Project scope: ECG patch monitors

January 2025

Research question

What is the clinical effectiveness, cost effectiveness (including system efficiencies) and safety of ECG patch monitors compared with traditional Holter monitors or cardiac event recorders in detecting paroxysmal AF (pAF)?

Inclusion criteria

The selection of studies for inclusion in the literature review element of the project will be based on the following criteria:

Setting	Outpatient settings where ECG monitoring for suspected pAF is required (including outpatient and remote monitoring environments for pAF).
Population	• Adults (≥18 years) with suspected pAF or cryptogenic stroke • Patients who present with symptoms of AF (breathlessness, heart palpitations, dizziness and fainting) or are asymptomatic but have risk factors for AF (for example, history of cryptogenic stroke) • Patients with suspected cardiac rhythm abnormalities (eg. syncope)
Intervention	Interventions using ambulatory ECG patch devices for monitoring periods longer than 24 hours (focus on patches that can monitor heart rhythm for a longer period – up to 14 days), fitted in clinic health professional or posted directly to patients' homes and self-fitted.
Comparator	• Use of traditional ECG monitoring technologies such as Holter monitors (24-48 hours) and cardiac event recorders • Standard clinical care for AF diagnosis (short-term ECG and outpatient monitoring)
Outcomes	• Early detection and diagnosis of AF (particularly pAF) • Reduction in stroke risk (stroke incidence or recurrent stroke) • Reduced hospital visits/stays, fewer strokes or recurrent strokes and reduced waiting times • Service improvement (reduction in diagnostic waiting times, increased diagnostic yield, speed of reporting turnaround time, reduction in clinic appointments) • Improved equity of access • Other outcomes as reported in the literature including any financial savings, patient experience and staff experience (compliance/adherence and usability of the patch technologies)

Economics	
Decision problem	What is the net impact of introducing aECG patches on NHS Scotland budget and healthcare resource use?
Analysis type	Resource use and budget impact model
Perspective	NHS Scotland and Personal Social Services
Population	• Post-cryptogenic stroke • Cardiology population (suspected pAF due to symptoms)
Intervention	ECG patch monitors 2-, 7- and 14-day monitoring, fitted in-clinic or at home
Comparators	• Holter monitors • Cardiac event monitors
Outcomes	Differences in diagnostic yield and time to diagnosis on time to treatment leading to impact on: • Ischaemic stroke • Ischaemic heart disease • Mortality • Adverse events (e.g. bleeding) Secondary outcomes of the analysis: • In-patient bed days • Cash-releasing savings • Environmental outcomes (travel to appointments, hospital admissions, single-use elements) • Long-term care costs
Costs	National currency (£) at 2024 prices • Per device costs • Diagnostic costs (staff, estate and capital equipment) • Repeat testing costs • Health service costs associated with clinical sequalae of untreated pAF (ischaemic stroke and ischaemic heart disease) • Social care costs • Costs of managing adverse events (major bleeding) • Medication costs
Time horizon	5-year

Planned activities

SHTG have agreed on the following activities to support the development of an SHTG IMTO on ECG patch monitors:

1. A comprehensive search of the literature.

2. An assessment of the clinical effectiveness, cost-effectiveness, safety, and patient views on the use of ECG patch monitors compared with current practice.
3. A budget impact and resource use analysis of the implementation of ECG patch monitors integrating data from Scotland provided by Public Health Scotland where appropriate.
4. Development of a plain language version of the SHTG Assessment.
5. Engagement with clinical experts through peer review.

End products

At the end of the project, SHTG will publish:

- An SHTG Assessment
- Resource impact analysis for NHSScotland
- A plain language summary of the SHTG Assessment

Timescales (approximate)

May 2025