British Cardiovascular Society

# Emerging Leaders Programme
# Cohort 6 Yearbook

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## Contents

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**Cohort 6 Yearbook**

# Introduction

The BCS Emerging Leaders Programme was established in 2019 with the vision of enabling delegates to lead significant service change and, importantly, to provide professional leadership more widely within cardiology and the NHS.

The 2024/25 cohort ran from October 2024 with nine taught days, completed in May 2025. In addition to the sessions held in London, this year saw the successful introduction of two days in Cambridge and a session in Manchester, which included an overnight stay ahead of the BCS Conference. The cohort included 21 delegates: nineteen doctors either recently appointed to consultant posts or in senior resident/academic posts, one specialist nurse and one chief cardiac physiologist.

The programme was led by Dr Shouvik Haldar, BCS Vice President for Education, and fellow Course Directors Dr Clive Lewis, Professor Amitava Banerjee, and Course Director and Facilitator Chris Wilkinson. The faculty included national and local leaders in healthcare delivery and cardiology and colleagues from the American College of Cardiology.

This yearbook provides details of the delegates from the sixth programme, showcasing their achievements and service improvement projects for networking purposes. The abstract for their service improvement project is also included, along with reflections on their experience and key takeaways from the programme. The yearbook will be helpful to those considering applying for future programmes and provide insights for the sponsors who kindly financially supported the 2024/25 programme.

We extend our gratitude to Bayer for their generous support. It is important to note that their contributions, though not in the development or delivery of the programme, were integral to its success.

**Dr Shouvik Haldar**

Vice President for Education
and Lead for the BCS Academy

**Session by Professor Simon Ray:**
National priorities for Cardiology and Leadership
Journey of a National Cardiology Leader.

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## Dr Alexander Stockenhuber

**Role title:** Consultant Cardiologist

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**Brief biography:** Alexander is a Consultant Cardiologist with extensive clinical and academic training in the fields of Cardiology, Congenital Heart Disease and General Medicine. He remains actively involved in cardiovascular research and teaching and is committed to further developing his career as a clinician, scientist, and leader, with the goal of shaping policies and practices that enhance patient care on a broader scale.

### Driving Advice and Ambulatory ECG Monitoring in the Evaluation and Management of Syncope in AAU Patients: A Single-Centre Audit of DVLA Guidance Adherence and Diagnostic Yield

Dr A. Stockenhuber[1]; Dr L. Castren[2]; Dr K. Marinou[2]

*1. Department of Cardiology; Oxford University NHS Foundation Trust*
*2. Department of Medicine; Oxford University NHS Foundation Trust*

#### Problem/Background

Syncope is a common clinical presentation with a broad differential diagnosis, ranging from benign vasovagal episodes to potentially life-threatening cardiac arrhythmias. In the UK, clinicians are mandated to provide appropriate driving advice aligned with DVLA guidance to mitigate the risk of harm to patients and others. Additionally, cardiac ambulatory monitoring plays a pivotal role in diagnosing arrhythmic causes of syncope, which may necessitate device implantation. This audit evaluated adherence to DVLA guidance on driving restrictions for patients presenting with syncope to the Acute Ambulatory Unit (AAU), and assessed the diagnostic utility of cardiac ambulatory ECG monitoring.

#### Methods

This retrospective audit included patients presenting with a working diagnosis of syncope to the AAU between March and September 2023. Medical records were reviewed to extract data on patient demographics, type of syncope, documented driving status, and whether appropriate driving advice was provided in line with DVLA guidelines. ECG findings were analyzed for abnormalities and conduction disease, and referrals for ambulatory ECG monitoring were tracked. Results of ambulatory testing and subsequent clinical outcomes, including cardiology follow-up and device implantation, were recorded.

#### Results

Among 171 patients presenting with syncope, vasovagal syncope was the most common diagnosis (60%). Cardiac syncope was more prevalent in patients over 65. Driving status was undocumented in 85% of patients. Of the 26 patients with recorded driving status, 18 were actively driving, yet 5 did not receive any driving advice. In one case, the omission was inconsistent with DVLA guidelines. Notably, advice, when given, was always in line with guidance.

A total of 53 ECGs were abnormal, with 13 showing evidence of conduction disease. Thirty-two patients were referred for cardiac ambulatory monitoring, including 17 with normal ECGs and 16 with abnormal ECGs. Predictors of referral included ECG abnormalities, syncope type (particularly vasovagal and unexplained), and age (35–64). Diagnostic yield was higher in patients with abnormal ECGs (20% abnormal findings vs. predominantly sinus rhythm in those with normal ECGs).

Five patients ultimately received permanent pacemaker (PPM) implantation, typically following abnormal findings on ambulatory monitoring or baseline ECG. In most of these cases, driving status was either undocumented or appropriate advice was omitted.

#### Conclusion

This audit highlights significant gaps in documentation and delivery of driving advice for patients presenting with syncope. While advice was appropriate when provided, the majority of patients had no driving status recorded. Cardiac ambulatory monitoring was appropriately used in cases with concerning ECG findings or unexplained syncope, with higher diagnostic yield in patients with abnormal ECGs. The findings support the implementation of a structured approach to ensure compliance with DVLA guidance, including a prompt in the AAU clerking proforma to record driving status and advice. Re-audit following these changes is recommended to ensure improved patient safety and regulatory adherence.

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## Dr Ibrahim Arosi

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**Brief biography:** Born in Manchester, Ibrahim studied medicine in his hometown before completing cardiology training in the north west of England. His subspecialty interest is in heart failure and cardiac devices, and he's currently undertaking a post-CCT fellowship in interventional cardiac care and devices. Outside of work, he has a keen interest in grassroots sport.

**Physiologist led one stop CRT shop**

### Background

Patients who undergo cardiac resynchronisation therapy (CRT) devices often receive fragmented follow-up care after implantation. Identifying non-responders and optimising treatment strategies for them remains a challenge. Given the haemodynamic benefits frequently observed post-implantation, we proposed a structured, multidisciplinary "one-stop" clinic at six months post-implant to review symptoms, optimise device parameters, and reassess medical therapy

### Methods

We retrospectively assessed 50 patients attending a routine pacing follow-up clinic from January 5–13. Only 6 had undergone CRT device optimisation. Notably, 32% had never been asked about post-implant symptoms, most were not receiving guideline-directed medical therapy (GDMT), only 8 had undergone a post-implant echocardiogram, and none had a 12-lead ECG. A follow-up audit in 2024 showed no significant improvement, despite educational interventions.

We developed a standard operating procedure to triage patients into a new CRT follow-up clinic. Prioritisation was given to patients without prior optimisation and those in sinus rhythm. Each patient received an EQ-5D-5L questionnaire, a 12-lead ECG, heart failure symptom assessment, and onward referral as needed.

### Results

The clinic launched in May 2024. A total of 51 patients were prospectively recruited. The mean age was 72.9 years. Baseline QRS duration at implant was 159.6 ms, and mean left ventricular ejection fraction (LVEF) was 31.2% (range: 13.5–52%).

Prior to optimisation, the mean QRS was 139 ms (range: 88–190 ms), with a mean biventricular pacing (BiVP) percentage of 94.3%. Thirty-one patients required CRT optimisation, involving adjustments to LV vector, CRT mode, and AV-VV delays. Post-optimisation, the mean QRS was reduced to 135 ms (range: 76–182 ms), with a mean narrowing of 12.7 ms.

Quality of life, as measured by the Minnesota Living with Heart Failure Questionnaire (MLHFQ), improved by an average of 14.2 points. Medication review showed 23 patients were on all four pillars of GDMT, while 17 were not prescribed an SGLT2 inhibitor. Thirteen patients were referred for further evaluation by heart failure, arrhythmia, or pharmacotherapy services.

### Conclusion

Physiologist-led CRT clinics are a sustainable and effective model for standardising post-CRT follow-up. Improvements in QRS duration and quality of life were demonstrated. Structured symptom documentation can aid in identifying non-responders. Further work is required to ensure routine post-implant echocardiography and integration of physiologist training into heart failure care pathways to facilitate timely specialist referrals.

*"We developed a standard operating procedure to triage patients into a new CRT follow-up clinic."*



## Jacqueline Hunt

**Role title:** Heart Failure and Devices Specialist Nurse

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**Brief biography:** Jacqueline completed her nurse training in 1998 at the University of Hull. She has specialised in cardiology working in all aspects of the patient pathway, including coronary care unit, cardiac intensive care, cardiac nurse practitioner and community heart failure, until she undertook her current role as heart failure and devices specialist nurse in 2012 (East Sussex Healthcare NHS Trust).

Jacqueline has worked in primary, secondary and tertiary care, alongside all of this on her days off worked as a flight nurse repatriation patient across Europe.

In 2013 she graduated with an MSc in Cardiology and Education. She teaches at undergraduate and postgraduate levels, across disciplines.

Jacqueline is a past president of the British Association for Nursing in Cardiovascular Care (BANCC). She continues to be passionate about establishing the professional status of nursing and raising the nursing voice.

**A retrospective analysis of effectiveness of creating an inpatient pathway for immediate insertion of implantable loop recorders in cryptogenic stroke patients.**

Jacqueline Hunt – Heart failure and devices specialist nurse, ESHT, *Jacqui.hunt@nhs.net*

### Introduction

Cryptogenic stroke (CS) accounts for 25-30% of all ischaemic strokes. Implantable loop recorders (ILRs) are NICE-approved devices for detecting atrial fibrillation (AF) in CS patients. Their implementation is variable, with insertion typically occurring after discharge. Through collaboration of Stroke and Cardiology teams we developed a multi-disciplinary (MD) pathway in order to standardise care and improve the yield for AF detection post CS. Prior to implementing the pathway the detection rate of AF was 3-4% via cardiac tape. The new pathway ensured consistent investigation incorporating imaging confirming stroke, at least 24hrs of cardiac monitoring, carotid dopplers and focus echo prior to referral for ILR. Initiation of anticoagulation was led by the cardiology team including specialist nurse, cardiac physiologist and cardiologist where AF was detected.

### Methods

A retrospective analysis was conducted on CS patients receiving ILRs between May 2020- April 2025. Effectiveness was determined through analysis of detection of clinically significant arrhythmias and subsequent management changes.

### Results

406 patients received an ILR in accordance to the pathway criteria. Around 13% of ischaemic strokes patients fulfilled the ILR criteria. All patients received cardiac monitoring, carotid dopplers and focus echo. 359 (88%) were performed prior to discharge. ILRs detected AF in 102 patients (25%), leading to anticoagulation in 99. (3 patients developed contraindications since implant). In 24 (23%) patients AF was detected within 30 days of monitoring. Median time to detection was 149 days, average 240 and range 1377 days.

10 patients required permanent pacemaker (PPM) (significant pauses n= 3, AV block n=7) & 1 required Implantable Cardioverter Defibrillator (ICD) due to arrhythmias detected on ILR.

Additionally 49% (n=202) of implants were performed by a specialist nurse which equates to 50.5 hrs of cardiologist lab saving time, based on average procedure time of 15mins.

### Limitations

- Referrals could be unpredictable resulting in challenges in organising the procedure. Some outpatient procedures were necessary to avoid discharge delays.
- Opportunity to capture patient experience will be created going forward
- NHS tariff agreements result in single episode income therefore cardiology did not receive the full income associated with ILR insertion.

### Conclusion

The MD pathway for CS stroke demonstrates that immediate ILR implantation is feasible and yields significantly higher AF detection rates. An rapid outpatient ILR pathway may yield increase cost efficiency for the cardiology department. Nurse implantation demonstrates both time and cost efficiency.

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## Dr James Brown

**Role title:** Post-CCT Fellow

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**Brief biography:** James is a post-CCT fellow specialising in Heart Failure, CMR and Pulmonary Hypertension. His clinical and research interests lie in improving outcomes for patients with advanced heart failure through innovative, multidisciplinary pathways.

**Patient-centred inotropic support - designing compassionate pathways for heart failure patients with decompensation**

Abstract

Admission to hospital with cardiogenic shock or refractory fluid overload as a complication of heart failure confers poor prognosis.

One strategy is to provide temporary inotropic support whilst targeted therapies demonstrate effect.

However, such inotropic agents require central venous access, invasive monitoring, and are rarely administered outside a Level 2/3 environment. These measures may be inappropriate heart failure patients.

Objectives

1. Understand demand for inotropic support with levosimendan in heart failure patients presenting with cardiogenic shock or refractory fluid overload
2. Ascertain barriers to inotropic support outside a Level 2/3 environment, to enable more timely treatment with streamlined medical +/- device therapy, or palliative care planning as appropriate, whilst minimizing disruption for the patient
3. Design a care pathway, in a high-visibility bay on a heart failure ward, defining treatment goals for the patient, with input from key stakeholders

Materials and Methods

**Audit:** All prescriptions for levosimendan between 2022 and 2024(36 months) were reviewed. All case notes were reviewed and demographics, aetiology of heart failure and indication for therapy were recorded. The ward environment where levosimendan was administered, as well as length of stay and inpatient mortality were also determined.

**Review of data:** potential patient groups that could benefit from ward-based levosimendan administration characterised.

**Consultation:** extensive discussion with major stakeholders including:

1. Nursing staff – Ward Sister and Matron
2. Lead Pharmacist
3. Critical Care Outreach Team and ICU Lead
4. Heart Failure Consultants

Design of Pathway.

*"Admission to hospital with cardiogenic shock or refractory fluid overload as a complication of heart failure confers poor prognosis."*

## Conclusion

**Audit:**
Of the 41 individual patients treated at BHC with levosimendan, 29 were heart failure patients.

Heart failure patients received levosimendan on ITU in 72% of cases, CCU in 28% of cases.

**Review of data:**
The majority of heart failure patients (86%) treated with levosimendan did not have separate indications for ITU treatment. This allows stratification of patients, particularly as availability of ITU beds may be limited, resulting in treatment delays.

This equates to 8-10 patients per year with an indication for levosimendan without ITU requirements.

*"The majority of heart failure patients (86%) treated with levosimendan did not have separate indications for ITU treatment."*

**Consultation:**

1. Current levosimendan prescribing policy was reviewed with Lead Pharmacist, with adaptations ensuring safety and appropriate monitoring for ward-based administration.
2. Design of suitable 2 bed high-visibility bay, agreement of clear start/stop criteria for levosimendan, monitoring schedule and escalation pathway together with robust training programme and rota provision agreed with Ward Sister and Matron
3. Pathway ensures documented discussion with patient around treatment escalation decisions, with clear guidance for nursing staff that patient is not for escalation to ITU/CCOT and with DNACPR documentation in place prior to treatment.
4. Rapid GDMT up-titration/CRT implantation if appropriate, or Social Care input and Palliative Care review. Pathway discussed at Audit Day, disseminated around all consultants/registrars covering the HF ward. Feedback being analysed.

## Conclusions

Pathway Design in final stages.

Cost-benefit analysis (ITU days saving, improved patient flow) in progress.

Patient survey planned.

Ward-based levosimendan with appropriate safeguards has the potential to improve patient comfort and streamline their care, whether that involves rapid treatment escalation, or allowing the opportunity for discharge to where the patient wishes to die.



## Dr Jonathan Senior

**Role title:** Locum Consultant Cardiologist

**Place of work:** Midland Metropolitan University Hospital, Sandwell and West Birmingham NHS Trust

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**Brief biography:** I completed my cardiology training in the West Midlands and obtained my CCT, specialising in ACHD, in 2023. More recently, I completed a fellowship year at Liverpool Heart and Chest Hospital and have subsequently been appointed as a Locum Consultant at the new Midland Metropolitan University Hospital in Birmingham, building an ACHD service from the ground up whilst assisting with general cardiology provision and covering a weekly CTCA list.

**Cross-sectional imaging of ACHD patients under general anaesthesia – a service review.**

Author: Dr Jonathan Senior
Institution: Liverpool Heart and Chest Hospital, Liverpool, UK.

### Background

Intellectual disabilities are prevalent among patients with Adult Congenital Heart Disease (ACHD)[1], presenting unique challenges in the delivery of routine care. Cross-sectional imaging, particularly cardiac magnetic resonance imaging (cMRI), is a key component of ongoing surveillance in this population and is strongly recommended in international guidelines[2]. However, the successful completion of cMRI can be hindered by factors such as claustrophobia, prolonged scan times, and the need for patient cooperation with breath-hold instructions—issues that are often exacerbated in individuals with cognitive impairments. In such cases, performing cMRI under general anaesthesia may be necessary, yet this approach introduces considerable logistical complexities, which can result in significant delays and potentially negative health outcomes.

### Objectives

To address the complexities associated with cMRI under general anaesthesia, a structured pathway is required to streamline the referral and assessment process. This initiative aims to reduce the pre-procedural workload for ACHD, anaesthetic and radiology teams, allowing for more efficient use of clinical resources. Furthermore, the pathway is designed to optimise the patient experience, with particular attention to minimising anxiety and distress for both patients and their carers throughout the imaging journey.

### Methods

In collaboration with the Trust's audit department, a comprehensive process map was developed, engaging key stakeholders involved in the delivery of the current GA imaging service. This mapping exercise enabled the identification of existing concerns, interdepartmental constraints, and areas of operational conflict. As a result, targeted resolutions were proposed to alleviate the pressures on anaesthetic and radiology departments, while simultaneously enhancing the overall experience for patients and their carers.

### Outcomes

A flow map was developed to streamline the referral process for GA imaging, ensuring that clinicians adhere to the necessary legal requirements while eliminating the need for routine best interest meetings. To further enhance the process, an assessment tool was designed for completion by an ACHD clinical nurse specialist. This tool identifies any pre-procedural anaesthetic concerns and ensures that appropriate adjustments are made to optimise comfort for both patients and their caregivers. Additionally, patient leaflets and an anaesthetic risk infographic were created as supplementary resources.

### Conclusions

This project has laid the foundations for improving the GA imaging service for patients with ACHD, with the goal of enhancing both the patient experience and clinical outcomes.

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## Dr Joseph McCambridge

**Role title:** Clinical Research Fellow

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**Brief biography:** Joseph is an Irish cardiology trainee in the 2nd year of his fellowship in cardiac MR and cardiac CT imaging in St Thomas' Hospital and the Royal Brompton Hospital respectively. He has completed his cardiology training and a 2-year heart failure fellowship in Ireland and this year received his Certificate of Completion of Training in cardiology from the Royal College of Physicians of Ireland. He is also undertaking an MD through University College Dublin.

**Defining the optimal CT coronary artery calcium score threshold for utilising ultra-high resolution imaging in photon-counting CT.**

Authors: Dr Joseph McCambridge,[1] Dr Jonathan Weir-McCall[1], Prof Ed Nicol[1], Dr Thomas Semple[1]
*Author affiliation: 1. Royal Brompton Hospital, Guy's and St Thomas' NHS Foundation Trust*

### Introduction

Photon-counting computed tomography (PCCT) provides better spatial resolution, contrast sensitivity, and reduced noise compared to conventional dual-source energy CT scanners, and allows greater precision in the assessment of coronary artery calcification (CAC) and coronary stent patency. Images can be acquired at a very high spatial resolution with a slice thickness of 0.2mm, commonly known as Ultra-High Resolution (UHR). However, UHR mode increases radiation dose and reconstruction/processing time and is reserved for cases where the benefits in diagnostic accuracy outweigh any potential drawbacks. Without prior coronary stenting, the decision to utilise UHR mode is generally guided by a patient's CT CAC score. At present in our institution, UHR mode is utilised when an automated CAC score reaches 100 Agatston units (AU) or higher. However, there remains debate as to whether this is the optimal cutoff for employing UHR mode or whether a higher cutoff would maintain the same level of diagnostic benefit while avoiding unnecessary radiation exposure among cases where more standard resolution modes (known as Quantum and Quantum Plus) are likely to be adequate. This project was designed to inform the optimal CAC score threshold for UHR imaging.

### Methods

All CT coronary angiograms (CTCA) performed in UHR mode on the Siemens NAEOTOM Alpha PCCT scanner in the Royal Brompton Hospital since installation will be included in this study. This interim analysis includes all relevant cases performed from 1st March to 28th April 2025. Cases with coronary stents are excluded. Each is classified into one of two groups based on the consultant reported severity of the worst coronary artery stenosis: 1. those with a mild stenosis or less (i.e. <50% luminal stenosis); 2. those with a potentially significant stenosis graded as moderate or higher (i.e. ≥50% luminal stenosis). Ultimately, the severity of stenosis will be correlated with CAC score to identify the optimal threshold for employing UHR. Due to the small sample size at the time of analysis, results are presented using descriptive statistics.

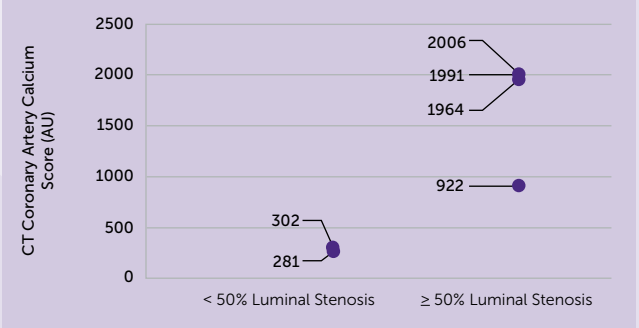
### Results

Between 1st March and 28th April 2025, a total of 77 CTCAs were performed, 11 of which were acquired in UHR mode. Of the 11 in UHR, 5 had coronary stents. Of the remaining 6 patients with calcium scores of 100 AU or more, 4 had a moderate or greater stenosis and 2 had a mild stenosis at worst. Those with a moderate or greater stenosis had numerically higher CAC scores (figure 1). The average radiation dose, represented as dose-length product (DLP), in UHR mode is 508.6 mGy.cm (standard deviation, SD 142 mGy.cm). The DLP for Quantum and Quantum Plus modes were 161.8 mGy.cm (SD 104.5 mGy.cm) and 303.2 mGy.cm (SD 299 mGy.cm) respectively.

### Conclusion

This study aims to define the optimal CAC score threshold for employing UHR mode in PCCT in those without prior stenting. The current sample size is too small to draw definitive conclusions, however, there is a trend towards patients with higher calcium scores being more likely to have potentially significant coronary stenoses. Further analysis is needed in this ongoing study.

Fgure 1.





## Dr Kristopher Knott

**Role title:** Consultant Cardiologist

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**Brief biography:** I'm a Consultant Cardiologist at St George's Hospitals NHS Foundation Trust, with a focus on advanced cardiac imaging and heart failure. I also manage the resident doctors from a rota perspective. During the Emerging Leaders Programme, I've gained a much clearer understanding of how the NHS functions at a strategic level and how to navigate its structures to influence meaningful change. I've learned the value of social capital—how relationships, trust, and networks can drive progress just as much as formal authority. The programme has helped me reflect on my own leadership style. I've come away with a greater sense of self-awareness and practical tools to support team development, service improvement, and the delivery of high-quality care. I plan on using what I've learned going forward with leadership roles in the future.

**Establishing a Pathway for Cardiac MRI in Patients with Non-MR Conditional Cardiac Implantable Electronic Devices (CIEDs)**

### Aim of Project

To develop and implement a safe, standardised pathway for scanning selected patients with non-MR conditional cardiac devices using cardiac MRI, addressing a gap in access for this high-risk but clinically important group.

### Background

Cardiac MRI (CMR) is a powerful diagnostic tool but remains underutilised in patients with implanted cardiac devices, particularly those labelled as "non-MR conditional" due to technical limitations or incomplete compatibility. Historically, patients with such devices were excluded from MRI scanning due to risks including device malfunction, tissue heating, and unintended cardiac stimulation. However, MRI remains the gold standard for cardiac imaging, and alternative modalities often provide suboptimal diagnostic information. Furthermore, emerging evidence suggests that with strict protocols and multi-disciplinary involvement, scanning can be performed safely in carefully selected cases. We aimed to design a pathway allowing such patients to access CMR at our institution, St George's Hospital, through robust safety governance and shared clinical oversight.

### Methods

A comprehensive Standard Operating Procedure (SOP) was co-developed with input from MRI physicists, cardiac physiologists, radiographers and cardiologists. The process involves:

- Identifying patients with low-risk non-MR conditional systems, such as mismatched generator-lead combinations (e.g., MR conditional generator with unlabelled leads).
- Implementing a multi-stage checklist system encompassing:
  - Device and patient suitability assessment
  - Radiographic review and cardiologist risk/benefit evaluation
  - MR physicist scanning condition review and formal mitigation plan
  - Scan day safety checks, MR mode programming, and post-scan reprogramming
- All scans are restricted to 1.5T systems using conservative SAR limits (WBA SAR $\leq$ 2.0 W/kg), under direct monitoring (ECG and pulse oximetry), with full resuscitation support on standby.

### Results

The pathway was successfully implemented in early 2025. The first patient — with a device/lead mismatch (MR conditional generator with unlabelled leads) — underwent CMR safely without complication. Imaging artefact was present but did not significantly compromise clinical interpretation. The SOP received full sign-off from the MR Safety Committee and MR Conditional Pacemaker Working Group. While the initial scope is more limited than intended (only supporting a subset of non-MR conditional devices), this represents a key step toward broader access.

## Discussion & Challenges

Despite enthusiasm, significant constraints exist:

- Resource-intensive process requiring coordination across multiple departments.
- Exclusion of higher-risk device setups (e.g., abandoned leads or unknown lead specifications) due to safety concerns and pacing team capacity.
- Operational restrictions (e.g. only within working hours).

Nevertheless, the pathway proves that with cautious implementation, patients with limited imaging options can benefit from advanced diagnostics. The SOP allows for ongoing risk-assessed expansion as evidence and experience grow.

## Conclusion

We have established a reproducible and safe clinical pathway for performing cardiac MRI in select patients with non-MR conditional cardiac devices. Although initially narrow in scope, it demonstrates feasibility and forms a foundation for future expansion, potentially improving diagnostics and outcomes in this vulnerable patient group.

*"A comprehensive Standard Operating Procedure (SOP) was co-developed with input from MRI physicists, cardiac physiologists, radiographers and cardiologists."*



## Dr Maria Niespialowska-Steuden

**Role title:** Locum Consultant Cardiologist and Electrophysiologist

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**Brief biography:** I am an EHRA- and BHRS-accredited Consultant Cardiologist and Electrophysiologist at University Hospital Southampton. I completed my specialist training in the Wessex Deanery and was awarded my CCT in 2022. Academically, I hold a Cardiovascular MD(Res) from Imperial College London, obtained in 2018, reflecting my strong interest in research and academic cardiology. My clinical interests include ventricular tachycardia, atrial fibrillation and supraventricular tachycardia ablation, as well as complex cardiac device implantation and management. Looking ahead, I aspire to take on a University Lectureship role at University Hospital Southampton and become actively involved in clinical leadership and academic development.

**'Pre and Post Ablation Pathway UHCW' project.**

Maria Niespialowska-Steuden MRCP, MD(Res)[1,2];
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### Introduction

Atrial fibrillation (AF) has a negative impact on patients' quality of life, and their perceptions may not always align with objective measures of the disease (1) (2). Since the COVID-19 pandemic, there has been an exponential growth in virtual healthcare solutions (3). Companies like Doccla (Doccla Ltd, London, UK) have made these virtual systems widely available. The 'Pre and Post Ablation Pathway UHCW' project aimed to enhance the care of patients with AF by implementing remote patient monitoring before and after their ablation procedures.

### Methods

Fifty patients who were scheduled for AF ablation were recruited. Doccla provided the patients with virtual ward solutions and questionnaires. Patients were encouraged to submit their ECG readings (with pulse) whenever they experienced symptoms. The data collected was stored and analysed on a platform.

### Results

Fifty patients were recruited between February 12, 2024, and October 8, 2024, with the study concluding in mid-April 2025. The study population consisted of 34 males (68%), with a mean age of 62 $\pm$ 12 years. During the study, 28 patients (56%) underwent ablation

procedures, while 16 patients were still waiting for the procedure, and six were removed from the waiting list. Of those who underwent ablation, 25 patients (92%) attended their 3-month follow-up. In patients who underwent ablation and 3-month follow-up, a significant reduction in AF burden was observed (from 11% to 0%; $p = 0.0049$), and there was a trend towards a significant reduction in high Kardia alarms (from 1.86 $\pm$ 0.85 pre-ablation to 1.4 $\pm$ 0.81 at the 3-month follow-up, $p = 0.0646$). However, the other parameters measuring symptoms, activity levels, and anxiety levels did not show significant differences between the groups. Twenty-two patients who were still waiting for ablation showed no significant differences between the initial and final data sets. A comparison of the final questionnaires between ablation and non-ablation patients also indicated no significant differences. In total, 50 interventions were performed during the study, which included medication changes, advice regarding symptoms, and management of post-ablation symptoms.

### Discussion

Our study observed a significant reduction in AF burden post-ablation, which was anticipated. However, no other variables showed significant differences. This is surprising, as we would expect improvements in symptom perception and quality of life, along with a decrease in anxiety in successfully treated patients. Interestingly, some participants reported increased anxiety during the study due to the daily questionnaires they had to complete. The real benefit of study participation was the effective communication with participants. As a result, we implemented 50 interventions, including advice on symptoms, medical management triggers, and prevention of hospital presentations, which was potentially cost-saving.

While numerous studies have reported high levels of patient satisfaction, further research is needed to fully

understand the financial and practical implications of virtual management of cardiac arrhythmias (4) (5).

## Conclusions

The 'Pre and Post Ablation Pathway UHCW' demonstrated significant potential for virtual ward solutions in managing AF patients. The main benefit of such a solution was the improved communication between individual patients and healthcare providers, which led to various potentially cost-saving healthcare interventions.

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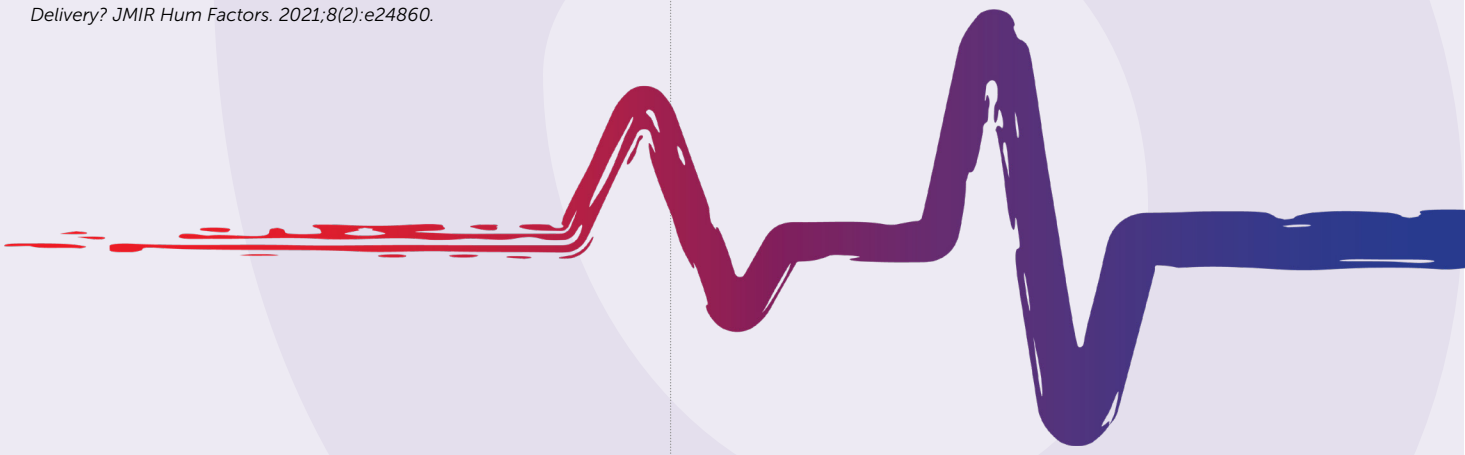
*"The real benefit of study participation was the effective communication with participants. As a result, we implemented 50 interventions, including advice on symptoms, medical management triggers, and prevention of hospital presentations."*





## Dr Mengshi Yuan

**Role title:** Consultant Cardiologist

**Place of work:** Queen Elizabeth Hospital Birmingham

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**Brief biography:** Mengshi Yuan graduated with distinction from Imperial College London in 2012, having completed her medical training there. She subsequently undertook her cardiology specialty training within the West Midlands Deanery. Mengshi is currently working at Queen Elizabeth Hospital Birmingham as a Consultant Cardiologist where she specialises in advanced heart failure and cardiac magnetic resonance imaging.

**CMR in acute rejection detection in cardiac transplant recipients.**

### Introduction

Acute cardiac allograft rejection remains a major complication in the first few years after heart transplantation and is associated with increased risk of graft dysfunction and morbidity. Endomyocardial biopsy (EMB) is the gold standard method for surveillance of acute rejection, and a typical heart transplant recipient is expected to undergo between 11-15 EMBs in the first year post transplant plus more in year 2 and year 3. EMB is typically performed in the catheter laboratory, it is invasive and requires radiation, the access may be challenging and it is prone to sampling errors and significant interobserver variability potentially leading to misdiagnosis and inappropriate treatment. There has been many studies exploring the role of non-invasive ways to screen for acute rejection and cardiovascular magnetic resonance imaging (CMR) using multiparametric mapping has emerged as a highly sensitive method of detecting cardiac allograft rejection, with numerous studies demonstrating good correlation between CMR based mapping and histopathology determined rejection.

### Method

From December 2024, CMR using dedicated rejection protocol (T1, T2, EGE, LGE and post T1) are performed instead of EMB in cardiac transplant recipients who are due their year 2 and year 3 surveillance biopsy, patients beyond 1 year post transplant and having reduction in immunosuppression regime, as well as new drop in graft function with no evidence of haemodynamic compromise. Patients who could not have CMR due to retained pacing leads are excluded, and written consents are gained from patients who have stage 4 and above chronic kidney disease. Patients with evidence of acute rejection on CMR will then undergo EMB to confirm diagnosis and determine treatment strategy.

### Result

From 1/12/24 to 1/5/25, 29 patients had CMR instead of EMB.

3 patients' CMR showed evidence of significant acute rejection and therefore underwent EMB. 1 had confirmed Grade 2R rejection and was treated with high dose steroids. The other 2 patients had Grade 1R rejection (deemed insignificant and no treatment required).

| Indications | Number of patients had CMR |
|---|---|
| Year 2 and 3 surveillance | **18** |
| New drop in graft function | **7** |
| Reduction in immunosuppression | **4** |
| Total | **29** |

In patients who did not have CMR evidence of acute rejection, there has not been any adverse events (MACE) so far.

As incidental findings which had not been demonstrated on previous echocardiograms, one patient was found to have a dilated aortic root (5.7cm at SOV) with a limited dissection flap, as well as a patient found to have apical hypertrophic cardiomyopathy.

Summary

CMR using multiparametic mapping is shown to have high diagnostic accuracy and can be used to replace EMB for acute rejection detection in cardiac transplantation recipients. Below is a summary of its advantages and disadvantages compared to EMB:

Advantages of CMR:

- Non-invasive
- No radiation
- Avoid access issues with EMB
- No need for echo and CXR after
- More sensitive than echo in detecting pathology other than acute rejection.
- Saves on catheter laboratory resource
- Greener

Disadvantages of CMR:

- Data is less robust to support its use in acute rejection detection
- Not suitable for patients with claustrophobia
- Theoretical risk of overheating with patients with retained pacing leads
- Risk of nephrogenic systemic fibrosis (NSF) in patient with end stage renal failure

*"EMB is typically performed in the catheter laboratory, it is invasive and requires radiation, the access may be challenging and it is prone to sampling errors and significant interobserver variability potentially leading to misdiagnosis and inappropriate treatment."*

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## Dr Nabila Laskar

**Role title:** Consultant Cardiologist

**Place of work:** Guy's and St Thomas' NHS Foundation Trust

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**Brief biography:** Nabila is dedicated to advancing the field of heart valve disease, with extensive expertise in echocardiography and computed tomography to support this work. Her research and service improvement initiatives in community heart disease detection in Northeast London have laid the groundwork for successful grant applications and the development of larger-scale programmes.

**Focused Echocardiography in Primary Care: A Training Protocol to detect Structural Heart Disease and Reduce Referrals.**

Dr Nabila Laskar – Cardiology Registrar, St Bartholomews Hospital.

### Introduction

Traditional echocardiography is time-intensive, requiring acquisition of at least 40 images and 2D measurements, often taking 40 minutes per scan. Due to the steep learning curve, many clinicians lack training in image acquisition and interpretation, leading to over-reliance on secondary care for routine echocardiograms. In primary care, waiting lists exceed three months, yet a significant proportion of these scans reveal no structural heart disease (SHD). While focused echocardiography protocols exist for hospital settings (e.g., FEEL, FUSIC), no standardized curriculum guides primary care practitioners. Most referrals seek to exclude SHD—specifically impaired left ventricular (LV) function or left-sided valve disease—which may not necessitate a full scan. We developed and evaluated a focused echocardiography protocol for primary care, assessing its feasibility, diagnostic accuracy, and potential to reduce unnecessary referrals.

### Methods

A simplified 7-image protocol was designed to detect SHD (LV dysfunction or significant left-sided valve disease). Novices with no prior echocardiography experience underwent 2.5 hours of theoretical training covering ultrasound basics and image interpretation, followed by supervised hands-on practice. Trainees performed scans on community-dwelling patients aged ≥65 years in their general practice, compiling a logbook of 50 cases under expert supervision. Each scan generated an abbreviated report; abnormal findings triggered referral for full echocardiography. After competency assessment, trainees independently scanned patients, with all studies reviewed by a cardiologist. Abnormalities identified on expert review prompted further evaluation, and primary care physicians were notified of incidental findings. Diagnostic accuracy was calculated against expert interpretation.

### Results

Four novices completed training and performed focused echocardiography in primary care on 518 patients. SHD was identified in 34% of patients ≥65 years, with 2.3% requiring secondary care referral. Compared to expert review, trainee interpretations demonstrated 89% diagnostic accuracy. No critical pathologies were missed, and incidental findings were appropriately escalated. The protocol reduced scan time to under 10 minutes while maintaining high clinical utility.

### Conclusion

Focused echocardiography is feasible in primary care when supported by structured training and expert oversight. This protocol efficiently identifies SHD, reduces unnecessary referrals, and alleviates pressure on secondary care services. With 89% diagnostic accuracy, it offers a reliable screening tool for high-risk populations. Implementation requires standardized training pathways and quality assurance but holds promise for integrating point-of-care ultrasound into routine primary care practice and introduces scope to outline a focussed echo curriculum specifically for use in these settings. Future studies should assess long-term impact on referral rates and patient outcomes.



## Dr Nikhil Ahluwalia

**Role title:** ST7 EP and Devices

**Place of work:** St Bartholomew's Hospital

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**Brief biography:** I'm an ST7 EP/Devices registrar with interest in arrhythmia clinical trials. I recently completed the AFHF study, the AFFU-AW study, and the CSAF-AW study, and am expanding my clinical trials experience leading the TREAT-VT study. My ongoing research focuses on advanced imaging and neuromodulation of the cardiac conduction system. I have held leadership roles with the British Heart Rhythm Society and the British Junior Cardiology Association, and established both a Clinical Research Podcast and a National Postgraduate Research Network with the British Heart Foundation.

**Dynamic development of a sequential pathway for AF detection in a tertiary stroke service.**

N. Ahluwalia[1], A. Hussain.[1] T. Goldwater[1], C. Nikola[1], BA. Mohamed[1], T. Sukthankar[1], S. Amantani[1], M. Earley[1], C. Monkhouse[1], A. Andrews[1], O. Spooner[1], A. Joshi[1]
*1. Barts NHS Trust, London, United Kingdom*

### The Challenge

Sequential prolongation of heart rhythm monitoring after ischaemic stroke has been shown to be clinically and cost effective at detecting undiagnosed Atrial Fibrillation and changes management.1 However, their implementation requires integrated multi-disciplinary collaboration with timely interval evaluations to ensure appropriate patients are included and excluded. This service improvement project aims to design and implement a sustainable multi-site service using an iterative learning system.

### Objectives

- To increase the number of AF cases detected in this population
- To reduce the number of inappropriate tests (defined as tests on patients with a known diagnosis of AF)
- To reduce the time taken between index event and pathway completion.
- The workflow should continue to work independent of the service improvement team.
- The workflow should be scalable to other partnered stroke centres in the Trust

### Methods

We designed the optimal theoretical stepwise workflow in 2023. (Figure 1) This was approved as Standard Operating Procedure by Hospital Board.

PDSA Cycles were performed with interval meetings of the Service Improvement group to identify the roadblock and implement a corresponding intervention. Audits were undertaken as described below following each intervention.

### Audit Design

Prospective evaluation.

### Population

Patients to the Royal London Hospital Acute Stroke Unit with a primary presentation of a new ischaemic stroke/ TIA event.

### Data Collection

Per-patient Electronic Health Record review of the incidence of workflow investigations and their outcomes. This included diagnoses at baseline, admission ECG, Holter monitoring, and implantable continuous monitoring (ICM).

### Intervention 1

Pathway launch and HCP education.

### Intervention 2

In-patient Holter monitor application.

### Results

Participant and outcome data is shown in Table 1.

In Audit 1 13 patients had new AF detected on The intervention increased the number of appropriate tests without a signficiant increase in inappropriate tests. (Figure 2)

6/27 (22%) had inappropriate Holter/Zio monitoring for AF detection. 2/27 (7%) patients with new or known AF were referred for Holter monitoring (p=0.22).

AF was detected in 2/35 (6%) patients with Holter/Zio monitoring between January-March 2023 compared to 1/21 (5%) patients in April-May 2024 (X2 (1, N=56)=0.02, p=0.88). AF detection rates were not significantly different in these pilot audit groups. (Figure 2). No patients were referred for ICM consideration within the study period.

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## Conclusion

Our 'wide-funnel' approach is designed to increase pathway sensitivity without increased redundant testing by increasing awareness and reducing time-to-test. Further iterations will continue to refine the pathway.

Intervention 3 will be expedited Holter result review by named Stroke Physician for virtual ILR referral

As a result of this project, we will be piloting an Integrated cardiologist-stroke physician MDT for improved qualitative assessment and expedited decision making.

## References

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Figure 1: Flowchart to show the Standard Operating Procedure for Diagnostic pathway to detect paroxysmal AF in patients with ischaemic stroke/TIAs at the Royal London Hopsital that was ratified in 2022.

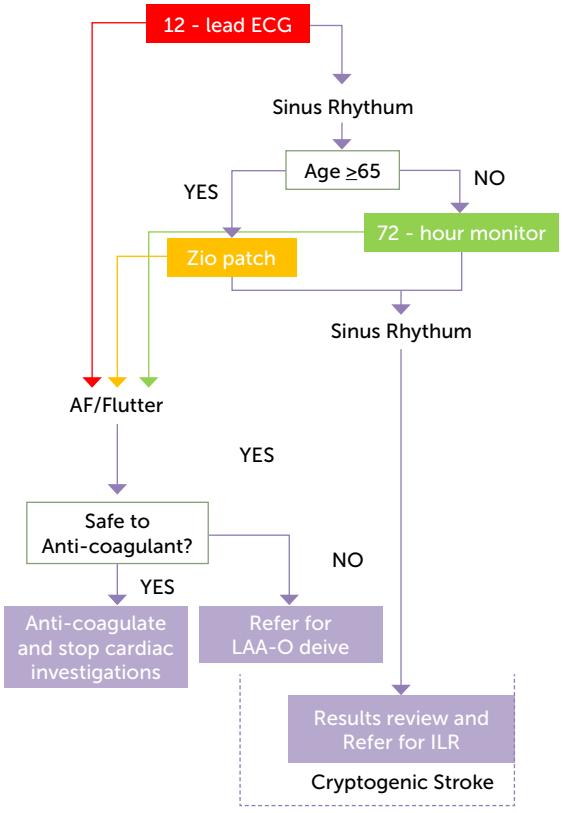


Figure 2: Comparison of Atrial Fibrillation Monitoring Outcomes Between sequential audits of appropriateness of referral for test and outcome. (Chi Square test used for comparison of categorical outcome events.)

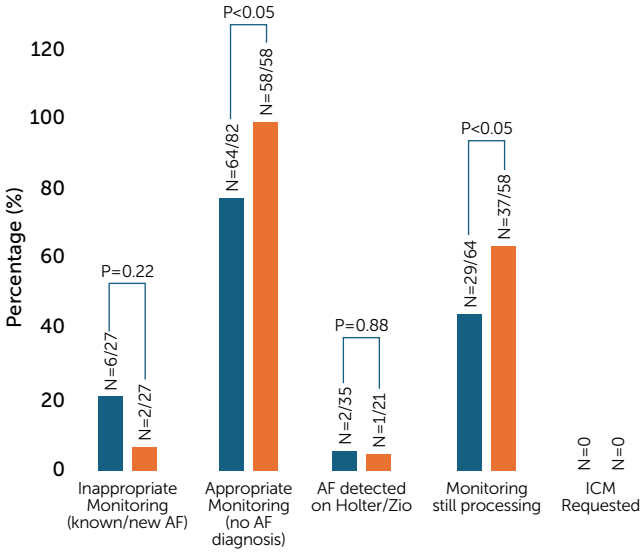


Table 1: Table to show the distribution of patients included in each audit and number of inappropriate referrals (known AF) and positive events (new AF) on admission ECG.

| | Audit 1: 03-04/2023 | Audit 2: 04-05/2024 | Audit 3: 03-04/2025 |
|---|---|---|---|
| Total admissions | 109 | 85 | |
| Stroke | 98 | 81 | |
| TIA | 11 | 4 | |
| Known AF | 14 | 19 | |
| New AF on admission ECG | 13 | 8 | |



## Dr Ramesh Nadarajah

**Role title:** Senior Research Fellow and Honorary Consultant Cardiologist

**Place of work:** University of Leeds and Leeds Teaching Hospitals NHS Trust

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**Brief biography:** My research incorporates the use of large routinely-collected datasets to develop and validate prediction models, particularly in the area of atrial fibrillation, heart failure, and cardio-renal-metabolic disease. I am also now translating these prediction models into clinical trials to determine if they can improve care and outcomes. My clinical interests are in prevention and early detection for cardiovascular disease. My time on the ELP enabled me to understand how risk-guided early detection and prevention pathways may be implemented in clinical practice.

**Cardiologist-led community optimisation of cardio-renal-metabolic risk factors: OPTIMISE.**

### Introduction

Cardiovascular disease (CVD) causes a quarter of all deaths in the UK,[1] and the NHS Long Term Plan prioritises earlier detection and treatment of cardio-renal-metabolic risk factors.[2] We have previously trained a machine learning algorithm in primary care electronic health record (EHR) data which identifies individuals at higher risk of incident cardio-renal-metabolic diseases and cardiovascular death.[3, 4]

### Methods

We used UK primary care EHR data from 2 081 139 individuals aged ≥30 years (Jan 2, 1998, Nov 30, 2018) and calculated the cumulative incidence rate for ten cardio-renal-metabolic diseases and death by predicted risk. Fine and Gray's models with competing risk of death were fit for each outcome between higher and lower predicted risk.

We have implemented the algorithm across 3 primary care networks and in this proof of concept pilot we have identified individuals aged ≥30 years at higher predicted risk and invited them to a specialist-led community-based cardio-renal-metabolic clinic to assess guideline-adherence for their current cardio-renal-metabolic treatment, and whether they have undiagnosed or uncoded cardio-renal-metabolic risk factors.

### Results

**Assessment of adverse outcomes in by risk strata**

Amongst 416 228 individuals higher predicted risk conferred increased hazard of heart failure (HR 12.54, 95% CI 12.08-13.01), aortic stenosis (9.98, 9.16-10.87), AF (HR 8·75, 95% CI 8·44-9·06), stroke/TIA (8.07, 7.80-8.34), chronic kidney disease (CKD) (6.85, 6.70-7.00), peripheral vascular disease (6.62, 6.28-6.98), valvular heart disease (6.49, 6.14-6.85), MI (5.02, 4.82-5.22), diabetes (2.05, 2.00-2.10) and COPD (2.02, 2.00-2.05) (Figure 1). This cohort were also at higher risk of death (10.45, 10.23-10.68), accounting for 74% of cardiovascular deaths (8582 of 11676) during 10-year follow up.

Of 82 higher risk patients who attended clinic (mean age 71.6 years (SD 7.5), 50% women), 78.0% had hypertension and 37.8% had type 2 diabetes. Of those with hypertension, 58.5% (31/53) of those aged <80 years had a systolic blood pressure (SBP)>140mmHg, and 54.5% (6/11) of those aged ≥80 years had a SBP >150mmHg. Of those with type 2 diabetes and co-existent CVD, only 23.1% (3/13) were on SGLT2 inhibitor therapy. Of higher risk patients on statin therapy, 37.0% (20/54) had LDL-cholesterol >1.8 mmol/L, and 23.1% (3/13) of patients with previous CVD had an LDL-cholesterol >2.0mmol/L (Table 2).

Furthermore, 19.5% (16/82) of the higher risk cohort had undiagnosed moderate or high risk CKD. Those with unrecognised CKD were often not on a statin (41.7%; 5/12), ACE-i/ARB therapy with co-existent hypertension (61.5%. 8/13), or an SGLT2 inhibitor with co-existent diabetes (50.0% (3/6), 83.3% (5/6), respectively). Almost half of the cohort (49%) were found to be obese (though none had obesity coded in their records), and 17% (14/82) were eligible for GLP-1 RA therapy under current NICE guidelines.

### Conclusions

Machine learning can identify people at higher risk of cardio-renal-metabolic diseases and death in UK primary care records. Higher risk individuals have unrecorded and undertreated cardio-renal-metabolic diseases, which are actionable targets for specialist-led community-based services.

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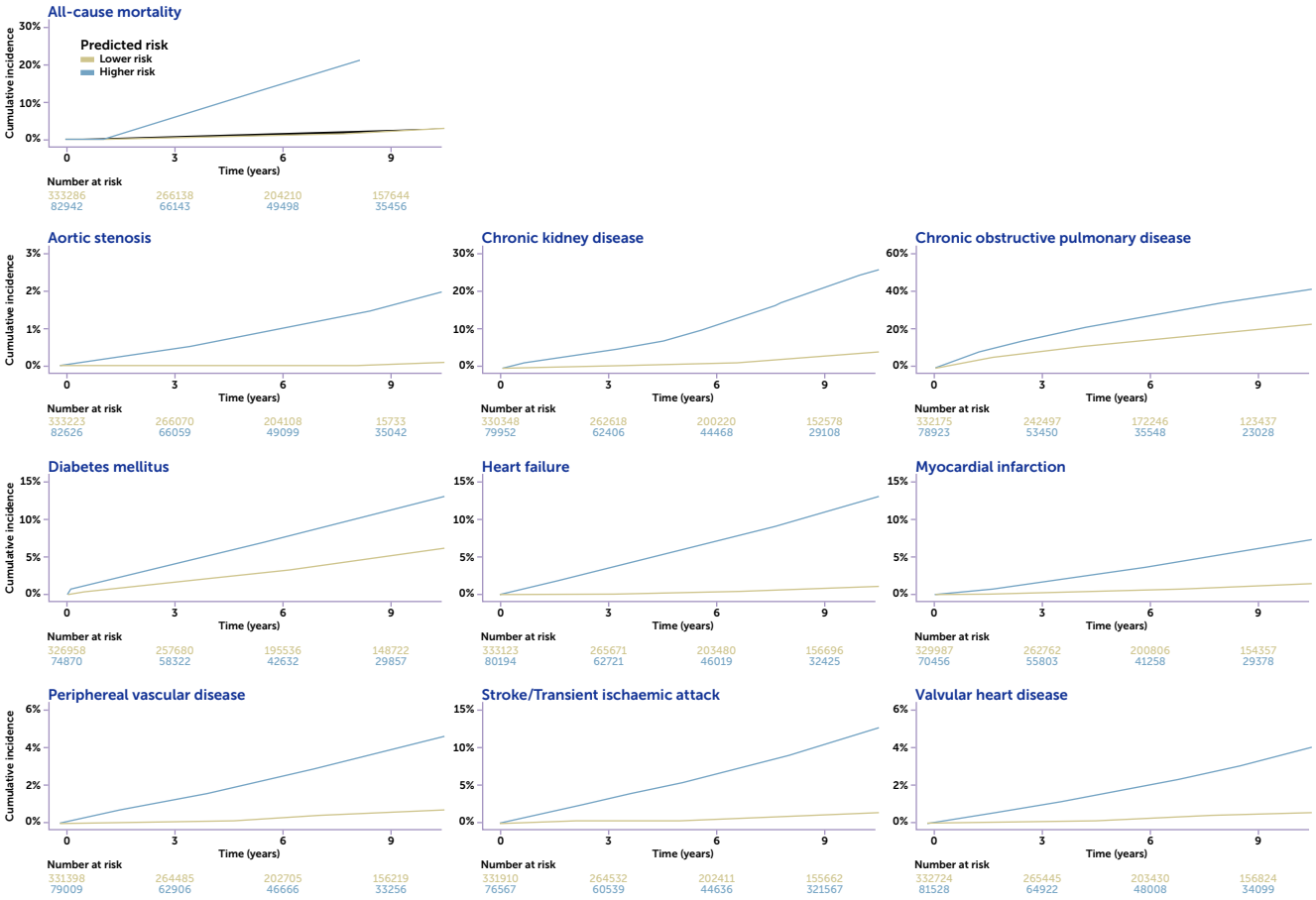
3. *Santulli G, Jankauskas SS, Varzideh F, Mone P, Kansakar U. Targeting cardio-vascular and metabolic disorders through annual nationwide screening and lifestyle intervention: insights from a cohort of 5 819 041 subjects with a 4-year follow-up. In: Oxford University Press US; 2023, 329-330.*
4. *Nakao YM, Gale CP, Miyazaki K, Kobayashi H, Matsuda A, Nadarajah R, Motonishi T. Impact of a national screening programme on obesity and cardiovascular risk factors. European Journal of Preventive Cardiology 2023;30(4):331-339.*


Figure 1. Kaplan-Meier plots for the ten cardio-renal-metabolic-pulmonary outcomes.




*"We have previously trained a machine learning algorithm in primary care electronic health record (EHR) data which identifies individuals at higher risk of incident cardio-renal-metabolic diseases and cardiovascular death."*

Table 1. Baseline characteristics of higher risk participants

| | n (%) |
|---|---|
| **Demographics** | |
| Age, years (mean, SD) | **70.9 (6.5)** |
| Sex (women) | **41 (50.0)** |
| Body mass index, kg/m$^2$ (mean, SD) | **30.1 (6.6)** |
| **Comorbidities** | |
| Hypertension | **64 (78.0)** |
| Diabetes mellitus | **31 (37.8)** |
| Vascular disease | **25 (30.5)** |
| Chronic obstructive pulmonary disease | **23 (28.0)** |
| Chronic kidney disease | **11 (13.4)** |

Table 2. Baseline investigations and medications for higher risk participants

| | n (%) |
|---|---|
| **Investigations** | |
| HBA1c (mean, SD) | **48.2 (10.2)** |
| Estimated glomerular filtration rate (ml/min/1.73m$^2$) (mean, SD) | **72.8 (12.9)** |
| urine albumin:creatinine ratio (mg/mmol) (mean, SD) | **2.4 (2.5)** |
| LDL cholesterol (mean, SD) | **1.8 (1.1)** |
| **Medications** | |
| Statin | **54 (65.9)** |
| ACE-i/ARB | **41 (50.0)** |
| SGLT2 inhibitor | **4 (4.9)** |
| Chronic kidney disease | **11 (13.4)** |

ACEi, angiotensin converting enzyme inhibitor; ARB, angiotensin receptor blocker; LDL, low density lipoprotein, SGLT2, sodium-glucose co-transporter-2; SD, standard deviation.

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## Dr Rebecca Hughes

**Role title:** Cardiology Registrar

**Place of work:** Croydon University Hospital and Guy's and St Thomas' NHS FT

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**Brief biography:** Rebecca is a consultant in Heart Failure and CMR at Croydon University Hospital and GSTT. Having studied sex differences in aortic stiffness in athletes during her research, she used this basis to explore sex differences in risk stratification for coronary artery disease in the rapid access chest pain clinic whilst in her final year of training at GSTT. Traditional risk factors do not encompass sex-specific risks such as diseases in pregnancy and the accelerated risk post menopause. She found that these specific factors are not routinely captured in the RACPC setting and sought to adapt the currently used proforma to include the highest risk of these factors; pre-eclampsia. Pre-eclampsia now forms part of the Q-risk4 risk prediction tool, suggesting the tide is beginning to shift in terms of recognising sex-differences in risk stratification. Her career goals are to combine clinical practice, academic research, and service improvement to enhance patient care and outcomes.

**Improving Sex-Specific Risk Stratification for Women in the Rapid Access Chest Pain Clinic.**

### Background

Cardiovascular disease (CVD) remains the leading cause of death among women globally, yet historically, diagnostic and risk stratification tools have underrepresented female-specific factors. Traditional cardiovascular risk assessment models, including early iterations of QRISK, often failed to account for female-specific conditions such as pre-eclampsia, gestational diabetes, and premature menopause. Pre-eclampsia, affecting 2–8% of pregnancies, has been shown to increase long-term cardiovascular risk up to four-fold and 30% of pre-eclamptic women have evidence of CAD by the age of 50.

The recently updated QRISK3 algorithm, now widely used in UK primary care, incorporates pre-eclampsia as a risk factor, providing a more accurate prediction model for women's 10-year cardiovascular risk. Similarly, the 2024 ESC hypertension guidelines recommend that a history of hypertensive pregnancy disorders (HPD) are sex-specific modifiers that should be considered to up-classify individuals with elevated blood pressure and borderline increased 10-year CVD risk (5% to <10%) using scoring criteria such as SCORE2. This project explores the implementation of structured questions addressing pregnancy-related complications, specifically HPD such as pre-eclampsia, into the medical history protocol for women attending the Rapid Access Chest Pain Clinic (RACPC).

### Aims

The primary aim is to improve the risk stratification for women with a history of HPD being reviewed in the RACPC at St Thomas' Hospital. The secondary aim is to improve hypertension follow up for women post birth with HPD.

### Methods

Initially, the current standard was audited by reviewing the notes of 60 consecutive female patients assessed between October and December 2024. The following metrics were captured: age, history of CAD, presence of traditional risk factors (hypertension, hypercholesterolaemia, diabetes, smoking history, family history), mention of pregnancy history, mention of menopause history and use of HRT. Contemporaneous HbA1c, total cholesterol and blood pressure were also noted. Subsequently, the RACPC proforma was altered to include questions about HPD and following completion of the RACPC consultations, the provision of QRISK3 score were provided for GPs to enable appropriate further management of cardiovascular risk in primary care.

### Outcomes

1/60 (1.7%) of patients were questioned on HPD during initial consultation. Following implementation of the service improvement change, the follow-up data is currently being captured. However, the inclusion of these questions has shown immediate clinical utility: it has improved clinician awareness of sex-specific risk factors and led to enhanced counselling about cardiovascular risk. Furthermore, I'm working with a Maternal Cardiologist to try and improve follow up for women with HPD following delivery, to ensure appropriate blood pressure management.

### Conclusion

In conclusion, incorporating pregnancy-related risk factors into the RACPC assessment process represents a simple yet impactful step toward improving cardiovascular risk stratification for women. This approach, aligned with modern risk prediction tools like QRISK3, enhances diagnostic accuracy and supports more personalized, preventive cardiovascular care for women. Broader implications include the potential for widespread adoption of this protocol and further research into the impact of these interventions on long-term outcomes.



## Robin Collard

**Role title:** Chief Cardiac Physiologist

**Place of work:** Glenfield Hospital, University Hospitals of Leicester NHS Trust

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**Brief biography:** Robin is a Chief Cardiac Physiologist with over sixteen years experience in cardiac rhythm management; both pacing and electrophysiology. Robin is BHRS accredited and has a keen interest in EP, CSP and education. Robin is currently enrolled on the HSST training program, working towards the role of a Consultant Clinical Scientist.

**Empowering Cardiac Physiologists: Enhancing CIED Patient Outcomes. Can Physiologists develop their role to highlight patients who would benefit from a CIED system upgrade prior to generator replacement?**

### Introduction

Cardiac Implantable Electronic Devices (CIEDs) are becoming increasingly common to manage cardiac arrhythmias. Implant rates have remained high over the last ten years. With increased life expectancy, more CIEDs are requiring replacement due to their limited battery longevity. Recently the number of generator changes being performed has increased; nationally by 13%; and locally by 33% within UHL NHS trust. The demand for generator changes is expected to increase in the future. This may lead to increased urgent hospital admissions from device clinic (current average 4.6 per month) which may be avoidable and therefore a waste of resources.

In addition, during the lifespan of a CIED a patient's medical history can change. CIED patients are often discharged from Physician care and are followed up in a Physiologist-led device clinic. There is increasing evidence to show the benefits of assessing patients prior to generator change to provide optimal device prescription, such as recommending a system upgrade to cardiac resynchronisation therapy in the presence of left ventricular dysfunction and pacing-induced cardiomyopathy. Since the Covid pandemic and the move towards remote monitoring, patients are not getting screened appropriately prior to generator change.

### Purpose

This quality improvement project intends to explore, understand and stabilise the current system. Then, using the Model for Improvement, implement change to improve the process when patients are listed for a generator change. This may potentially reduce waste, staff niggles and provide better evidence based care for patients.

### Methods

- Collect both retrospective and current data on the actual activity performed and demand required, aimed to assess if the system is stable or unstable.
- Educate fellow scientists on pacing-induced cardiomyopathy and the long term management of pacemaker patients, considering new technologies such as conduction system pacing.
- Collaborate with heart failure teams to provide the best care for patients.
- Develop a more reliable and durable system for managing patients who are nearing generator replacement.

### Results

The waiting list remains a challenge with the demand greater than activity. This has been escalated to senior managers due to the increasing risk of avoidable hospital admissions. Over a two month period we increased capacity to control the waiting list (56 extra procedures > average). This made a positive impact on the waiting list for generator change procedures and reduced urgent admissions (average 4.6/month to 3.3/month); however this increased other procedure waiting lists in the five cath lab rooms in this trust. This increased level of capacity has not been sustained and the waiting list is once again increasing.

Nonetheless, patients still require assessment prior to generator change and enhanced listing will result in better cath lab procedure planning and reduce staff niggles. A pilot study successfully highlighted a number of patients who met criteria for a CEID system upgrade. This process also highlighted patients who may be eligible to be recruited to conduction system pacing research trials, an emerging technology which may further impact this cohort of patients at the time of generator change.

### Conclusion

This is an ongoing service improvement project. With high demand and subsequent long waiting lists across multiple cath lab procedures (angiography/PCI, electrophysiology, device implantation, structural intervention), innovation methods and techniques to maximise productivity should continue to be used to manage the waiting lists. This project may suggest the need to increase capacity, but in time of financial instability, every effort should be made to maximise existing capacity.

Developing the scope of Cardiac Scientists can result in better procedure planning and therefore improved efficiency and better patient care. I endeavour to apply the skills gained from the ELP to continue to drive cardiac physiology services and deliver exceptional care.



## Dr Sergey Barsamyan

**Role title:** Senior Electrophysiology Fellow

**Place of work:** Wythenshawe Hospital, Manchester University NHS Foundation Trust

**Email:** barsamyan@gmail.com

**Brief biography:** Originally from Armenia, Dr Barsamyan undertook a postgraduate EHRA Advanced Electrophysiology Fellowship at Oxford University Hospitals before moving to Manchester as Senior Electrophysiology Fellow. He has demonstrated a strong commitment to leadership and innovation, serving as a founding board member of EHRA Young Electrophysiologists, Chief Registrar at Manchester University Hospitals, and leading the establishment of an EP/Device MDM at Wythenshawe Hospital. Following the BCS Emerging Leaders Programme, he enrolled in the EHRA DAS-CAM programme to further develop his leadership skills. A passionate ECG educator, he teaches advanced ECG interpretation locally, regionally, and internationally. Certified by EHRA in electrophysiology and devices, he is currently preparing a PhD research grant application in VT ablation (2025).

**Establishing a Weekly Electrophysiology and Device Multidisciplinary Meeting to Improve Collaborative Decision-Making and Education in a Tertiary Cardiology Centre.**

Author: Sergey Barsamyan, MD, MRCP, ECES, ECDS, CCDS

Institution

Wythenshawe Hospital, Manchester University NHS Foundation Trust (MFT)

### Objectives

To implement a structured, inclusive weekly electrophysiology (EP) and device multidisciplinary team (MDT) meeting within a tertiary cardiology centre, aiming to improve collaborative decision-making, documentation, and education.

### Materials and Methods

Prior to this quality improvement project, our centre had no formal MDT for EP and device-related decisions. Complex cases were discussed informally at ad-hoc consultant meetings, with little input from trainees and allied professionals, no uniform documentation, and no standardised process for contributions from affiliated district general hospitals (DGHs).

In response, we introduced a one-hour weekly virtual MDT meeting, following stakeholder consultation involving consultants, cardiac physiologists, arrhythmia nurses, and cardiology trainees. Referrals are submitted via a standardised form embedded within the EPIC HIVE electronic health record (EHR). Meetings are held on Microsoft Teams to enable Trust-wide participation, including DGHs, and are supported by the use of webcams to improve team dynamics.

Case lists are circulated in advance, and cases are presented using a snapboard function within the EHR to facilitate real-time discussion, tracking, and documentation. Lessons from MDT discussions often prompt further service improvement initiatives. This structured MDT approach was implemented despite the absence of national standards for EP MDTs, aligning with recent recommendations on cardiac multidisciplinary structures [1].

### Results

The introduction of the MDT meeting has delivered significant improvements in service delivery:

- A reliable, inclusive forum for collaborative decision-making on complex EP and device cases.
- Increased participation from physiologists, nurses, and cardiology trainees, fostering multidisciplinary learning and engagement.
- Improved access to specialist opinion from across the Trust and affiliated sites.
- Enhanced educational value through structured, case-based discussions.
- Consistent documentation of decisions within the EHR, supporting transparency, audit, and continuity of care.
- Feedback has been overwhelmingly positive across professional groups. The MDT has supported a culture of collaboration, enhanced decision clarity, and improved the perceived quality and safety of care. It has also provided new educational opportunities for cardiology trainees and allied health professionals.

## Conclusion

This quality improvement project has transformed an informal, ad hoc decision-making process into a structured, scalable, and inclusive EP/Device MDT model. The intervention has improved clinical governance, multidisciplinary collaboration, and education, while laying the foundation for future wider integration. Plans are underway to evolve the MDT into a regional networked model, in line with NHS England's Getting It Right First Time (GIRFT) programme [2], to reduce care variation and support standardised practice across Trusts.

This project offers a replicable framework for centres seeking to enhance MDT processes in cardiac electrophysiology and device therapy.

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1. *Association for Cardiothoracic Anaesthesia and Critical Care, British Cardiovascular Intervention Society, British Cardiovascular Society, British Heart Valve Society, Society for Cardiothoracic Surgery. Getting the Best from the Heart Team: Guidance for the Structure and Function of Cardiac Multidisciplinary Meetings. May 2021.*
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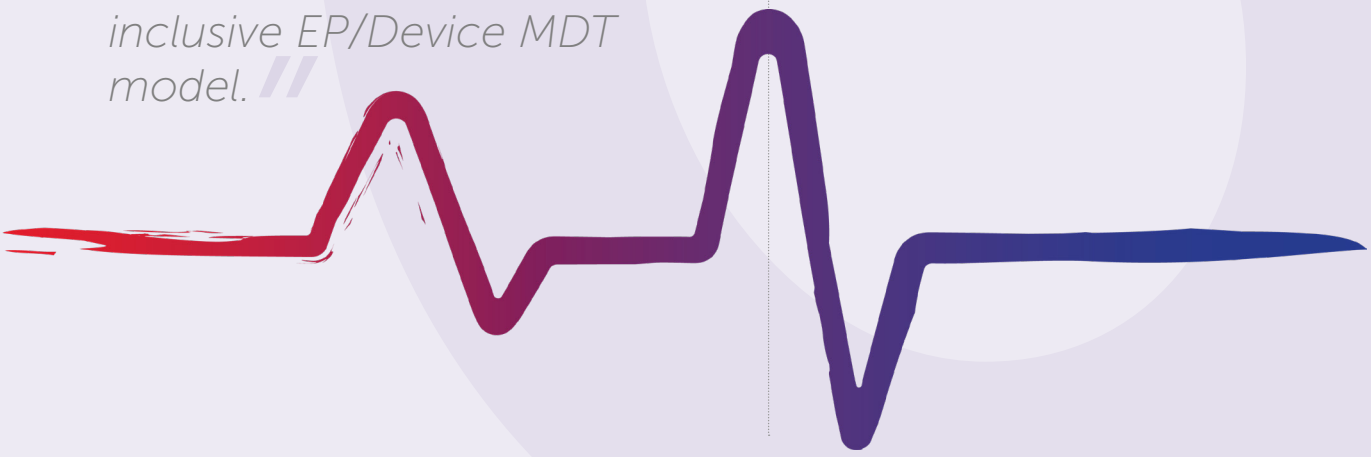
*"This quality improvement project has transformed an informal, ad hoc decision-making process into a structured, scalable, and inclusive EP/Device MDT model."*





## Dr Shveta Monga

**Role title:** Consultant Cardiologist

**Place of work:** Great Western Hospital, Swindon and Oxford University Hospitals NHS Trust

**Email:** Shveta.monga@gmail.com

**Brief biography:** Dr Shveta Monga is a Consultant Cardiologist at Great Western Hospitals NHS Foundation Trust and Oxford University Hospitals NHS Foundation Trust, with active involvement in clinical research, teaching, and service development.

She is a highly qualified cardiologist with extensive experience in managing a broad spectrum of heart conditions. Her areas of expertise include cardiac devices, inherited cardiac conditions (ICC), and advanced cardiac imaging. She holds Level 3 accreditation in cardiac MRI from the Society for Cardiovascular Magnetic Resonance (SCMR) and is accredited by the British Heart Rhythm Society (BHRS) in cardiac devices. Dr Monga routinely performs complex device implantation procedures, including cardiac resynchronisation therapy (CRT), conduction system pacing, and subcutaneous ICDs.

Dr Monga was awarded the British Heart Foundation Fellowship to undertake a DPhil in Cardiovascular Medicine at the University of Oxford. Her research focused on cardiac energetics in aortic stenosis and the investigation of novel therapies in both aortic stenosis and heart failure. She remains actively engaged in clinical research, particularly in the areas of cardiomyopathy, arrhythmias, and the prevention of sudden cardiac death.

Her clinical practice is grounded in the latest evidence and technological advances, with a strong focus on improving care pathways for patients with ICC. She leads a local hub-and-spoke model in collaboration with tertiary centres to enhance access to genetic testing, specialised treatment, and family screening services.

Dr Monga has published widely in peer-reviewed journals and has received numerous awards from national and international cardiology societies, recognising her contributions to research, innovation, and clinical leadership.

Outside of her clinical work, Dr Monga is a passionate distance runner and a strong advocate for physical and mental wellbeing. She brings the same dedication and discipline to her professional life, striving always to deliver compassionate, high-quality care. She enjoys spending time outdoors with her young family, embracing nature and the simple joys of family life.

**Genetic hearts network: a hub-and-spoke approach to inherited cardiac conditions (icc) care.**

Author: Shveta Monga[1],[2] Affiliations: [1]Great Western Hospital, [2]Oxford University Hospitals NHS Trust

### Background

Inherited Cardiac Conditions (ICC) are collectively prevalent in over 340,000 individuals in the UK[1]. Currently, diagnostic and therapeutic services are predominantly centralised within a few tertiary centres. This results in fragmented referral pathways, long waiting times, and limited local expertise—leading to delayed diagnoses, missed family screening opportunities, and variable care quality. The recent advent of transformative therapies, such as Mavacamten for hypertrophic cardiomyopathy (HOCM), has further highlighted the urgent need for equitable and timely access to specialist care. A hub-and-spoke model was proposed to decentralise service delivery, support local workforce development, and improve patient outcomes and system efficiency.

### Objectives

To implement a hub-and-spoke model that integrates local service delivery with specialist tertiary centre collaboration, aiming to improve access, efficiency, and equity in ICC care

### Methods

A start-up pilot was developed to test the feasibility of delivering ICC services locally at a district general hospital, in close collaboration with a tertiary ICC centre. A retrospective review of 220 ICC referrals from

2022–2024 was conducted to map patient pathways and determine what services could be effectively delivered in-house. Core goals included establishing a dedicated ICC clinic stream, performing ajmaline and genetic tests locally, enabling virtual MDT access with the tertiary centre, and setting up an outpatient Mavacamten service.

The proposal was presented at a clinical governance meeting in November 2024. The service began implementation in December 2024, and early activity and outcomes were re-evaluated in Q1 2025.

## Results

Since initiating the local ICC service in December 2024:

- 14 new referrals were seen within the local clinic stream (combining face-to-face and virtual reviews).10 genetic tests and 6 ajmaline challenge tests were successfully performed in-house.8 patients were returned to local follow-up following joint specialist input.A shared care agreement with the tertiary centre was finalised, and preparations for the first local Mavacamten initiation are underway, with the first patient scheduled for June 2025.
- Cost and productivity benefits included: £500 saved per new referral and £100 per follow-up not sent to tertiary care.Commercial revenue potential of ~£4,000 per patient commenced on Mavacamten therapy.
- Patient satisfaction: 6 patients interviewed reported 100% satisfaction, citing reduced travel, improved communication, and continuity of care.
- Sustainability impact:Estimated carbon savings of ~0.12 tonnes $CO_2e$ per patient annually due to reduced travel.
- Workforce empowerment:1 administrative ICC lead and 3 cardiac physiologists supported by 3 ad-hoc nurses received training to deliver specialist elements of care locally.

## Conclusion

The implementation of a hub-and-spoke model for ICC care at a district general hospital has demonstrated promising early results in improving access, efficiency, and patient satisfaction. The approach reduces tertiary centre dependency, empowers the local workforce, and aligns with NHS goals of integrated, sustainable care. Future aims include securing specialised commissioning, expanding the in-house team with a dedicated ICC nurse, and fully launching the Mavacamten HOCM service.

## References

*1. 2013/14 NHS standard contract for cardiology: inherited cardiac conditions (all ages).*

Fig 1: Number of referrals to the tertiary centre per quarter from 2022 – 2025, showing trend towards decrease in number of referrals since the introduction of the initiative in Dec 2024.

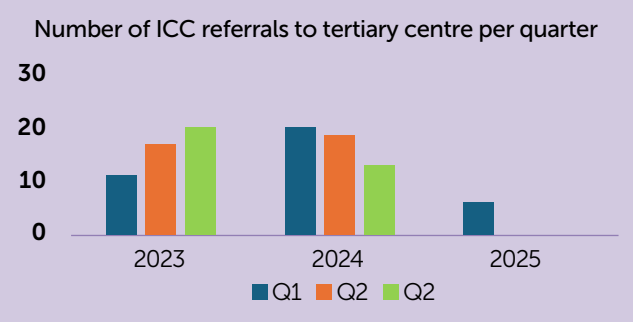



Fig 2: Proposed model of care vs current model:

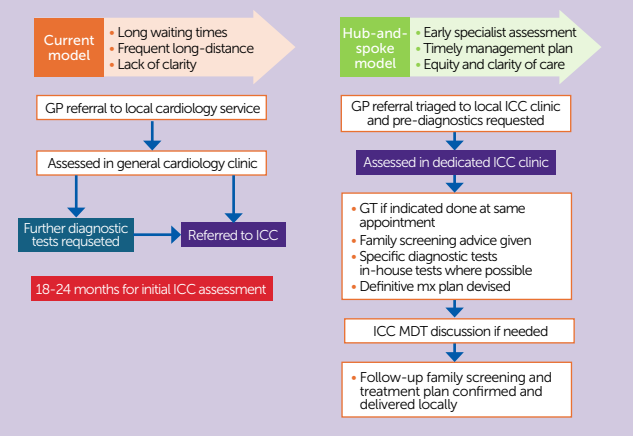



Fig 3: Challenges and Success stories



## Dr Sorayya Kakhi

**Role title:** Senior Fellow

**Place of work:** The NHS National Amyloidosis Centre

**Email:** sorayya.kakhi@nhs.net

**Brief biography:** Sorayya has successfully finished cardiology training and sub specialised in heart failure and cardiac MRI imaging. She has extensive experience in clinical and academic cardiology as well as quality improvement and research.

She is currently working as a senior fellow in National Amyloid centre. She aspires to become a Consultant Cardiologist at a tertiary centre, combining clinical practice, research, teaching, and leadership to drive innovation and improve patient outcomes.

Dr Sorayya Kakhi attended the Emerging Leaders Programme but did not complete a Service Improvement Project submission.



## Dr Tamara Naneishvili

**Role title:** Clinical Research Fellow in Inherited Cardiac Conditions

**Place of work:** University of Manchester / Manchester University NHS Foundation Trust

**Email:** tamarananeishvili@gmail.com

**Brief biography:** I am a post-CCT Clinical Research Fellow with a specialist interest in inherited cardiac conditions. I trained in advanced cardiac imaging (CMR and TOE) in the West Midlands deanery and am now extending my expertise through ICC and PET-CT training at the University of Manchester. I am currently undertaking a PhD project entitled "Positron Emission Tomography to Assess the Effect of Camzyos on Ischaemia in Hypertrophic Obstructive Cardiomyopathy (The PEACH Trial)", which explores the use of advanced imaging to evaluate the effects of Mavacamten in HCM. As part of the ELP programme, I led a genetics audit on the delivery and documentation of genetic testing in HCM at Manchester University NHS Foundation Trust, identifying significant gaps in practice and driving the introduction of structured consultation templates and reminder tools to improve adherence to guideline-based care.

**Are We Recording Adequate Data When We See HCM Patients?**

### Background

Hypertrophic Cardiomyopathy (HCM) is a common inherited cardiac condition associated with sudden cardiac death and heart failure. Current guidelines, including the European Society of Cardiology (ESC) 2023 guidelines and the British Heart Foundation (BHF) cascade testing recommendations, advocate offering genetic testing promptly after diagnosis. Genetic testing enables informed clinical management, prognostic assessment, and effective familial screening. Despite clear guidelines, adherence in clinical practice remains uncertain.

### Aim

We aimed to assess the proportion of patients with HCM who were offered genetic testing within six months of their initial clinic appointment at Manchester University NHS Foundation Trust (MFT). An audit standard was established at 90% compliance for documentation and communication of genetic testing results, including offering family screening.

### Methods

We conducted a retrospective audit of clinical records from 1000 consecutive patients attending cardiology clinics with a confirmed or suspected diagnosis of HCM between January 2006 and December 2024. All patient data available on the EPIC electronic health records system at MFT were analysed. Primary audit outcomes included documentation of genetic testing offered within six months of the first consultation, communication of results via letter, telephone, or face-to-face consultation, and explicit offers of familial screening.

### Interim Results

Interim data analysis from 400 patients indicates significant shortfalls against the audit standard. Only 30-40% of patients had documented evidence of being offered genetic testing within six months, received documented results via appropriate communication channels (letter, telephone, or face-to-face), and were explicitly offered family screening. This preliminary finding strongly suggests substantial under-documentation and under-performance against current guidelines. These results have been discussed in the Inherited Cardiac Conditions (ICC) multidisciplinary team (MDT) meetings.

### Conclusion and Quality Improvement Intervention

Our interim findings confirm our initial hypothesis that clinicians are substantially under-documenting and potentially under-offering genetic testing for HCM within 6 months period. Such suboptimal adherence may compromise patient care quality, clinical risk management, and family screening effectiveness.
To address these gaps, we propose implementing a structured clinical consultation template designed explicitly to remind clinicians to offer genetic testing, document risk stratification scores, communicate results, and systematically offer familial screening. Reminder posters will also be distributed to ICC clinicians and prominently displayed in clinic offices. A re-audit will be conducted following these interventions to assess improvements in adherence and documentation practices, with an expectation of significantly enhancing guideline compliance and clinical outcomes.

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## Dr Tiffany Kemp

**Role title:** Consultant Cardiologist specialising in Heart Failure and Complex Devices

**Place of work:** Royal Cornwall Hospital, Truro

**Email:** tiffanykemp@nhs.net

**Brief biography:** I am a consultant cardiologist at a busy DGH in beautiful Cornwall. I specialise in heart failure and complex devices, in addition to ballet and reformer pilates! Through the BCS Emerging Leaders Programme I have developed into a more confident junior consultant, and it has been invaluable in supporting me in multiple quality improvement projects as well as in my career overall. The networking has directly improved care for my patients in Cornwall as I now have a whole host of experts across the country to discuss patients with, send referrals to, and take referrals from.

**Establishing a Left Bundle Branch Area Pacing (LBBAP) Service in Cornwall.**

Dr Tiffany Kemp, Consultant Cardiology (Heart Failure and Complex Devices) Royal Cornwall Hospital

### Background

Left Bundle Area Pacing (LBBAP) is a pacing technique that offers significant advantages over standard Right Ventricular (RV) pacing. Long term RV pacing can lead to pacing induced cardiomyopathy, but LBBAP produces more synchronized ventricular contraction which helps maintain left ventricular function. Studies have shown show LBBAP improves exercise capacity, symptoms and quality of life. It also often results in lower and stable pacing thresholds which improves battery longevity and reduces the need for lead revision.

We had noted an increased number of requests for upgrade from standard RV pacemakers to cardiac resynchronization therapy due to a reduced in ejection fraction after RV pacemaker implantation. Other centres are now routinely offering LBBAP to reduce the need for this, but in Cornwall we have to refer our patients out of county and then cannot follow them up. This is particularly important as there is a higher than average elderly population in Cornwall and rural areas geography makes access to other centres more challenging.

It is therefore essential to offer evidence based cardiac pacing services locally to improve equity of access and enhance continuity of care.

### Aims

To establish a safe, effective, and sustainable Left Bundle Branch Area Pacing (LBBAP) service in Cornwall for patients with bradycardia (and later for CRT indications).

### Methods

- Training and mentorship in LBBAP technique
- Procurement of necessary sheaths and leads
- Local protocol development and patient selection criteria

### Challenges

There are currently only two heart failure and complex device consultants to cover all of Cornwall who also have general cardiology responsibilities. The learning curve means more time needs to be allocated to this new technique. This must be balanced against increasing demands on the pacing service with expanding waiting lists. Shortly after the start of the service development the pacing lab closed for refurbishment. The new pacing lab is now open again and being used.

There was a need for external proctorship and structured training. A high volume operator was approached who agreed and this was organized formally. Industry support was also arranged to assist with logistics of proctorship and the required equipment.

### Initial Results

The two complex pacing consultants in Cornwall have now attended two industry led LBBAP training courses and have visited other centres to observe LBBAP in practice. The two senior cardiac physiologists now trained in follow up of LBBAP.

A proctor has been identified and the arrangements made for suitable pacing lists for him to support the initial learning curve. Industry support has been obtained to provide the required equipment, and to support the Cornwall team as the service becomes established.

### Conclusion

After the two complex pacing consultants are suitable trained the aim is to expand operator base to the two pacing consultants in addition. In the future the patients considered for LBBAP will expand to include those who have impaired LV function without left bundle branch block, and also to those who would usually have a CRT but cannot. It is predicted that LBBAP will replace conventional RV pacing as the first line treatment for bradycardia requiring a pacemaker.

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## Dr Vivienne Sullivan

**Role title:** Senior Clinical Fellow in Heart Failure and Transplant Medicine

**Place of work:** Harefield Hospital, London

**Email:** Vivsull2@hotmail.co.uk

**Brief biography:** Dr. Vivienne Sullivan, MB BCh BAO LRCP LRCS MRCPI, specializes in heart failure and transplant medicine. An HFA Young Ambassador for Ireland since 2023 and Silver Member, she's been a Senior Clinical Fellow in Heart Failure and Transplant medicine at Harefield Hospital in the UK since July 2024.

Graduating with first-class honours from the Royal College of Surgeons in Ireland in 2013, Dr. Sullivan's interests include cardiomyopathies, cardiac amyloid, and advanced heart failure. Her clinical roles span Advanced Heart Failure Fellow at the Mater Misericordiae University Hospital, Dublin and Cardiology SpR at various Irish hospitals, with additional experience in Australia.

Dr. Sullivan has published in journals like Heart and the Irish Journal of Medical Science, and completed advanced heart failure courses in London and Vienna. Certified in European Core Cardiology and EACVI TTE, she is also a member of the Royal College of Physicians in Ireland.

### Quality Improvement Project on Diagnosis of Rejection in Heart Transplant Recipients by Optimising Endomyocardial Biopsy Sampling and Follow-Up

V Sullivan

#### Background

Endomyocardial biopsy (EMB) is the gold standard for diagnosing acute rejection in heart transplant recipients, as outlined by the International Society for Heart and Lung Transplantation (ISHLT)[1]. At Harefield Hospital, protocol-driven EMBs are routinely performed at intervals post-transplant. However, the diagnostic yield in asymptomatic patients is low (1–2%), compared to up to 18% in symptomatic patients[1]. ISHLT guidelines recommend a minimum of three right ventricular samples per biopsy[2], yet some biopsies meeting this numeric threshold are still inadequate due to fragmentation or poor sample quality. This quality improvement (QI) project aimed to assess the frequency of insufficient samples and evaluate the timeliness of reporting and clinical response.

#### Purpose

This quality improvement project intends to explore, understand and stabilise the current system. Then, using the Model for Improvement, implement change to improve the process when patients are listed for a generator change. This may potentially reduce waste, staff niggles and provide better evidence based care for patients.

#### Methods

We retrospectively reviewed 85 EMBs performed on 46 heart transplant patients from August 2024 to February 2025. Sample adequacy was assessed using ISHLT criteria. We examined insufficiency rates by access site and operator and reviewed time to pathology report and subsequent clinical action.

#### Results

Of 85 biopsies, 15 (17.6%) were insufficient for diagnosis. Seven were due to fewer than three samples submitted, while eight were fragmented or of poor quality. Insufficiency varied by access site: Left Femoral (35.7%), Right Femoral (18.4%), Right Jugular (5.3%), and Left Jugular (0%). One operator accounted for 73.3% (11/15) of the insufficient biopsies. Five biopsies (5.8%) revealed histological rejection: three cases of acute cellular rejection (ACR ≥2R) and two cases of antibody-mediated rejection (AMR ≥2). One positive case occurred in an asymptomatic patient. Of 13 biopsies prompted by clinical suspicion, only two confirmed rejection and two were insufficient. Among five biopsies triggered by new donor-specific antibodies (DSAs), three were also insufficient. Pathology reports were typically available within 23.5 to 27 hours. In all but one case, clinical intervention occurred within 1–2 hours of report availability. One patient was treated preemptively based on clinical suspicion.

#### Intervention

To address these issues, we increased the minimum sample count to four per procedure during a three-month period. Preliminary observations suggest improved sample adequacy, and data collection is ongoing. Additionally, an EPIC-based alert system is being developed to flag abnormal biopsy results, ensuring timely clinical response and reducing reliance on patient-initiated follow-up.

#### Conclusion

This QI initiative identified a significant rate of inadequate EMB samples, with variation influenced by both access site and operator. Increasing the required sample number and improving result communication through automated alerts may enhance diagnostic reliability and expedite treatment of rejection. These measures have the potential to improve patient outcomes in heart transplant care.

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*1. ISHLT. J Heart Lung Transplant. 2023;42(5):e1–e141. https://doi.org/10.1016/j.healun.2022.10.015*

*2. Stewart S, et al. J Heart Lung Transplant. 2005;24(11):1710–20. https://doi.org/10.1016/j.healun.2005.03.019*

Emerging Leaders Programme
**Cohort 6 Yearbook**

## Dr William John Jenner

**Role title:** ST7 Heart Failure & Devices

**Place of work:** Royal Papworth Hospital

**Email:** willjenner@gmail.com

**Brief biography:** Will is a current ST7 Cardiology trainee at Royal Papworth Hospital in Cambridge, subspecialising in heart failure and cardiac devices. He has been appointed to a post-CCT Fellowship in Advanced Heart Failure and Transplantation at Royal Papworth from November 2025. During the 2024-2025 BCS Emerging Leaders Programme he undertook a prize-winning service development project at the Norfolk and Norwich University Hospital, seeking to streamline the interpretation of remote heart failure device alerts. He has undertaken prior training at Royal Papworth, Norfolk and Norwich, Lister Hospital, Addenbrookes Hospital and Peterborough City Hospital. Will studied medicine at University College London, where he completed the MBPhD programme.

He has research interests in comparing international heart transplant allocation, work presented at the ISHLT and ESHLT meetings in 2025. He has also undertaken prior research investigating mental health and burnout among UK Cardiology trainees, and is a strong advocate for those wishing to train less-than-full-time, having been the BJCA LTFT representative from 2022-2024. Other research interests have included thrombosis during the COVID-19 pandemic, and investigating preconditioning as a therapy to reduce the burden of ischaemia-reperfusion injury. Will is a dad of 3, an outdoor enthusiast, having previously undertaken several long-distance bike tours, including across the USA, and around the Netherlands by cargo-bike.

**Remote Device Alerts and Co-Management to Reduce Heart Failure Admissions: A Service Improvement Project.**

Dr William Jenner MBBS BSc MRCP PhD
Cardiology ST7 Heart Failure and Cardiac Devices
Norfolk and Norwich University Hospitals

### Background

Modern cardiac implantable electronic devices (CIEDs) can generate remote alerts that identify patients at increased risk of heart failure (HF) decompensation. Medtronic's Optivol-based TriageHF risk tool uses a traffic light system to stratify hospitalisation risk and reduce heart failure hospitalisations (Ahmed et al 2024). Recent NICE guidance (DG61, 2024) recommends TriageHF for early identification of patients at imminent risk of HF admission.

This service improvement project aimed to audit and enhance the management of HF alerts at our trust by implementing a new pathway and co-management approach to reduce HF hospitalisations.

### Problem

An initial audit identified a backlog of 501 unread Medtronic device alerts over a four-month period. Median delay from HF transmission to nurse call was 22 days. Only 40% of high-risk alerts were reviewed within 7 days, and just 23% were escalated to HF nurses within 30 days. One in four high-risk alerts required intervention, compared to 8% of medium-risk alerts.

### Methods

A process review was conducted, including interviews with HF consultants, nurses, and cardiac physiologists. It revealed a complex pathway with multiple steps for managing each alert (Figure 1). Key measures were defined:

- **Outcome Measures:** HF hospitalisations and volume of unread device transmissions
- **Process Measures:** Percentage of high-risk alerts managed within 3, 7, and 30 days; proportion involving HF nurse input
- **Balancing Measures:** Frequency of HF nurse calls

### Interventions

We introduced several changes to improve workflow:

- Adoption of Medtronic's CareLink Co-Management system, enabling HF nurses to directly access and act on TriageHF alerts
- Training of 8 HF nurses in using the system

- Identification of 547 heart-failure patients with compatible devices for inclusion
- Education sessions on TriageHF for the HF team
- Revised pathway: only high-risk alerts trigger nurse review and intervention

The Co-Management system was launched on 6 May 2025. Initial alerts processed through the new system were reviewed within 48 hours.

## Results

At the time of writing, post-intervention data are not yet available. However, early signs show improved response times, and the new system has enabled better integration of specialist HF input, with positive feedback from colleagues.

## Conclusions

This project addressed significant delays in HF alert management and implemented a co-management system to streamline the process. Further data collection will assess its impact on HF admissions, and total device alerts. This work demonstrates the principles of the BCS Emerging Leaders programme and reflects personal interests in digital innovation, HF, and sustainable service improvement.

Figure 1: "Post-It Note" Pathway for Heart Failure Device Alerts

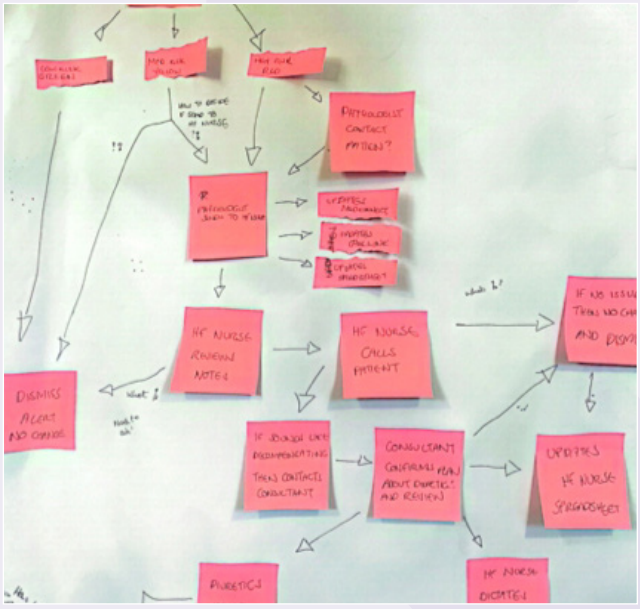
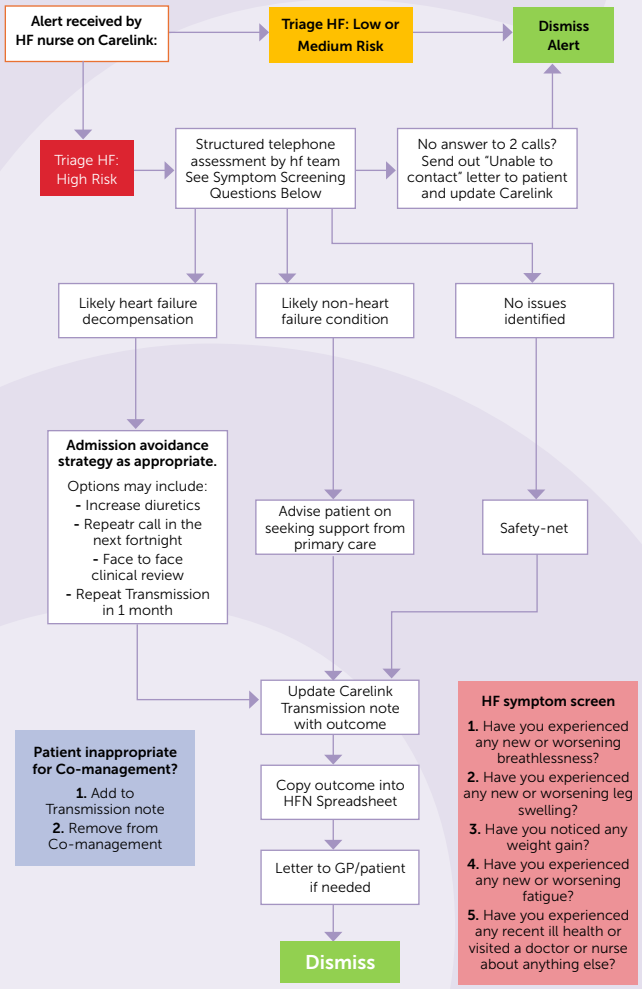


Figure 2: New Pathway for Medtronic Carelink HF Device alert

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2. *Heart failure algorithms for remote monitoring in people with cardiac implantable electronic devices, diagnostics guidance DG61. National Institute for Health and Care Excellence. Published October 2024, available: https://www.nice.org.uk/guidance/dg61*

## Comments from Emerging Leaders Programme Cohort 6 delegates on completion of the programme

'The Emerging Leaders program was a valuable experience that strengthened my leadership skills. I learned how to communicate clearly and confidently, tailoring my approach to different situations and team dynamics. Understanding various personality types helped me build stronger, more collaborative relationships. Leading a quality improvement project taught me how to plan, engage stakeholders, and measure impact effectively. This hands-on experience gave me practical tools to drive change and lead with greater confidence. Overall, the program enhanced my ability to lead with purpose, adapt to diverse teams, and contribute meaningfully to continuous improvement initiatives.'

'It has given me confidence that the type of leader I want to be is one different to that I usually see, but is supported by the evidence shown during this course.'

'This programme has inspired me to vocalise my ideas and work towards implementing a change. I am not too junior to do that! Setting up a successful Service Improvement Project through this programme has definitely had a positive impact on the organisation I work in overall by improving care and productivity.'

'I feel more confident using the tools I have learned to develop services that interest me – this will help me drive positive change within my organisation.'

'The ELP taught me how the NHS infrastructure is set up and who to approach with service improvement projects. It taught me more about the type of leader I am and highlighted my strengths and what I can work on as a leader.'

'Everyone can be a leader. Leadership is about working with people. There are several ways talents can be used.'

'The ELP has been a valuable experience in personal growth, developing my confidence. Learning from other leaders that they seem to share the same emotions and experiences of imposter syndrome. I now have increased confidence in taking on projects and pushing them forward.'

'The 2-day Cambridge part was excellent – it gave us all a chance to get to know each other. The programme introduces you to people you would not necessarily speak/work with and it helps develop ideas and gain contacts for life. It's great if you're approaching CCT as it provides lots of resources to discuss at a consultant interview.'