

11/Explainable Machine Learning for AF Detection Using ECG Remodeling Markers: False Positives Reveal Subclinical Atrial Myopathy

*touchCARDIO Meeting Proceedings. 2026;1;abstr11*Authors: SC Chandran (Presenting Author),¹ S Faiz,¹ A Sambath,² F Liu,¹ X Yin¹ and Y Xia¹

1. The First Affiliated Hospital of Dalian Medical University, Dalian, China; 2. Meenakshi Mission Hospital and Research Center, Madurai, India

Background: Atrial fibrillation (AF) is often clinically silent until complications occur. Current detection approaches have limited interpretability and do not fully leverage ECG markers of atrial remodeling.

Objectives: To develop and validate an explainable machine learning (ML) model integrating ECG atrial remodeling markers and clinical variables for prevalent AF detection, and to explore the clinical characteristics of false-positive (FP) predictions.

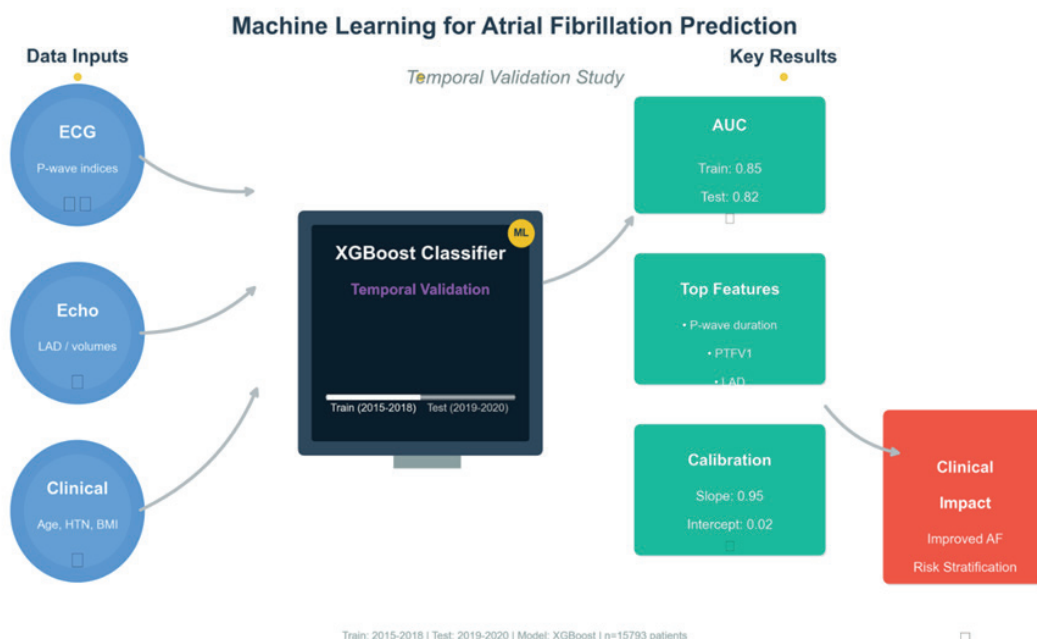
Methods: We conducted a retrospective study of 15,793 individuals. XGBoost was compared with logistic regression. Model performance was assessed using temporal validation (70/30 split). SHAP was used for feature interpretability. False-positive cases (model-positive, AF-negative) were compared with true negatives using standardized mean differences, multivariable analyses, and manual ECG review.

Results: XGBoost showed superior performance compared with logistic regression (AUC 0.826 vs. 0.757; sensitivity 0.747). Key predictors

included left atrial diameter, PTFV1, P-wave duration, age, and diabetes. Among individuals without AF, false positives (n=3,698) demonstrated modestly higher markers of atrial remodeling, including larger left atrial diameter (SMD 0.14), higher PTFV1 (SMD 0.36), and longer P-wave duration (SMD 0.25) compared with true negatives (n=11,198). Manual ECG review of a subset of FP cases identified frequent premature atrial contractions (28%) and short supraventricular tachycardia runs (12%), without sustained AF.

Conclusions: An explainable ML model incorporating ECG atrial remodeling markers demonstrates good discrimination for prevalent AF. False-positive predictions show a consistent atrial electrical substrate pattern, which may reflect early or subclinical atrial remodeling. While overall precision limits direct screening use, these findings suggest potential utility for risk enrichment and hypothesis generation in atrial disease phenotyping. □

Figure 1





Oral Abstracts – Evolving Frontiers and Arrhythmia Mechanisms

12/Tau20-RETROmapping system reliably identifies organised wavefronts during Atrial Fibrillation to produce live beat-to-beat activation maps

touchCARDIO Meeting Proceedings. 2026:1;abstr12

Authors: E Nadeem (Presenting Author), A Khan, M Mosharraf, R Ali, P Kanagaratnam and O Jones
Imperial College London, London, UK

Background: Atrial Fibrillation (AF) mechanisms remain poorly understood, and clinical outcomes from catheter ablation are modest. Activation mapping has yielded electrophysiological insights, but previous studies have been limited to offline methods, which precludes its application in clinical ablation. The Tau20-RETROmapping system (TauRhythm Therapies, London, UK), is a novel investigational medical device that delivers live, beat-to-beat activation mapping in AF. This study builds on previously published work, and extends our validation of the system in anticipation of its application in forthcoming observational studies and clinical trials.

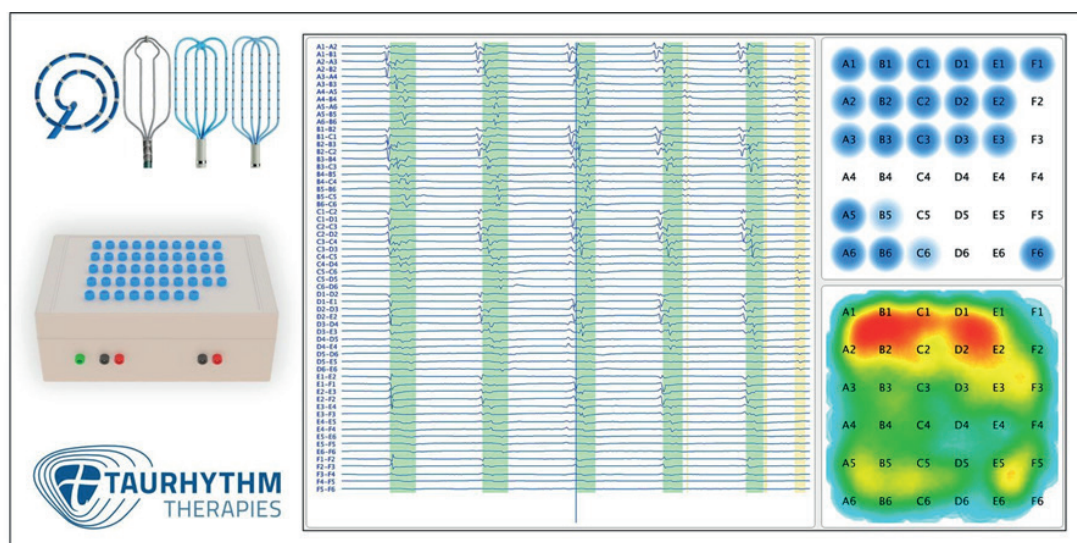
Methods: We recruited patients undergoing clinical AF ablation. Electrograms were recorded for 30 seconds during AF at multiple LA sites with high-density mapping catheters (Optrell, HD Grid, or AFocus II) and the Tau20-RETROmapping system, which automatically windows each activation wave and generates activation maps of organised wavefronts only, intentionally excluding disorganised activations that would not produce a meaningful isochronal activation map (Figure 1). Recording segments were randomly selected, each lasting 1 second and containing several AF cycles and activation wave windows. To establish a reference standard, three blinded assessors independently classified each automatically generated activation window, according to whether or not it contained an organised wavefront that could produce a meaningful activation map.

Thresholds for activation wave duration, and number of activated electrodes participating in the wave, were each systematically adjusted and compared against the manual reference standard. Confusion matrices were then constructed to identify the performance of each parameter as a classifier for organised waves.

Results: 20 patients were studied (16 male, age 66 years [60–73], AF duration 25 months [12–30], LA diameter 4.3 cm [4.1–4.6], left ventricular ejection fraction 57% [51%–60%]). 100 1-second segments were randomly selected, yielding 519 activation windows, of which 354 (68.2%) were adjudicated to contain activation wavefronts that could be mapped (pairwise Cohen's κ 0.83–0.95, Fleiss's κ 0.89). Electrode participation was the most effective classifier (AUC 0.976), and performed optimally at threshold 50% electrode participation (sensitivity 98.6%, specificity 92.1%). Minimum wave duration showed moderate discrimination (AUC 0.888) and optimal threshold 30 ms (sensitivity 94.4%, specificity 64.2%). Concatenating both rules did not improve performance beyond the electrode participation parameter alone. In sensitivity analysis, electrode participation maintained AUC 0.967–1.000 across all catheter types and recording conditions.

Conclusion: The Tau20-RETROmapping system enables real-time activation mapping in AF, demonstrating excellent discrimination of mappable activation wavefronts when compared to manual annotation across a range of catheter laboratory settings. Clinical studies of RETROmapping-guided AF ablation are now underway. □

Figure 1





Oral Abstracts – Arrhythmia Clinical

13/Outcomes in catheter ablation and conservative management after ICD therapies in patients with structural heart disease: a single-centre real-world experience

touchCARDIO Meeting Proceedings. 2026:1;abstr13

Authors: [TN Jones](#) (Presenting Author), M Aye Aye, H Noori, XN Huang, G Charin, R Patil, JR Paisey, MT Pope, W Ullah, AM Yue and M Niespialowska-Steuden
University Hospital Southampton, Southampton, UK

Introduction: Patients with structural heart disease who receive therapies from implantable-cardioverter defibrillators (ICDs) for scar-related ventricular tachycardia (VT) are at an increased risk of adverse events. Catheter ablation (CA) has been shown to reduce the subsequent number of appropriate shocks, heart failure progression and mortality, compared to antiarrhythmic drugs alone. This real-world longitudinal cohort study aimed to assess outcomes in patients undergoing CA or conservative management after ICD therapies.

Methods: We retrospectively analysed patients with structural heart disease who received appropriate ICD therapies between 2016 and 2025 and met indications to be considered for CA, as per ESC guidelines for their respective underlying cardiomyopathy. Patients were assessed for MACE (a combination of further ICD-therapies after 28 days, sustained VT requiring treatment, electrical-storm or mortality) at 1 year.

Results: 247 patients were analysed over 10 years. 218 (87%) were male. Underlying cardiomyopathies included: ischaemic (66%), dilated (20%), arrhythmogenic (2%), hypertrophic (3%) and others (8%). ICDs included: transvenous (56%), cardioverter-resynchronisation (41%) and subcutaneous (3%) devices, inserted for both primary (51%) and secondary (49%) prevention. At inclusion, 63% had shocks (either alone or directly after failed ATP), 28% had successful ATP alone and 9% had both shocks

and ATP on separate occasions. 52 patients (21%) underwent CA within 3 months. There was no difference in baseline characteristics between those undergoing CA and those managed conservatively, in terms of: median age (67 vs 69 years, $p=0.392$), male sex (94% vs 87%, $p=0.165$), Caucasian ethnicity (98% vs 94%, $p=0.739$), type of cardiomyopathy (68% vs 62% ischaemic, $p=0.404$), mid-range LV ejection fraction (33% vs 33%, $p=0.369$), or the presence of underlying diabetes mellitus ($p=0.771$), hypertension ($p=0.307$) or cerebrovascular ($p=0.361$), chronic airway ($p=0.355$) or chronic kidney disease ($p=0.07$). There was also no difference in the number who underwent shocks between the groups (67% vs 73%, $p=0.390$) or mean number of shocks received (0.89 vs 0.82, $p=0.548$), but the number of ATP therapies delivered was higher in the CA group (1.27 vs 0.63, $p<0.001$).

Patients undergoing CA were significantly less likely to develop MACE by 1 year (25% vs 44%, $p=0.015$). When analysed with stepwise logistic regression, CA remained an independent predictor in preventing MACE (OR 0.354, 0.15-0.82, $p=0.016$), after adjustment for baseline demographics, comorbidities and type of cardiomyopathy.

Conclusions: Patients who underwent CA after ICD therapies were at a lower risk of MACE at 1 year, even after adjustment for baseline characteristics. Future work should consider how to optimally identify and select patients for CA after ICD therapies. □



Oral Abstracts – Arrhythmia Clinical

14/HCM-SCD risk change and arrhythmic outcomes after mavacamten therapy in hypertrophic obstructive cardiomyopathy*touchCARDIO Meeting Proceedings. 2026:1;abstr14*

Authors: H Mak (Presenting Author), M-I Firescu, D Chan and K Nelson
The Freeman Hospital, Newcastle upon Tyne, UK

Introduction: Hypertrophic obstructive cardiomyopathy (HOCM) is characterized by asymmetric left ventricular (LV) hypertrophy, causing LV outflow tract (LVOT) obstruction. Alongside its haemodynamic impact, it associates with an increased risk of sudden cardiac death (SCD). The ESC HCM-SCD risk score uses parameters which may be influenced by cardiac myosin inhibition. We evaluated changes in HCM-SCD risk score following mavacamten therapy and assessed the incidence of sustained ventricular arrhythmias (VAs) and device therapies (anti-tachycardia pacing and shocks) in HOCM patients with implanted cardiac devices.

Methods: In this retrospective cohort study, we included all patients with HOCM currently receiving mavacamten that also had a cardiac device in situ, be it an implantable cardioverter defibrillator (ICD) or loop recorder (ILR). We collected demographic data, echocardiographic parameters, HCM-SCD risk scores and VAs incidence (sustained ventricular tachycardia and device therapy) before and after mavacamten initiation.

Results: Out of all patients with HOCM receiving mavacamten at our centre, 15 had a cardiac device in situ. Their mean age was 44.6, and 60% were women. Their NYHA class was 2-3, 4 were genotype positive, and LV ejection fraction was >55% in all cases. 12 patients were receiving a beta-blocker, 2 were on a calcium channel blocker, and 5 were on disopyramide. 3 patients had ILRs, and 12 had ICDs, with 3 ICDs

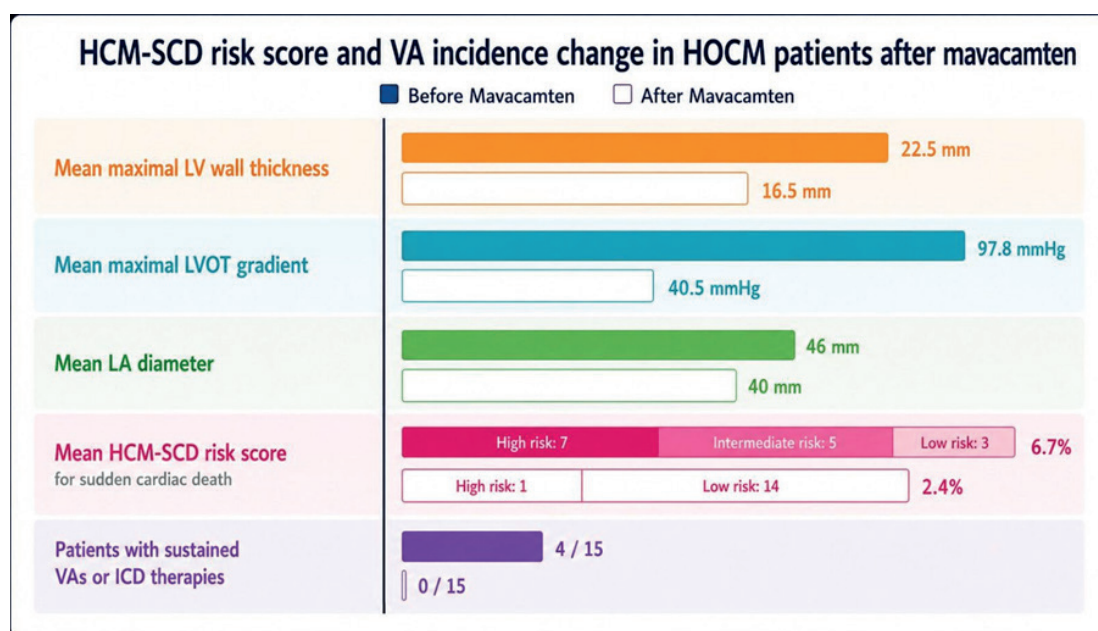
implanted for secondary prevention. The mean maximal LVOT gradient was 97.8mmHg, LV wall thickness 22.5mm, and left atrial (LA) diameter 46mm pre-treatment with mavacamten. The average HCM-SCD risk score was 6.7%, with 7 patients classified as high risk, 5 as intermediate risk, and 3 as low risk.

After an average time on mavacamten of 8 months, the HCM-SCD risk score dropped to 2.44% (Figure 1). Risk stratification improved markedly, with 14 patients classified as low risk and only one patient remaining in the high-risk category after treatment. This was secondary to significant improvements in echocardiographic parameters. The mean maximal LVOT gradient decreased to 40.5mmHg, mean LA diameter went down to 40mm, and mean LV wall thickness went from 22.5 to 16.5mm.

4 patients had sustained VAs prior to their mavacamten therapy. None of the included patients had sustained VAs following treatment, nor did they experience any therapies from their ICDs.

Conclusions: Mavacamten therapy was associated with a marked reduction in HCM-SCD risk scores in HOCM patients. This was driven by significant improvements in echocardiographic parameters. Mavacamten therapy was also associated with a reduction in VAs, with no device therapies seen after myosin inhibition. Larger patient cohorts and longer follow up time are required to confirm if the reduction in HCM-SCD risk score will be paralleled by a reduction in arrhythmia burden. □

Figure 1: HCM-SCD risk score and VA incidence change in HOCM patients after mavacamten





Oral Abstracts – Arrhythmia Clinical

15/Does the Cartosound FAM automated algorithm generate a more accurate reconstruction of left atrial anatomy than conventional manual assessment of intracardiac echocardiography?

touchCARDIO Meeting Proceedings. 2026:1;abstr15

Authors: S Mohamed,¹ M Lawless (Presenting Author),¹ MGD Bates,¹ D Twomey,¹ AR Thornley,¹ M Holliday² and S James¹

1. James Cook University Hospital, Middlesbrough, UK; 2. J and J MedTech EP, Wokingham, UK

Introduction: Intracardiac echocardiography (ICE) is frequently used to guide electrophysiology procedures. CartosoundFAM (CSFAM) automatically reconstructs a 3D anatomy of the left atrium (LA) using 2D ICE frames and acquired ultrasound (US) contours (*Figure 1*). We compared the accuracy of CSFAM algorithm-generated LA geometries with manually-derived geometries using the same ICE data set.

Methods: 2D US frames from the right atrium and right ventricle were processed with CSFAM from 6 cases where an ICE geometry had previously been manually annotated. CSFAM and manual geometries were validated by measurement of the automated lesion tag (Visitag) distance from the LA surface (<3mm deemed satisfactory) and by qualitative observer assessment by 4 independent physicians using a 5-point Likert scale for the overall LA geometry (1 being "extremely dissatisfied", 5 being "extremely satisfied") and a 3-point scale for the rendering of structures including the LA appendage and individual pulmonary veins (0 being "poor", 1 "average" and 2 "good").

Results: Per patient: mean 2D US frames used = 27 ± 4 , mean acquisition time = 18 ± 5 min. All anatomical structures were correctly identified in

all cases. Visitag mean distance (mm) to the surface was 1.7 ± 1.6 for CSFAM geometries vs 2.4 ± 2.2 for manual geometries ($p < 0.0001$). The regions of greatest difference were as shown in *Figure 2a*. Visitags were satisfactory in 78% for CSFAM vs 65% for manual geometries. Qualitative ratings were mean score of 1.99 ± 0.11 for individual structures and 4.89 ± 0.32 for overall LA geometries using CSFAM compared with 1.33 ± 0.7 and 3.11 ± 1.0 for manual geometries ($p < 0.001$) with good between-rater correlation ($\kappa = 0.97$ to 0.93) (*Figure 2b*).

Conclusion: The CSFAM algorithm correctly identified all LA anatomical structures. CSFAM geometries were more accurate than manual created using the same data set when assessed by both qualitative observer opinion and quantitative direct measurements to subsequent lesion positions. The greatest increase in accuracy appeared to be related to sites that are predominantly more challenging to visualise, including those adjacent to the right pulmonary veins and septum. □



Figure 1 and 2

Figure 1: Automatic v Manual geometry.

- i. manual derived geometry
- ii. CSFAM derived geometry
- iii. CSFAM tagging of ultrasound contour

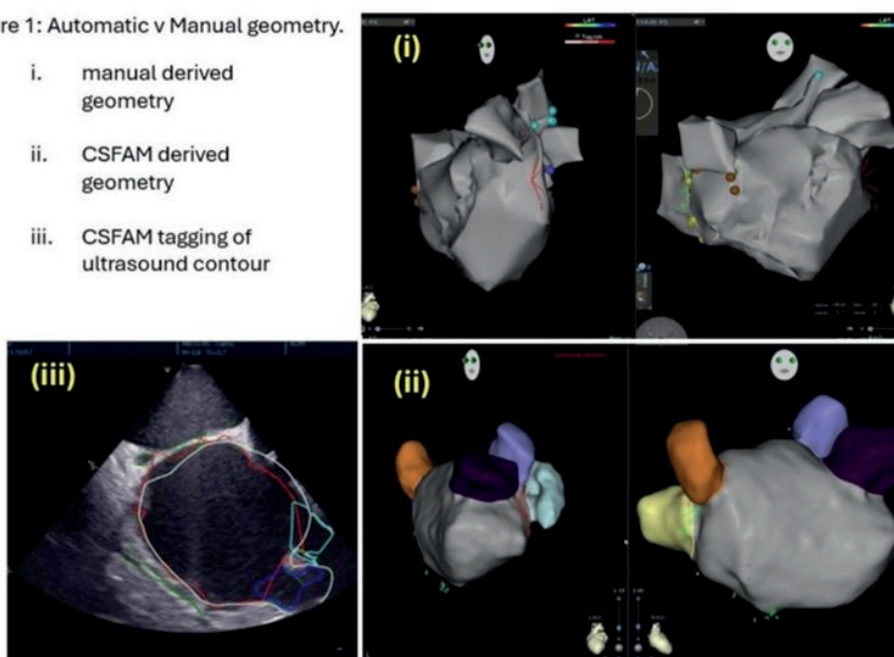


Figure 2(a) Visitag Distance From Surface Data

point	location	CSFAM		maunual		mean difference	P value	points < 3mm from surface (%)	
		mean	SD	mean	SD			CSFAM	manual
left side	roof	1.1	1.5	1.5	1.5	0.4	0.411	87.5	82.4
	ant LSPV	1.5	1.7	3.5	2.8	2.0	0.050	71.4	36.4
	ant LIPV	1.0	1.3	1.4	1.6	0.3	0.481	94.7	84.2
	floor	0.3	0.6	0.7	0.6	0.3	0.519	100	100
	post LIPV	0.7	1.1	2.4	0.7	1.7	0.011	100	100
right side	roof	1.8	1.1	2.8	2.7	1.0	0.194	100	53.3
	ant RSPV	2.1	1.6	2.1	2.4	0.0	0.948	64.7	78.9
	ant RIPV	2.9	1.6	4.1	2.3	1.1	0.030	50.0	23.3
	floor	1.4	1.2	3.9	2.6	2.5	0.003	100	33.3
	post RIPV	1.1	1.6	2.6	2.2	1.6	0.006	83.3	56.5
roofline	post RSPV	1.8	1.3	2.1	1.6	0.3	0.420	77.8	70.8
	post RSPV	2.5	1.8	3.8	1.0	1.3	0.030	55.6	42.9
	roofline	1.9	1.4	2.0	1.5	0.1	0.730	75.0	71.7
posterior line	posterior line	1.1	1.4	1.2	1.5	0.1	0.734	88.5	86.7
	septal line	1.9	2.0	3.6	2.7	1.7	0.005	72.7	45.5
all points		1.7	1.6	2.4	2.2	0.7	0.0000006	78.2	64.6

Figure 2(b) Observer Scores For Left Atrial Geometries

(range 1 to 5 for LA, 0 to 2 for all other structures)

Structure	Observer Ratings				
	CSFAM		Manual		p
	mean	sd	mean	sd	
Left atrial appendage	2.0	0.0	1.9	0.3	0.163139
Left superior pulmonary vein	2.0	0.0	1.4	0.6	0.000521
Left inferior pulmonary vein	2.0	0.0	1.5	0.5	0.000710
Right superior pulmonary vein	2.0	0.0	0.7	0.8	0.000004
Right inferior pulmonary vein	1.9	0.2	1.2	0.5	0.000055
Left atrium	4.9	0.3	3.1	1.0	0.000002



Oral Abstracts – Arrhythmia Clinical

16/Pacing-Induced Severe Functional Mitral Regurgitation After “Ablate and Pace” With a Leadless Pacemaker: Reversal With Endocardial Resynchronisation

touchCARDIO Meeting Proceedings. 2026;1;abstr16

Authors: TH Hnin (Presenting Author), MC Chapman, MB Bates, AT Turley and SJ James
James Cook University Hospital, Middlesbrough, UK

Case Summary

- A 78-year-old man with hypertension, longstanding sinus bradycardia, and paroxysmal atrial arrhythmias underwent AV node ablation and implantation of a leadless AVEIR VR pacemaker for symptomatic sick sinus syndrome.
- In the months following the procedure, he developed progressive breathlessness, orthopnoea, and multiple emergency presentations despite normal clinical examinations. Transthoracic echocardiography demonstrated progression from mild–moderate MR in August 2024 to moderate–severe MR in May 2025, two months post Pace and Ablate. Transoesophageal echocardiography confirmed severe functional MR with annular dilatation and preserved leaflet morphology.
- The mitral multidisciplinary team recommended optimisation of heart failure therapy including cardiac resynchronisation prior to consideration of valve intervention.
- Conventional CRT upgrade was not feasible due to the leadless system. The patient, therefore, underwent endocardial biventricular resynchronisation (EBR) via a transseptal approach. Following left atrial access, a steerable sheath was advanced across the mitral valve and a left ventricular endocardial pacing lead was positioned

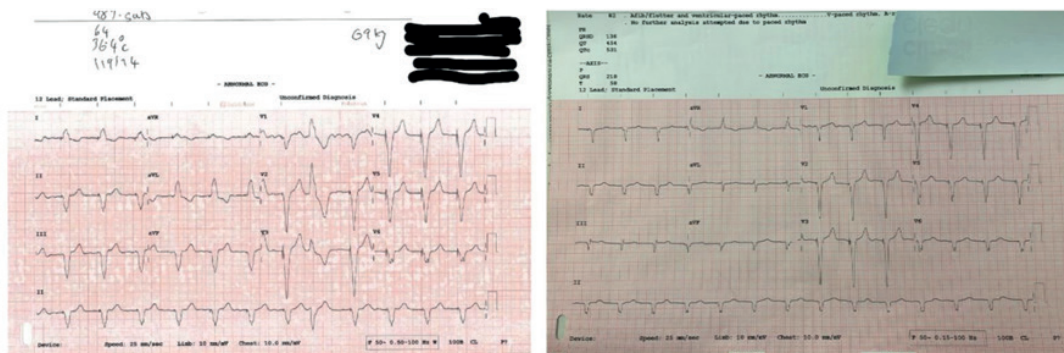
along the lateral LV wall at a site of latest mechanical activation guided by echocardiographic dyssynchrony and electrical mapping. Pacing parameters and QRS narrowing were optimised intra-procedurally, and the system was synchronised with right ventricular pacing from the leadless device. Long-term anticoagulation was instituted to mitigate thromboembolic risk associated with LV endocardial pacing.

- Following EBR, the patient reported significant symptomatic improvement. Repeat echocardiography demonstrated improvement in MR severity with partial recovery of LV systolic function and restoration of more synchronous contraction.

Learning Points:

- Functional MR may worsen following “ablate and pace” strategies due to pacing-induced dyssynchrony and LV dysfunction.
- Leadless pacemakers pose challenges for conventional CRT upgrade, requiring alternative strategies.
- EBR can improve LV function and reduce MR severity, potentially avoiding or delaying mitral valve intervention.
- Multidisciplinary evaluation is essential in managing mixed-mechanism MR. □

Figure 1





Oral Abstracts – Arrhythmia Clinical

17/SCOPE-15: Syncope Comorbidity Outcomes and Pacemaker Evolution – A 15-Year Retrospective Cohort Study of ILR Monitoring

touchCARDIO Meeting Proceedings. 2026:1;abstr17

Authors: [AL Correia](#) (Presenting Author)

Ashford and St. Peter's hospitals NHS Foundation Trust, Chertsey, UK

Introduction: Syncope is quite a common event in the NHS, and in many cases identifying the underlying cause can be a challenge. Implantable Loop Recorders (ILRs) have become an important tool used in cardiology as they allow for continuous rhythm monitoring.

Despite this, in daily practice it is not always clear which patients are more likely to eventually need a pacemaker. A better understanding of this could help identify higher-risk patients sooner and improve follow-up strategies.

Methods: This retrospective cohort study included patients who had ILRs implanted for unexplained syncope or dizziness over a 15-year period (2008–2023) in NHS tertiary centre.

A total of 469 patients were included in this study. Data collected included patients' demographics, comorbidities, arrhythmias detected and clinical outcomes.

The time-to-event analysis was done using Kaplan–Meier methods, logistic regression was used to identify factors that were associated with pacemaker implantation.

Results: Out of the initial 469 patients, 157 (33.5%) had a pacemaker implanted.

The patients who needed pacing were older and had a higher number of comorbidities, which included hypertension, diabetes, hypercholesterolaemia, ischaemic heart disease, structural heart disease and a previous history of arrhythmias.

The most common arrhythmia were Sinus pauses (46.2%), followed by atrioventricular block (17.3%) and tachy-brady syndrome (15.4%).

The median time to pacemaker implant was 190 days. From the comorbidities that were studied high cholesterol was found to be associated with earlier progression to pacing ($p=0.014$).

Conclusions: This study highlights the necessity of ILR monitoring to identify patients in need of a pacemaker implant. Certain clinical characteristics and arrhythmic patterns were identified when moving to pacing (progression to pacing), and these are likely to aid the follow-up more effectively.

These findings highlight the role of structured ILR follow-up and the role of device clinics and allied professionals in recognising these patterns early and supporting timely intervention. □



Oral Abstracts – Arrhythmia Clinical

18/Fixation Beats Do Not Predict Physiological Conduction System Capture in Left Bundle Branch Area Pacing

touchCARDIO Meeting Proceedings. 2026:1;abstr18

Authors: [G Davies](#) (Presenting Author), C Warren, J Barry, A Margulescu and D Thomas
Swansea Bay University Health Board, Swansea, UK

Introduction: Fixation beats observed during lead deployment have been proposed as a marker of septal lead engagement during left bundle branch area pacing (LBBAP).^[1] However, their ability to predict physiological conduction system capture remains unclear. We evaluated whether fixation beats are associated with established electrocardiographic markers of left bundle branch (LBB) capture, including V6 R-wave peak time (RWPT) and the V6–V1 interpeak interval.

Methods: We performed a retrospective analysis of consecutive patients undergoing LBBAP at our centre. Fixation beats, defined as narrow complex ventricular ectopics with a RBBB appearance that occurred on deployment of the fixation helix, were recorded as being present or absent during lead deployment. Outcomes included: (1) V6 RWPT, (2) V6–V1 interpeak interval, (3) QRS narrowing (Δ QRSd), (4) pacing threshold, and (5) Physiological LBB capture was defined using two criteria: RWPT <80ms or V6–V1 interval either >44ms or > 33ms.^[2] Continuous variables were analysed using Mann–Whitney U testing and categorical outcomes using Fisher’s exact test.

Results: A total of 163 patients were included, with fixation beats observed in 43 cases (26%). The presence of fixation beats was not associated with physiological LBB capture by RWPT criteria (55.8% vs 56.7%, $p=0.86$) or V6–V1 interpeak interval (53.5% vs 47.5%, $p=0.84$). There were no significant differences in mean V6 RWPT (75.9 ± 12.4 ms vs 77.4 ± 13.1 ms, $p=0.80$), V6–V1 interval (38.6 ± 14.8 ms vs 36.4 ± 13.9 ms, $p=0.30$), or QRS duration reduction (15.6 ± 28.7 ms vs 14.3 ± 30.2 ms, $p=0.94$). Findings were consistent in subgroup analyses stratified by baseline QRS duration.

Conclusions: In this single centre cohort, fixation beats during lead deployment were not predictive of conduction system capture when assessed using either RWPT or V6–V1 interpeak interval criteria. These findings suggest that fixation beats may be less reliable as a marker for obtaining LBB capture. Limitations include its retrospective nature and relatively low observation rate of fixation beats, alongside the limitation of physiological markers as a measure of true LBB capture.^[3] □

Table 1

	Fixation beats observed	Fixation beats NOT observed	p-value	Total
Total (n)	43	120	—	163
RWPT <80 ms	24 (55.8%)	68 (56.7%)	0.86	92
V6–V1 >33 ms	23 (53.5%)	57 (47.5%)	0.84	80
V6–V1 >44 ms	12 (27.9%)	22 (18.3%)	0.28	34
V6 RWPT (mean $\pm$ SD)	75.9 ± 12.4 ms	77.4 ± 13.1 ms	0.80	—
V6–V1 interval (mean $\pm$ SD)	38.6 ± 14.8 ms	36.4 ± 13.9 ms	0.30	—
Reduction in QRSd (mean $\pm$ SD)	15.6 ± 28.7 ms	14.3 ± 30.2 ms	0.94	—
Baseline Narrow QRS: Δ QRS (mean $\pm$ SD)	14.9 ± 24.1 ms	13.8 ± 26.7 ms	0.91	72
Baseline Prolonged QRS: Δ QRS (mean $\pm$ SD)	16.2 ± 31.9 ms	14.7 ± 32.8 ms	0.88	91



Oral Abstracts - Allied and Service Development

19/Clinical Outcomes of Consultant Cardiac Physiologist–Led Pacemaker Generator Replacement: A Retrospective SingleCentre Comparison

touchCARDIO Meeting Proceedings. 2026:1;abstr19

Authors: [B La Fevre](#) (Presenting Author)

University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, UK

Background: Rising demand for cardiac rhythm management procedures and workforce pressures within the NHS have prompted exploration of task shifting to advanced non-medical practitioners. While non-physician implantation of implantable loop recorders is well established, the safety of non-medical pacemaker generator replacement has not previously been formally evaluated.

Objective: To compare clinical outcomes following pacemaker generator replacement performed by a consultant cardiac physiologist (CCP) versus traditional medic-led practice.

Methods: A single-centre retrospective cohort study was conducted including all eligible patients who underwent pacemaker generator replacement between May 2020 and May 2024, with follow-up to at least 12 months. Patients were allocated to CCP-led or medic-led cohorts. Major and minor complications were predefined and independently graded using blinded assessment. Demographic, procedural, and device-related variables were collected. Due to limited sample size, analyses were exploratory and utilised descriptive statistics and Fisher's exact testing.

Results: A total of 171 patients met inclusion criteria (87 CCP-led, 84 medic-led). Baseline patient and device characteristics were comparable between groups. Overall complication rates were low and did not differ significantly between cohorts (total complications: 9.2% CCP-led vs 10.7% medic-led, $p=0.802$). Major complications occurred in 4.6% of CCP-led and 3.5% of medic-led procedures ($p=1.000$); minor complications occurred in 4.6% and 7.1%, respectively ($p=0.350$). No deaths or cardiac arrests occurred within 30 days. Longer duration since first pacemaker implantation and a greater number of prior generator replacements were associated with increased complication risk.

Conclusions: In this single-centre retrospective analysis, pacemaker generator replacement performed by a trained CCP demonstrated complication rates comparable to medic-led procedures and consistent with published literature. Within a defined patient cohort and under robust governance arrangements, CCP-led generator exchange appears feasible and safe. Larger, multicentre prospective studies are required to confirm generalisability, assess risk-adjusted outcomes, and inform national workforce planning and governance frameworks. □



Oral Abstracts - Allied and Service Development

20/My Heart Passport: Pilot Evaluation of a Web-Based, Patient-Held Digital Implant Passport for Patients with Cardiac Implantable Electronic Devices

touchCARDIO Meeting Proceedings. 2026:1;abstr20

Authors: *H Zaw (Presenting Author),^{1,2} B Patel,¹ C Monkhouse,^{1,2} M Sutton,¹ J Collinson,¹ R Hunter,¹ S Cashin,¹ J Elliott,¹ W Procter,¹ P Moore,¹ P Lambiase^{1,2} and A Bhuv^{1,2}*

1. Department of Cardiac Electrophysiology, Barts Heart Centre, Barts Health NHS Trust, London, UK; 2. Institute of Cardiovascular Science, University College London, London, UK

Background: Cardiac implantable electronic device (CIED) recipients frequently require device information during follow-up, magnetic resonance imaging (MRI), perioperative assessment, and emergency care. Current system relies on physical identification cards, local records, and communication between implanting centres, which may result in delays, incomplete information, and potential safety risks. We developed My Heart Passport, a web-based platform that generates patient-held digital implant passports and provides secure, interoperable access to device information for patients and healthcare professionals (Figure 1).

Objective: To evaluate the clinical need, user acceptability, implementation feasibility and data accuracy of My Heart Passport prior to wider deployment.

Methods: A prospective service evaluation was conducted at a tertiary cardiac centre. Baseline clinical need and workflow burden were assessed through staff experience (n=21) and a departmental audit of device-related telephone enquiries. Staff adoption (n=21) and patient acceptability (n=32) surveys evaluated user acceptance. Pilot implementation was then evaluated in consecutive patients attending their first device check. Feasibility was assessed using enrolment time (time to explain digital access, consent and complete data entry). Data accuracy was assessed by comparing generated passport information against source implant records.

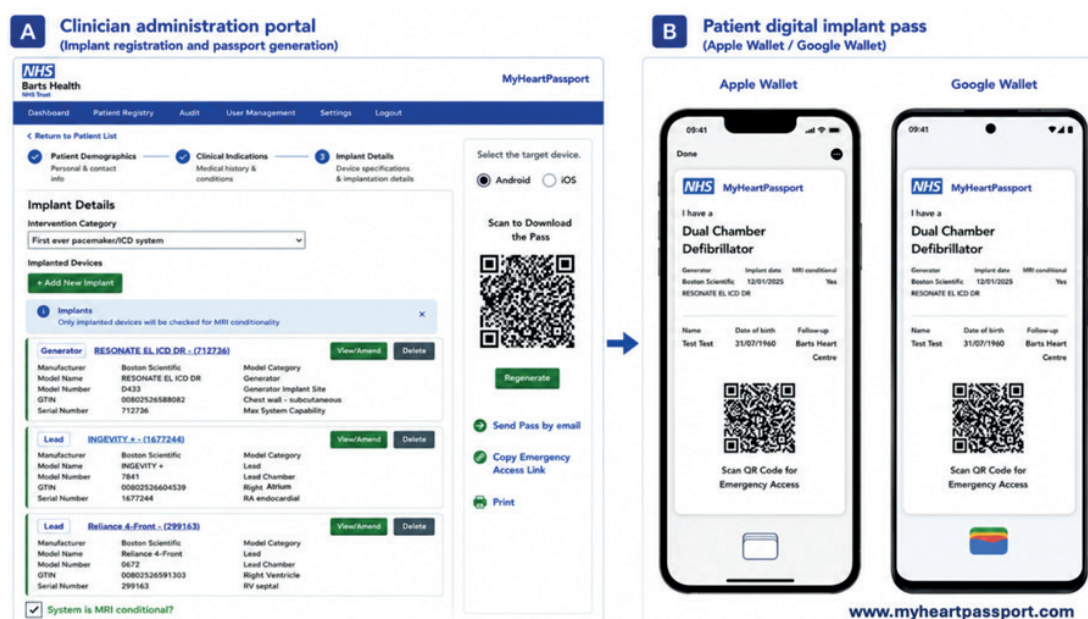
Results: Baseline assessment demonstrated substantial clinical need: 76% staff reported difficulties accessing device information, 43% encountered patient safety risk or near-miss related to incomplete or missing device information. 47% reported requesting avoidable chest radiographs for device identification. A departmental audit identified 115 device-related telephone enquiries per fortnight, requiring 10 hours of staff time. MRI safety, perioperative planning, and device identification were the commonest reasons for contact.

91% of staff supported digital enrolment. Among patients (age 72 ± 16 years, 63% male; 63% White British, 13% Caribbean, 10% Bangladeshi, and 14% other ethnicities), 94% preferred a digital implant passport and 88% favoured both digital and physical formats. No participants reported privacy concerns; 97% consented to research use of their data.

During pilot implementation, mean enrolment time was 5 ± 2 minutes per patient. Although language barriers and implementing in the context of cognitive impairment increased enrolment times (maximum 12 minutes), 87% of patients were enrolled within 6 minutes. No discrepancies were identified between generated passports and source implant records.

Conclusions: This pilot study demonstrated the clinical need, acceptability, feasibility, and accurate generation of a patient-held digital implant passport. This was acceptable to patients and healthcare professionals and integrated successfully within routine CIED workflows, supporting wider implementation and evaluation. □

Figure 1: My Heart Passport Digital Implant Identification Platform



A) Clinician administration portal for registering implant details and generating implant passport. B) Patient digital implant pass displayed in Apple and Google Wallet, providing key implant information. Centres can request access at www.myheartpassport.com



Oral Abstracts - Allied and Service Development

21/Hywel Dda University Health Board Podiatry and Arrhythmia Service Atrial Fibrillation detection project - Cutting out the middleman in Arrhythmia detection

touchCARDIO Meeting Proceedings. 2026:1;abstr21

Authors: ELT Lloyd-Thomas (Presenting Author),¹ MB Banner,¹ CTW Tucker-Williams,¹ CN Newman,¹ JL Lewis² and AE Evans¹

1. Hywel Dda University Health Board, Carmarthen, UK; 2. Cardiff Metropolitan University, Cardiff, UK

Introduction: Since the introduction of handheld Doppler devices for the assessment of peripheral circulation, podiatrists have consistently identified irregular cardiac rhythms. This has necessitated referral to primary care services for further investigation, typically in the form of a 12-lead electrocardiogram (ECG). However, this pathway is often delayed, and both patients and podiatrists may remain unaware of the outcomes. In some cases, patients are lost to follow-up altogether. This project saw the implementation of single-lead ECG devices (Kardia AliveCor) to facilitate opportunistic screening for atrial fibrillation (AF). The podiatry service within Hywel Dda predominantly manages patients with complex health needs, many of whom present with multiple cardiovascular risk factors and elevated CHA₂DS₂-VA scores. They possess many risk factors associated with the development of atrial fibrillation and poor outcomes with delayed diagnosis.

Methods: In October 2024, a direct referral pathway from Podiatry to the Arrhythmia Service was introduced. This was subsequently expanded to include the distribution of 23 iPads paired with Kardia AliveCor devices across podiatry clinics in three counties. All patients aged ≥18 years attending podiatry appointments, without a known diagnosis of arrhythmia, were offered opportunistic single-lead ECG screening, with a focus on detecting atrial fibrillation (AF). ECG tracings categorised as "Possible Atrial Fibrillation" or "Unclassified" were uploaded to a secure OneDrive platform for review by an Advanced Arrhythmia Practitioner. Following specialist evaluation, outcomes were communicated to the patient's general practitioner via formal correspondence, with a copy provided to the patient.

Results: Since implementation, 179 patients have undergone ECG screening, of whom 23 (12.8%) were newly identified with atrial fibrillation or atrial flutter. Additional clinically significant findings included bundle branch block, isolated ectopic beats, trigeminy, and one case suggestive of severe left ventricular dysfunction. Irregular rhythms accounted for 113 (63.1%) of referrals, the majority being ectopic beats (68/179; 38.0%). Given the range of abnormalities beyond atrial fibrillation, 18 patients required Holter monitoring and 4 underwent echocardiography. Eight Kardia AliveCor tracings were of insufficient quality, necessitating follow-up 12-lead ECGs; in two cases, this resulted in the patients being lost to follow-up. The mean CHA₂DS₂-VA score was 3.18, indicating elevated thromboembolic risk within the cohort. All patients with suspected arrhythmias were referred to primary care for ongoing management. To date, 20 of 23 patients diagnosed with atrial fibrillation have been anticoagulated; the remaining patients are recent diagnoses awaiting follow-up. Time Driven Activity Based Costings were assessed throughout the project by Value Based Healthcare and the pathway has proven to be a high value intervention gaining recurrent funding.

Conclusion: AF targeted screening within podiatry has proven to be a feasible and effective approach. It has improved diagnostic efficiency and reduced unnecessary referrals to Primary Care. The pathway has also provided the diagnosis of other clinically significant cardiac problems, proving a broader benefit. Despite some limitations in tracing quality, this model demonstrates the potential of podiatry-led screening of cardiovascular risks. □



Oral Abstracts - Allied and Service Development

22/Comparison of the Efficacy and Safety of Three Single-Shot Techniques for Atrial Fibrillation Ablation – Retrospective Analysis of 535 Consecutive Patients

touchCARDIO Meeting Proceedings. 2026:1;abstr22

Authors: [A Aboelela](#) (Presenting Author),¹ G Simonis,¹ F Scharfe,¹ L Karolyi,¹ A Sayed,¹ L Pu,¹ SG Spitzer¹ and A Langbein¹
MVZ Praxisklinik Herz und Gefäße, Dresden, Germany

Introduction: Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia and represents a considerable cardiovascular and socioeconomic burden. Pulmonary vein isolation (PVI) using cryoballoon ablation (CBA) is an established therapeutic option. Pulsed field ablation (PFA) is intended to simplify procedures and reduce risks. However, data on its application under real-world clinical conditions remain limited.

Methods: This retrospective study compares the most common single-shot technologies for PVI: CBA (Arctic Front Advance Pro™), CBA (POLARx™) and PFA (FARAWAVE™). A total of 535 patients treated consecutively at our institution (58.3% male; mean age 68.9 ± 9.4 years) with paroxysmal ($n=231$; 43.2%) or persistent AF ($n=304$; 56.8%) who underwent first-time PVI using CBA or PFA in 2023 were included. Baseline characteristics, procedural parameters (procedure duration, fluoroscopy time, contrast agent use), periprocedural complications, and recurrence rates at 3 and 12 months (24-h Holter ECG) were assessed.

Results: Of the 535 patients included in the study, 65.8% underwent ablation using the Arctic Front system, 22.6% with POLARx, and 11.6% with PFA. The median procedure duration was shortest in the PFA group at 51.5 min, which was significantly shorter than in the POLARx group (60.0 min; $p=0.003$) and the Arctic Front group (70.0 min; $p<0.001$). Regarding contrast agent usage, PFA procedures required no contrast, whereas POLARx and Arctic Front used 12 ml and 13 ml, respectively. In

terms of safety, no atrioesophageal fistulas or pericardial tamponades were observed in any of the groups. Phrenic nerve palsy occurred exclusively in the cryoballoon groups—3.1% in the Arctic Front group and 4.1% in the POLARx group—while no such complications were seen with PFA. At the 3-month follow-up, there was no significant difference in recurrence-free survival between the three ablation strategies, both in patients with paroxysmal AF (Arctic Front: 82.9%, POLARx: 83.7%, PFA: 80.8%; $p=0.95$) and those with persistent AF (Arctic Front: 64.0%, POLARx: 70.0%, PFA: 74.2%; $p=0.93$). At the 12-month follow-up, there was as well no significant difference in recurrence-free survival between the three ablation strategies, both in patients with paroxysmal AF (Arctic Front: 71.6%, POLARx: 69.1%, PFA: 69.3%; $p=0.42$) and those with persistent AF (Arctic Front: 52.1%, POLARx: 57.7%, PFA: 55.2%; $p=0.74$).

Conclusions: All single-shot PVI techniques investigated demonstrated comparable long-term efficacy and a high safety profile. PFA was associated with shorter procedure times and avoidance of contrast agent. The absence of phrenic nerve palsy in the PFA group highlights the potentially more favorable safety profile of tissue-selective electroporation. The combination of shorter procedure duration and enhanced safety suggests increased procedural efficiency with PFA. Prospective long-term studies are warranted to assess whether these advantages translate into relevant clinical practice implications, such as same-day discharge ablation programs. □



Oral Abstracts - Allied and Service Development

23/Outcomes of CRT Upgrade in Right Ventricular Paced Patients Who Develop Heart Failure: A 12-Year Single-Centre Survival Analysis*touchCARDIO Meeting Proceedings. 2026;1;abstr23*

Authors: N Patel (Presenting Author),¹ J Raby,² B Bussmann,³ PT Tang,¹ CF Camm,¹ D Panagopoulos,¹ R Wijesurendra,⁴ T Betts,¹ M Ginks,¹ J Oremerod,¹ J Gamble,¹ M Pedersen,¹ S Morais,¹ K Rajappan,¹ Y Bashir,¹ N Herring³ and A Lewis²

1. John Radcliffe Hospital, Department of Cardiology, Oxford, UK; 2. University of Oxford, Radcliffe Department of Medicine & John Radcliffe Hospital, Department of Cardiology, Oxford, UK; 3. University of Oxford, Department of Physiology, Anatomy and Genetics & John Radcliffe Hospital, Department of Cardiology, Oxford, UK; 4. University of Oxford, Nuffield Department of Population Health & John Radcliffe Hospital, Department of Cardiology, Oxford, UK

Introduction: Pacing-Induced Cardiomyopathy (PICM) may affect up to 25% of patients exposed to a high burden of right ventricular (RV) pacing. Upgrade from RV pacing to cardiac resynchronisation therapy (CRT) via biventricular pacing is considered for patients who develop heart failure symptoms and significant left ventricular (LV) systolic dysfunction following RV pacing and is often associated with improvement in LV systolic function. However, CRT upgrade procedures are associated with greater periprocedural complication rates than de novo procedures, and long-term outcomes following upgrade remain poorly characterised. These outcomes are increasingly relevant in the era of conduction system pacing (CSP), which offers a more physiological alternative to RV pacing and has potential to be delivered as first line therapy. We performed a single-centre retrospective analysis of patients undergoing upgrade of RV pacemaker to CRT, with focus on long-term survival and rehospitalisation.

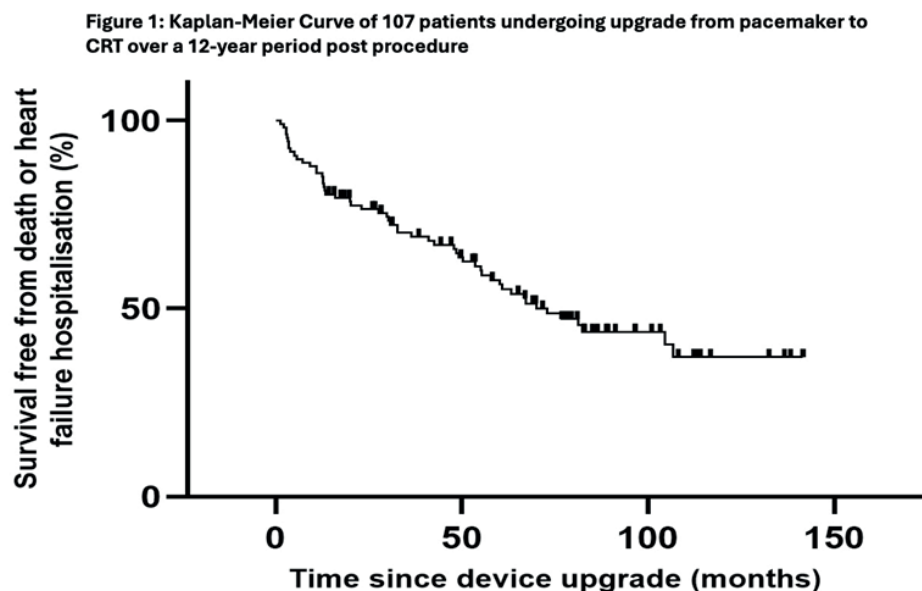
Methods: Patients undergoing device upgrade from right ventricular pacing to biventricular pacing CRT (either pacemaker, CRT-P, or defibrillator, CRT-D) from June 2013 to January 2024 at a single centre in the UK were identified retrospectively from local records as part of an approved service evaluation project (local clinical governance ref 10001). For survival analysis, the composite end point was death or rehospitalisation due to heart failure.

Results: 173 patients underwent device upgrade during the study period whilst 66 patients did not have comprehensive electronic records and

were excluded from analyses. Of the remaining 107 patients, 79% (n=85) were upgraded to CRT-P and 21% (n=22) to CRT-D. Median age at upgrade was 79.4 years (IQR 70.7 – 80.1) and 82% were male. Median time from initial implant to upgrade was 1275 days (IQR 612 – 2865). In the 92 patients with available echocardiogram data, 76% had severe LV systolic dysfunction (LVEF≤35%, n=70) prior to upgrade. The most common comorbidities were atrial fibrillation/ flutter (51%, n=55), ischaemic heart disease (40%, n=43) and hypertension (38%, n=41). In the 41 patients with available data, 70% were NYHA class III (n=28) or above at upgrade. At 1 year following upgrade, all-cause mortality was 8.4 per 100 patient years. 18% (n=19) of patients had been readmitted for a cardiac-related cause within the first year. The most common reasons included heart failure (37%, n=7), followed by arrhythmia (26%, n=5), device related complication/ infection (21%, n=3), coronary artery disease (21%, n=3) and valvular cause (5%, n=1). Overall survival free from readmission for heart failure was 86% at 1 year, 59% at 5 years and 40% at 10 years (Figure 1).

Conclusion: Following upgrade of RVP to CRT for heart failure, a substantial risk of heart failure hospitalisation or death persists. We hypothesise that reactive upgrade after heart failure develops in the setting of RV pacing, may be too late for some patients. In the emerging era of CSP, earlier or upfront physiological pacing in patients at higher risk of pacing-induced cardiomyopathy warrants prospective evaluation. □

Figure 1





Oral Abstracts - Allied and Service Development

24/Opportunistic Atrial Fibrillation Case Finding During Influenza Vaccination Clinics in a Deprived Primary Care Network: A Service Evaluation from South Tees, England

touchCARDIO Meeting Proceedings. 2026:1;abstr24

Authors: SM Mohamed (Presenting Author),¹ SJ James,¹ MS Stamp,² PH Heywood,³ AS Stewart⁴ and AN Neasham³

1. James Cook University Hospital, Middlesbrough, UK; 2. South Tees Hospitals NHS Foundation Trust & Public Health South Tees, Middlesbrough, UK;

3. Holgate Primary Care Network, Middlesbrough, UK; 4. Public Health South Tees, Middlesbrough, UK

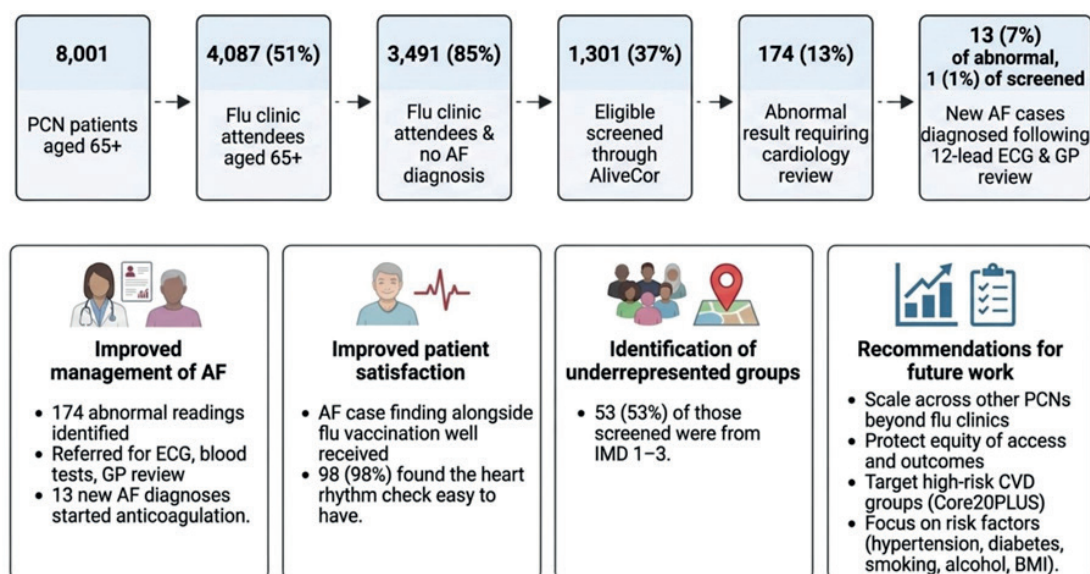
Introduction: Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia and a major risk factor for stroke. Undiagnosed AF disproportionately affects older adults and contributes to cardiovascular health inequalities. Opportunistic screening in high-risk populations may improve early detection and facilitate timely treatment. This service evaluation examined the feasibility and impact of embedding AF case finding within routine influenza vaccination clinics in a socioeconomically deprived primary care network (PCN) in South Tees, England.

Methods: A collaborative pilot programme was delivered between Holgate Primary Care Network, Public Health South Tees, and South Tees NHS Foundation Trust during the 2025/26 influenza vaccination campaign. Patients aged ≥65 years without a prior diagnosis of AF attending flu clinics were invited to undergo a single-lead electrocardiogram (ECG) assessment using Kardia Mobile 6L (AliveCor) devices. Screening was undertaken by trained non-clinical staff. Abnormal recordings were reviewed by cardiology specialists, with subsequent diagnostic confirmation and management arranged through primary care pathways. Quantitative data on screening uptake, AF detection, demographics, costs, and implementation challenges were collected alongside patient and staff feedback.

Results: Over an 18-clinic period, 1,665 individuals underwent AF screening. Thirty-four previously undiagnosed cases of AF were identified, representing a detection rate of 2.02%. Newly identified AF cases were more common among males (65%) and individuals living in the most deprived neighbourhoods (53% from Index of Multiple Deprivation deciles 1–3), compared with the vaccinated population overall (49% male and 39% from deprived areas). The total implementation cost was £10,670.80. Patient acceptability was high, with 98% reporting that the heart rhythm assessment was easy to undertake. Key implementation challenges included staffing capacity, digital connectivity issues, and patient engagement; however, these were mitigated through multidisciplinary partnership working and iterative service redesign.

Conclusions: Embedding opportunistic AF case finding within influenza vaccination clinics is feasible, acceptable, and capable of identifying clinically significant numbers of previously undiagnosed AF cases in deprived populations. The model demonstrates potential as an equitable, scalable approach to cardiovascular disease prevention and may contribute to reducing stroke risk and cardiovascular health inequalities. Further evaluation of long-term clinical outcomes, cost-effectiveness, and scalability is warranted. □

Figure 1





Oral Abstracts - Devices, Mapping and Ablation

25/Contemporary therapy, device allocation and cardiovascular magnetic resonance characteristics in the first 515 patients randomised in the BRITISH trial

touchCARDIO Meeting Proceedings. 2026;1;abstr25

Authors: [AS Flett](#) (Presenting Author),¹ A Jones,¹ S Ewings,¹ E Whale,¹ P Rodrigues,¹ S Prasad,² JGF Cleland³ and N Curzen¹

1. University Hospital Southampton, Southampton, UK; 2. Royal Brompton Hospital, London, UK; 3. University of Glasgow, Glasgow, UK

Introduction: In non-ischaemic cardiomyopathy (NICM), left ventricular ejection fraction (LVEF) alone fails to adequately identify patients who benefit from a primary prevention implantable cardioverter-defibrillator (ICD). The BRITISH trial tests whether ICDs reduce mortality in patients with NICM selected by cardiovascular magnetic resonance (CMR)-detected scar. We report baseline clinical characteristics, contemporary therapy, device allocation and CMR phenotype in the first 515 randomised participants.

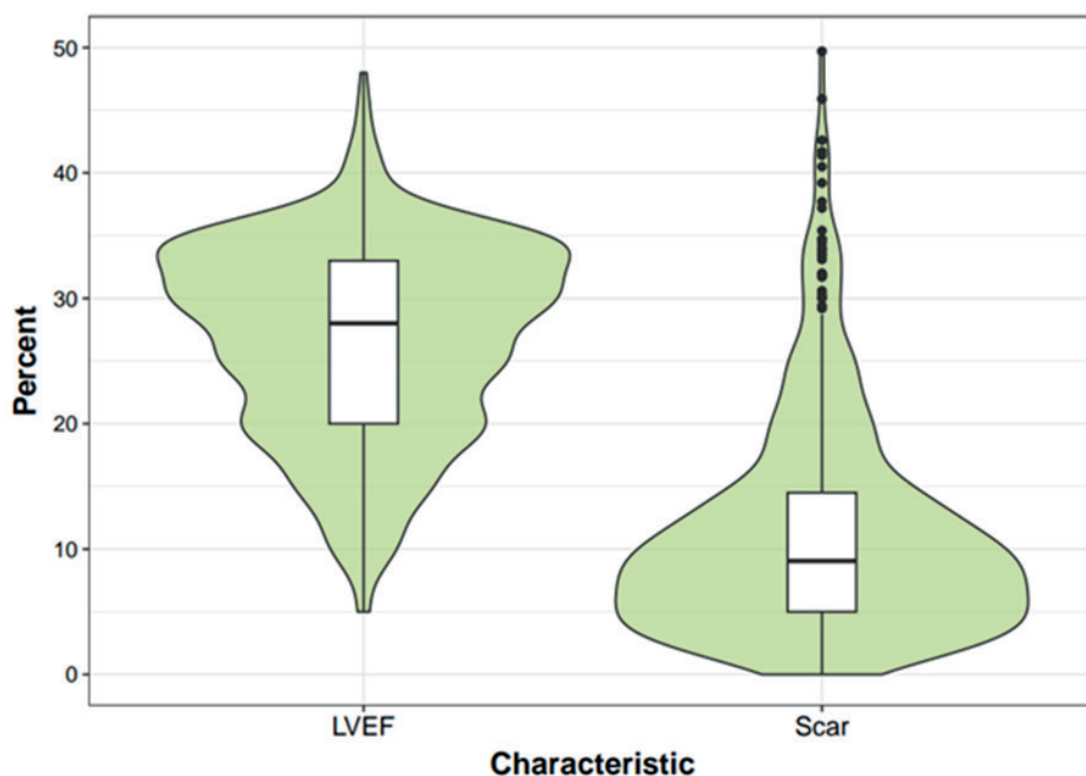
Methods: BRITISH is a prospective, multicentre randomised trial across 46 UK hospitals. Adults with NICM, LVEF $\leq 35\%$ on optimal medical therapy and ventricular scar on late gadolinium enhancement (LGE) CMR are randomised 1:1 to ICD versus ILR (or CRT-D versus CRT-P if indicated). CMR studies undergo core laboratory analysis. Scar is quantified as percentage LV mass using a 5-SD technique and classified by predominant pattern.

Results: Among 515 randomised patients, median age was 66 (IQR: 59 to 74) years, 401 (77.9%) were men and NYHA class was I/II/III in 108/322/78 participants, respectively. Median LVEF was 28% (IQR 20 to 33; n=448). Guideline-recommended medical therapy was excellent,

with 464 (91.3%) on beta-blockers, 448 (88.2%) on MRAs, 465 (91.5%) on SGLT2 inhibitors and 494 (97.2%) on RAS inhibitors, including sacubitril/valsartan in 385 (75.8%), ACE inhibitors in 91 (17.9%) or ARBs in 27 (5.3%). So far, devices have been implanted in 391/515 (75.9%) participants (CRT-D 98, CRT-P 103, ICD 93 (of which 46 S-ICD), ILR 96, and PPM 1) with 384 (98.2%) receiving their assigned device. Median LV end-diastolic and end-systolic volumes were 278 (IQR (216 to 329) mL and 199 (146 to 255) mL, respectively (n=468). Core laboratory analysis confirmed scar in 461/462 evaluable scans. Median scar burden was 9% of LV mass (IQR 5–14; range 0–52; n=459). Predominant scar pattern was non-ischaemic in 376/460 (81.7%), dual pathology in 59/460 (12.8%), and ischaemic-pattern in 13/460 (2.8%).

Conclusions: Patients randomised in the BRITISH trial have severe LV systolic impairment despite excellent contemporary pharmacological therapy CMR confirmed a high prevalence of LGE scar with heterogeneous scar burden and pattern, supporting prospective evaluation of scar phenotype as a marker of ICD benefit. Adherence to allocated device strategy was high. □

Figure 1





Oral Abstracts - Devices, Mapping and Ablation

26/Volt™ PFA for AF ablation under conscious sedation: the Freeman experience

touchCARDIO Meeting Proceedings. 2026;1;abstr26

Authors: MI Firescu (Presenting Author), K Kadhim, E Shepherd, R Martin and M Das
Freeman Hospital, Newcastle upon Tyne, UK

Introduction: Pulsed field ablation (PFA) has become an established technology for pulmonary vein isolation (PVI) in atrial fibrillation (AF). Most PFA systems require general anaesthesia or propofol-based deep sedation because of skeletal muscle capture during energy delivery, limiting adoption in resource-constrained healthcare systems. The balloon-based VOLT™ PFA system is reported to be suitable to be performed under conscious sedation. We report our single-centre experience of AF PFA using the VOLT™ system under conscious sedation with Fentanyl and Midazolam.

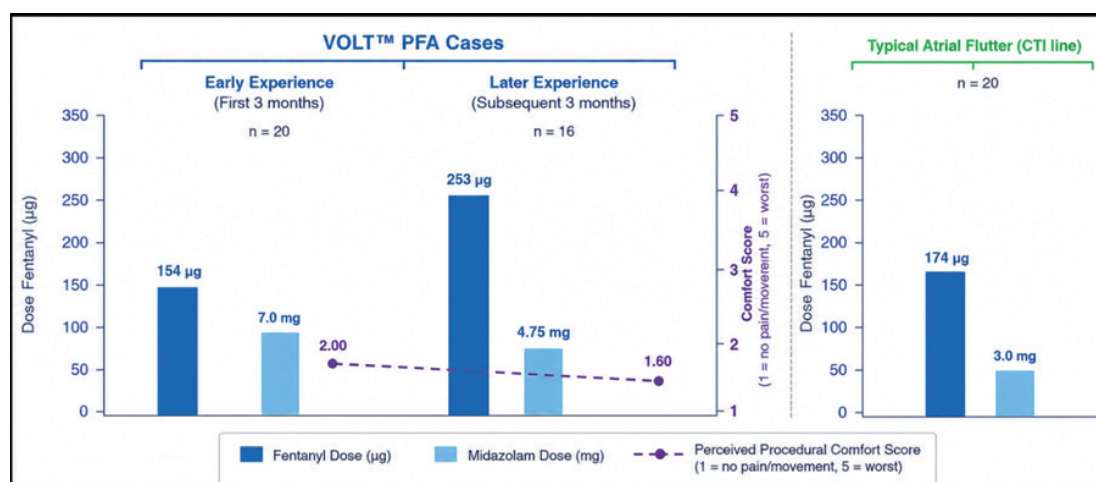
Methods: This prospective single-arm study included all consecutive AF PFA procedures performed with the VOLT™ system at our centre between January and June 2026. Sedation was delivered using a protocolised regimen of intravenous Fentanyl and Midazolam. Anaesthetic support was present in the room if required. Data collected included Fentanyl and Midazolam doses, perceived procedural comfort score (1 = no pain or movement; 5 = significant pain and movement), procedural success and complications. To account for the operator learning curve, cases were divided into an early cohort (initial 20 cases) and a later cohort (subsequent procedures). Sedation requirements of the latter cohort were compared with those of patients undergoing radiofrequency cavotricuspid isthmus (CTI) ablation for typical atrial flutter during the same period.

Results: 36 VOLT™ AF PFA procedures were performed at our centre by four operators between January and June 2026: 20 in the early cohort and 16 subsequent cases. During the same period, 20 isolated radiofrequency CTI ablations were undertaken. Across all VOLT™ cases, the mean Fentanyl dose was 198µg and the mean Midazolam dose was

6mg. In all cases, 1g of Paracetamol and 100mg of IV Lidocaine was also given. The mean perceived comfort score was 1.75. In the early cohort, the mean Fentanyl dose was 154µg and the mean midazolam dose was 7mg, with a mean comfort score of 2. Following a change in practice favouring analgesia over sedation, the latter cohort received a mean Fentanyl dose of 253µg and a mean Midazolam dose of 4.75mg, with improved comfort scores (mean 1.6) (Fig. 1). In this group, doses of 1mg of Midazolam and 50µg of Fentanyl were typically given at: 1) the start of the case, 2) following positioning of the coronary sinus catheter, 3) following transseptal puncture, and 4) prior to the first PFA application and after preparation and introduction of the VOLT™ catheter. One procedure was abandoned due to disinhibition and increased patient movement following 4.5mg of Midazolam. One patient required temporary use of a Guedel airway. All other procedures were completed successfully, with no other requirement for airway support. 7 patients underwent cardioversion at the end, and 5 underwent concomitant CTI ablation. In the comparator cohort of 20 patients undergoing radiofrequency CTI ablation, the mean Fentanyl and Midazolam doses were 174µg and 3mg, respectively, with nearly half requiring >200µg of Fentanyl.

Conclusions: AF PFA ablation using the VOLT™ system can be performed safely and effectively under conscious sedation with Fentanyl and Midazolam. High levels of procedural comfort were achieved with a low rate of respiratory complications. Optimising analgesia over sedation appeared to improve patient comfort and reduced the need for higher doses of Midazolam, bringing these closer to those used in radiofrequency CTI ablations. □

Figure 1





Oral Abstracts - Devices, Mapping and Ablation

27/Predicting Left Ventricular Ejection Fraction Change Using ECG-only Criteria at Conduction System Pacing Implant

touchCARDIO Meeting Proceedings. 2026:1;abstr27

Authors: T Nguyen (Presenting Author), D Fakim, FG Ayala Valani, M Fosse, F Bounames, LM Ayala Valani, A Leblanc-Piette, A Paris, C Su, R Venencia and FA Ayala Paredes

Université de Sherbrooke, Sherbrooke, Canada

Introduction: Three ECG-only criteria: terminal S wave, isoelectric ST segment, and a positive T wave in V_5 - V_6 were found to be highly predictive of a successful conduction system pacing (CSP) implant. Cardiac ultrasound (US) is needed to evaluate left ventricle ejection fraction (LVEF) after CSP, but it is a scarce resource. We sought to correlate our 3 ECG CSP visual criteria to the evolution of the LVEF to replace follow-up US.

Methods: From a retrospective cohort of 1086 CSP patients (pts) from 2018 and ongoing, we extracted 391 pts with a mean age of $76,4 \pm 9,8$ years and 34% females with pre and post LVEF US measurement and at least 40% of ventricular pacing. Implant indications were sick sinus syndrome (19.4%), AV block (39.5%), pacemaker induced cardiomyopathy (29.6%), AV node ablation (9.9%) and left-bundle branch block (1.5%). Significant LVEF decrease is defined by a LVEF drop greater than 6% after the implant. For comparison, the 3 ECG criteria were confronted with either a stability or LVEF improvement versus a drop of the LVEF. The ECG-only criteria: terminal S wave, isoelectric ST segment, and a positive T wave in V_5 - V_6 leads were visually evaluated in a standard 12 lead ECG; interpeak V_6 - V_1 interval were measured at implant on an EPS system at 100 mm/s.

Results: Mean pre-implant LVEF was $47,4\% \pm 14,4\%$ and mean post-implant LVEF was $51,6\% \pm 11,6\%$. From the total cohort, 8.4% of pts had a decreased LVEF, 57.4% of pts maintained their LVEF and 34.1% of pts had a LVEF improvement. Out of the 3 criteria, the presence of a terminal

S wave in V_5 - V_6 ($p=0,0275$) was associated with a significant stability or improvement in 95,7% of pts with this criterion. The presence of an isoelectric ST segment in the same leads ($p=0,00618$) also demonstrated a significant statistical prediction of LVEF stability or improvement in 94,7% of pts. Only the presence of a positive T wave polarity in V_5 - V_6 leads did not show any statistically significant correlation ($p=0,208$) with LVEF stability or improvement. Pts presenting 2 out of the 3 criteria had a significant correlation ($p=0,0171$) with LVEF stability or improvement but correlation was not significant when all 3 criteria ($p=0,424$) were added. Using logistic regression, each unit of V_6 - V_1 interpeak value increase was associated with a significant 5% less chance of decreasing LVEF ($p=0,015$); as a 40ms (± 12) or higher interpeak value was associated with LVEF stability or improvement, whereas a value of 33ms (± 12) or less was associated with a LVEF decrease ($p=0,029$).

Conclusions: Our model shows that a stability or an improvement of LVEF can be accurately predicted with the isolated presence of a terminal S wave in V_5 - V_6 , an isoelectric ST segment in V_5 - V_6 or both, as good as interpeak values; otherwise a CSP + coronary sinus lead (LOT-CRT) approach would best serve the patient to prevent a LVEF decrease. Isolated positive T wave polarity in those leads is confounding probably because of the T wave memory phenomenon. The display of at least 2 out of 3 criteria also predicted correctly the improvement or maintenance of LVEF and US would no longer be needed at follow-up. □



Oral Abstracts - Devices, Mapping and Ablation

28/Single-centre experience of Pulsed Field Ablation for Atrial fibrillation using the circular array catheter: a retrospective propensity score-matched cohort analysis

touchCARDIO Meeting Proceedings. 2026:1;abstr28

Authors: SMZ Rahim (Presenting Author), T Lachlan, N Chandan, V Ashok, V Lim, S Panikker and F Osman
Institute for Cardio-Metabolic Medicine, UHCW NHS Trust, Coventry, UK

Introduction: Pulsed Field Ablation (PFA) is a novel technology increasingly being adopted for atrial fibrillation (AF) ablation. Published data has suggested similar outcomes to thermal ablation for pulmonary vein isolation (PVI). Available PFA catheters vary, with early systems designed for 'single-shot' akin to cryo-balloon ablation, while newer systems integrate Electro-Anatomic Mapping (EAM), giving potential to ablate non-PV targets such as the left atrial posterior wall, though the benefit of any specific target remains a topic of debate.

We report our single tertiary centre experience of EAM-guided PFA (Medtronic PulseSelect) for AF ablation. Using retrospective propensity score-matched analyses, we compared clinical outcomes in matched cohorts that had undergone either thermal ablation or PFA.

Methods: Over an 18-month period, eligible patients underwent AF ablation with either PFA or thermal ablation (cryoballoon/radiofrequency-ablation, RFA). Acute success was defined by PVI (entrance block) $\pm$ additional target area isolation using EAM for non-PV targets when indicated. Procedural outcomes were collected immediately post-op, with assessment of AF recurrence at 4- and 12-month follow-up (excluding 60-day post-ablation blanking period). All data was collated in our local AF ablation registry.

40 consecutive patients undergoing PFA were retrospectively propensity score-matched to generate matched cohorts with a multivariate logistic regression model, incorporating the following baseline covariates: AF subtype, age, gender, BMI, LV impairment, hypertension, diabetes mellitus and left atrial volume index (LAVi). Patients in the PFA group were matched 1:1 with the thermal ablation group using a nearest-neighbour algorithm. A pre-specified subgroup for persistent AF subtype was also propensity score-matched using the same method.

Time-to-event analyses were performed to assess freedom from AF recurrence at 1-year. The primary endpoint was time from ablation to first documented clinical AF recurrence (excluding blanking period). Freedom from AF recurrence was estimated and visualised using Kaplan-Meier, and differences between cohorts compared using log-rank testing. A Cox proportional hazards regression model calculated Hazard Ratios (HR) with 95% Confidence Intervals (CI). This survival analysis was conducted first on the entire propensity-matched cohort, and subsequently repeated for the pre-specified subgroup. A two-sided p-value of < 0.05 was considered statistically significant for all analyses.

Results: 80 patients were score-matched 1:1 (n=40 in each cohort). 52 patients (n=26 per cohort) were matched in the peAF subgroup. Baseline characteristics are summarised below.

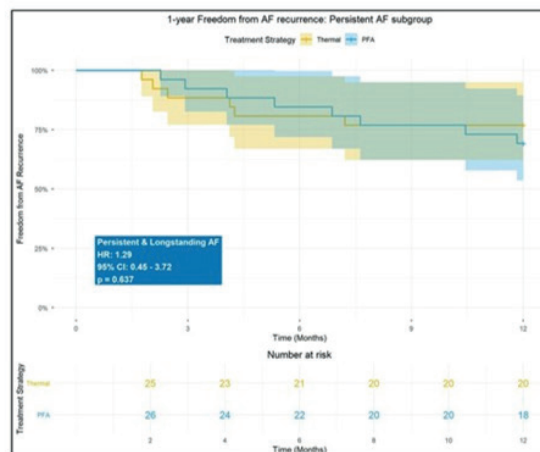
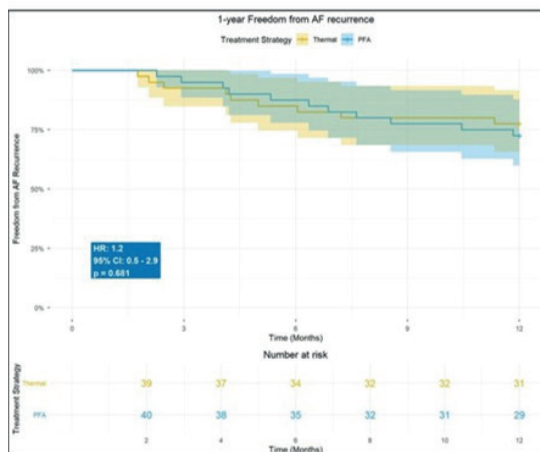
All procedures were acutely successful with no significant on-table-complications. At follow-up, there were 11 AF recurrences in the PFA arm and 9 in the thermal ablation arm, HR 1.2, 95% CI [0.5–2.9], $p=0.68$. In the matched subgroup (n=26 per treatment arm), there were 8 and 6 recurrences respectively (HR 1.3, 95% CI [0.5–3.7], $p=0.64$). Kaplan Meier analysis is shown below.

Conclusion: Our data suggests PFA has comparable 1-yr efficacy compared to established thermal ablation technologies, regardless of AF subtype. Longer term follow-up beyond 1-year could help evaluate comparative durability between ablation modalities. Limitations include small sample size, retrospective design and varying ablation strategy/non-PV targets in each cohort. □



Figure 1

All AF subtypes				Persistent AF subgroup			
Variable	Thermal ablation n = 40 ¹	Pulsed Field ablation n = 40 ¹	p-value ²	Variable	Thermal ablation n = 26 ¹	Pulsed Field ablation n = 26 ¹	p-value ²
AF subtype			>0.99	AF Subtype			>0.99
Longstanding	22 (55%)	22 (55%)		Longstanding Persistent	23 (88%)	22 (85%)	
Persistent >1yr				Persistent <1yr	3 (12%)	4 (15%)	
Paroxysmal	15 (38%)	14 (35%)		Age, years	66 (10)	68 (8)	0.56
Persistent <1yr	3 (7.5%)	4 (10%)		Gender			0.19
Age, years	65 (10)	67 (9)	0.67	Female	8 (31%)	4 (15%)	
Gender			0.81	Male	18 (69%)	22 (85%)	
Female	13 (33%)	12 (30%)		BMI, kg/m ²	30.2 (5.2)	29.6 (5.2)	0.75
Male	27 (68%)	28 (70%)		LV impairment			0.25
BMI, kg/m ²	29.4 (5.3)	28.7 (4.5)	0.83	LVEF>50%	24 (92%)	20 (77%)	
LV impairment			0.48	LVEF<50%	2 (7.7%)	6 (23%)	
LVEF>50%	37 (93%)	34 (85%)		Hypertension			0.16
LVEF<50%	3 (7.5%)	6 (15%)		No	17 (65%)	12 (46%)	
Hypertension			0.26	Yes	9 (35%)	14 (54%)	
No	25 (63%)	20 (50%)		Diabetes			0.70
Yes	15 (38%)	20 (50%)		No	23 (88%)	21 (81%)	
Diabetes			0.48	Yes	3 (12%)	5 (19%)	
No	37 (93%)	34 (85%)		LA Volume indexed			0.24
Yes	3 (7.5%)	6 (15%)		Normal (<34ml/m ²)	10 (38%)	17 (65%)	
LA Volume indexed			>0.99	Mildly dilated (35-41ml/m ²)	5 (19%)	2 (7.7%)	
Normal (<34ml/m ²)	27 (68%)	27 (68%)		Moderate (42-48ml/m ²)	5 (19%)	2 (7.7%)	
Mildly dilated (35-41ml/m ²)	4 (10%)	3 (7.5%)		Severe (>48ml/m ²)	6 (23%)	5 (19%)	
Moderate (42-48ml/m ²)	4 (10%)	4 (10%)					
Severe (>48ml/m ²)	5 (13%)	6 (15%)					

¹n (%); Mean (SD)²Fisher's exact test; Wilcoxon rank sum test; Pearson's Chi-squared test; Wilcoxon rank sum exact test



Oral Abstracts - Devices, Mapping and Ablation

29/Clinical outcomes of cardiac implantable electronic device lead noise according to specialist-defined phenotypes: a tertiary device complications clinic experience*touchCARDIO Meeting Proceedings. 2026:1;abstr29*

Authors: H Zaw (Presenting Author),^{1,2} P Lloyd,¹ B Patel,¹ C Monkhouse,^{1,2} R Lamelas,¹ J Elliott,¹ J Collinson,¹ Md M Rahman,² P Lambiase,^{1,2} S Sporton,¹ P Moore¹ and A Bhuvu^{1,2}

1. Department of Cardiac Electrophysiology, Barts Heart Centre, Barts Health NHS Trust, London, UK; 2. Institute of Cardiovascular Science, University College London, London, UK

Background: Leads represent the most vulnerable component of cardiac implantable electronic devices (CIEDs). Lead noise, a common manifestation of lead dysfunction, may result from functional oversensing, electromechanical interference or structural lead failure, with distinct management implications. However, longitudinal outcome data by different lead noise phenotypes remain limited. We evaluated the clinical outcomes of specialist-defined structural and non-structural lead noise phenotypes and their association with lead re-intervention.

Method: We retrospectively analysed consecutive patients referred to a specialist device complications clinic at a tertiary cardiac centre for suspected CIED lead noise from March 2019 to July 2025. Stored intracardiac electrograms (EGMs) and lead performance parameters were systematically reviewed by three IBHRE/EHRA accredited specialist electrophysiologists, and lead noise phenotypes were classified according to consensus-defined EGM characteristics. The primary outcome was lead re-intervention (lead revision or extraction). Associations between lead noise phenotype and re-intervention were evaluated using multivariable Firth logistic regression adjusted for age, sex and clinical indication.

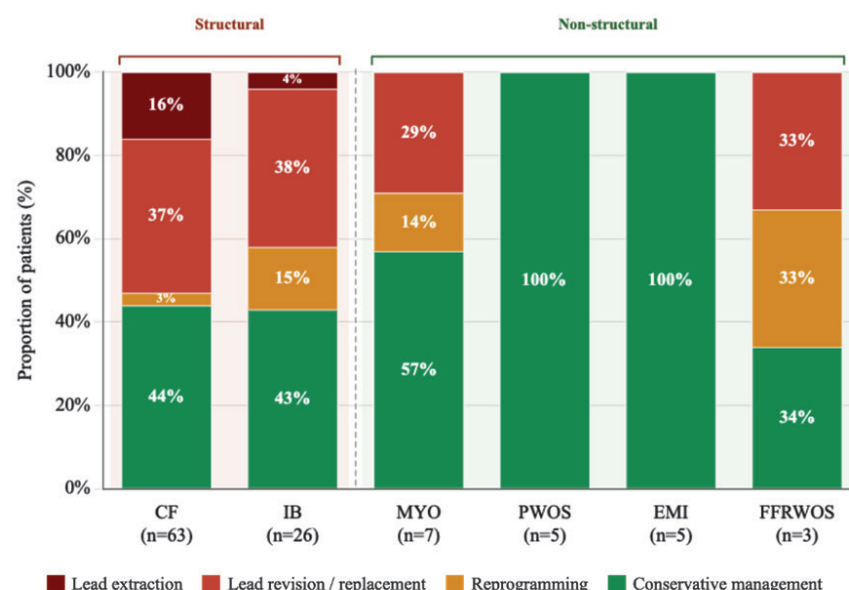
Results: Among 621 patients attending the device complications clinic, 109 (18%) were referred with suspected CIED lead noise (age 70 ± 15 years; 50% male; mean lead dwell time 9.5 ± 6 years). Common implant indications were atrioventricular block (29%) and cardiomyopathy (27%). Device types included permanent pacemakers (48%), implantable cardioverter-defibrillators (27%) and cardiac resynchronisation therapy

devices (25%). Conductor fracture was the predominant noise phenotype (58%), followed by insulation breach (24%), myopotential oversensing (6%), P wave oversensing (PWOS; 5%), electromagnetic interference (EMI; 5%) and far-field R wave oversensing (FFRWOS; 3%). The right atrial lead was most frequently affected (67%). High lead impedance ($>1000 \Omega$) occurred in 49% of conductor fracture and low impedance ($<200 \Omega$) in 50% of insulation breach cases.

Management differed by noise phenotype. Structural phenotypes (conductor fracture and insulation breach) required re-intervention in 49% (44/89) versus 15% (3/20) in non-structural phenotypes (Figure 1). Re-intervention rates were 53% for conductor fracture and 42% for insulation breach, while PWOS and EMI patients were managed conservatively. Mean time from implant to re-intervention was 10 ± 6 years. Of 54 patients initially managed conservatively, 4 (7%) later required lead revision, all with conductor fracture, after a median of 29 months (interquartile range 17–40). In multivariable Firth logistic regression, structural noise phenotypes were independently associated with re-intervention compared with non-structural phenotypes (adjusted odds ratio 5.8, 95% confidence interval 1.6–21.4; $p=0.009$).

Conclusion: Distinct CIED lead noise phenotypes are associated with different re-intervention rates. Structural lead noise phenotypes frequently require re-intervention, whereas non-structural phenotypes are commonly managed conservatively. Although limited by its retrospective single-centre design and modest sample size, this study supports a phenotype-guided approach to CIED lead noise management. □

Figure 1: Management outcomes across cardiac implantable electronic device (CIED) lead noise phenotypes (n=109)



CF = Conductor Fracture; IB = Insulation Breach; MYO = Myopotential Oversensing; PWOS = P-Wave Oversensing; EMI = Electromagnetic Interference; FFRWOS = Far-Field R-Wave Oversensing. Conservative management includes generator change.



Oral Abstracts - Devices, Mapping and Ablation

30/Early conduction system pacing (CSP) in patients with presumed left bundle branch block-induced cardiomyopathy

touchCARDIO Meeting Proceedings. 2026:1;abstr30

*Authors: RC Venencia (Presenting Author), D Fakim, FG Ayala Valani, F Bounames, W Rousseau, LM Ayala Valani, A Paris, T Nguyen, M Fosse, C Su, A Leblanc-Piette and F Ayala Paredes
Centre Hospitalier Universitaire de Sherbrooke, Sherbrooke, Canada*

Introduction: Conventional CRT is generally reserved for patients (pts) with left bundle branch block (LBBB) and at least moderately reduced LVEF (<35%). However, LBBB related dyssynchrony may impair LV function before this threshold is reached. CSP may allow earlier physiologic correction of electrical dyssynchrony with a simpler device strategy. This approach may prevent further LV dysfunction before conventional CRT criteria are met. We sought to evaluate CSP as a novel preventive strategy in presumed LBBB-induced cardiomyopathy.

Methods: Retrospective single-center analysis of consecutive pts undergoing CSP implants with the only of LBBB and mild left ventricular dysfunction despite optimized treatment of underlying cardiovascular disease. None had a classical pacemaker indication, such as sinus node disease or atrioventricular block. CSP was performed as an early physiologic resynchronization strategy. LVEF values represent the most recent echocardiographic LVEF available. Patients lost to follow-up were excluded from paired echocardiographic analysis. Complete or incomplete LBBB correction was documented.

Results: From 1086 CSP pts implanted since 2018, 18 pts (1.7%) had LBBB correction as the only reason to implant. Mean age was 76.2 ± 6.9 years, 8 were female pts. Mean baseline QRS duration was 149.6 ± 15.7

ms. Selective or non-selective LBBB capture was achieved in 15 pts (83%) and deep septal pacing in the remaining 3 pts. Mean paced QRS duration significantly decreased to 137.2 ± 17.7 ms ($p=0.005$), and mean LVAT was 74.7 ± 17.2 ms. Follow-up LVEF was unavailable in 2 pts lost to follow-up. Among the 16 pts with paired echocardiographic data, mean LVEF significantly increased from $43.8 \pm 8.2\%$ to $50.6 \pm 8.9\%$ corresponding to a 6.8 percentage-point improvement ($p=0.018$). Three pts had persistent LBBB despite CSP implants: two with no pacing (one, as AV delays were prolonged by physician choice, other with fast conducting atrial fibrillation) and one with lead micro displacement and loss of LBB capture. After excluding these pts from the effective resynchronization analysis, mean LVEF increased from $43.5 \pm 8.9\%$ to $52.9 \pm 8.8\%$ corresponding to an 9.4 percentage-point improvement ($p=0.008$).

Conclusions: Early CSP may represent a novel preventive resynchronization strategy before progression to severe LV dysfunction. In pts with effective single lead long term electrical resynchronization, CSP was associated with significant QRS narrowing and significant improvement in LVEF. If a single lead does not completely correct LBBB at implant, LOT-CRT may better serve this population. □



Moderated Posters 1

31/The Creation and Testing of a Novel Patient Experience Survey for Cardiac Device Procedures

touchCARDIO Meeting Proceedings. 2026;1;abstr31

Authors: [B La Fevre](#) (Presenting Author)

University Hospitals Bristol and Weston NHS Foundation Trust, Bristol, UK

Background: Patient-reported experience measures (PREMs) are central to evaluating and improving healthcare quality. Although cardiac implantable electronic device (CIED) procedures are common and complex, no validated PREM currently exists that specifically captures the experiences of patients undergoing these interventions. Generic or non-specific surveys risk missing salient aspects of care and may produce misleading conclusions.

Aim: To develop, cognitively test, and pilot a novel patient-reported experience measure tailored to cardiac device procedures.

Methods: A mixed-methods, multi-stage instrument development study was conducted at a single UK centre. Survey content was informed by a review of existing patient experience questionnaires, three patient focus groups (n=9) and two healthcare professional focus groups (n=27). Transcripts underwent hybrid inductive–deductive thematic analysis to identify key domains of experience and inform item generation. A draft survey was refined through cognitive interviews with patients undergoing cardiac device procedures (n=15) using “think-aloud” and probing techniques. The refined instrument was subsequently piloted over 12

weeks in a day-case cardiac catheterisation setting (n=56) to assess feasibility, completion time, response rates, and internal consistency.

Results: Focus group analysis identified core domains including information provision, patient treatment, confidence in staff, involvement, and overall experience. This informed the development of the Patient Experience of Cardiac Electronic Device Implant Survey (PaCED). Cognitive testing resulted in minor wording and formatting refinements, improving clarity and comprehensibility. In the pilot study, the PaCED survey demonstrated high item completion rates, a mean completion time of 4 minutes, and favourable response rates (mean 35%, rising to >60%). Internal consistency was strong (Cronbach’s $\alpha=0.849$; ordinal-friendly Spearman $\alpha=0.932$).

Conclusions: The PaCED survey is a feasible, acceptable, and reliable PREM for capturing patient experience following cardiac device procedures. It offers a novel, procedure-specific tool with potential to inform service improvement, enable benchmarking, and strengthen patient voice within cardiac device care. Further multicentre validation is warranted. □



Moderated Posters 1

32/Economic Evaluation of Pulsed Field, Cryoballoon and Very High-Power Short-Duration Ablation for Atrial Fibrillation: A Real-World Analysis

touchCARDIO Meeting Proceedings. 2026:1;abstr32

Authors: IM Koev (Presenting Author),¹ I Antoun,² A Abdelrazik,² M Eldesouky,² K Thant,³ KM Thu,³ P Iliev,⁴ D Simonov,⁴ Z Vali,² M Ibrahim,² GA Ng² and R Soman²

1. Heart and Brain Centre of Clinical Excellence, Burgas, Bulgaria; 2. Department of Cardiovascular Sciences, Clinical Science Wing, University of Leicester, Glenfield Hospital, Leicester, UK; 3. Department of Cardiology, University Hospitals of Leicester NHS Trust, Glenfield Hospital, Leicester, UK; 4. Heart and Brain Centre of Clinical Excellence, Burgas, Bulgaria

Introduction: Pulsed field ablation (PFA) has emerged as a non-thermal alternative to conventional thermal ablation for atrial fibrillation (AF). However, its real-world economic impact compared with established contemporary ablation technologies remains incompletely defined.

Methods: We conducted a retrospective single-centre observational study of consecutive patients undergoing AF ablation at Glenfield Hospital, Leicester, UK, between 2019 and 2024. Three ablation strategies were evaluated: PFA (pentaspline ablation catheter), cryoballoon ablation, and very high-power short-duration radiofrequency ablation (vHPSD). The primary endpoint was total admission cost. Secondary endpoints included length of stay and individual cost components.

Results: A total of 427 patients were included, comprising 100 PFA, 105 cryoballoon, and 222 vHPSD procedures. Length of stay was comparable between groups (PFA 2.1 ± 2.3 days, cryoballoon 1.7 ± 0.5 days, vHPSD 2.1 ± 1.8 days; $p = 0.14$). Total admission cost

differed significantly across modalities ($p < 0.001$). Cryoballoon ablation demonstrated the lowest mean cost (£9,505 $\pm$ 2,558), compared with PFA (£11,576 $\pm$ 3,783) and vHPSD (£12,146 $\pm$ 3,594). Tukey post-hoc analysis confirmed significantly lower costs with cryoballoon ablation compared with both PFA and vHPSD. Device expenditure was greatest for PFA and vHPSD, while staff and procedural suite costs were highest in the vHPSD group.

Conclusion: In this real-world single-centre analysis, cryoballoon ablation was associated with the lowest overall admission cost among contemporary AF ablation strategies. PFA was associated with reduced staff and procedural suite costs but higher device expenditure. Both cryoballoon ablation and PFA demonstrated characteristics of more predictable procedural workflows, which may have favourable implications for laboratory efficiency, scheduling reliability, and healthcare resource utilisation. □



Moderated Posters 1

33/Real-world clinicians feedback on 5944RL rotatable connector use during conduction system pacing

touchCARDIO Meeting Proceedings. 2026:1;abstr33

Authors: J Singh (Presenting Author),¹ MH Tayebjee,² E Saghie,² Z Whinnett,³ P Barman,⁴ M Ibrahim,⁵ I Antoun,² C Saunderson² and A Patwala⁶

1. Victoria Hospital NHS Fife, Kirkcaldy, UK; 2. Leeds Teaching Hospitals NHS Trust, Leeds, UK; 3. Imperial College Healthcare NHS Trust, London, UK; 4. Bristol Heart Institute, Bristol, UK; 5. University Hospitals of Leicester NHS Trust, Leicester, UK; 6. University Hospitals of North Midlands NHS Trust, Stoke on Trent, UK

Background: Conduction System Pacing (CSP), including His bundle and Left Bundle Branch Area Pacing (LBBAP), requires precise lead placement and continuous signal assessment. The 5944RL Rotatable Connector, designed for use with a lumenless pacing lead, enables continuous signal monitoring during lead rotation and may influence implantation workflow. The purpose of this work was to evaluate clinician-reported procedural metrics associated with adoption of the 5944RL Rotatable Connector in routine practice. The survey assessed whether the 5944RL is perceived to facilitate implantation workflow, enhance ease of use, and support achievement of implantation goals through real-time signal monitoring and potentially reducing reliance on traditional fixation cues.

Methods: A multinational implanter feedback survey was conducted using two structured online questionnaires. Clinicians completed a pre-use survey referencing their last five CSP cases using a lumenless lead alone, and a post-use survey referencing five cases using the 5944RL Rotatable Connector; completion of both surveys by the same clinician was not required. Data on operator profile, self-reported procedural metrics, perceived confidence in complication avoidance, ease of use, and overall satisfaction were collected.

Results: A total of 119 surveys were collected from 57 hospitals across EMEA and the United States, including 73 pre-use (46 EMEA, 27 US) and 46 post-use (28 EMEA, 18 US) surveys. Pre-use respondents reported

substantial CSP experience, with 67.1% (49/73) having performed >50 LBBAP implants using a lumenless lead in the preceding 12 months. Most clinicians required 2 to 4 lead placement attempts in both pre-use (89.0%, 65/73) and post-use (81.8%, 36/44) surveys. An LBBAP positioning time of ≤5 minutes was reported by 25.0% (18/72) of pre-use respondents and 43.1% (19/44) of post-use respondents (p=NS). Responses indicating being “very” or “extremely confident” in avoiding septal perforation were reported by 79.5% (58/73) of pre-use and 82.2% (37/45) of post-use respondents (p=NS). The connector was rated easy to operate by 97.8% (45/46) of clinicians. Compared with alligator clips, 80.4% (37/46) reported that realtime monitoring during lead rotation facilitated achievement of target depth. Self-reported satisfaction with final depth was high in both surveys: clinicians satisfied “most of the time” were 83.6% (61/73) pre-use vs 78.3% (36/46) post-use, while those reporting being “always” satisfied were 9.6% (7/73) pre-use vs 19.6% (9/46) post-use (both p=NS). In the post-use survey, 67.4% (31/46) of respondents reported perceived time savings associated with use of the 5944RL.

Conclusions: In this multinational clinician-reported survey, the use of the 5944RL Rotatable Connector was associated with favourable user experience and perceived workflow benefits during CSP, including ease of use, facilitation of target depth achievement, and perceived time savings. □



Moderated Posters 1

34/Subcutaneous Versus Transvenous Implantable Cardioverter-Defibrillator Therapy: An Updated Systematic Review and Meta-Analysis

touchCARDIO Meeting Proceedings. 2026:1;abstr34

Authors: E Muhammad (Presenting Author),¹ E Jamileh,² M Abusheikha,³ K Hosseini,⁴ A Abdin,⁵ G Andre Ng⁶ and I Antoun⁷

1. Faculty of Medicine and Dentistry, Queen Mary University of London, London, UK; 2. Royal Blackburn Teaching Hospital, East Lancashire Hospitals Trust, Blackburn, UK; 3. Department of Cardiology, Blackpool Victoria Hospital, Blackpool, UK; 4. Center for Translational Cardiology and Pragmatic Randomized Trials, Department of Biomedical Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark; 5. Department of Internal Medicine III, Cardiology, Angiology, Intensive Care Medicine, Saarland University, Saarland University Medical Centre, Homburg/Saar, Germany; 6. Leicester National Institute for Health and Care Research Biomedical Research Centre, Leicester, UK; 7. Department of Cardiovascular Sciences, Clinical Science Wing, University of Leicester, Glenfield Hospital, Leicester, UK

Introduction: Transvenous implantable cardioverter-defibrillators (TV-ICDs) prevent sudden cardiac death (SCD) but are associated with lead-related failures and systemic infections that may necessitate high-risk extraction. Extravascular subcutaneous ICDs (S-ICDs) mitigate these complications but lack pacing capabilities, making device selection clinically nuanced. Uncertainty remains regarding long-term complications and inappropriate shocks. We performed an updated systematic review and meta-analysis incorporating contemporary randomised and propensity-matched evidence with extended follow-up to inform device selection and shared clinical decision-making.

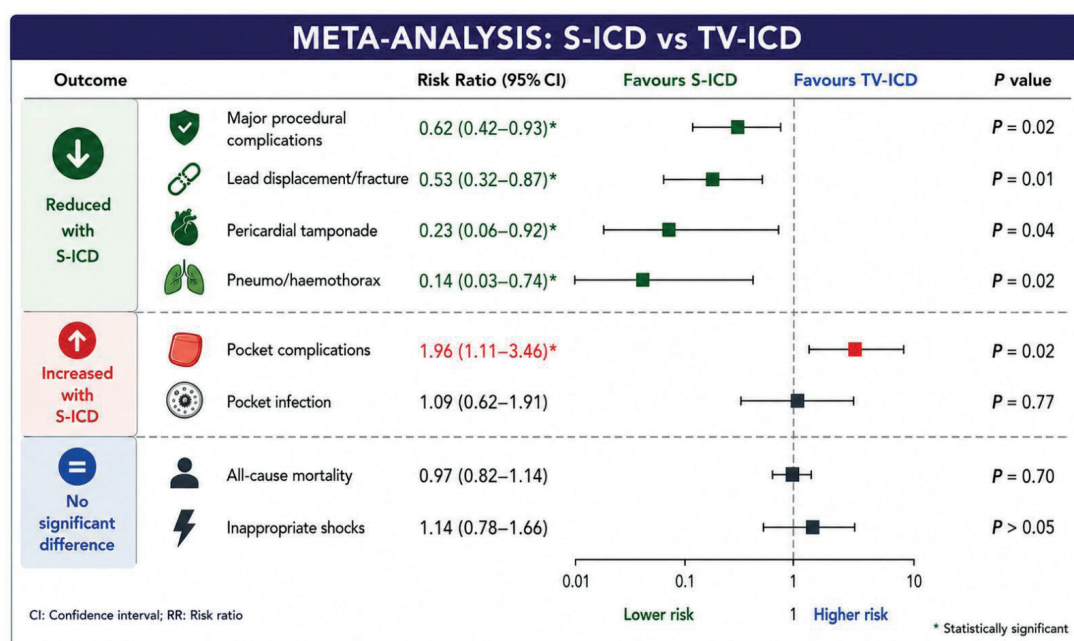
Methods: Following PRISMA 2020 guidelines (PROSPERO: CRD420261328562), MEDLINE, EMBASE, and CENTRAL were searched from inception to March 2026 for comparative studies evaluating S-ICD versus TV-ICD therapy. Primary outcomes included device-related complications, lead-related complications, and all-cause mortality. Random-effects models were used to calculate pooled risk ratios (RRs) with 95% confidence intervals (CIs). Analyses were stratified by study design to account for methodological heterogeneity across randomised and observational cohorts.

Results: Nineteen studies (n=10,341; 4,062 S-ICD and 6,279 TV-ICD recipients) were included. S-ICD therapy was associated with a

significant reduction in major procedural complications (RR=0.62, 95% CI 0.42–0.93; $p=0.02$) and lead displacement or fracture (RR=0.53, 95% CI 0.32–0.87; $p=0.01$). S-ICD was also associated with lower risks of pericardial tamponade (RR=0.23, 95% CI 0.06–0.92; $p=0.04$) and pneumothorax/haemothorax (RR=0.14, 95% CI 0.03–0.74; $p=0.02$). Conversely, pocket-related complications were more frequent with S-ICD therapy (RR=1.96, 95% CI 1.11–3.46; $p=0.02$), although pocket infection rates were similar between groups (RR=1.09, 95% CI 0.62–1.91; $p=0.77$). No significant differences were observed in all-cause mortality (RR=0.97, 95% CI 0.82–1.14; $p=0.70$) or inappropriate shocks (RR=1.14, 95% CI 0.78–1.66; $p>0.05$).

Conclusions: Incorporating contemporary long-term evidence, S-ICD therapy was associated with significantly lower rates of major procedural and lead-related complications, including pericardial tamponade and pneumothorax/haemothorax, compared with TV-ICD therapy. Pocket-related complications were more frequent, although pocket infection rates were similar. No significant differences were observed in all-cause mortality or inappropriate shocks. These findings provide robust contemporary evidence supporting S-ICD as a safe and effective alternative to TV-ICD in appropriately selected patients without pacing indications. □

Figure 1





Moderated Posters 1

35/Real-world post-stroke implantable loop recorder (ILR) monitoring: atrial fibrillation (AF) detection yield and burden on NHS cardiology service workload*touchCARDIO Meeting Proceedings. 2026;1;abstr35*

Authors: [V Walker](#) (Presenting Author), [S Thompson](#), [I Natarajan](#) and [A Patwala](#)
Royal Stoke University Hospital, Stoke-on-Trent, UK

Background: Between 25–40% of ischaemic strokes are cryptogenic, often related to paroxysmal AF. Early AF detection reduces recurrent stroke risk via anticoagulation. Long-term monitoring with implantable loop recorders (ILRs) provides higher diagnostic yields than short-term ambulatory monitoring, though concerns remain about the potential burden placed on cardiac physiology and cardiology services. We report a single-centre, post-stroke ILR programme incorporating artificial intelligence (AI) alert filtering, evaluating AF detection rates, patterns of subclinical and artefactual events, and clinical workload.

Methods: Observational data were collected (Jan 2021 – Sept 2025) from patients (pts) referred for ILR implantation following cryptogenic stroke or transient ischaemic attack (TIA). All received ILRs after initial ECG, and Holter monitoring did not identify AF prior to implantation. Demographics, AF and event detection, cardiology involvement, and interventions were extracted from electronic health records and device transmission data. Symptomatic and automated arrhythmia were analysed on Medtronic Carelink™. AccuRhythm™ AI algorithms (AF and pause filtering) were enabled in May 2024 and applied both prospectively and retrospectively to previously collected data. Workload metrics included number of transmissions, events per pt, and average number of pts reviewed daily.

Results: Of 301 post-stroke or TIA pts (median age 64 years, range 17–90) who received an ILR, AF was detected in 20.3% (61/301) to data cutoff (31 Aug 2025). All pts found to have AF received appropriate anticoagulation. ILR-detected AF rates increased progressively with age (Table 1). Among those with ILR-detected AF, 96.7% (59/61) started anticoagulation therapy, 44.3% (27/61) required cardiology review and

14.8% (9/61) received a permanent pacemaker (PPM) or implantable cardioverter-defibrillator (ICD). More pts with ILR-detected AF received their implant <4 weeks of referral than those whose ILR did not detect AF (45.9% [28/61] vs 33.8% [81/240]).

The median number of subclinical arrhythmia events per pt was 0 (n=298 pts with ILRs implanted and any number [≥0] of events recorded), despite a high mean (42.0) driven by a small subset of individuals (12/298, 4.0%) who generated >100 subclinical detections. Only 3.4% (10/298) of pts accounted for most of the artefact events (mean 13.1), considered to be related to poor device positioning. AI filtering reduced AF and pause false alerts by 52% and 56% respectively. The estimated review load was 3.1 pts/day, down from 3.6 following AI filtering.

Among 240 pts without ILR-detected AF, subclinical events were detected in 85 individuals (35%), and only 5 individuals generated >100 events. The median number of subclinical events and artefacts was 0. A total of 13% (31/240) of pts were referred to cardiology; 1.7% (2/240) of pts received a PPM or ICD and 0.8% (2/240) of pts underwent electrophysiology or ablation. Only 4.6% (11/240) of pts had non-AF-related medication changes.

Conclusion: In this real-world NHS post-stroke ILR service, AF detection rates were consistent with clinical trial evidence. Subclinical and artefactual events originated from a small minority of pts. AI-assisted filtering substantially reduced unnecessary transmissions. These data support the feasibility of wider ILR use without increasing system burden while enabling timely AF detection and anticoagulation therapy for secondary stroke prevention. □

Table 1

Table: ILR-detected AF by age group

Age range, years	No. patients with ILR implanted, n (N=301)	No. patients with AF detected via ILR, n (n=61)	% of patients with AF detected via ILR, % (n/n)
≤50	59	2	3.4% (2/59)
51–64	98	11	11.2% (11/98)
65–74	64	19	29.7% (19/64)
≥75	80	29	36.3% (29/80)

AF, atrial fibrillation; ILR, implantable loop recorder.



Moderated Posters 1

36/Identification of Patients Who May Need Consideration of ICD Deactivation: Cracking the Codes

touchCARDIO Meeting Proceedings. 2026:1;abstr36

Authors: E L Michels (Presenting Author), L Ives, C McLain, M Lagore, K Denham, H Aitkinson, L Brown, I Pearson, J Clark, L Shafiq, T Dale and H Thomas

Northumbria Healthcare NHS Foundation Trust, Newcastle, UK

Introduction: The Resuscitation Council UK recommends discussing deactivation of implantable cardioverter-defibrillators (ICD) in people approaching the end of life, to prevent distressing shocks and ensure a dignified death.

These discussions may be carried out by healthcare professionals across primary and secondary care. A key factor in enabling these discussions is ensuring that primary care records accurately reflect a patient's ICD status, especially as hospital teams increasingly rely on them to confirm past medical history during attendances.

SNOMED, the clinical vocabulary used in UK primary care records, contains overlapping and ambiguous codes relating to cardiac devices. This, paired with data entry by non-clinical clerical staff, frequently leads to inaccuracies.

We aimed to assess the accuracy of ICD coding within primary care records across Northumbria Healthcare NHS Foundation Trust and evaluate whether coding accuracy improved following a targeted intervention.

Methods: Our service has 535 patients with an ICD or CRT-D (cardiac resynchronisation therapy with defibrillator) device under active follow up. Their primary care records were reviewed to evaluate the accuracy of the recorded SNOMED codes.

GP practices responsible for patients with incorrectly coded devices were contacted with a recommended SNOMED code and written information on the importance of ICD coding accuracy.

In addition, a new discharge letter template was created which indicates the precise SNOMED code recommended for patients receiving new implant ICDs.

Following this intervention, the previously miscoded devices were re-audited alongside those with ICD's implanted in the 3 months following implementation of the new discharge letter template.

Results: Of the 535 identified patients with ICDs across 52 primary care practices, 13 records were inaccessible, leaving 522 records for pre-intervention review. Of these, 45.4% (n = 237) had incorrect coding; 190 were coded as pacemakers, 39 had no device coded and 8 had a 'generic cardiac implantable device' coded.

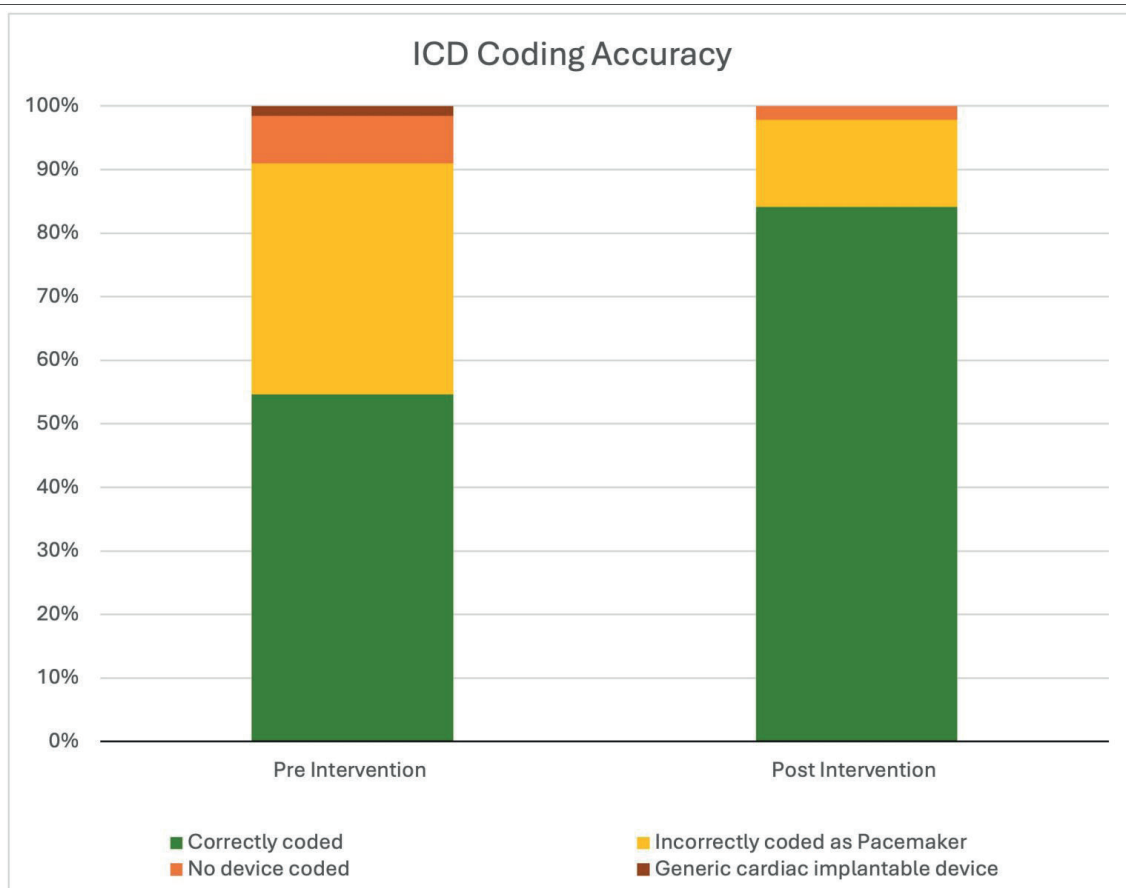
Following our intervention, 65% (154/237) of codes had been corrected by primary care teams. This represents an improvement in incorrectly coded patients from 45.4% to just 15.9%.

21 patients had an ICD/CRT-D implanted in the 3 months following introduction of the discharge letter proforma. Of these, 85.7% (n = 18) were coded correctly which represents a significant improvement from the historic implant cohort.

Conclusion: Inaccurate primary care coding of ICDs is a threat to high quality end-of-life care. The high prevalence of coding inaccuracies seen in our region is likely reflective of a wider national issue. Providing accurate SNOMED codes to primary care colleagues significantly improved coding accuracy. Reviewing primary care records for all historic implants is labour intensive but also effective. Recommendation of SNOMED codes at the point of device implantation also improved coding accuracy. Further improvements may be achieved by including clearer coding guidance on device follow up correspondence. Moving forward, maintaining clear documentation and advocating for simpler, more distinct SNOMED terms for ICD/CRT-D devices will be vital to safeguard high quality end of life care across primary and secondary care. □



Figure 1





Moderated Posters 1

37/Economic Benefits of CSP Compared with Conventional CRT-P Implantation

touchCARDIO Meeting Proceedings. 2026;1;abstr37

Authors: Dr Hossam Elsayed (Presenting Author)

Good Hope Hospital, Sutton Coldfield, UK

Background: Conduction system pacing (CSP) is increasingly recognised as a physiological alternative to conventional right ventricular pacing and cardiac resynchronisation therapy (CRT) in selected patients. In addition to potential clinical benefits, CSP may reduce healthcare expenditure through lower device costs and prevention of pacing-induced cardiomyopathy and reduce heart failure related admissions. We evaluated the potential economic impact of CSP adoption within a UK District General Hospital.

Methods: A retrospective service evaluation was performed at Good Hope Hospital between April 2024 and March 2025. All patients receiving CRT-P devices for bradycardia indication and LV EF >39% were reviewed alongside patients undergoing CSP implantation. Device acquisition costs, heart failure admissions attributable to right ventricular pacing burden, and associated inpatient bed utilisation were analysed. Potential cost savings were estimated by comparing actual CRT-P utilisation with projected CSP-based management pathways.

Results: During the study period, 35 CRT-P devices were implanted. Twenty-nine patients (83%) had a left ventricular ejection fraction (LVEF) greater than 39% and may have been suitable for CSP according to contemporary physiological pacing strategies endorsed by international societies (ESC and HRS).

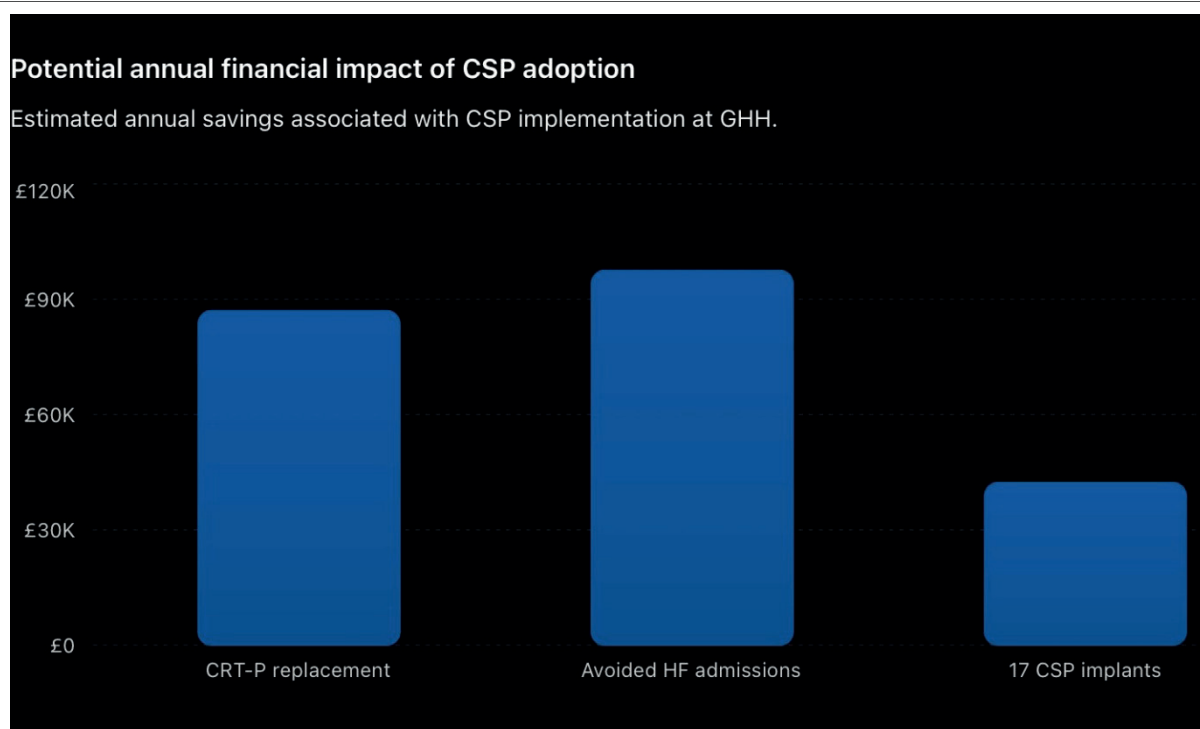
The average implant cost of a CRT-P device was £4,087.74 compared with projected CSP costs of £1,443–£1,601 depending on device configuration (Single vs Dual chambre). Substitution of CSP for CRT-P in the 35 implanted patients would have generated estimated device-related savings of £87,027.

A total of 20 heart failure admissions related to right ventricular pacing were identified, accounting for 277 inpatient bed-days. Using a cardiology ward cost of £352 per bed-day, the associated expenditure was £97,504. During the same period, 17 patients with LVEF >39% underwent CSP implantation rather than CRT-P, generating a further estimated saving of £42,270.

Overall, the combined potential economic impact of CSP adoption was estimated at £226,801 over a 12-month period, excluding additional benefits from reduced generator replacements, longer battery longevity, and future reductions in heart failure admissions.

Conclusion: Adoption of CSP as part of a contemporary physiological pacing strategy may provide substantial financial benefits within the NHS. In our centre, CSP implementation was associated with a potential annual economic impact exceeding £225,000 while supporting delivery of guideline-directed physiological pacing. Further multicentre studies are warranted to evaluate long-term cost-effectiveness and healthcare resource utilisation. □

Figure 1





Moderated Posters 1

38/Two-Year Outcomes and Real-World Impact of a Primary Care Community Palpitations Pathway Using Zenicor ECG Monitoring

touchCARDIO Meeting Proceedings. 2026:1;abstr38

Authors: [MM Khan](#) (Presenting Author), S Childe and S Bowels
Health Care First, Methley, UK

Introduction: Palpitations commonly drive cardiology referral, but intermittent symptoms are often missed by short-duration monitoring. The Wakefield Community Palpitations Service is a primary care-led community pathway using structured triage and Zenicor patient-activated ECG monitoring. It aims to provide rapid rhythm diagnosis closer to home, detect significant arrhythmia, reassure patients with benign findings, reduce secondary care referral and offer a lower-cost alternative to hospital investigation.

Methods: A 24-month service review assessed referral volume, triage outcome, device access, monitoring completion, diagnostic outcome, MDT escalation and system impact. Financial impact used the local business case comparator between the community pathway and equivalent secondary care investigation.

Results: Over 24 months, the service received 1,586 referrals: 1,038 were accepted and 548 rejected or redirected. Rejection reasons included missing information in 176, green flag presentations in 136, inappropriate referrals in 118, already investigated cases in 48, advice-only cases in 48 and amber/red flag presentations in 22. Of accepted patients, 858 investigations were completed or concluded, with 143 ongoing and 37 waiting. Sixty cases required MDT discussion, showing that most patients were managed in the community without specialist escalation. Diagnostic outcomes were ectopics in 354, sinus rhythm in 194, inappropriate sinus tachycardia in 70, AF in 39 and SVT in 21. This represents clinically significant arrhythmia detection in 60 patients, alongside objective reassurance for many patients with benign rhythm findings.

Access was rapid: 936 patients received a Zenicor device within 2 weeks, 28 within 3 weeks and none waited more than 4 weeks. Six hundred patients completed 4 weeks of monitoring. The pathway generated an estimated gross system saving of approximately £273,000, calculated by applying the local business case cost differential of £318 per patient to 858 completed or concluded cases. This excludes wider unquantified benefits from avoided outpatient appointments, reduced Holter demand, fewer repeat consultations, earlier AF detection and improved reassurance.

Table: 24-month outcomes

Measure	Outcome
Total referrals	1,586
Accepted	1,038
Rejected or redirected	548
Completed/concluded	858
MDT discussions	60
Significant arrhythmia	60
AF detected	39
SVT detected	21
Ectopics identified	354
Estimated gross saving	£273,000

Conclusions: The Wakefield Community Palpitations Service demonstrates that a primary care-led community cardiology model can manage high-volume palpitations demand safely outside hospital. Over 24 months, it delivered rapid Zenicor access, prolonged rhythm capture, low MDT escalation, meaningful arrhythmia detection, reassurance for benign findings and substantial estimated system savings. The model reduces secondary care burden by redirecting inappropriate referrals, completing most investigations in the community and reserving escalation for selected cases. □

Moderated Posters 1

39/Implementing a Novel Digitally Enabled Pathway for Electronic Patient Reported Outcome Measures (ePROMs) collection Before and After AF ablation

touchCARDIO Meeting Proceedings. 2026;1;abstr39

Authors: [S Toora](#) (Presenting Author),¹ P McAuley,¹ N.T Srinivasan,¹ S Evans,¹ E.J Beadle¹ and S Evens²

1. Essex Cardiothoracic Centre, Mid and South Essex Foundation NHS Trust, Basildon, UK; 2. FibriCheck, Hasselt, Belgium

Introduction: NHS England mandates patient-reported outcome measures (PROMs) at baseline, 6 months, and 12 months following AF ablation. We identified a lack of structure and consistency with PROMs collection at a tertiary referral centre in the UK, resulting in significant gaps in capture and outcome data. FibriCheck is a CE-marked smartphone application that uses photoplethysmography to detect irregular heart rhythms remotely. FibriCheck was already deployed in our post ablation remote rhythm monitoring pathway, but PROMs were not integrated into this digital workflow. Transitioning to electronic PROMs (ePROMs) and embedding within the existing follow-up pathway offered an opportunity to standardise data collection, improve completeness, and meet commissioning requirements.

Objective: To evaluate the feasibility and early impact of expanding the FibriCheck remote monitoring pathway to include ePROMs collection at NHSmandated intervals for patients undergoing AF ablation.

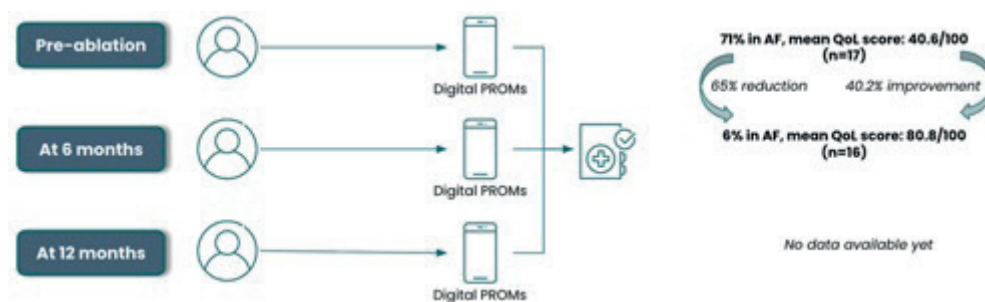
Methods: Patients undergoing AF ablation are onboarded to FibriCheck and a validated PROMs questionnaire is digitised for online completion as part of routine practice. Baseline ePROMs are delivered via a link embedded in the pre-procedure clinic letter, enabling completion at home before admission. Post-ablation ePROMs at 6 months are delivered by email with a direct questionnaire link, with automated reminders at two and seven days after the initial email for incomplete responses. At

12 months, ePROMs will be collected via in-app completion within the FibriCheck platform. Scores and AF status are assessed longitudinally at baseline, 6 months, and 12 months.

Results: So far, baseline ePROMs were completed by 17 patients, with 16 post-ablation PROMs collected at 6 months. At baseline, 71% of patients reported to be currently in AF. At 6 months, 94% were not (15/16). Mean QoL scores improved from 42.2 at baseline to 81.5 post-ablation, a mean increase of 39.3 points, well exceeding the established minimum clinically important difference. Improvements were consistent across all domains: palpitation burden (3.71 vs 2.38), exertional dyspnoea (5.18 vs 1.81), recreational limitation (4.47 vs 1.62), and AF-related anxiety (4.88 vs 2.44).

Conclusion: Integrating electronic PROMs into a digitally enabled remote monitoring pathway is feasible and generates meaningful longitudinal outcome data. Early results demonstrate substantial improvements in patient-reported quality of life following AF ablation across symptom, functional, and psychological domains. This unified approach supports commissioning compliance, reduces administrative burden, and positions the centre to report NHS-mandated outcomes systematically. Prospective collection at baseline, 6 months, and 12 months is ongoing and further work will assess long-term retention and confirm real-world scalability. □

Figure 1: Digital PROMs pathway with improved AF and QoL outcome





Moderated Posters 2

40/Use of beta blockers after pacemaker implant and previous ablation of atrial fibrillation predicted survival from all-cause death in patients considered for pacemaker and AV node ablation*touchCARDIO Meeting Proceedings. 2026;1;abstr40*

Authors: P Sajjani (Presenting Author), A Howard, P Sasikala Palanivel, B Ergul, S Biaye, P Nath, G Haywood and S H Man
University Hospitals Plymouth NHS Trust, Plymouth, UK

Introduction: Pacemaker followed by AV node ablation (PPM & AVNa) is a definitive rate-control treatment reserved for patients with symptomatic atrial fibrillation (AF) refractory to maximum tolerated anti-arrhythmic drugs (AAD) or ablation. However, patients treated with this approach become dependent on PPM for control of ventricular rate at the expense of atrio-ventricular dyssynchrony. In principle, PPM implant negates bradycardia and enables a proportion of patients with a history of bradycardia and rate-uncontrolled AF to tolerate up-titration of AAD, without having AVNa as a follow-on procedure or have this deferred if better rate and symptom control are achieved.

Aims: We compared the clinical characteristics and outcome of patients who were considered for PPM $\pm$ AVNa for symptomatic AF but had AVNa held off after PPM implant (Group 1) with those who went on to have AVNa after PPM (Group 2). We also studied potential predictors of mortality and re-admission for AF or heart failure (HF) after PPM in patients considered for PPM & AVNa.

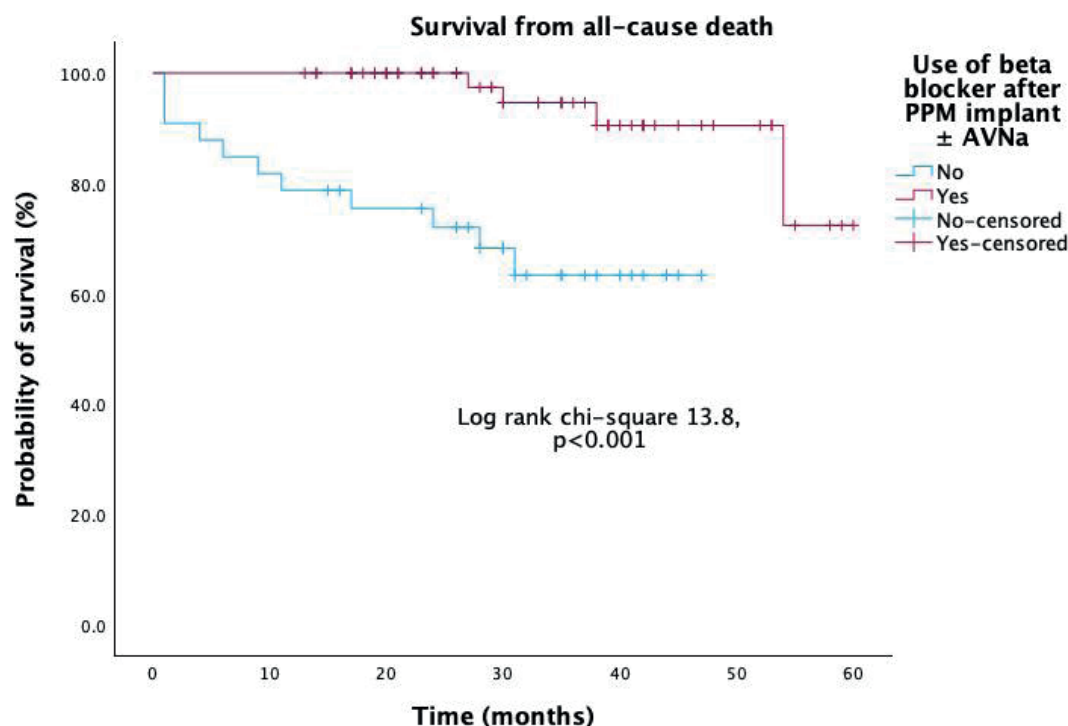
Method: Consecutive patients considered for PPM $\pm$ AVNa for treatment of AF from 20/11/2020 to 20/11/2024 in a UK tertiary centre were included. Demographics and clinical data were collected from electronic patient record and pacing clinic.

Result: 94 patients were considered for PPM $\pm$ AVNa. 58 (61.7%) patients did not go on to have AVNa after PPM (Group 1) and 36 (38.3%) patients went on to have PPM & AVNa (Group 2). The median follow up was 30.8 (IQR 19.3) months. The mean age was 74.2 ± 9.3 years and the mean CHA₂DS₂-VA score was 2.7 ± 1.3 . 41.5% and 53.2% had paroxysmal and

persistent AF respectively. 43.6% had at least 1 previous AF ablation. Before PPM, 57.4% were on at least 2 AAD and the mean LVEF was $47.9 \pm 12.5\%$. 45.7% had a PPM with cardiac resynchronization therapy (CRT). A higher proportion of patients who received AVNa after PPM were female (69.4% Group 2 vs 39.7% Group 1, $p=0.005$). In the 12 months before PPM, 53% were admitted for AF or HF at least once and the mean length of stay (LOS) was 5.8 ± 8.6 days compared to a re-admission rate of 20.2% and mean LOS reduced to 2.4 ± 6.6 days within 12 months after PPM implant. More patients in Group 1 were able to tolerate up-titration of AAD compared to in group 2 after PPM implant (53.4% vs 0%, $p<0.001$). More patients reported symptom improvement after PPM and AVNa (83.3% Group 2 vs 51.7% Group1, $p=0.009$). Overall, the mortality rate was 16% (15 patients). Use of beta blockers (BB) after PPM and previous AF ablation independently predicted lower mortality in patients considered for PPM $\pm$ AVNa in a multi-variate Cox proportional hazards regression model (HR=0.018, 95% C.I. 0.001 to 0.257, $p=0.003$ for BB use; HR=0.022, 95% C.I. 0.001 to 0.63, $p=0.026$ for previous AF ablation). AVNa did not predict mortality after PPM. Previous hospitalization for AF or HF predicted subsequent re-admission for AF or HF after PPM $\pm$ AVNa (Log rank chi-square 9.3, $p=0.002$).

Conclusion: In patients considered for PPM & AVNa for symptomatic AF who were refractory to or intolerant of rate or rhythm control treatment, AVNa improved symptom burden but did not impact on mortality. Use of BB after PPM and previous AF ablation predicted greater probability of survival in this challenging patient population. □

Figure 1





Moderated Posters 2

41/Feasibility and Early Outcomes Using the Novel FARAPPOINT™ Focal Pulsed Field Ablation Catheter Across a Spectrum of Cardiac Dysrhythmias: A Single-Centre Experience

touchCARDIO Meeting Proceedings. 2026:1;abstr41

Authors: IM Mukhtar, EU Urgesi (Presenting Author) and RAK Kaba

Cardiovascular and Genomics Research Institute, City St George's, University of London, London, UK

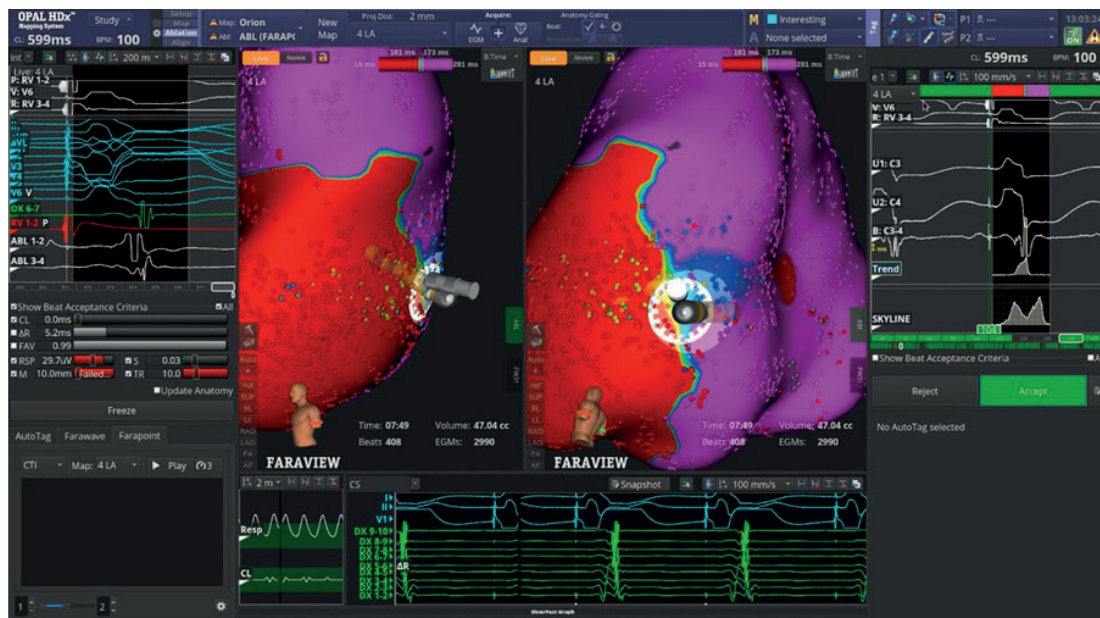
Introduction: Pulsed field ablation (PFA) is now a well-established treatment modality for atrial fibrillation (AF), demonstrating high efficacy and a favourable safety profile. However, there remains a paucity of data regarding its application in the treatment of other cardiac dysrhythmias. Furthermore, the potential role of PFA following failed radiofrequency ablation (RFA) procedures has not been well explored outside the AF setting. We report our initial single-centre experience using the novel FARAPPOINT™ focal PFA catheter to treat a range of complex atrial and ventricular dysrhythmias.

Methods: We performed catheter ablation using the novel FARAPPOINT™ focal PFA catheter in 14 consecutive patients with a variety of dysrhythmias, including complex focal atrial tachycardia, resistant mitral flutter, recurrent typical atrial flutter, recurrent right ventricular outflow tract ectopy, and left-sided accessory pathways (Figure 1). Four patients had previously undergone unsuccessful RFA procedures, including one patient who had failed four prior RFA attempts. Patients underwent clinical follow-up at 1 month and up to 6 months following the procedure. Acute procedural success, arrhythmia recurrence, and safety outcomes were assessed.

Results: Fourteen patients underwent focal PFA ablation. Acute procedural success was achieved in all cases, with successful elimination of the targeted dysrhythmia at the end of the procedure. This included all four patients with previous failed RFA procedures. At 1-month follow-up, all patients remained free from recurrent arrhythmia. Freedom from dysrhythmia was maintained in all patients with available follow-up up to 6 months. No acute procedural complications or medium-term adverse events were observed.

Conclusions: In this early single-centre experience, focal PFA using the novel FARAPPOINT™ catheter was feasible, safe, and acutely effective across a range of atrial and ventricular dysrhythmias. Notably, successful outcomes were achieved in patients with previous failed RFA procedures, suggesting a potential role for focal PFA as a rescue strategy in challenging cases. Excellent short- and medium-term arrhythmia-free survival was observed, with no procedural or follow-up complications. Larger studies with longer follow-up are warranted to further define the role of PFA beyond atrial fibrillation. □

Figure 1





Moderated Posters 2

42/Misinterpreting the Signals: Sense-B Noise and Inappropriate S-ICD Therapy

touchCARDIO Meeting Proceedings. 2026;1;abstr42

Authors: C Mehegan (Presenting Author)

West Suffolk NHS Foundation Trust, Bury St Edmunds, UK

Introduction: A 67-year-old male with progressive supranuclear palsy, ischaemic cardiomyopathy, and severe left ventricular systolic impairment underwent implantation of a Boston Scientific EMBLEM subcutaneous implantable cardioverter-defibrillator (S-ICD) with a 3501 electrode in 2019. Implantation was uncomplicated. Auto Setup selected the alternate sensing configuration, with satisfactory sensing confirmed in all vectors. Gain was programmed to 1× and SMART Pass enabled.

In March 2026, the patient experienced his first device shock while asleep and was unaware of therapy delivery. Due to an intervening hospital admission, the Latitude remote monitoring alert was not reviewed until seven days later, by which time two further untreated episodes had occurred. Owing to mobility limitations, he attended his local district general hospital rather than his tertiary centre for assessment.

Results: The treated S-ECG (Figure 1) demonstrated inappropriate shock delivery due to oversensing of non-physiological signals. During the 60-second episode, signals showed marked variability in frequency, amplitude, and slew rate, with intermittent isoelectric activity and saturation. Shock delivery was immediately followed by complete normalisation of QRS morphology and cessation of noise artefact.

Device interrogation identified one treated and two untreated episodes within 24 hours. The untreated episodes demonstrated similar morphology but self-terminated. The electrogram appearance was inconsistent with ventricular arrhythmia or typical electromagnetic interference, raising concern for lead fracture or electrode malfunction. Importantly, the

patient's 3501 electrode was included in the 2020 manufacturer advisory regarding elevated fracture risk (Boston Scientific™, 2024).

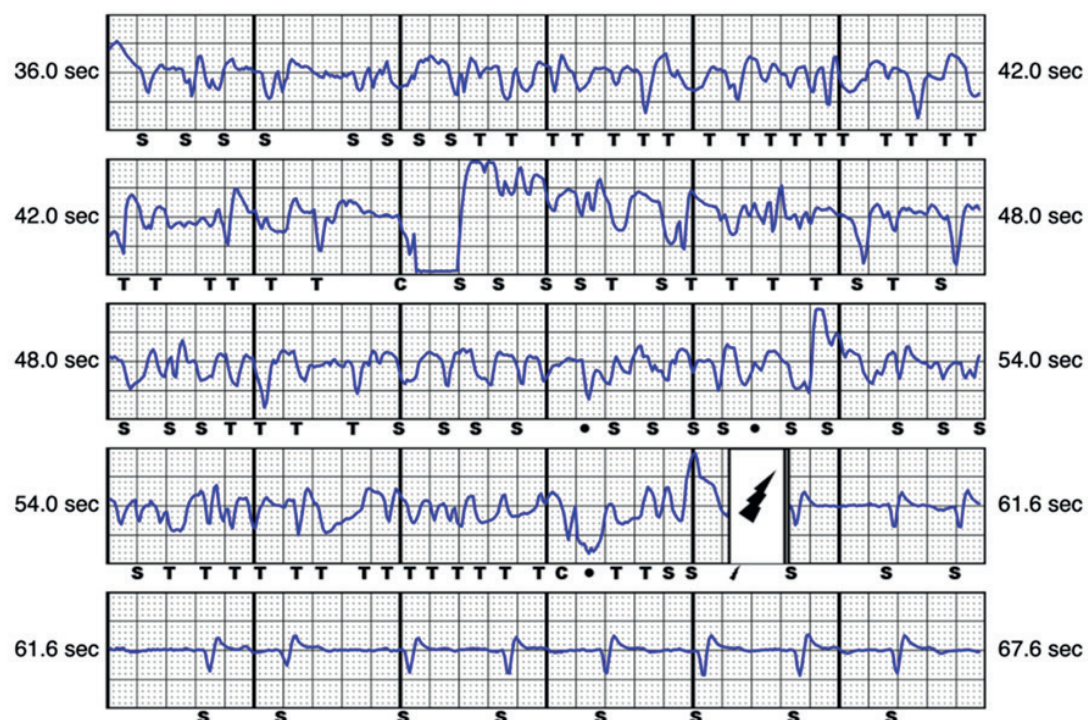
Chest radiography showed no evidence of conductor fracture. Baseline electrograms, sensing, and impedance measurements were satisfactory across all vectors. Provocative manoeuvres, including postural changes, isometric exercises, and lead manipulation failed to reproduce noise, making acute lead fracture less likely.

Given the absence of objective fracture evidence and the characteristic electrogram appearance, Sense-B-noise was considered the most likely diagnosis and was later supported by the manufacturer. The sensing vector was reprogrammed to Secondary to exclude the B electrode from the sensing circuit. The patient will be reviewed at three monthly intervals moving forward.

Conclusion: This case highlights a novel mechanism of inappropriate S-ICD therapy attributable to Sense-B-noise. Abrupt signal saturation resolving immediately after shock delivery was first described by Haeberlin et al. (2023), while Wörmann et al. (2024) suggested approximately 5% of inappropriate S-ICD shocks may occur due to Sense-B-noise without confirmed lead fracture.

The underlying mechanism remains poorly understood and likely under-recognised. Resolution following exclusion of the B electrode raises the possibility of an electrode-header interface issue, although this has not been formally investigated. This case also demonstrates the importance of collaboration between tertiary and district general centres, with coordinated management preventing recurrent inappropriate shocks while tertiary review remained inaccessible. □

Figure 1: Treated episode S-ECG demonstrating shock delivery





Moderated Posters 2

43/Real-World Comparison of Leadless Pacemaker Platforms: An Evaluation of Procedural Learning Curves, Battery Longevity and Clinical Outcomes*touchCARDIO Meeting Proceedings. 2026:1;abstr43*

Authors: [D Griffin](#) (Presenting Author), S Nowell, R Ofori Kuma, H Burra, A Shetty, CA Rinaldi and J Behar
Guy's and St Thomas' NHS Foundation Trust, London, UK

Introduction: Leadless pacemakers are an important alternative to transvenous pacing systems for patients with high infection risk or unfavourable anatomy. Utilisation is expanding rapidly, but comparative real-world data between platforms remain limited. This audit compared clinical outcomes, procedural learning curves and projected battery longevity between MICRA and AVEIR platforms.

Methods: A retrospective audit included all leadless pacemaker implants at Guy's and St Thomas' Hospital between September 2023 and December 2025. Electronic patient records and device interrogation data were analysed. A local transvenous cohort across the same period was used for 1-year survival comparison. Linear regression was used to assess procedural learning curves; extraction cases were excluded from procedure time analysis.

Results: 72 leadless systems were implanted during this period (34.7% female, median age 77 [IQR 64-84] years): AVEIR RV only (n=22), AVEIR RA only (n=2), AVEIR DR (n=14), MICRA AV (n=17), MICRA VR (n=17). Of the 34 MICRA implants, 4 were second generation systems. Median follow-up time for leadless cohort was 17 (IQR 11-24) months, and 15 (IQR 9-23) months in the transvenous cohort.

The most common indication for leadless system was infection or high risk of infection (61%). Single ventricular implant procedure duration was longer for AVEIR than MICRA devices (55 minutes vs 41 minutes, $p=0.02$). Median AVEIR RA and DR procedure times were 62 minutes (n=4) and

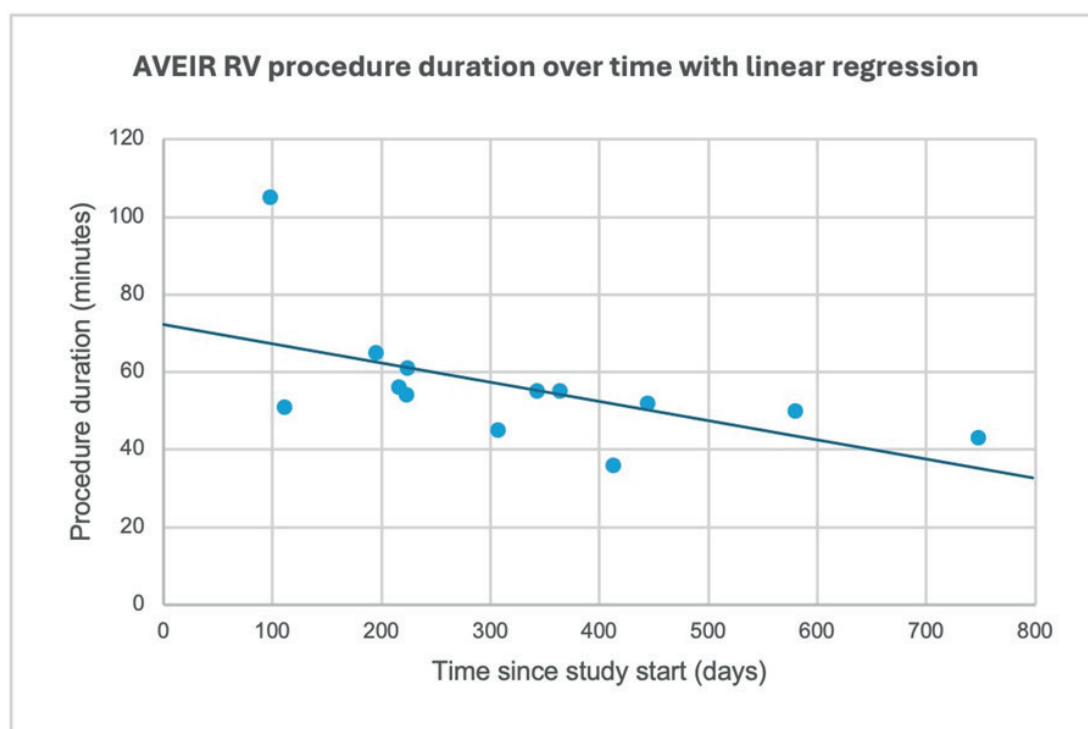
100 minutes (n=5) respectively. AVEIR RV implants showed a reduction in procedural time over the study period (n=13, $R^2=0.31$, $p=0.046$) (Figure 1), while MICRA systems showed no change (n=15, $R^2=0.05$, $p=0.43$). Procedure learning curve analyses for AVEIR RA and DR systems were limited by small sample size.

Median projected battery longevity at 6-month check was higher in AVEIR RV devices (11.9 years) when compared to MICRA AV (7 years, $p=0.01$) and MICRA VR devices (7 years, $p=0.01$).

There was a low complication rate in AVEIR and MICRA cohorts which was comparable ($p=0.62$). One-year all-cause mortality was similar between AVEIR and MICRA cohorts (10.5% vs 11.4%, $p=0.388$), likely reflecting the high prevalence of comorbidity in this cohort. This was significantly greater than a contemporaneous transvenous cohort (0.89%, $p<0.01$ AVEIR, $p<0.01$ MICRA).

Conclusion: Leadless pacing is an effective alternative for high-risk patients. AVEIR RV implants demonstrated an institutional learning curve with a reduction in procedure time, though this remains longer than the MICRA procedure. MICRA procedure times were shorter and stable, reflecting longer institutional procedural experience. AVEIR RV devices demonstrated longer projected battery longevity at 6 months, with comparable safety and complication profiles to MICRA systems. Mortality was similar between leadless cohorts but higher than in the transvenous comparator cohort, likely reflecting differences in baseline patient risk. □

Figure 1





Moderated Posters 2

44/OCKHAM™ guided AF ablation

touchCARDIO Meeting Proceedings. 2026:1;abstr44

Authors: MIF Firescu (Presenting Author) and MD Das
Freeman Hospital, Newcastle upon Tyne, UK

Introduction: Pulmonary vein isolation (PVI) is the cornerstone ablation treatment for atrial fibrillation (AF). Whilst its success in paroxysmal AF is well established, ablation strategies for persistent AF remain challenging. Various approaches beyond PVI have been studied, but only a few have demonstrated additional benefit.

The OCKHAM™ analysis tool within the RHYTHMIA HDx™ mapping system uses an algorithmic approach to detect potential AF drivers and may therefore help tailor AF ablation approach. We describe a case series of patients with symptomatic AF who underwent ablation guided by this mapping tool at our centre and report on their sinus rhythm maintenance rates.

Methods: We included patients who underwent AF ablation guided by the OCKHAM™ tool between February 2024 and November 2025.

High density maps were performed using the RHYTHMIA HDx™ mapping system. At least 20,000 points were collected for each map with the ORION™ mapping catheter in AF. The OCKHAM™ software module was then used to detect AF drivers. Its algorithm plots local cycle length (LCL) and the local spread of activation time within that cycle length (duty cycle) from consistent electrograms on a scatterplot, which is then used to identify regions with relatively stable local activation. Areas that demonstrate rapid LCL and high duty cycle (>90%) with high stability are considered potential drivers and thus areas of interest (AoI) for adjunctive ablation beyond PVI. Ablation was performed using irrigated radiofrequency (RF) catheters delivering either RF or focal pulsed-field ablation (PFA) using the CENTAURI™ generator.

Results: 13 OCKHAM™ cases were performed in 12 patients undergoing catheter ablation between April 2024 and November 2025. 12 cases were persistent AF, 1 paroxysmal.

Mean age was 67, 60% were male, and mean BMI was 28.2kg/m². Hypertension was present in 60% and obstructive sleep apnoea in 20%. The mean LA volume was 87ml. 6 patients had a left ventricular ejection fraction (LVEF)>55%, 3 had an LVEF of 50-54%, and 1 a LVEF of 45-49%.

AoI were identified in 10 patients, most commonly around the pulmonary veins (PVs) (29%), posterior wall (26%) and left atrium (LA) appendage/ridge (19%) (Figure 1).

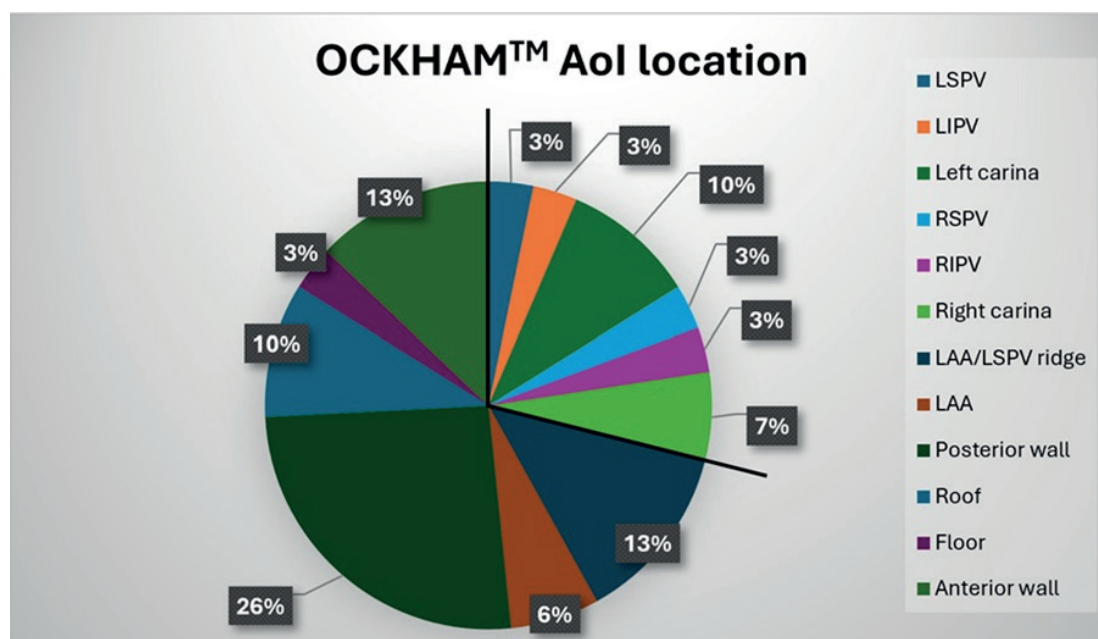
PVI plus additional lesions (PVI+) was the most common ablation strategy; 2 patients underwent PVI alone, as AoI were confined to the PVs, and 1 underwent isolated AoI ablation as PVs were silent from previous PVI. In 6 patients with extra-PVI AoI, remapping was performed after initial PVI and showed that these AoI persisted. Additional ablation included circumferential lesion sets encircling AoI or clustered focal ablation at AoI sites.

The IntellaNav StablePoint™ catheter was used to deliver RF ablation in 3 cases, focal PFA in 6, and both in 1 case. Ablation terminated AF in 2 cases, 9 requiring DC cardioversion.

At 6 months, 7 of 10 patients (70%) maintained sinus rhythm; of the 3 that did not, 1 underwent a re-do OCKHAM™ guided procedure, and maintained sinus rhythm at 6 months. 12-month data was only available for 7 patients, with 4 (57%) maintaining sinus rhythm.

Conclusions: In this single centre case series of patients with mostly persistent symptomatic AF, the OCKHAM™ tool identified potential AF driver regions in most cases and facilitated individualised ablation beyond PVI. This strategy was feasible and showed encouraging sinus rhythm maintenance rates at 6 months. Larger prospective studies with longer follow-up are needed to further evaluate the efficacy of this approach. □

Figure 1





Moderated Posters 2

45/Inappropriate Electrical Storm from P-Wave Oversensing (PWOS)

touchCARDIO Meeting Proceedings. 2026:1;abstr45

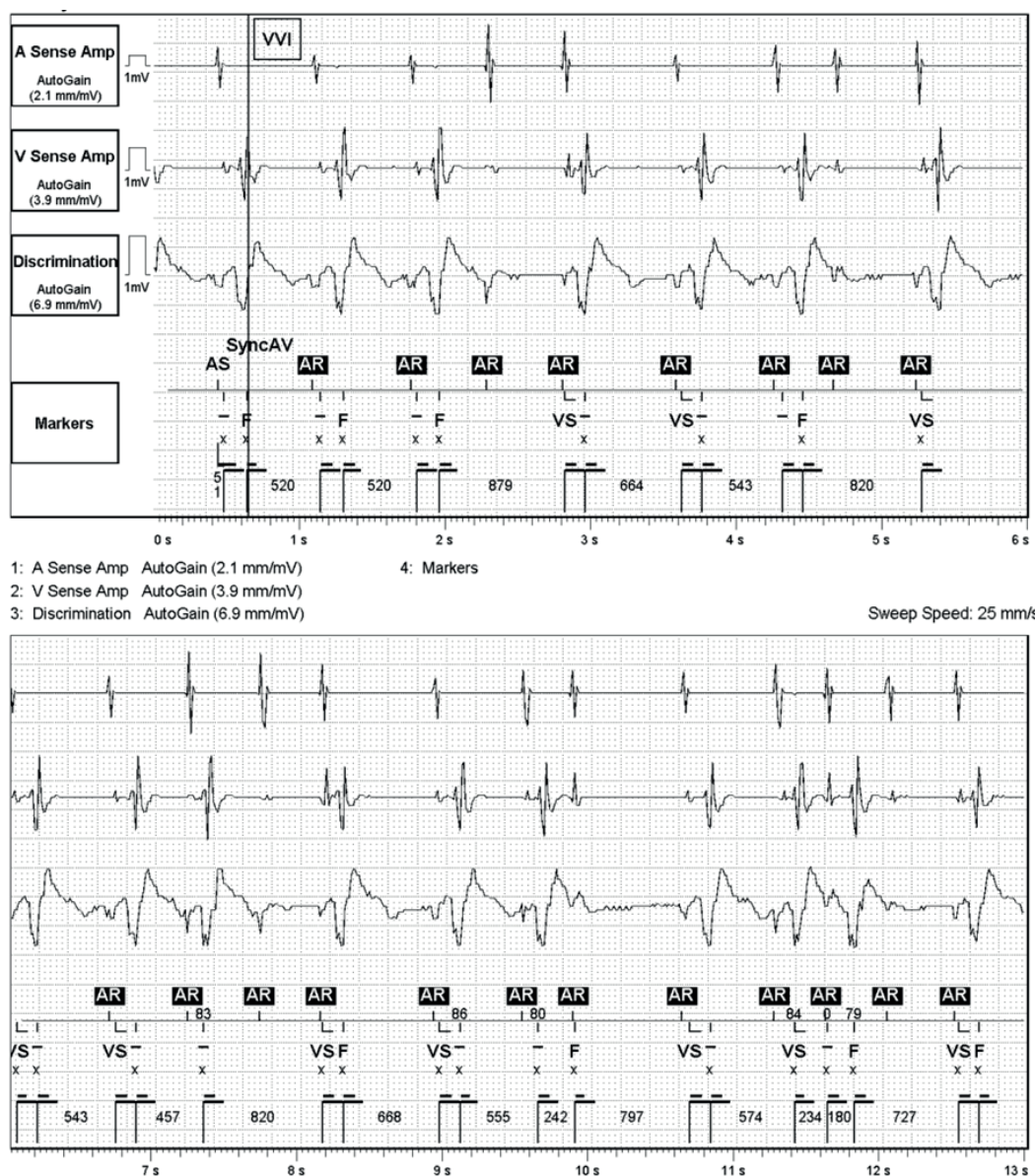
Authors: O Omoniye (Presenting Author), S Kunder, C Graham-Clark and S Nair
Norfolk and Norwich University Hospital, Norwich, UK

Background: Inappropriate shocks remain a significant concern in patients with implantable cardioverter-defibrillators. Inappropriate shocks are associated with increased mortality and commonly arise from rapidly conducted supraventricular tachyarrhythmias; lead fractures, insulation breaks, and T-wave oversensing (TWOS) represent additional recognized causes. P-wave oversensing (PWOS) is a well-established limitation of the far-field sensing vectors employed by subcutaneous ICDs. In contemporary transvenous ICDs, however, ventricular PWOS is uncommon and typically requires an anatomical or mechanical substrate.

Case Summary: A 78-year-old man with severe left ventricular systolic dysfunction secondary to non-ischaemic dilated cardiomyopathy

underwent implantation of a secondary prevention cardiac resynchronization therapy defibrillator. Seventy-two hours post-implant, he suffered 10 inappropriate shocks. Device interrogation identified PWOS on the ventricular channel, wrongly recognized as ventricular fibrillation, with R-wave amplitude having fallen from 8.1 mV at implant to 1.4 mV. Chest radiography confirmed dislodgement of the right ventricular defibrillation lead into the RV inflow tract, resulting in misclassification of sinus rhythm with premature atrial complexes as ventricular fibrillation. This case underscores the critical importance of excluding mechanical lead displacement whenever PWOS is identified in a transvenous device system. □

Figure 1





Moderated Posters 2

46/From large bore venous access to early mobilisation and same-day discharge: Perclose ProGlide™ experience in leadless pacemaker implantation

touchCARDIO Meeting Proceedings. 2026:1;abstr46

*Authors: MI Firescu (Presenting Author), T Hnin, QY Pua and S James
James Cook University Hospital, Middlesbrough, UK*

Introduction: Leadless pacemakers are an effective alternative to conventional transvenous pacing systems, with significantly lower displacement risks and no pocket related complications. However, early venous access complications remain a common barrier to same-day discharge following their implantation. These events may occur despite anticoagulant interruption or the use of haemostatic sutures. We report a case series evaluating the feasibility and safety of femoral vein pre-closure in elective leadless pacemaker implants.

Methods: We conducted a retrospective observational study of consecutive patients who underwent elective leadless pacemaker implantation with femoral vein pre-closure between June 2024 and January 2026.

All procedures were performed through the right femoral vein (RFV). Venous access was ultrasound guided, followed by deployment of 2 Perclose ProGlide™, prior to insertion of the 27Fr delivery sheath. Patients subsequently underwent implantation of either a single- or dual-chamber AVEIR™ leadless pacemaker or a single-chamber Micra™ device. Demographic, clinical, and procedural data were collected. Outcomes assessed included procedural success, vascular complications, time to mobilisation, and time to discharge. Anticoagulation management was recorded, including interruption and resumption practices.

Results: A total of 18 patients underwent leadless pacemaker implantation with RFV pre-closure. The mean age was 73, 61% were male, and the average BMI was 27 kg/m². 16 patients were on oral anticoagulation, and 12 interrupted this 24-48 hrs before the procedure. Indications for pacing included high-grade AV block or a pace-and-ablate

strategy for atrial fibrillation. Leadless pacing was selected due to a history of device-related infective endocarditis, the presence of prosthetic valves, or a challenging body habitus.

Vessel pre-closure using 2 Perclose ProGlide™ was possible in all cases, and all leadless device implants were successfully deployed. After implant, the delivery sheath was removed, and the vascular sutures were tied to achieve haemostasis. An additional Z suture was placed over the access site. The mean procedural duration was 95 minutes. The Z suture was removed between 1 and 2 hours following the procedure, allowing patient mobilisation within 2 and 3 hours. In patients in whom anticoagulation had been interrupted, treatment was recommenced 48 hours after implantation.

There were no vascular complications or access site hematomas. 16 patients (89%) were discharged the same day, on average 5 hours post-procedure. Two patients stayed overnight for observation due to non-vascular access-related issues (pyrexia and transient dizziness) and were discharged the following day.

Conclusion: Femoral vein pre-closure using Perclose ProGlide™ appears to be a feasible, safe, and effective vascular access management strategy for patients undergoing leadless pacemaker implantation. This technique was not associated with significant vascular complications, achieved rapid and reliable haemostasis, allowed early mobilisation and a high rate of same-day discharges despite a substantial anticoagulant use. Its standardised use may facilitate early same-day discharge following leadless pacemaker procedures, though larger studies are needed to confirm this finding. □



Moderated Posters 2

47/From emergency triage to specialist syncope units: a structured review of care models and their implications for diagnosis and management of syncope

touchCARDIO Meeting Proceedings. 2026:1;abstr47

Authors: *C Monteiro* (Presenting Author),¹ *N Breakwell*,² *T Lobban*,³ *M Asgari*⁴ and *R Sutton*⁵

1. Heart ReWorks & STARS, London, UK; 2. Dot I/O & Arrhythmia Alliance, London, UK; 3. Arrhythmia Alliance, STARS & AF Association, Winchester, UK; 4. STARS, Glasgow, UK; 5. Imperial College London, London, UK

Background: Syncope affects up to 40% of the population over a lifetime and is a persistent driver of emergency department (ED) demand. Despite clear guideline recommendations, real-world implementation remains highly variable: in the SEED study, 46% of European ED sites had no syncope guideline, 75% lacked a dedicated outpatient clinic, and only 10% offered structured follow-up, with admission rates varying from 20% to 84% between countries. UK data suggest the domestic picture is similarly fragmented. No systematic comparison of published service models has been undertaken to define a minimum viable pathway.

Methods: Structured narrative review of evidence describing 5 models: (1) traditional unstructured ED-led care; (2) structured ED pathways aligned to the 2024 EUSEM consensus statement; (3) ED-to-outpatient rapid-access pathways; (4) dedicated syncope units (SUs) aligned to EHRA/ESC principles; and (5) hybrid multidisciplinary configurations. Evidence was extracted on diagnostic yield, admission rates, length of stay, and pathway fidelity.

Results: Unstructured care is associated with incomplete risk stratification, low-yield investigation cascades, and weak pathway closure. Structured pathways significantly improve outcomes. In the SYNERGY study, guideline-aligned care increased diagnostic accuracy from 69% to 86% (RR 1.15; 95% CI 1.07–1.23) and diagnostic yield from 76% to 89%. The Glasgow Rapid

Access Syncope Clinic reduced low-risk admissions from 27% to 12% and intermediate-risk admissions from 62% to 42%, with median length of stay falling from three days to one and 56 bed-days saved per month. Dedicated SUs achieve the highest fidelity; one prospective cohort reported a diagnostic yield of 97% and inaccuracy in only 9.4% of cases, against a pre-SU yield of 58%. Despite this, fewer than half of services labelled as SUs meet recommended benchmarks, ED-SU integration is frequently weak, and Italian surveys report fragmented referral practice. FAST II found 51% of tertiary SU referrals arrived without a diagnosis, with 65% of referral diagnoses inaccurate or incomplete. For many NHS trusts, a hybrid model combining protocolled triage, nurse-led delivery, and targeted consultant review may offer greater near-term value. Across all models, outcomes correlate with pathway fidelity rather than service label.

Conclusion: Variable, admission-heavy syncope management persists across Europe, with the UK particularly affected. A tiered approach is supported by the evidence, with structured pathways achievable in most settings. Prospective evaluation using standardised metrics, e.g. time-to-diagnosis, diagnostic yield, ED re-attendance, and observation days, is needed to build the commissioning case across the NHS. Anticipated new ESC guidelines on syncope and cardiovascular autonomic disorders may provide further impetus for service development. □



Moderated Posters 2

48/Triage of Direct-Access GP Holter Referrals: Reducing Low-Yield 24-Hour Monitoring Through an Evidence-Based Ambulatory ECG Pathway

touchCARDIO Meeting Proceedings. 2026:1;abstr48

Authors: M Banni (Presenting Author), A Jilani and P Wheen
Tallaght University Hospital, Dublin, Ireland

Introduction: Direct access to ambulatory electrocardiographic monitoring (AECGM) may reduce outpatient cardiology burden, but unselected 24-hour Holter requests can generate long waiting lists and low diagnostic yield. Our centre had 1,228 GP-requested Holters awaiting testing, with an estimated 48-month wait. We evaluated direct-access GP Holter practice and developed an evidence-based triage pathway to improve referral quality and test selection.

Methods: A local AECGM triage algorithm was developed from published guidance and available monitoring modalities. Referrals were categorised as: no AECGM indication, suitable for direct 24-hour Holter, alternative monitoring/test required, cardiology review required, or urgent assessment required. We reviewed two datasets: (1) a retrospective cohort of GP-requested Holters reported between March 2024 and March 2025, and (2) a prospective cohort of consecutive GP direct-access referrals triaged using the proposed algorithm. Outcomes included referral indication, baseline ECG availability, adequacy of clinical details, algorithm-based approval for direct Holter, Holter findings and management impact.

Results: In the retrospective cohort, 323 GP-requested Holters were analysed. Median referral-to-test interval was 1,236 days among 264 referrals with calculable dates. The commonest indication was palpitations (143/323, 44.3%); no indication was documented in 112/323 (34.7%). A baseline ECG was identifiable in 24/323 (7.4%). Holter findings were normal or without significant abnormality in 273/323 (84.5%).

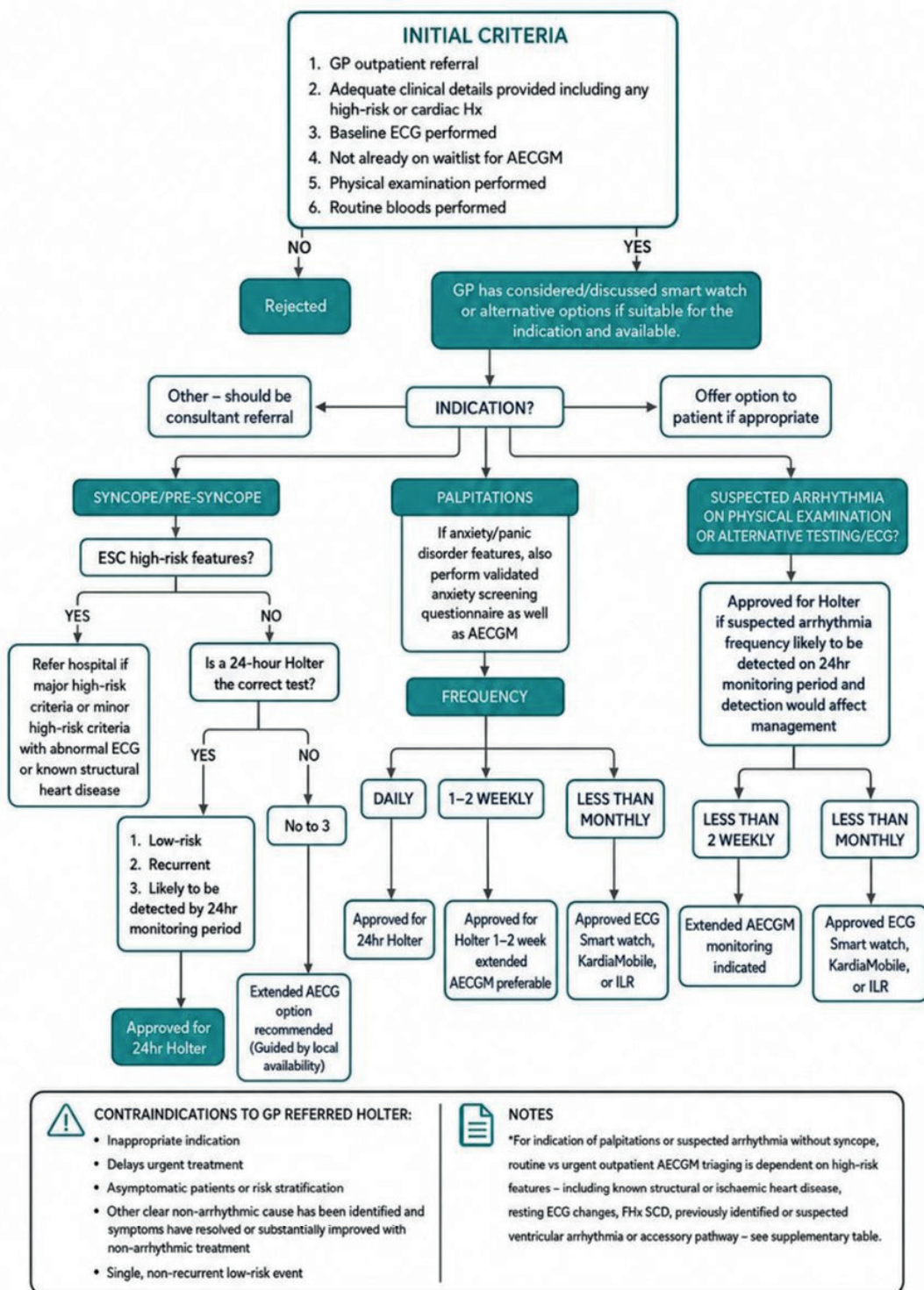
Findings altered or potentially altered management in 26/323 (8.0%), and were judged symptom-relevant in 24/323 (7.4%).

In the prospective triage cohort, 291 GP referrals were reviewed. Palpitations accounted for 189/291 (64.9%). Adequate clinical details were provided in only 62/291 referrals (21.3%); therefore, 229/291 (78.7%) lacked sufficient information at referral. A baseline ECG was documented in 155/291 (53.3%). AECGM was considered appropriate in 232/291 referrals (79.7%), but direct 24-hour Holter was judged suitable in only 39/291 (13.4%). A further 87/291 (29.9%) were not suitable for 24-hour Holter, while 165/291 (56.7%) lacked sufficient information to select Holter versus an alternative monitoring modality. Under the proposed pathway, 31/291 referrals (10.7%) would proceed directly to Holter, while 258/291 (88.7%) would require further information, baseline ECG completion, alternative monitoring or clinical review to ensure appropriate AECGM modality selection. The commonest reason for not proceeding directly to 24-hour Holter was insufficient referral information (173/258, 67.1%).

Conclusions: Direct-access GP Holter referral was associated with prolonged waits, incomplete referral information and low management-changing yield. A structured AECGM triage pathway could markedly reduce direct 24-hour Holter bookings, improve matching of monitoring duration to symptom frequency, and redirect patients toward more appropriate investigation or clinical review. Implementation with post-intervention remeasurement is planned. □



Figure 1





Posters 1

49/Catheter ablation for ventricular tachycardia in a UK non-surgical centre: procedural safety and medium-term outcomes

touchCARDIO Meeting Proceedings. 2026;1;abstr49

Authors: J Dixon (Presenting Author),¹ A Hawley,¹ M Lovell,¹ S Podd¹ and G Dimitropoulos²

1. Royal Devon and Exeter Hospital, Exeter, UK; 2. Bristol Royal Infirmary, Bristol, UK

Introduction: Catheter ablation is an established treatment for sustained ventricular tachycardia (VT), reducing recurrent ventricular arrhythmias and implantable cardioverter-defibrillator (ICD) therapies. However, most published outcome data derive from tertiary referral centres, and evidence from UK district general hospitals without on-site cardiothoracic surgical support remains limited. We evaluated procedural safety and medium-term clinical outcomes following VT ablation in a UK non-surgical centre using a composite endpoint aligned with the VANISH2 trial.

Methods: We conducted a retrospective cohort study of consecutive patients undergoing catheter ablation for sustained VT between April 2022 and April 2025 in a UK district general hospital without on-site cardiothoracic surgical support. The primary endpoint was a composite of all-cause mortality during follow-up or, occurring more than 14 days after ablation, VT storm, appropriate ICD shock, or treated sustained VT. Secondary outcomes included the individual components of the primary endpoint, antiarrhythmic drug use, and 30-day procedural safety outcomes. Kaplan–Meier methods estimated 12-month event-free survival, with median follow-up estimated using reverse Kaplan–Meier methodology.

Results: A total of 48 patients underwent VT ablation; 33 (69%) had ischaemic cardiomyopathy and 15 (31%) had non-ischaemic cardiomyopathy. Over a median follow-up of 701 days (95% confidence interval [CI] 613–885), 16 patients experienced the composite primary endpoint, comprising 7 deaths, 6 episodes of treated sustained VT requiring repeat ablation, and 3 appropriate ICD shocks. Estimated 12-month composite event-free survival was 82.0% (95% CI 71.4–94.2) overall and 84.3% (95% CI 72.5–98.0) in the ischaemic subgroup.

No deaths, stroke, cardiac tamponade, major bleeding, or emergency surgical transfers occurred within 30 days. One patient (2.1%) developed high-grade atrioventricular block requiring permanent pacemaker implantation, and one developed an access-site haematoma. Amiodarone use decreased from 62.5% at baseline to 16.3% at 12 months. Two appropriate ICD shocks occurred within the predefined 14-day blanking period and were excluded from the primary endpoint; neither patient subsequently experienced recurrent sustained VT.

Conclusions: VT ablation performed in a UK non-surgical centre was associated with low major complication rates and favourable medium-term clinical outcomes. These findings suggest that VT ablation can be delivered safely and effectively within appropriately structured non-tertiary electrophysiology services. □

Figure 1

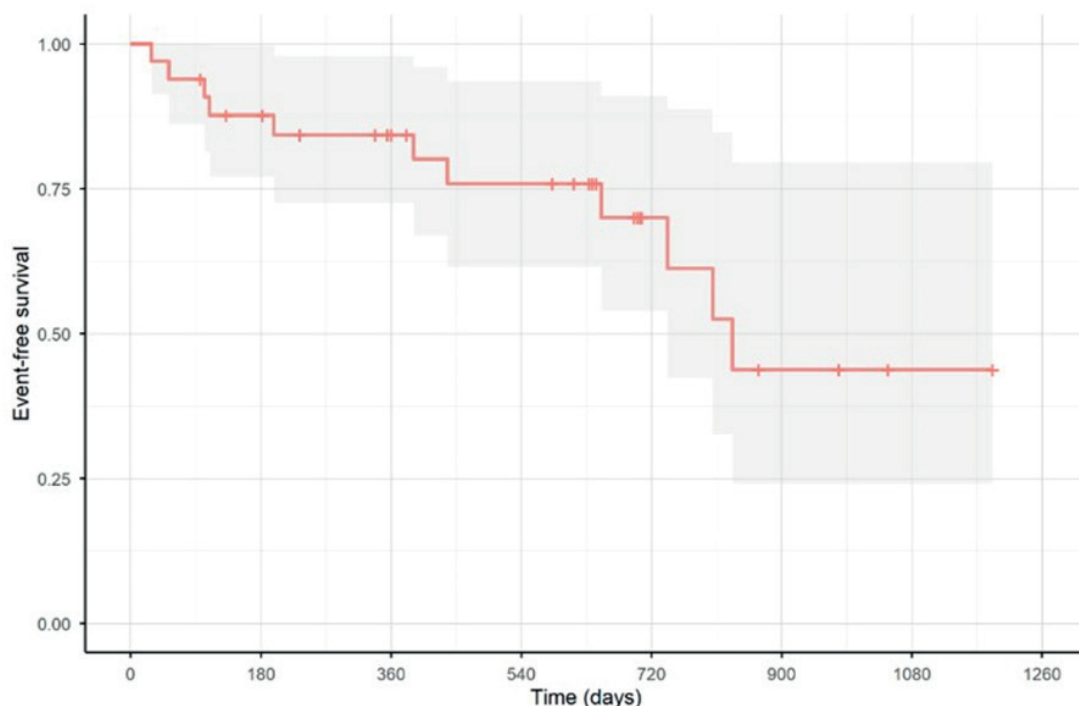
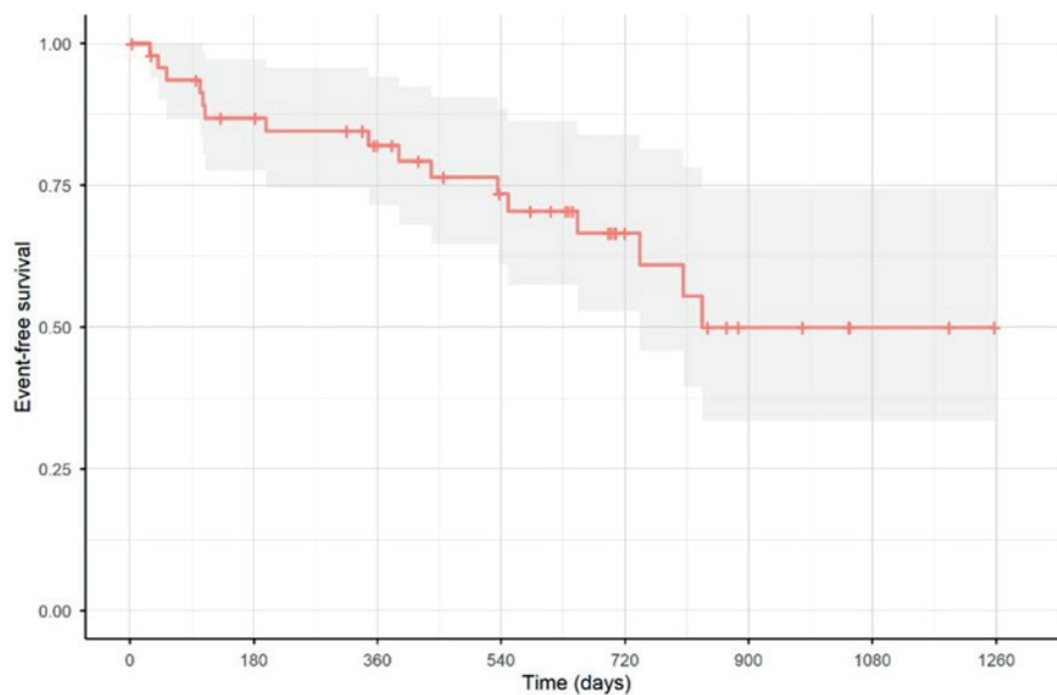


Figure 1: Kaplan–Meier curve showing event-free survival in the ischaemic cohort.



Figure 2

**Figure 2: Kaplan–Meier curve showing event-free survival in the whole study cohort.**



Posters 1

50/If It Ain't Broke, Don't Book: The Case for Alert-Based Device Follow-Up

touchCARDIO Meeting Proceedings. 2026:1;abstr50

*Authors: TSF Stephens-Fouracre (Presenting Author)
Great Western Hospital, Swindon, UK*

Introduction: Contemporary cardiac implantable electronic device (CIED) follow-up increasingly relies on remote monitoring and alert-based review. Centres continue to perform routine scheduled virtual follow-up appointments in addition to remote monitoring. This audit evaluated the clinical value of the routine virtual follow-up at 2-years post implant by assessing the frequency of device programming changes identified during the scheduled review that were not prompted by remote monitoring alerts.

Methods: A retrospective clinical audit was conducted of patients who underwent CIED implantation in 2023 and subsequently attended routine two-year virtual follow-up in 2025. Device types included bradycardia pacemakers, conduction system pacing (CSP), cardiac resynchronisation therapy (CRT) devices, and implantable cardioverter-defibrillators (ICDs). Device records were reviewed to identify programming changes made during scheduled follow-up appointments. Changes were classified according to whether they were prompted by prior remote monitoring alerts or represented incidental findings identified solely during routine review. Number of alerts throughout the patient journey were also obtained.

Results: A total of 350 implants were carried out. Post exclusion criteria, 279 patients were included. Sixteen device programming changes were identified across 14 patients during routine two-year follow-up. Of these, 14/16 (87.5%) changes were considered optimisation-based adjustments, while only 2/16 (12.5%) represented legitimate unplanned programming changes that were not identified through remote monitoring pathways. This equates to a clinically significant intervention rate of 0.7% (2/279 patients).

Conclusion: Routine scheduled 2-year virtual follow-up identified very few clinically significant programming changes that were not already detected through established remote monitoring pathways. The low intervention rate observed suggests that an alert-based follow-up strategy may be a safe and efficient alternative to routine scheduled virtual review for selected CIED patients. Adoption of an alert-based model could reduce clinical workload while maintaining patient safety, although further evaluation in larger cohorts is warranted. □



Posters 1

51/Clinical Coding of Syncope and Transient Loss of Consciousness: Methodological Implications for Cross-Country Comparisons

touchCARDIO Meeting Proceedings. 2026:1;abstr51

Authors: C Monteiro (Presenting Author),¹ N Breakwell,² T Lobban,³ M Asgari⁴ and R Sutton⁵

1. Heart ReWorks & STARS, London, UK; 2. Dot I/O & Arrhythmia Alliance, London, UK; 3. Arrhythmia Alliance, STARS & AF Association, Winchester, UK; 4. STARS, Glasgow, UK; 5. Imperial College London, London, UK

Background: Transient loss of consciousness (TLoC) is a heterogeneous clinical syndrome. The 2018 ESC syncope guidelines classify non-traumatic TLoC into four groups: syncope, epileptic seizures, psychogenic TLoC, and rare causes. This reflects pathophysiological distinctions that routine administrative coding systems do not consistently replicate.

Objective: To characterise how structural differences in clinical coding frameworks affect the composition of administrative syncope cohorts, and to assess the implications for epidemiological research, service evaluation, and health economic modelling.

Methods: Narrative review of ICD-10 (England), ICD-10-CM (United States), and ICD-11 coding structures for syncope and TLoC, with reference to published validation data and WHO implementation statistics.

Results: In England, ICD-10 R55 («Syncope and collapse») captures blackout and fainting but excludes clinically related presentations routed via the alphabetical index to separate codes: carotid sinus syncope (G90.0), heat syncope (T67.1), and tussive syncope (R05). In ICD-10-CM, the equivalent R55 code coexists with R40.4 («Transient alteration of awareness») and R05.4 («Cough syncope»), where a «code first» instruction requires R55 to be sequenced as the primary code. This is a sequencing convention with no direct ICD-10 equivalent. Validation data

from a Danish registry study (*EP Europace*, 2013; n=5,262) demonstrated that ICD-10 R55.9 has a positive predictive value of 95% for inpatient admissions but a sensitivity of only 63%. This suggests that administrative syncope datasets may be specific enough for some analyses, but risk under-ascertainment if researchers rely on a single discharge code.

The WHO states that the new ICD-11 coding system came into effect in 2022, but many member states are still to apply this. In ICD-11, the coding architecture separates syncope into different types: MG45.Z for syncope or collapse, unspecified; MG45.0 for cardiac syncope; MG45.Y for other specified syncope or collapse; and moves reflex/vasovagal syncope (8D89.0) and syncope due to autonomic failure (8D89.1) into “disorders of orthostatic tolerance”. NHS England states ICD-11 will become a mandated clinical coding standard by 2030.

Conclusions: Administrative syncope cohorts defined by R55 alone are nonspecific and incomplete. National datasets, cross-country comparisons of syncope burden, or health economic analyses should publish full code lists, specify diagnosis position, justify inclusion or exclusion of mechanism-specific codes, and where feasible validate against clinical records. Coding variation should be treated as a first-order methodological variable in syncope research. □

Posters 1

52/Cardiac Device Implantation Complicated by Superior Vena Cava Syndrome: A Case of Successful Brachiocephalic Venoplasty

touchCARDIO Meeting Proceedings. 2026;1;abstr52

Authors: [K Selvapandian](#) (Presenting Author),¹ Y L Gan,¹ F Leyva,² R Gardiner¹ and P Patel²

1. University Hospitals Birmingham NHS Foundation Trust, Birmingham, UK; 2. University Hospitals Birmingham NHS Foundation Trust / Aston Medical School, Aston University, Birmingham, UK

Introduction: Superior vena cava (SVC) syndrome is an increasingly recognised complication of transvenous cardiac device implantation, resulting from lead induced venous obstruction. While malignancy remains the most common cause overall, device-related SVC syndrome represents an important and growing differential. We report a case of a man with ischaemic cardiomyopathy and a complex cardiac device history who developed SVC syndrome following CRT-D implantation, managed successfully with balloon venoplasty.

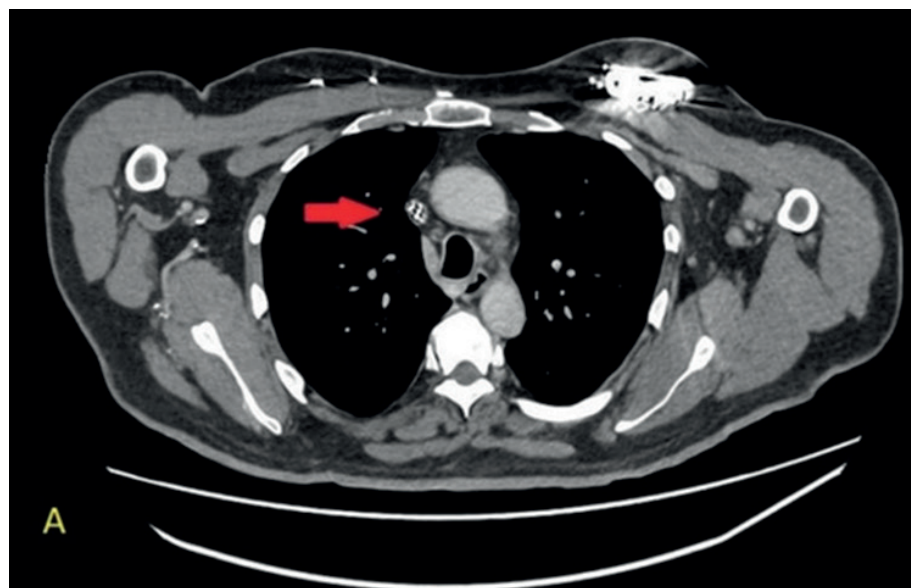
Methods: A man in his late 60s with ischaemic cardiomyopathy, paroxysmal atrial fibrillation and a prior single-chamber ICD (implanted 2022, LVEF 20%) presented to the heart failure clinic with progressive facial and neck swelling. In early 2024, new-onset left bundle branch block (QRS 140ms) prompted planning for CRT-D upgrade. Venography demonstrated complete left subclavian occlusion, necessitating a right-sided approach with subcutaneous lead tunnelling to the pre-existing left-sided pocket. Eight months post-upgrade, he re-presented with worsening facial swelling, engorged neck veins and visible chest wall collaterals. CT venography was performed.

Results: CT venography demonstrated complete occlusion at the brachiocephalic-SVC junction with extensive venous collaterals, consistent with iatrogenic lead-associated central venous obstruction (*Figure 1*). No thrombus or malignancy was identified.

Drug induced angioedema (sacubitril/valsartan) was initially suspected but excluded following symptom progression despite drug withdrawal. The patient was taken to the catheterisation laboratory. Initial access via the left axillary vein was unsuccessful in crossing the occlusion. Right femoral venous access was established, and a 0.035-inch J-shaped guidewire successfully crossed the occluded segment. Balloon venoplasty was performed three times using a 6x12mm non-compliant balloon, achieving luminal recanalization with regression of collateral flow. The patient was discharged following a period of observation with subjective improvement in facial swelling confirmed at six-week follow-up.

Conclusions: This case highlights device related SVC syndrome as an important and under-recognised complication of transvenous lead implantation, particularly in patients with complex venous anatomy requiring cross-chest tunnelling. Preserved DOAC anticoagulation did not prevent occlusion, underscoring the fibrotic rather than purely thrombotic pathophysiology. Balloon venoplasty without stenting achieved successful recanalization while preserving future lead management options. Clinicians should maintain a low threshold for suspecting device related SVC syndrome in patients with facial swelling and a cardiac device history, and venoplasty should be considered as a minimally invasive first line intervention. □

Figure 1: Axial CT venogram demonstrating crowding of cardiac device leads within a compressed superior vena cava (red arrow), consistent with iatrogenic lead-associated central venous obstruction. No intraluminal thrombus was identified





Posters 1

53/Zero fluoroscopy, zero leads ablations: a feasibility study of supraventricular tachycardia and atrial flutter ablations in a single tertiary centre

touchCARDIO Meeting Proceedings. 2026:1;abstr53

Authors: M Obeidat (Presenting Author), R Rana, V Boyalla and A Adlan
Manchester Heart Institute, Manchester, UK

Background: Fluoroscopy guided catheter ablation for supraventricular tachycardia (SVT) and cavotricuspid isthmus dependent atrial flutter (CTI-flutter) is well established, with high success rates and low complication rates. Due to the deleterious effects of fluoroscopy, international guidelines recommend use of three dimensional (3D) mapping system to allow as low as reasonably achievable or zero fluoroscopy (zero-fluoro) ablations, particularly in children and pregnancy. Accumulating data suggests that zero-fluoro ablations may be an effective and safe alternative to the traditional fluoroscopy based approach. However, there is little data on the feasibility of adopting zero-fluoro without the operators wearing radiation-protection lead aprons (zero-leads).

Methods: Sixty-six consecutive patients undergoing catheter ablation for SVT and CTI-flutter between October 2024 and May 2026 were included (median age 57 years, 44% female). Zero-fluoro was attempted in all cases using CARTO 3 (Biosense Webster, Inc., Baldwin Park, CA, USA) or EnSite NavX (St. Jude Medical, Inc., St. Paul, MN, USA) 3D mapping systems. The procedures were performed by an experienced high volume operator without previous zero-fluoro experience, to assess the feasibility of adopting it into routine practice. Routine use of radiation protective lead aprons was mandated until the operator gained sufficient confidence to perform zero fluoro procedures without lead protection (zero-fluoro zero-leads). Data were collected on procedure performed,

procedural duration, completion of the procedure with zero-fluoro and zero-leads, reason for conversion to fluoro, training procedure, acute success, complications and medium term follow up.

Results: Zero-fluoro was successfully completed in 89% of patients (59/66) using CARTO (88%) and Ensite NavX (12%). Zero-fluoro zero-leads was successful in 83%. The commonest reasons for conversion to fluoro included transseptal puncture (N=4) and difficult coronary sinus cannulation requiring long sheaths (N=4). Procedures included CTI-flutter ablations (44%), slow pathway ablation (29%), EP studies (19%) and accessory pathway ablation (7%). Trainees comprised 25% of cases. Median procedural duration was 90 (IQR 72-110) minutes. Acute procedural success was high (94%) with no major complications. Forty one patients were followed up (70%). After a median of 5.5 (IQR 4-7.6) months, freedom from arrhythmia was high: SVT (91%), atrial flutter (81%) and accessory pathway (100%). Four patients had a recurrence of atrial arrhythmia following CTI-flutter ablations (atypical atrial flutter N=3, paroxysmal atrial fibrillation and flutter N=1).

Conclusion: Our preliminary results suggests that adoption of zero-fluoro zero-leads for SVT and CTI-flutter ablations is feasible and safe, with high efficacy (acute and medium term follow up) and reasonable procedural duration. Further data is needed to confirm these findings and to assess the impact on training. □



Posters 1

54/Atrial Fibrillation: Symptom Burden, Psychological Impact, and Potential Mindfulness Use in Managing Uncertainty. A Patient and Public Involvement (PPI) Study

touchCARDIO Meeting Proceedings. 2026:1;abstr54

*Authors: [A Howard](#) (Presenting Author) and S Man
University Hospitals Plymouth, Plymouth, UK*

Introduction: Atrial Fibrillation (AF) is the most common cardiac arrhythmia worldwide. It is associated with significant symptom burden, reduced quality of life, and psychological distress. Despite advances in treatment, many individuals remain symptomatic. Mindfulness-based interventions have shown potential to improve psychological wellbeing and symptom management in chronic health conditions; however, there is limited research about their application to people living with AF. This Patient and Public Involvement (PPI) study aimed to explore the lived experiences of people with AF, their current coping strategies, and attitudes towards mindfulness. This will inform the development of a future observational study.

Methods: A phenomenological PPI study was conducted using a single online focus group involving 15 adults with AF who were recruited through a support group. Data were collected using a semi-structured discussion guide and analysed using inductive thematic analysis following Braun and Clarke's approach. Themes were identified through iterative coding, grouping, and refinement of participant accounts.

Results: Five themes were identified. Participants described AF as a condition characterised by **functional limitation and unpredictable symptoms** including breathlessness, fatigue, sleep disruption, and symptom variability. Individuals highlighted insufficient information at diagnosis, leading to a strong **need for reassurance**. This uncertainty

contributed to substantial **psychological distress**, particularly at diagnosis, with many people reporting a catastrophic interpretation of symptoms. However, peer support and mentorship were valued within the group helping to reduce fear and isolation around the condition. **Health behaviours** were variable within the group, ranging from passive endurance of symptoms to active self-regulation through lifestyle and coping strategies. Mindfulness was perceived as a **valuable coping mechanism** that interrupted panic and redirected attention away from symptoms. Mindfulness was also noted to be a simple, portable, and adaptable strategy for managing symptoms and emotional distress. Collectively, the findings suggest that living with AF involves an ongoing process of managing uncertainty.

Conclusions: This PPI study highlights the substantial functional, psychological, and behavioural impact of AF and identifies uncertainty as a central feature of the lived experience. Findings suggest that mindfulness may offer a practical approach to support self-regulation of symptoms and reduce anxiety associated with AF. Furthermore, improved communication, education, and reassurance at diagnosis may help address unmet needs and enhance quality of life. These findings provide a foundation for future research evaluating mindfulness-based interventions in people with AF, which may inform the development of patient-centred clinical support strategies. □



Posters 1

55/Not All CIED procedures carry the same risk: Benchmarking Device-specific complications rate against EHRA standards in 865 consecutive procedures*touchCARDIO Meeting Proceedings. 2026;1;abstr55*

Authors: [Q Naeim](#) (Presenting Author), A Collins, H Keeling, O Elsiraffy, N Limbu, V Jayasinghe and T Nandadasa
East Kent Hospitals, Ashford, UK

Introduction: Cardiac implantable electronic devices (CIEDs) are widely used for management of bradyarrhythmias, tachyarrhythmias and prevention of sudden cardiac death. The European Heart Rhythm Association (EHRA) provides benchmark standards for CIED-related complications.

Purpose: To benchmark local CIED complication rates against EHRA standards and evaluate complication burden according to procedure type.

Methods: We performed a retrospective audit of all CIED procedures undertaken across two implanting sites between 1 September 2024 and 31 August 2025. Procedures included PPM, ICD, CRT-P, CRT-D, generator replacements and system upgrades. Patients were followed for a minimum of 30 days. Outcomes included infection, lead-related complications, haematoma, pneumothorax, pericardial effusion and mortality. Complication rates were compared with EHRA benchmarks. Inter-site comparisons were performed using Fisher's exact test.

Results: A total of 865 CIED procedures were performed, with 76 complications identified (8.8%). Following exclusion of lead extraction procedures, lead-only interventions and system removals for pre-existing infection, 843 procedures were included in device-specific analyses. The most common EHRA-defined complications were lead-related complications (26/843, 3.1%), haematoma (20/843, 2.4%) and infection

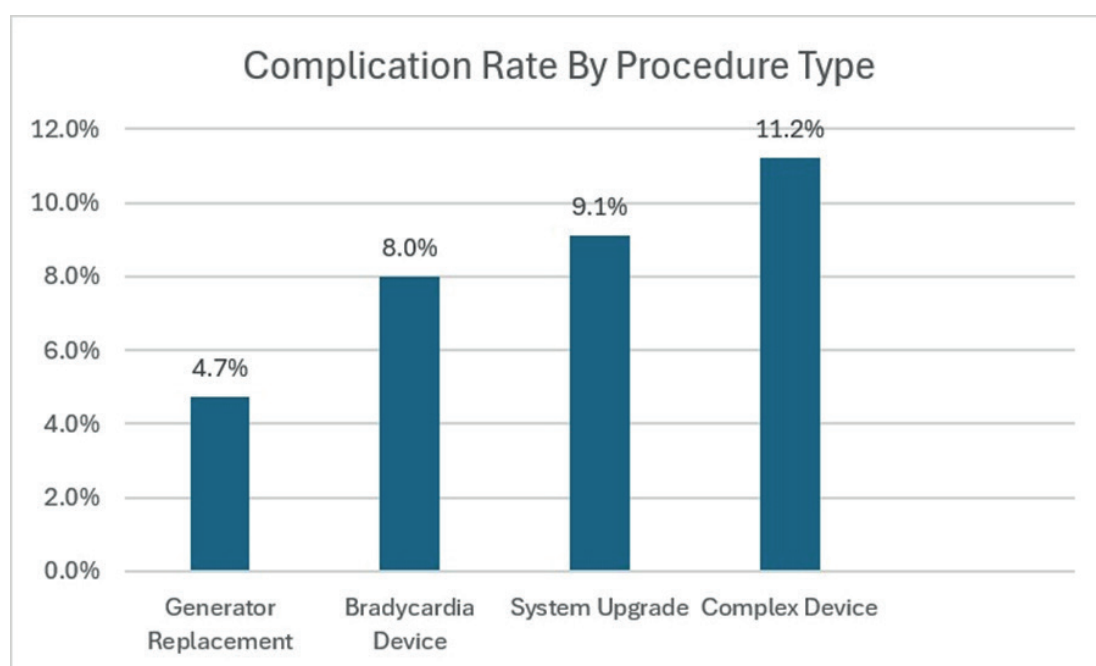
(11/843, 1.3%). Pneumothorax (2/843, 0.24%), pericardial effusion (1/843, 0.12%) and mortality (2/843, 0.24%) were less frequent.

Complication rates varied according to procedure type. Complex devices demonstrated the highest complication rate (11.2%), followed by system upgrades (9.1%) and bradycardia devices (8.0%). Generator replacements had the lowest complication rate (4.7%). Complex device procedures were associated with significantly higher complication rates than generator replacements ($p=0.036$).

Comparison with EHRA benchmarks demonstrated infection and pneumothorax rates within expected ranges. However, lead-related complications, haematoma and mortality exceeded published benchmark rates.

Conclusion: CIED complication rates varied substantially according to procedure type, with complex device procedures carrying the greatest risk and generator replacements the lowest. Although several outcomes met EHRA standards, lead-related complications, haematoma and mortality exceeded benchmark rates. Procedure-specific complication reporting provides a more meaningful assessment of service performance than overall complication rates alone and may facilitate targeted quality improvement. □

Figure 1





Posters 1

56/Fluoroscopy-Free Electrophysiology: A Single-Centre Observational Experience of SVT Ablation Using Three-Dimensional Electroanatomical Mapping

touchCARDIO Meeting Proceedings. 2026:1;abstr56

*Authors: J Dixon (Presenting Author), A Hawley, H Edwards, N Spinthakis, S Podd and M Lovell
Royal Devon and Exeter Hospital, Exeter, UK*

Introduction: Catheter ablation for supraventricular tachycardia (SVT) has traditionally relied on fluoroscopy for catheter navigation, exposing patients and procedural staff to ionising radiation. Advances in three-dimensional electroanatomical mapping have enabled fluoroscopy-free procedures; however, experience with dedicated fluoroscopy-free electrophysiology laboratories remains limited. We report our initial single-centre experience.

Methods: We retrospectively analysed consecutive patients undergoing electrophysiological study (EPS) ± catheter ablation for suspected SVT between August 2025 and May 2026 in a dedicated fluoroscopy-free electrophysiology laboratory. Procedures were performed using EnSite or CARTO three-dimensional electroanatomical mapping systems for catheter navigation without fluoroscopy. No fluoroscopy equipment was used and no member of the procedural team wore lead radiation protection. Left-sided procedures were performed using intracardiac echocardiography-guided transseptal puncture. Baseline characteristics, procedural outcomes and follow-up data were collected from electronic health records.

Results: Forty-nine patients underwent EPS. Baseline demographic and procedural characteristics are summarised in *Table 1*. Catheter ablation was performed in 44/49 patients (89.8%), with EnSite and CARTO used in 25 (51.0%) and 24 (49.0%) procedures, respectively. Three patients

(6.1%) underwent intracardiac echocardiography-guided transseptal puncture for left-sided ablation. No procedure required fluoroscopy. Acute procedural success was achieved in 42/44 ablation procedures (95.5%). Two acute complications occurred (2/49, 4.1%): one transient atrioventricular block and one unplanned overnight admission due to persistent tachycardia. There were no cases of cardiac tamponade, stroke, permanent atrioventricular block requiring pacing or procedural mortality. Follow-up data were available for 33/49 patients (67.3%). Among patients with follow-up, no documented SVT recurrence was observed; two patients (2/33, 6.1%) had suspected SVT recurrence without ECG documentation, and one patient (1/33, 3.0%) underwent repeat electrophysiological study and catheter ablation.

Conclusions: This observational series demonstrates that fluoroscopy-free EPS and catheter ablation for SVT can be performed safely and effectively using contemporary three-dimensional electroanatomical mapping systems. Complete elimination of fluoroscopy enabled all procedures to be performed without lead radiation protection while maintaining high acute procedural success and a favourable safety profile. These findings support fluoroscopy-free electrophysiology as a practical approach to eliminating radiation exposure for both patients and staff while expanding electrophysiology service capacity. □



Table 1

Table 1. Baseline and procedural characteristics	
Characteristic	Overall
Baseline characteristics	n = 49
Age, years	57.1 ± 18.6
Female sex	32 (65.3%)
BMI, kg/m ²	28.8 ± 5.9
LVEF, %	59.8 ± 5.2
Hypertension	12 (24.5%)
Diabetes mellitus	2 (4.1%)
Structural heart disease	6 (12.2%)
Prior cardiac surgery	0 (0.0%)
Prior catheter ablation	0 (0.0%)
Procedural characteristics	n = 49
Symptomatic SVT indication	30 (61.2%)
Palpitations under investigation	19 (38.8%)
Final diagnosis	
AVNRT	34 (69.4%)
AVRT	6 (12.2%)
No inducible arrhythmia	3 (6.1%)
Focal atrial tachycardia	2 (4.1%)
Dual AV node physiology	1 (2.0%)
Sinus tachycardia	1 (2.0%)
Atrial fibrillation	1 (2.0%)
Latent accessory pathway	1 (2.0%)
Mapping system	
EnSite	25 (51.0%)
CARTO	24 (49.0%)
ICE used	3 (6.1%)
Transseptal approach	3 (6.1%)
Isoprenaline used	40 (81.6%)
<i>Continuous variables are presented as mean ± SD; categorical variables as n (%).</i>	



Table 2

Table 2. Procedural outcomes and follow-up		
Variable	n/N	%
EP study outcome		
Ablation performed	44/49	89.8
Diagnostic study only	5/49	10.2
Catheter type		
Non-contact-force irrigated RF	24/49	49.0
Contact-force irrigated RF	13/49	26.5
Non-irrigated RF	7/49	14.3
Not applicable (diagnostic only)	5/49	10.2
Acute procedural success*		
Successful	42/44	95.5
Unsuccessful	2/44	4.5
Follow-up data		
Follow-up available	33/49	67.3
Follow-up data unavailable	16/49	32.7
Arrhythmia recurrence†		
No documented recurrence	31/33	93.9
Suspected recurrence (no documented SVT)	2/33	6.1
Repeat ablation during follow-up†		
Yes	1/33	3.0
No	32/33	97.0
Rhythm monitoring during follow-up†		
Symptom-driven ECG	23/33	69.7
Routine Holter monitoring	6/33	18.2
Implanted loop recorder	1/33	3.0
No rhythm monitoring	3/33	9.1

*Acute procedural success is reported among patients in whom catheter ablation was attempted. †Percentages are calculated using the 33 patients with available follow-up data.



Posters 1

57/Contact Matters! Excellent Results of Pulsed Field Ablation for Atrial Fibrillation Using Medtronic PulseSelect and Abbott EnSite NavX Mapping System*touchCARDIO Meeting Proceedings. 2026:1;abstr57*

Authors: J Dar (Presenting Author), S Rahim, S Velu, M Elhassen, A Arya G Leventogiannis and S Petkar
Heart and Lung Centre, New Cross Hospital, The Royal Wolverhampton NHS Trust, Wolverhampton, UK

Introduction: Pulsed field ablation (PFA), a tissue-selective, non-thermal energy modality, is increasingly used for ablation of atrial fibrillation (AF), due to its comparable efficacy than thermal ablation technologies and favourable safety profile. Electroanatomical mapping (EAM) is not mandatory as procedures can be undertaken using fluoroscopy alone. There is a gradual realisation that good catheter contact with the myocardium during ablation is essential for creating deeper and more durable lesions. We hypothesised that a systematic workflow incorporating mandatory real-time EAM with impedance-based contact force optimisation, coupled with end-procedural remapping and re-ablation of residual electrogram sites, would enhance lesion durability and improve arrhythmia-free survival compared with published benchmarks.

Methods: Prospective registry (October 2024–March 2026) of consecutive patients undergoing PFA for AF under general anaesthesia, using a single PulseSelect catheter (Medtronic Inc., Minneapolis, MN, USA) and EnSite NavX EAM (Abbott Inc., IL, USA) at a single tertiary cardiac centre. Contact force was optimised using the integral functionality of the catheter before each application. End-procedural remapping was performed, with re-ablation at sites of residual electrogram activity where identified. Post-ablation rhythm monitoring included Holter recordings, implantable loop recorders, Zio patch recording and Apple Watch. AF recurrence was defined as any documented AF, atrial tachycardia, or atrial flutter exceeding 30 seconds beyond a 3-month blanking period. Arrhythmia-free survival was estimated by Kaplan-Meier analysis (Greenwood 95% CI).

Results: n=60; Mean age 64.3 ± 8.9 years (range 37–81); 46/60 (76.7%) male; Type of AF: 38/60 (63.3%) paroxysmal, 22/60 (31.7%) persistent, 3/60 (5.0%) longstanding persistent; Mean $\text{CHA}_2\text{DS}_2\text{-VASc}$ 1.9 ± 1.3 (range 0–5); LA volume index 37.2 ± 15.8 mL/m², LA size 37.5 ± 5.2 mm; predominant EHRA Symptom Class II: 31/60 (51.7%); Class III: 23/60 (38.3%). Procedure duration: 187.7 ± 52.5 minutes (range 80–304), with a significant reduction across the series demonstrating a learning curve (Spearman $\rho = -0.452$, $p=0.0004$). Mean fluoroscopy time was 24.8 ± 7.5 minutes. Mean PFA applications: 57.0 ± 13.7 (range 26–82). Acute PVI was achieved in 59/60 (98.3%). Additional roof line: 3/60 (5.0%). No acute procedural complications. Median follow-up: 4.9 months (IQR 3.5–7.6; range 1.7–15.7 months). At 12 months, recurrent AF was documented in 2/60 (3.3%) (Patient 1: 4 minutes, Patient 2: 2 hours). Kaplan-Meier estimated freedom from AF recurrence: 96.4% at 6 months (95% CI 77.2–99.5%), and 87.7% at 12 months (95% CI 54.8–97.2%). No patient required repeat ablation at 12 months.

Conclusion: A systematic workflow incorporating mandatory EAM, contact force optimisation, end-procedural remapping, and re-ablation where indicated is feasible, safe, and associated with high acute PVI success and excellent arrhythmia-free survival following PFA for AF. The 12-month arrhythmia-free survival of 87.7%, without the need for any redo ablations, is much higher than previously reported, e.g., the PULSED AF trial. We attribute these results to systematic efforts to maximise catheter contact before each PFA application. Whether the PulseSelect Contact Index software (Abbott Inc., IL, USA) will aid in the workflow warrants prospective evaluation. □



Posters 1

58/A retrospective clinical research audit at UHW: Evaluating the appropriateness of PPI timing following TAVI and the clinical impact of current pacing guidelines*touchCARDIO Meeting Proceedings. 2026:1;abstr58*

Authors: [ASP Piper](#) (Presenting Author), DC Coombes and JM Moore
Swansea University, Swansea, UK

Introduction: Cardiovascular technology and interventions advance to innovate and increase positive outcomes and provide high-quality patient-centred care (Vento et al., 2024). Current cardiac devices continue efforts to develop and provide life-saving and preventative technology. According to the 2024 and 2025 NICOR annual reports, 7,669 TAVIs were performed in 2022-2023. The 2021 ESC guidelines state that the rate for pacemaker implantation post-TAVI ranges from 3.4% to 25.9%, with NICOR stating an incidence rate of 7.4% and in 2025 a rate of 7.7%, requiring PPI

This study aimed to evaluate the appropriateness of PPI timing and the quantification of pacing-burden trends post-procedure. Premature pacing post-TAVI has become increasingly prevalent due to the lack of standardised care pathways and monitoring for patients post-procedure. While conduction disturbances have been seen to resolve spontaneously within days after the procedure, premature implantation of pacemakers could expose patients to unnecessary risk of infection, developing device-related complications, and unnecessary procedural costs. Evolving ESC guidelines emphasise the importance of standardised protocols and an appropriate monitoring period, before permanent device commitments (Glikson et al., 2021).

Methods: 216 patients received a permanent pacemaker post-TAVI <1 week, between 2018 and 2024, in UHW. Pursuit of exclusion and inclusion criteria left a total of 109 patients who received a dual-chamber pacemaker within 24-72 hours and were then included in the final analysis.

Results: A total of 109 patients were included in the final analysis due to further exclusion of single-chamber devices. The mean age was $80.7 \pm$

7.9 years, which ranged from 34 to 93 years. An almost even distribution with 55 males (50.5%) and 54 females (49.5%).

Paired-samples t-tests revealed statistically significant differences between pacing burden measures and pacing implant across all time points. Atrial pacing burden increased considerably from the first to the three-month interrogation ($18\% \pm 28\%$ to $31\% \pm 35\%$, $t(108) = -3.66$, $p < 0.001$). The mean difference was -0.12 (95% CI $[-0.19, -0.06]$), indicating a higher pacing burden at three months. The effect size was small to moderate (Cohen's $d = -0.35$; Hedges' $g = -0.35$). A moderate positive correlation was observed between atrial pacing burden at the two time points ($r = 0.39$, $p < 0.001$).

In contrast, ventricular pacing burden decreased significantly from the first check ($M = 67\% \pm 43\%$) to the three-month check ($M = 57\% \pm 45\%$), $t(105) = 4.20$, $p < 0.001$. The mean difference was 0.13 (95% CI $[0.07, 0.19]$). The effect size was moderate (Cohen's $d = 0.41$; Hedges' $g = 0.41$). Ventricular pacing burden at the two time points was strongly correlated ($r = 0.74$, $p < 0.001$).

Conclusion: A statistically significant reduction in ventricular pacing burden was observed between the first interrogation and the three-month interrogation, supporting the interpretation of AV node recovery, in comparison to a substantial increase in atrial pacing burden, likely signifying new or worsening sinus node dysfunction. Thus, a noteworthy abundance of premature PPI was identified within the study.

Proposed pathway: Figures 2 & 3: Show a suggested PPI post-TAVI pathway incorporating points discussed within this clinical research audit. □

Figure 1: Shows a frequency pie chart of atrial and ventricular pacing burdens at first interrogation and 3-month interrogations

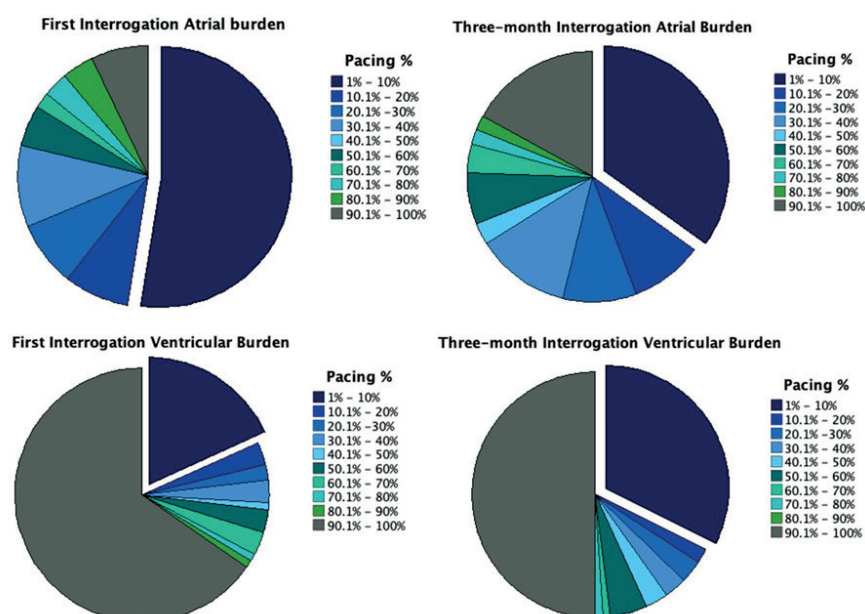




Figure 2

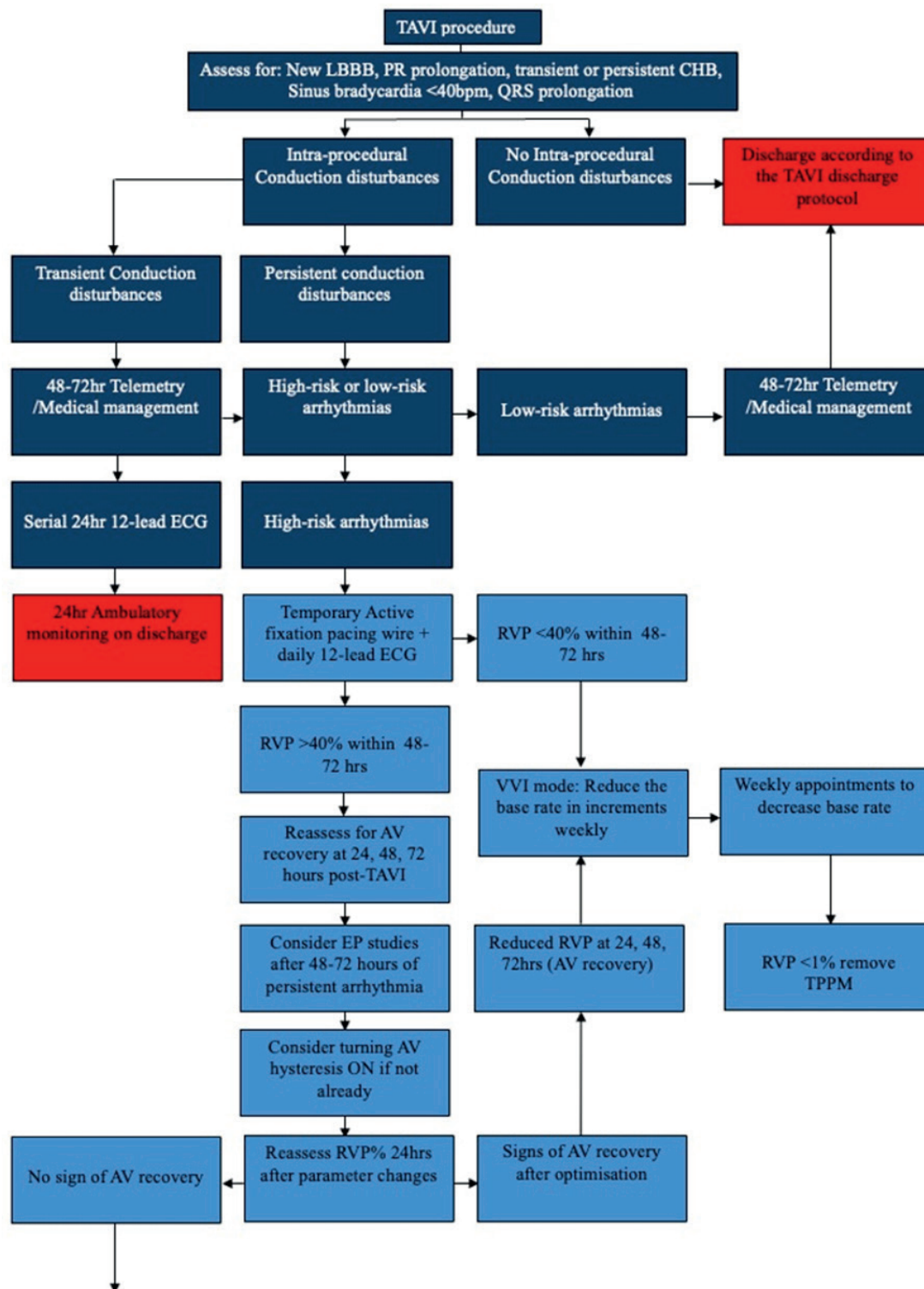
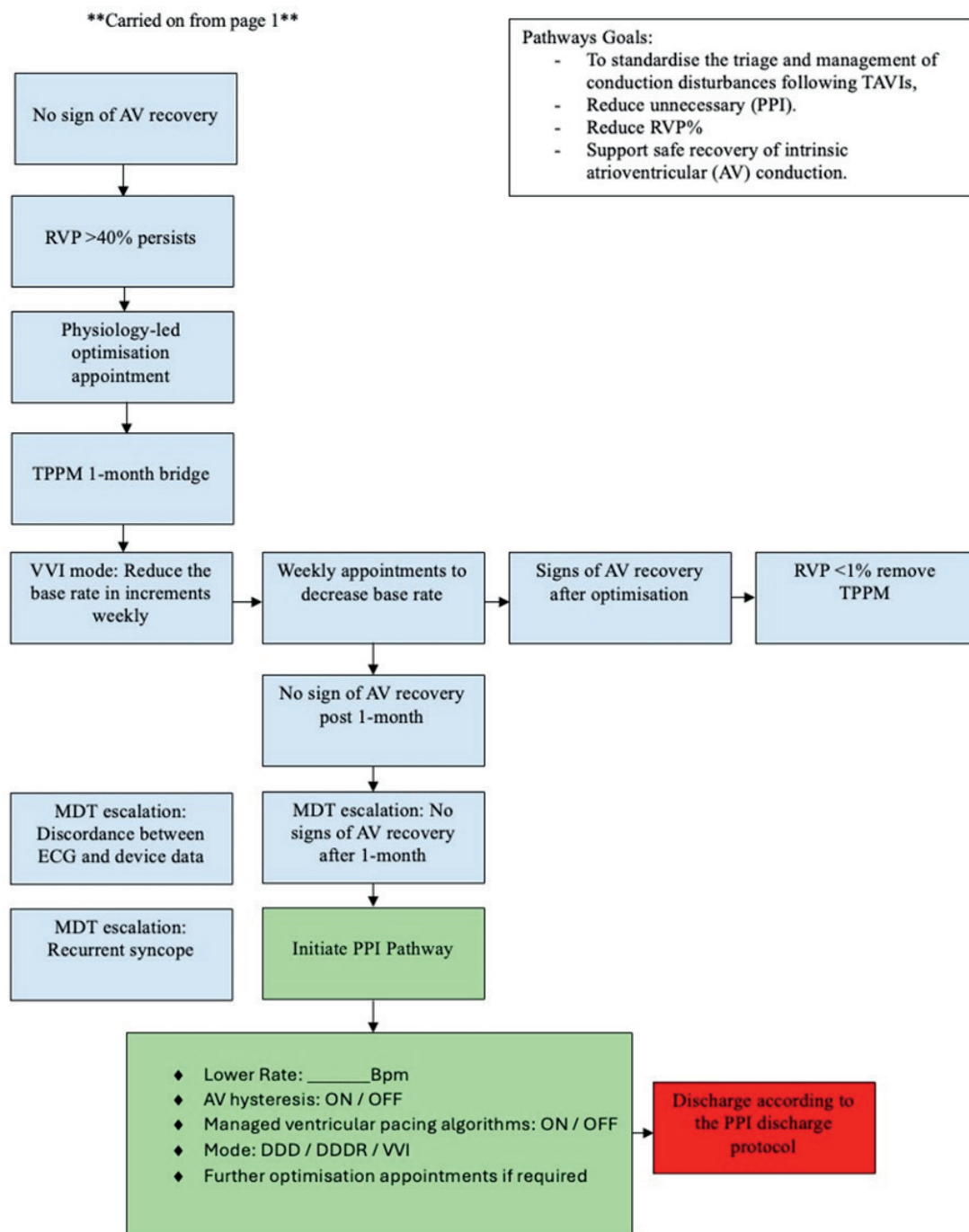




Figure 3





Posters 1

59/Implantable Loop Recorders in Routine Practice: Diagnostic Yield, Appropriateness and Time to Device Upgrade in a Single-Centre Audit

touchCARDIO Meeting Proceedings. 2026:1;abstr59

Authors: O Omoniye (Presenting Author),¹ J Ibrahim,² M Alshadawi,² J Chen-Unongo,² G Savva,² O Mokwenyi² and P Waddingham²

1. Norfolk and Norwich University Hospital, Norwich, UK; 2. Peterborough City Hospital, Peterborough, UK

Background: Implantable loop recorders (ILRs) are recommended by NICE TA314 for the evaluation of unexplained syncope after non-diagnostic conventional work-up, and for atrial fibrillation (AF) detection following cryptogenic stroke. This audit was conducted to evaluate our local service performance, indications, diagnostic yield, appropriateness, and time to upgrade, in comparison to contemporary real-world benchmarks.

Methods: Retrospective single-centre audit of all ILR implants (Reveal LINQ) performed in the 2024 calendar year, extracted from the cardiology procedural database. The clinical characteristics, procedural information and outcomes were retrieved. We defined diagnostic yield according to the proportion of patients with a documented arrhythmic finding, and appropriateness as a finding plausibly explaining the indication. These metrics were compared to two real-world benchmarks. Our Censor date was 12 June 2025.

Results: Eighty-two patients were implanted (52% male, mean age 66±16 years). Indications were syncope/pre-syncope 55 (67%), cryptogenic stroke 8 (10%) and palpitations 7 (9%). Median wait from referral to implant was 35 days (IQR 18–50). Mean follow-up was 339±93

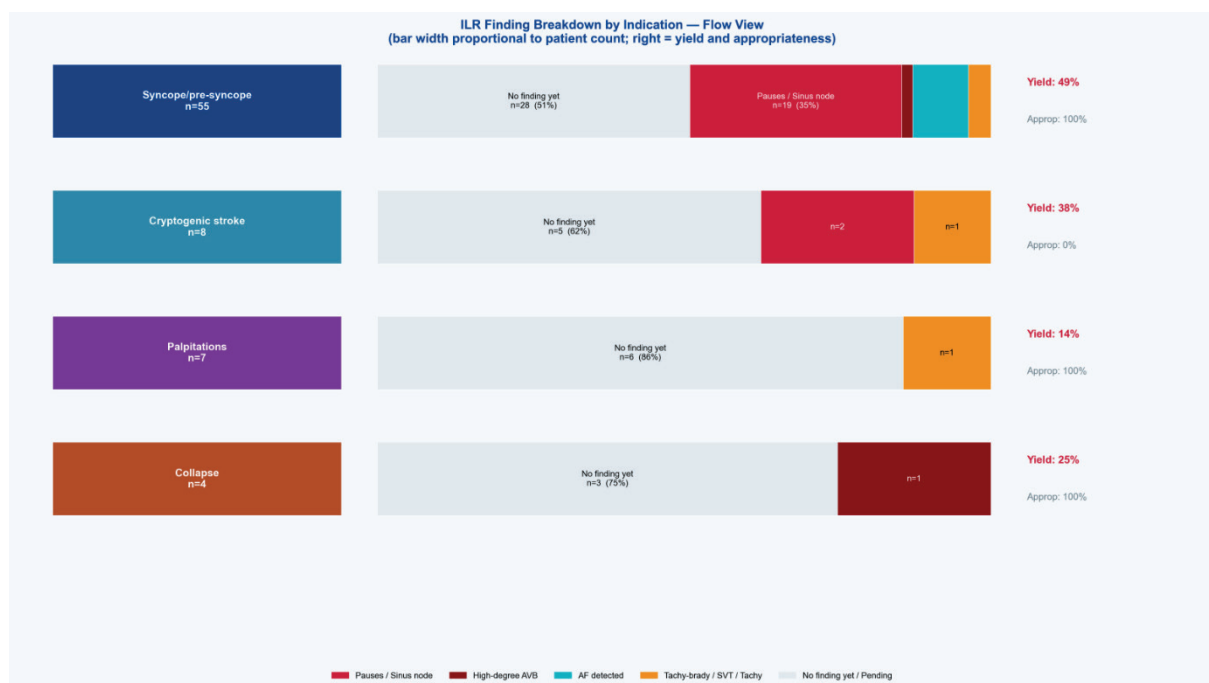
days (range 182–499). Active-cohort diagnostic yield was 35/82 (43%, 95% CI 32–54%). Matured-cohort yield (≥365 days, n=28) was 19/28 (68%). Bradyarrhythmia accounted for 71% of positive findings (sinus-node disease and AV block predominant) and tachyarrhythmia for 26%. Overall appropriateness was 32/35 (91%). Indication-specific appropriateness was 100% for syncope/pre-syncope, palpitations, collapse and recurrent falls. Cryptogenic-stroke appropriateness was 0% (0/3 positive findings were AF)

Twelve patients (15%) progressed to a permanent device (11 dual-chamber pacemakers, 1 conduction-system pacing implant); median time from ILR to upgrade was 3 months (IQR 1–5; range 1–11). There were no procedural complications.

Conclusion: Diagnostic yield in this UK ILR service compares favourably with contemporary international real-world cohorts (43% active; 68% in the matured subset), with markedly higher appropriateness (91% vs 70%), shorter time-to-upgrade and zero complications. The cryptogenic-stroke pathway requires a pre-implant AF-exclusion checkpoint and re-audit, given 0% appropriate findings in this subgroup. □



Figure 1





Posters 1

60/Comparative Haemodynamic and Electrical Effects Of Left Bundle Branch Area Pacing From The Right And Left Ventricular Septum

touchCARDIO Meeting Proceedings. 2026:1;abstr60

*Authors: A Liew (Presenting Author), N Wijesuriya, S Howell, F DeVere, T Witting, J Whitaker, J Behar, S Niederer and CA Rinaldi
Guy's and St. Thomas' NHS Foundation Trust, London, UK*

Introduction: Left bundle branch area pacing (LBBAP) is conventionally performed from the right ventricular (RV) septum. The acute hemodynamic effects and RV activation of LBBAP delivered from the left ventricular septum (LV-LBBAP) compared with right-sided LBBAP (RV-LBBAP) have not been evaluated. We investigated the difference in acute hemodynamic response of the right and left ventricles and RV activation in response to LBBAP performed from the left ventricle (LV) and RV.

Methods: Eleven patients were implanted with a permanent RV-LBBAP lead and underwent an acute mechanistic study involving temporary pacing, invasive pressure wire study of the LV and RV, and invasive electroanatomic mapping of the RV. LV-LBBAP was performed by placing a temporary pacing electrode on the LV septum, at the site of electrical potentials to achieve left bundle branch area capture. RV-LBBAP was performed using the permanently implanted left bundle lead and right ventricular apical pacing (RVP) was performed using a temporary pacing electrode. The RV and LV contractility in response to RV-LBBAP and LV-LBBAP were recorded by measuring the maximum rate of ventricular pressure rise (dP/dtmax) in each ventricle simultaneously

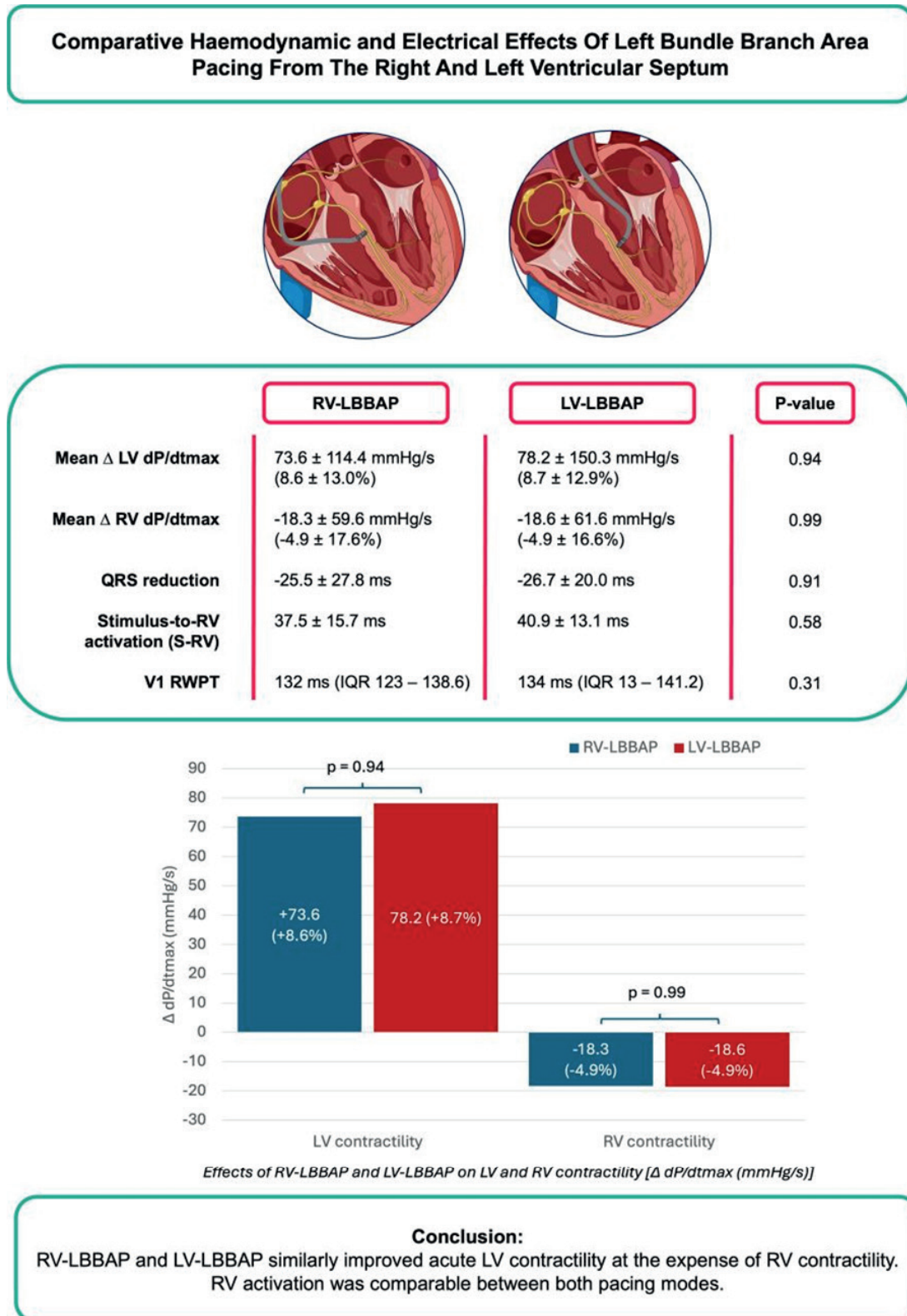
and compared to intrinsic rhythm or RVP, when there was no intrinsic rhythm. Electroanatomic mapping was performed during RV-LBBAP and LV-LBBAP. The stimulus-to-first RV activation (S-RV) and R wave peak time in lead V1 (V1RWPT) were recorded. QRS reduction compared to intrinsic rhythm or RVP was recorded in response to LV-LBBAP and RV-LBBAP.

Results: Both LV-LBBAP and RV-LBBAP resulted in similar improvement in LV contractility [78.2 ± 150.3 mmHg/s ($8.7 \pm 12.9\%$) vs 73.6 ± 114.4 mmHg/s ($8.6 \pm 13.0\%$) respectively; $p = 0.94$] and simultaneous reduction in RV contractility [-18.6 ± 61.6 mmHg/s ($-4.9 \pm 16.6\%$) vs -18.3 ± 59.6 mmHg/s ($-4.9 \pm 17.6\%$) respectively; $p = 0.99$] compared to baseline. QRS reduction compared to baseline was similar with LV-LBBAP and RV-LBBAP (-26.7 ± 20.0 ms vs -25.5 ± 27.8 ms respectively; $p = 0.91$). S-RV was similar for LV-LBBAP vs RV-LBBAP (40.9 ± 13.1 ms vs 37.5 ± 15.7 ms; $p = 0.58$) as was V1RWPT [134.3 ms (IQR $133.0 - 141.2$) vs 132.0 ms (IQR $123.0 - 138.6$); $p = 0.31$].

Conclusion: RV-LBBAP and LV-LBBAP similarly improved acute LV contractility at the expense of RV contractility, and had similar RV activation. □



Figure 1





Posters 1

61/Left bundle area pacing via persistent left-sided superior vena cava

touchCARDIO Meeting Proceedings. 2026:1;abstr61

*Authors: PS Stamatakos (Presenting Author), BS Sidhu, DD Dedios, AB Bhuiyan, SW Wilson, PA Arumugam, JM McNicholas, RS Sandow-Ali, MM Malupa, ND Dinesh, GK Kelly, AR Raveendran, HS Shabeeh and RK Kamdar
Croydon Health Services NHS Trust, London, UK*

Introduction: There is growing evidence favouring left bundle area pacing (LBAP) over standard right ventricular pacing and many centres are adopting LBAP as their primary pacing technique for all bradycardia indications. Persistent left-sided SVC (PLSVC) is the most common systemic venous anomaly, found in 0.3-0.5% of the general population and its presence can sometimes complicate cardiac device implantation. There are very few reports of left bundle area pacing in this anatomy to date. We report an interesting case of a successful LBAP in a patient with PLSVC in our district general hospital in Croydon.

Case report: A 65-year-old man with symptomatic sinus node disease (junctional bradycardia and chronotropic incompetence) was scheduled for an elective dual chamber pacemaker implantation. Left sided contrast venogram revealed persistent left superior vena cava (*Figure 1*). The patient was right-handed and he preferred a left sided implantation.

We proceeded by introducing a Boston 40cm SSPC1 sheath which was manipulated over the wire to the right atrium via the coronary sinus and then with some rotation directed inside the right ventricle. This catheter was originally designed for RA septal positions but thanks to its C-shape and with some counterclockwise torque, it was easily positioned against

the interventricular septum (*Figure 2a, 2b*). A similar position was also achievable with the Boston SSPC2 multipurpose catheter. The 3830 Medtronic lumen-less lead was used, anticipating that the heavier/stiffer stylet-driven leads would cause sheath dislocation. After three attempts, a good deep septal position was achieved (*Figure 3*), with fulfilled left bundle area capture criteria. The lumen-less lead made it challenging to adjust the lead slack after slitting the catheter, as the excess slack had the tendency to gather inside the coronary sinus instead of the right atrium, causing the lead to dislodge. Learning from this, the lead was re-positioned and the slack carefully adjusted to gather inside the right atrium prior to slitting (*Figures 4, 5*). The paced QRS in the final position was relatively narrow with an R' in V1, an R wave peak time in V6 of 75 ms, an interpeak interval V1-V6 of 25 ms, capturing the left posterior fascicle (*Figure 6*). Pacing parameters were good, with an R-wave of , threshold less than 1V/0.4ms and good impedance. The patient was discharged the same day.

Conclusion: Left bundle area pacing can be performed in patients with PLSVC. Dedicated tools to help with these challenging anatomies and additional studies are needed to evaluate the feasibility and safety of LBAP in these patients. □



Figure 1: Contrast venogram showing the PLSVC

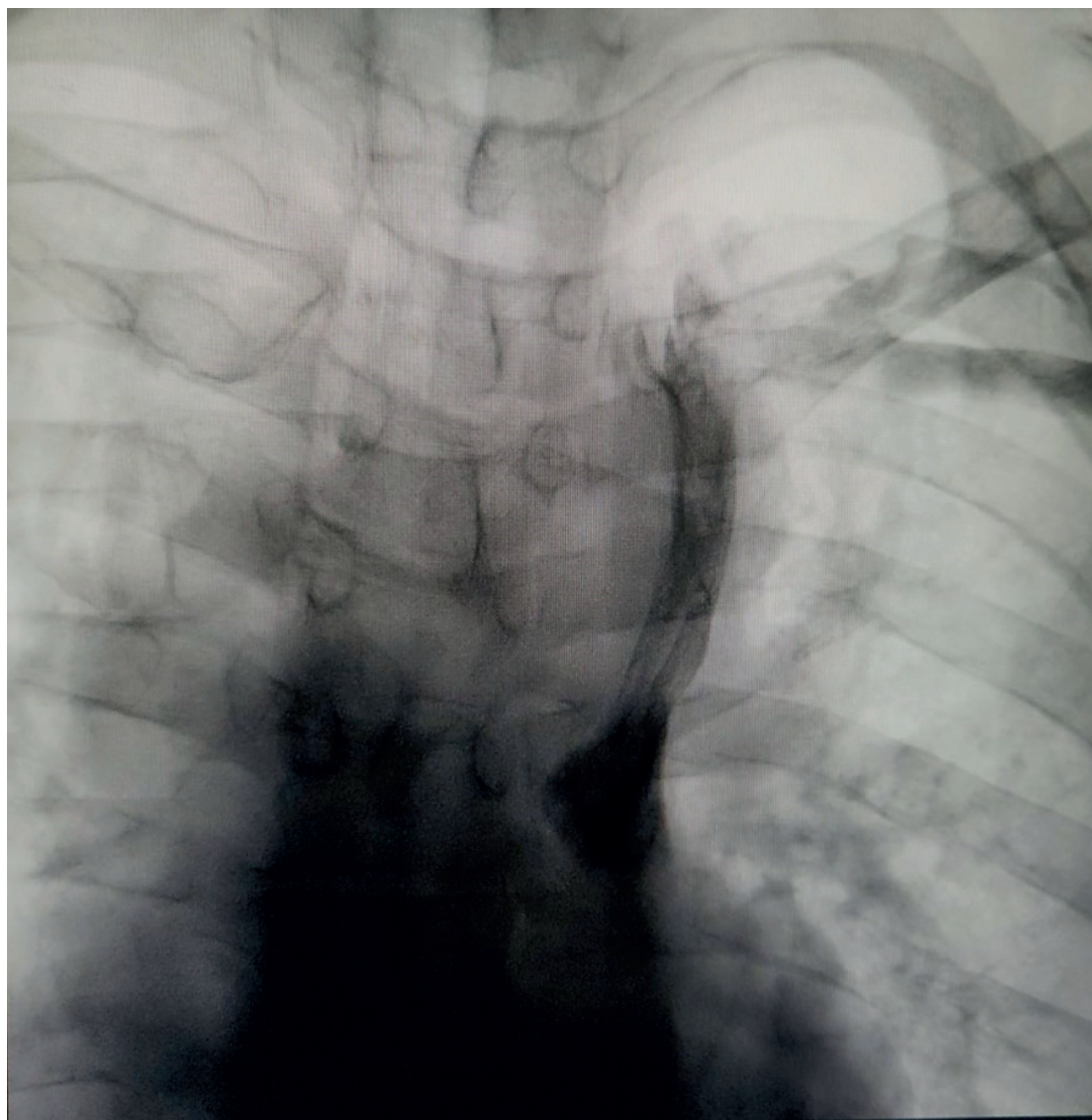




Figure 2a: Initial sheath position (Boston SSPC1) in a) RAO and b) LAO projection

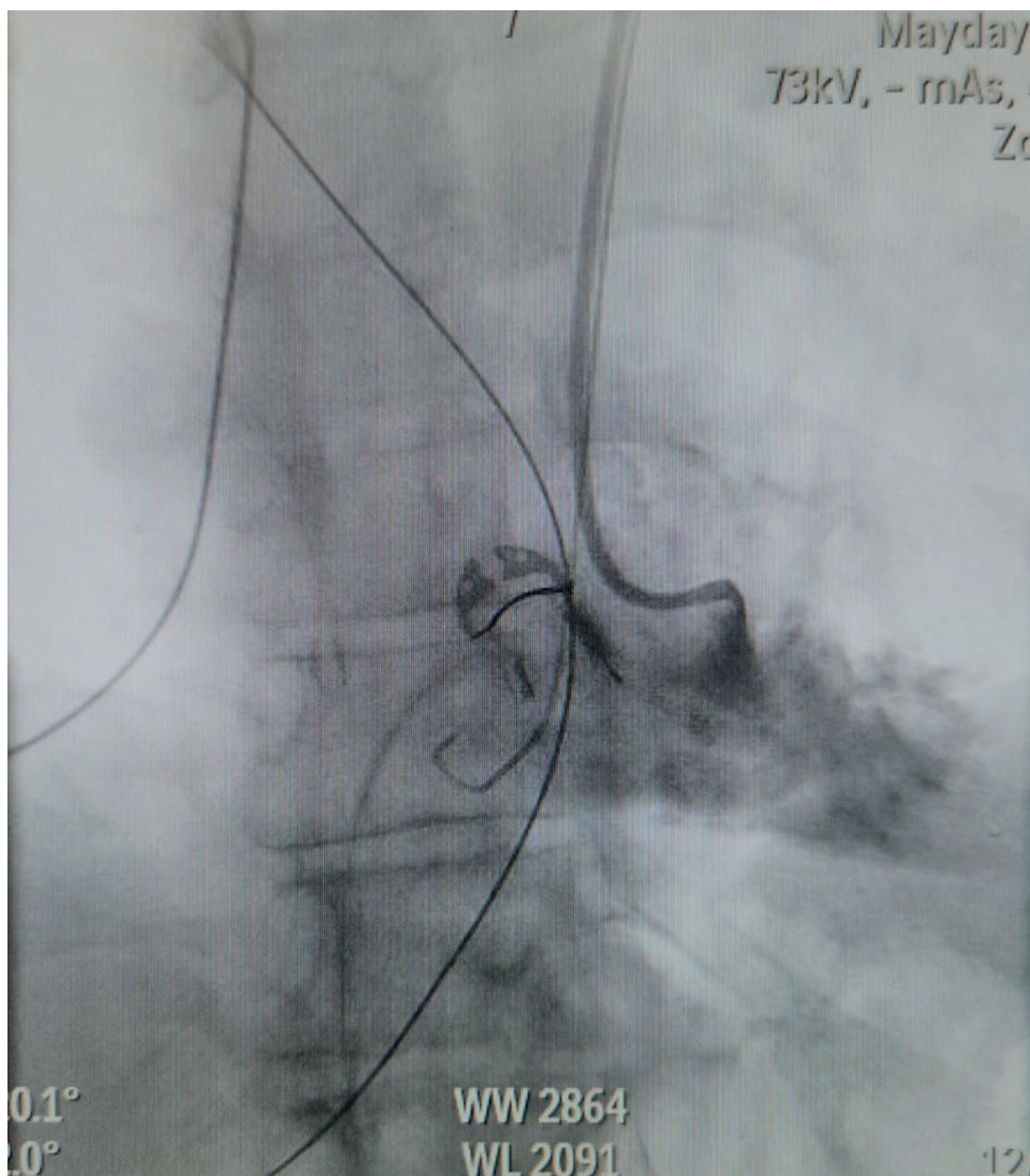




Figure 2b: Initial sheath position (Boston SSPC1) in a) RAO and b) LAO projection (*Continued*)

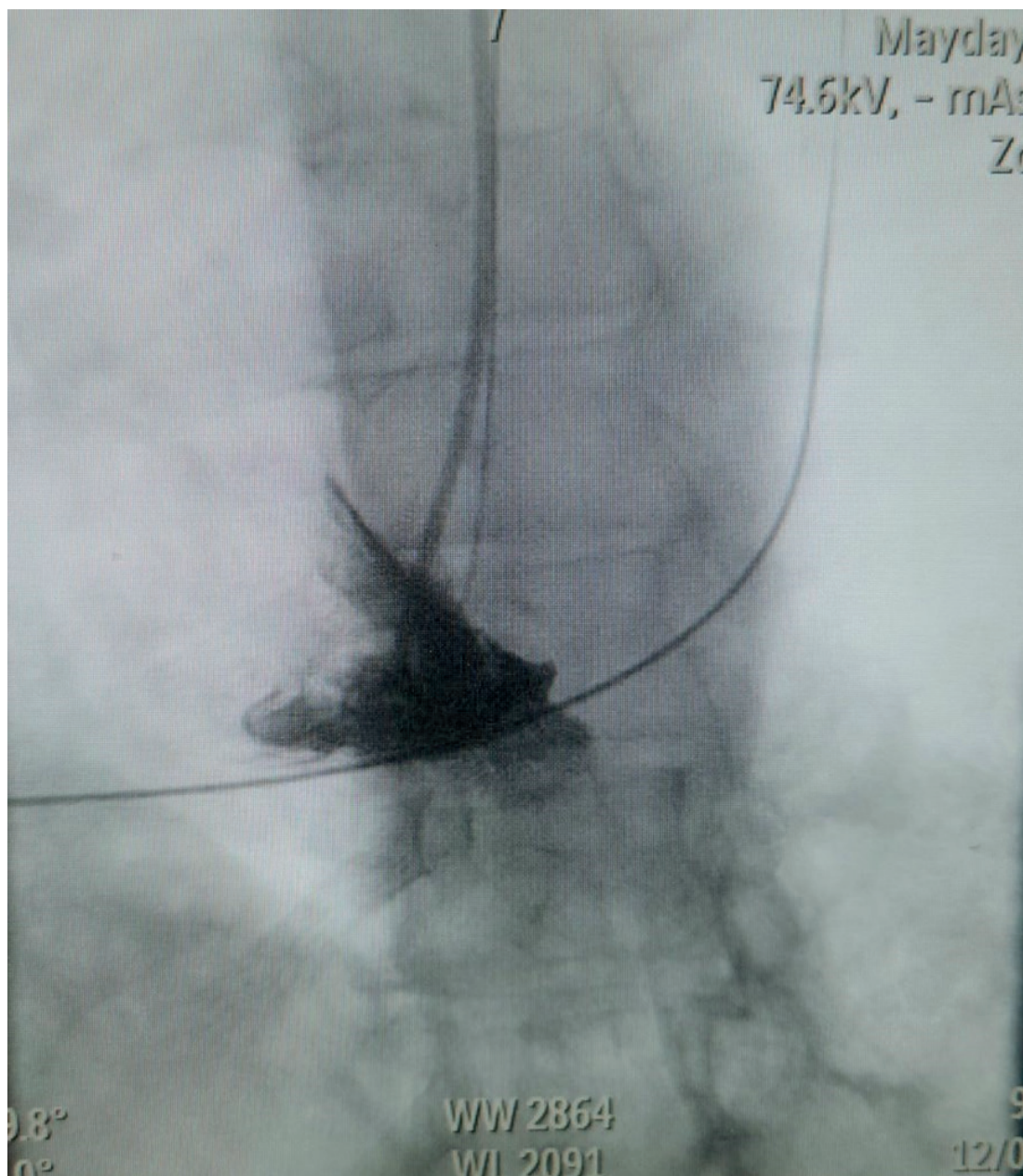




Figure 3: Fluoroscopic image of the 3830 Medtronic lead deep inside the interventricular septum in LAO projection

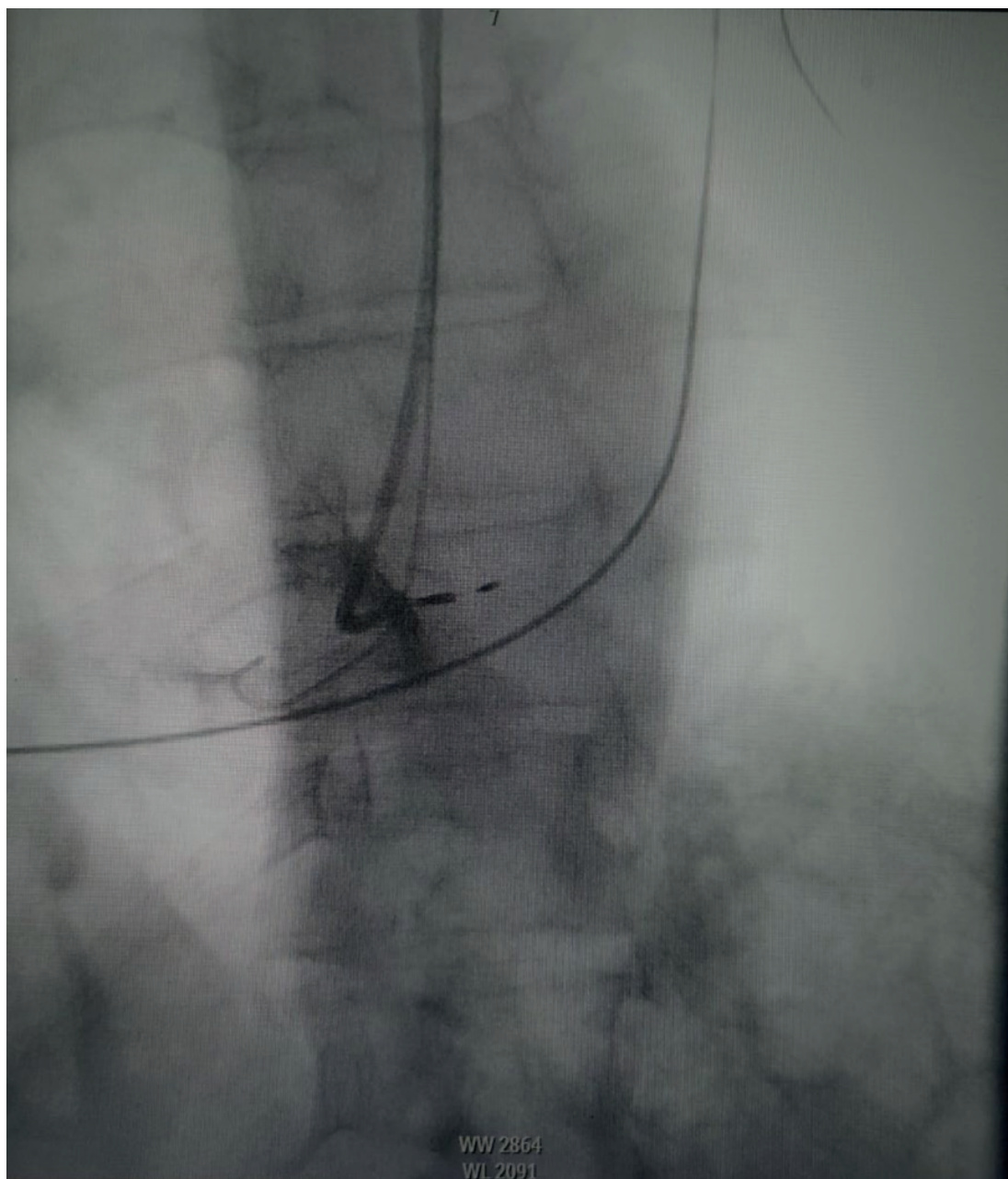




Figure 4: Final fluoroscopic position in RAO projection

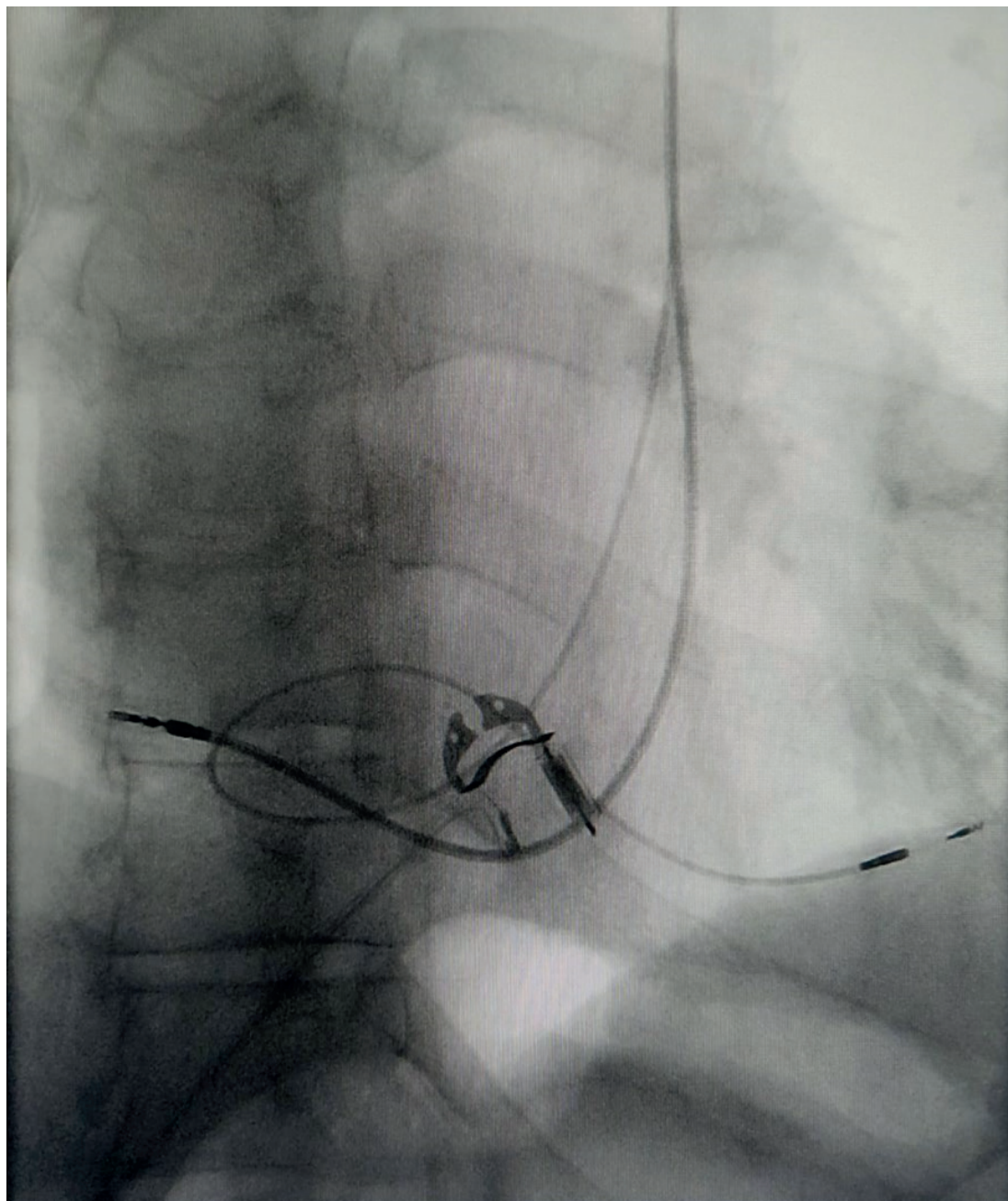




Figure 5: X-ray post procedure

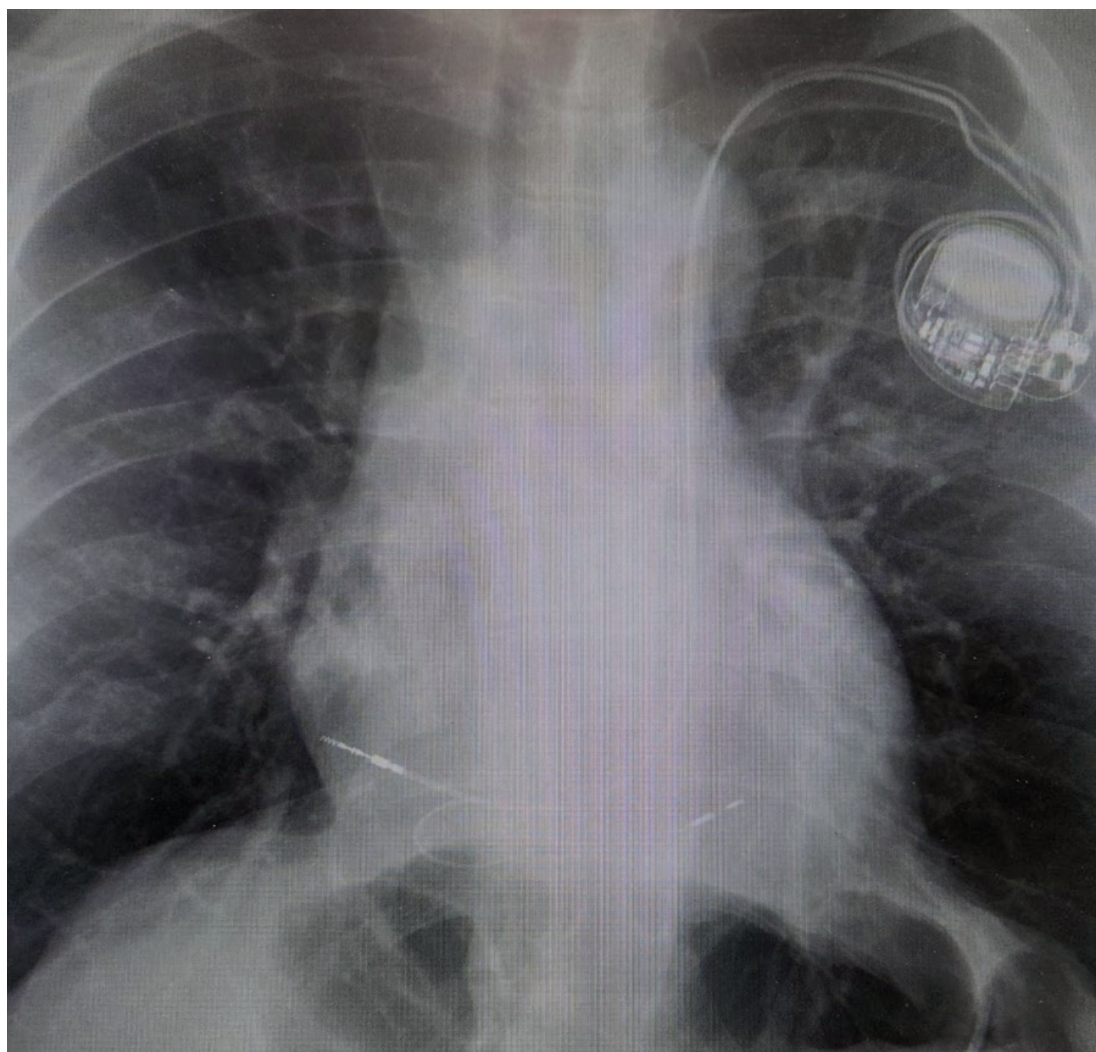
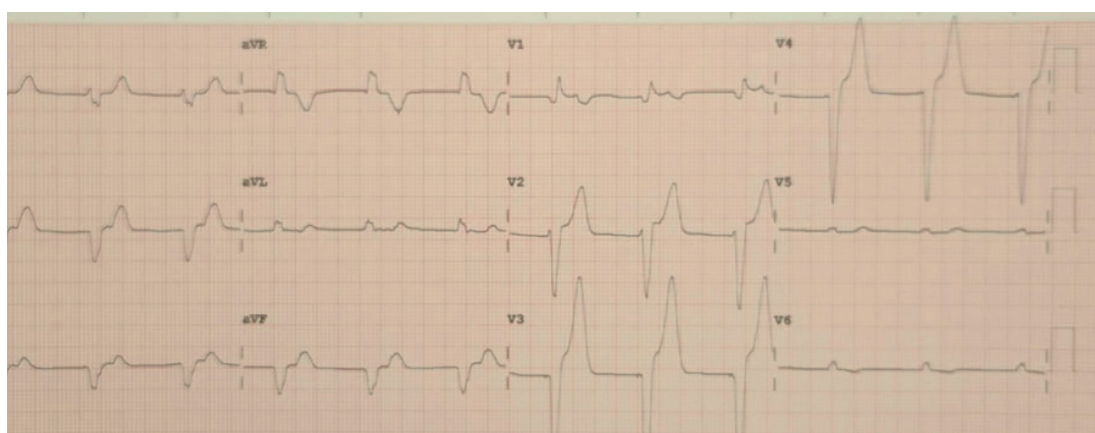


Figure 6: Paced ECG in bipolar configuration confirming likely left posterior fascicular capture (negative QRS in II, III) with an R' in V1 and a short RWPT in V6 of 75 ms





Posters 1

62/WITHDRAWN



Posters 1

63/Feasibility study of GLP-1 analogues for the optimisation of Outcomes in high BMI patients undergoing Ablation for Atrial Fibrillation (GOAL-AF)*touchCARDIO Meeting Proceedings. 2026:1;abstr63*Authors: KZ Win (Presenting Author),¹ O Baines,² S Douglas,¹ M J Armstrong,¹ W Hanif,¹ C O'Shea,² R P Steeds¹ and M Kalla¹

1. Queen Elizabeth Hospital Birmingham, Birmingham, UK; 2. University of Birmingham, Birmingham, UK

Introduction: Obesity sustains atrial fibrillation (AF) through epicardial adipose tissue (EpAT)-mediated inflammation, structural and electrical substrate remodelling. While prospective trials demonstrated pre-ablation GLP-1 receptor agonist (GLP-1RA) therapy improves ablation outcomes, the mechanistic basis such as atrial structural, electrophysiological and proteomic changes has not been characterised. This study is to evaluate the feasibility of liraglutide as a pre-ablation weight loss adjunct in obese AF patients, and to interrogate whether GLP-1RA assisted weight reduction produces measurable changes via multimodal substrate assessment.

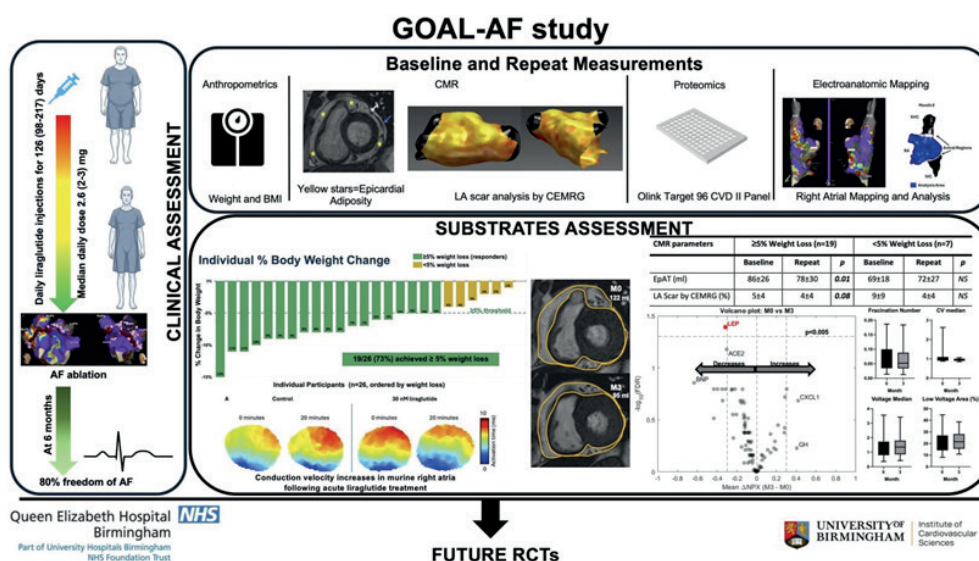
Methods: GOAL-AF was a prospective, open-label, single-centre feasibility study. Adults with symptomatic paroxysmal or persistent AF awaiting first-time ablation (BMI 30–39.9 kg/m²) received liraglutide titrated to 3.0 mg/day for 13 weeks pre-ablation. Pre-specified feasibility criteria are recruitment ≥50% of the eligible; adherence ≥70%; ≥5% weight loss in ≥60% participants. Serial CMR quantified EpAT, LA fibrosis using CEMERG, LA volumes, and strain. Right atrial EAM at baseline and after 3 months of treatment assessed bipolar voltage, conduction velocity (CV), fractionation, and low-voltage area. Serial Olink Target 96 CVD II proteomics quantified 92 cardiovascular proteins. Optical mapping of murine atria was used to assess acute electrophysiological effects of liraglutide.

Results: Of 173 screened patients, 76 were eligible, 29 (38%) consented, and 26 completed the pre-ablation phase proceeding to ablation.

Recruitment threshold was not met (38% vs ≥50%). All 26 tolerated liraglutide at ≥1.8 mg/day (100% adherence). Mean weight loss was 7 ± 4 kg (7 ± 4%), with 73% achieving ≥5% exceeding the 60% threshold. Participants achieving ≥5% weight loss demonstrated significant EpAT reduction (86±26 to 78±30 ml; p=0.01), favourable LV remodelling (LVEDV p=0.02; stroke volume p=0.02; LV mass p=0.03), and a trend toward LA scar reduction (5±4% to 4±4%, p=0.08). LA volumes and strain were unchanged. Serial EAM showed no significant change in any right atrial electrophysiological parameter. On proteomics, only leptin significantly decreased (Δ NPX -0.31, 20%; FDR p=0.04), BNP trended downward (35%; p=0.13), and ACE2 approached significance (19%; p=0.06), whilst FGF-23 remained stable. Liraglutide increases CV and decreases action potential duration heterogeneity in mouse atria.

Conclusions: Liraglutide achieves clinically meaningful pre-ablation weight loss with full adherence. Mechanistically, EpAT reduction occurs first followed by selective proteomic changes. Right atrial electrophysiological parameters remain unchanged within 13 weeks. Six-month outcomes appear more favourable than those reported in the literature. The full potential of pre-ablation weight loss will require a future multicentre RCT with higher weight loss targets, longer treatment duration, and left atrial EAM as a mechanistic endpoint. □

Figure 1





Posters 1

64/CMR-ECGI Reveals Electrical Remodeling related to Myocardial Fibrosis in Aging Populations (MyoFit46)

touchCARDIO Meeting Proceedings. 2026:1;abstr64

Authors: E Morselli (Presenting Author),¹ M Webber,¹ C Topriceanu,¹ F Chan,¹ E Martin,¹ G Joy,² J Bennet,¹ D Falconer,¹ M Stanley,¹ H Shiwani,¹ H Shah,¹ A Ardssino,¹ PG Martin,³ R Davies,¹ R H Davies,¹ P Kellman,⁴ I Pierce,¹ R Hardy,⁵ PD Lambiase,¹ Y Rudy,⁶ JC Moon,¹ M Orini,¹ AD Hughes¹ and G Captur¹

1. UCL, London, UK; 2. Barts Heart Centre, London, UK; 3. ELEM Biotech, Bristol, UK; 4. NHLBI, Bethesda, MD, USA; 5. Loughborough University, Loughborough, UK; 6. Washington University in St. Louis, St Louis, MO, USA

Introduction: Myocardial fibrosis increases with age and is linked to conduction abnormalities and ventricular arrhythmia, yet its functional electrophysiological consequences and prognostic significance in the aging heart are incompletely understood. We investigated the relationship between myocardial fibrosis by late gadolinium enhancement (LGE) cardiovascular magnetic resonance (CMR) imaging and non-invasive electrophysiological phenotypes derived from CMR-guided electrocardiographic imaging (ECGI) in older adults.

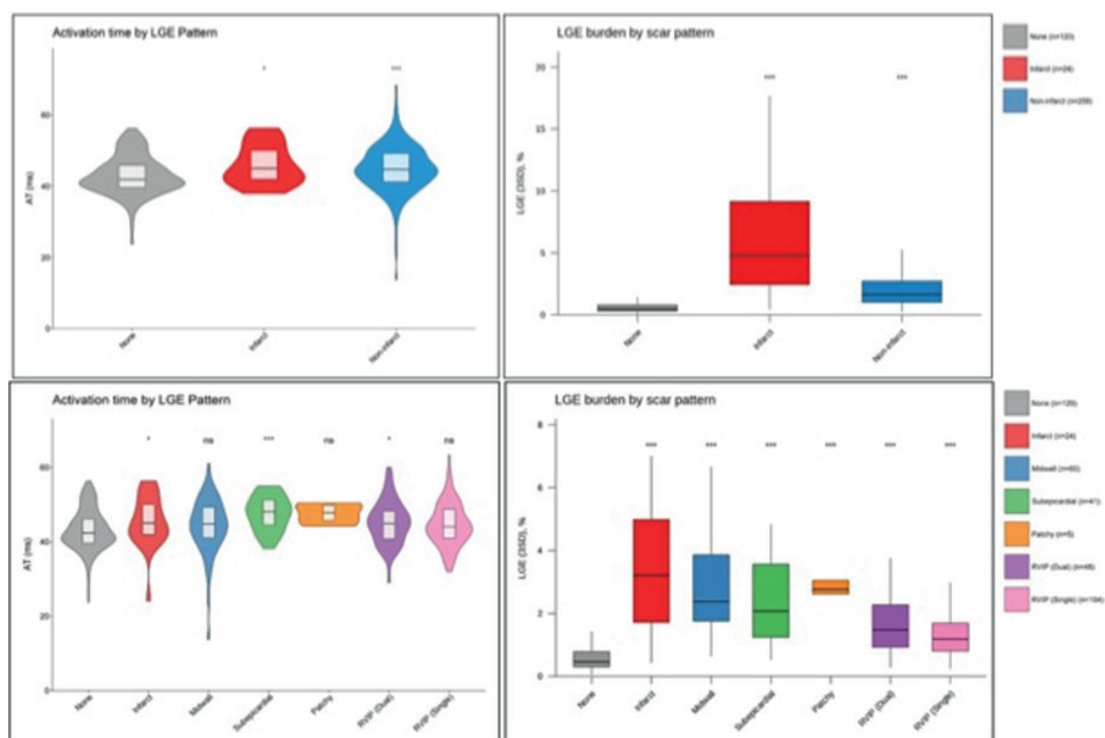
Methods: In MyoFit46 (NCT 05455125), the cardiac sub-study of the National Survey of Health and Development, community-dwelling older participants prospectively underwent combined 3Tesla CMR and ECGI. LGE patterns were classified as infarct-pattern scar (subendocardial, embolic) and non-infarct pattern scar (composite of midwall, subepicardial, patchy and right ventricular [RV] insertion point fibrosis). Global and segmental left ventricular (LV) LGE burden was quantified (3SD, 5SD). ECGI-derived parameters were compared between distinct LGE patterns, and their relationship with LGE burden assessed using regression models.

Results: Among 402 participants (76.8±0.8 years, 56% male), hearts with a detectable pattern of LGE showed significantly longer activation

time compared to those without detectable LGE (Figure 1). Hearts with midwall and RV insertion point LGE showed reduced dispersion and lower gradients of activation and repolarisation. Cardiac segments with non-infarct LGE showed significantly prolonged activation and repolarisation times compared to segments free of LGE (respectively: 52.25 ± 11.05 vs 44.99 ± 11.51 ms, $p < 0.001$; 297.00 ± 29.45 vs 289.64 ± 32.29 ms, $p = 0.003$). Increasing segmental LGE burden was independently associated with marked attenuation of ECGI-derived QRS voltage (-0.36 mV per log1p-unit increase in LGE_{3SD} mass; 95% CI: -0.50 to -0.21 ; $p < 0.001$), with a clear stepwise reduction across increasing LGE tertile; by contrast, conventional 12-lead ECG voltage showed only weak or absent associations.

Conclusions: In the largest CMR-ECGI study of ostensibly healthy older adults to date, subclinical myocardial fibrosis associated with attenuation of ECGI-defined voltages not captured by the standard ECG, and with prolongation of activation and repolarisation times. These findings suggest that focal myocardial fibrosis in the older age heart, even if subclinical or of small volume, reshapes the electrophysiological substrate, and is detectable by CMR-ECGI. □

Figure 1





Posters 1

65/Cardiac sarcoidosis in the young: The impact of a cardiac MRI service on care

*touchCARDIO Meeting Proceedings. 2026:1;abstr65*Authors: *K Bloor* (Presenting Author),¹ *T Whinney*² and *M Taylor*¹

1. South Tyneside and Sunderland NHS Foundation Trust, Sunderland, UK; 2. Newcastle University, Newcastle Upon Tyne, UK

Introduction: Cardiac sarcoidosis (CS) is a condition characterised by non-caseating granulomatous infiltration of the myocardium. Atrioventricular Block (AV) is a common early manifestation. Studies suggest that 19–34% of patients under 65 years presenting with unexplained high-grade AV block have underlying CS. Current guidelines recommend cardiac magnetic resonance imaging (CMR) or fluorodeoxyglucose positron emission tomography/computed tomography (FDG-PET CT) in patients under 60 years with unexplained high-grade AV block. South Tyneside and Sunderland NHS Foundation Trust, serving 430,000+ patients, established a CMR service in 2022.

This retrospective study evaluated investigation rates for CS, incidence of disease, and clinical outcomes before and after introduction of the CMR service.

Methods: Patients aged under 60 years presenting with second- or third-degree AV block between 1 April 2019 and 31 March 2026 were identified using the device database. Patients with alternative causes, including recent myocardial infarction, post-cardiac surgery AV block, or vagally mediated block, were excluded. Electronic patient records, clinic correspondence, and imaging reports were reviewed to assess investigation and incidence of CS.

Results: From 2019 to 2026, 1,728 permanent pacemakers (PPMs) were implanted. Ninety-three patients were under 60 years at implantation, of whom 52 met inclusion criteria (33 male, 19 females; mean age 49 years, age range 26–59). One patient with AV block and severe left ventricular impairment underwent CRT-D implantation at a regional centre.

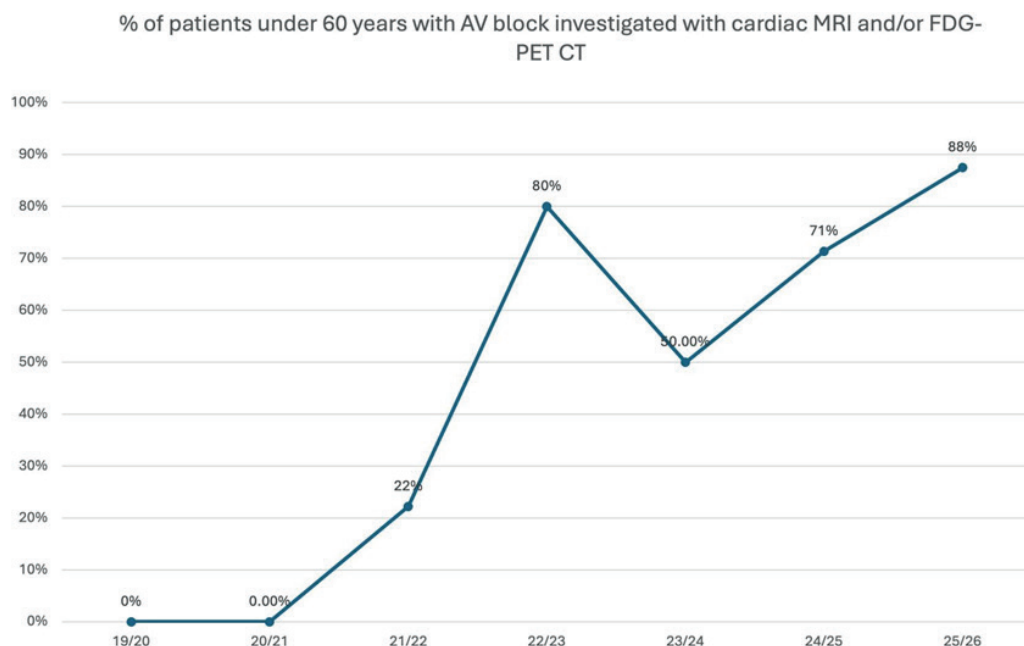
Twenty-seven patients presented after establishment of the CMR service. Eighteen underwent investigation with CMR (n=16), FDG-PET CT (n=1), or both (n=1). Three patients were not investigated for unclear reasons; 2 declined CMR because of claustrophobia; 2 had alternative diagnoses (Duchenne muscular dystrophy and mitochondrial disease); and 2 were considered too frail for investigation. Availability of CMR significantly improved compliance with guideline recommendations (*Figure 1*). However, no cases of CS were identified on imaging or during follow-up. In the study period prior to availability of local MCR service, 25 patients met inclusion criteria, of whom only 2 underwent CMR and/or FDG-PET CT. Two patients had alternative explanations for AV block (significant coronary disease and aortic stenosis), while 2 declined investigations. No cases of CS were identified on imaging or follow-up.

Review of the device database identified one patient who presented with high-grade AV block in 2017 and was subsequently diagnosed with CS in 2022, requiring upgrade to CRT-D.

Two patients under 60-years with cardiac sarcoid were implanted with primary prevention defibrillators during the study period. They both had a degree of conduction disease (RBBB, LAD; RBBB, 1st degree HB) but no primary indication for pacing.

Conclusion: Local availability of CMR substantially improved adherence to guideline-recommended investigation of younger patients with unexplained AV block. Despite this, the incidence of CS was lower than expected, with no cases diagnosed through cardiac imaging during the study period. Given the small number of patients presenting with AV block under 60 years of age, routine investigation for CS did not represent a major resource burden. □

Figure 1: Percentage of patients under 60-years with AV block investigated with cardiac MRI and/or FDG-PET CT





Posters 1

66/WITHDRAWN





Posters 1

67/Beyond Arrhythmia Detection: Can 72 Hour Holter Monitoring Reveal Underlying Cardiovascular Physiology?

touchCARDIO Meeting Proceedings. 2026:1;abstr67

Authors: CJ Crockford (Presenting Author),¹ A R J Mitchell² and AN Hall²

1. Your Heart Check Limited, Buton In Kendal, UK; 2. Jersey General Hospital, St Helier, Jersey

Introduction: Holter monitoring is routinely used for ambulatory rhythm assessment, but it remains unclear whether the same standard wearable platform can provide additional insight into cardiovascular physiology beyond arrhythmia detection. Circadian blood pressure (BP) behaviour, including nocturnal dipping, the pre-waking rise, and the morning peak, carries important prognostic information, yet is often poorly captured by intermittent cuff-based measurements alone. A method capable of extracting haemodynamic information from routine ambulatory ECG could extend the clinical value of Holter monitoring beyond rhythm surveillance.

Methods: Seventy-two-hour single-lead ECG and tri-axial accelerometer data were acquired using a Bittium Faros 180 wearable monitor, a CE-marked and FDA-cleared 1-channel ECG device for ambulatory cardiac monitoring. A convolutional neural network estimated BP every ten beats and generated a continuous Blood Pressure Index (BPI). Estimated systolic and diastolic BP values were mapped to clock time from 00:01 to 23:59, and the three daily traces were colour-coded, overlaid, and averaged to derive a three-day mean BPI profile. Accelerometer data were used both to suppress motion artefact and to identify probable supine rest and likely sleep periods, allowing overnight profiles to be

interpreted in behavioural context. The BPI pipeline has been applied in 76 subjects.

Results: The BPI produced person-specific 24-hour BP profiles from routine ambulatory ECG recordings, demonstrating circadian features consistent with established BP physiology, including nocturnal decline, pre-waking rise, morning peak, and daytime variation. Overlay of three consecutive days improved visualisation of recurrent daily structure, while the averaged BPI reduced short-term noise and enhanced interpretability. Accelerometer-guided artefact handling reduced non-physiological excursions during high-motion periods and improved the physiological plausibility of the derived profiles. Probable supine rest periods identified from accelerometry provided additional contextual information for interpretation of overnight BP behaviour.

Conclusions: A standard single-lead Holter-style monitor may provide information not only on heart rhythm disturbance but also on underlying cardiovascular physiology through derivation of a multi-day BPI from ECG and accelerometry. This approach offers a potential route to combined rhythm, haemodynamic, and behavioural phenotyping from a single ambulatory platform, with possible future applications in nocturnal cardiovascular assessment and digital ambulatory monitoring. □



Posters 1

68/Does piecewise linear histogram matching improve automated multi-label segmentation of late gadolinium enhanced cardiac MRI using nnUNet?

touchCARDIO Meeting Proceedings. 2026:1;abstr68

Authors: N Narayanan (Presenting Author),¹ Z Gong,² N Jathanna,¹ Y Kiberu,³ P Swaboda,⁴ X. Chen,⁵ D P Auer⁶ and S Jamil-Copley¹

1. Department of Cardiology, Nottingham University Hospitals NHS Trust, Nottingham, UK; 2. School of Computer Science, University of Nottingham, Nottingham, UK; 3. School of Medicine, University of Nottingham, Nottingham, UK; 4. Leeds Institute of Cardiovascular and Metabolic Medicine, University of Leeds, Leeds, UK; 5. School of Computer Science, University of Nottingham, Nottingham, UK; 6. NIHR Nottingham Biomedical Research Centre, University of Nottingham, Nottingham, UK

Introduction: Late gadolinium enhanced cardiac MRI (LGE-CMR) is the gold standard method for scar identification. However, current methods for scar quantification are labour-intensive, time-consuming, and prone to inter-operator variability. Existing semi-automated methods remain vulnerable to imaging artefacts and are prone to classification errors. Artificial intelligence is emerging as a promising approach for high throughput, reproducible scar segmentation, but clinical translation remains challenging due to poor model generalizability. This work aims to assess the impact of signal intensity normalization using piecewise linear histogram matching (PLHM) on automated multi-label segmentation of LGE-CMR in a clinical dataset.

Methods: 400 LGE-CMR scans with ischaemic scar from a single site (two 1.5T scanners) were used for model development with 83 scans from a remote centre (3T scanner) used for validation. Ground truth for 7 cardiac structures – left ventricular blood pool (LVBP), left ventricular myocardium (LVM), left ventricular scar (LVS), right ventricular blood pool (RVBP), right ventricular myocardium (RVM), papillary muscle (Pap), and aorta were manually contoured by 1 operator. nnUNet (3D full resolution) was trained separately on raw and bias field corrected, PLHM-normalized images using 5-fold cross-validation (80:20 split, 1,000 epochs/fold). Performance was evaluated using Dice similarity coefficient (DSC) and average symmetric surface distance (ASSD). Wilcoxon signed rank test was used to assess statistical significance of metric differences between models trained on raw and normalized data using a p-value threshold <0.05.

Results: When trained on raw data, model segmentation was good for some structures (LVBP: DSC – 0.92, ASSD – 1.09 mm, LVM: DSC – 0.81, ASSD – 1.19 mm), reasonable for some structures (RVBP, RVM, Pap, and Aorta), and poor for LVS (DSC – 0.51, ASSD – 22.88 mm). When applied to validation data, segmentation performance remained comparable to training performance for all structures except scar (DSC – 0.28, ASSD – 31.13 mm). When using a model trained on normalized images, segmentation performance for training data was near identical to that obtained using a model trained with raw images, with small but noticeable improvements to out-of-sample inference best appreciated for scar (DSC – 0.33, ASSD – 28.61 mm). Differences in DSC between preprocessing methods were statistically significant for LVBP, LVM, LVS, and Pap. Differences in ASSD were statistically significant for LVS only.

Conclusion: We demonstrate the impact of image preprocessing using PLHM on the performance of an automated, deep learning tool for multi-label cardiac segmentation. We show that preprocessing can have little to no impact on network performance for in-sample data with modest, statistically significant gains in out-of-sample data. Future work will evaluate other interventions, broadly data curation, data augmentation, preprocessing measures including noise reduction, co-registration to a common anatomical space, and integration of other modalities including ECG, as a package of measures that will improve model performance and generalizability, allowing for clinical translation. □



Posters 1

69/Real-world experience of an amiodarone-led DCCV service: balancing the risks and benefits

touchCARDIO Meeting Proceedings. 2026:1;abstr69

Authors: BW Wills (Presenting Author), LD Dunn, OB Basquill, HM Moore, CS Sowerby and GF Furniss
Musgrove Park Hospital - Somerset NHS Foundation Trust, Taunton, UK

Introduction: Direct current cardioversion (DCCV) for atrial fibrillation (AF) has good acute success rates at restoring sinus rhythm. However, real world data from our medium sized District General Hospital suggested only 37% of patients were free from AF at 6 months and 24% at 1 year.¹ Channer et al. showed short course amiodarone increases sinus rhythm maintenance following DCCV² and our data supported this.³ Therefore, since 2018, our centre's DCCV service has used short term amiodarone in certain patients with risk factors for AF recurrence. Age over 65, left atrial (LA) enlargement, left ventricular ejection fraction (LVEF) <45%, re-do DCCV or patients with AF duration over 12 months receive amiodarone. The aim of this real world retrospective observational study was to review the risk of toxicity from short-term amiodarone use in the DCCV setting.

Methods: Patients with persistent atrial fibrillation referred for DCCV in 2023 were identified using electronic health records. These records were reviewed to extract baseline demographics, DCCV outcomes, AF recurrence, as well as potential adverse effects including liver and thyroid function abnormalities, chest X-ray changes, dermatological complications, QTc prolongation and bradycardia. Microsoft Excel was used to analyse the data. Patients were excluded if data was insufficient (e.g. private patients).

Results: 120 DCCV referrals were included. Mean age was 66.5 years $\pm$ 8.9 and 82 (68.3%) were male, with mean BMI 30.4 $\pm$ 6. Twenty-one (17.5%) patients spontaneously or chemically cardioverted prior to DCCV (15 of whom were on amiodarone). Of the 99 patients who had DCCV, 98

(98.9%) achieved successful restoration of sinus rhythm and 1 (1.0%) did not cardiovert. Of those who cardioverted, 79 (66.4%) patients were free from AF at 3 months, 72 (60.5%) were free from AF at 6 months and 55 (46.2%) were free from AF at 12 months.

Ninety-two (76.6%) patients had one or more risk factors for AF recurrence and therefore received amiodarone. Median amiodarone course duration was 92 days [IQR 64.3-181]. Five (5.4%) patients had significant change in thyroid function requiring treatment. Reassuringly, no patients had lung fibrosis, persistent or significantly raised liver dysfunction, dermatological complications or visual changes. Nineteen (20.7%) patients stopped amiodarone early, including 3 of those requiring treatment for thyroid dysfunction. Two patients had significant QT prolongation >500ms, 3 had mild bradycardia and the remainder was clinician or patient preference due to subclinical hypothyroidism, perceived intolerance including taste, sleep and mood disturbance or a multifaceted decision.

Conclusion: Although these data sets are not matched, having short course amiodarone as part of our DCCV pathway for high risk of recurrence patients appears to have increased the percentage of patients who are free from AF at 6 and 12 months. Although a number of patients experienced minor side effects, only 5.4% required treatment. Follow up clinics and a low threshold for side effects allowed for timely cessation of amiodarone when required. Determining benefit vs. risk in this temporising treatment option is multi-faceted and requires individualised patient-based approach. □



Posters 1

70/How Have Outcomes of Persistent Atrial Fibrillation Ablation Changed With Time and New Technologies? A Meta-analysis and Meta-regression

touchCARDIO Meeting Proceedings. 2026;1;abstr70

Authors: K Ravindran (Presenting Author),¹ SJ Kapadia,² S Al-Aidarous,³ J Howard,⁴ A Sohaib,⁵ MB Sikkel,⁴ A Arnold,⁴ JW Waks,⁶ DB Kramer,⁶ NS Peters,⁴ FS Ng⁴ and A Sau⁴

1. Imperial College London, London, UK; 2. Icahn School of Medicine at Mount Sinai, New York, NY, USA; 3. UCL Institute of Cardiovascular Science, University College London, London, UK; 4. National Heart and Lung Institute, Imperial College London, London, UK; 5. The Barts Heart Centre, St Bartholomew's Hospital, Barts Health NHS Trust, London, UK; 6. Harvard-Thorndike Electrophysiology Institute, Beth Israel Deaconess Medical Center, Boston, MA, USA

Introduction: Contemporary ablation techniques for persistent atrial fibrillation (PsAF) continue to deliver variable outcomes. The rapid clinical uptake of pulsed field ablation (PFA) has renewed interest in whether PsAF ablation outcomes are improving. We examined predictors of improved PsAF ablation outcomes, including temporal trends and energy source.

Methods: We performed a meta-analysis and meta-regression of randomised and prospective non-randomised PsAF ablation studies identified through MEDLINE and Cochrane searches to March 2026. The primary outcome was single-procedure freedom from AF or atrial tachycardia (AF/AT) at 12 months. Study-arm-level meta-regression using restricted maximum likelihood included energy source, publication year, and lesion set as covariates.

Results: The analysis included 240 arms from 130 studies comprising 22,227 patients and 7 PFA arms; between study heterogeneity was high (I^2 81-95%). Pooled 12-month freedom from AF/AT was 62.5% (95% CI 60.5-64.7%). After adjustment for publication year and lesion set, PFA was associated with approximately 10% higher 12-month freedom from AF/AT than radiofrequency (RF) (ratio 1.10, 95% CI 1.01-1.19, $p=0.028$). This association persisted when analysis was restricted to post-2019 (ratio 1.09, 95% CI 1.01-1.18, $p=0.035$). Cryoablation was not associated with different freedom from AF/AT compared with RF. Overall, 12-month freedom from AF/AT had a 2.1% relative improvement per year, but this temporal trend was no longer significant when analysis was restricted to post-2019 study arms, suggesting a plateau. PFA was

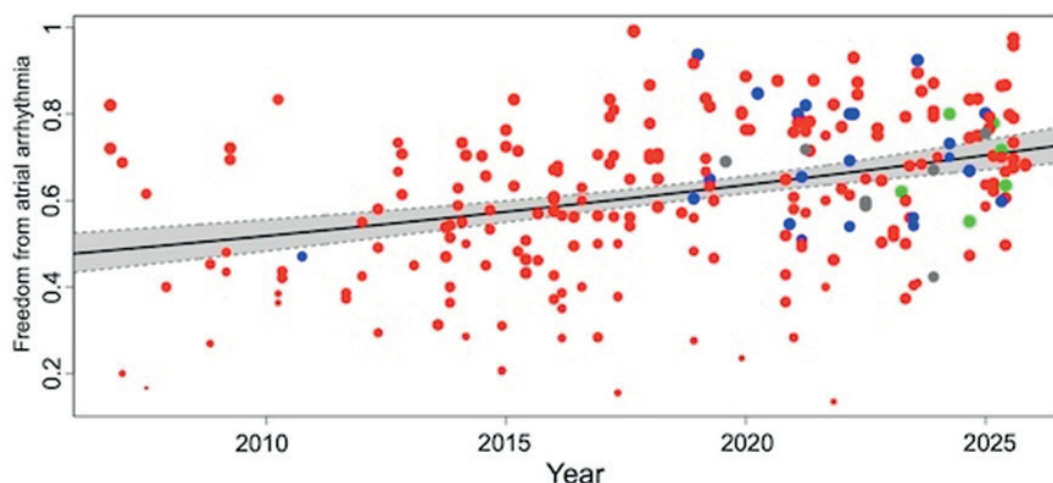
also associated with shorter procedure time (-27.9 minutes, $p<0.001$). Major complication rates have decreased over time, with a 5.1% relative reduction per year ($p=0.003$) with no significant difference by energy source (PFA vs RF: ratio 0.93, 95% CI 0.37-2.35, $p=0.88$).

In study-arm-level meta-regression across all included studies, use of additional lesion sets beyond pulmonary vein isolation (PVI) was associated with higher 12-month freedom from AF/AT than PVI alone (ratio 1.06, 95% CI 1.03-1.09, $p<0.001$), but also with longer procedures, adding approximately 30 minutes to procedure time ($p=0.004$). In contrast, when specific adjunctive lesion sets were examined in randomised studies, no strategy showed robust evidence of improved freedom from AF/AT.

Conclusions: In contemporary prospective studies, PFA was associated with approximately 10% higher single-procedure arrhythmia-free survival than RF, alongside shorter procedure times and no significant differences in major complications. The longer-term improvement in PsAF ablation outcomes has appeared to plateau since 2019. Large randomised controlled trials of PFA vs. thermal ablation are needed to provide randomised evidence.

Each marker represents a study arm, with size proportional to study size. Red indicates radiofrequency, blue indicates cryoablation, green indicates pulsed field ablation, and grey indicates mixed energy sources. After adjustment for publication year and lesion set, pulsed field ablation was associated with a 10% higher 12-month freedom from AF/AT than radiofrequency (ratio 1.10, 95% CI 1.01-1.19; $P=0.028$). □

Figure 1: Meta-regression shows improvements in 12-month freedom from atrial arrhythmia over time





Posters 1

71/Automated segmentation of late gadolinium enhanced cardiac MRI using radiomics

*touchCARDIO Meeting Proceedings. 2026:1;abstr71**Authors: N Narayanan (Presenting Author),¹ N Jathanna,¹ Y Kiberu,² P Swaboda,³ X Chen,⁴ DP Auer⁵ and S Jamil-Copley¹**1. Department of Cardiology, Nottingham University Hospitals NHS Trust, Nottingham, UK; 2. School of Medicine, University of Nottingham, Nottingham, UK; 3. Leeds Institute of Cardiovascular and Metabolic Medicine, University of Leeds, Leeds, UK; 4. School of Computer Science, University of Nottingham, Nottingham, UK; 5. NIHR Nottingham Biomedical Research Centre, University of Nottingham, Nottingham, UK*

Introduction: Despite advances in VT ablation, the procedure remains challenging with sub-optimal success rates. Integration of cardiac MRI into ablation work-flows could improve procedural outcomes by providing better scar characterization and enhanced ability to navigate to regions of interest. While cardiac MRI is recommended for pre-procedural planning, interpretation thereof remains time consuming and resource intensive. While automated tools exist for cardiac MRI segmentation, these tools either rely on heuristics which systematically misidentify critical areas such as scar or are developed for analysis of CINE images on small datasets impairing clinical translation. We sought to investigate the utility of quantitative imaging biomarkers (radiomics) for automated segmentation of late gadolinium enhanced cardiac MRI (LGE-CMR) images.

Methods: Pooled data (N=527) from 4 LGE-CMR registries was used for analysis. All images were preprocessed using a standardized pipeline developed by our group. 7 cardiac structures – left ventricular blood pool (LVBP), left ventricular myocardium (LVM), scar (LVS), right ventricular blood pool (RVBP), right ventricular myocardium (RVM), papillary muscle (Pap), and aorta were segmented by a single expert operator to establish ground truth. Radiomic features were extracted on a per-voxel basis using a fixed bin width of 25 arbitrary units. An 80:20 train:test split was

used. Extracted features were scaled between 0 and 1 and principal component analysis was used to reduce the dimensionality of the feature set. A OneVsRest ensemble with a base decision tree classifier was used to train a model to predict the human-segmented voxel label using the radiomic signature. Model accuracy was assessed using sensitivity, specificity, and overlap metrics – Dice similarity coefficient (DSC) and Jaccard index.

Results: Model results are presented in *Table 1*. On train data, model sensitivity and specificity exceeded 0.98 for all structures. DSC and Jaccard Index exceeded 0.97 for all structures. On test data, the model performed significantly worse on all metrics. Sensitivity ranged from 0.2633 for RV myocardium at worst to 0.5206 for aorta at best with a value of 0.0648 for scar. Specificity ranged between 0.7502–0.9863. DSC and Jaccard Index were similarly poor relative to the train set results ranging between 0.0738–0.5617 and 0.0383–0.3905 respectively.

Conclusion: This proof-of-concept model demonstrates the utility of radiomics in automated cardiac structure segmentation. Significant limitations remain in the generalization of a trained machine learning model to out-of-sample data which may be ameliorated by the use of better algorithms including neural nets. This will be the focus of future works. □

Table 1: Radiomics segmentation performance

Structure	Sensitivity		Specificity		Dice		Jaccard	
	Train	Test	Train	Test	Train	Test	Train	Test
LVBP	0.9990	0.4045	0.9998	0.8648	0.9993	0.4976	0.9987	0.3312
LVM	0.9982	0.4982	0.9996	0.9130	0.9985	0.5617	0.9969	0.3905
LVS	0.9993	0.0648	0.9998	0.9786	0.9969	0.0738	0.9938	0.0383
RVBP	0.9824	0.2980	0.9998	0.8218	0.9909	0.3059	0.9819	0.1805
RVM	0.9994	0.2633	0.9958	0.9424	0.9735	0.2638	0.9484	0.1519
Pap	0.9998	0.0598	1.0000	0.9863	0.9996	0.0555	0.9992	0.0285
Aorta	0.9998	0.5206	0.9999	0.7502	0.9988	0.1679	0.9975	0.0916



Posters 2

72/Electrostructural Discordance: ECG-Predicted Left Atrial Diameter Identifies Novel Atrial Phenotypes with Opposite Risks of Incident Atrial Fibrillation*touchCARDIO Meeting Proceedings. 2026;1;abstr72*

Authors: Dr S Faiz (Presenting Author), Dr Chandran, Dr Liu and Dr Xia
The First Affiliated Hospital of Dalian Medical University, Dalian, China

Background: Left atrial (LA) remodelling comprises both electrical and structural abnormalities, yet these domains are often assessed separately. Whether discordance between ECG-derived and echocardiographic measures of LA remodelling identifies clinically relevant atrial phenotypes remains unknown.

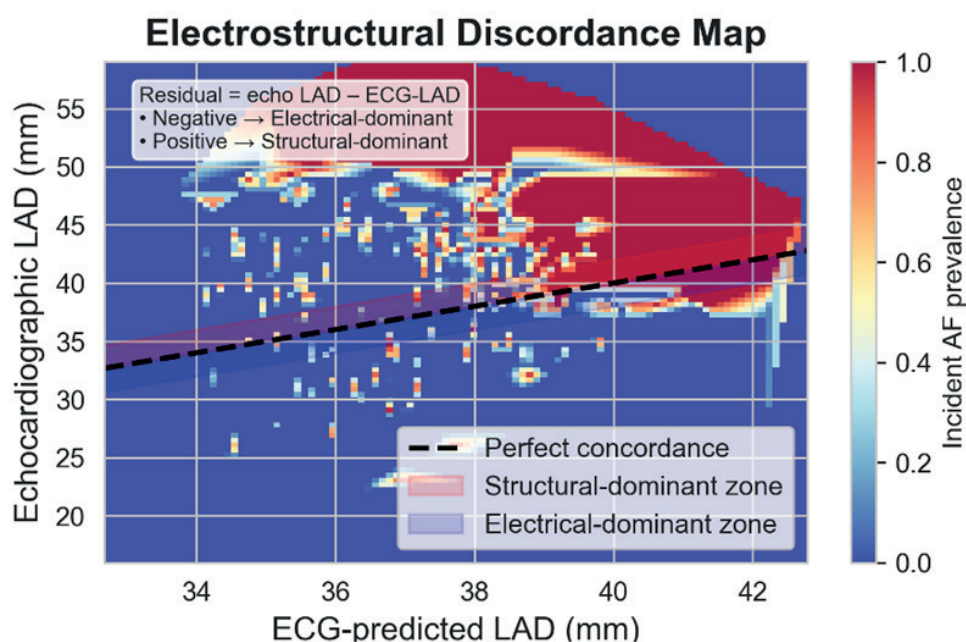
Objectives: To derive an ECG-based estimate of LA diameter (ECG-LAD) and determine whether discordance with measured echocardiographic LAD identifies distinct atrial phenotypes associated with incident atrial fibrillation (AF).

Methods: We studied 11,099 patients without AF at baseline (median follow-up 31 months; 519 incident AF events). An ElasticNet model estimated LAD from ECG P-wave indices. Electro-structural discordance was defined as the difference between echocardiographic LAD and ECG-LAD and classified as concordant (± 1 SD), electrical-dominant (ECG-LAD > echo-LAD), or structural-dominant (echo-LAD > ECG-LAD). Associations with incident AF were assessed using multivariable Cox regression, internal validation, reclassification analyses, and propensity-score matching.

Results: Electro-structural phenotypes were concordant in 72.1%, electrical-dominant in 14.4%, and structural-dominant in 13.5% of patients. Compared with concordant remodelling, structural-dominant discordance was associated with a higher risk of incident AF (HR 2.94, 95% CI 2.43–3.56), whereas electrical-dominant discordance was associated with a lower risk (HR 0.58, 95% CI 0.40–0.82), independent of conventional risk factors. Addition of electro-structural discordance improved discrimination for incident AF (C-index 0.665 to 0.724), with significant reclassification improvement (NRI 0.156; IDI 0.016). Findings were consistent across validation analyses and clinical subgroups.

Conclusions: Discordance between electrical and structural measures of LA remodelling identifies clinically distinct atrial phenotypes with differing risks of incident AF. Integrating these complementary domains may improve characterization of atrial disease and enhance AF risk stratification using routinely available clinical data. □

Figure 1





Posters 2

73/ElectroStructural Phenotypes of FirstDegree AV Block: A Translational Study of Atrial Cardiomyopathy and Incident Atrial Fibrillation*touchCARDIO Meeting Proceedings. 2026;1;abstr73**Authors: SC Chandran (Presenting Author),¹ A Sambath,² S Faiz,¹ F Liu,¹ X Yin¹ and Y Xia¹**1. The First Affiliated Hospital Of Dalian Medical University, Dalian, China; 2. Meenackshi Mission Hospital and Research Center, Madurai, India*

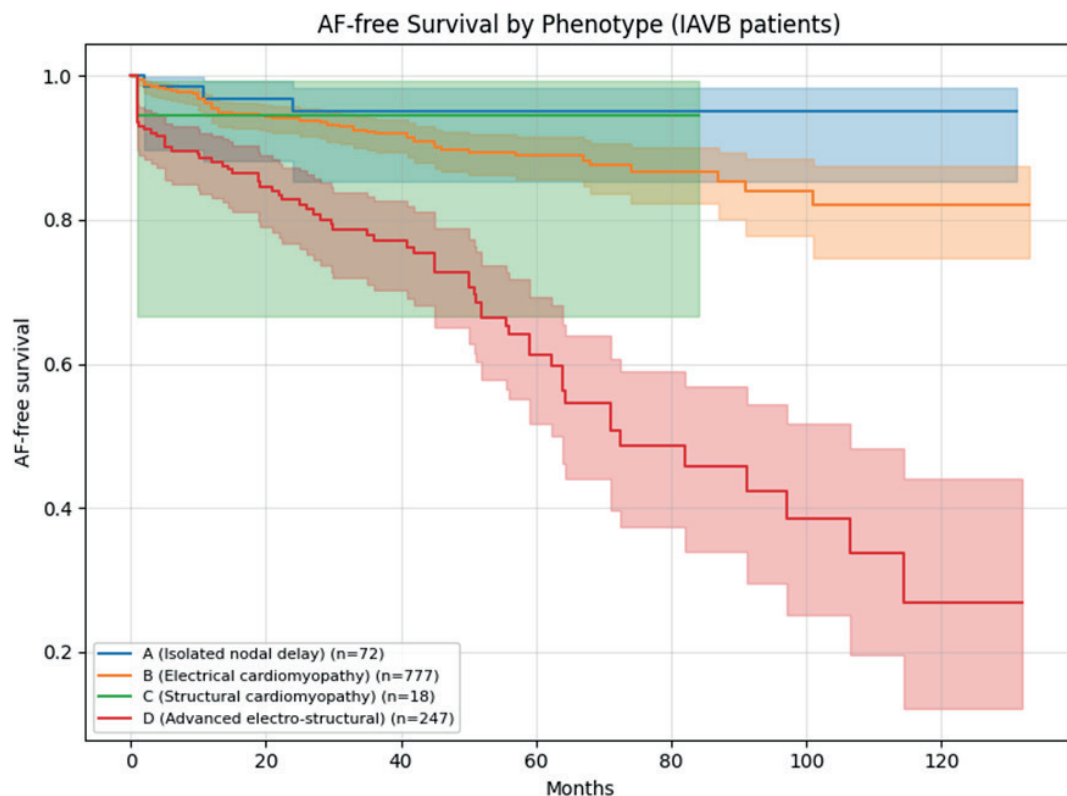
Background: First-degree atrioventricular block (IAVB) is a common ECG finding, although its association with underlying atrial remodeling and atrial fibrillation (AF) risk remains incompletely defined. We hypothesized that electro-structural phenotyping may identify clinically meaningful subgroups of IAVB with differing risks of incident AF.

Methods: We studied 1,114 patients with IAVB (PR interval ≥ 200 ms). Electrical remodeling was defined by at least one abnormal P-wave marker (P-wave duration ≥ 120 ms, PTFV1 > 4000 $\mu\text{V}\cdot\text{ms}$, P-wave dispersion ≥ 40 ms, or P-wave voltage ≤ 100 μV). Structural remodeling was defined as left atrial enlargement (male ≥ 40 mm, female ≥ 38 mm). Patients were categorized into four phenotypes: A (no remodeling), B (electrical remodeling only), C (structural remodeling only), and D (combined electro-structural remodeling). Incident AF was assessed over a median follow-up of 34 months.

Results: Phenotype distribution was: A 6.5%, B 69.7%, C 1.6%, and D 22.2%. AF incidence increased across phenotypes from 4.2% in phenotype A to 8.0% in phenotype B and 28.7% in phenotype D. Compared with phenotype A, combined electro-structural remodeling was associated with a higher risk of incident AF (HR 9.03, 95% CI 2.83–28.83; $p < 0.001$). Structural remodeling was uncommon in isolation, while electrical abnormalities were more frequently observed, suggesting varying patterns of atrial involvement in IAVB.

Conclusions: IAVB is associated with heterogeneous patterns of atrial remodeling and differing risks of incident AF. Electro-structural phenotyping identifies clinically distinct subgroups, with combined remodeling associated with higher AF risk. This framework, based on routine ECG and echocardiography, may support more refined risk stratification in patients with PR prolongation. □

Figure 1





Posters 2

74/Timeliness of Implanted Cardioverter Defibrillator deactivation for patients at the end of life

touchCARDIO Meeting Proceedings. 2026:1;abstr74

Authors: V Conner (Presenting Author) and J Webb
Guy's and St Thomas NHS Foundation Trust, London, UK

Introduction: An Implantable Cardioverter Defibrillator (ICD) is an electronic device which monitors for life-threatening arrhythmias. It detects rhythms such as ventricular tachycardia (VT) and ventricular fibrillation (VF) and attempts to restore a normal rhythm by applying anti-tachycardia pacing (ATP) or a high voltage shock. Patients with ICDs will inevitably experience deterioration as a result of progressive heart failure, non-cardiac comorbidities, or increasing age/frailty. ICD shocks can be painful and psychologically distressing. It is estimated that approximately 30% of patients experience one or more ICD shocks in the final weeks of life. Deactivation in the last week of a patient's life may sufficiently avoid shocks. Delays are commonly attributed to two main factors. ICD deactivation is often not discussed with patients or their loved ones in a timely manner, resulting in decision-making and the deactivation process being left too late. There may be limited access to appropriate deactivation equipment and adequately trained personnel to safely deactivate the device.

Methods: A single centre retrospective audit of adult patients with ICDs, who received a deactivation between 2019–2022 was carried out. Data was collected from ICD clinic records and electronic patient records. Outcomes included the timing of deactivation relative to death and location.

Results: The overall number of deactivations carried out by our service was 72 during the audited time period (2019-2022) which is 46% of the 156 patients that died with an ICD in situ. There was a statistically

significant association between year and ICD deactivation status ($\chi^2(3) = 9.77$, $p = 0.02$), indicating that deactivation rates differed between years. Significantly more patients died with active ICD therapies in 2020 due to the Covid-19 pandemic. Of the deactivations 29 (40%) were carried out within 7 days of the patient's death, 11 (15%) were within the 24 hours prior to the patient's death. Statistical testing showed no significant difference in the distribution of time from death to deactivation across the audited years ($\chi^2(9) = 3.57$, $p = 0.94$). Overall, 76.4% of the deactivations were carried out whilst patients were admitted to our hospital. 11.1% of deactivations were carried out in the outpatient setting 12.5% were carried out as a home visit.

Conclusions: This audit demonstrates that less than half of patients who died with an ICD in situ underwent device deactivation, with 15% of deactivations occurring very close to the time of death (<24hours). Patients having their ICDs deactivated within the final days or hours of life highlights possible delays in advance decision-making. As most deactivations occurred during inpatient admissions, opportunities remain to improve early discussions and proactive planning so that deactivations can be done during routine visits. Earlier conversations about ICD deactivation as part of advance care planning, alongside improved staff training and access to deactivation services, may reduce the risk of distressing shocks at the end of life and promote more dignified, patient-centred care. □

Table 1

Time from Death to Deactivation.	<24 hours	<7 days	<30 days	>31 days	Mean number of days	Standard Deviation
2019 n = 19	3 (15.8%)	5 (26.3%)	3 (15.8%)	8 (42.1%)	65.6	96.2
2020 n = 19	3 (15.8%)	5 (26.3%)	7 (36.8%)	4 (21.1%)	13.5	16.1
2021 n = 17	3 (17.6%)	4 (23.5%)	4 (23.5%)	6 (35.3%)	47.4	65.3
2022 n = 12	2 (16.6%)	4 (33.3%)	3 (25%)	3 (25%)	38.3	91.9
Total 67 (5 patients excluded)	11	18	17	21	41	73.3



Posters 2

75/WITHDRAWN



Posters 2

76/The possibilities of catheter ablation for patients with persistent atrial fibrillation: how do we do it?

touchCARDIO Meeting Proceedings. 2026;1;abstr76

*Authors: E Kropotkin (Presenting Author), E Strebkova, I Peregudov and A Revishvili
A.V. Vishnevskiy National Medical Research Center of Surgery, Moscow, Russia*

Introduction: During the past few decades, atrial fibrillation (AF) has become a global, non-infectious «epidemic». Following M. Haissaguerre's discovery in 1998, catheter ablation (CA) of the pulmonary veins (PVs) is the first-line treatment for paroxysmal symptomatic AF that are resistant to antiarrhythmic therapy, but its use for persistent (PerAF) forms is questionable. In cases of PerAF, the long-term success rate CA of PVs is 20–60%, decreasing with each subsequent procedure. Whether CA should be extended beyond the PVs in cases of non-paroxysmal AF continues to be a subject of debate. In view of this, we decided to present an effective strategy for CA of Complex fractionated electrograms (CFAE) in patients with PerAF during a one-year period.

Methods: Since January 2025, a total of 287 patients with paroxysmal and Per of AF have undergone primary antral isolation of PVs under zero-fluoroscopy (ZF) using CARTO3, with a high-power energy setting of 60W (AI 450). In accordance with the inclusion criteria, our analysis sequentially included patients with PerAF (duration <12 months) who, in addition to primary antral isolation PVs, underwent a search for CFAE with the necessary condition that sinus rhythm (SR) was recovered at the time of ablation. All CA were performed by a single experienced surgeon. A total of 24 patients were included. The primary endpoint of the study was defined as the maintenance of a stable SR, as determined by 24-hour ECG monitoring.

Results: The mean age of the patients was $48,1 \pm 5,8$ years, with a prevalence of men ($n=18$, 75%). Sixteen (67%) patients had the tachysystolic form of AF, associated with NYHA Class III–IV heart failure and a reduced left ventricular ejection fraction (Simpson) of $29,2 \pm 12,4\%$. According to the results of the Kaplan-Meier survival curve for freedom from atrial tachyarrhythmias, the efficacy of antral isolation PVs + CFAE was 100% over a mean follow-up of $9,8 \pm 4,2$ months. It is important to note that, at the time of ablation of CFAE, all patients showed transformation of AF into atrial tachycardia (AT), primarily ($n=20$, 83%) with a left-sided activation front and a cycle duration (cd) of 280 to 320 ms. Activation maps (LAT) were constructed, followed by ablation in the area of interest, resulting in an increase in cd and the elimination of the AT. In another group of patients ($n=4$, 17%), PT was characterised by right-sided activation, which necessitated mapping of the right atrium followed by CA. The mean duration of the operation was $198,4 \pm 102,1$ minutes, key factor was the complete exclusion of ionising radiation for the patient and the medical staff, despite increase in the duration of the operation due to the search for CFAE.

Conclusions: The results of our observational study are exciting, but we need to include a larger group of patients and perform randomised clinical trials to confirm the clinical significance of ablation of CFAE in patients with PerAF. □



Posters 2

77/Developing Artificial Intelligence-enhanced electrocardiography models to detect electrolyte and haemoglobin abnormalities

touchCARDIO Meeting Proceedings. 2026:1;abstr77

Authors: N Jeganathan (Presenting Author),¹ AR Birdi,¹ A El-Medany,¹ GR Khattak,¹ H Aggour,¹ K Patlatzoglou,¹ J Barker,¹ B Zeidaabadi,¹ L Pastika,² J Tonko,¹ DB Kramer,³ JW Waks,³ A Sau,¹ NS Peters¹ and FS Ng¹

1. Imperial College London, London, UK; 2. St George's University Hospitals NHS Foundation Trust, London, UK; 3. Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA, USA

Introduction: Artificial Intelligence-enhanced electrocardiography (AI-ECG) is increasingly being explored to detect serum electrolyte and biomarker abnormalities. This is particularly applicable in virtual wards and remote continuous monitoring settings, where frequent blood testing is required but often not feasible. AI-ECG predictions may aid clinical decision-making, such as determining whether confirmatory blood tests should be performed for patients flagged as high-risk. This personalises monitoring to a patient's individual risk, making frequent monitoring more viable.

Methods: Three binary classifier AI-ECG models (to detect National Institute for Health and Care Excellence (NICE)-defined hyperkalaemia, hyponatraemia, or anaemia) and three regression models (to predict serum potassium, sodium, or haemoglobin levels) were developed. Models were trained, internally validated, and finally tested using retrospective medical records from the Beth Israel Deaconess Medical Center, which included same-day 12-lead ECG and blood test pairs. 460,908 ECGs were used to develop both hyperkalaemia and potassium regression models, 453,399 ECGs for hyponatraemia and sodium regression models and 519,284 ECGs for anaemia and haemoglobin regression models. Binary classifier performance was assessed using Area Under Curve (AUC), sensitivity, specificity, positive predictive value, and negative predictive value. The latter four were measured at Youden's threshold. Regression model performance was assessed using mean absolute error and R² score.

Results: The anaemia binary classifier performed best out of the three binary classifiers and was stronger at identifying negative cases (sensitivity: 0.67, specificity: 0.73). Hyponatraemia and hyperkalaemia models trailed and were stronger at identifying positive cases (hyponatraemia sensitivity: 0.67, specificity: 0.58, hyperkalaemia sensitivity: 0.66, specificity: 0.61).

The anaemia model was able to differentiate between a positive and negative case the best (AUC: 0.77) while the hyponatraemia and hyperkalaemia models struggled (AUC of 0.67 and 0.68 respectively).

All three regression models were poorly predictive, with little improvement over baseline mean prediction (haemoglobin R²: 0.32, potassium R²: 0.10, sodium R²: 0.04).

Conclusions: Performance of all six models was inadequate to be clinically useful. For the binary classifiers, the low sensitivities may lead to false reassurance while the low specificities may distract clinicians from true high-risk patients and may also lead to alarm fatigue. For the regression models, the serum estimates were unreliable as the models were mainly predicting the mean for majority of the cases. Future work involves using venous blood gas values (which have a quicker turnaround time and are more contextual) to potentially improve performance, and incorporating additional information (e.g. patient family history and comorbidity data) so the models can contextualise the predicted serum values, with other potential risk factors, to determine a patient's risk. □



Posters 2

78/Elective electrical cardioversion for atrial arrhythmias in district general hospitals – interpreting the substrate*touchCARDIO Meeting Proceedings. 2026;1;abstr78*Authors: *G Horsfall* (Presenting Author),¹ *SL Pelton*,² *D Ferguson*² and *G Chu*¹

1. Blackpool Victoria Hospital, Blackpool, UK; 2. University Hospitals of Morecambe Bay NHS Foundation Trust, Lancaster, UK

Electrical cardioversion (ECV) is used for rhythm control of atrial flutter (AFLT) and persistent atrial fibrillation (persAF). But sinus rhythm (SR) can be short-lived, limiting the window of opportunity for symptom or investigation review, e.g. repeating echocardiograms for heart failure (HF) patients, and impacting subsequent management decisions. This is further challenged in the present climate of long waitlists for public sector care. With this context in mind, we sought to review heart rhythm outcomes for elective ECV of atrial arrhythmias in district general hospitals in the Lancashire and South Cumbria region.

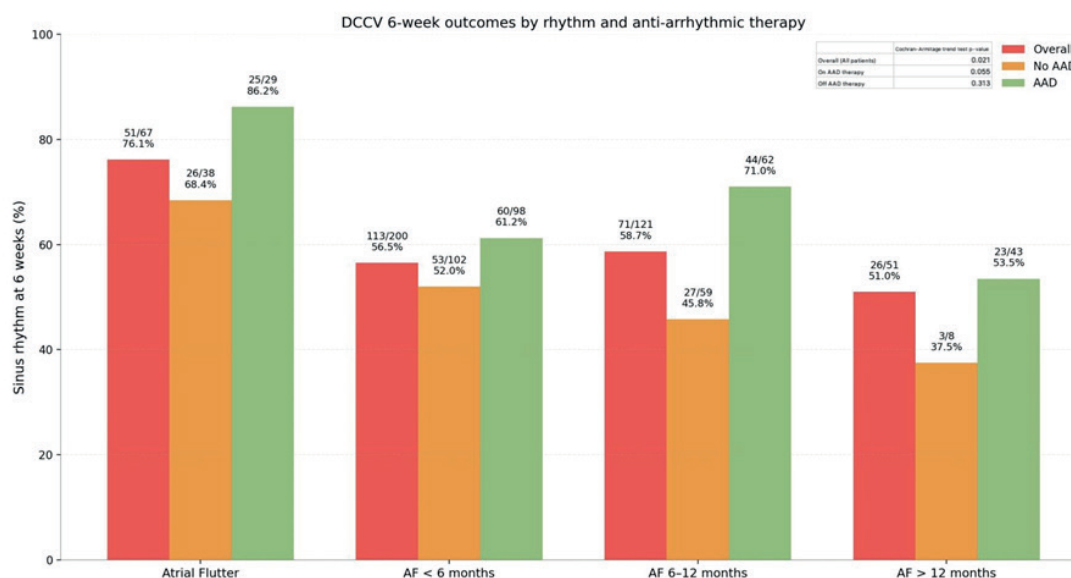
Method: We conducted a retrospective observational study of all patients undergoing elective ECV for AFLT, persAF or longstanding persAF (LSpersAF). Maintenance of SR at 6 weeks was the primary outcome. Associations were assessed using chi-square and Cochran–Armitage trend analysis.

Results: 771 ECVs were reviewed between 2022 to 2026 across 3 regional hospitals. 439 of 771 (56.9%) had a 6 week rhythm outcome recorded. 261 of 439 (59.5%) maintained SR at 6 weeks following successful ECV. Likelihood of SR maintenance was greatest at 76.1% for AFLT, lowest at 51% for LSpersAF, intermediate in between (see *Figure 1*, $p=0.021$ for trend overall). Antiarrhythmic drugs (AADs) supported

a better outcome in every arrhythmia group. HF patients had better outcomes than non-HF patients (68.3% vs 56.1% maintaining SR, $p<0.028$). Amongst patients with reduced left ventricular ejection fraction (LVEF) $<40\%$, 32 of 65 (49.2%) were on amiodarone, and 29 of these 32 maintained SR compared with 19 of 33 not on any AADs (90.6% vs 57.6%, $p=0.006$).

Conclusions: In a large real-world cohort undergoing elective ECV for atrial arrhythmia, overall rates of SR maintenance at 6 weeks were highest for AFLT, intermediate for persAF, and lowest for LSpersAF. In particular, ECV for persAF of any type without AADs demonstrated SR maintenance of 52% or less at 6 weeks, which may have significant implications if planning follow-up assessments contingent upon SR. AADs increased SR maintenance in every group. Amiodarone was particularly effective in the LVEF $<40\%$ cohort. This supports a rhythm control strategy including ECV for patients with an LVEF $<40\%$, where the presence of a reduced LVEF does not automatically imply an advanced AF substrate. Finally, the results suggest that AFLT patients have less overall arrhythmic substrate than those with persAF, consistent with the idea that ablation for AFLT may anticipate longer term freedom from atrial arrhythmia when compared to persAF ablation. □

Figure 1





Posters 2

79/Evaluating Psychological Intervention in Patients with ICDs: Outcomes from a Multidisciplinary Clinical Health Psychology Service

touchCARDIO Meeting Proceedings. 2026:1;abstr79

*Authors: C Maughan (Presenting Author), JK Leckie, J Keogh, L Stevenson, S Kelly and H Thomas
Northumbria Healthcare NHS Foundation Trust, Newcastle upon Tyne, UK*

Introduction: Implantable cardioverter defibrillators (ICDs) are potentially lifesaving for those at risk of sudden cardiac death. However, there is associated psychological burden, with high rates of anxiety, depression, post-traumatic stress symptoms and reduced quality of life. Psychological therapies can reduce distress in patients with ICDs. This evaluation aimed to describe referrals to a Clinical Health Psychology (CHP) pathway for patients with ICDs, including clinical presentations, psychological interventions, outcomes and patient feedback.

Methods: Patients were referred to the CHP team following recognition of psychological difficulties. Patients completed a brief pre-treatment measure of psychological distress, the CORE-10. Demographics, referral route and reasons, relevant medical history and length of psychological intervention were recorded. Follow up CORE-10 scores and patient feedback were collected retrospectively. Patients who attended <3 sessions or who died after discharge were excluded.

Results: Between June 2024 – November 2025 7 patients completed therapy. 6 patients were referred from outpatient clinics and 1 inpatient. 4 were referred by a consultant cardiologist and 3 by a specialist cardiology nurse. Mean patient age at referral was 60.7 ± 11.4 years old with 6 male and 1 female. 4 had a history of ischaemic cardiomyopathy (ICM), 1 had non-ischaemic cardiomyopathy (NICM), 1 had ICM & NICM and 1 had an undetermined cardiac diagnosis. 3 had ICD for primary prevention and 4 for secondary prevention (2 after cardiac arrest and 2 with pulsed ventricular tachycardia). Mean time from ICD implantation to CHP referral was 27.1 ± 36.3 months. 4 patients had received shocks from their ICD. Of these, 1 had experienced inappropriate shocks.

4 patients presented with anxiety about future cardiac events, 5 with activity restriction, 4 hypervigilance, 2 reduced confidence, 2 low mood, 2 self-critical thinking, 3 social withdrawal, and 6 with adjustment difficulties following cardiac arrest and/or ICD implantation. 5 patients had no prior mental health diagnoses. 1 held a diagnosis of PTSD and anxiety, and 1 generalised anxiety disorder, with both prescribed sertraline and 1 previously accessing therapy.

The mean time between first appointment to discharge was 16.4 ± 10.6 weeks. The mean number of appointments attended was 7.7 ± 3.6 . There was 1 scheduled appointment not attended. The mean pre-intervention CORE-10 scores for the cohort were 18.1 ± 4.3 and following therapy were 12.6 ± 7.7 . Qualitative feedback indicated that all patients found the psychological intervention helpful in managing ICD-related distress.

Conclusion: In this small retrospective service evaluation, patients with ICDs and clinically significant baseline levels of psychological distress showed a reduction in their distress following a brief course of psychological therapy, as measured by CORE-10 scores. The patient group experiencing distress was varied, highlighting the importance of vigilance in a variety of clinical settings. Allied professional driven referral pathways successfully identified patients with high psychological distress who had good response to treatment. Interpretation is limited by the small sample size of this pilot group, retrospective design and absence of a control group. Evaluation of larger cohorts and longer follow-up is needed to evaluate the effectiveness and sustainability of psychological interventions in this population. □



Posters 2

80/The Shora AF Signature: A Novel QRS Voltage Variability Index for Atrial Fibrillation Detection — Computational Validation Using the PhysioNet MIT-BIH Atrial Fibrillation Database

touchCARDIO Meeting Proceedings. 2026:1;abstr80

Authors: K Shora

Almana General Hospital, Azizia Dammam, Dammam, Saudi Arabia

Introduction: Automated atrial fibrillation (AF) detection using conventional RR interval irregularity is limited by reduced specificity in complex rhythms and variable ECG morphologies. We introduce the Shora AF Signature, a novel two-component ECG framework comprising SS1 (beat-to-beat QRS voltage variability index) and SS2 (baseline irregularity index), and report its computational validation using a well-established open-access ECG database.

Methods: The PhysioNet MIT-BIH Atrial Fibrillation Database was accessed using the WFDB Python library. Seventeen long-term Holter recordings containing annotated AF epochs were analysed at the recording level. ECG signals underwent bandpass filtering (0.5–40 Hz), followed by amplitude-based R-peak detection. Three AF detection strategies were evaluated: (1) Traditional method — RR interval coefficient of variation (CV) >0.12; (2) SS1 — beat-to-beat QRS peak-to-peak amplitude CV >0.18; and (3) Combined Shora AF Signature — SS1 or traditional positive. Rhythm annotations were extracted directly from PhysioNet reference labels. Sensitivity analysis was performed against annotated AF ground truth.

Results: Across 17 recordings from the PhysioNet MIT-BIH AF Database, traditional RR irregularity analysis demonstrated a sensitivity of 82.4%, whereas SS1 (QRS voltage variability) demonstrated a sensitivity of 94.1%. The combined Shora AF Signature also demonstrated a sensitivity of 94.1%. SS1 therefore showed an 11.7 percentage-point improvement in sensitivity compared with conventional RR-based analysis. The SS1 threshold of CV >0.18 provided optimal discrimination within the analysed dataset. All analyses were performed using publicly available PhysioNet data (Goldberger et al., *Circulation*, 2000), ensuring full computational reproducibility. A recognised limitation is that SS1 performance may be attenuated in slow AF with low-voltage ECGs.

Conclusions: The Shora AF Signature, particularly its SS1 component based on beat-to-beat QRS voltage variability, demonstrated higher sensitivity for AF detection than conventional RR irregularity analysis on the PhysioNet MIT-BIH AF Database. These findings support QRS voltage variability as a potentially useful complementary ECG marker for automated AF detection. The framework is associated with a filed USPTO provisional patent (63/826,826). Further prospective validation in larger clinical cohorts is warranted. □



Posters 2

81/Predicting One-Year Mortality After Cardiac Resynchronisation Therapy in Patients Hospitalised for Heart Failure: A Novel Risk Score*touchCARDIO Meeting Proceedings. 2026:1;abstr81*Authors: O Rees (Presenting Author), R Ray, G Rosano and F Johura

1. Cardiovascular Clinical Academic Group, City St George's University of London, London, UK

Introduction: Indications for CRT implantation in patients with heart failure (HF) are well established; however, all major landmark CRT trials excluded patients with recent or active hospitalisation for heart failure (HFH). In clinical practice however, CRT-naïve, but eligible, patients are frequently admitted to hospital with acute decompensated heart failure at which point CRT implantation may be considered. However, HFH is itself a powerful adverse prognostic marker, with up to one-third of patients dying within a year of discharge. Thus, there is an unmet need for better prognostication to guide shared procedural decision-making when CRT is considered in currently or recently hospitalised heart failure patients.

Methods: A multivariable Cox proportional hazards model was developed to model all-cause mortality in a retrospective cohort of 220 consecutive patients hospitalised with heart failure who subsequently underwent cardiac resynchronisation therapy, either during the index admission ($n = 130$) or following discharge ($n = 90$), between 2014 and 2024 at a single centre. Individualised survival probabilities at 365 days post-CRT implantation were derived from the Cox model. Model calibration at 1 year was assessed using bootstrap resampling. A simplified points-based score was derived from the Cox model coefficients to facilitate bedside application. Discrimination of the score-based grouping (low-risk, medium-risk, high-risk) for 1-year mortality prediction was assessed using receiver operating characteristic analysis.

Results: 135 deaths were observed over the study period and a higher hazard of mortality was independently associated with increasing age

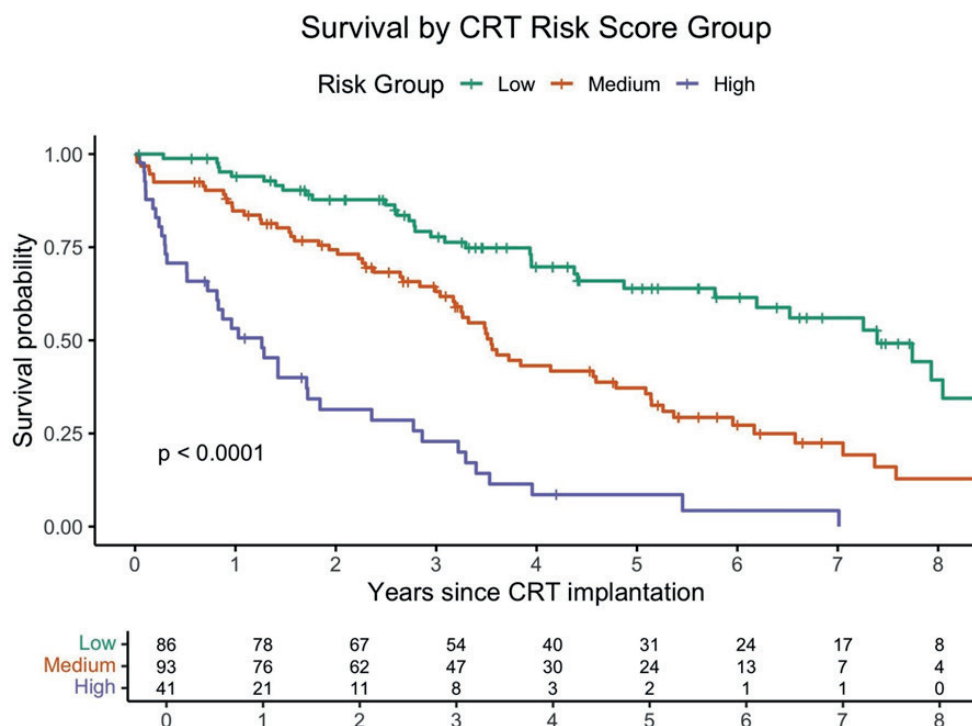
(HR 1.04 per year, 95% CI 1.02–1.06, $p < 0.001$), male sex (HR 2.04, 95% CI 1.35–3.09, $p < 0.001$), inpatient implantation (HR 1.94, 95% CI 1.34–2.81, $p < 0.001$), a decision to implant a CRT-P not a CRT-D (HR 1.62, 95% CI 1.10–2.38, $p = 0.014$) and non-sinus rhythm (HR 1.42, 95% CI 1.00–2.00, $p = 0.049$).

Our model demonstrated reasonable discriminatory power for survival, with a Harrell's C-statistic of 0.70. Following bootstrap internal validation, the optimism-corrected C-statistic was 0.69.

A simple points-based risk score to predict mortality at 1 year post CRT implant was derived from model coefficients to facilitate clinical use. The score demonstrated graded increases in 1-year mortality, ranging from 2.5% in patients with a score of 0 to over 40% for patients scoring 9 or above. An interactive score calculator can be found here: <https://hf-tools.github.io/crt-mortality-risk-calculator/>. When grouped into low (0–4), medium (5–7), and high-risk (≥ 8) categories, the score showed marked separation of survival curves (log-rank $p < 0.001$). Discrimination for 1-year mortality by score risk groups was acceptable (AUC 0.74).

Conclusion: Among hospitalised heart failure patients for whom CRT is being considered, there is marked heterogeneity in the mortality risk over the next year, and a subset of very high-risk patients experience limited survival despite CRT implantation. We describe a simple, pragmatic, pre-implant risk score that stratifies 1-year mortality. Following external validation, this tool may help support shared decision-making when considering CRT in high-risk, currently or recently, hospitalised patients. □

Figure 1





Posters 2

82/Changes in AF ripple frequency and cycle length following pulmonary vein isolation: insights for targeted AF ablation?*touchCARDIO Meeting Proceedings. 2026:1;abstr82*

Authors: M Lawless (Presenting Author), M Firescu, D Twomey, MGD Bates, A Thornley and S James
James Cook University Hospital, Middlesbrough, UK

Objectives: Pulmonary vein isolation (PVI) remains the cornerstone of atrial fibrillation (AF) ablation. AF cycle length (CL) mapping has emerged as an important surrogate marker for atrial activation rate and organisation during AF. Ripple frequency (RF) mapping is a high-density visualisation technique that facilitates identification of arrhythmogenic substrates. Elevated RF is strongly associated with AF termination and improved long-term freedom from AF after PVI. PVI is shown to significantly prolong AF CL. The relationship between RF and CL pre-/post-PVI remains incompletely understood. This study provides further insight into AF maintenance mechanisms and ablation targets in the development of individualised substrate-guided ablation strategies.

Methods: RF and CL maps were generated using CARTO. Left atrial maps from 15 patients (median 68 years) were generated before and after PVI. Maps were analysed using a bespoke grid to identify anatomical regions of interest (ROI). RF and CL ROI were compared pre- and post-PVI.

Results: Pre-PVI: RF was greatest in anterior and septal walls (58%, 64% of cases); CL was greatest posteriorly (52% of cases). PVI reduced RF in the roof (change (Δ)-16%), posterior wall (Δ -18%) and septum (Δ -36%); increased RF was seen in the anterior wall (Δ +35%) and inferior wall (Δ +10%). PVI decreased CL in all regions; greatest in the posterior wall (Δ -30%) (Figure 1).

Conclusion: PVI results in a relative decrease in posterior RF and CL. PVI increases RF in other anatomical regions. This may demonstrate a mechanism why PVI and extra regional ablation has previously been challenging to prove beneficial. This study indicates a new method of tailoring ablation targets. The role of their association and their applicability to individualised ablation strategy remains under further scrutiny. □

Figure 1

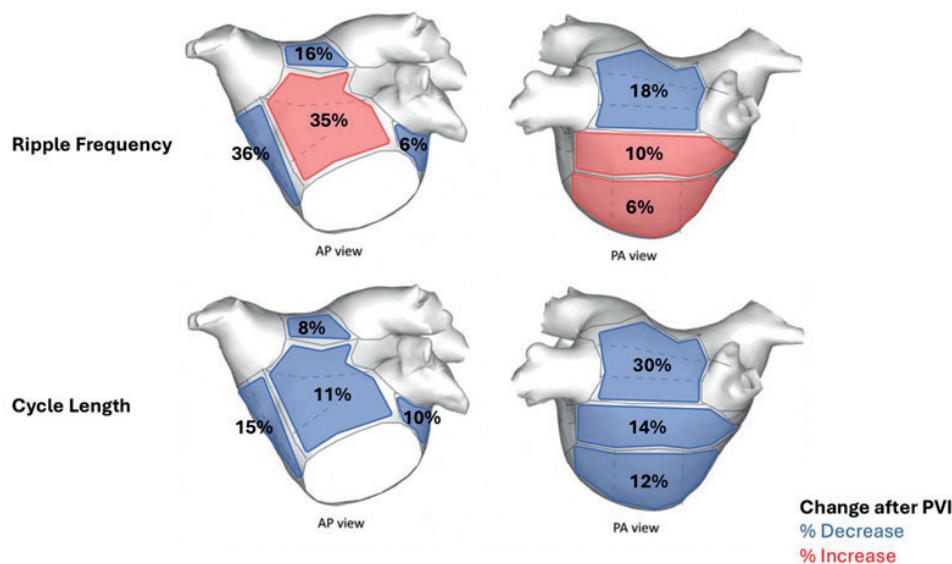


Figure 1. Left atrial maps showing changes following pulmonary vein isolation (PVI). Anterior view (left) and posterior view (right). Relative percentage change [Increase (red), decrease (blue)] shown following PVI in anatomical regions of interest for; ripple frequency (top) and cycle length (bottom).



Posters 2

83/Interpretable evidence-chain artificial intelligence for clinician-reviewable 12-lead electrocardiogram diagnosis

touchCARDIO Meeting Proceedings. 2026:1;abstr83

Authors: Y Liu (Presenting Author),¹ W Zhao² and Y Wang³

1. Chinese Academy of Medical Sciences Fuwai Hospital, Beijing, China; 2. National Health Commission Statistics and Information Center, Beijing, China; 3. Guangdong Provincial People's Hospital, Guangdong, China

Introduction: Artificial intelligence for 12-lead electrocardiography can support scalable cardiac diagnosis, but most models provide probabilities without evidence that clinicians can verify. We developed ECG-CSR, a weakly supervised framework that converts each prediction into an interpretable, structured and clinician-reviewable evidence chain.

Methods: ECG-CSR was trained on PTB-XL using record-level labels for normal ECG, myocardial infarction, ST-T change, conduction disturbance and hypertrophy. PTB-XL fold 10 was used for internal testing and 18,538 SPHDB recordings for external validation. A lead-preserving multi-scale temporal encoder maintained lead identity and lead-time structure. Clinical concept heads and branch-aware rhythm, morphology and global prototypes generated evidence, which was fused through diagnostic criteria rather than a single opaque classifier. The system exported class probabilities, criterion support, concept maps, prototype segments, lead-time regions, waveform anchors, parameter-audit checklists and casebooks.

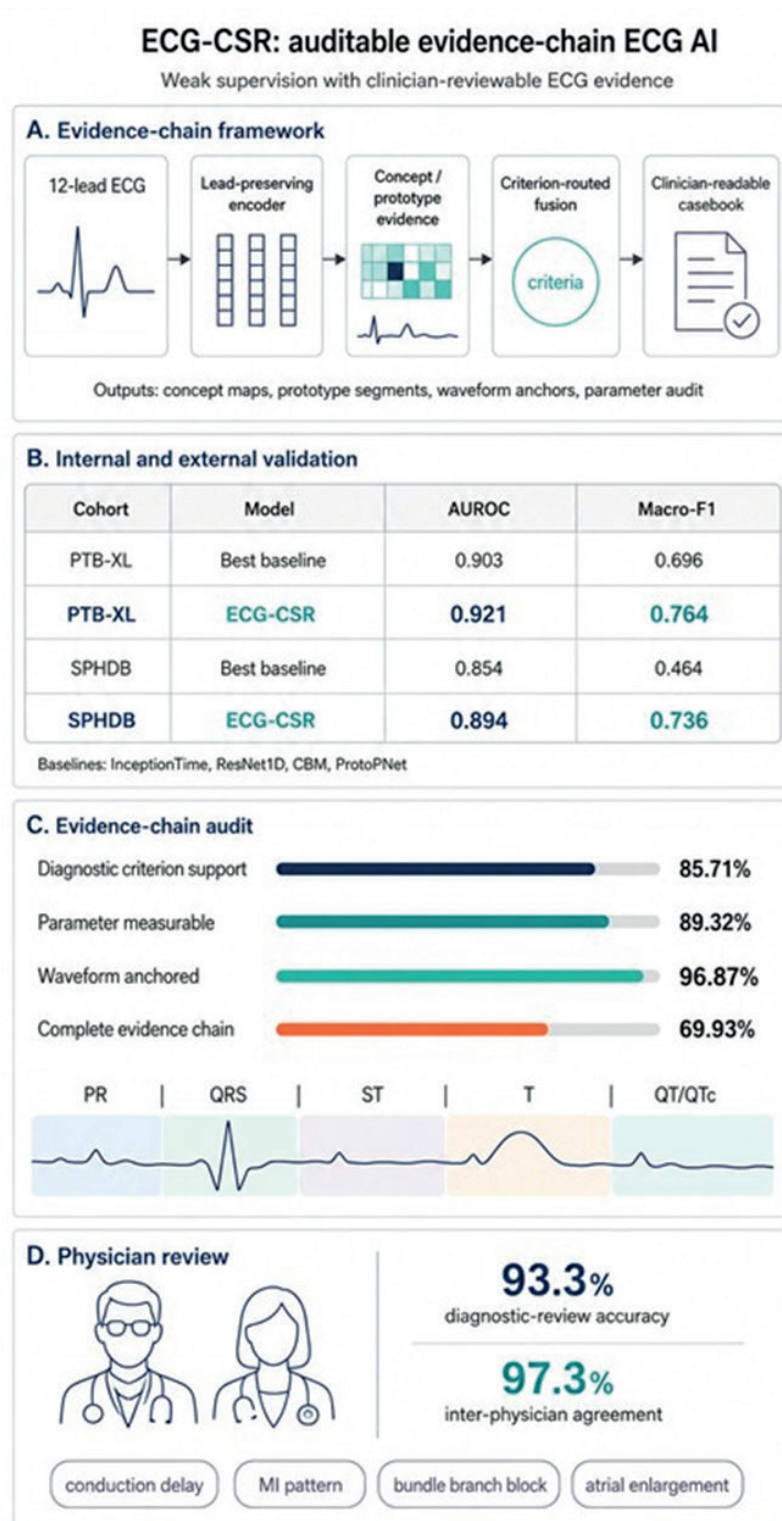
Results: ECG-CSR achieved internal macro-averaged area under the receiver operating characteristic curve of 0.9207 and macro-F1 of 0.7640,

outperforming reproduced InceptionTime, ResNet1D, concept-bottleneck and prototype baselines. External validation on SPHDB remained strong, with macro-averaged area under the receiver operating characteristic curve of 0.8935 and macro-F1 of 0.7358. Evidence export succeeded for all internal and external ECGs. Exported evidence localised to PR, QRS, ST, T and QT/QTc regions, with strong fiducial and non-global grounding. External audit showed high diagnostic-criterion support, parameter measurability and waveform anchoring. Deleting criterion and concept evidence reduced target logits more than random-window deletion in both cohorts ($p=0.001$). In 120 structured casebooks, two independent physicians achieved 93.3% diagnostic-review accuracy and 97.3% agreement.

Conclusions: ECG-CSR combines robust 12-lead ECG classification with structured, clinician-reviewable evidence. By linking predictions to diagnostic criteria, clinical concepts, waveform regions, leads and auditable parameters, it provides a practical route from black-box ECG prediction to verifiable digital ECG decision support. □



Figure 1





Posters 2

84/Electrical performance and documentation quality in left bundle branch area pacing: a single-centre retrospective audit and service improvement project

touchCARDIO Meeting Proceedings. 2026:1;abstr84

Authors: *ER Razlae* (Presenting Author)

Guy's and St Thomas' Hospital, London, UK

Background: Left bundle area pacing (LBAP) has become more prominent in current practice. This is due to its ability to provide a more physiological activation of the ventricles, when compared to traditional right ventricular pacing. Right ventricular pacing is associated with long-term complications, especially with high pacing burdens. Despite LBAP being increasingly used in centres, real-world data can often be incomplete, limiting its ability to be used for meaningful evaluations. Locally, there is currently limited implant and follow up data on LBAP lead performance and documentation quality. Missing data in routine clinical records poses a major issue when conducting studies as they can skew the outcomes and conclusions. It can cause biased results and reduce statistical power, making potential findings less reliable.

Aim: To assess the performance and stability of LBAP leads and quality of documentation.

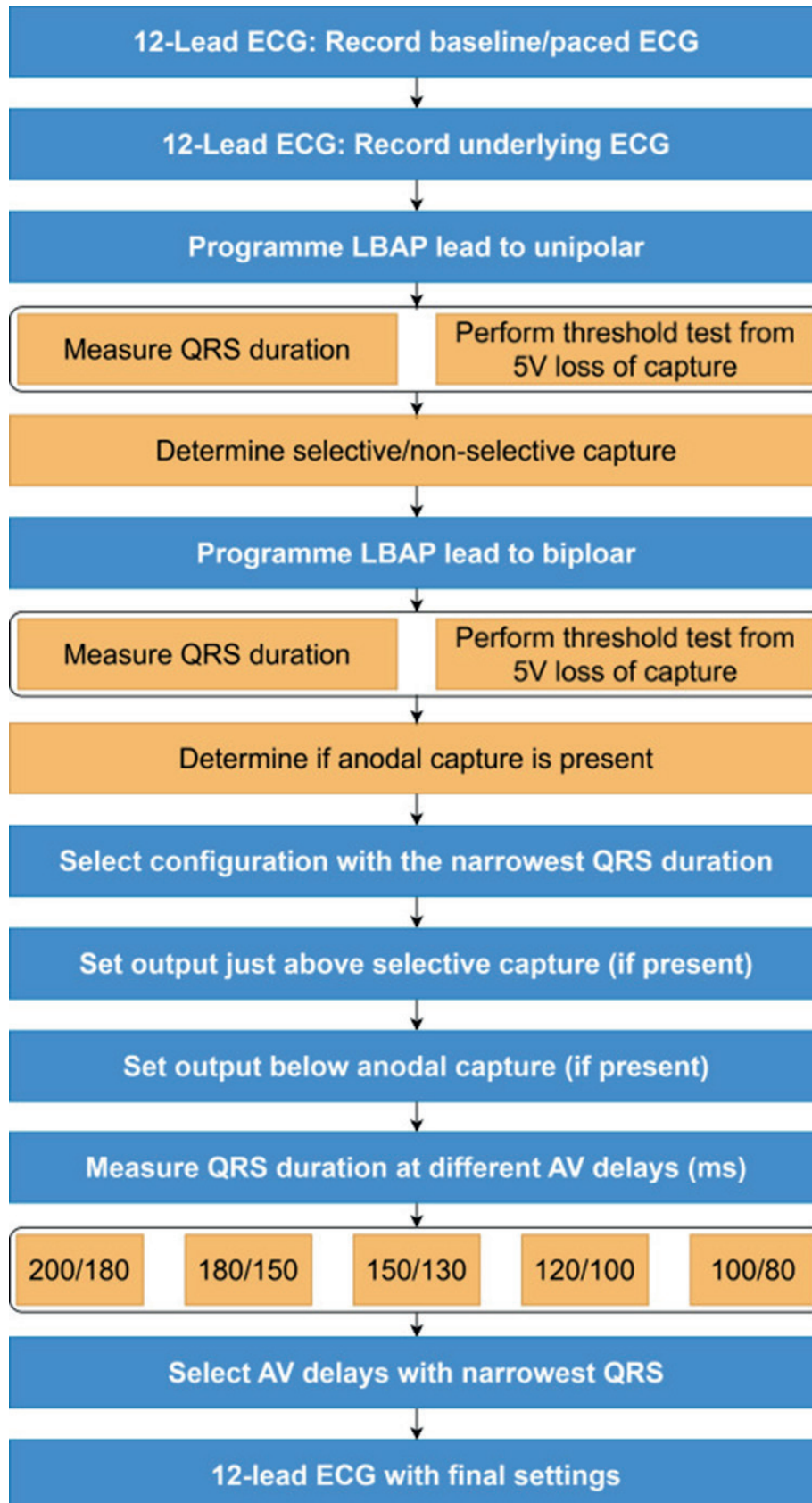
Methods: Data were collected retrospectively from a single centre between February 2023 and October 2025 from patients who had undergone LBAP implantation. Paced QRS durations and left ventricular activation time (LVAT) were collected at implant. Pacing threshold and lead impedance were recorded at implant, 6 week follow up and 6 month follow up. The following were assessed; documentation completeness, threshold and impedance distributions, and within patient changes between timepoints.

Results: There was missing data from each variable, especially in paced QRS (28.80% at implant, 57.07% at 6 weeks) and LVAT (23.91%). Median threshold and impedance were within pre-defined ranges. Within patient analysis showed statistically significant changes from implant to 6 weeks, but none between 6 weeks and 6 months.

Conclusion: Threshold and impedances were predominantly satisfactory and met performance criteria across all time points. Overall, statistically significant changes were seen in parameters over time. Nevertheless, these values were within acceptable limits and were not clinically significant. Due to incomplete data, some outcomes were limited. As a result, some flaws in current processes were identified. A complete practice and documentation protocol was created specifically for LBAP devices. This creates a standardised method for recording implant and follow up data, while the workflow diagram is a reproducible method for programming AV delays and pacing configurations that achieve the narrowest QRS duration and consistent LBAP capture. By implementing a standardised approach to documentation of LBAP implant and follow ups, data within clinical records should be more consistent. This enhances the ability to carry out future audits, re-audits and prospective research using comparable data fields at this centre. Future studies can be conducted with more accuracy as data will more closely reflect actual practice. □



Figure 1: Workflow diagram of LBAP follow up





Posters 2

85/Introducing Left Bundle Branch Area Pacing in a District General Hospital: Procedural Success, Learning Curve and Early Outcomes

touchCARDIO Meeting Proceedings. 2026:1;abstr85

*Authors: MW Zhlawi (Presenting Author), T Sandutu, N Christodoulis, S Abolzadeh, A Elbekiey and D Roy
The Princess Alexandra Hospital, Harlow, UK*

Introduction: Conduction system pacing (CSP) through left bundle branch area pacing (LBBAP) is an emerging approach in heart rhythm management due to its advantage of utilising the heart's natural electrical conduction pathway and avoiding the possible downstream deleterious effect of chronic right ventricular pacing. Compared with His bundle pacing, LBBAP is associated with higher procedural success rates, improved lead stability and more favourable pacing thresholds, contributing to its widespread clinical interest and rapid adoption.

Whilst developing interest in this technique has resulted in an increasing number of specialist centres adopting LBBAP for bradycardia pacing, data regarding its implementation and outcomes in a district general hospital setting remain limited.

We aim to evaluate the practicality, safety and early clinical outcomes of introducing CSP in a district general hospital.

Methods: We performed a retrospective audit of a selected cohort of patients undergoing attempted CSP/LBBAP between October 2024 and March 2026 at The Princess Alexandra Hospital. Data collected included patient demographics, pacing indication, operator, procedural success, complications, fluoroscopy time, native QRS duration and paced QRS duration. Fluoroscopy time was recorded as the total procedural fluoroscopy time. One same-session rescue CSP case after failed cardiac resynchronization therapy (CRT) was excluded from fluoroscopy analysis because fluoroscopy included the preceding CRT attempt. Learning-curve analysis was performed by comparing fluoroscopy time across sequential cases, with operator-adjusted analysis.

Results: 36 patients were included. Median age was 76.5 years and 24 were male. Indications were conduction disease (with varying

degrees of atrioventricular block) in 18 patients, sinus node disease in 16 patients and CSP following failed CRT in 2 patients. Procedural success was achieved in 33/36 cases (91.7%). Success was defined by LBBAP algorithm criteria. The three unsuccessful cases were attempted CSP/LBBAP implants where true conduction system capture was not achieved or could not be confirmed. Procedural issues occurred in 2/36 patients (5.6%), including one atrial lead displacement and one pocket haematoma managed conservatively.

Echocardiographic data were available pre-procedure in 35/36 patients (97.2%), with a median baseline LVEF of 57.5%. Post-procedure echo follow-up was available in 12 patients (33.3%) with a median LVEF of 56.25%.

Fluoroscopy analysis included 35 cases with median time decreasing from 21.3 minutes in the first 17 cases to 13.7 minutes in the subsequent 18 ($p=0.038$). Operator 1 performed 31/35 procedures, with median time falling from 21.8 minutes in their first 15 cases to 13.7 minutes in the subsequent 16 ($p=0.008$).

Among patients with baseline QRS duration ≥ 120 ms, QRS narrowing occurred in 14/16 patients. Median QRS duration decreased from 141 ms to 121 ms, with a mean change of -23.8 ms ($p<0.001$).

Conclusion: Introduction of CSP/LBBAP in a district general hospital was feasible, with a high provisional procedural success rate and acceptable early safety profile. Fluoroscopy time reduced significantly over the study period, supporting a learning-curve effect during adoption of the technique. CSP was associated with a significant QRS narrowing in patients with wide baseline QRS complexes. Further audit cycles should assess longer-term pacing, echocardiographic and clinical outcomes. □



Posters 2

86/Improving the Appropriateness and Clinical Utility of Holter Monitoring in Patients Presenting with Syncope/Collapse: A Two-Cycle Quality Improvement Project

touchCARDIO Meeting Proceedings. 2026;1;abstr86

Authors: T Germanopoulou (Presenting Author),¹ Y Gao,¹ H Gachi,¹ S Susarla² and B McMurray³

1. George Eliot Hospital, Leamington Spa, UK; 2. George Eliot Hospital, Coventry, UK; 3. George Eliot Hospital, Warwick, UK

Introduction: Syncope accounts for approximately 3–5% of Emergency Department presentations and may occasionally reflect underlying cardiac disease. Although Holter monitoring is frequently requested in the assessment of syncope, its diagnostic yield according to contemporary evidence may be as low as 1–10% when not used selectively. The first cycle of data collection at George Eliot Hospital identified excessive Holter monitoring requests, inconsistent completion of baseline assessments including lying and standing blood pressure (LSBP) measurements and limited impact of investigations on patient management when Holter monitoring is used indiscriminately.

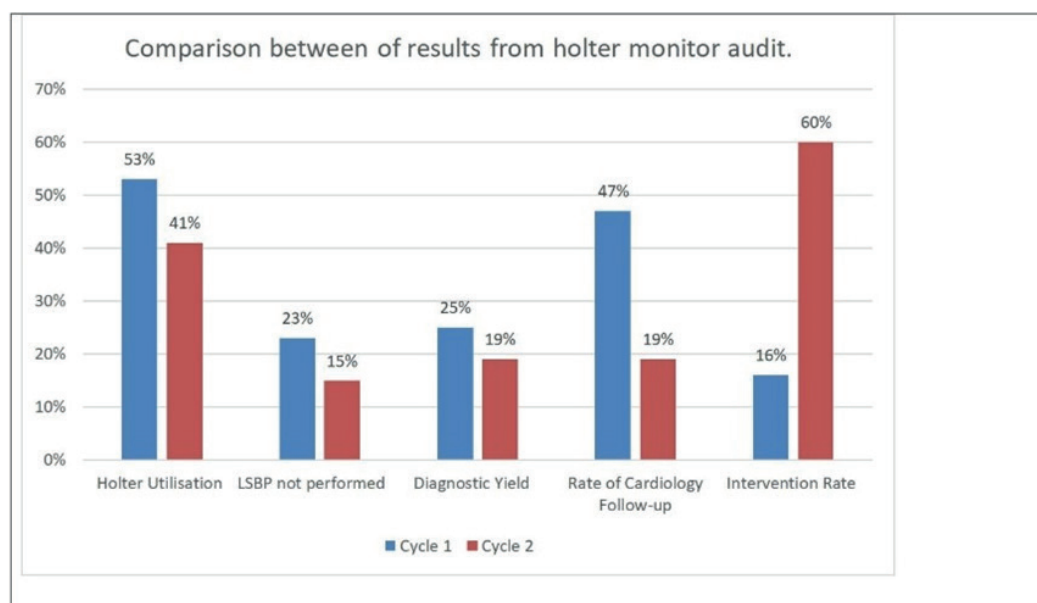
Methods: A second cycle of data collection was conducted to close the loop, evaluating patients admitted with syncope or collapse. Following the first cycle, quality improvement interventions were introduced, including clinician education and implementation of a structured syncope assessment and Holter referral checklist in ED Triage based on guideline recommendations. A second cycle was undertaken to assess the impact of these interventions on investigation utilisation, adherence to assessment standards, and clinical outcomes.

Results: A total of 168 patient records were reviewed, of which 128 met inclusion criteria. Holter monitoring utilisation decreased from 53% in

the first audit cycle to 41% in the second cycle. Compliance with LSBP measurement improved, with undocumented assessments falling from 23% to 15%. The diagnostic yield of Holter monitoring showed a slight reduction. In the first cycle, 25% of patients had new ECG changes identified on Holter monitoring, compared to 19% in the second cycle. This likely reflects more selective use of Holter monitoring in patients with a higher pre-test probability, rather than indiscriminate use. Cardiology follow-up rates fell substantially from 47% to 19%, suggesting improved patient selection and referral practices. Importantly, the proportion of Holter investigations resulting in a clinically significant intervention increased from 16% in the first cycle to 60% in the second cycle, demonstrating a marked improvement in the clinical utility of Holter monitoring.

Conclusions: Implementation of a structured syncope assessment pathway and education on the topic significantly improved the appropriateness of Holter monitoring requests. Reduced investigation rates, improved baseline assessment, fewer cardiology referrals, and a marked increase in clinically meaningful outcomes suggest more efficient resource utilisation and improved patient care. Consistent use of structured assessment tools and ongoing clinician education may help sustain these improvements. □

Figure 1





Posters 2

87/Hidden in the Coronary Sinus: When Posteroseptal Pathways Refuse to Ablate

touchCARDIO Meeting Proceedings. 2026:1;abstr87

Authors: CM GQ (Presenting Author), V Bhole, C Kotidis and KK Pillai
Birmingham Children’s Hospital, Birmingham, UK

Background: Coronary sinus (CS) diverticula are an uncommon but important cause of difficult posteroseptal accessory pathway ablation. Failure to recognise these structures may result in prolonged procedures, ineffective radiofrequency delivery, and repeated ablation attempts. Awareness in paediatric electrophysiology remains limited.

Objective: To describe two paediatric patients in whom posteroseptal accessory pathways were associated with a CS diverticulum and to highlight procedural clues that should prompt early coronary venous imaging.

Methods: Retrospective review of two paediatric electrophysiology procedures performed at a tertiary congenital cardiac centre between 2025 and 2026. Procedural findings, mapping characteristics, angiographic findings and ablation outcomes were analysed.

Results: Case 1 involved a 16-year-old female with symptomatic Wolff-Parkinson-White syndrome. Mapping suggested a right posteroseptal accessory pathway. Despite extensive mapping and multiple catheter/sheath configurations, no convincing endocardial target was identified. Coronary sinus angiography demonstrated a proximal CS diverticulum. Engagement of the diverticular neck was limited by catheter stability and safety concerns, resulting in unsuccessful ablation.

Case 2 involved a 14-year-old female with recurrent orthodromic atrioventricular re-entrant tachycardia despite a previous failed ablation. Tachycardia mapping localised the earliest activation to the proximal CS region. Cryoablation and radiofrequency applications at conventional posteroseptal sites were ineffective. A markedly early electrogram was recorded within a suspected CS diverticulum/tributary. CS angiography demonstrated a vertically oriented proximal diverticular structure that could not be reliably engaged for ablation.

Common features included posteroseptal pathway localisation, difficulty obtaining distal CS catheter positioning, earliest activation adjacent to the CS ostium, poor catheter stability, failure of conventional endocardial

Table 1

Common warning signs present in both patients		
Clue	Case 1	Case 2
Posteroseptal localization	✓	✓
Difficult distal CS cannulation	✓	✓
Earliest activation near proximal CS	✓	✓
Poor catheter stability	✓	✓
No convincing endocardial target	✓	✓
Failed RF from standard sites	✓	✓
CS angiogram diagnostic	✓	✓

ablation and angiographic identification of a proximal CS diverticulum or diverticulum-like tributary.

Conclusion: Coronary sinus diverticula should be suspected in paediatric patients with difficult posteroseptal accessory pathways, particularly when mapping repeatedly localises to the proximal CS and conventional ablation is unsuccessful. Early CS angiography may facilitate diagnosis, prevent ineffective lesion delivery and inform procedural strategy. Increased awareness of this anatomical substrate may improve outcomes in challenging posteroseptal pathway ablation.

Learning Points

- Consider CS angiography early when posteroseptal pathway mapping is inconclusive.
- Difficulty with distal CS cannulation and catheter instability may be important procedural clues.
- Accessory pathways associated with CS diverticula may require specialised catheter and sheath strategies beyond standard endocardial ablation approaches. □



Posters 2

88/WITHDRAWN



Posters 2

89/GLP-1/GIP Receptor Agonists Are Associated With Reduced Atrial Fibrillation-Related Interventions and Cardiovascular Outcomes in Obesity Without Diabetes: A Target Trial Emulation

touchCARDIO Meeting Proceedings. 2026;1;abstr89

Authors: QE Taha (Presenting Author),¹ AE Henney,¹ M Heague,² GYH Lip,³ DA Lane,² U Alam² and DJ Cuthbertson²

1. Liverpool University Hospitals NHS Foundation Trust, Liverpool, UK; 2. Department of Cardiovascular & Metabolic Medicine, Institute of Life Course and Medical Sciences, University of Liverpool, Liverpool, UK; 3. Liverpool Centre for Cardiovascular Science, University of Liverpool, Liverpool John Moores University and Liverpool Heart & Chest Hospital, Liverpool, UK

Background: Obesity is a major modifiable driver of Atrial Fibrillation (AF), yet pharmacological strategies targeting AF risk remain limited. Incretin-based therapies improve cardiometabolic outcomes, but their effect on AF-related clinical events in individuals without type 2 diabetes is unknown.

Methods: We conducted a target trial emulation using the TriNetX global network. Adults with obesity (BMI >27 kg/m²) and AF, without type 2 diabetes, were included. Patients initiating GLP-1/GIP receptor agonists (tirzepatide, semaglutide, liraglutide) were compared with those receiving non-incretin weight management medications.

After 1:1 propensity score matching, outcomes were assessed at 12 months. The primary endpoint was a composite of AF-related interventions (cardioversion, intravenous antiarrhythmic therapy, or AF ablation). Secondary endpoints included heart failure, ischaemic stroke, and all-cause mortality. Cox regression was used to estimate hazard ratios (HRs).

Results: A total of 3,024 patients per group were analysed after matching. GLP-1/GIP receptor agonist use was associated with a

significant reduction in the primary endpoint (HR 0.67; 95% CI 0.62–0.73; $p < 0.001$).

Marked reductions were observed in:

- Cardioversion (HR 0.61; 95% CI 0.48–0.79)
- Intravenous antiarrhythmic therapy (HR 0.68; 95% CI 0.63–0.74)
- Heart failure (HR 0.69; 95% CI 0.54–0.89)
- Ischaemic stroke (HR 0.36; 95% CI 0.22–0.58)
- All-cause mortality (HR 0.29; 95% CI 0.19–0.46)

There was no significant difference in AF ablation rates. Results were consistent across prespecified subgroups.

Conclusion: In patients with obesity and AF without type 2 diabetes, GLP-1/GIP receptor agonists were associated with substantial reductions in arrhythmia-related interventions and major cardiovascular outcomes. These findings identify incretin-based therapies as a promising strategy for AF risk modification and support prioritisation of prospective trials targeting arrhythmia outcomes. □



Posters 2

90/Real-World Implementation of Left Bundle Branch Area Pacing in Routine Clinical Practice: A Single Centre Audit of Procedural Success and Early Outcomes

touchCARDIO Meeting Proceedings. 2026:1;abstr90

Authors: *RJW Jackson-Wade (Presenting Author) and SM Mazhar*
Southend University Hospital, Southend, UK

Introduction: Left bundle branch area pacing (LBBAP) has emerged as a physiological alternative to conventional right ventricular pacing, aiming to preserve ventricular synchrony and reduce pacing-induced cardiomyopathy. In 2025, the European Society of Cardiology (ESC) and European Heart Rhythm Association (EHRA) published a consensus statement outlining indications and procedural principles for conduction system pacing. We evaluated the implementation of LBBAP at a UK district general hospital, assessing adherence to ESC/EHRA recommendations and procedural success using locally defined electrophysiological criteria.

Methods: We performed a retrospective observational audit of all consecutive patients undergoing attempted LBBAP implantation at Southend University Hospital between September 2024 and September 2025. Data were collected from operative notes, device clinic records, electrocardiograms and echocardiography reports. Implant indications were compared with ESC/EHRA recommendations for conduction system pacing. Procedural success was assessed using Southend electrophysiological criteria: left ventricular activation time (LVAT) in lead V6 <80 ms, V6–V1 interpeak interval >33 ms, and paced QRS duration <120 ms. Acute complications and follow-up outcomes were also recorded.

Results: Twenty-five patients underwent LBBAP implantation. The mean age was 77.7 ± 8.5 years, and 80% were male. The most

common indications were anticipated high ventricular pacing burden, atrial fibrillation requiring planned atrioventricular node ablation, and advanced conduction disease. Twenty-three implants (92%) met ESC/EHRA-recommended indications for conduction system pacing. All procedures were completed using an LBBAP approach without the need for conversion to an alternative pacing strategy. Twenty-one patients (84%) fulfilled all predefined electrophysiological criteria for successful LBBAP, while four patients (16%) fulfilled two of the three criteria. Mean acute pacing threshold was 1.1 V at 0.4 ms pulse width, with stable sensing and impedance parameters observed in all cases. There were no acute complications, including septal perforation, tamponade, lead dislodgement, infection or death. Mean follow-up duration was 7 months (range 3–15 months), during which no deaths or major lead-related complications occurred.

Conclusions: Implementation of LBBAP at our centre demonstrated high procedural success, early safety outcomes and strong concordance with ESC/EHRA recommendations. Pragmatic electrophysiological criteria provided reproducible confirmation of successful LBBAP in routine clinical practice. Ongoing longitudinal follow-up will be important to determine long-term clinical outcomes and ventricular function following conduction system pacing. □



Posters 2

91/WITHDRAWN

Posters 2

92/Preprocessing heterogeneity in machine learning for wearable ECG: a scoping review with a transparency score and novel reporting framework*touchCARDIO Meeting Proceedings. 2026:1;abstr92**Authors: DA Anzar (Presenting Author),¹ AEM El-Medany,^{1,2,3} AS Sinha,⁴ RA Aowidah,² IA Antoun,⁵ GK Khattak,² KP Patlatzoglou² and FSN Ng^{1,2,3}**1. Imperial College Healthcare NHS Trust, London, UK; 2. Imperial College London, London, UK; 3. Chelsea and Westminster Hospital NHS Foundation Trust, London, UK; 4. Countess of Chester, NHS Foundation Trust, Chester, UK; 5. Division of Cardiovascular Sciences, College of Life Sciences, University of Leicester, Leicester, UK*

Introduction: Artificial intelligence-electrocardiogram (AI-ECG) models are increasingly utilising wearable and portable ECG data for arrhythmia detection and cardiovascular risk prediction. Performance depends not only on model architecture but on upstream preprocessing, yet it is reported inconsistently, limiting reproducibility and generalisability. No standardised framework exists for reporting these steps.

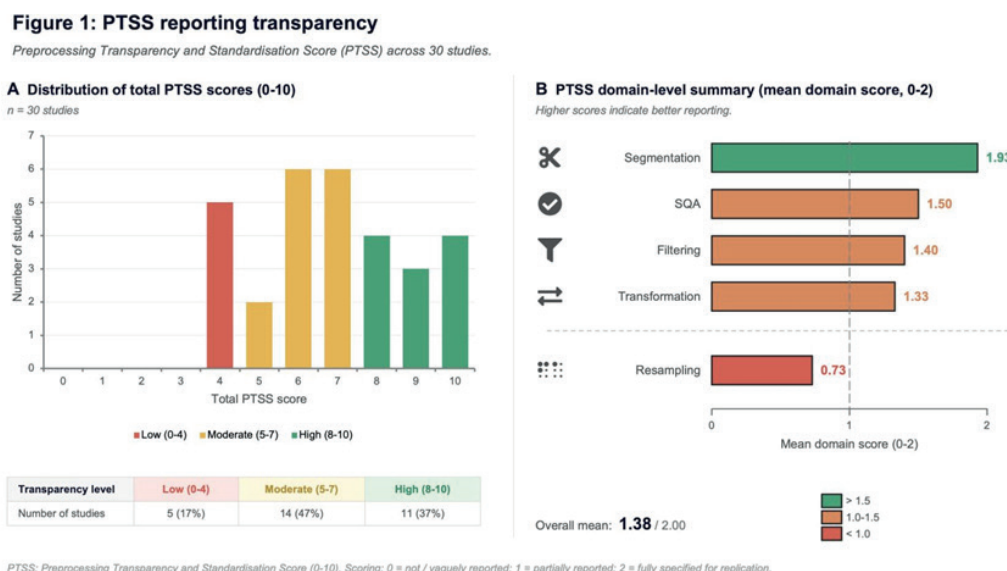
We therefore aimed to characterise preprocessing heterogeneity across wearable and portable AI-ECG studies and, from this, develop a pipeline taxonomy, transparency assessment tool, and a structured reporting checklist.

Methods: A scoping review was conducted following PRISMA-ScR guidance. Studies investigating wearable or portable AI-ECG applications published up to November 2025 were eligible; 30 met inclusion criteria. Data related to preprocessing parameters across six domains (filtering, normalisation, resampling, segmentation, transformation, and signal quality assessment (SQA)) was collected. We developed the Preprocessing Transparency and Standardisation Score (PTSS) as a novel tool to quantify preprocessing reporting quality on a 0-2 ordinal scale, stratifying studies into high (≥ 8), moderate (5-7), and low (≤ 4) transparency tiers. Pipelines were classified into four model input modality types based on data representation. We also developed the Wearable ECG Preprocessing Protocol (WEPP) as a reporting checklist to improve transparency and generalisability. Derived inductively and modelled on CONSORT and TRIPOD + AI, the WEPP comprises 17 items spanning seven domains. Studies using the Cinc2017 dataset were grouped for cross-study performance comparison using the reported F1 score as the primary performance metric.

Results: 11 filtering strategies were identified, sampling frequencies ranged from 100-800 Hz and segmentation windows from 1-61 seconds. Preprocessing was reported inconsistently. PTSS scores ranged from 4 to 10, with a median of 7: 11 studies (37%) reached the high-transparency tier, 14 (47%) moderate and five (17%) low. Segmentation was the best-reported domain (mean 1.93/2) and resampling the least (mean 0.73/2). Four model input modality types were identified: 1D waveforms ($n=8$), engineered feature vectors ($n=7$), time-frequency images ($n=9$) or multi-modal inputs ($n=6$). Among nine Cinc2017 studies, seven shared a comparable arrhythmia task (F1 averages 0.81-0.88); the simplest preprocessing pipeline performed nearly as well as the most complex (F1 difference: 0.04), with no consistent relationship between preprocessing complexity and model performance. Cross-dataset evaluation in 11 of 30 studies, showed F1 reductions of 7-17 points and sensitivity drops from $>99\%$ to 82%. Confounding, opaque pipelines and the absence of controlled designs prevent attribution of performance differences to preprocessing.

Conclusions: Preprocessing in wearable and portable AI-ECG research is heterogeneous and under-reported, limiting reproducibility and external validity. To address this, we developed three novel tools: the PTSS, a systematic tool for auditing reporting quality, the WEPP as the first dedicated reporting checklist for preprocessing in the field, and a four-type taxonomy of model input modalities. Adoption of these tools, alongside the wider recommendations outlined here, represents a necessary step toward the clinical translation of wearable and portable AI-ECG models. □

Figure 1





Posters 2

93/Abolition of Multifocal Atrial Ectopy and Atrial Tachycardia Following Targeted Ganglionated Plexus Ablation: A Case Report

touchCARDIO Meeting Proceedings. 2026:1;abstr93

Authors: PK Nair (Presenting Author)¹ and A Carpenter²

1. Oxford University Hospitals NHS Trust UK, Oxford, UK; 2. Liverpool Heart and Chest Hospital, Liverpool, UK

Introduction: Management of multifocal atrial ectopy and multifocal atrial tachycardia remains challenging due to the transient nature of ectopic activity, poor inducibility, and frequent shifts between multiple atrial foci, limiting the effectiveness of contemporary three-dimensional mapping systems. Ganglionated plexus (GP) ablation has emerged as a therapeutic strategy in atrial fibrillation; however, its role in multifocal atrial arrhythmias has not been described. We present a case demonstrating successful suppression of multifocal atrial ectopic activity following ablation at a site corresponding to a recognised GP location.

Methods: A 34-year-old woman presented with palpitations and reduced quality of life secondary to multifocal atrial ectopy and recurrent episodes of long-RP narrow complex tachycardia, consistent with non-sustained atrial tachycardia. Transthoracic echocardiography demonstrated mildly impaired left ventricular systolic function (ejection fraction 47%), presumed to be tachycardia-induced, without structural heart disease. An electrophysiological study using three-dimensional electroanatomical mapping was undertaken to identify the arrhythmic substrate and guide catheter ablation.

Results: The electrophysiological study was challenging due to incessant multifocal ectopy with frequent transitions between foci. Three distinct atrial ectopic sites were identified. Radiofrequency ablation

targeted the predominant focus near the septal aspect of the superior vena cava-right atrial junction. Unexpectedly, ablation at this single site resulted in suppression of ectopic activity originating from all identified foci. No reinitiation of multifocal atrial arrhythmia was observed during the 20-minute post-ablation waiting period, despite several attempts of programmed stimulation and isoprenaline infusion. The patient experienced significant symptomatic improvement immediately following the procedure, with sustained long-term symptom relief and no recurrence of clinically significant arrhythmia burden on follow-up. Given the anatomical location of the successful lesion, corresponding to a recognised GP region, it was hypothesised that autonomic modulation through inadvertent GP ablation contributed to the suppression of multifocal atrial ectopic activity.

Conclusion: This case highlights the potential role of GP ablation in the management of multifocal atrial ectopy and multifocal atrial tachycardia, conditions that are often difficult to treat using conventional ablation strategies. The elimination of multiple ectopic foci following a single ablation lesion supports the hypothesis that autonomic mechanisms may contribute to the pathogenesis of complex atrial arrhythmias. Further studies are required to evaluate the mechanisms, efficacy, and long-term outcomes of GP ablation in this patient population. □



Posters 2

94/Benchmarking General Purpose Artificial Intelligence for Accessory Pathway Localisation on 12 Lead Electrocardiograms*touchCARDIO Meeting Proceedings. 2026:1;abstr94*

Authors: [L Antoun](#) (Presenting Author), A Abdelrazik, M Eldesouky, K Myat Thu, T Su Su, EYM Lau, S Altoukhy, M Lazdam, Z Vali, A Sandilands, X Li, GA Ng and M Ibrahim
University of Leicester, Leicester, UK

Introduction: Localisation of manifest accessory pathways on the 12-lead electrocardiogram remains clinically relevant in Wolff-Parkinson-White syndrome, particularly for procedural planning. While specialised artificial intelligence models have shown promise in electrocardiographic analysis, the performance of general-purpose large language models in this task remains uncertain. We evaluated two contemporary generative AI systems against an electrophysiology reference standard and assessed the reproducibility of their outputs.

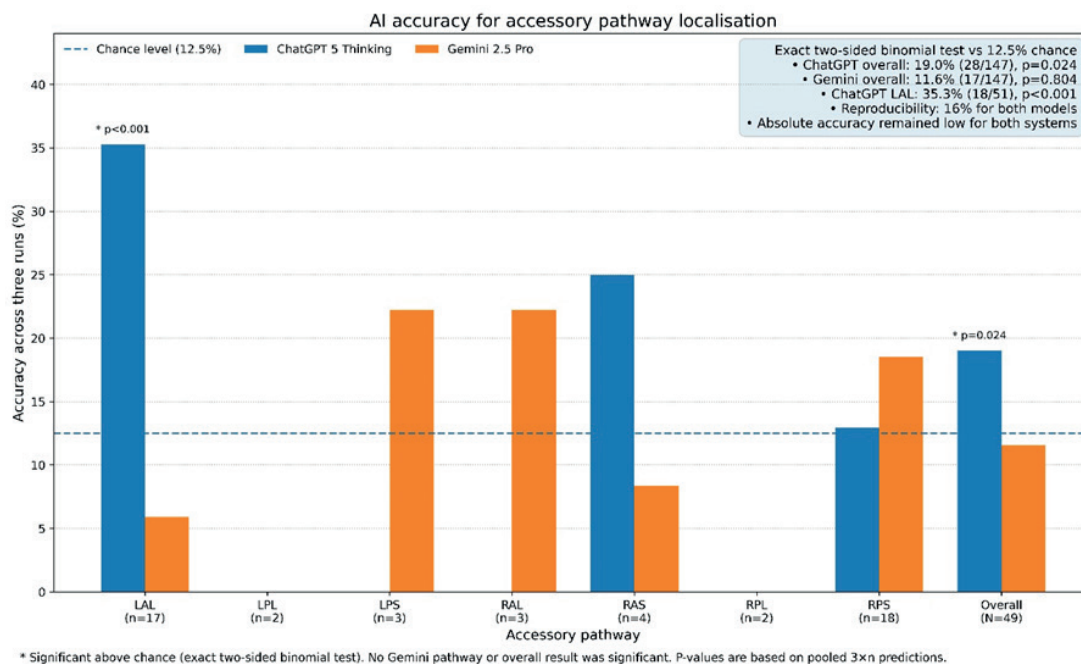
Methods: In this retrospective proof-of-concept study, 49 consecutive patients with a manifest accessory pathway, confirmed during electrophysiological study and ablation, were identified from a single-centre electrophysiological database. Pre-procedural 12-lead ECGs were anonymised, compiled into a PDF, and analysed by ChatGPT 5 Thinking and Gemini 2.5 Pro. Both models were asked to assign each ECG to one of eight predefined accessory pathway locations based on the EASY WPW algorithm. Each model was run three times. The primary outcome was diagnostic accuracy against the electrophysiology-confirmed pathway location. Secondary outcomes were pathway-specific accuracy and

consistency across repeated runs. Chance performance for this 8-class task was defined as 12.5%.

Results: Across three repeated runs, ChatGPT correctly classified 28 of 147 ECG interpretations (19.0%), whereas Gemini correctly classified 17 of 147, 11.6%. ChatGPT showed modest above-chance overall performance, while Gemini did not. Pathway-specific performance was limited. ChatGPT performed significantly above chance only for the left anterolateral pathways, with an accuracy of 35.3% ($p<0.001$). Accuracy for all other pathway locations did not differ significantly from chance. Gemini did not perform above chance for any pathway category. Reproducibility was poor for both models, with exact agreement across all three runs observed in only 16% of cases.

Conclusions: General-purpose large language models demonstrated poor accuracy and low reproducibility in localising manifest accessory pathways from 12-lead ECGs. These findings do not support their current use for this task in clinical practice. Reliable clinical application will likely require purpose-built, signal native, or multimodal cardiac AI systems. □

Figure 1





Posters 3

95/When close to the cliff's end... better don't lose synchrony

touchCARDIO Meeting Proceedings. 2026:1;abstr95

Authors: A Paris (Presenting Author), FA Ayala-Paredes, L Ayala-Valani, G Ayala-Valani, C Su, T Nguyen, M Fosse and A LeBlanc Piette
University of Sherbrooke, Sherbrooke, Canada

Introduction: 79 years old female presents with persistent atrial fibrillation (Afib), severe aortic stenosis treated with Transcatheter Aortic Valve Replacement (TAVR) that left her with a 3rd degree atrioventricular (AV) block. She has left ventricular concentric hypertrophy, with a LVEF of 65%.

Canadian guidelines suggest the implantation of a VVI pacemaker, but 5 months after the pacemaker implantation, she falls into heart failure with a LVEF of 35%.

Then, after optimal heart failure medication was reviewed, CRT-P upgrade was done, following ESC guidelines, implanting a lead within the coronary sinus vein. We thought that resynchronizing the ventricles would increase her LVEF. 4 Months later, decreased to 15% LVEF was observed. During the follow up with the patient, TAVR dysfunction was ruled out.

Methods: At this point, we decided to try a physiological lead position, such as His or left bundle branch pacing, to avoid cell-to-cell conduction. Cardiac Resynchronization Therapy (CRT) was realised to narrow QRS as much as possible, by -20msec or more from basal QRS. It proved that a QRS as close as possible to LBBP or His pacing will be better than a larger QRS, such as right ventricle apical pacing only.

Results: With the procedure, LVEF raised to 37% after a month and finally increased to 57% after 4 months.

Conclusion: Yet no guidelines suggest physiologic pacing in normal LVEF, when compensatory physiology is reached, such as in valvular, chemotherapy or toxic cardiomyopathies, synchrony of the heart should be kept as close to normal as possible with narrow paced QRS. His or LBB pacing may be considered, in patient with normal LVEF, as physiologic alternative, even in permanent requiring pacing. □

Figure 1: Per ESC Guidelines: CRT-P upgrade

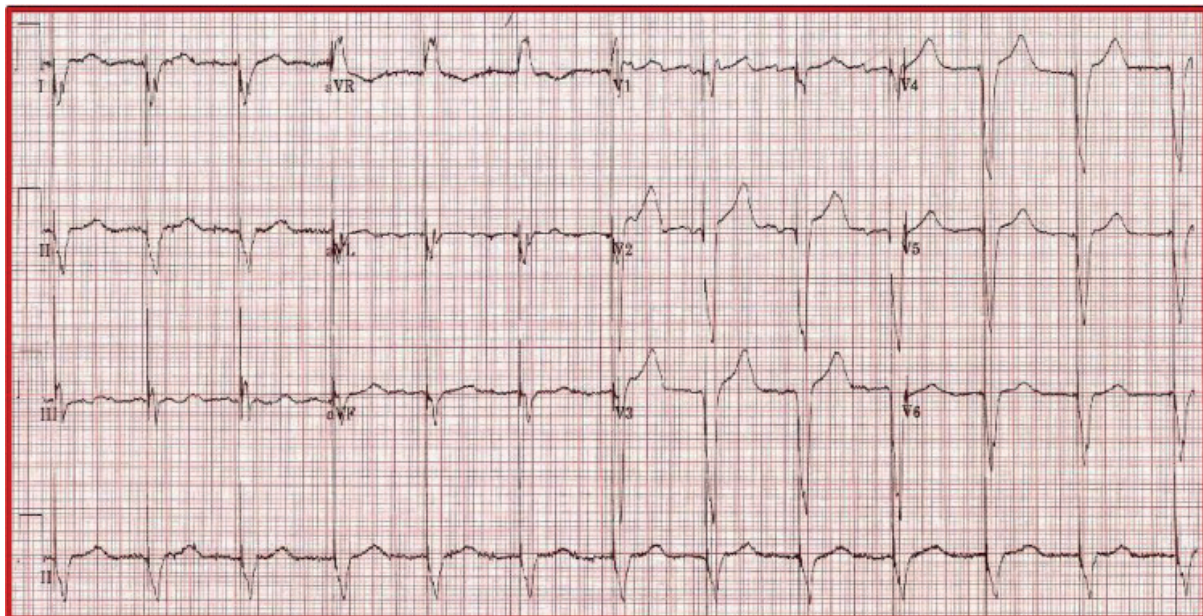
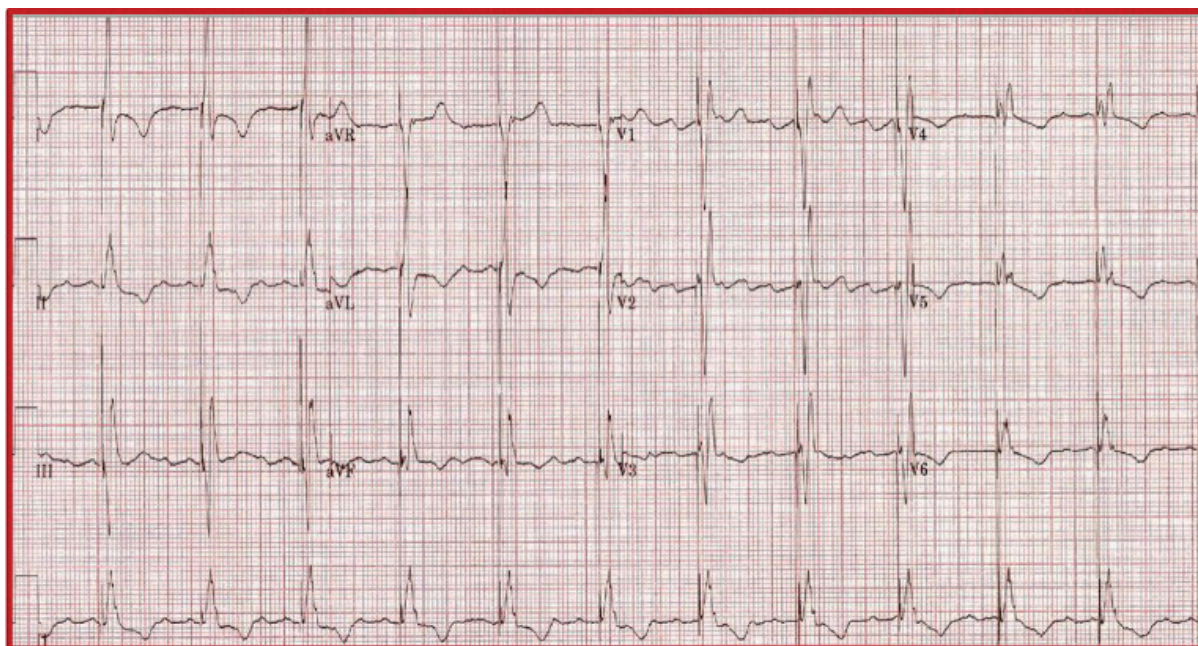




Figure 2: LBBP (physiologic pacing or single lead resynchronisation)





Posters 3

96/Optimising Remote Monitoring of Cardiac Implantable Electronic Devices: A Service Evaluation of Alert Burden and Workflow Patterns at Leeds Teaching Hospitals NHS Trust*touchCARDIO Meeting Proceedings. 2026:1;abstr96**Authors: [L Scott](#) (Presenting Author),¹ A Prevot,² P Smith,² P Durkin,² NA Samad¹ and MF Paton¹**1. University of Leeds, Leeds, UK; 2. Leeds Teaching Hospitals Trust, Leeds, UK*

Introduction: Remote monitoring (RM) is the standard of care for patients with cardiac implantable electronic devices (CIEDs), enabling earlier detection of clinical events, reducing face-to-face follow-up and improving service delivery. However, increasing adoption of RM has generated substantial growth in transmission volumes, creating significant workload challenges for cardiac rhythm management services. This service evaluation aimed to characterise RM activity within a large UK tertiary centre and identify opportunities to improve service efficiency and sustainability.

Methods: A retrospective service evaluation was undertaken at Leeds Teaching Hospitals NHS Trust. RM transmission data from November 2020 to December 2022 were extracted from electronic health records and analysed using Prism 10. Trends in transmission volume, transmission type (scheduled versus unscheduled), device type, manufacturer platform and weekday distribution were evaluated.

Results: A total of 25,232 RM transmissions were analysed. Annual transmission volume increased substantially from 1,660 in 2020 to 10,942 in 2021 and 12,630 in 2022. Monthly alerts increased from 816 in November 2020 to a peak of 1,210 in October 2022.

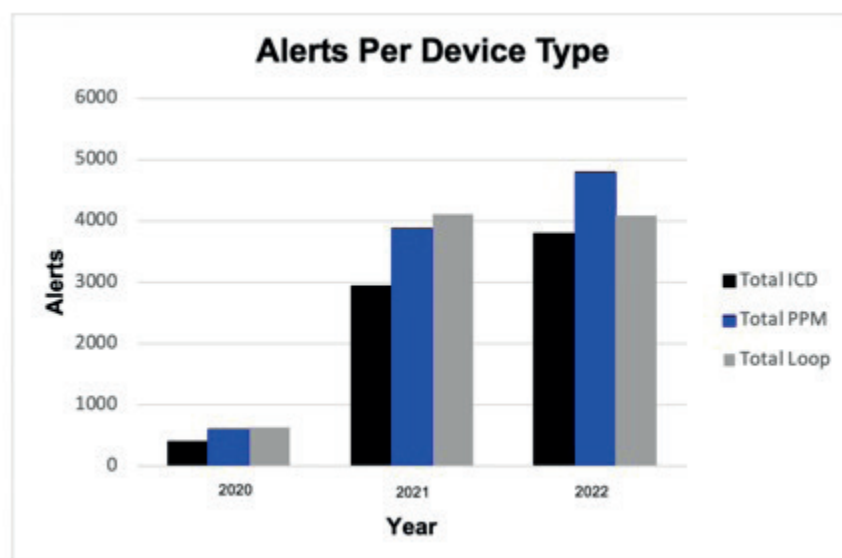
Unscheduled transmissions consistently exceeded scheduled transmissions throughout the study period, accounting for approximately 80% of all alerts and occurring at 2.5 times the rate of scheduled transmissions. In 2022, 10,069 unscheduled alerts were received compared with 2,561 scheduled alerts.

Alert burden varied by device type. Pacemakers generated the highest number of transmissions by 2022 (4,793), followed by implantable loop recorders (4,085) and implantable cardioverter defibrillators (3,795) (Figure 1). Transmission burden increased across all device categories during the study period.

Alert reporting demonstrated a clear weekly pattern, with Mondays generating the highest volume of transmissions (3,006 alerts in 2022) and weekends the lowest (540 alerts on Saturdays and 527 on Sundays). Manufacturer-specific analysis demonstrated variability in transmission burden across remote monitoring platforms, highlighting challenges associated with managing multiple vendor-specific systems.

Conclusions: Remote monitoring activity increased more than seven-fold between 2020 and 2022, with unscheduled transmissions representing the predominant source of workload. Pacemakers generated the greatest alert burden, and marked variation in reporting patterns was observed throughout the week. Although these data represent an earlier phase of large-scale RM implementation, similar workload patterns continue to be observed within contemporary services. The findings therefore provide important insight into the sustained workforce and infrastructure requirements associated with delivering RM at scale. As RM becomes increasingly embedded within routine cardiology care, recognising and planning for its operational burden will be essential to maintaining timely review, patient safety and service sustainability. These findings support ongoing efforts to optimise alert management, standardise workflows and ensure adequate resourcing of RM services. □

Figure 1: Number of Alerts Generated per Device Type per Year



Posters 3

97/Post op analgesia for cardiac devices

touchCARDIO Meeting Proceedings. 2026:1;abstr97

Authors: [CT Aye](#) (Presenting Author) and J Grogono
University Hospitals Plymouth NHS Trust, Plymouth, UK

Introduction: Cardiac devices including permanent pacemakers (PPM), implantable cardioverter defibrillators (ICD) or cardiac resynchronization therapy devices (CRT-D) have revolutionized the treatment of patients with cardiac arrhythmias and heart failure.

Post-procedural pain is common following device implantation

Effective pain management:

- Improves patient comfort
- Facilitates recovery
- Enables earlier return to normal daily activities

Aim

- To determine whether routine post-operative analgesia is required for all cardiac device patients
- To identify the most effective analgesic regimen for pain control
- To evaluate side-effect profiles of commonly used analgesics

Method

- Data were extracted from the cardiac devices database at University Hospitals Plymouth NHS Trust.
- First audit cycle: August 2023 – July 2024
- Second audit cycle: November 2025 – January 2026 (following introduction of a post-operative pain control leaflet)
- Procedures were performed by three cardiologists: Dr Davies, Dr Grogono and Dr Sieniewicz
- Data collected via electronic post-device patient survey included:
- Pain severity (immediately post-op, post-discharge, and at home)
- Self-administered analgesia use
- Requirement for medical attention due to pain

Result

Table

Outcome	Initial Cycle (n=60)	Re-Audit Cycle (n=26)
Pain well controlled immediately	60 (100%)	26 (100%)
Pain at discharge	2 (3.3%)	1 (3.8%)
Night-time pain	17 (28%)	0 (0%)
Required medical attention (GP/A&E)	4 (6.7%)	0 (0%)

Conclusion

- Post-operative pain is common following cardiac device implantation, particularly after discharge
- Introduction of a post-operative pain control leaflet:
Improved patient awareness and self-management
Reduced night-time pain and sleep disturbance
Eliminated unplanned medical visits for pain
Routine simple analgesia with clear guidance appears effective in managing post-procedural pain
- This intervention is low-cost, scalable, and easily implementable. □



Figure 1

Post – Operative Pain Control

Please be aware that it is normal to feel some mild pain/discomfort after your device procedure

We recommend simple pain relief:

Paracetamol 1g, up to 4 times a day



If you require a stronger pain relief:

Co-codamol 8/500mg, up to 4 times a day (this can be bought from a local chemist/pharmacy)

***Do not take in combination with paracetamol**

If the pain is not controlled with the above medications or is not settling after 3 days, then please contact the pacing department on 01752 431679 who can give advice/review the wound.



Posters 3

98/Clinical Utility of 24-Hour Holter Monitoring for Palpitations Referred from Primary Care: A Service Evaluation

touchCARDIO Meeting Proceedings. 2026:1;abstr98

Authors: G Moore (Presenting Author)

University of Southampton, Southampton, UK

Background: To evaluate the clinical utility of 24-hour Holter monitoring in patients referred from primary care with palpitations by assessing the proportion of recordings resulting in a change in clinical management.

Methods: A retrospective, single-centre study was performed to investigate the proportion of 24-hour Holter monitors that lead to a change in management. The inclusion criteria were age ≥ 18 and a referral for 24-hour Holter monitoring with the presentation of palpitations. The exclusion criteria were patients with no documented Holter analysis report. The outcome was change in management following 24-hour Holter monitoring. This was defined as detection of a significant arrhythmia, referral for further cardiological intervention or reassurance of benign aetiology of palpitations. Significant arrhythmias were defined as VE and/or SVE burden $>1\%$, atrial fibrillation (AF), heart block (HB), pauses and ventricular tachycardia (VT).

Results: The data analysis of the 123 patients showed that arrhythmias were recorded on 33 Holter monitors (28.8%) and 28 (22.8%) patients had a change in management. There is a slight disparity between these factors, pertaining to reassurance provided as a change in management and some arrhythmias being considered as benign. Although, 22.8% demonstrated a change in management, only 6 patients from the 123-sample had symptom-rhythm correlation. This discredits this finding, suggesting that clinical utility was overestimated.

Conclusion: Holter monitoring has a significant role in recording arrhythmias but produces a low yield of symptom-rhythm correlation which leads to a low proportion of monitors producing a direct change in management. □



Posters 3

99/Impact of Pacing Strategy on Right Ventricular Function: A Comparison of RV Apical Pacing and Left Bundle Branch Area Pacing*touchCARDIO Meeting Proceedings. 2026;1;abstr99*

Authors: [B Kodal](#) (Presenting Author), [AI Celik](#) and [T Bezgin](#)
Gebze Fatih State Hospital, Kocaeli, Turkey

Introduction: Right ventricular apical pacing (RVAP) is a guideline-recommended therapy for symptomatic bradycardia but may cause dyssynchrony and pacing-induced heart failure. Conduction system pacing reduces dyssynchrony and is recommended in patients requiring frequent ventricular pacing. While its benefits on left ventricular function are well established, data on right ventricular (RV) function remain limited. LBBAP does not result in complete right bundle branch block; however, it causes mild delay in right ventricular activation, leading to a certain degree of interventricular dyssynchrony. Although appropriate device programming may minimize this disadvantage, there is insufficient evidence to determine whether the RV activation delay associated with LBBAP is clinically significant. This study aimed to compare long-term RV function in patients undergoing RVAP versus left bundle branch area pacing (LBBAP).

Methods: Eighty-four patients with complete atrioventricular block who underwent RVAP or LBBAP between 2023 and early 2024 were prospectively evaluated. RV systolic function and hemodynamic parameters were assessed by echocardiography at 1-year follow-up. Clinical characteristics, comorbidities, and outcomes were recorded. Patients with conditions affecting RV function were excluded.

Results: Among 84 patients, 56 underwent RVAP and 28 LBBAP. RVAP patients were older and more frequently female. Other baseline characteristics were similar. RV systolic parameters, including TAPSE, S' velocity, RV myocardial performance index, and TAPSE/sPAP ratio, were comparable between groups. Maximum tricuspid regurgitation velocity was higher in the RVAP group, while other hemodynamic parameters were similar.

RV systolic dysfunction was present in 25% of patients, with no significant difference between groups. Pacing strategy was not associated with RV dysfunction, whereas longer follow-up duration increased risk (RR 1.05/month, $p = 0.006$). RV systolic dysfunction, defined by guideline-recommended cut-offs (TAPSE <17 mm, TDI S' <9.5 cm/s, or RV MPI >0.54), was present in 21 patients (25.0%) and absent in 63 patients (75.0%). In unadjusted analysis, the prevalence of RV systolic dysfunction did not differ significantly between the RVAP and LBBAP groups. Notably, longer follow-up duration was independently associated with a higher risk of RV systolic dysfunction (RR 1.05 per month, $p = 0.006$), whereas age and sex were not significant predictors. In multivariable analysis, pacing strategy was not independently associated with TAPSE or TRV (tricuspid regurgitation velocity). However, follow-up duration was independently associated with reduced TAPSE ($\beta = -0.078$ mm/month, $p = 0.003$).

Discussion: LBBAP may cause mild interventricular dyssynchrony due to delayed RV activation, though its clinical significance is unclear. In this study, RV systolic function was not inferior with LBBAP compared to RVAP. The main determinant of RV functional decline was follow-up duration rather than pacing strategy, suggesting a time-dependent remodeling process.

Conclusion: LBBAP was not associated with worse RV function compared with RVAP in patients with atrioventricular block. RV function was primarily influenced by follow-up duration rather than pacing modality. These findings support LBBAP as a safe strategy regarding RV performance and highlight the importance of longitudinal RV assessment. □



Posters 3

100/Digital Pre-Assessment using NHS App for Implantable Loop Recorder Implantation

touchCARDIO Meeting Proceedings. 2026;1;abstr100

Authors: [T Edge](#) (Presenting Author)
The Rotherham Foundation Trust, Rotherham, UK

Introduction: Scientist-led Implantable Loop Recorder (ILR) implantation is a low risk procedure performed in an outpatient clinic room. Historically, The Rotherham NHS Foundation Trust (TRFT) offered Scientist-led Pre-Assessment (PAC) prior to ILR implant via In-Person or Telephone appointments. These appointments lasted for 30-45 minutes and were resource intensive.

In March 2026, the service introduced digital pre-assessment for ILR Implantation. The patients received an online questionnaire via their NHS App which included a patient education video. Completed questionnaires automatically uploaded to the electronic patient record, reducing reporting time. The data was triaged by a Clinical Scientist to identify patients who require further telephone or in-person assessment. The NHS App is a key part of the NHS digital transformation agenda to improve healthcare access and act as a digital ‘front door’. Over 40 million people in England are now registered with the NHS App. In November 2025 there was 62.3 million logins, representing a monthly increase of 43% over the 12 months. Uptake of the NHS App is reported nationally as 75%.

This study aimed to evaluate the success of the revised pathway against pre-defined outcome measures.

Method: Retrospective analysis of electronic patient records for the first 7 weeks of the digital pathway (10/03/26 - 28/04/26). Baseline demographics were recorded (age, sex). Outcome measures included: uptake of digital PAC, requirement for further PAC, delays to implant, staff time.

Results: 13 patients were offered digital PAC. 2 patients did not have the NHS App and required telephone PAC. Of the 11 patients (84%) that who received the questionnaire, there was a 100% completion rate. Of those completing digital PAC, additional pre-implant communication was only required for 2 patients (medication/ remote monitoring queries). Staff time to process digital PAC averaged 5mins per patient.

Discussion: This study indicates that digital PAC for ILR Implantation is effective. There were no implant delays caused by inadequate data gathering. Digital PAC enabled better use of resources, saving staff time and freeing up a clinical room. It allows flexibility for skilled staff to spend time with patients who require extra care. This approach facilitates faster turnaround times between PAC & implant to cater for urgent referrals & fill cancellation slots. Uptake of digital PAC via the NHS App was high and exceeded the national average. Age did not influence digital engagement. Digital PAC offers greater patient convenience. Moving forward, digital PAC may be considered for other cardiac device implants. □

Table:

No. Pts. Requiring ILR PAC	No. pts. sent the questionnaire	Age	Sex	NHS App users	No. pts. receive questionnaire	No. pts. Completed questionnaire	Telephone calls needed
13	13	40-83	5M,8F	11	11	11	4 in total



Posters 3

101/Conduction System Pacing Versus Biventricular Pacing in Heart Failure with Reduced Ejection Fraction: An Updated Systematic Review and Meta-Analysis of Randomized Controlled Trials

touchCARDIO Meeting Proceedings. 2026;1;abstr101

Authors: Yang (Presenting Author),¹ Zhang² and Magjuni¹

1. University Of Cambridge, Cambridge, UK; 2. University of Connecticut, Storrs Mansfield, CT, USA

Background: Conduction system pacing (CSP) has emerged as a physiological alternative to biventricular pacing (BiVP) for cardiac resynchronisation therapy (CRT) in patients with heart failure with reduced ejection fraction (HFrEF). Prior meta-analyses suggested symptomatic and echocardiographic benefits of CSP but were limited by small populations, short follow-up, and absence of powered hard-outcome estimates. Recent Phase III RCTs, including CONSYST-CRT, CSP-SYNC, HeartSync-LBBP, and PhysioSync-HF, enable the most comprehensive synthesis of CSP versus BiVP to date, with direct relevance to guideline development.

Objectives: To synthesise the comparative effectiveness and safety of CSP versus BiVP in HFrEF across all parallel-arm RCTs, with pre-specified subgroup analyses by pacing modality and procedural success rate.

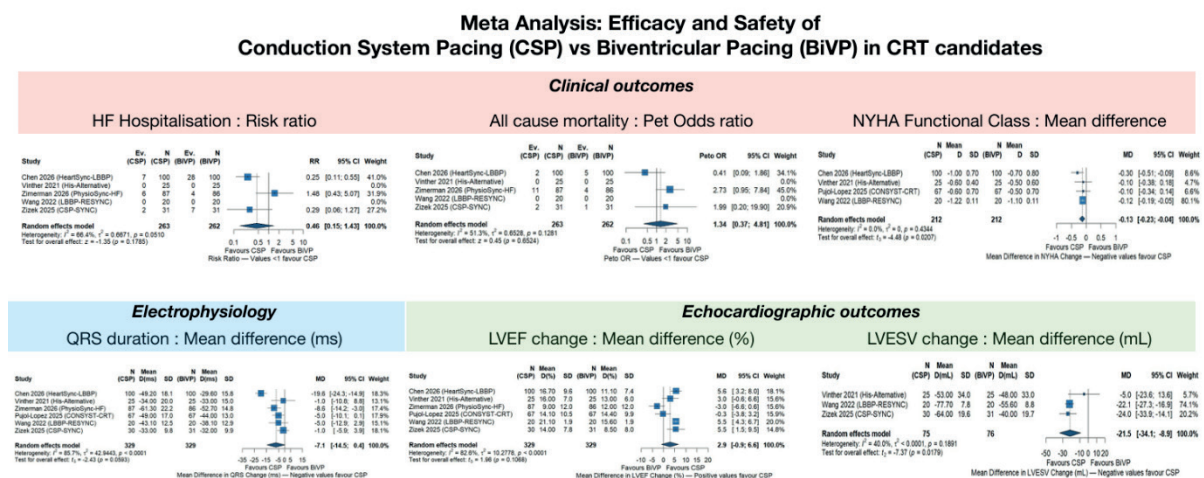
Methods: PubMed, Embase, Cochrane, Scopus and Web of Science were searched from inception to March 2026. Eligible studies were parallel-arm RCTs comparing CSP, which includes His bundle pacing (HBP), left bundle branch pacing (LBBP), or left bundle branch area pacing (LBBAP), against BiVP in adults with HFrEF and a CRT indication. Outcomes included change in LVEF, LVESV, QRS duration, NYHA class, HF hospitalisation, and all-cause mortality. A random-effects model was used; heterogeneity assessed via I^2 and Cochran's Q; risk of bias via RoB-2.

Results: Six parallel-arm RCTs ($n = 659$ patients) were included, representing a substantial increase of the RCT population versus the most recent prior synthesis. Among echocardiographic outcomes, CSP produced significantly greater LVESV reduction (MD -21.5 mL; 95%

CI -34.1 to -8.9 ; $I^2=40.0\%$; $p=0.018$) and a numerically greater LVEF improvement (MD $+2.9\%$; 95% CI -0.9 to $+6.6$; $p=0.107$) that did not reach significance owing to substantial heterogeneity ($I^2=82.6\%$), attributable to Zimmerman 2026 (PhysioSync-HF), an identified outlier and the sole trial favouring BiVP, with the remaining five trials consistently favouring CSP. Clinically, CSP was associated with significantly greater NYHA class improvement (MD -0.13 ; 95% CI -0.23 to -0.04 ; $I^2=0\%$; $p=0.021$) across four trials with negligible heterogeneity. HF hospitalisation favoured CSP numerically (RR 0.46; 95% CI 0.15–1.43; $p=0.179$) but did not reach significance, with heterogeneity ($I^2=66.4\%$) again driven by Zimmerman 2026. All-cause mortality showed no significant difference (Peto OR 1.34; 95% CI 0.37–4.81; $p=0.652$) with sparse events limiting interpretation. Electrophysiologically, CSP produced greater QRS narrowing approaching but not reaching significance (MD -7.1 ms; 95% CI -14.5 to $+0.4$; $I^2=85.7\%$; $p=0.059$).

Conclusions: CSP achieves significantly greater left ventricular reverse remodelling and functional improvement than BiVP, evidenced by superior LVESV reduction and NYHA class benefit, with consistent non-significant trends favouring CSP in LVEF and QRS narrowing. Failure of hard endpoints to reach significance reflects insufficient power, sparse events, and heterogeneity driven by Zimmerman 2026, whose divergent results are attributable to pacing modality composition, operator experience, and procedural success rather than a true absence of benefit. These findings support CSP as the preferred CRT strategy in experienced centres, with conduction system capture quality and operator proficiency as critical determinants of outcome. □

Figure 1





Posters 3

102/Breaking the “Invisible Wall”: Optimized Pacemaker Programming for a Competitive Athlete with High-Grade AV Block

touchCARDIO Meeting Proceedings. 2026:1;abstr102

Authors: A Shrestha, M Ali, A Mohammed and M Kimberly
Royal Lancaster Infirmary, Lancaster, UK

This case study highlights the clinical challenge of managing a 55-year-old male athlete with a dual-chamber pacemaker (DDD) implanted for Mobitz Type II AV block. Despite successful implantation, the patient developed a symptomatic “ceiling” on his heart rate during competitive 5K runs.

Patient Profile: The patient is a 55-year-old male with a history of symptomatic Mobitz Type II second-degree AV block. Of note He is an active competitive runner who participated in 5K events prior to his diagnosis.

A dual-chamber Medtronic Azure S DR MRI pacemaker to restore AV synchrony was implanted on February 21, 2023, to provide physiologic pacing.

Post-implantation interrogation showed stable lead performance (Atrial: 380 Ω, RV: 437 Ω) and high ventricular pacing dependency (99.8%).

Symptoms: Following recovery, the patient attempted to resume competitive 5K running but reported a «sudden loss of power» and shortness of breath whenever his heart rate approached 150 bpm. He was unable to reach his maximal predicted heart rate (MPHR) of 165–170 bpm, describing the sensation as hitting an invisible wall.

Diagnostic Evaluation: Exercise Treadmill Test (ETT): A Bruce Protocol ETT was performed to assess the patient-pacemaker interaction under stress.

- **Mechanism of Failure:** As the patient’s sinus rate approached 150 bpm, it exceeded the programmed **Upper Tracking Rate (UTR)**.
- **Device Response:** The pacemaker reached its **Total Atrial Refractory Period (TARP)**, forcing the device into a **2:1 AV block** to prevent tracking of rapid atrial rates.

- **Hemodynamic Impact:** The ventricular pacing rate abruptly dropped from 150 bpm to 75 bpm (half the sinus rate). This sudden drop in heart rate during peak demand caused acute **Pseudo-Pacemaker Syndrome**, characterized by a loss of AV synchrony and a precipitous decline in cardiac output.

Device Interrogation & Programming Optimization: Device interrogation on April 27, 2026, was used to transition the patient from standard settings to an “athletic-optimized” profile.

Outcomes and Follow-up: A repeat ETT following these changes demonstrated a significant restoration of functional capacity:

- **Peak HR Achieved:** 169 bpm (reached during Stage 4 of the Bruce Protocol).
- **Tracking Performance:** The device maintained 1:1 tracking throughout the duration of the test.
- **Transition Behavior:** As the patient reached his peak, the device exhibited a smooth **Pacemaker Wenckebach** behavior rather than an abrupt 2:1 drop, allowing for a natural deceleration at the limit of exhaustion.

Tracking Performance: The device maintained 1:1 tracking throughout the duration of the test.

Transition Behavior: As the patient reached his peak, the device exhibited a smooth **Pacemaker Wenckebach** behavior rather than an abrupt 2:1 drop, allowing for a natural deceleration at the limit of exhaustion.

Conclusion: This case demonstrates that individualized programming—specifically prioritizing high tracking rates and dynamic refractory periods—is essential to support the unique metabolic demands of competitive runners. □

Table 1: Pacemaker Parameter Adjustments

Parameter	Initial Setting	Final Optimized Setting	Rationale
Upper Tracking Rate (UTR)	165 bpm	180 bpm	Prevents 2:1 block below the patient’s MPHR
Minimum PVARP	240 ms	210 ms	Shortens the refractory window to allow tracking at high rates
Mode Switch Rate	171 bpm	188 bpm	Prevents inappropriate arrhythmia detection during sinus tachycardia
AT/AF Detection	171 bpm	188 bpm	Aligns detection with the new high-rate tracking limits



Posters 3

103/WITHDRAWN







Posters 3

104/Dual-Energy Lattice-Tip Ablation Versus Focal Radiofrequency Ablation for Drug-Refractory Ventricular Tachycardia: Early Single-Centre Comparative Experience*touchCARDIO Meeting Proceedings. 2026;1;abstr104*

Authors: J Chiong (Presenting Author), L Brodie, N Ness, D Walker, P Calvert, D Gupta, D Todd, N Denham and V Luther
Liverpool Heart and Chest NHS Foundation Trust, Liverpool, UK

Background: Catheter ablation is an established treatment for drug-refractory ventricular tachycardia (VT), but focal radiofrequency (RF) ablation may be limited by catheter instability, non-transmural lesion formation, and prolonged procedure duration. A novel lattice-tip catheter capable of delivering high-energy RF and pulsed-field (PF) energy, may improve procedural efficiency. We assessed the acute procedural efficacy of lattice-tip ablation in this unstable population.

Methods: The lattice-tip catheter was made available in our centre in November 2025. Consecutive patients undergoing urgent endocardial VT ablation using a lattice-tip catheter were evaluated and compared with a cohort of consecutive patients treated with conventional focal RF ablation, selected in reverse chronological order from November 2025. Acute non-inducibility was defined as the absence of sustained VT following programmed ventricular stimulation. Procedural duration, ablation metrics, complications, and early clinical outcomes were analysed. VT recurrence was assessed at a prespecified 6 month landmark to account for differences in follow-up duration between RF cohort and the more recent lattice-tip cohort.

Results: Twenty consecutive patients underwent urgent VT ablation. Baseline clinical characteristics were broadly similar between cohorts. This was a high-risk population: severe left ventricular systolic

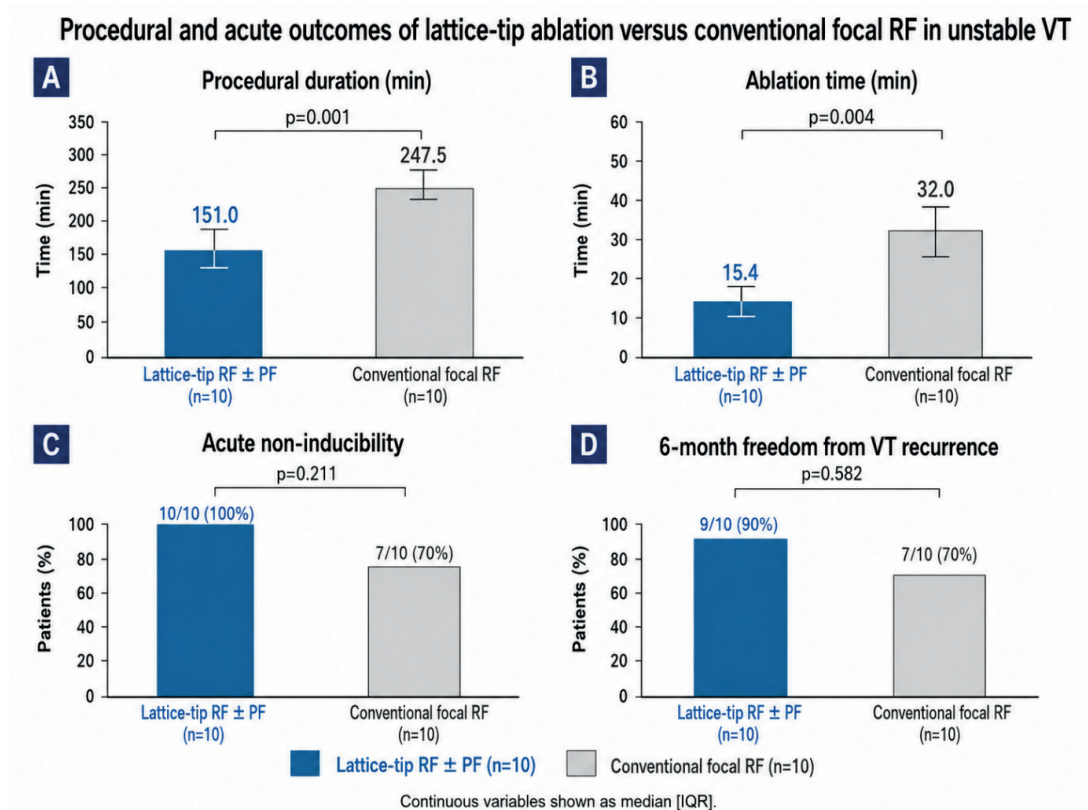
dysfunction was common (11/20 [55%]), and over half of all procedures were performed on an emergency inpatient basis (12/20 [60%]). The mean PAINESD score was 15.2 ± 5.9 , denoting a high predictive risk of acute intraprocedural haemodynamic compromise (range 0-31, high risk >15).

Compared with conventional focal RF ablation (n=10), lattice-tip ablation was associated with shorter procedural duration (median 151.0 [129.0–185.0] vs 247.5 [236.2–268.8] minutes; $p=0.001$) and reduced total ablation time (15.4 [9.6–17.2] vs 32.0 [25.0–36.0] minutes; $p=0.004$). Acute VT non-inducibility was achieved in all patients in the lattice-tip group, compared with seven patients in RF group.

There were no major procedural complications. At 6 months, nine patients in the lattice-tip group and seven patients in the RF group remained free of VT recurrence (90% vs 70%)

Conclusion: In our early single-centre comparative experience, lattice-tip ablation using high-energy RF, with or without PF energy, was feasible and safe in patients undergoing urgent ablation for unstable, drug-refractory VT. Compared with conventional focal RF ablation, lattice-tip ablation was associated with shorter procedural duration and reduced ablation time, while maintaining high rates of acute non-inducibility and early freedom from VT recurrence. □

Figure 1





Posters 3

105/Early Transvenous Lead Failure Following Subpectoral Dual Chamber Pacemaker Implantation: A Proposed Mechanism of Pectoralis Major Compression

touchCARDIO Meeting Proceedings. 2026;1;abstr105

Authors: K Selvapandian (Presenting Author), Z Zathar, F Leyva and P Patel
University Hospitals Birmingham NHS Trust University of Birmingham, Birmingham, UK

Introduction: Subpectoral (submuscular) generator placement is increasingly used in younger patients for aesthetic and comfort reasons. While recognised risks include haematoma and procedural complexity, mechanical lead compression from overlying pectoralis muscle is a rare complication. We report a case of early transvenous lead failure in a young patient with pacemaker dependence attributed to this mechanism and discuss the clinical and procedural implications.

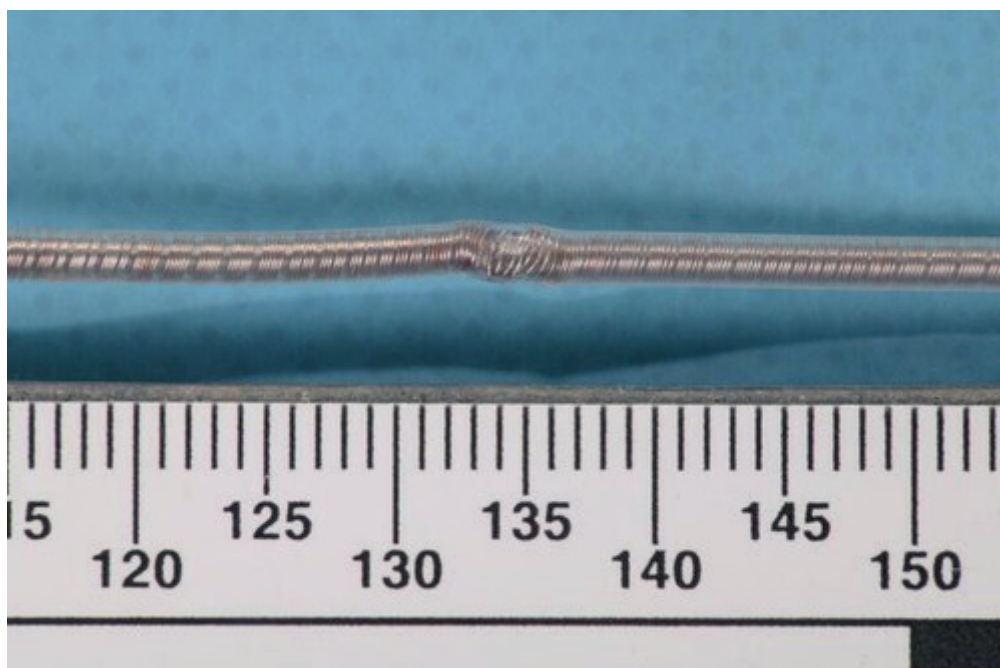
Methods: A 36-year-old man with congenital complete heart block underwent dual chamber pacemaker implantation in 1995. At generator change in 2020, a new right ventricular lead was planned however, venography demonstrated left subclavian stenosis precluding ipsilateral access. He subsequently underwent right-sided dual chamber implantation with subpectoral pocket placement at his own request following informed counselling. Clinical background included pacing-induced cardiomyopathy (LVEF 49%) and 100% ventricular pacing dependency. Intraoperative parameters were satisfactory. Seventeen days post-implant, he presented to Emergency Department with progressive breathlessness. ECG confirmed loss of ventricular capture on right ventricular lead with an escape rhythm of 45 bpm, consistent with underlying complete heart block. Device interrogation demonstrated intermittent failure of capture at maximum output (8V at 1.2ms) with

reduced R-wave sensing (1.8mV). Pacing impedance was unaltered. Fluoroscopy excluded lead macro-displacement.

Results: At re-intervention, a localised structural defect consistent with lumen collapse was identified at the 130mm mark of the proximal RV lead body, with visible deformation of the lead coil structure and preserved external insulation (*Figure 1*). In the absence of impedance change or electromechanical noise, conductor fracture and insulation breach were considered unlikely. Findings were consistent with extrinsic mechanical compression from the overlying pectoralis major. Manufacturer analysis is pending. The existing RV lead was extracted via manual traction and counterclockwise rotation. A new RV lead was implanted at mid septum, and the generator resited to a new pre-pectoral pocket. Post-procedural parameters were satisfactory and the patient was discharged the following day.

Conclusions: This case highlights pectoralis major compression as an understated cause of early lead failure in subpectoral device systems. In young, pacemaker-dependent patients, this complication carries significant clinical risk. Clinicians should be vigilant for this phenomenon when there is unexplained compromise of lead integrity. Patients should be counselled accordingly, as it would be considered a material risk relevant for informed consent. □

Figure 1: Magnified view of the proximal lead body demonstrating focal lumen collapse at the 130mm mark with visible coil deformation. External insulation appears intact. Appearances are consistent with extrinsic mechanical compression





Posters 3

106/Identifying novel biomarkers in Pacemaker Induced Cardiomyopathy

touchCARDIO Meeting Proceedings. 2026:1;abstr106

Authors: S Robinson (Presenting Author) and A Maher Sandwell and West Birmingham NHS trust, Birmingham, UK

Introduction: Pacemaker-induced cardiomyopathy (PICM) is an under-recognised complication of long-term right ventricular (RV) pacing, characterised by deterioration in left ventricular function resulting from electrical and mechanical dyssynchrony. Current diagnostic approaches rely predominantly on imaging findings after cardiac dysfunction has developed. The identification of novel circulating biomarkers may facilitate earlier detection, improve understanding of the underlying pathophysiology, and support risk stratification in patients at increased risk of PICM. This study aims to investigate the relationship between novel serum biomarkers and echocardiographic evidence of PICM in patients with significant RV pacing burden.

Methods: This ongoing cross-sectional observational study is recruiting adult patients aged ≥ 25 years with a permanent pacemaker implanted for at least one year and an RV pacing burden of $\geq 40\%$. Patients with advanced cognitive dysfunction, total immobility, life expectancy less than one year, or pre-existing heart failure with reduced ejection fraction receiving treatment are excluded.

Data collection includes demographic and clinical characteristics, heart failure symptom assessment, pre-implant and contemporary 12-lead electrocardiograms, pacemaker programming parameters, serum biomarker analysis, and comprehensive transthoracic echocardiography. Biomarkers under investigation include N-terminal pro-B-type natriuretic

peptide (NT-proBNP), troponin, creatine phosphokinase, soluble suppression of tumorigenicity-2 (sST2), and galectin-3.

Planned statistical analyses include comparisons of biomarker levels between patients with and without PICM using independent t-tests or Mann-Whitney U tests, correlation analyses between biomarker concentrations and echocardiographic parameters, logistic and linear regression modelling to assess associations with PICM, and receiver operating characteristic (ROC) curve analysis to evaluate diagnostic performance.

Results: Patient recruitment and data collection are currently ongoing. The target sample size is 60 participants, calculated to provide adequate statistical power while accounting for anticipated non-attendance and attrition. Data collection is expected to be completed by September 2026, after which statistical analyses will be undertaken to evaluate associations between serum biomarkers, echocardiographic findings and the presence of PICM.

Conclusions: Results are pending completion of recruitment and analysis. It is anticipated that this study will provide insight into the potential role of novel biomarkers in the early detection and pathophysiological understanding of PICM. Findings may contribute to improved diagnostic pathways, earlier intervention strategies and enhanced clinical management of patients undergoing long-term RV pacing. □



Posters 3

107/Improving Compliance with BMI Eligibility Criteria for Atrial Fibrillation Ablation: A Clinical Audit and Quality Improvement Project

touchCARDIO Meeting Proceedings. 2026:1;abstr107

Authors: S Ahmed (Presenting Author), D Ramnarase, O Shaikh, W Foster and A Ammar
Worcester Royal Hospital, Worcester, UK

Introduction: Catheter ablation is an established rhythm-control strategy for symptomatic paroxysmal and persistent atrial fibrillation (AF). Obesity has been associated with progression of AF, atrial cardiomyopathy and poorer ablation outcomes. Recent evidence has shown that pre-ablation weight reduction improves AF ablation success rate and that each 10% weight loss is associated with reduced AF recurrence after ablation. NHS England Clinical Commissioning Policy (URN: 1903) requires all patients undergoing AF ablation to have a body mass index (BMI) ≤ 40 kg/m², and patients with a BMI of 35–40 kg/m² must undergo intensive weight management with $\geq 10\%$ loss of initial body weight before eligibility is met. No formal BMI eligibility audit has previously been undertaken at Worcester Royal Hospital, representing a governance and patient-selection gap.

Methods: A retrospective clinical audit was performed at Worcester Royal Hospital, Worcestershire Acute Hospitals NHS Trust, including all adults undergoing catheter ablation for paroxysmal or persistent AF between January 2024 and December 2025. Data were extracted from Sunrise EPR, the catheter laboratory database, and pre-procedural documentation using a standardised pro forma.

Three audit standards were assessed against a 100% target:

- BMI documented before procedure.
- BMI ≤ 40 kg/m² at the procedure.
- Documented $\geq 10\%$ body weight loss in patients with BMI 35–40 kg/m².

Results: Among 208 patients who underwent AF ablation between January 2024 and December 2025 at Worcester Royal Hospital, BMI was documented in 205 cases (98.6%). BMI was <35 kg/m² in 188 patients (90.4%), 35–40 kg/m² in 15 patients (7.2%), >40 kg/m² in 2 patients (1.0%), and undocumented in 3 patients (1.4%). Two patients, with BMIs of 44.3 and 40.1 kg/m², proceeded to ablation despite not meeting NHS eligibility criteria.

Among patients with BMI 35–40 kg/m², only 2 of 15 (13.3%) had documented $\geq 10\%$ weight loss before ablation. Overall full pathway

Table 1: Audit Standards and Compliance

Standard	Target	Achieved	Gap
BMI documented before procedure	100%	98.6%	–1.4%
BMI ≤ 40 kg/m ² at procedure	100%	99.0%	–1.0%
$\geq 10\%$ weight loss documented if BMI 35–40 kg/m ²	100%	13.3%	–86.7%
Overall full pathway compliance	100%	89.9%	–10.1%

compliance was 187 of 208 (89.9%), with the main gap arising from absent or incomplete evidence of weight-management completion in the BMI 35–40 kg/m² subgroup.

Conclusions: The initial BMI eligibility audit for AF ablation at Worcester Royal Hospital showed almost complete BMI documentation, with minimal gaps in NHS commissioning criteria compliance. The most important deficiency was failure to document $\geq 10\%$ weight loss in eligible patients with BMI 35–40 kg/m². Root cause analysis identified three major contributory factors: absence of a mandatory BMI field in referral documentation; limited awareness of BMI criteria among trainee & non-EP cardiologists and primary care referrers; and incomplete documentation for weight management completion percentage & weight loss percentage.

Targeted interventions to be implemented:

- Mandatory BMI field in the referral pro-forma.
- Standardised BMI 35–40 kg/m² weight-management checklist before listing for AF ablation.
- Referral-awareness poster for primary care, general cardiology, and cardiology trainees.

PDSA Cycle 2 re-audit is planned for Q4 2026, targeting BMI documentation $\geq 99\%$, full pathway compliance $\geq 95\%$, and zero patients proceeding to AF ablation outside the BMI eligibility criteria. □



Posters 3

108/WITHDRAWN



Posters 3

109/Variability of battery longevity in cardiac implantable electronic devices: Accuracy of predicted battery longevity from follow-up to elective replacement indication*touchCARDIO Meeting Proceedings. 2026:1;abstr109**Authors: S Gill (Presenting Author),¹ N Jones,¹ J Mayer,¹ A Patwala¹ and J Fletcher²**1. University Hospitals of North Midlands, Stoke-on-Trent, UK; 2. University of Wolverhampton, Wolverhampton, UK*

Introduction: Cardiac implantable electronic devices (CIEDs) are used to treat patients with slow heart rates, prevent sudden cardiac death and provide resynchronisation therapy. Over 82,000 devices are implanted each year, increasing the population of patients seen in physiologist lead device clinics across the UK. Clinics are used to assess lead parameters and optimise device programming but also facilitate the monitoring of battery longevity to ensure patients receive timely interventions. Contemporary guidance states that patients must be followed up more intensely when batteries have less than 18 months remaining but suggest that the frequency of appointments remains at the discretion of staff. Interpretation of guidelines can vary, and research is limited into the comparison of estimated battery longevity in comparison to real-world data.

Methods: The aim of this study was to analyse battery longevity by evaluating the accuracy of estimates and factors contributing to variance in actual battery life. The data was compared to current guidelines to evaluate the use of appointments in a real-world clinical setting during the latter stages of device battery life.

Data was collected for patients referred for generator change procedures from 01/01/2023 to 31/12/2023 at a single tertiary centre. Device type, manufacturer, lead parameters, device programming and corresponding battery data was collected at key dates during follow-up. Data was analysed using descriptive statistics, Kaplan-Meier survival analysis, a multivariable regression and Mann-Whitney U tests.

Results: The observed battery longevity showed a median difference of +/-24hr from estimated battery longevity at both 12 months and 6 months before generator change referral (*Table 1*) and patients received an average of 6 follow-up appointments within the 12-month period of intensified follow-up.

Table 1

Follow up prior to GC Referral	Number of samples	Difference between expected and observed battery longevity in days, Median (IQR)
12 months	78	1.0 (-67.0, 88.0)
6 months	73	-1.0 (-87.2, 42.8)
Referral	87	-7.0 (-55.8, 0.0)

Kaplan-Meier analysis showed that, despite the overall trend of estimated battery longevity, some patients did reach replacement indication before expected. In patients that reached replacement indication prematurely, multivariable regression demonstrated that RV pacing amplitude contributed highly to earlier battery depletion in permanent pacemakers ($B=1.386$, $p=0.02$) and cardiac resynchronisation therapy defibrillators ($B=-4.169$, $p=0.03$). Additionally, Mann-Whitney U tests showed a statistically significant difference ($p=0.005$) in RV pacing amplitude in permanent pacemakers that reached elective replacement indicators (median of 1.25V) and those that did not (median of 0.75V).

Conclusion: The data showed that longevity estimates were relatively accurate in relation to observed battery depletion, with a few outliers that reached replacement indicators prematurely. Of these patients, key factors such as higher RV pacing amplitudes and LV pacing pulse width were identified to contribute significantly to the faster reductions in battery life. Current device follow-up clinics may adopt an over-cautious interpretation of contemporary follow-up guidelines and, in some patients, a decrease in appointment frequency may be appropriate. □



Posters 3

110/A Case to Remember: Cardiac Memory Mimicking Diffuse Myocardial Ischaemia Following Permanent Ventricular Pacing

touchCARDIO Meeting Proceedings. 2026;1;abstr110

Authors: B Starkey (Presenting Author) and H Beg
Gateshead Health NHS Foundation Trust, Gateshead, UK

Background: Cardiac memory is a benign repolarisation phenomenon following abnormal ventricular activation, including ventricular pacing. The resulting T-wave inversions may closely mimic diffuse myocardial ischaemia, creating diagnostic uncertainty in patients presenting with chest pain — a pattern that may go unrecognised across multiple clinical encounters.

Objective: To describe a case of pacing-induced cardiac memory presenting as widespread T-wave inversion, highlighting key electrocardiographic features that distinguish this phenomenon from true ischaemia.

Methods: An 85-year-old man with heart failure, stage 4 chronic kidney disease and a dual-chamber permanent pacemaker implanted four months earlier for symptomatic second-degree atrioventricular block presented with recurrent chest pain. Serial electrocardiograms (ECGs), high-sensitivity troponin-T (hs-cTnT), pacemaker interrogation and a myocardial perfusion scan (MPS) were performed.

Results: Admission ECG demonstrated a dual-chamber paced rhythm (Figure 1). An ECG 12 hours later revealed an atrial-paced rhythm with deep, global T-wave inversion (Figure 2). Notably, identical global T-wave

inversion had been present and unrecognised on an ECG three months prior. Pre-pacemaker ECGs showed no T-wave inversion. hs-cTnT was mildly elevated but non-dynamic (50–53 ng/L), consistent with prior values. Pacemaker interrogation confirmed high ventricular pacing burden (96.8%). MPS demonstrated only a moderate reversible inferior defect (~10% ischaemic burden), not in keeping with the diffuse ECG changes. Serial ECGs remained non-dynamic throughout admission. Three weeks post-discharge, an ECG demonstrating normal sinus rhythm showed near-complete resolution of T-wave inversion with only residual changes in leads I and aVL (Figure 3), confirming a likely diagnosis of cardiac memory.

Conclusion: Cardiac memory should be suspected when global, non-dynamic T-wave inversion is observed during intrinsic ventricular conduction following periods of sustained ventricular pacing. Comparison with historical ECGs, assessment of pacing burden and demonstration of gradual resolution with intrinsic conduction are key diagnostic features. Recognition of this benign phenomenon prevented misdiagnosis of diffuse ischaemia, avoiding invasive coronary angiography and antithrombotic escalation in a frail, high-risk patient. □

Figure 1

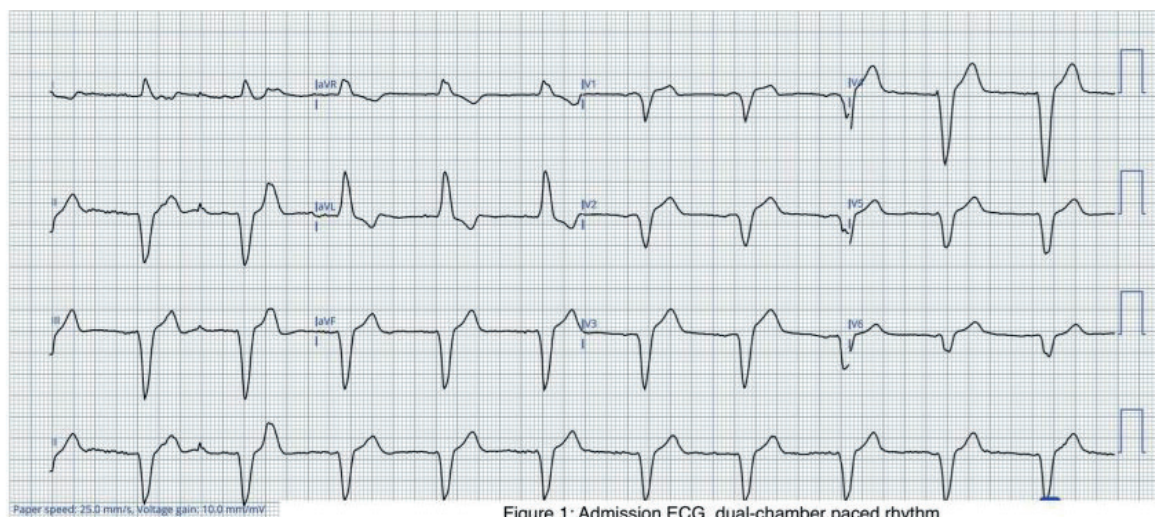


Figure 1: Admission ECG, dual-chamber paced rhythm



Figure 2

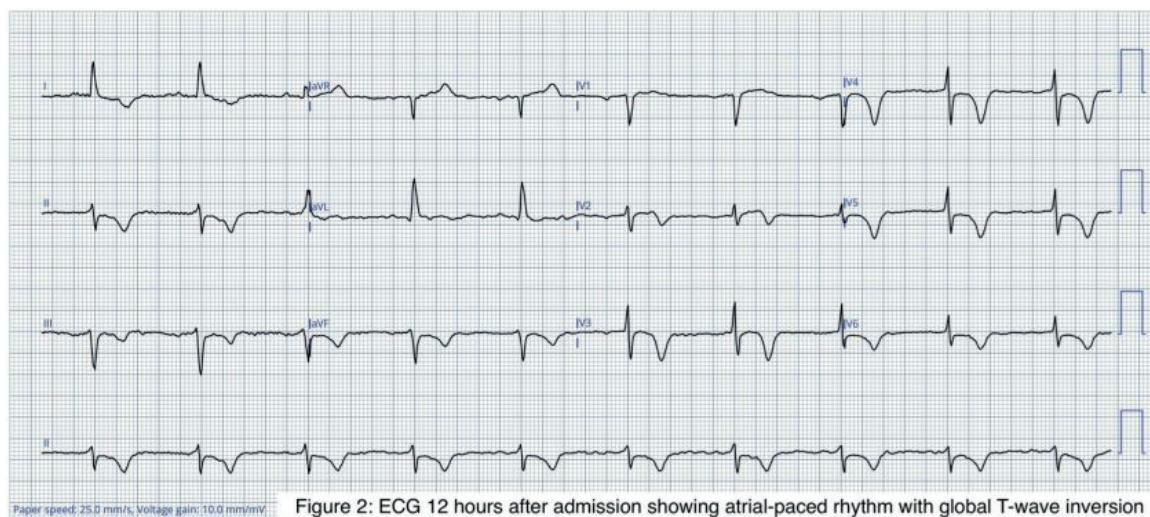
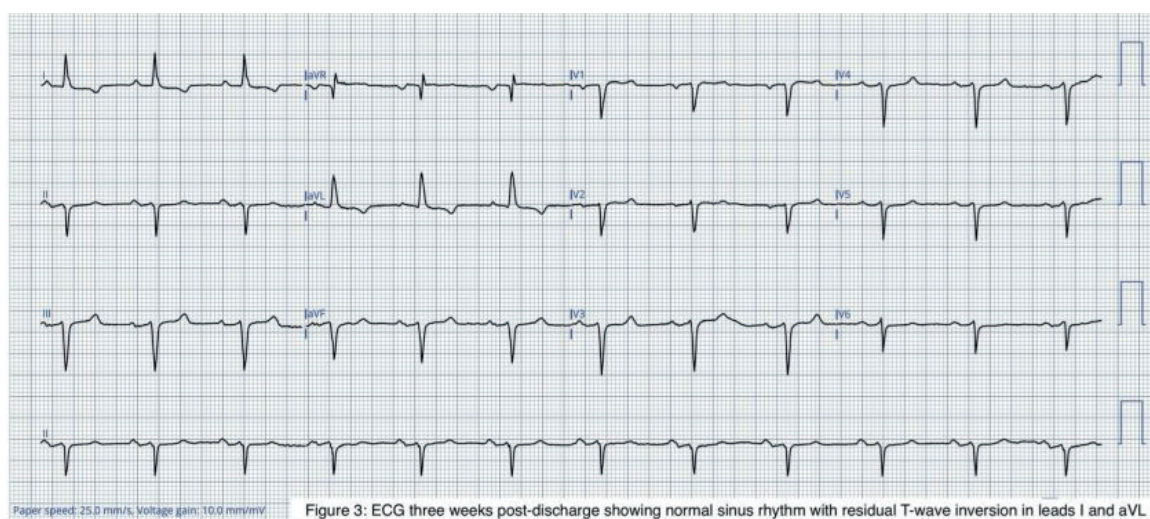


Figure 3





Posters 3

111/Do Digital Wearables Increase Detectability of Atrial Fibrillation?

touchCARDIO Meeting Proceedings. 2026:1;abstr111

Authors: HS Stevenson (Presenting Author), SH Harris, SF Sahd Fatmi and AMW Weisuddin
Anglia Ruskin University, Chelmsford, UK

Introduction: In the UK, AF affects over 1 million people with more remaining undiagnosed. Early diagnosis allows for appropriate management and reduced healthcare burden, but traditional short-term 12-lead ECG's often miss AF due to the paroxysmal nature. These limits increase interest in digital wearables which use photoplethysmography, with algorithms detecting irregular pulses suggestive of AF. This is useful for screening, running continuously and non-invasively, but cannot classify arrhythmias as precisely as an ECG. Many smartwatches do have a single lead ECG feature, which could confirm AF, but ECG and clinical diagnosis remain confirmatory for AF diagnosis.

Methods:

For search of 'watches' AND 'atrial fibrillation' on PubMed $n = 246$

For search of above AND Past 5 Years on PubMed $n = 139$

For search of above AND Free Full Text $n = 105$

For search of above AND 'detect' $n = 72$

Filtering down to $n = 14$, only including: Clinical Trial, Meta-Analysis, Randomized Controlled Trial, Systematic Review

Of the remaining 14 papers, 10 that weren't relevant were excluded – ($n = 14 - 10 = 4$).

Results: Singh, *et al.*, investigated the accuracy of multiple devices in detecting AF. Six brands were tested a total of 27 times, and the study found the following:

Pooled **PPV = 87.43%**, Pooled **sensitivity = 94.22%**, Pooled **specificity = 95.28%**.

This supports that wearables are good at not missing true cases of AF, although it is not completely reliable. However, ~13% of cases where the device detects possible AF, there is no actual disease present.

Belani *et al.* compared the specificity and sensitivity of three different digital wearables for detecting AF: Apple Watch, KardiaBand, and Samsung, finding the following:

- Overall **sensitivity of 96.99%**, and no significant difference between the three devices
- Overall pooled **specificity of 99.02%** which is statistically significant
- Significant variation in specificity between devices: 99.61%, 81.13%, 97.96% respectively

The study reflects the promising nature of the sensitivity of wrist worn wearable, but challenges with brand-dependent variations in specificity. Barrera *et al.* reviewed the overall diagnostic accuracy of smartwatches for detecting AF up to January 2025. It included 26 studies and found the following: Pooled **sensitivity = 95%**, Pooled **specificity = 97%**, **PPV = 92.51%**.

Shahid, *et al.*, 2025 reviewed literature on the Apple Watch for detecting AF. The pooled diagnostic performance of the ECG function showed: **sensitivity = 94.8%**, and **specificity = 95%**.

Conclusions: To conclude, consumer smartwatches are a promising tool for AF screening- the devices achieved consistently high diagnostic accuracy, with **sensitivities of 94-97%** and **specificity of 95-99%**, excluding KardiaBand (81%). This suggests that smartwatches can reliably identify individuals who may have AF. However, the high heterogeneity across studies (88-99%), reflects considerable variation in study populations. This reduces certainty in precise estimates, implying real-world performance may differ from reported results, especially when most evidence comes from populations with already elevated AF rates; this is perhaps where research should focus in the future. Potential false positives need consideration also, potentially causing more costs for the health service and patient anxiety. Currently, smartwatches cannot replace clinical diagnosis, but they represent a valuable adjunct in detection of AF; especially the ability to monitor consistently and non-invasively. □



Posters 3

112/Implementation of a Digital ECG Pathway using GE MAC VU360 and MUSE integration to Improve workflow Efficiency and Reduce Paper use

touchCARDIO Meeting Proceedings. 2026:1;abstr112

Authors: [K Lane](#) (Presenting Author), C Siljan, M Vallo and V Cyster
West Middlesex Hospital, Isleworth, UK

Introduction: Electrocardiogram (ECG) services within the NHS continue to rely on partially paper-based workflows, contributing to delays in communication, increased administrative workload and excess paper use. At Chelsea and Westminster Foundation Trust, ECG results frequently require manual printing and physical transfer due to unreliable interoperability between ECG acquisition systems and the electronic patient record (EPR), resulting in workflow inefficiencies and delays in clinical information access. This had an impact on workflow efficiency, traceability and timely clinical review. We postulated that introducing an integrated ECG system would improve digital connectivity, reduce paper dependency and streamline the ECG pathway.

Methods: A service evaluation was performed following the implementation of the GE MAC VU360 ECG system within the cardiology diagnostic department at Chelsea and Westminster Trust. This new pathway enabled automatic electronic transfer of ECGs into the MUSE and Cerner systems, reducing the need for manually transmitting the records. Staff training was undertaken to support safe and effective use of the new system, the hook up advisor function was utilised during ECG acquisition to improve lead placement accuracy and waveform quality. Weekly ECG activity and printing frequency were measured before and after implementation to evaluate the impact on workflow efficiency, ECG accessibility and paper usage.

Results: The baseline departmental activity prior to implementation of the system was 150 ECGs per week, with an average of 102 ECGs being printed for clinical review. Following implementation of the digital

Table 1: Impact of GE MAC VU360 and MUSE Integration on ECG Workflow

Outcome Measure	Before Implementation	After Implementation
ECGs Printed Weekly	102	32
ECG Transfer Process	Manual	Automated
ECG Accessibility	Delayed	Immediate
Paper Usage	High	Significant reduction

ECG pathway, printed ECGs reduced to 32 per week representing a 75% reduction in paper usage. Staff also reported improved workflow efficiency and reduced administrative workload following implementation. 7 out of 8 people in our team find the new ECG Muse system more efficient and user friendly.

Conclusion: Implementation of the GE MAC VU360 ECG system with MUSE integration improved workflow efficiency and substantially reduced paper use within the cardiac diagnostics department. The digital ECG pathway supported improved accessibility and traceability of ECG records while reducing reliance on manual processing. This project also supported NHS sustainability and digital transformation initiatives. Ongoing staff training and competency assessment remain important to ensure safe and effective integration of digital technologies into clinical practice. □



Posters 3

113/ARNI and SGLT2 inhibitors and ventricular arrhythmia in ICD and CRT-D recipients with heart failure: A Time-dependent Cohort analysis*touchCARDIO Meeting Proceedings. 2026;1;abstr113*

Authors: [A Umashankar](#) (Presenting Author), A Margulescu and J Barry
Swansea Bay University Health Board, Swansea, UK

Introduction: It remains incompletely understood if treatment with angiotensin receptor–neprilysin inhibitors (ARNI) and sodium–glucose cotransporter-2 inhibitors (SGLT2i) reduce the risk of ventricular arrhythmias and device therapies in patients with heart failure and implantable cardioverter-defibrillators (ICDs) with or without resynchronisation therapy (CRTD).

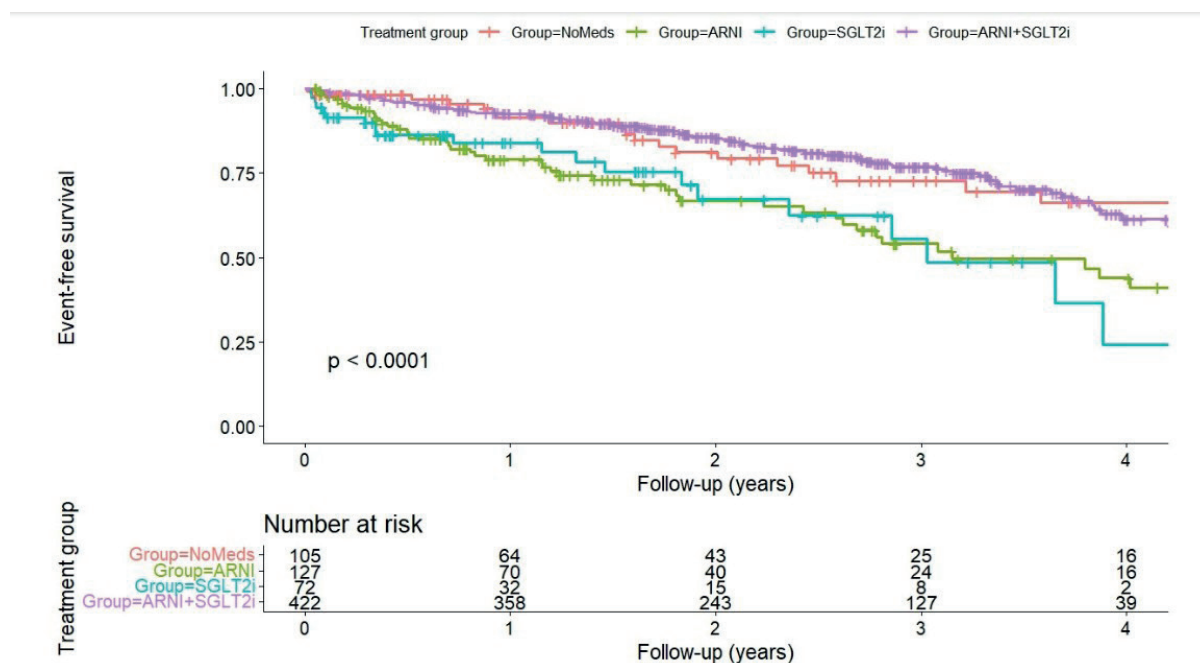
Methods: This retrospective cohort study included all patients with left ventricular ejection fraction $\leq 40\%$ who underwent ICD or CRT-D implantation between January 2020 and May 2024 and were followed up at our centre. Exposure to ARNI and SGLT2i therapy was modelled as a time-dependent variable. The primary outcome was time to first sustained ventricular tachycardia or ventricular fibrillation (VT/VF). Multivariable Cox regression adjusted for relevant clinical covariates and stratified by diabetes status was performed.

Results: The study included 532 patients (mean age 67 ± 11 years, mean LVEF $29 \pm 8\%$). During a median follow-up of 2.3 years, 57 VT/VF events

occurred. Kaplan–Meier analysis demonstrated significant differences in VT/VF-free survival between treatment groups (No medication vs. ARNI only vs. SGLT2i only vs. combined ARNI + SGLT2i) (log-rank $p = 0.01$). After multivariable adjustment, SGLT2i only was associated with increased VT/VF risk compared with no disease-modifying therapy (HR 2.79, 95% CI 1.03–7.56; $p = 0.046$), whereas ARNI only or combined ARNI + SGLT2i therapy was not. No interaction with CRT-D implantation was observed.

Conclusion: In a contemporary ICD / CRTD population with reduced ejection fraction, SGLT2i-only therapy was associated with higher VT/VF risk, while ARNI therapy alone or in combination with SGLT2i was not. These findings likely reflect patient selection and treatment timing rather than a direct pro-arrhythmic effect and highlight the importance of interpreting arrhythmic outcomes within the context of comprehensive guideline-directed medical therapy. □

Figure 1: Kaplan–Meier curves for the composite endpoint of death or VT/VF according to treatment group





Posters 3

114/Rate-related programming in people with cardiac resynchronisation therapy (CRT) - a single-centre observational analysis of current practice

touchCARDIO Meeting Proceedings. 2026:1;abstr114

Authors: S Kamalathanan,¹ P Demian (Presenting Author),² J Tan,² S Straw,³ JE Lowry,³ C Cole,³ NS Samad,³ Ol Brown,³ MT Kearney,³ R Cubbon,³ M Paton,³ KK Witte and J Gierula¹

1. Leeds Institute of Cardiovascular and Metabolic Medicine, Leeds, UK; 2. Leeds Teaching Hospitals NHS Trust, Leeds, UK; 3. Leeds Institute of Cardiovascular and Metabolic Medicine, Leeds, UK

Introduction: Cardiac resynchronisation therapy with defibrillator (CRT-D) implantation is an established treatment for selected patients with heart failure and reduced ejection fraction. While guidelines provide recommendations regarding patient selection for device implantation, there are limited recommendations to guide rate-related programming, including rate-adaptive pacing. Our primary aim was to describe standard practice of rate-related programming and how these change over time in a consecutively implanted cohort.

Methods: We identified 111 patients implanted CRT-D devices between January 2020 and January 2025 at a tertiary centre. Data regarding age, sex, medical comorbidities, laboratory investigations and clinical outcomes were collected from electronic health records. Programming parameters including pacing mode, base rate, rate-adaptive pacing and the upper sensor rate were evaluated at baseline, 6 weeks and 1 year following implantation.

Results: The cohort had a median age of 70 (19-93) years and was predominantly male (n = 91[82%]). Cardiovascular comorbidities were common, with 84 (76%) having chronic kidney disease, 57 (51%) ischaemic heart disease, 55 (50%) hypertension, 50 (45%) atrial fibrillation and 49 (44%) diabetes mellitus. Mean ejection fraction was 30.6 ± 11.2%, with most patients reporting NYHA class II symptoms (n=96 [87%]). Left bundle branch block was the primary indication in 89 (80%) of patients. Of the 111 people in this study, 26 (23%) people were programmed VVI and 82 (74%) programmed DDD at baseline, and after one year this was unchanged at 27 (24%) and 79 (71%) respectively. Mean heart rate remained similar at baseline (52 ± 10.51), six weeks (53 ± 9.95) and one year (54 ± 9.27). Base rate remained the same at 52 ± 8.6 over the study period. In contrast, rate-adaptive pacing was enabled in an increasing

Table (1): Pacemaker programming parameters and clinical outcomes at baseline and follow-up among the studied patients

	Baseline	6 weeks	1 year
Heart rate in bpm (Mean ± SD)	52 ± 10.51	53 ± 9.95	54 ± 9.27
VVI	26 (23.4%)	26 (23.4%)	27 (24.3%)
DDD	82 (73.9%)	84 (75.7%)	79 (71.2%)
Rate Adaptive Pacing on	18 (16%)	21 (19%)	33 (30%)
Changes to rate adaptive pacing	1 (0.9%)	5 (4.5%)	13 (11.7%)
Base rate in bpm (Mean ± SD)	52 ± 8.6	52 ± 8.9	52 ± 8.3
Upper sensor rate in bpm (Mean ± SD)	124 ± 8.7	123 ± 9.3	122 ± 10.0

bpm = beats per minute; DDD = dual chamber pacing; VVI = ventricular inhibited pacing

proportion of patients with 18 (16%) at baseline, 21 (19%) at six weeks and 33 (30%) at one year. Programming trends are summarised in Table 1.

Conclusions: In this single-centre retrospective observational study, rate-related programming following CRT-D implantation remained largely unchanged during the first year of follow-up. The principal programming change observed was activation of rate-adaptive pacing, for which there is no guidance to determine which patients benefit the most, the optimal upper sensor rate, slope or sensitivity. More personalised device programming might improve patient-orientated outcomes, however ‘out of the box’ programming appears to be common. □



Posters 3

115/Lyme Carditis Presenting as Severe Sinus Node Dysfunction and Cardiac Arrest: A Rare Case of Persistent Conduction Disease Requiring Permanent Pacing

touchCARDIO Meeting Proceedings. 2026:1;abstr115

Authors: T Younus (Presenting Author),¹ Younus (Presenting Author),¹ Ahmed,¹ Khan¹ and Solano²

1. Royal Preston Hospital, Preston, UK; 2. Oxford University Hospitals, Oxford, UK

Introduction: Lyme carditis occurs in 1–10% of Lyme disease cases and most commonly presents with atrioventricular conduction abnormalities. Sinus node dysfunction and sinus arrest are rare manifestations. Although conduction disturbances are usually reversible with antibiotic therapy, severe persistent cases may occur. We report a rare case of Lyme carditis presenting with prolonged sinus arrest causing cardiac arrest and requiring permanent pacemaker implantation despite antibiotic treatment.

Methods: A 33-year-old man with anxiety treated with mirtazapine presented with recurrent episodes of blurred right-sided vision, paraesthesia, expressive dysphasia, and headaches. He denied tick exposure, rash, fever, arthralgia, recent travel, or constitutional symptoms. Examination was unremarkable.

Results: Electrocardiography showed a normal sinus rhythm (PR 170 ms, QTc 425 ms). Echocardiography and chest radiography were normal. Brain MRI demonstrated a left thalamic lacunar infarct with additional small embolic infarcts. CT and MR angiography revealed congenital absence/hypoplasia of the left internal carotid artery with preserved collateral circulation. Transoesophageal echocardiography showed no intracardiac thrombus or shunt. Routine blood tests and autoimmune screening were normal.

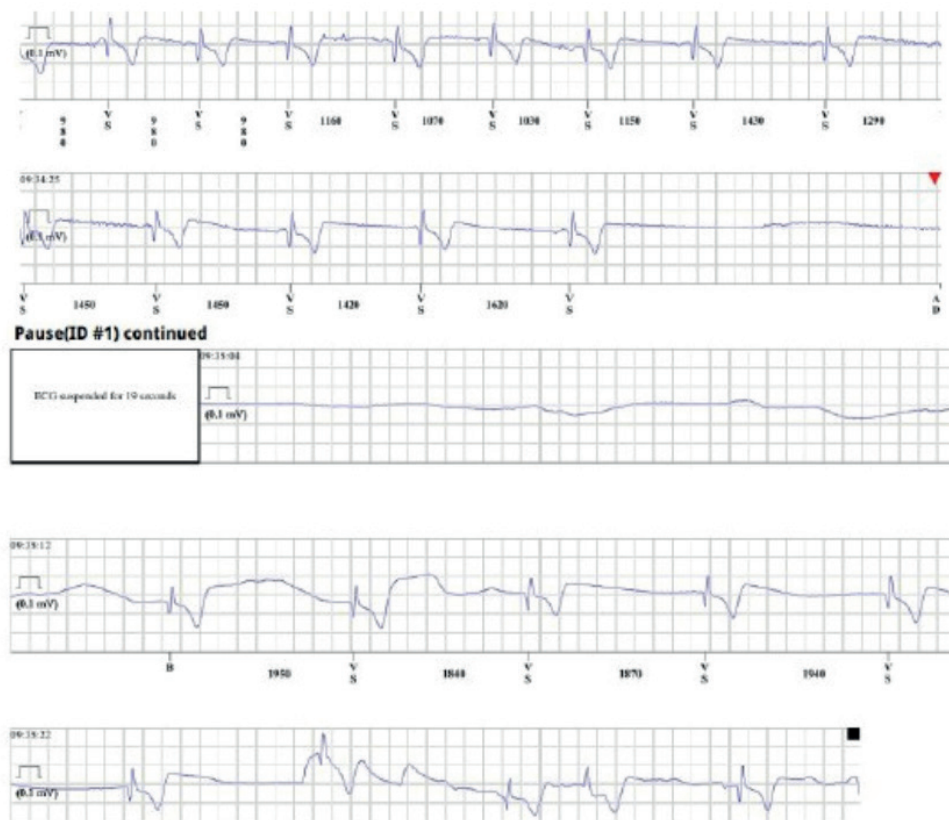
Despite the absence of classical Lyme features, Lyme serology was positive, and a 21-day course of doxycycline was completed. An implantable loop recorder was inserted following treatment.

Immediately after implantation, the patient developed cardiac arrest. Device interrogation demonstrated a 32-second sinus pause consistent with sinus arrest. Cardiopulmonary resuscitation achieved return of spontaneous circulation without defibrillation. Following a multidisciplinary review, a dual-chamber permanent pacemaker was implanted because of severe sinus node dysfunction and the risk of recurrent life-threatening pauses despite antibiotic therapy.

The patient remains pacemaker-dependent with good functional status on follow-up.

Conclusion: This case highlights a rare presentation of Lyme carditis with severe sinus node dysfunction and prolonged sinus arrest resulting in cardiac arrest. Although Lyme-associated conduction abnormalities are typically reversible, persistent life-threatening rhythm disturbances may rarely occur and require permanent pacing. Clinicians should consider Lyme carditis in younger patients presenting with unexplained arrhythmias or sinus arrest, even in the absence of typical Lyme disease features. □

Figure 1





Posters 3

116/Development of a program for predicting the risks of arrhythmia recurrence after minimally invasive ablation procedures "RAFA-score" with integration algorithms of machine learning*touchCARDIO Meeting Proceedings. 2026:1;abstr116**Authors: E Strebkova (Presenting Author),¹ A Revishvili,¹ E Kropotkin,¹ K Strebkov² and M Tevyashov³**1. Federal State Budgetary Educational Institution «A.V. Vishnevskiy National Medical Research Center of Surgery» of the Ministry of Healthcare of the Russian Federation, Moscow, Russia; 2. Federal State Budgetary Educational Institution of Higher Education «Southwest State University», Kursk, Russia; 3. Federal State Autonomous Educational Institution of Higher Education «Higher School of Economics», Moscow, Russia*

Introduction: Atrial fibrillation (AF) is the most common cardiac tachyarrhythmia and contributes significantly to morbidity and mortality worldwide. ESC Guidelines 2024 present a wide range of treatment approaches for AF: therapeutic, interventional, and surgical, but none of these methods are completely effective. Currently, attempts are being made to develop predictive models of AF return after ablation procedures based on artificial intelligence (AI) methods, in particular machine learning (ML) algorithms. Such models demonstrate high mathematical potential in predicting the effectiveness of AF treatment. The purpose of our work was to develop the RAFA-Score program ("Recurrence of Atrial Fibrillation after Ablation - Score Risk", *Figure 1*) with the integration of ML algorithms.

Methods: The database includes 1631 patients with isolated AF who were treated at the Arrhythmological Center from 2024 to 2025. Currently, 838 patients have been included who provided daily electrocardiogram monitoring data (endpoint) 12 months after surgery. When writing the program code and the subsequent stage of the ML, the distribution of patients was performed depending on the treatment method: (1) Thoracoscopic Ablation (TSA), n=320; (2) Hybrid Ablation, n=81; (3) Zero-fluoroscopic radiofrequency ablation (RFA) 60W of pulmonary veins (PVs), n=182; (4) RFA 45W PVs, n=104; (5) Pulsed Field Ablation (PFA) PVs using circular catheter, n=151. Each group has a distribution of patients depending on the form AF: (1) paroxysmal (ParAF); (2) persistent (PerAF); (3) long-term persistent (LS-AF). The overall analysis included 112 preoperative parameters.

The following ML methods were implemented in our program: (1) Logistic Regression (LR); (2) Support Vector Machine (SVM); (3) Random Forest (RF) (4) Neural Networks (NN) (5) Extreme Gradient Boosting (XGBoost). The model was trained according to a random distribution of coefficients: 70:30 (%), where 70% of the data was a training set, and 30% was a test set.

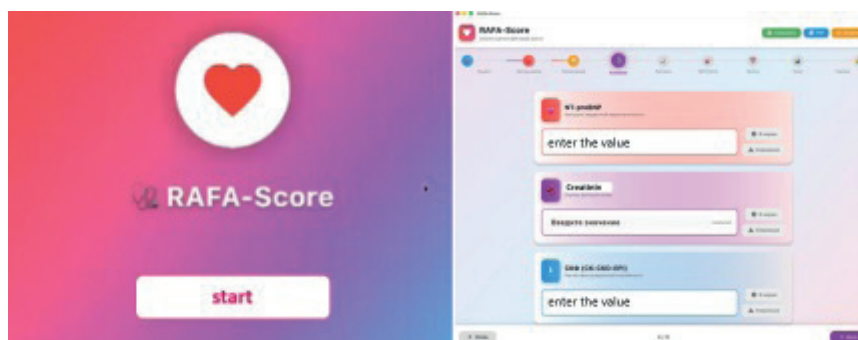
Results: The models showed a ROC-AUC of 0,65–0,78, which corresponds to sufficient predictive ability for clinical decision support. The best results were demonstrated by the XGBoost algorithm with a ROC-AUC of 0,78.

NN and RF demonstrated comparable efficiency. LR and SVM have given way to ensemble methods, which is explained by the presence of complex nonlinear dependencies between features.

A personalized selection algorithm has been created to assess the likelihood of arrhythmia recurrence after five AF ablation methods. The simulation recommended that zero-fluoroscopic RFA 60W PVs be considered for patients with ParAF, with a probability of achieving 82% freedom from arrhythmia during the one-year follow-up period. Whereas for patients with PerAF, the program recommends considering TSA or Hybrid with a possible 78% and 85% efficacy, respectively, which does not contradict ESC Guidelines 2024 on the Management of AF.

Conclusions: Thus, our «RAFA-score» can become a promising mathematical method for evaluating and predicting the effectiveness of ablation at the treatment planning stage, which will make it possible to implement personalized medicine in arrhythmology in the near future. □

Figure 1: Interface RAFA-score





Posters 3

117/Audit on the indications and outcomes of patients undergoing implantable loop recorders at a district general Hospital

touchCARDIO Meeting Proceedings. 2026:1;abstr117

*Authors: RWS Khan (Presenting Author) and S Nadar
Russells Hall Hospital, Dudley, UK*

Introduction: Implantable loop recorders are a valuable tool in the diagnosis of patients who have symptoms attributable to a cardiac cause, but where the symptoms are infrequent. However, these recorders are fairly expensive and there is a tendency to over utilise this modality of investigation. The aim of our audit was to study the referral patterns for ILRs at our institution and the diagnostic yield of these recorders

Methods: This was a retrospective study involving patients who underwent an implantable loop recorder (ILR) at our institution over the last four years.

Results: Data was available on 327 patients (age 61.9±18.7 years; 175 or 53.5% male). The main indications were syncope 163 (49.8%), stroke (18.6%) and palpitations (25.7%). 43.1% of patients had no previous tests,

while 33% had multiple previous monitoring. The rest had a single 24 hour holter. The resting ECG was normal in 90% of patients, while 3.4% had pre-existing Atrial fibrillation. Patients were monitored for a median of 24 (18-29) months. In 56.3% of patients, no abnormalities were detected, but AF was found in 22.9%, and other conduction abnormalities in 11%. Other abnormalities detected included SVT (4.6%) and VT in 1.5%. Reassurance and medical treatment were the main outcome in 63% and 24.2% respectively, while 9.5% of patients had a pacemaker, 2.1% underwent an ablation for an arrhythmia and 2 patients had an ICD implanted.

Conclusion: Prolonged monitoring with ILRs help to detect abnormalities in almost half of those undergoing the procedure. It also helps to reassure a vast majority of patients with troubling symptoms. □



Posters 3

118/Emergency Internal Jugular AVEIR Leadless Pacemaker Implantation in an Octogenarian to enable treatment of Hospital-Acquired Pneumonia - a case study

touchCARDIO Meeting Proceedings. 2026:1;abstr118

Authors: *JB Barnaby* (Presenting Author),¹ *SC Choudhuri*² and *IN Nehikhare*¹

1. Northampton General Hospital, Northampton, UK; 2. University of Oxford, Oxford, UK

Current guidance from NICE discusses the cost effectiveness single chamber versus dual-chamber pacemakers for symptomatic bradycardia. In most circumstances dual-chamber pacemakers are recommended. NICE guidelines state that single chamber pacing is the clinically appropriate choice in the specific circumstances of sick sinus syndrome without atrioventricular block and atrioventricular block with continuous atrial fibrillation. In this case, with active infection, a leadless pacemaker was chosen over conventional transvenous hardware. The Micra AV2 is a leadless pacemaker capable of sensing atrial mechanical activity and delivering synchronised ventricular pacing with this case showing the use of this device in a patient with active infection.

An 80 year old with fractured ribs managed conservatively presented to cardiology after being treated by orthopaedics with fluctuating consciousness, bradycardia, pitting oedema and productive cough. He was diagnosed with hospital acquired pneumonia and trifascicular

block treated with intravenous antibiotics and monitored on telemetry. While on telemetry he progressed to complete heart block; his heart rate dropped to 20 per minute with asystolic pauses. The decision was made to first initiate transvenous pacing and then introduce a Micra AV2 pacemaker into the right ventricle. This resulted in haemodynamic stability being restored allowing for treatment of the pneumonia and the patient to resume his activities of daily living with a discharge to his original residence near his previous baseline.

A case of emergency treatment of symptomatic bradycardia with a Micra AV2 leadless pacemaker facilitating management of ongoing hospital-acquired pneumonia resulting in patient recovering and being safely discharged home.

This case demonstrates the feasibility of emergency leadless pacemaker implantation to treat conduction abnormalities in a medically complex patient with active pneumonia and haemodynamic compromise. □



Posters 3

119/An uncommon cause for syncope. A Vasospastic angina related ventricular tachycardia

touchCARDIO Meeting Proceedings. 2026:1;abstr119

Authors: [AD Dimia](#) (Presenting Author), TM Mahdy, YM Muflihi and KL Lee
UHB, West Midlands, UK

Introduction: Vasospastic angina is a type of chest pain caused by transient coronary artery spasm resulting in temporary reduction of coronary blood flow. Its presentation may mimic acute coronary syndrome and has been associated with potentially life-threatening ventricular arrhythmias. Recognized triggers include recreational drug use and emotional stress. We present a case in which ST segment elevation was noted on the ECG prior to patient syncope and collapse due to ventricular tachycardia.

Case presentation: A 44-year-old female presented to the emergency department with central chest pain radiating to the arms and jaw associated with diaphoresis and dyspnea. She had a significant smoking history. Electrocardiography demonstrated T-wave inversion in the inferior leads (lead III and aVF) and serial troponin measurements increased

from 79 ng/L to 102 ng/L, prompting treatment for NSTEMI. Coronary angiography demonstrated non-obstructive coronary artery disease with sluggish coronary flow and no culprit lesion. Echocardiography demonstrated preserved ventricular function, while cardiac magnetic resonance imaging showed no evidence of myocardial infarction or significant structural heart disease.

During admission, the patient experienced recurrent palpitations, a syncopal episode and a 17.4-second run of NSVT was noted on telemetry. Prior to the patient syncope and palpitation, patient always experienced chest pain. While she was monitored, Her ECG showed ST segment elevation coinciding with the chest pain followed by the Ventricular tachycardia which matched with the palpitation and the syncope. □



Paediatric Abstracts

120/Intra-atrial Re-entrant Tachycardia with Slow Ventricular Response in a Child with Repaired Aortic Coarctation

touchCARDIO Meeting Proceedings. 2026;1;abstr120

Authors: R Kandil (Presenting Author),¹ M Saeed,² A Elrossasy,³ E Samir,⁴ A Atef,⁴ A Samy⁴ and M AboElmaaty⁵

1. Alexandria University, Alexandria, Egypt; 2. NHI, Cairo, Egypt; 3. Tanta University, Tanta, Egypt; 4. HBC, Cairo, Egypt;

5. Ain Shams University, Cairo, Egypt

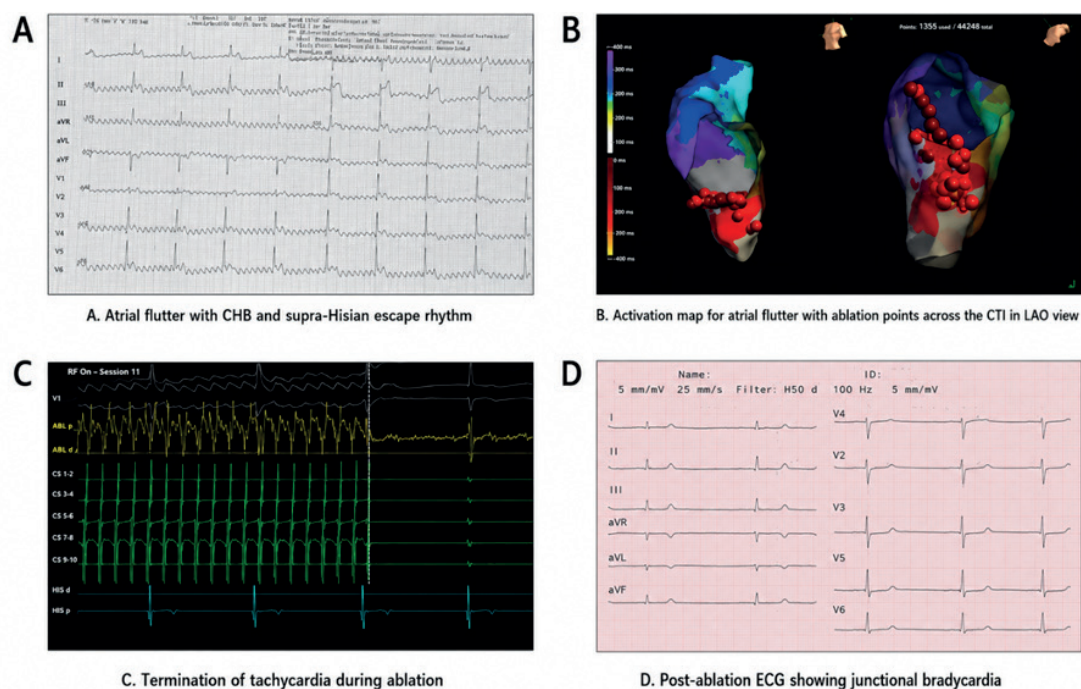
Introduction: Intra-atrial reentrant tachycardia and cavotricuspid isthmus (CTI)-dependent atrial flutter are recognized as late complications of congenital heart disease repair but are rarely reported after isolated coarctation of the aorta. CTI ablation is the standard-of-care treatment for typical atrial flutter, yet bidirectional isthmus block can be difficult to achieve because of variable CTI anatomy, including a prominent Eustachian ridge and sub-Eustachian pouch, which are present in up to one-fifth of hearts. We describe a 6-year-old paediatric patient with repaired coarctation of the aorta in whom atrial flutter proved refractory to cardioversion and antiarrhythmic therapy, and in whom failure of a standard CTI line was explained by a suspected unrecognized Eustachian pouch, corrected by a simple change in catheter trajectory.

Methods: A 6-year-old boy with incidentally diagnosed coarctation of the aorta underwent surgical resection with graft repair, followed by transcatheter balloon angioplasty for restenosis. On subsequent follow-up, he was found to have atrial flutter with a slow, narrow-complex ventricular response of 55 bpm. Electrical cardioversion failed to restore sinus rhythm and there was no response to antiarrhythmic drug therapy with cautious dosing due to significant bradycardia; he was anticoagulated and referred for electrophysiological study. The procedure was performed via a single 8Fr right femoral venous sheath, using a contact-force sensing TactiFlex ablation catheter integrated with the EnSite mapping system, to minimize vascular access burden in a small child with prior catheterization history.

Results: Activation mapping confirmed a CTI-dependent circuit. A conventional linear ablation line along the CTI failed to terminate the tachycardia despite an anatomically adequate lesion set. A prominent sub-Eustachian pouch was suspected as the cause of a gap in the ablation line. Repositioning the ablation catheter to a more lateral trajectory across the suspected pouch along with maximum flexion of the catheter tip achieved immediate termination of atrial flutter with restoration of sinus rhythm. The entire procedure, including diagnostic and therapeutic catheter manipulation, was completed through the single 8Fr sheath, with no vascular or procedural complications. On long-term follow-up, the patient maintained sinus rhythm with normal AV conduction and stopped oral anticoagulation.

Conclusions: This case highlights the rare occurrence of IART with slow ventricular response in a child with normal AV conduction and extracardiac surgical repair of coarctation of the aorta. Besides, Eustachian pouch is a possible under-recognized anatomic pitfall that can cause apparent failure of an anatomically complete CTI ablation line. Recognition of this variant and a deliberate, more lateral catheter approach across the pouch can convert an unsuccessful procedure into a curative one without additional energy delivery or hardware. A single-sheath, contact-force-guided strategy is feasible and may reduce vascular access morbidity in small children with prior interventions, an important consideration in lifelong congenital cardiac care. □

Figure 1





Paediatric Abstracts

121/Collapse and aborted sudden death in a child: perseverance prevails in retrieving data from the AED memory and reveals the exact cause

touchCARDIO Meeting Proceedings. 2026:1;abstr121

*Authors: [LYazici](#) (Presenting Author), M Olgun, C Glenister, A Wong and O Uzun
University Hospital of Wales, Cardiff, UK*

A 10-year-old girl with background of WPW and had been on flecainide presented with seizure and collapse while playing netball at school. She was given CPR by the school nurse, and AED had delivered two DC cardioversions upon detection of a shockable rhythm. She was given adrenaline by the attending paramedics prior to two further DC cardioversions. She was subsequently admitted to local hospital PICU where flecainide levels were found "low to zero" implying noncompliance to medication. Since there were no ECG prints of the event from the AED, the cause of collapse remained inconclusive. Hence, persistent attempts were made to retrieve the data from the AED memory by the help of the engineer working for the manufacturer. The extracted

ECG strips revealed preexcited atrial fibrillation leading to VF arrest and successful delivery of shocks. Subsequently, patient had EPS and RFA of a high risk right lateral accessory pathway exhibiting rapid antegrade and retrograde conduction properties (ERP<200ms in both). A 12 lead ECG and Holter confirmed complete resolution of the delta wave in the follow up, and the patient remained asymptomatic with no further recurrence of the arrhythmia. In conclusion, this case highlights the importance of appropriate documentation of arrhythmia when using AED for collapse and sudden cardiac arrest to confirm the real cause and to formulate the safest and most appropriate management. □



Paediatric Abstracts

122/Physical activity motivation in children and adolescents diagnosed with Long QT Syndrome and Catecholaminergic Polymorphic Ventricular Tachycardia

touchCARDIO Meeting Proceedings. 2026:1;abstr122

Authors: C Renwick (Presenting Author),¹ S Vaja,² T Bueser,³ N Riding,⁴ J Wray,⁵ J Till,⁶ J Ware⁷ and JP Kaski⁸

1. Consultant Nurse NIHR Doctoral Clinical and Practitioner Academic Fellow (DCAF) - Guys and St Thomas' NHS Foundation Trust, London, UK; 2. Medical Statistician - Guys and St Thomas' NHS Foundation Trust, London, UK; 3. Director for Nursing & Midwifery - Southeast Genomic Medicine Service Alliance, London, UK; 4. Senior Lecturer - University College London, London, UK; 5. Professor of Child Health Psychology - Cardiology, Critical Care and Transplantation Senior Research Fellow - Institute of Cardiovascular Science, UCL Heart and Lung Directorate and Centre for Outcomes and Experience Research in Children's Health, Illness and Disability (ORCHID), Great Ormond Street Hospital, London, UK; 6. Consultant Paediatric Electrophysiologist - Guys and St Thomas' NHS Foundation Trust, London, UK; 7. Professor in Cardiovascular and Genomic Medicine Honorary Consultant Cardiologist - Imperial College London Royal Brompton Hospital, London, UK; 8. Professor of Paediatric Inherited Cardiovascular Medicine Consultant Paediatric Cardiologist - University College London Institute of Cardiovascular Science Great Ormond Street Hospital, London, UK

Introduction: Individuals living with Long QT Syndrome (LQTS) or Catecholaminergic Polymorphic Ventricular Tachycardia (CPVT) have historically been advised to avoid high intensity & competitive physical activity (PA). Growing evidence suggests a lower risk than anticipated of developing exercise induced arrhythmias in those taking prescribed pharmacology who return to PA after specialist evaluation. Hence, shared decision-making & continued childhood evaluation have resulted in affected children being more readily encouraged to engage in PA. However, little is known about the motivations of these children when considering PA participation.

Methods: A PA motivation questionnaire was administered to children & adolescents enrolled in a wider PA study. The questionnaire consisted of six 5-point Likert response questions (scored 1-5; higher scores indicated more positive responses) & two free text questions. Questionnaires were designed for children 6 – 11 & adolescents 12 – 16 years.

The questionnaire aimed to understand whether participants enjoyed taking part in PA, whether they would like to take part in more PA (Q1-2), whether their heart condition/medication affected them during PA (Q3-4), & how they think they compared with peers in the amount & ease of PA they take part in (Q5-6).

Wilcoxon rank-sum tests we used to compare responses between the two age groups; statistical significance was set at 0.05.

Results: 27 children [20 female (74%)], aged 7 – 16 years (mean age 11.8 ± 2.5) completed the questionnaire: 12 children (mean age 9.5 ± 1.3) & 15 adolescents (mean age 13.6 ± 1.4). 3 (11%) were diagnosed with CPVT, 24 (89%) with LQTS.

10 children (83%) & 10 adolescents (67%) said they liked or loved taking part in PA. 9 children (75%) & 11 adolescents (73%) said they would like or love to take part in more PA.

9 children (75%) & 12 adolescents (80%) felt their heart condition never or almost never stopped them taking part in PA. Conversely, 2 children (17%) & 2 adolescents (13%) said their heart condition sometimes stopped them taking part. 1 child (8%) & 1 (7%) adolescent said they were always stopped from participating by their heart condition.

When asked about the impact of medications, 11 children (92%) & 13 adolescents (87%) felt their medications never or almost never affected their PA ability.

Table 1

Likert responses to questions.			
Likert question	Child Median (IQR)	Adolescent Median (IQR)	p
1	4.5 (4 - 5)	4.0 (3 - 5)	.255
2	5 (3.5 - 5)	4 (3 - 4)	0.149
3	4 (3.5 - 5)	5 (4 - 5)	0.581
4	5 (4 - 5)	5 (4 - 5)	0.558
5	3 (2.5 - 4)	3 (3 - 4)	0.799
6	3 (3 - 4)	3 (3 - 4)	1.00

When comparing the type & amount of PA they took part in & how easy/hard they found PA compared with peers, 5 children (42%) & 6 adolescents (40%) said they did more or much more and they also found PA easier or much easier than their peers. 3 children (25%) & 3 adolescents (20%) perceived they do less than their peers.

There was equal distribution between the two groups for those who found PA more challenging than their peers: 2 children (17%) & 2 adolescents (13%) – Table 1.

Conclusion: In this cohort of children & adolescents, PA engagement was positively evaluated. The impact of their condition & medication was not perceived to affect many participants. Those who recognised PA limitations said they were excluded from activities they enjoyed or they could not fully participate. Engagement in PA should be regularly reviewed during childhood by healthcare professionals to ensure unnecessary limitations are not being imposed & to support individualized exercise prescription. □



Paediatric Abstracts

123/Narrow Complex Tachycardia; a shocking case defies standard emergency intervention

touchCARDIO Meeting Proceedings. 2026:1;abstr123

Authors: SS Soliman (Presenting Author),¹ LA Abood,² AW Wong,³ IY Yazici⁴ and OU Uzun⁵

1. Paediatric Registrar - University Hospital of Wales, Cardiff, UK; 2. ST8 Neonatal Medicine - University Hospital of Wales, Cardiff, UK; 3. Paediatric Cardiology Specialty Doctor - University Hospital of Wales, Cardiff, UK; 4. Medical student - University hospital of Wales, Cardiff, UK; 5. Pediatric cardiology consultant - University hospital of Wales, Cardiff, UK

A 14-year old girl presented to A&E on two occasions with narrow complex tachycardia presumed to be SVT. Surprisingly, neither adenosine nor DC cardioversion was effective in terminating the tachycardia. She was started on Amiodarone infusion, which resolved the tachycardia on both occasions. Whilst, she was receiving atenolol 25 mg BD, she suffered a second episode of tachycardia. Her cardiovascular examination was unremarkable apart from small chronic pericardial effusion, which was insignificant. Her base line ECG was normal with no evidence of preexcitation. Review of ECGs following last event by paediatric and adult electrophysiologist suspected wide complex tachycardia with AV dissociation in presence of typical right bundle branch block morphology,

borderline prolonged QRS duration (102 ms) with left axis deviation. Hence, these findings were considered to be consistent with fascicular VT. The patient was placed on Verapamil for follow up management. Subsequent investigations with both ECHO & MRI were normal, and excluded any structural cardiac pathology.

Conclusion: Any arrhythmia unresponsive to adenosine and DC cardioversion should raise the suspicion of following arrhythmias: Automatic Atrial Tachycardia, CPVT, JET, Digoxin toxicity related arrhythmias and fascicular VT. In this case, presence of right BBB with left axis deviation and borderline prolonged QRS duration were typical of fascicular VT, which is known to be Verapamil sensitive. □



Paediatric Abstracts

124/Wide complex tachycardia – to treat or not to treat?

touchCARDIO Meeting Proceedings. 2026:1;abstr124

Authors: LA Abood (Presenting Author),¹ SS Soliman,² IY Yazici,³ EP Polito,³ MO Olgun,³ AW Wong⁴ and OU Uzun⁵

1. ST8 Neonatal Medicine - University Hospital of Wales, Cardiff, UK; 2. Paediatric Registrar - University Hospital of Wales, Cardiff, UK; 3. Medical Student - University Hospital of Wales, Cardiff, UK; 4. Pediatric cardiology specialist - University Hospital of Wales, Cardiff, UK; 5. Pediatric cardiology consultant - University Hospital of Wales, Cardiff, UK

A 14 year old girl presented to A&E with sudden onset left sided intermittent chest pain radiating to the left shoulder. She experienced similar symptoms over the previous two years, but had no symptoms on exertion. She has right sensorineural hearing loss, right duplex kidney, asthma, atopy and autism with significant anxiety. Family history is positive for palpitations relating to supraventricular ectopy. Maternal cousin died suddenly during sleep.

On examination, there were no abnormal findings. Heart rate varied between 100-120 beats per minute. ECG showed intermittent broad complex rhythm between rates of 86-100 beats per minute with LBBB, inferior axis morphology with no discernible P-waves, suggestive of AIVR. Echocardiogram revealed structurally and functionally normal heart. 24

hour Holter monitor showed predominantly sinus rhythm interrupted by intermittent runs of AIVR at rates of 80-92 beats per minute. The longest run consisted of 44 beats of wide QRS complexes forming 4% of arrhythmic burden. Exercise test revealed appropriate blood pressure and heart rate responses with resolution of AIVR. Cardiac MRI confirmed normal structure and function with no evidence of myocarditis, cardiomyopathy and no delayed enhancement with gadolinium. Patient was managed conservatively with lifestyle changes, exclusion of stimulant food and beverages, stress reduction, and magnesium supplementation.

In conclusion, AIVR is commonly benign and does not require anti-arrhythmic treatment unless it leads to high arrhythmic burden, cardiac dysfunction or valve regurgitation. □



Paediatric Abstracts

125/The Sawtooth Plot Twist: Atrial Flutter Unmasked in a Late Preterm Neonate

touchCARDIO Meeting Proceedings. 2026;1;abstr125

Authors: S Koshi (Presenting Author),¹ J Johnson,² A Marasini³ and C Poon⁴

1. Specialty Doctor - Grange University Hospital, Cwmbran, Newport, UK; 2. ANNP - Grange University Hospital, Cwmbran, Newport, UK; 3. Paediatric Trainee - Grange University Hospital, Cwmbran, Newport, UK; 4. Neonatal Consultant - Grange University Hospital, Cwmbran, Newport, UK

Introduction: Neonatal tachyarrhythmias often disguise their severity, accelerating quickly once underway. What begins as a seemingly straightforward tachycardia can reveal a diagnostic plot twist when rhythm morphology is examined closely. This report describes a baby whose tachycardia initially resembled SVT but later revealed a sawtooth pattern confirming atrial flutter.

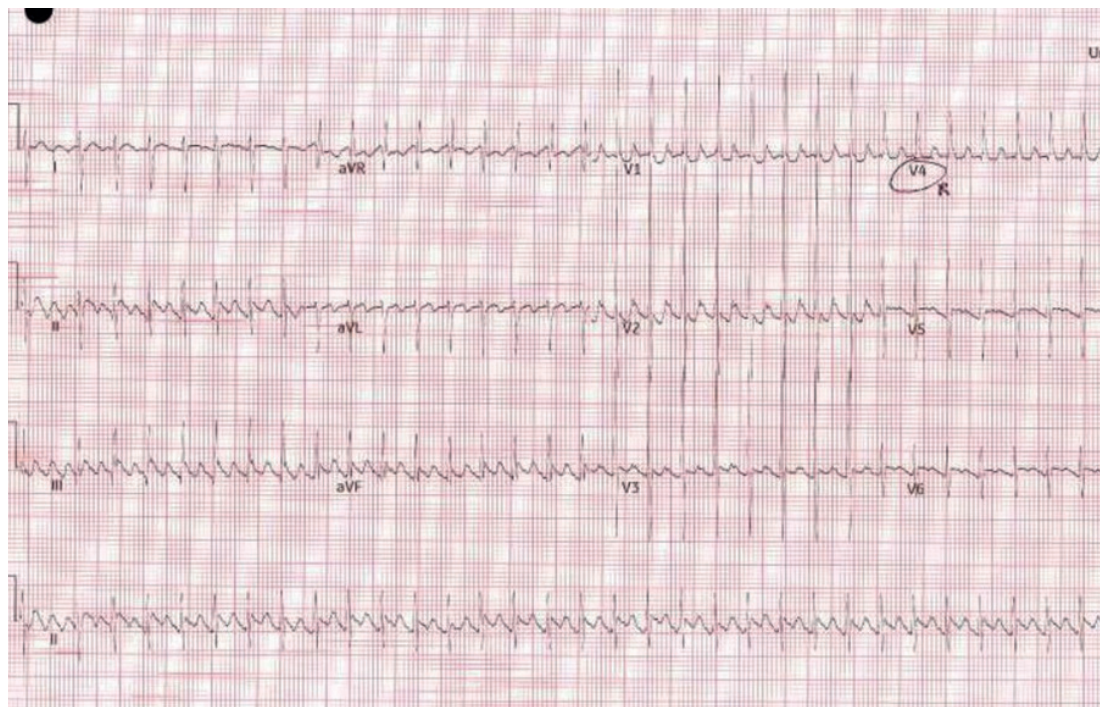
Case Presentation: A male infant born at 34 + 5 weeks via emergency caesarean section for fetal tachycardia and faltering growth weighed 2.22 kg. Shortly after birth, he demonstrated persistent tachycardia at 180–200 bpm. At 1.5 hours of life, his heart rate escalated to 262 bpm with narrow-complex tachycardia on ECG, triggering the SVT protocol, including preparation for ice-face dunk, adenosine, and defibrillation if required. A five-second cold-water dunk successfully reduced the rate to 160–180 bpm, restoring sinus rhythm. Propranolol three times daily was commenced.

On day two, a second episode occurred. The first dose of adenosine produced minimal change; the second slowed conduction enough to reveal a sawtooth pattern, confirming atrial flutter rather than SVT. An additional propranolol dose restored sinus rhythm. Propranolol was increased to four times daily, after which the infant remained arrhythmia-free, even on a 48-hour Holter. He was discharged with joint neonatal-cardiology follow-up and parent training.

Discussion: Distinguishing supraventricular tachycardia (SVT) from atrial flutter is essential, as each requires a different management pathway. This case highlights the challenge faced, the importance of rhythm-specific escalation and management of atrial flutter.

Conclusion: Careful early ECG interpretation, early specialist input, and structured management were key to achieving a stable outcome. □

Figure 1





Paediatric Abstracts

126/A Technology Gap in Wearable Pre-Syncope Detection: A Structured Review of Multimodal Sensing for Advance Warning During Ambulatory Activity

touchCARDIO Meeting Proceedings. 2026:1;abstr126

Authors: [HSH Hemadri](#) (Presenting Author)

Student - Case Western Reserve University, Lewis Center, Cleveland, OH, USA

Introduction: Syncope — transient loss of consciousness from cerebral hypoperfusion — is common, recurrent, and costly, accounting for ~1.3 million US emergency-department visits annually and an estimated \$2 billion in hospitalization costs (Probst et al., *Annals of Emergency Medicine*, 2022). Evaluation is often low-yield: about one-third of visits result in admission. Recurrent syncope impairs quality of life comparably to severe rheumatoid arthritis (Sun, *Progress in Cardiovascular Diseases*, 2013). Syncope arises through two mechanisms: electrical disturbances of the heart (e.g. arrhythmias) and hemodynamic disturbances (e.g. the fall in blood flow driving reflex and orthostatic fainting). Detecting both requires sensing the heart's electrical activity, via electrocardiography (ECG), and its circulatory effects, via photoplethysmography (PPG). Existing monitors record events but do not warn in advance during everyday activity, where fainting causes injury. This review characterized the technology gap in wearable syncope monitoring: whether current devices can anticipate an episode during ambulatory activity, and whether they capture both the electrical and hemodynamic signals underlying syncope.

Methods: We conducted a structured literature search across PubMed, Europe PubMed Central, OpenAlex, and ClinicalTrials.gov using the Nested Knowledge platform, executed on 1 June 2026 with no date restriction. Records were screened in two passes (title/abstract, then full text) against predefined criteria requiring a wearable or ambulatory

device aimed at predicting or warning of syncope, presyncope, or orthostatic intolerance, and being a primary study, device description, or patent. Surviving records were assessed at full text for multimodal sensing and ambulatory validation.

Results: Of 523 records identified, 8 duplicates were removed, leaving 515 for screening. Screening excluded 513 — 440 for not concerning syncope, 34 for not addressing prediction, 21 for not involving a wearable device, and 18 for not being a primary study or device — leaving 2 studies. Both were multimodal wearables (one combining ECG with accelerometry; one combining pressure and inertial sensors), but neither evaluated pre-syncope prediction during ambulatory motion (0 of 2), and neither incorporated photoplethysmography. Both detected events — arrhythmic syncope or falls — rather than warning in advance.

Conclusions: Despite the burden of syncope, no identified wearable provides advance, motion-tolerant warning of an impending episode. Two deficiencies define the gap: predictive monitoring has been validated only in stationary testing, not ambulatory activity; and no device captures both mechanisms of syncope — electrical, via ECG, and hemodynamic, via PPG — sensing only one at a time. Because much syncope cost derives from low-yield inpatient evaluation, a wearable giving reliable advance warning during daily life could reduce injury and hospitalization. □



Paediatric Abstracts

127/Transplacental Management of Refractory Fetal Supraventricular Tachycardia in One Fetus of a Dichorionic Diamniotic Twin Pregnancy that post natal showed to be PJRT

touchCARDIO Meeting Proceedings. 2026:1;abstr127

Authors: Dr Dzhelepova (Presenting Author)

Paediatric cardiology - RMCH, Manchester, UK

Case Summary: A 30-year-old woman with a dichorionic diamniotic twin pregnancy presented at 21 weeks' gestation with suspected SVT in one fetus. Fetal echocardiography demonstrated that Twin 2 (maternal left) had a heart rate of 212 beats/min with 1:1 atrioventricular conduction, while Twin 1 (maternal right) had a normal heart rate of 130 beats/min. Both fetuses had structurally normal hearts with preserved biventricular function and no evidence of hydrops fetalis.

Following informed consent, the mother commenced digoxin 250 micrograms three times daily. After one week, Twin 2 remained in SVT with a heart rate of 180–190 beats/min; therefore, flecainide 100 mg twice daily was added. Subsequent assessment demonstrated conversion of Twin 2 to sinus rhythm at 101 beats/min with blocked atrial trigeminy and quadrigeminy, while Twin 1 remained in sinus rhythm at 140 beats/min. Close follow-up with serial fetal echocardiography and maternal drug monitoring was undertaken.

At 27 weeks' gestation, Twin 2 developed recurrent SVT at 180–190 beats/min. Flecainide was increased to 125 mg twice daily while continuing digoxin. Despite this escalation in treatment, Twin 2 was again found to be in SVT. Thereafter, Twin 2 remained in sinus rhythm. Ongoing surveillance has demonstrated preserved cardiac function in both fetuses without evidence of hydrops. Babies were born at 32 weeks due to premature membrane rupture and Twin 2 went back to SVT with long RP and negative P waves in 2,3 AVF likely PJRT. Started on Propranolol but had many breakthroughs so Flecainide was added. No SVT ever since.

Conclusion: Management of fetal SVT in twin pregnancies is particularly challenging, especially in refractory cases requiring escalation to multiple antiarrhythmic agents. Treatment decisions must balance benefits to the affected fetus against potential risks to the unaffected co-twin and mother. Further evidence and consensus recommendations are needed to guide management in these ethically complex scenarios. A national or International multicenter study is worth considering. □