NHS
South East
Genomic Medicine Service

# NHS Sudden Cardiac Arrest Pathway

## Purpose

The NHS SCA pathway aims to prevent premature deaths by systematically offering clinical cardiac assessment and genetic testing for individuals affected by a sudden cardiac arrest. This facilitates cardiac clinical screening and cascade testing through a network of specialist coordinators.

This is possible only through the joint support and effort from ICU, CCU, Inherited Cardiac Condition services, and the NHS Genomic Medicine Service.

## Key

ICU/CCU staff =

ICC Coordinator =

ICC checkpoint = ?

Cause of SCA = ?

Pathway start/end

*See the next page for inclusion and exclusion criteria

## Pathway start

Patient presents in ICU or CCU with a sudden cardiac arrest or spontaneous aortic dissection

Confirmed non-inherited cause of cardiac arrest*

Suspected inherited cardiac condition or unexplained cardiac arrest*

Store and Send DNA:
Two EDTA samples
Complete DNA storage form
Send both the GLH
Record process on EHR

Discuss process with NOK
Provide family information pack
Notify ICC service via ICC coordinator - include patient details and NOK details

Patient Survives

Patient passes away

In patient team undertakes investigations and refers to local ICC team if appropriate

Medical Examiner / ITU informs ICC coordinator

Non-Inherited cause of cardiac arrest confirmed without testing

Inherited cardiac condition confirmed or unexplained cardiac arrest

Inherited cardiac condition confirmed or unexplained cardiac arrest

Non-Inherited cause of cardiac arrest confirmed without testing

DNA disposal:
Contact GLH to dispose of DNA
Inform patient that DNA has been destroyed

Screening for first degree relatives via ICC clinic with ICC service-initiated referral forms if possible

Contact NOK to support genomic testing for proband and genomic counselling and clinical screening for first degree relatives

DNA disposal:
Contact GLH to dispose of DNA
Inform NOK that DNA has been destroyed

Pathway end

Supported by
British Heart Foundation

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# NHS Coronial SCA Pathway

## Inclusion Criteria

**1a) DNA storage is required for:**

- Patients presenting with cardiac arrest that have a suspected inherited cardiac condition [see 1b(i)].
- Patients presenting with cardiac arrest which remains unexplained after initial evaluation [unexplained cardiac arrest (UCA)].
- Patients presenting with spontaneous thoracic aortic dissection (irrespective of whether this is in the context of cardiac arrest or not).

**Inherited Cardiac Conditions - signs of OR previous diagnosis of:**

**1b(i) Cardiomyopathies:**

- Hypertrophic cardiomyopathy (HCM).
- Dilated cardiomyopathy (DCM).
- Arrhythmogenic cardiomyopathy (ACM), arrhythmogenic right ventricular cardiomyopathy (ARVC), arrhythmogenic left ventricular cardiomyopathy (ALVC).
- Non-dilated left ventricular cardiomyopathy (NDLVC).
- Neuromuscular disease/muscular dystrophy with associated cardiomyopathy.
- Mitochondrial/metabolic disease with associated cardiomyopathy.
- Syndromic disorders with cardiomyopathy.
- Other cardiomyopathy phenotypes (including restrictive, non-compaction cardiomyopathies).

**1b(ii) Channelopathies/inherited arrhythmia syndromes:**

- Long QT syndrome (LQTS)
- Brugada syndrome (BrS)
- Catecholaminergic polymorphic ventricular tachycardia (CPVT)
- Short QT syndrome (SQTS)
- Short coupled or idiopathic ventricular fibrillation (VF)
- Unexplained cardiac arrest (including arrhythmogenic mitral valve prolapse and early repolarisation syndrome).

**1b(iii) Aortopathies:**

- Thoracic aortic dissection (with or without associated valve disease).
- Marfan Syndrome
- Loeys Dietz Syndrome
- Turner Syndrome

## Exclusion Criteria

**DNA storage is not required* for:**

- Patients presenting with cardiac arrest due to confirmed myocardial infarction
- Patients presenting with cardiac arrest due to another confirmed non-genetic cause including:

Known established heart disease e.g. chronic myocardial ischaemic or hypertensive heart disease.

Explained by a congenital heart defect [see 1c(i)].

Known non-cardiac cause e.g. sepsis, stroke or PE.

*If any doubt, store DNA (this can be disposed of at a later date if not required).

**1c(i) Congenital heart defects causing cardiac arrest**

- Aortic valve stenosis
- Tetralogy of Fallot
- Coarctation of aorta
- Pulmonary valve stenosis
- Single ventricular circulation
- Anomalous coronary arteries

Please contact your ICC coordinator for any questions:
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