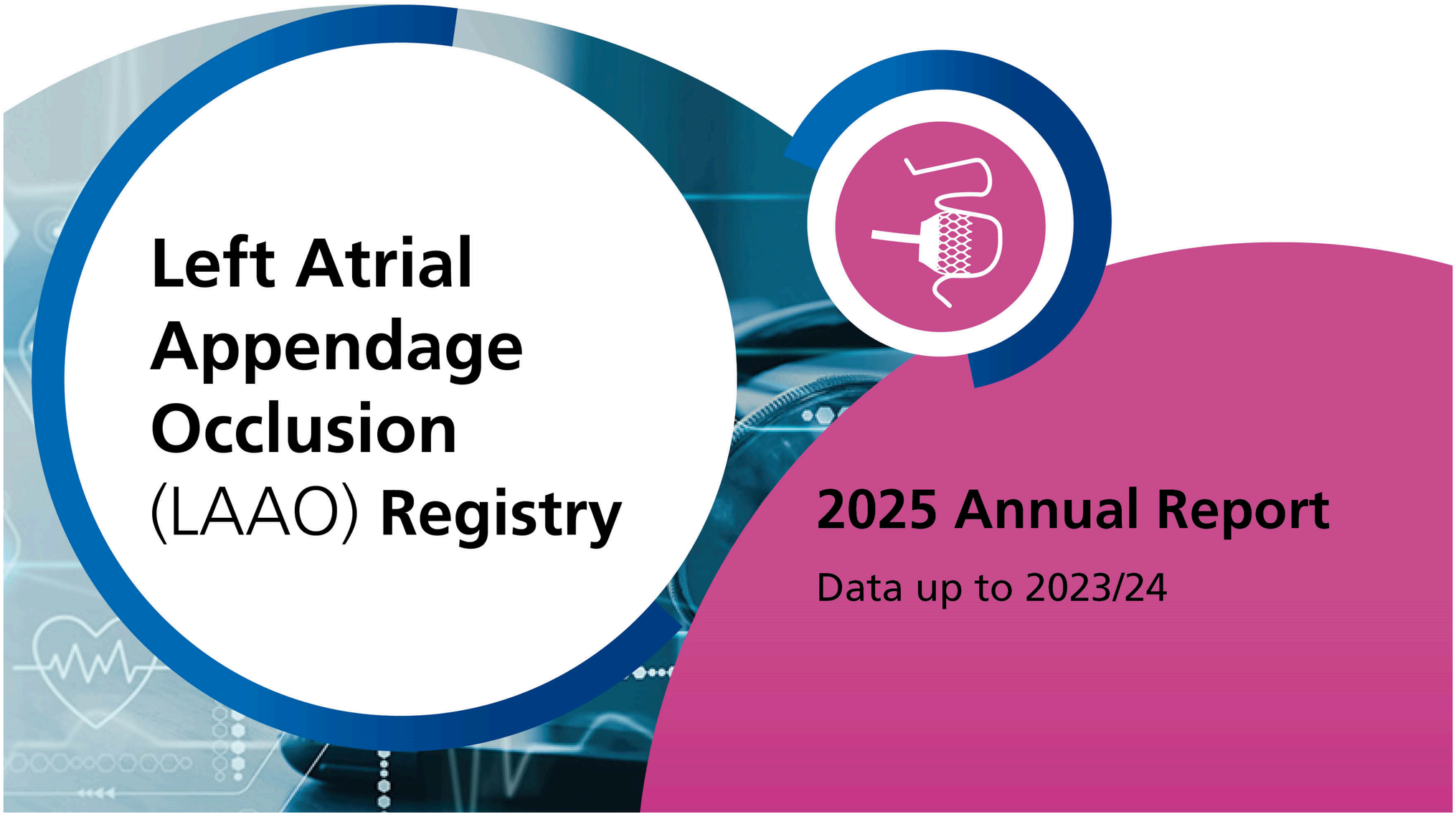
NCAP

NATIONAL CARDIAC AUDIT PROGRAMME

NICOR



Left Atrial Appendage Occlusion (LAAO) Registry

2025 Annual Report

Data up to 2023/24

Report at a glance

11 NHS England centres are registered with NICOR, with 10 now submitting data

126 total number of reported procedures up to October 2024

0 private institutions offering the procedure have registered to date

80% of patients are aged 70 years or older

75% patients treated to date are male

80% of patients have an untreated estimated annual risk of stroke of 3% or more

<2% reported complication rates are low

Recommendations

Commissioning requirements are that all implanting centres should audit their full left atrial appendage occlusion program, including selection of patients, and the entire implant process, with benchmarking against other centres and published data nationally and internationally.

In order to fulfil this, all centres should register and submit data to NICOR via the online registry portal.

Data should be submitted within two weeks of implant.

Data submissions should meet standards for completeness and accuracy.

Introduction

This report summarises the key findings from the Left Atrial Appendage Occlusion (LAAO) Registry, part of the National Cardiac Audit Programme (NCAP) which is run by the National Institute for Cardiovascular Outcomes Research (NICOR).

NHS England has commissioned LAAO procedures since 2018. The left atrial appendage (LAA) is part of the back left chamber of the heart (the left atrium). With some rhythm disturbances of the heart (especially, atrial fibrillation, AF), the flow of blood through the heart chambers is affected and a clot (thrombus) may occur in this chamber, especially within the left atrial appendage. If this clot comes off the wall of the appendage and gets loose in the circulation, it can travel up to the brain and cause a stroke. To prevent this, patients with AF are prescribed blood-thinning treatment (anticoagulants). Some patients are unable to take these drugs however, either because they have had a significant bleed whilst taking them or are deemed to be at very high risk of having a bleed. Such patients are eligible for the LAAO procedure as an alternative treatment. Patients can be selected for this treatment after discussion of their case by a multidisciplinary team that weights up the pros and cons of treatment, which can then be discussed with the patient before final decisions are made.

The LAAO Registry was launched in late 2023. The first phase of the programme is to ensure that all hospitals performing these procedures are registered and are submitting data on all patients where a procedure has been attempted. This process is in its early stages and on-going currently and so only very preliminary data are available. As cases build up in the Registry, it will be possible to monitor the standard of care provided by the hospitals and to ensure the best outcomes for patients.

NHS England has requested hospitals to submit data to the Registry within two weeks of a procedure. Some centres are finding it difficult to comply with this request but the more timely the data, the more useful it becomes. Hospitals will be provided with the means of evaluating the care they provide and comparing with the national standards.

We are very grateful to the clinical teams in hospitals and their supporting audit teams for engaging with the Registry and to build up a powerful system to ensure the NHS delivers a very high quality of care for patients selected for this treatment.

NICOR LAAO Registry team

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Hospitals known to be performing left atrial appendage occlusion (LAAO) procedures in the UK

There are 25 (NHS and private) centres in England and Northern Ireland that have performed LAAO procedures, but some centres are no longer performing these.

The NICOR LAAO Registry team is working with hospitals to complete registration and start data submission.

NHS LAAO Centres in England and Northern Ireland

20

Private LAAO Centres in England

5

NHS LAAO Centres in Scotland

1

LAAO centres in the UK

NICOR

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Many hospitals performing LAAO procedures, including commissioned centres, have yet to register with NICOR and/or begin submitting data to the registry

All implanting centres (NHS and private) need to register with NICOR and submit their data

Most commissioned NHS centres in England have now registered and the NICOR team is promoting engagement and timely data submission.

However, only 10 (9 commissioned, one non-commissioned) of the 25 NHS and private centres carrying out LAAO procedures in England and Northern Ireland have begun submitting data. Blackpool Victoria Hospital has been instructed to discontinue its programme. The James Cook University Hospital in Middlesbrough is yet to re-start its programme.

NHS England has mandated a web-based direct data entry portal, and we appreciate that there is currently no easy output available for local medical records. Putting this in place is an aspiration across all the structural registries and work is ongoing to achieve that.

It is anticipated that all private implanters are also NHS operators, and so we will encourage the submission of data from the private sector in order to truly reflect what is going in the country.

Operators and/or data team members from any institution can request LAAO Registry access simply by emailing nicor.helpdesk@nhs.net

Commissioned hospitals REGISTERED AND SUBMITTING DATA (as of 6th November 2024)

- Barts Health
- Glenfield Hospital
- Guy's and St Thomas' Hospital
- Freeman Hospital
- John Radcliffe Hospital
- Royal Papworth Hospital
- Royal Sussex County Hospital
- Yorkshire Heart Centre
- University Hospital of North Staffordshire

Commissioned hospitals REGISTERED BUT NOT SUBMITTING DATA

- New Cross Hospital

Commissioned hospitals NOT REGISTERED

- Kings College Hospital
- Liverpool Heart and Chest Hospital

Non-commissioned hospitals REGISTERED AND SUBMITTING DATA:

- Nottingham City Hospital

Non-commissioned hospitals carrying out LAAO procedures NOT REGISTERED

- Hammersmith Hospital
- Queen Elizabeth Hospital, Birmingham
- Royal Brompton Hospital
- Royal Victoria Hospital, Belfast
- University Hospital Coventry

Private hospitals carrying out LAAO procedures NOT REGISTERED

- Cromwell Hospital
- Harley Street Clinic
- London Bridge Hospital
- Spire Hospital, Nottingham
- Nuffield Health at Barts

Data completeness varies between implanting centres and generally needs to improve

There is substantial variation between centres in terms of data completeness. All centres should strive to improve the completeness of key fields.

Data submission is generally good though some key fields are poorly completed. We will work to clarify field definitions and will work with each centre to improve completeness.

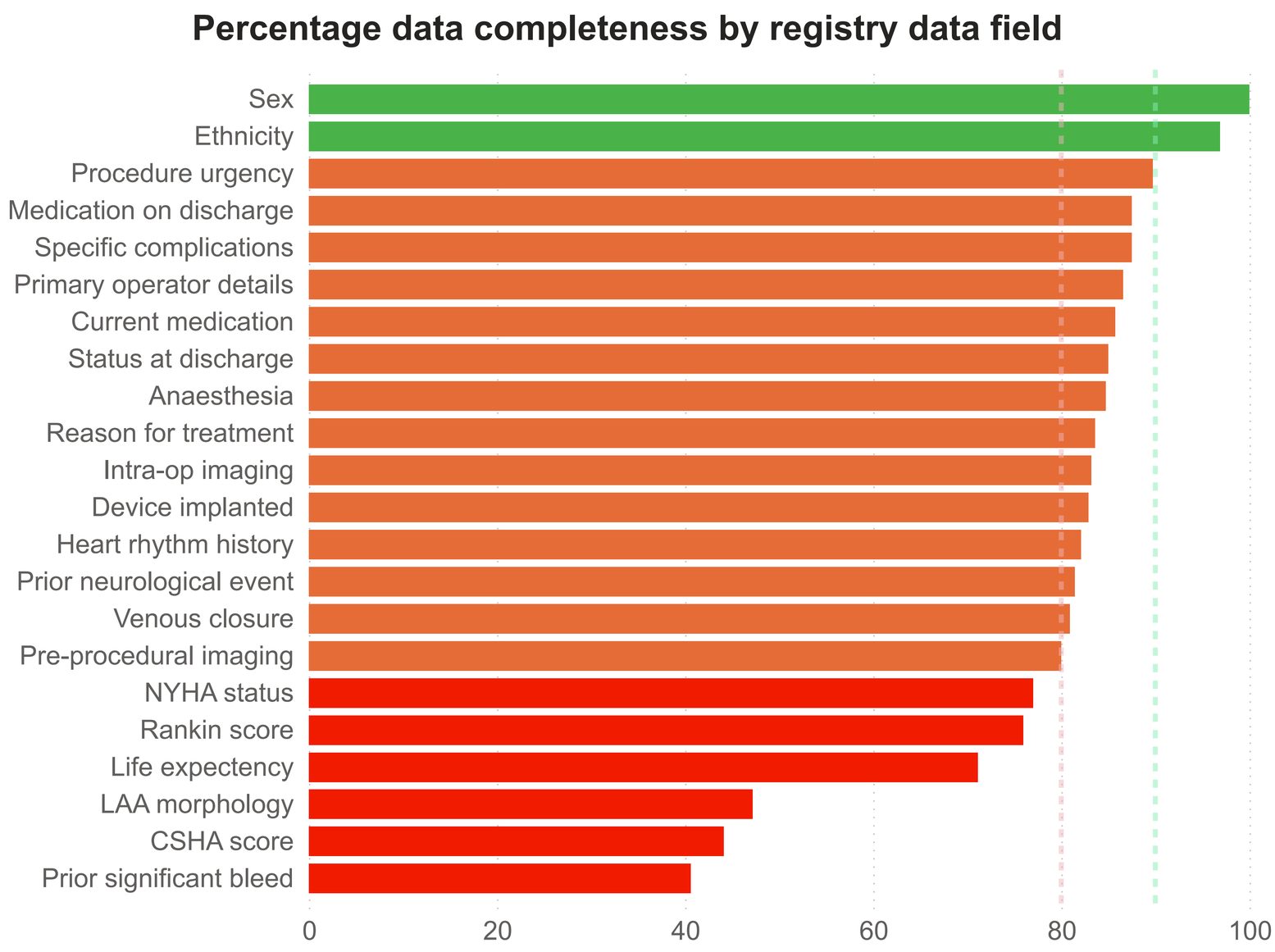
Complete demographic, comorbidity, procedural and outcome data optimises the utility of the registry.

It is also essential to provide the serial number of the implanted device(s).

Selecting a hospital below shows its data.

Select hospital

All



As new hospitals register, submitted cases are increasing

There is not yet sufficient data in the registry to present an accurate picture of current national practice.

This will be possible once more centres become registered and data are entered prospectively.

Some centres added data retrospectively on the opening of the registry in January 2024 while others registered later in the year and have not entered details of procedures undertaken before the date of joining.

Number of LAAO procedures submitted by month

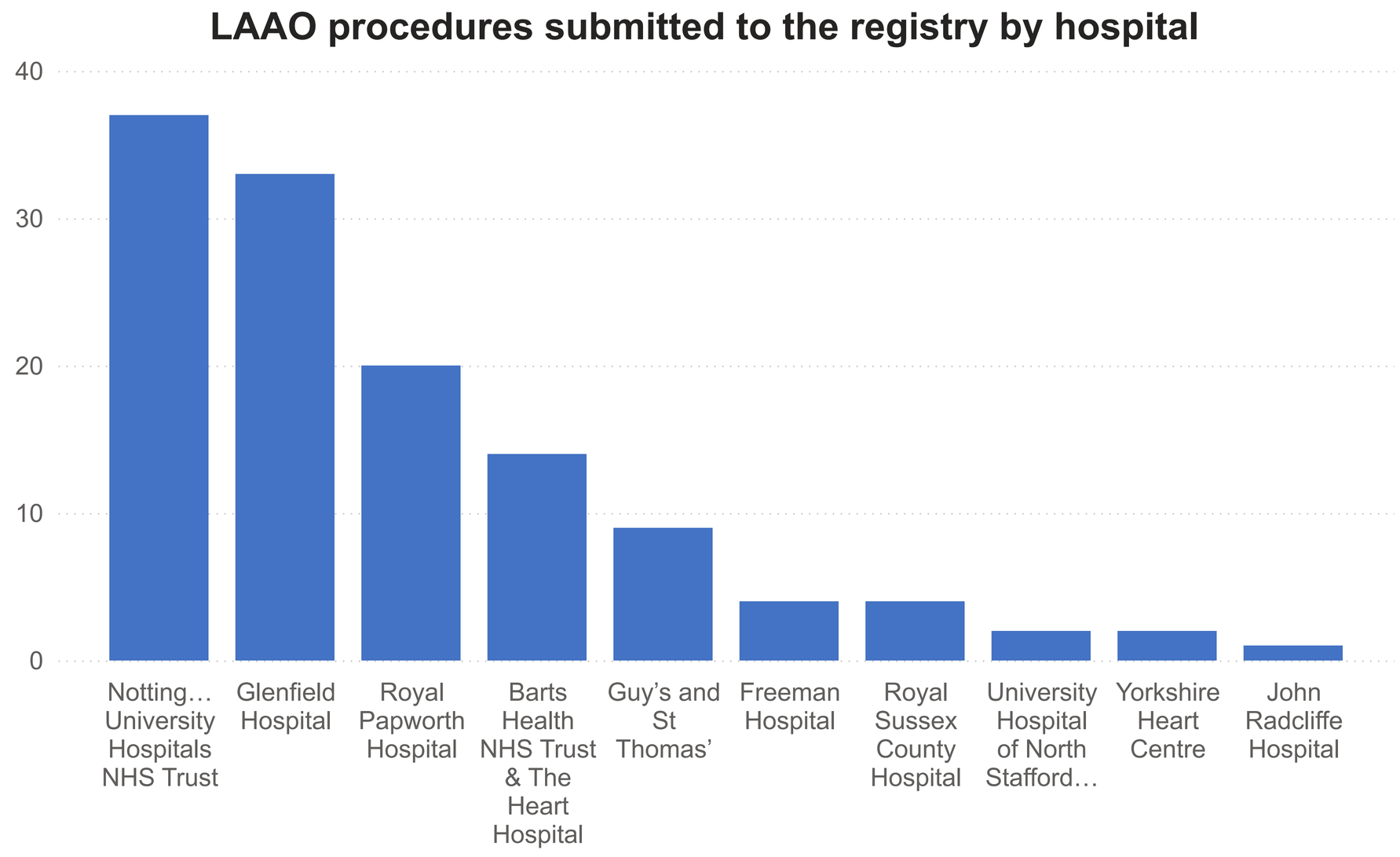
Total LAAO procedures submitted to date

126

Ten hospitals performing LAAO procedures have submitted data so far

A number of hospitals have begun to submit data in significant numbers to the registry and this is to be applauded.

Other centres performing LAAO procedures must register and submit data on their cases.

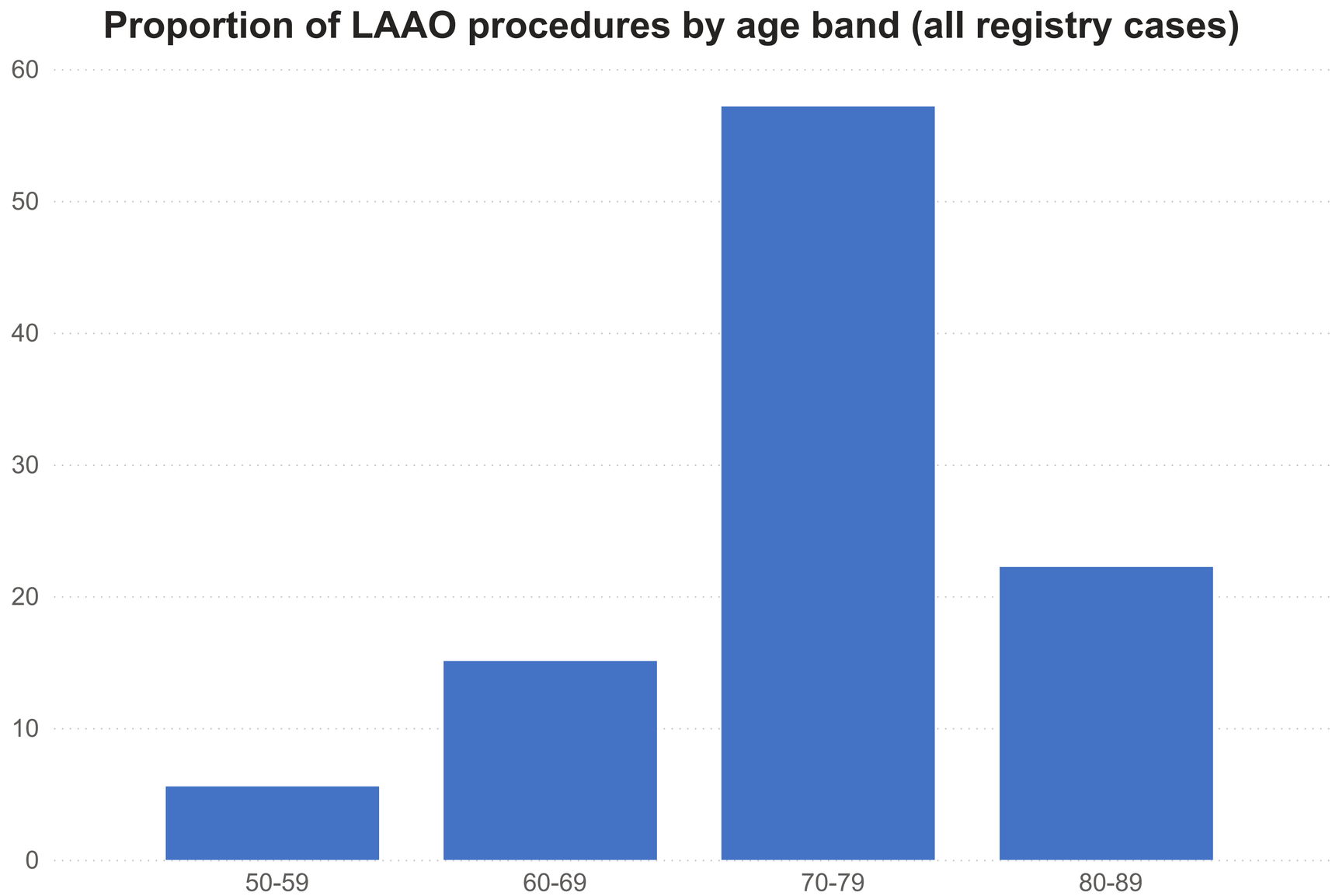


The age of patients undergoing an LAAO procedure is as expected

Age is a significant risk factor for stroke and the adverse effects of anticoagulation, and it is not surprising that the majority of patients are between 70-79 years of age.

Age and sex also form part of the scoring system used to predict stroke risk, although as of August 2024 the European Heart Association has dropped the 'Sex category' or 'Sc' from the CHADSVASc acronym.

Implants by age should be read in conjunction with 'frailty scores', which show that the majority of patients treated have no or only mild disability.



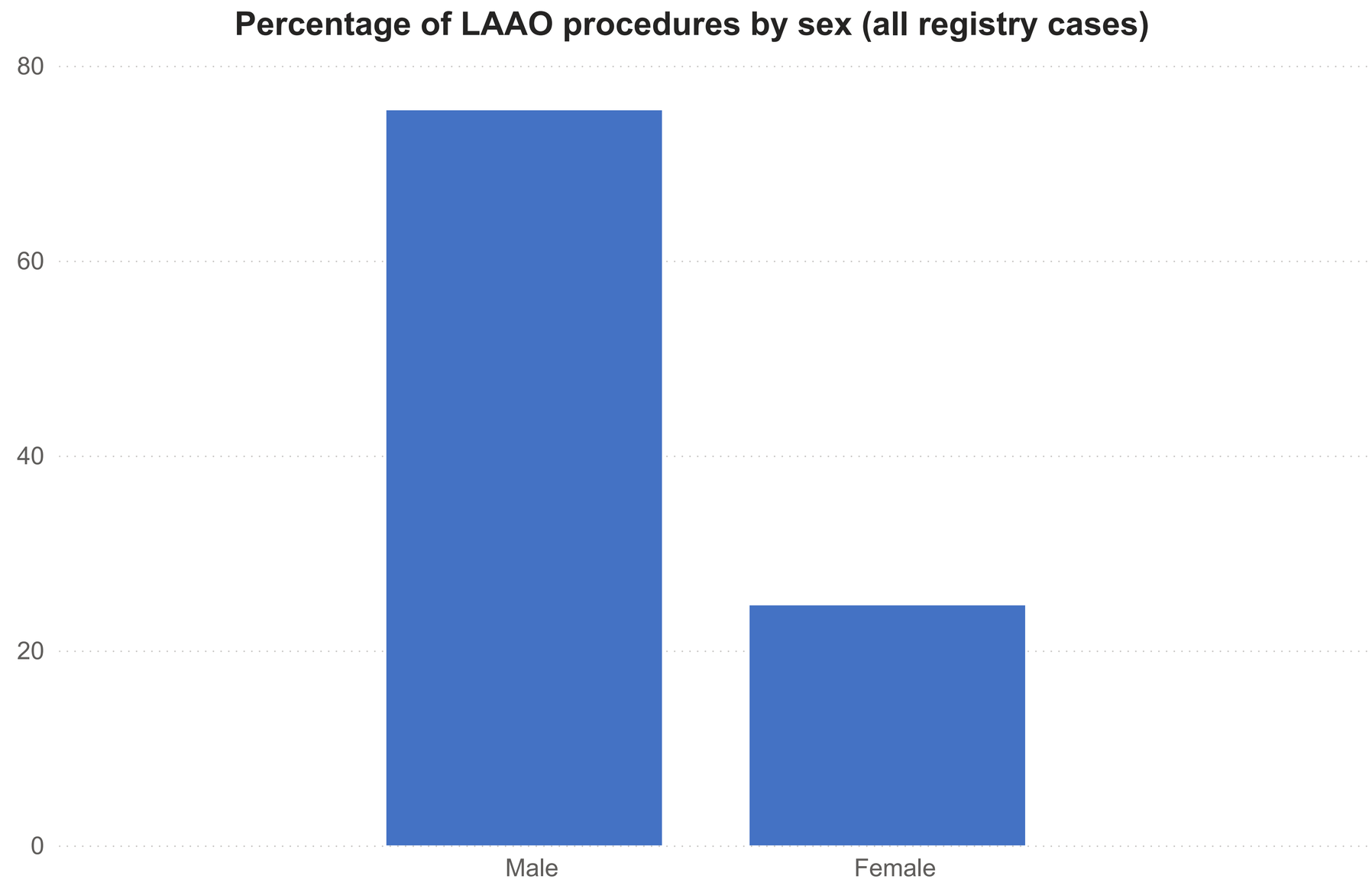
For the LAAO procedures currently submitted, most patients are male

75% of reported LAAO procedures are for male patients.

This is in keeping with large published international registries, where it is felt that females are under-represented in LAAO cohorts.

It has been reported that women make up 47% of the estimated global prevalence of AF, but they have a greater risk of both stroke and bleeding complications of anticoagulation than their male counterparts.

Current literature also demonstrates that complications of LAAO are higher in female patients, but once implanted their outcomes are equal to those in male patients.

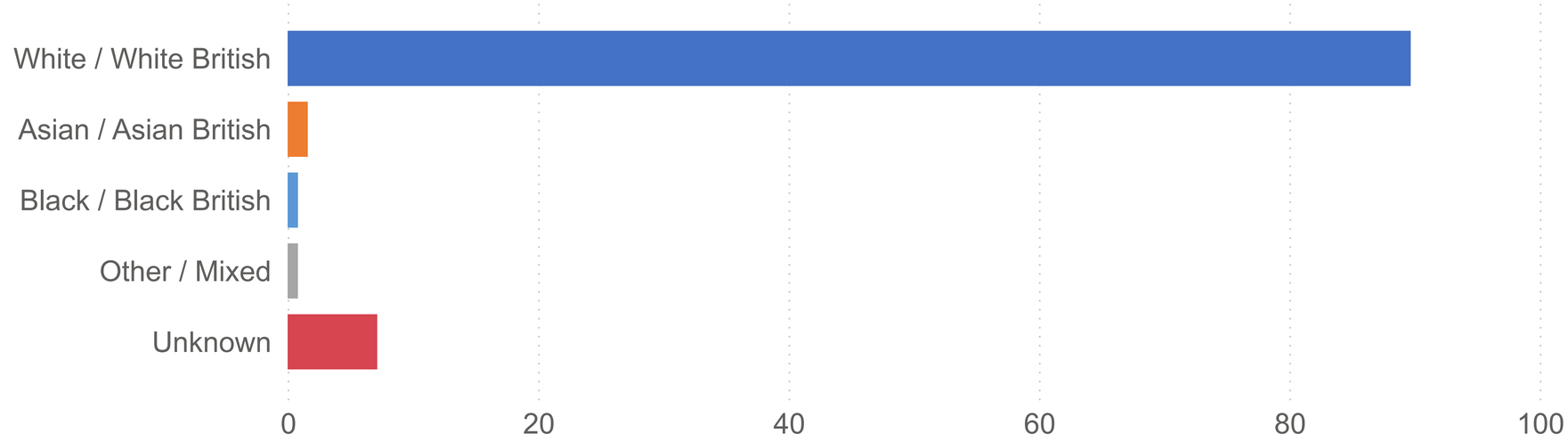


Ethnic minorities are under-represented in LAAO cases submitted so far

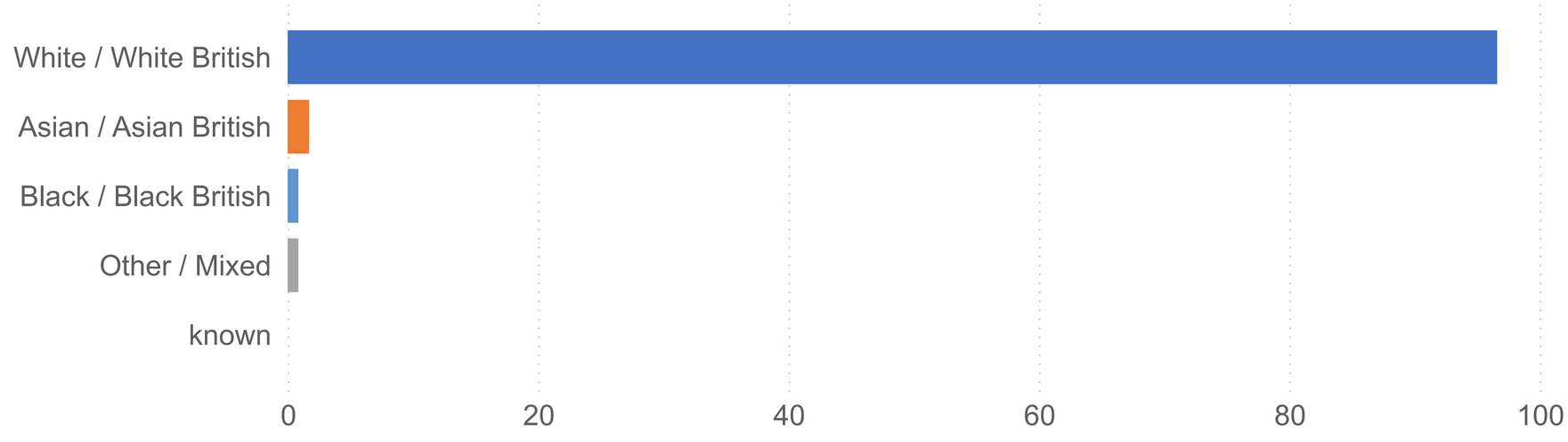
Hospitals must provide all data requested in the registry, including the ethnic group of the patient.

The early data submissions show an under-representation of ethnic minorities. There is no obvious cause for this, but it should prompt centres to ensure that their clinical pathways are open to all appropriate patients and that patients understand the treatment options available to them.

Percentage of all LAAO cases by ethnicity (all registry cases)



Percentage ethnicity of LAAO cases where ethnicity recorded (all registry cases)



Most patients undergoing an LAAO procedure have no or mild disability

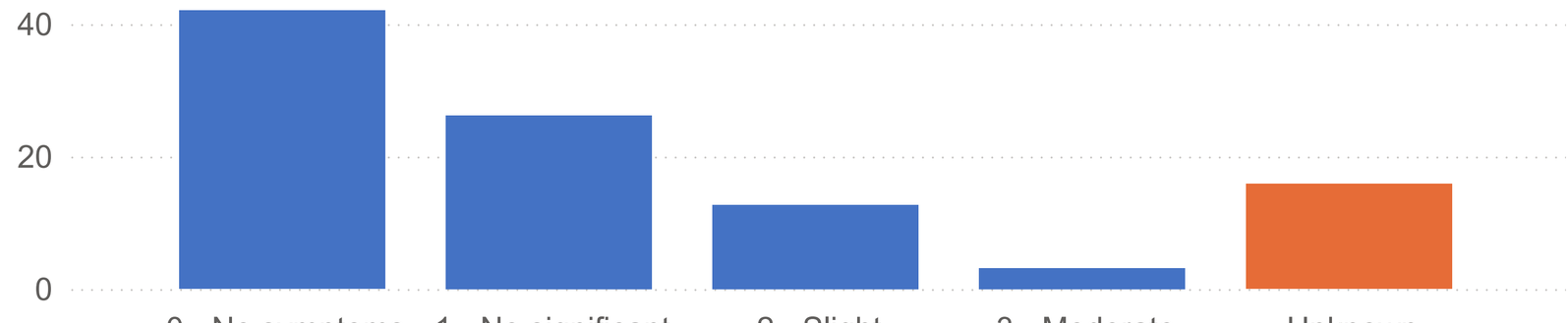
The data for pre-procedural Rankin and Canadian Study of Health and Aging (CSHA) frailty scores are incomplete. All hospitals must provide these variables, which will enable a clear description of patients being treated.

From the data received to date, the majority of patients treated by LAAO suffer no or only mild disability, both in terms of Rankin score and CSHA frailty score.

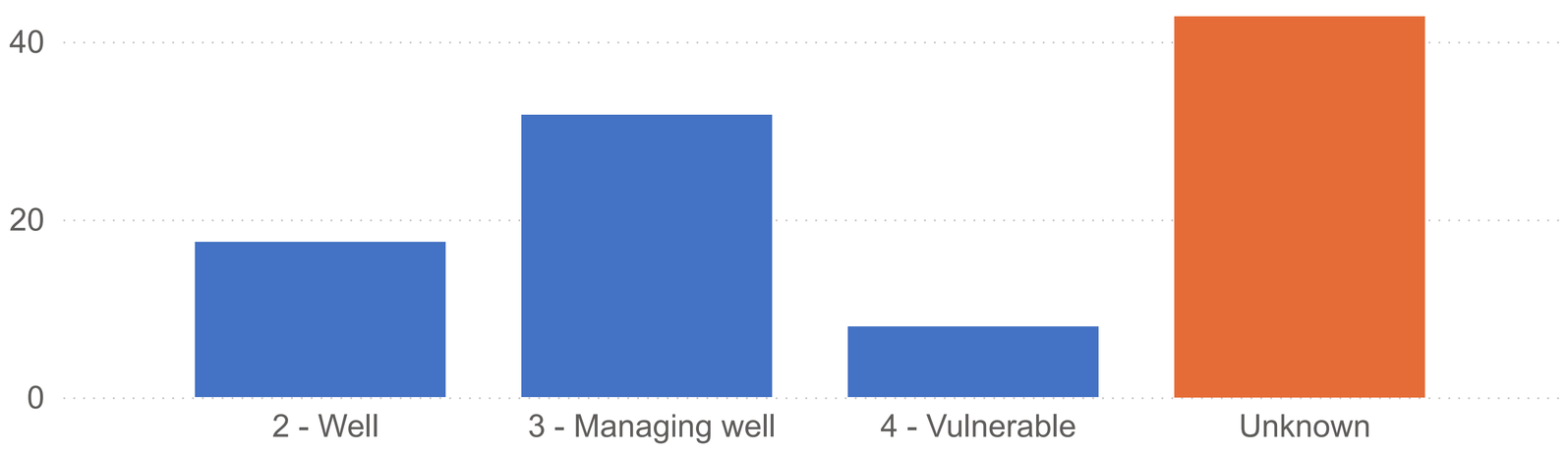
This is important to highlight. Many patients have had a prior embolic event to qualify for an LAAO procedure and the aim of treatment is to prevent them being exposed to future significant disability.

It is also a commissioning standard that excessively frail patients are not taken on for the procedure (it is not recommended for those with a Rankin score >=7).

Percentage of LAAO cases by pre-procedural Rankin score (all registry cases)



Percentage of LAAO cases by pre-procedural CSHA score (all registry cases)



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Patients being selected for an LAAO procedure are at high risk of stroke

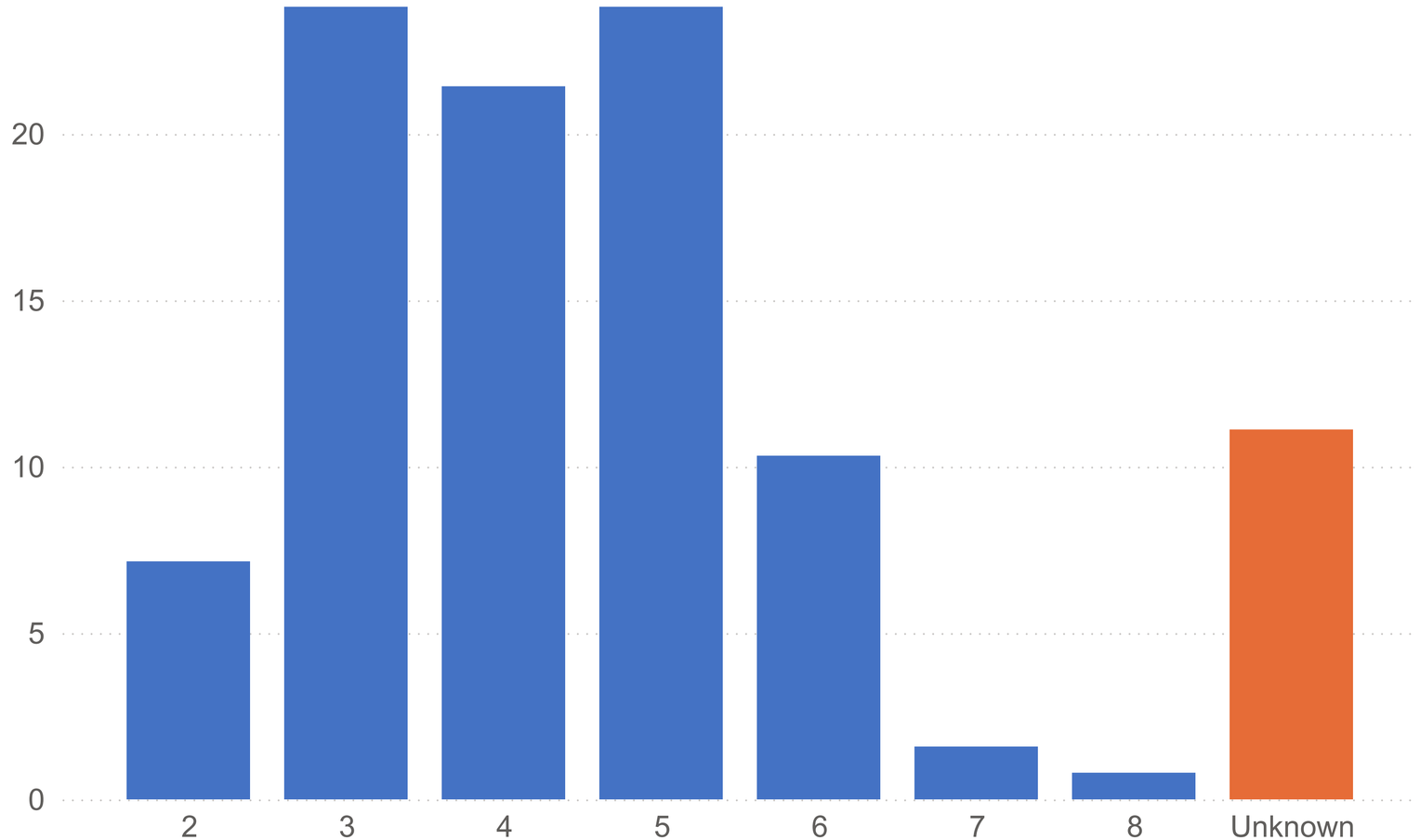
Consistent with the commissioning policy, patients undergoing an LAAO procedure are being well-selected based upon risk.

Increasing CHADSVASc scores are associated with increased risk of ischaemic stroke per year:

A score of **2**: 2.49% annual risk of stroke
A score of **3**: 3.2% annual risk of stroke
A score of **4**: 4.0% annual risk of stroke
A score of **5**: 6.7% annual risk of stroke
A score of **6**: 9.8% annual risk of stroke
A score of **7**: 9.6% annual risk of stroke

All centres must provide a CHADSVASc score for each patient.

Percentage of LAAO cases by CHADSVASc score (all registry cases)



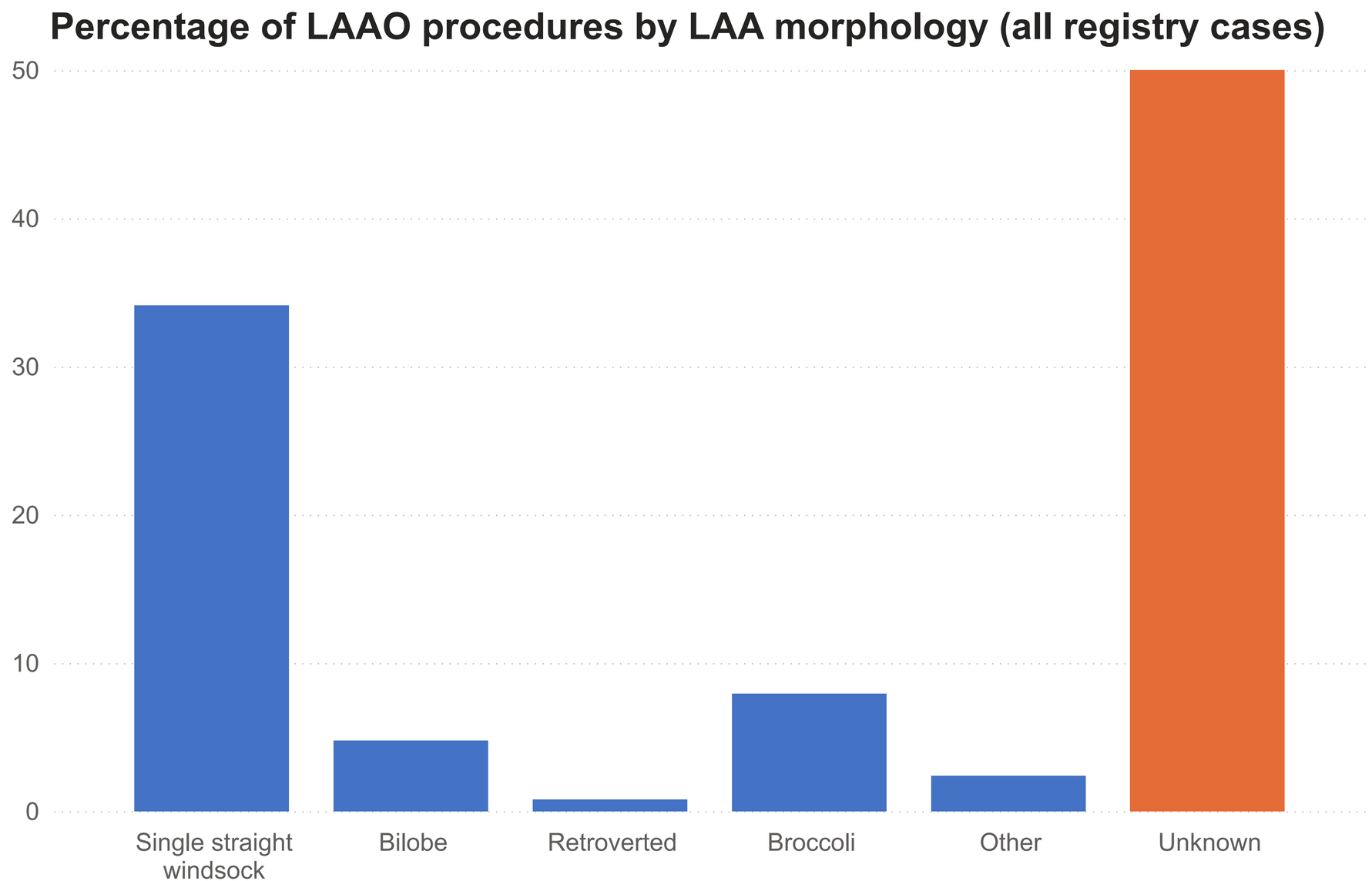
LAA morphology is poorly recorded

Data completeness for LAA morphology is surprisingly low.

The Domain Expert Group will investigate with individual hospitals as to why this field is poorly completed.

Morphology is important as it is recognised that certain variations may be of higher embolic risk to the patient and, similarly, some may make it harder to achieve a good implant result.

This detail is necessary to enable an appropriate analysis of factors that impact on outcomes.



Reported complication rates are low

Data are sought on a range of important complications such as bleeding and stroke.

A low number of complications has been reported so far.

No procedural deaths have been reported to date.

All hospitals should provide accurate data on all pre-discharge complications after an LAAO procedure.

Percentage of different complications following LAAO procedures (all registry cases)