NCAP

NATIONAL CARDIAC AUDIT PROGRAMME

NICOR

Transcatheter Mitral and Tricuspid Valve (TMTV) Registry

2025 Annual Report

2023/24 and 2021/24 data

BCIS

Report at a glance

All data for 2023/24

The TMTV registry comprises all transcatheter procedures in England relating to the mitral and tricuspid valve, including mitral transcatheter edge to edge repair (TEER)

21 NHS England hospitals and **1** private provider are performing TMTV procedures

21 hospitals are commissioned to deliver mitral TEER procedures

3 hospitals commissioned for mitral TEER have not submitted their data

2 hospitals that are non-commissioned for mitral TEER have submitted their data

91% Average data completeness from data submissions although some important variables are not completed and data submissions may not be complete

530 TMTV procedures reported

391 (74%) mitral TEER procedures

46 (8.7%) tricuspid TEER procedures

92% elective planned procedures (all hospitals report a small number of urgent procedures)

2 days median length of stay for mitral TEER procedures

73% cases have no or mild residual mitral regurgitation following a mitral TEER procedure

<2% in-hospital mortality for a mitral TEER procedure

Recommendations

1. All hospitals performing transcatheter mitral and tricuspid valve (TMTV) procedures should be registered with NICOR and adhere to the planned TMTV registry development timetable:
   - Phase 1 (July 2023-March 2024): all hospitals to be registered and entering data using the NCAP web-based front end
   - Phase 2 (April 2024-March 2025): updates in dataset to be completed and all hospitals to establish real time data entry or minimum monthly basis and
   - Phase 3 (April 2025-April 2026): analytic plan fully implemented and regular reporting established.

2. Hospitals should ensure timely, complete and accurate data are submitted to the registry with particular attention to:
   - Demographic profile of the patient.
   - Aetiology of the valve pathology.
   - Severity of the valve leak.
   - Specific procedure type.
   - The serial number of any implanted device.
   - Post procedure residual valve leak.
   - Complications up to discharge.

3. Significant variation in volumes of mitral TEER procedures exists and hospitals with low procedure numbers should strive to increase procedure numbers in line with national trends and current guidelines.

Introduction to the report

The Transcatheter Mitral & Tricuspid Valve (TMTV) registry is part of the National Cardiac Audit Programme (NCAP) and was launched by the National Institute of Cardiovascular Outcomes Research (NICOR) in June 2023.

The primary responsibility of the TMTV audit is to report on the use of Mitral Transcatheter Edge-to-Edge Repair (TEER) procedure, which was commissioned by NHS England in 2019. The registry also describes activity for TMTV procedure for NHS hospitals in England to monitor the outcomes of these lower-volume procedures which may also be in the early stage of clinical adoption.

The main focus of the audit is quality assurance and improvement. This report summarises the number of patients being treated with TMTV procedures, where these treatments are being delivered, the quality of care and outcomes for patients. The slides in the report are interactive and enable you to explore the data of interest to you.

This is our second report since the registry was launched. The TMTV registry mandates contemporaneous data entry using the NICOR online web-based platform. Hospitals can use online NICOR tools to analyse their activity and outcomes, including benchmarking themselves against other hospitals delivering TMTV procedures.

In this first phase of the registry 2023-24, the aim was for all NHSE hospitals performing these procedures to be submitting data to the programme. In this report, 96% of hospitals have submitted data for the TMTV registry. NHS England has requested hospitals to submit their data within two weeks of a procedure. Timely data submission improves the utility of the collected data. At present, caution remains when drawing conclusions about the exact number of TMTV procedures and their quality and outcomes.

The audit relies on the efforts of clinical and data management teams at the participating hospitals. We are grateful to the hospitals that have engaged with the new TMTV registry and the staff who have patiently entered data and supported delivery of this audit. We hope for their continued and increasing role in the development of the registry

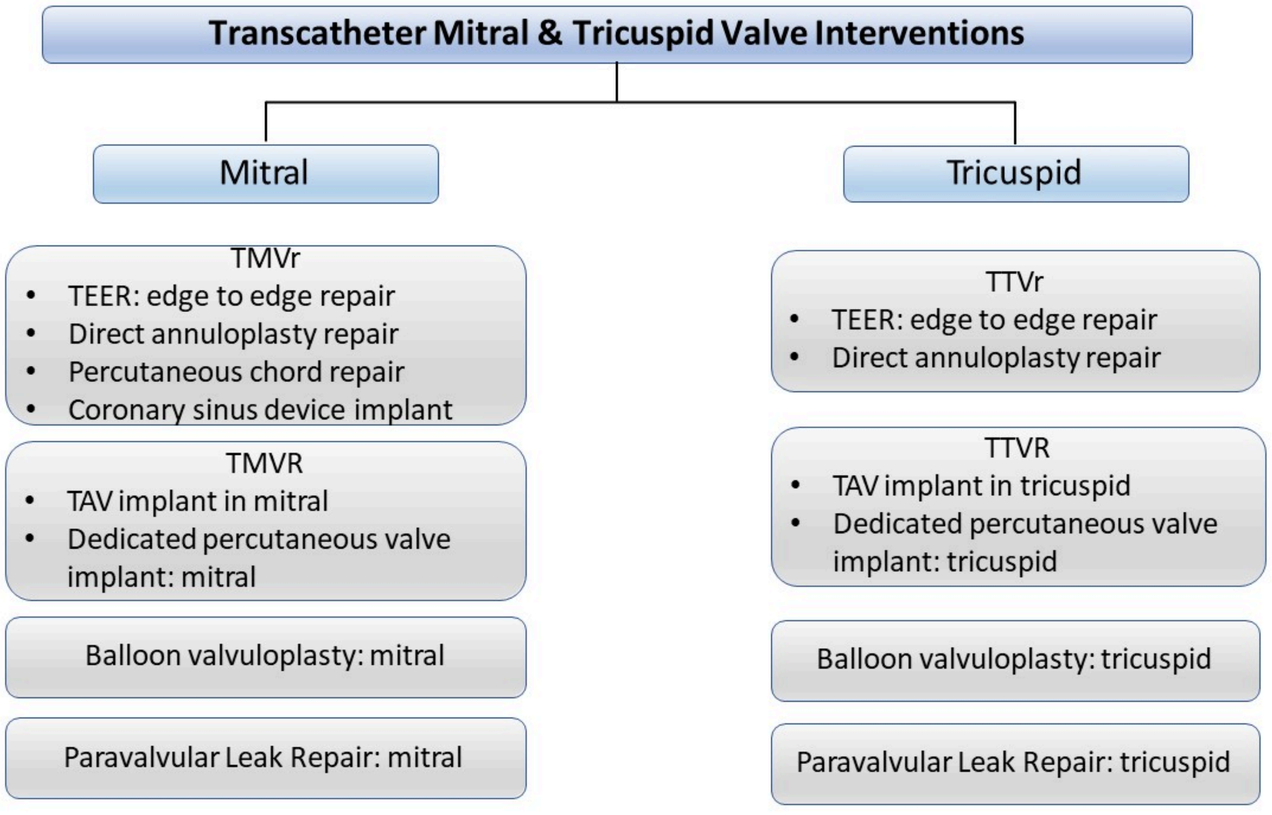
The NICOR TMTV Registry team

Contents

Clicking on a page title will take you to that page

NICOR

Types of transcatheter mitral and tricuspid valve (TMTV) procedures



Key:

TMVr Transcatheter Mitral Valve repair
TMVR Transcatheter Mitral Valve Replacement
TAV Transcatheter Aortic Valve

TTVr Transcatheter Tricuspid Valve repair
TTVR Transcatheter Tricuspid Valve Replacement

Three hospitals known to perform TMTV procedures are yet to submit data to the registry

Hospitals that submitted 2023/24 TMTV data

22

Hospitals that did not submit 2023/24 TMTV data

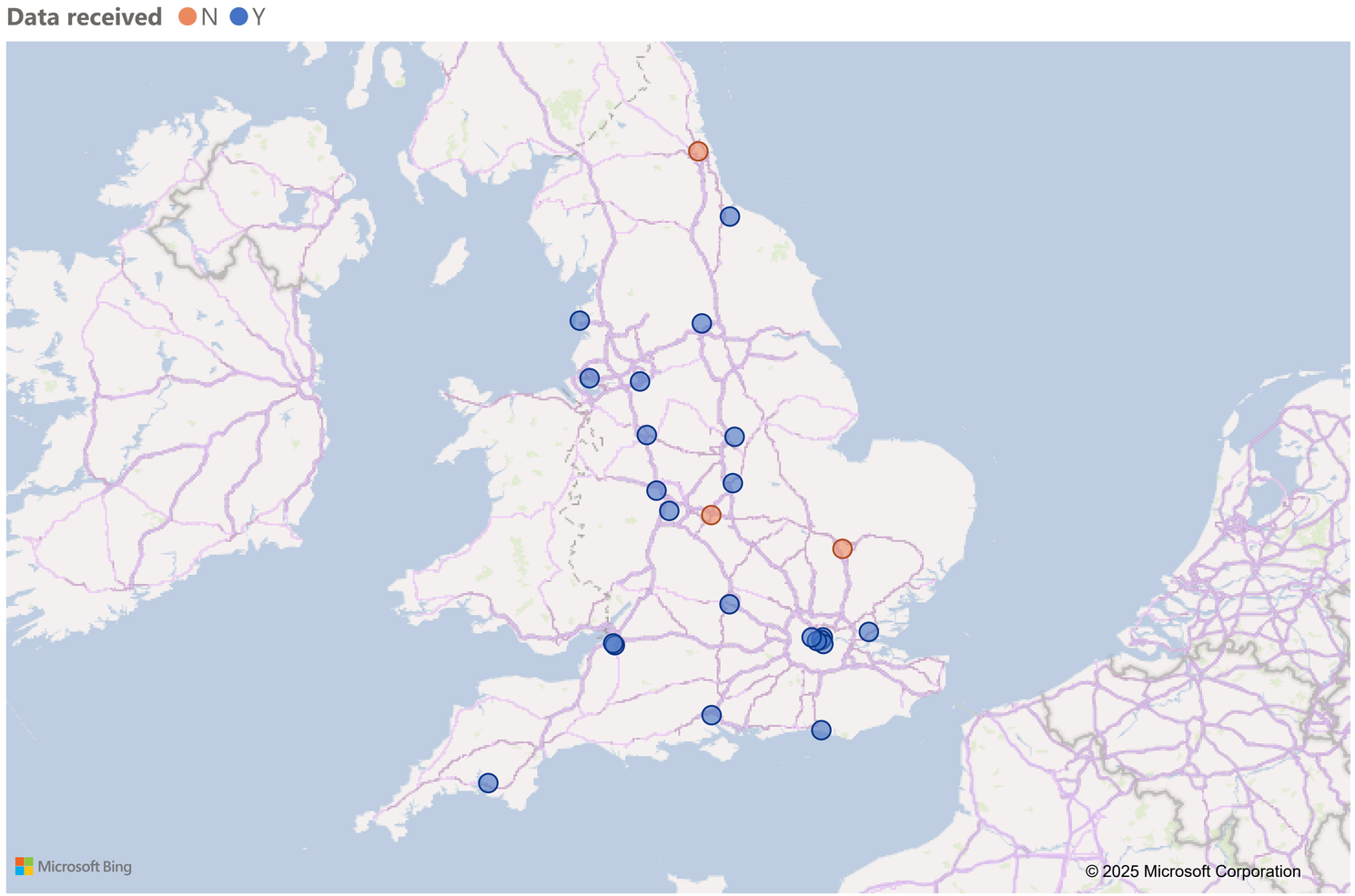
3

One commissioned centre for mitral TEER has not registered to submit data: Freeman Hospital.

Two commissioned centres for mitral TEER have not submitted data: Royal Papworth and University Hospital Coventry

Blackpool is not commissioned to perform mitral TEER procedures but has appropriately registered and is sending data on non-TEER TMTV procedures.

Location of hospitals submitting 2023/24 data to the TMTV registry



There are 21 commissioned hospitals providing mitral transcatheter edge to edge repair

Hospitals commissioned by NHS England to perform mitral TEER procedures

21

Hospitals performing mitral TEER procedures but not commissioned by NHS England

3

Location of hospitals commissioned or submitting 2023/24 mitral TEER data to the TMTV registry

Data completeness is generally good across the audit data but needs to be improved for several key fields to assist with benchmarking

Average hospital data completeness across all the data fields in the TMTV audit is 92.7%. National average data completeness is 91%.

Some important data fields such as ethnicity, status at discharge and post procedure valve indices are completed less well.

Incomplete submitted data limit the ability to draw conclusions with confidence.

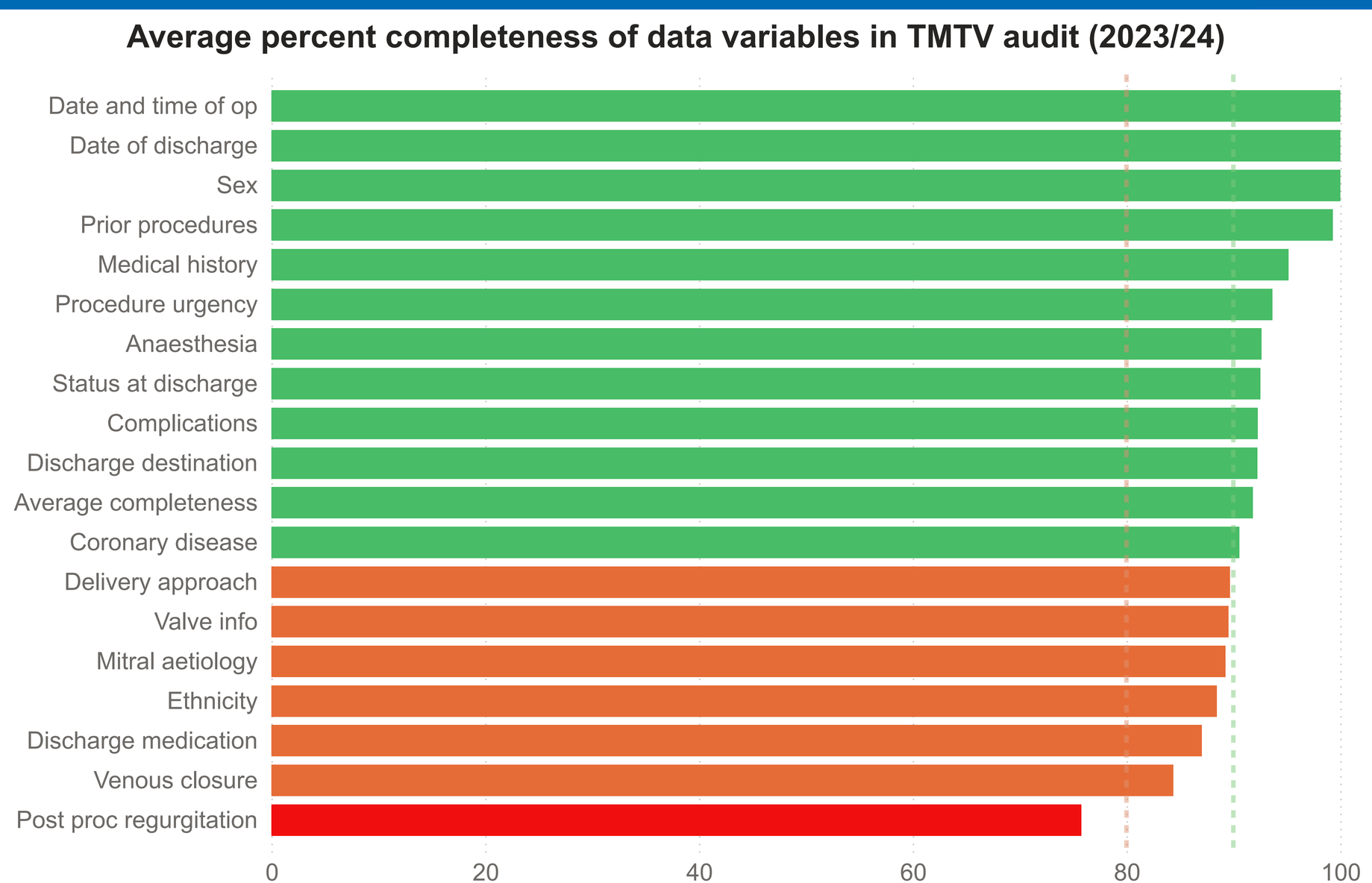
It is important that the serial number of any implanted device is captured in the registry.

Select a hospital below to see its data/

Key:
Data completeness by field or group of fields
Green > 90%
Orange 80-90%
Red <80%

Select hospital

All



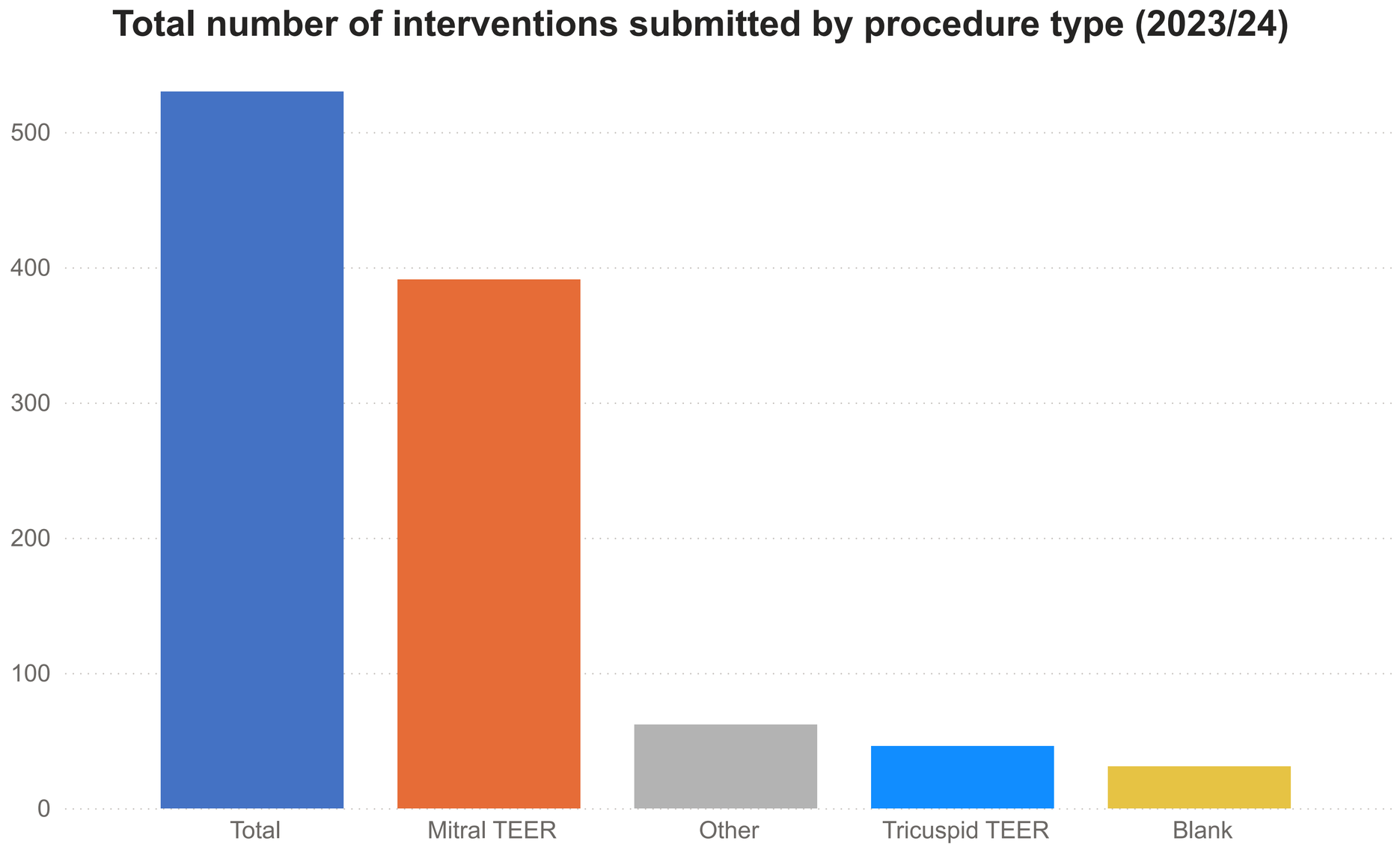
Contents page

The majority of TMTV procedures were mitral transcatheter edge-to-edge repairs (TEERs)

Mitral valve transcatheter edge-to-edge repair (TEER) procedures made up 74% of all TMTV procedures in 2023/24.

Non-commissioned tricuspid TEER procedures were the second largest group, representing 8.7% of TMTV interventions.

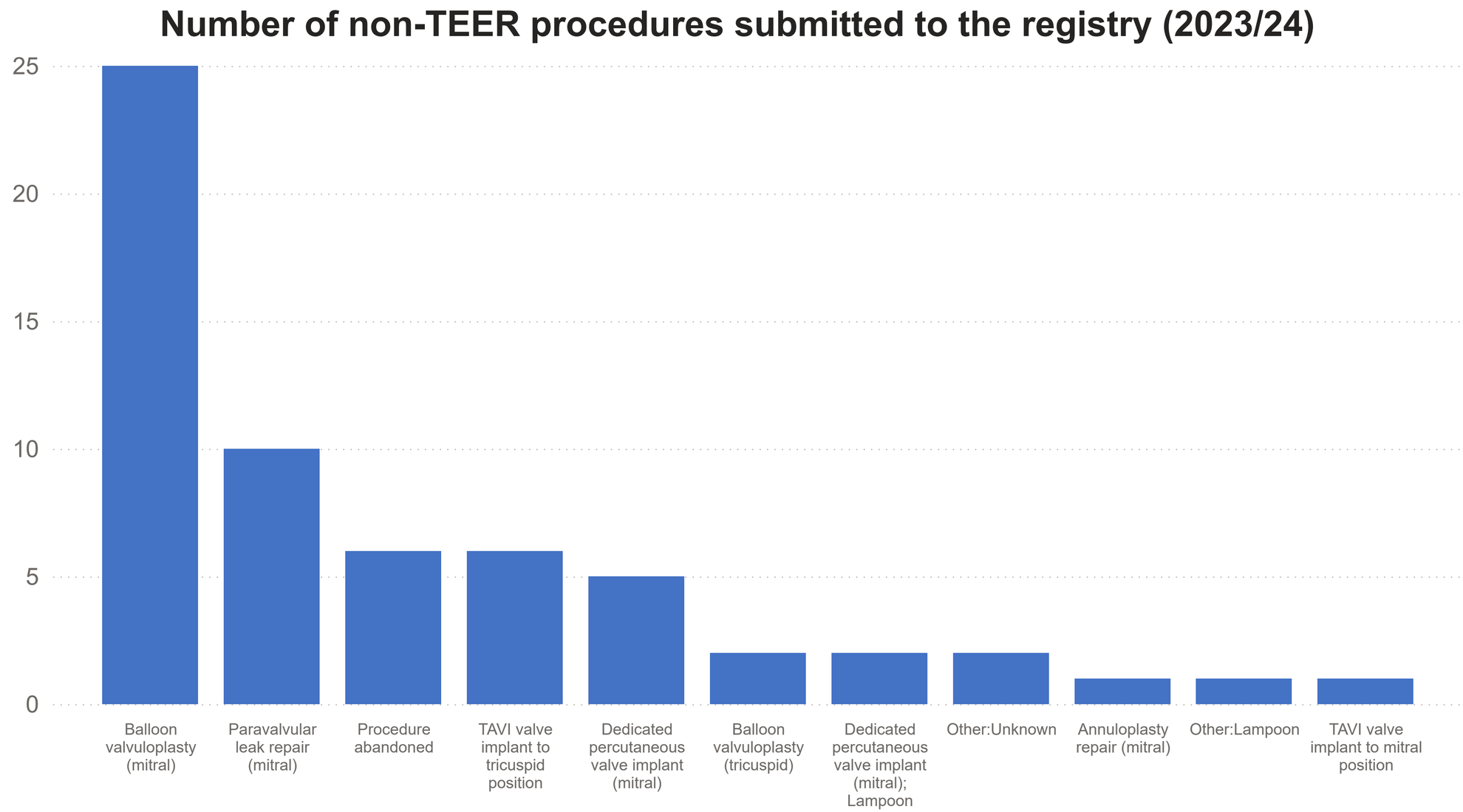
5.8% of submissions did not specify procedure type.



Contents page

A number of non-TEER TMTV procedures are also captured in the registry

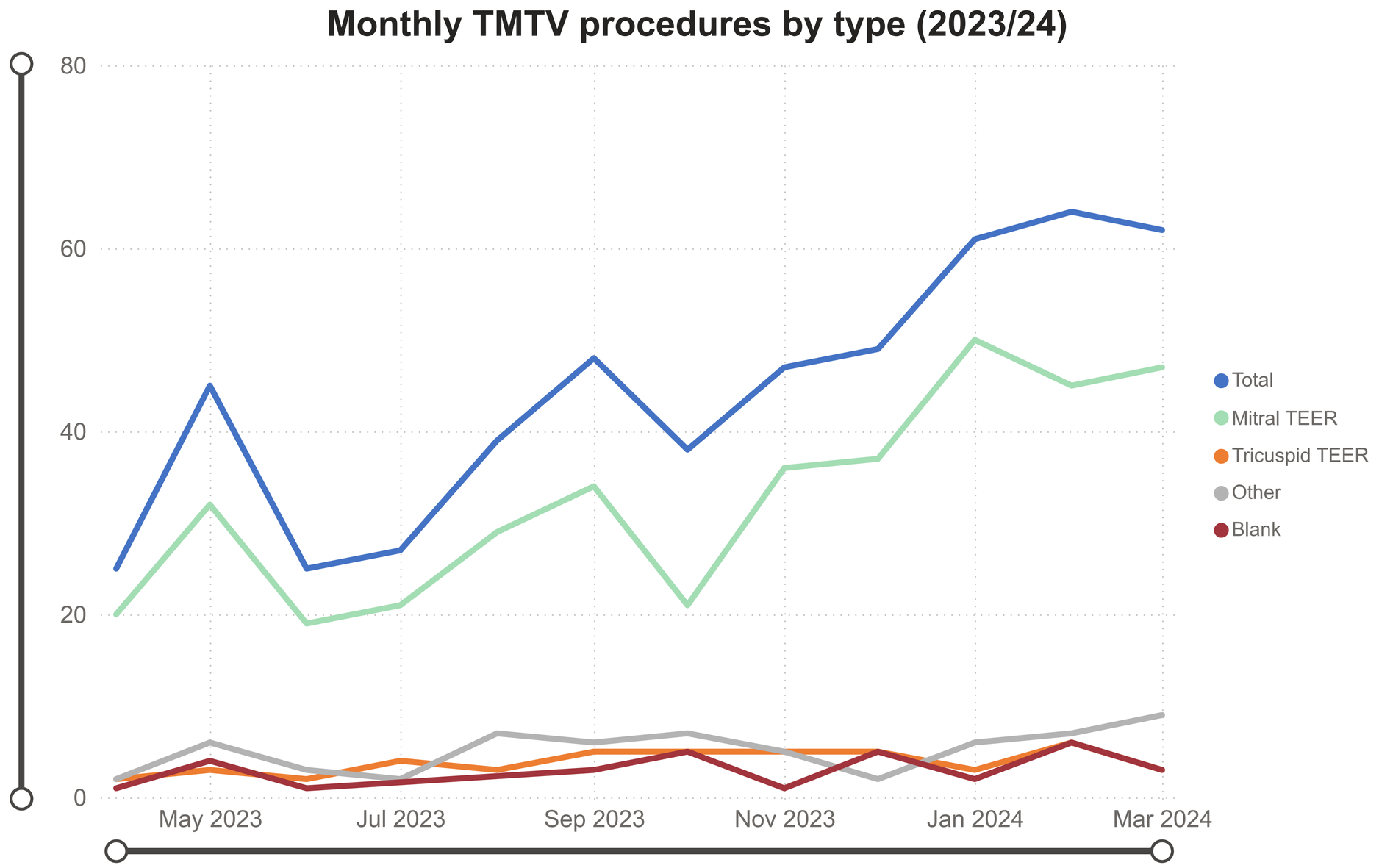
Mitral balloon valvuloplasty procedures were the most common type of non-TEER procedure carried out in 2023/24.



→ Contents page

The number of monthly TMTV procedures increased through 2023/24 driven by the rise in mitral TEER procedures

An increase in the number of monthly Mitral TEER procedures drove an increase in overall TMTV procedures towards the end of 2023/24.



Contents page

The rate of mitral TEER cases per million population in some areas is more than 26 times higher than in others

The maps show the rate of mitral TEER procedures per million population (pmp) across:

- the 42 Integrated Care Boards (ICBs) in England and 7 Welsh Health Boards (HBs)
- the 16 Cardiac Networks (CNs) in England and Wales.

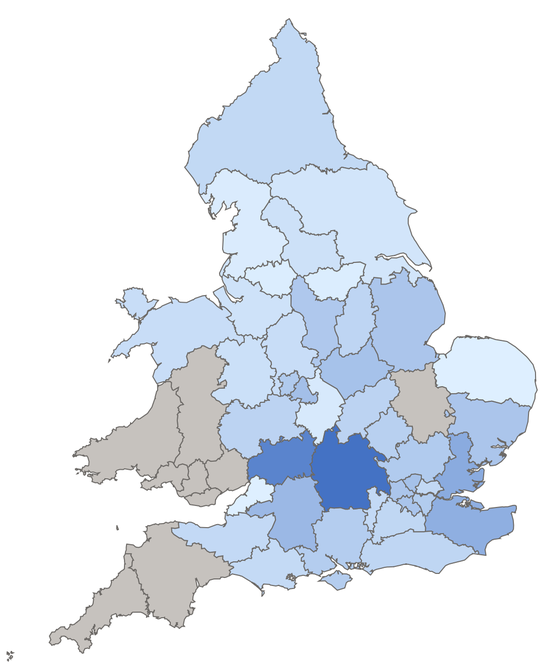
Darker shading indicating higher rates.

The maps demonstrates wide variation in 2023/24, ranging from:

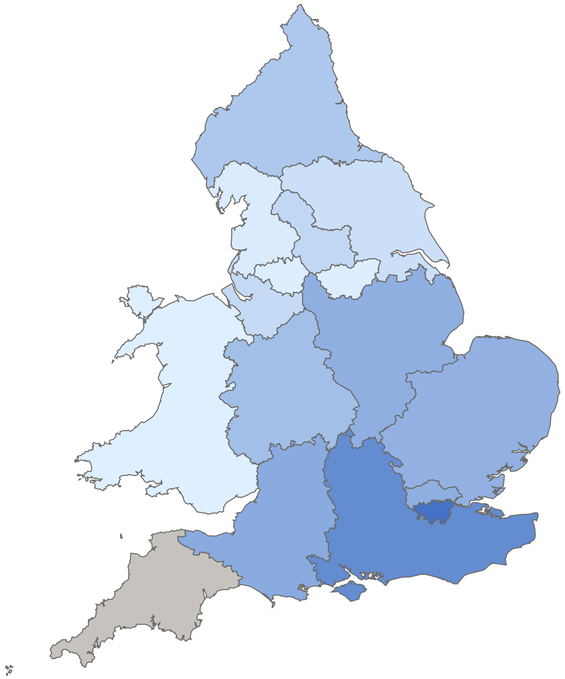
- 1pmp in NHS Norfolk and Waveney ICB to 25pmp in NHS Buckinghamshire, Oxfordshire and Berkshire West ICB
- 1pmp in the Wales CN to 14pmp in the South London CN.

Note: The data are not age-standardised. The variation might be partially explained by the length of time the hospitals have been delivering their mitral TEER services. Several other factors may influence this variation.

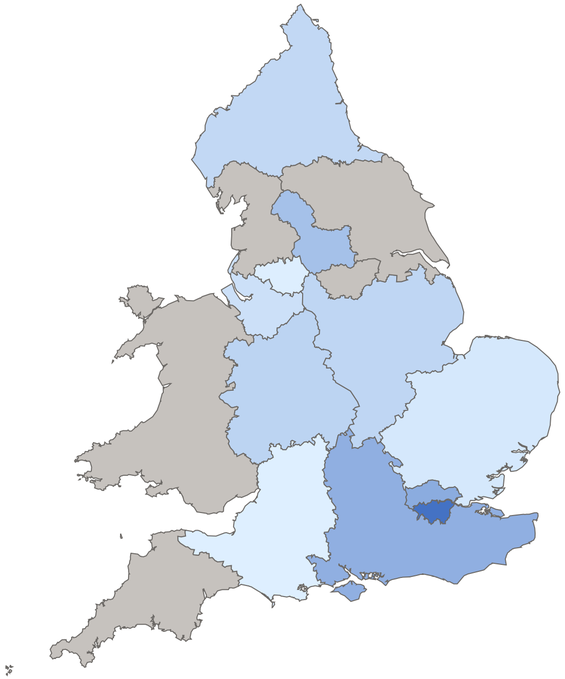
Mitral TEER procedures by patient home by ICB/HB (2023/24)



Mitral TEER procedures by patient home by Cardiac Network (2023/24)



Mitral TEER procedures by hospital by Cardiac Network (2023/24)



Procedure type

Mitral TEER

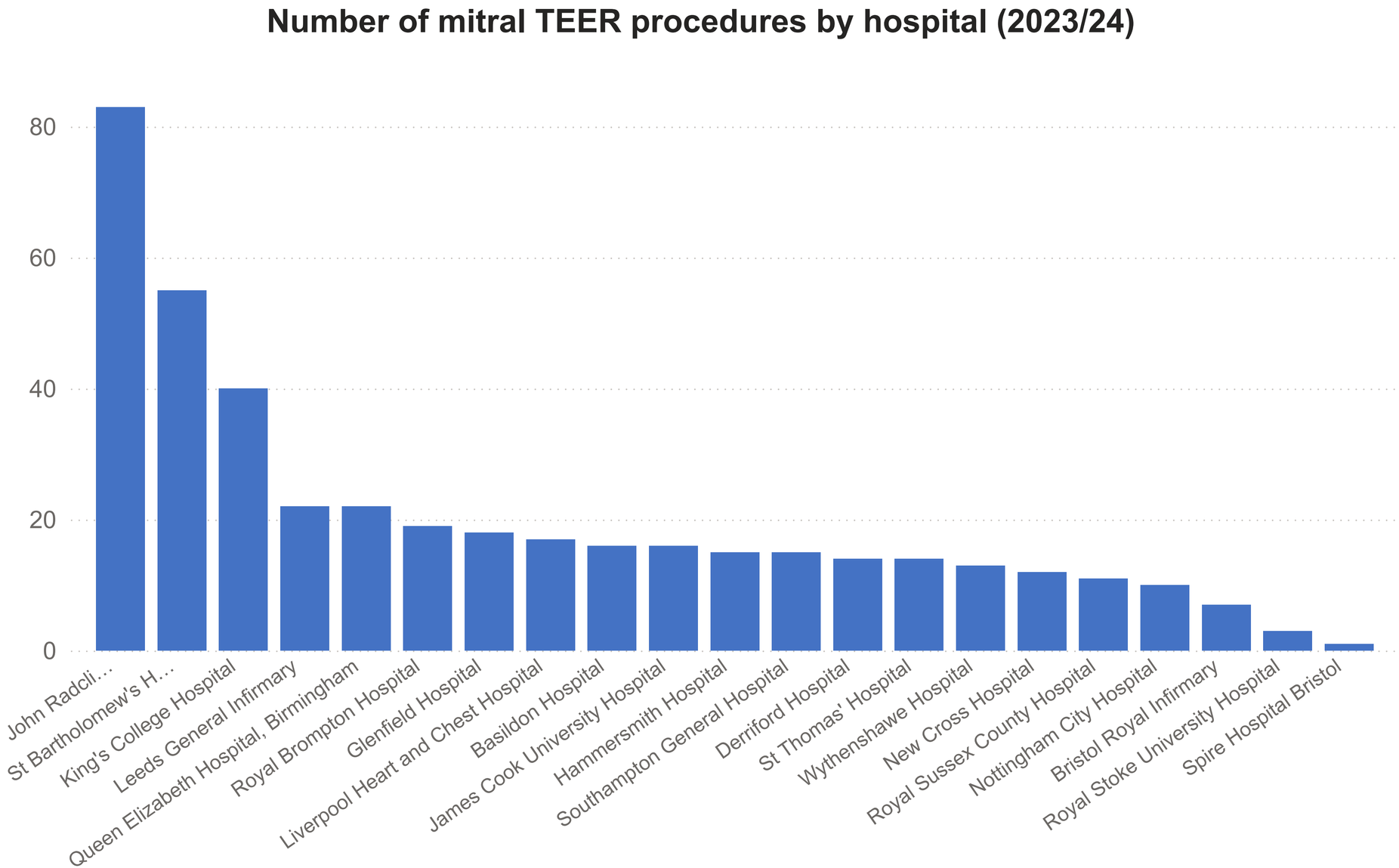
Contents page

There is significant variation in mitral TEER case numbers between hospitals

The number of mitral TEER procedures at each hospital varied significantly in 2023/24, from 83 at the John Radcliffe Hospital to 3 at the Royal Stoke University Hospital.

This will be expected to smooth out as clinical pathways and programmes mature over time.

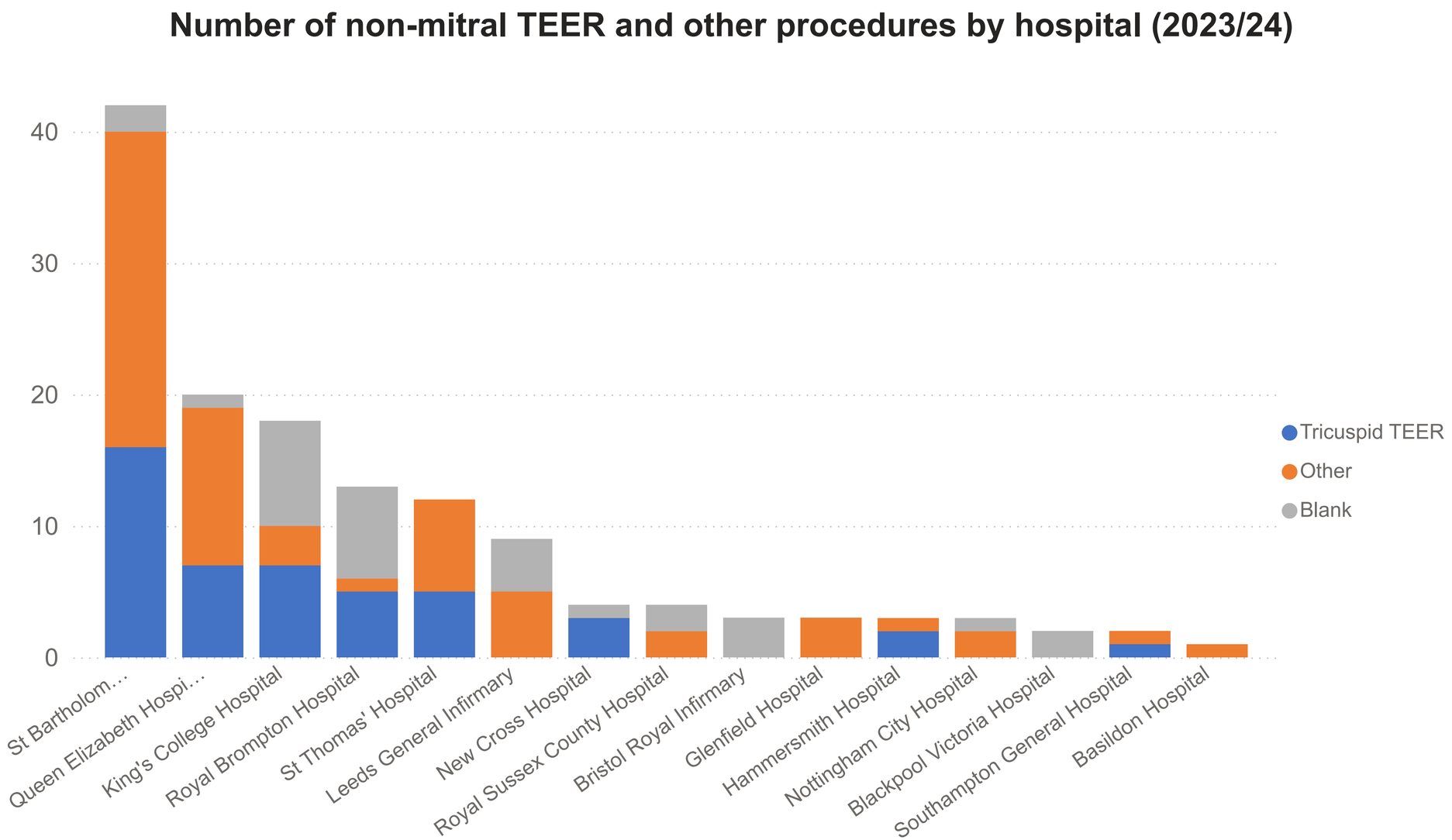
Note: Blackpool have not yet submitted a mitral TEER case.



→ Contents page

15 hospitals undertook non-mitral TEER or other procedures

The number of non-mitral TEER procedures at each hospital varied significantly in 2023/24, from 42 at the St Bartholomew's Hospital to 1 at Basildon Hospital.

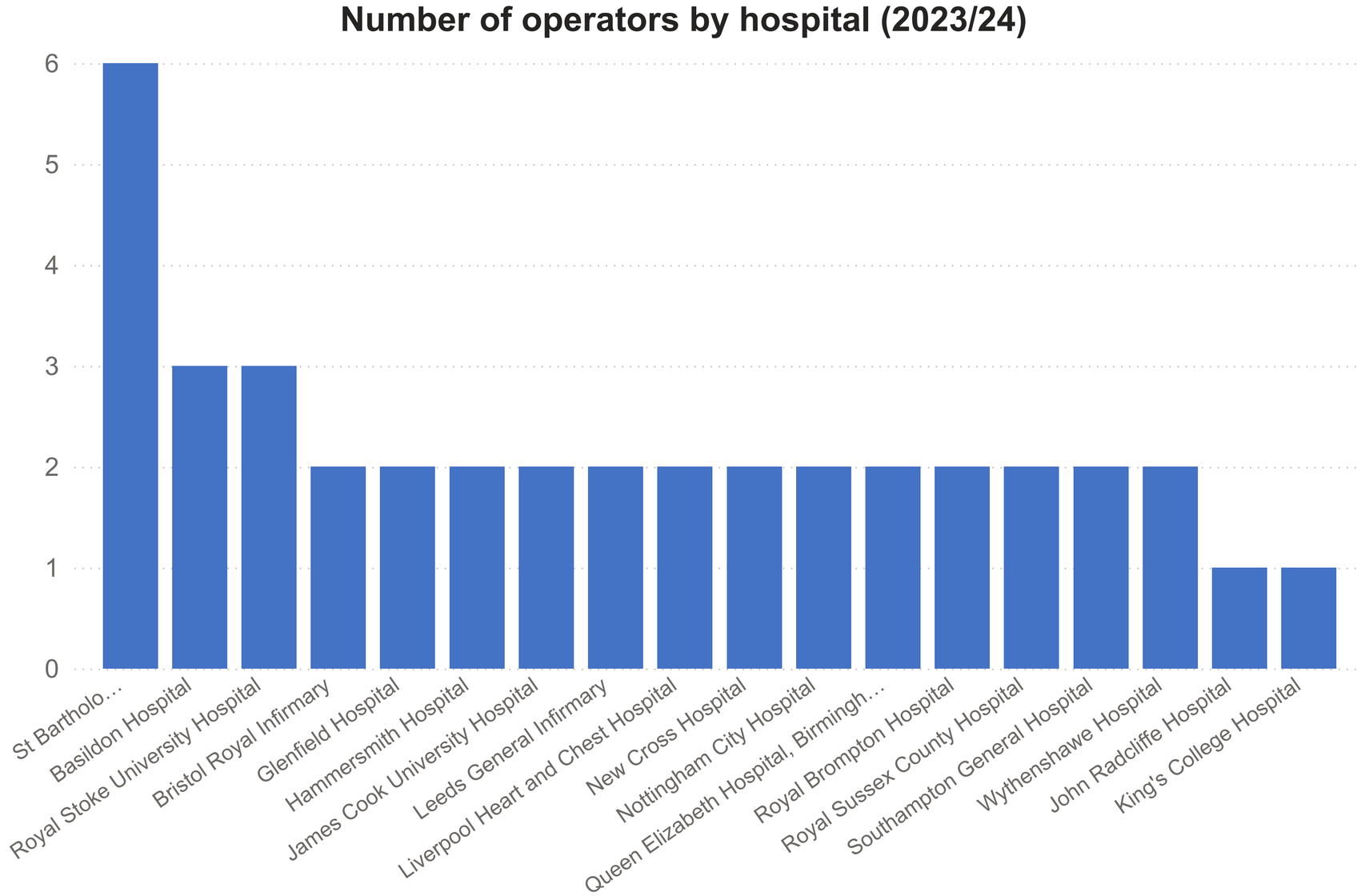


→ Contents page

The majority of hospitals have a total of two TMTV operators

The number of TMTV operators in each hospital varies from 1 to 6.

Hospitals with only one operator are the first and third highest volume centres



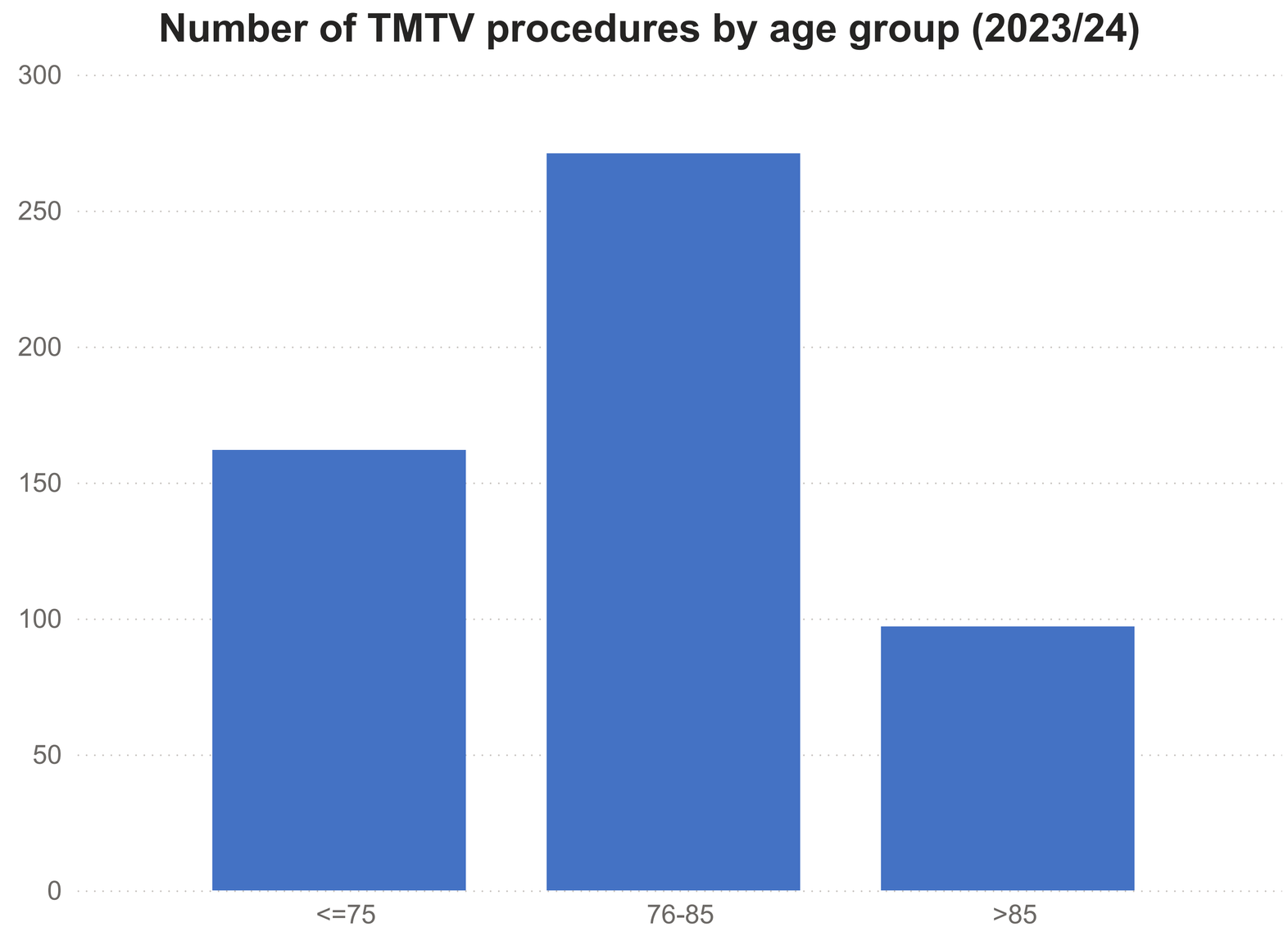
→ Contents page

Most TMTV patients were aged between 76 and 85 in 2023/24

Just over half of patients undergoing TMTV procedures were aged 76-85 years of age in 2023/24.

The proportion of patients who underwent TMTV procedures aged 75 years or under was 31%.

The median age of patients undergoing TMTV procedures is 80 years.

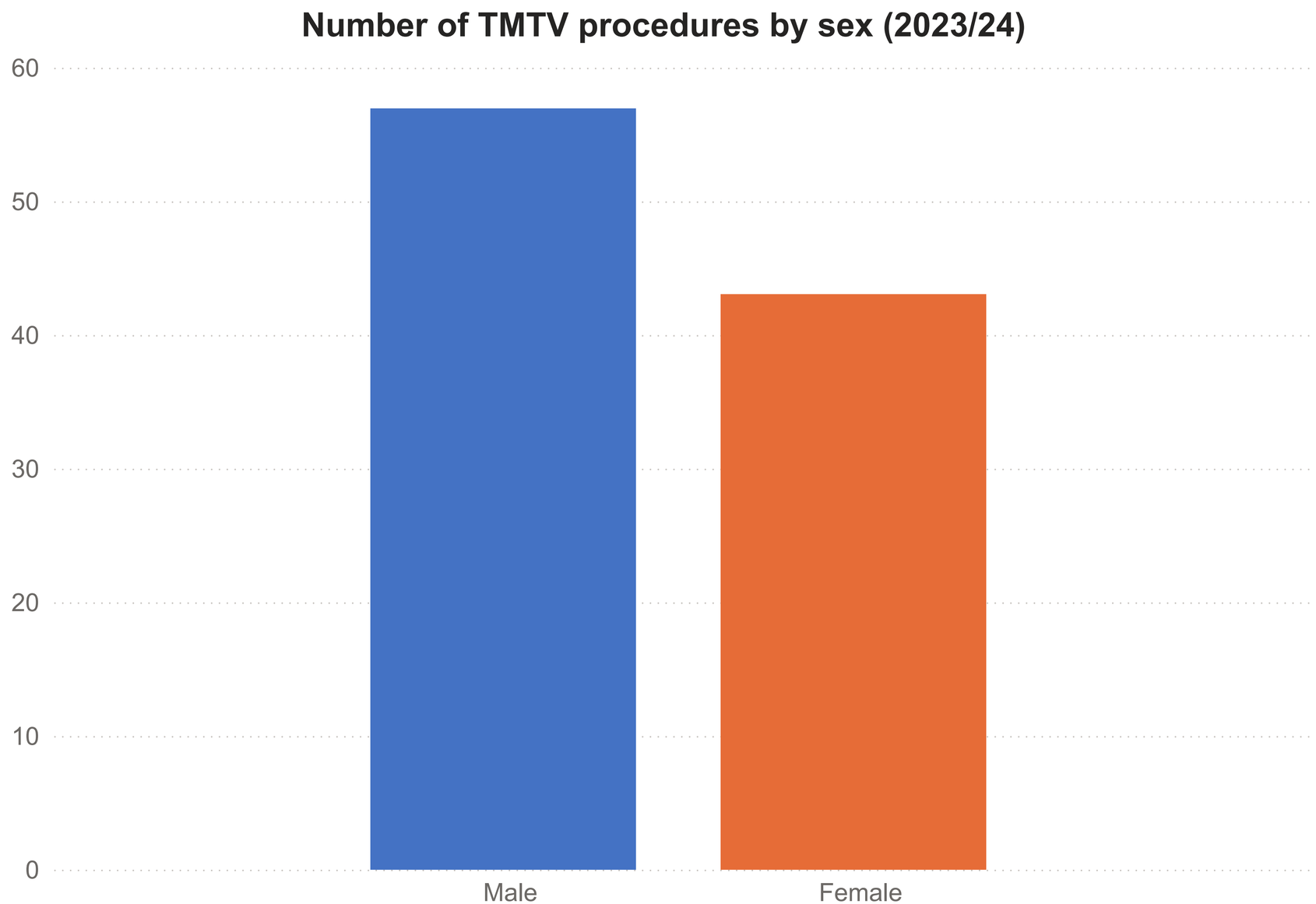


Contents page

More males than females underwent a TMTV procedure in 2023/24

A higher proportion of TMTV procedures involved male patients in 2023/24.

There is insufficient cases reported yet to determine whether this will persist.



Contents page

The ethnicity of patients undergoing TMTV procedures is recorded in 90% of cases

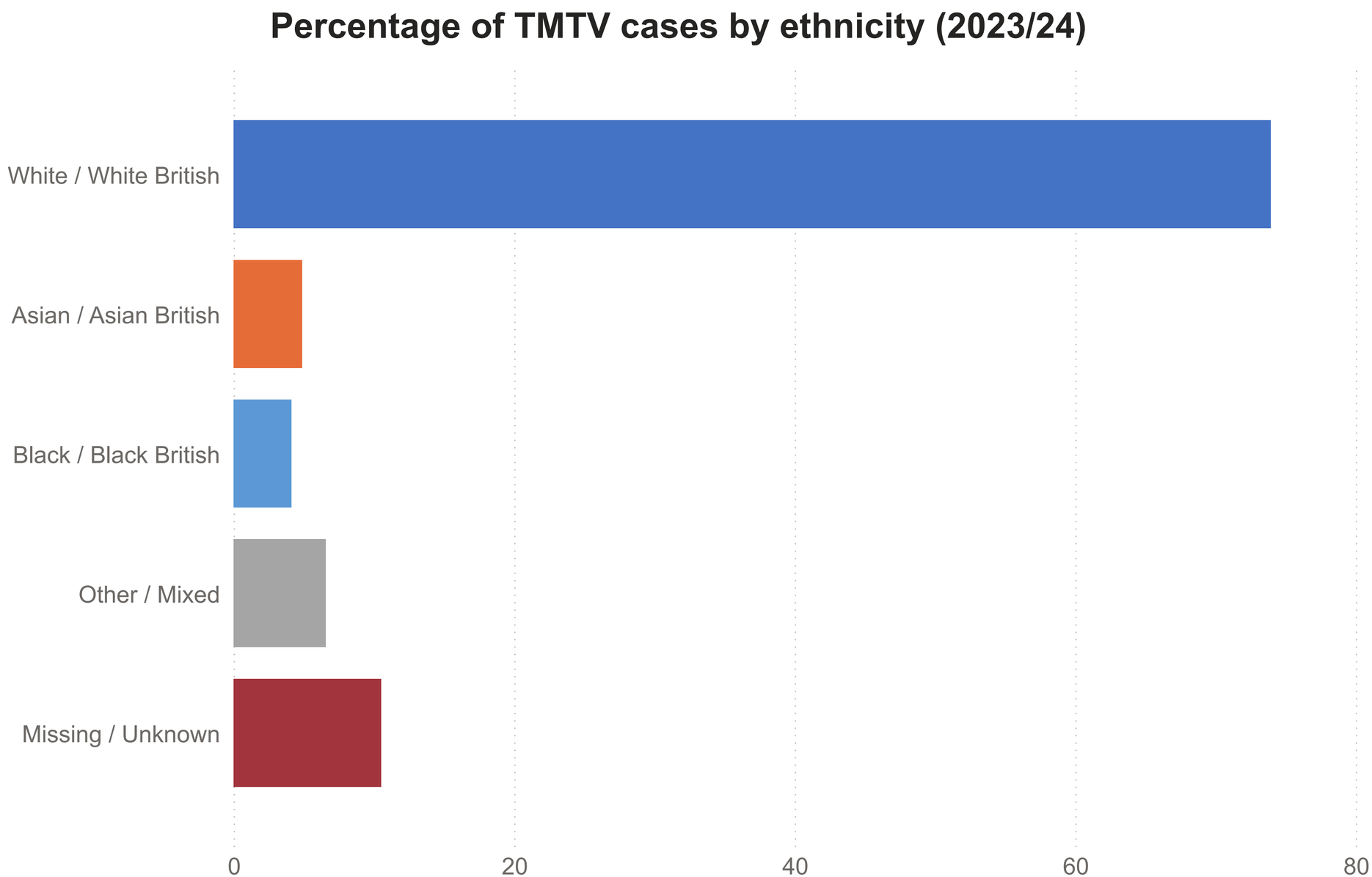
For TMTV cases where the ethnicity data was captured, the breakdown in 2023/24 was:

- 74% White
- 4.9% Asian / Asian British
- 4.1% Black / Black British
- 6.6% Other or Mixed

The 2021 Census data for those aged 70 and over age were:

- 95% White
- 3% Asian / Asian British
- 1 % Black / Black British
- 1% Other / Mixed

Ethnicity is reported as ‘unknown’ or is ‘missing’ in 11% of cases.



Contents page

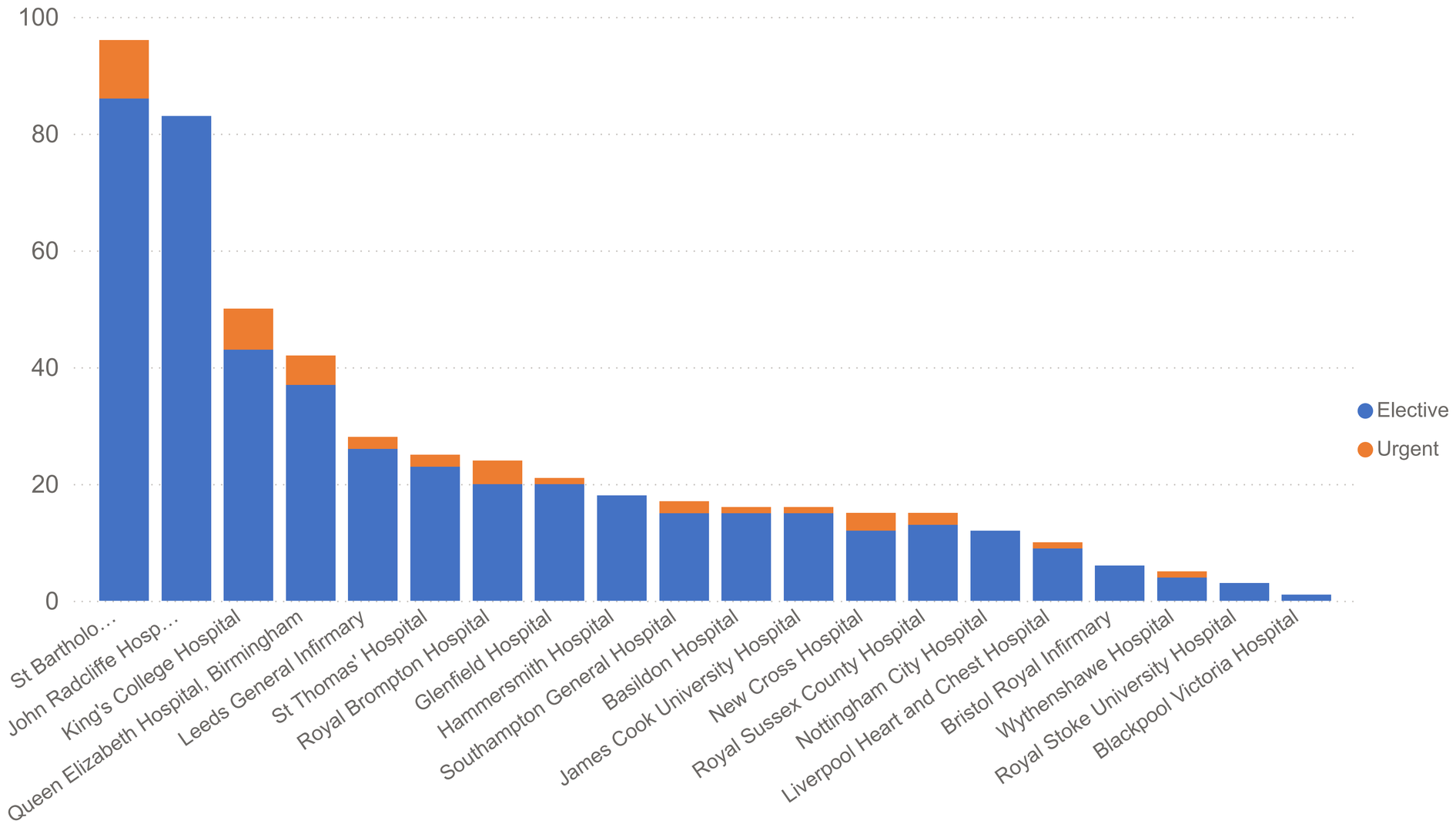
The vast bulk of TMTV cases are elective procedures but most hospitals undertook a small number of urgent cases in 2023/24

The vast majority of TMTV cases are elective planned cases.

A small percentage of cases are performed in an urgent setting when the clinical team considers that the treatment must be done as soon as possible and before the patient can be deemed fit for discharge from hospital.

Cases with missing data on urgency have been excluded.

Number of TMTV cases by procedure urgency, by hospital (2023/24)



→ Contents page

The median length of stay for mitral TEER cases in 2023/24 was 2 days

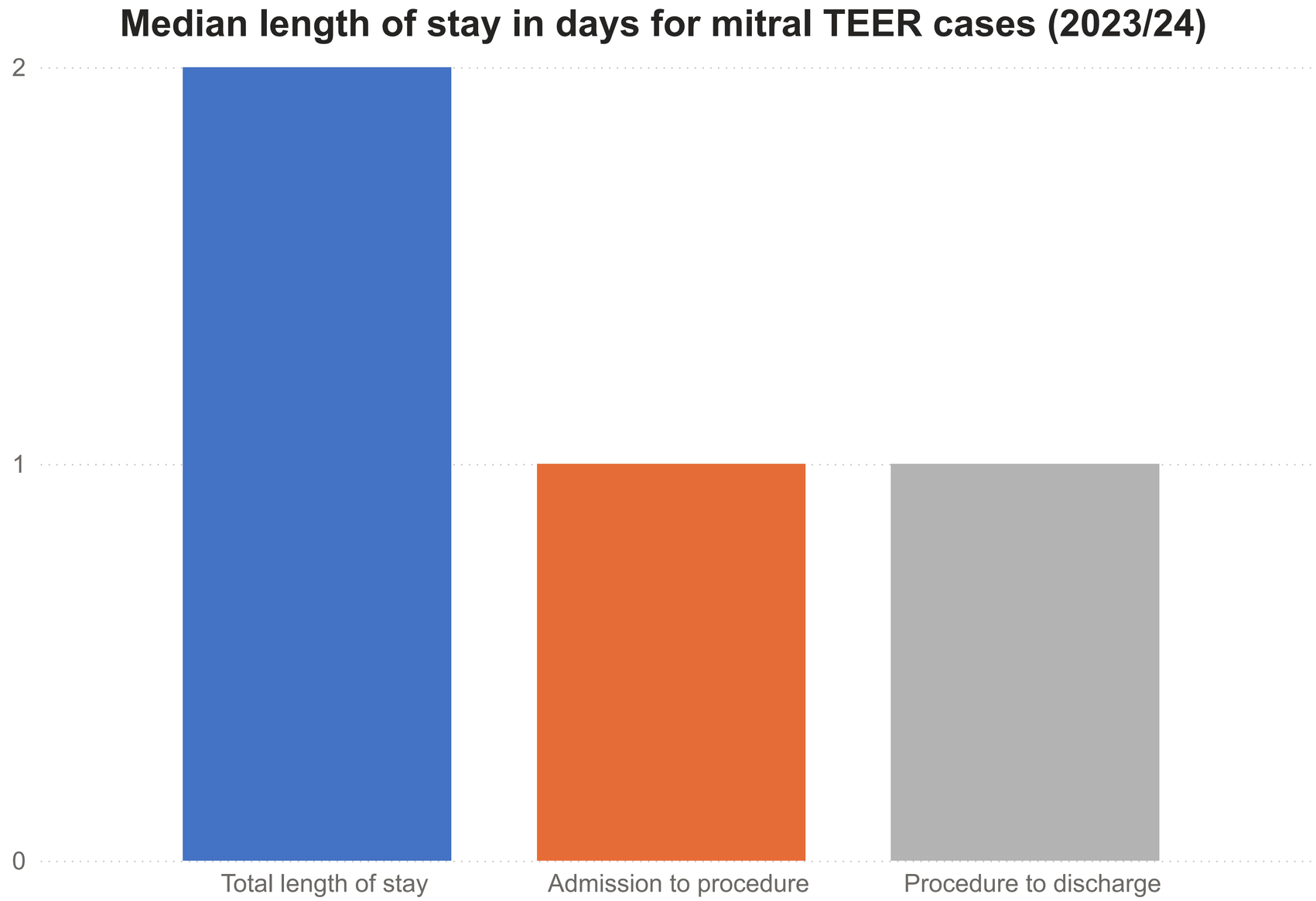
The median length of stay (LOS) for all mitral TEER cases was 2 days (based on data from 18 hospitals).

This comprised:

- 1 day time from admission to mitral TEER procedure
- 1 day from mitral TEER procedure to discharge.

The individual LOS for a patient reflects a number of factors including urgency, clinical profile and the presence of any complications.

Note: The data for New Cross Hospital, Wolverhampton, have been removed as there is a data error and it has not yet been corrected.

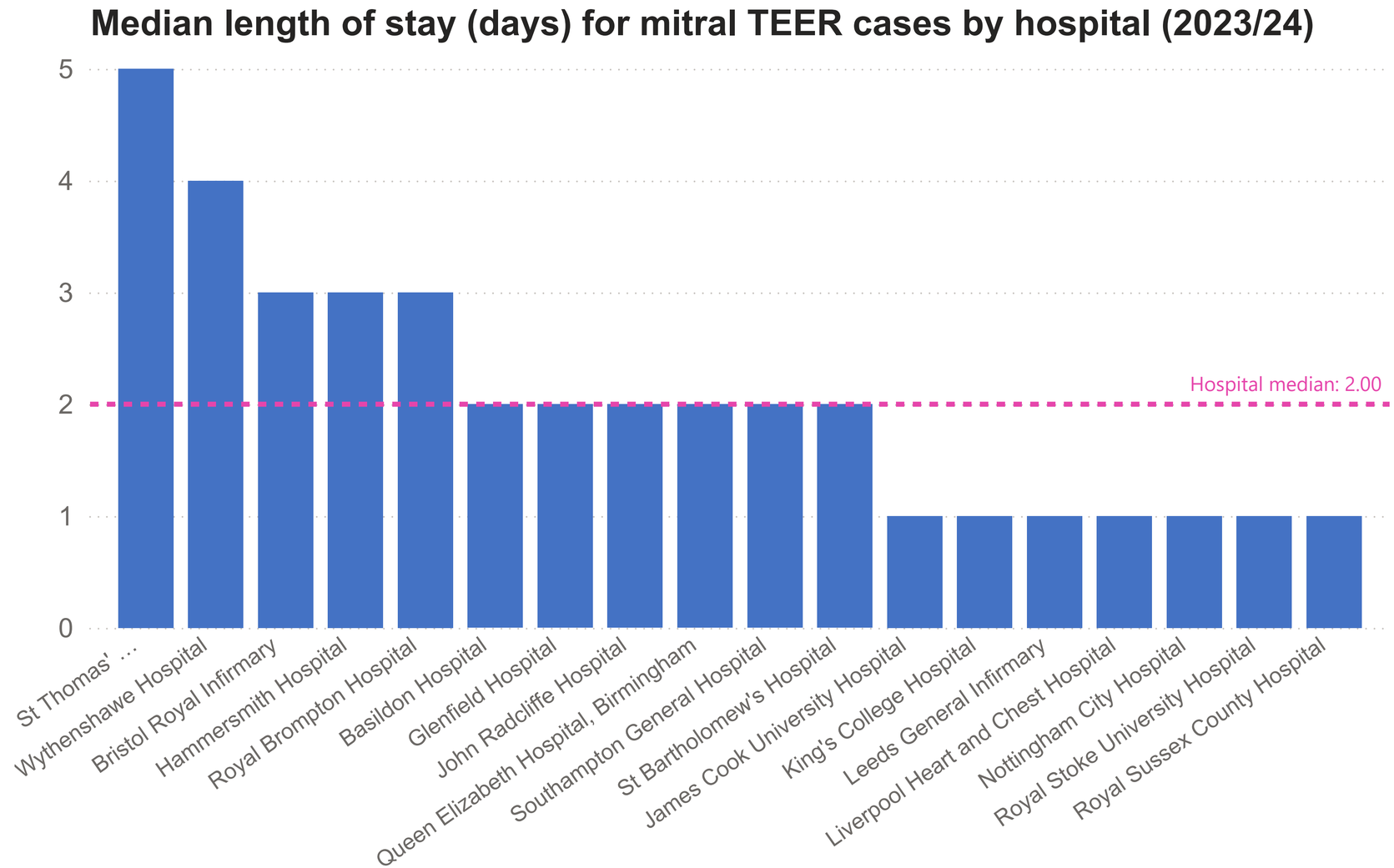


→ Contents page

The median length of stay for mitral TEER varies between hospitals

There is variability in the median length of stay (LOS) for mitral TEER cases by hospital (accurate data from 18 hospitals).

The date completeness for this variable was 100%



→ Contents page

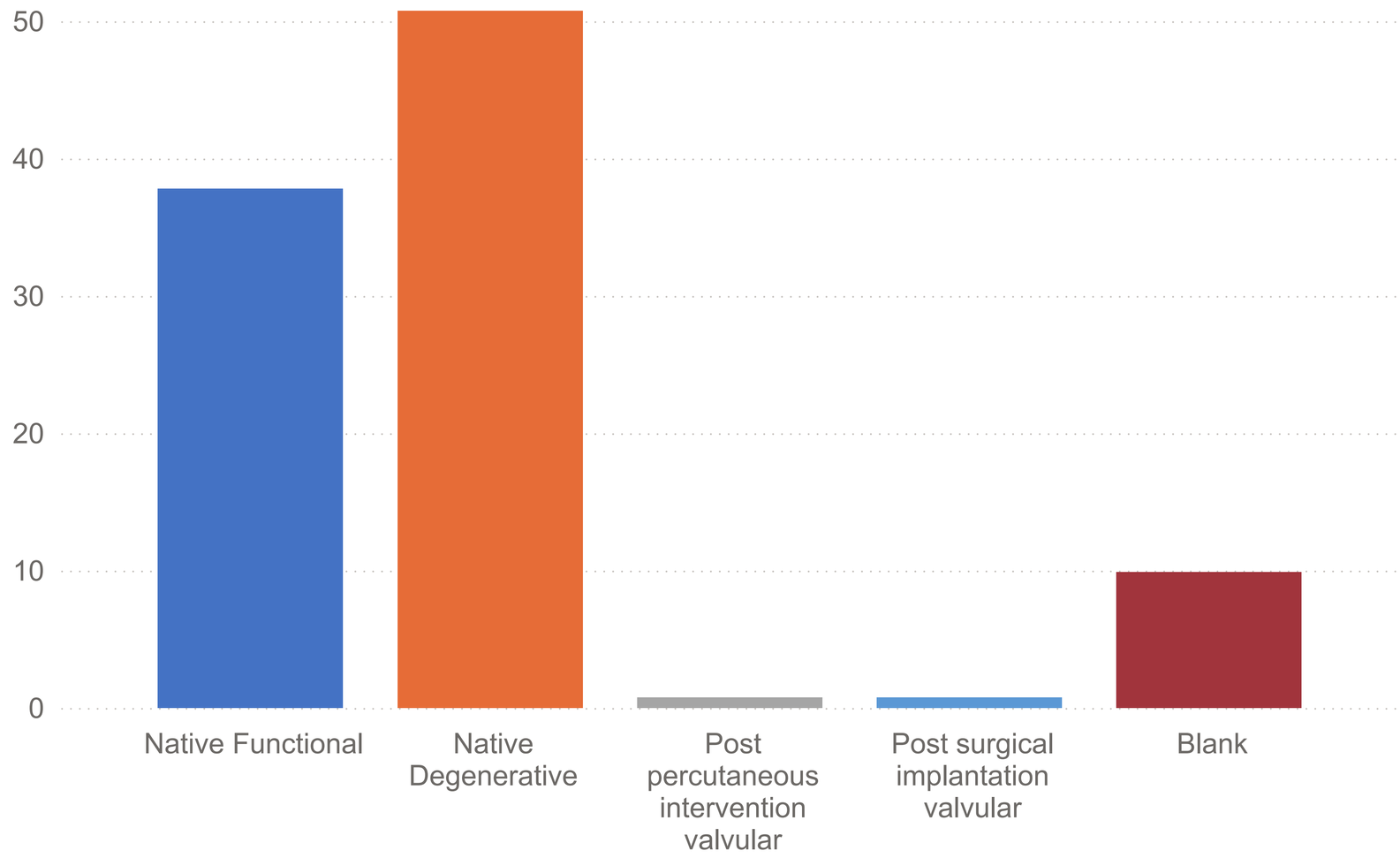
Mitral TEER procedures are being undertaken for both primary degenerative and secondary causes of mitral regurgitation

51% of mitral TEER cases in 2023/24 were for primary degenerative disease of the mitral valve.

38% of cases were for secondary mitral regurgitation, which is not presently commissioned by NHS England.

Caution needs to be applied when interpreting these data as the dataset does not include instances where both primary and secondary causes exist. This may explain the 10% blank entries for this data variable.

Percentage of mitral TEER cases by aetiology of mitral regurgitation (2023/24)



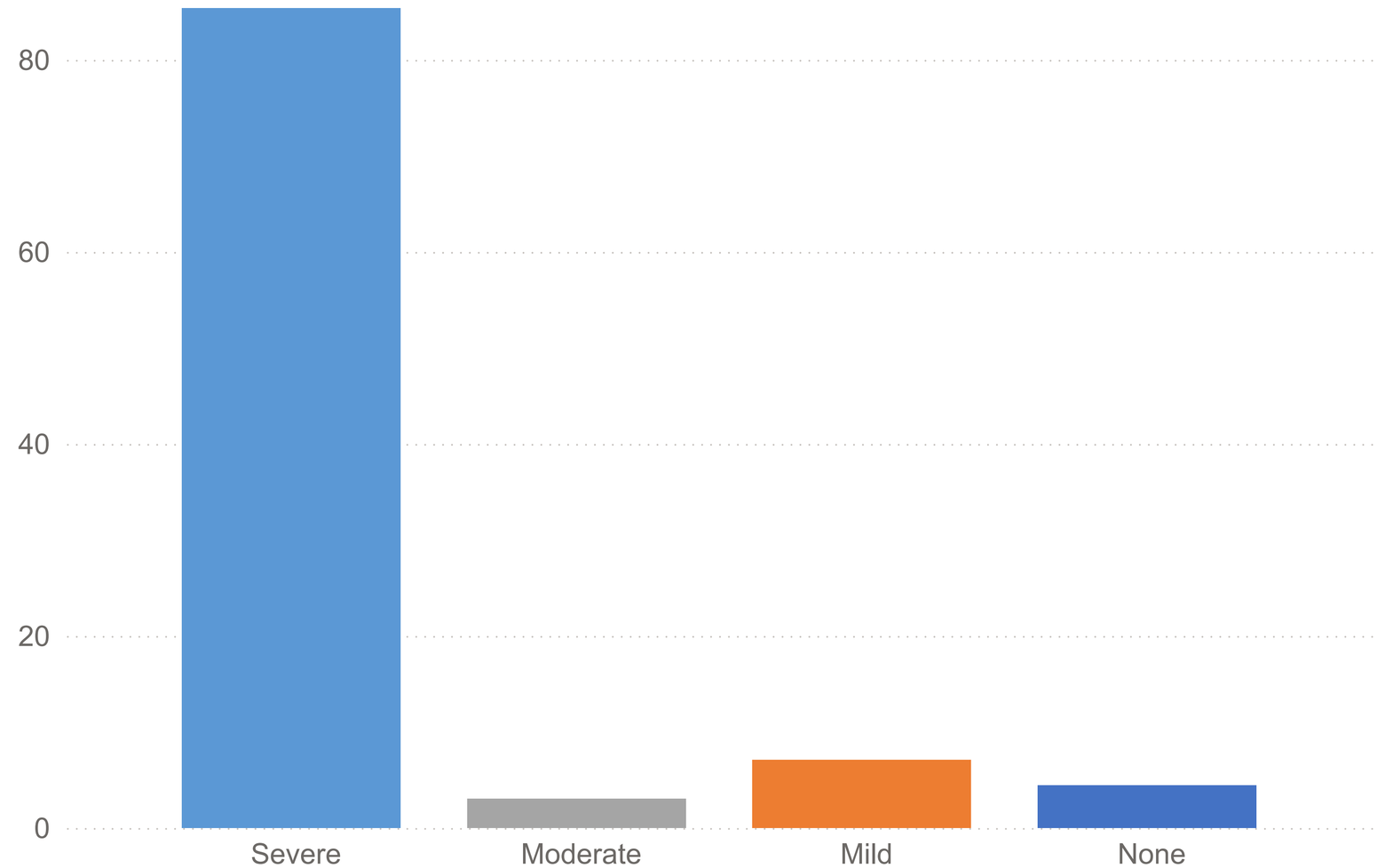
Contents page

The majority of mitral TEER cases in 2023/24 were for treatment of severe mitral regurgitation

In 2023/24, 85% of mitral TEER cases were for severe mitral regurgitation.

7.1% of mitral TEER cases were recorded for cases with only mild mitral regurgitation.

Percentage of grades of severity of mitral regurgitation prior to mitral TEER cases (2023/24)

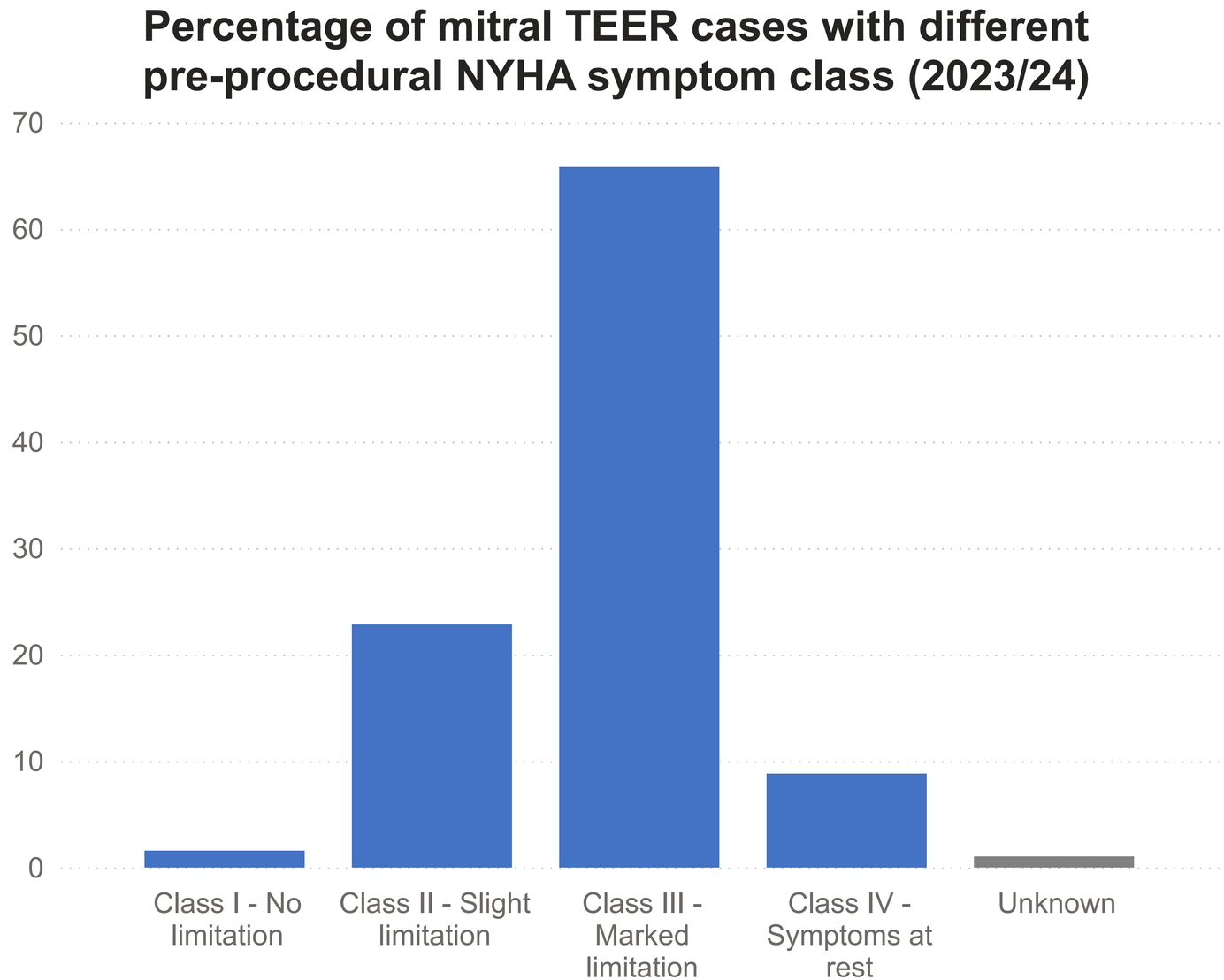


Contents page

The majority of patients undergoing mitral TEER have marked symptoms prior to the procedure

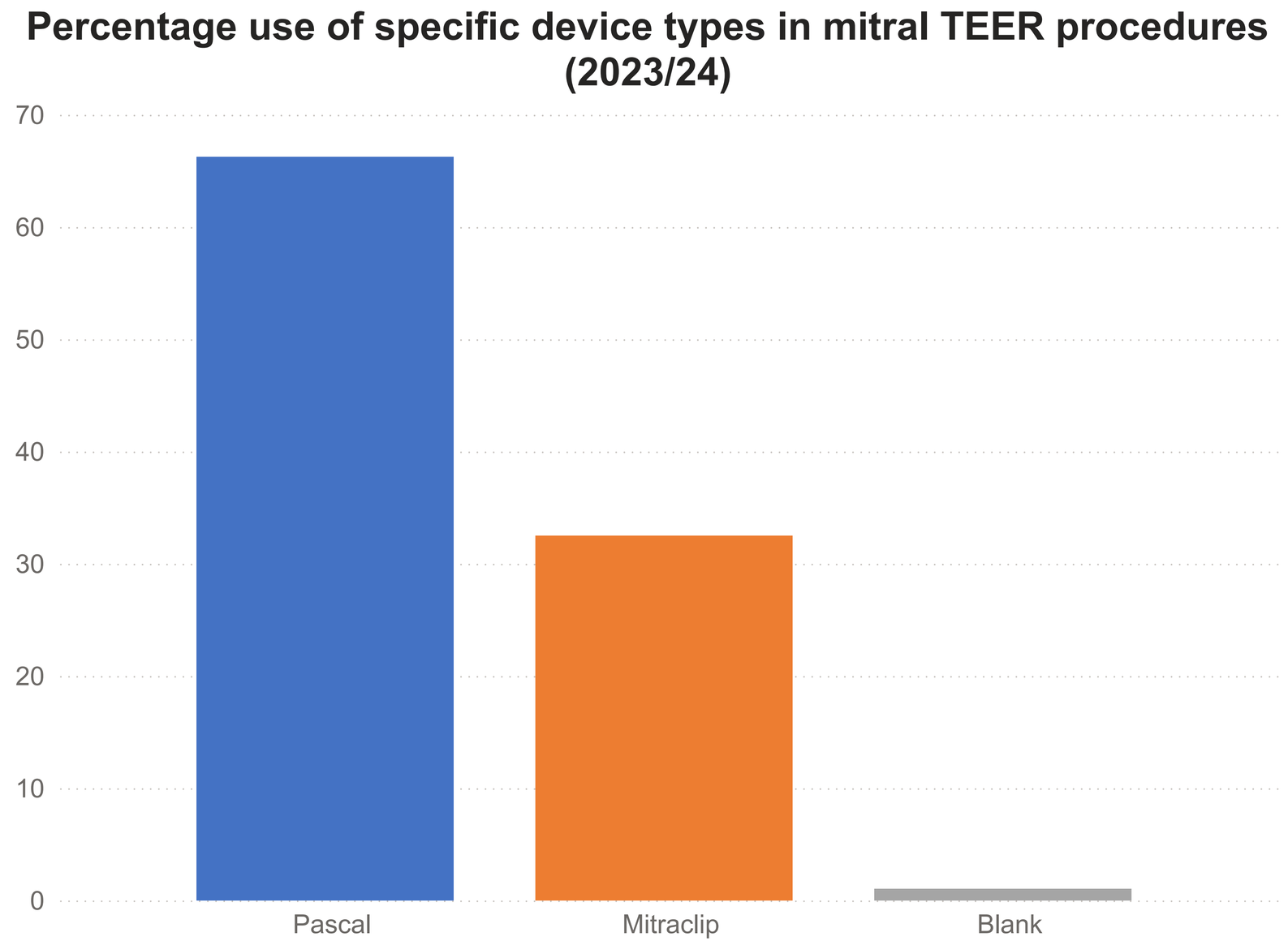
The percentage of mitral TEER cases with different pre-procedural symptoms broken down by New York Heart Association (NYHA) class was:

- 1.6% No limitation
- 23% Mild limitation
- 66% Marked limitation
- 8.8% Symptoms at rest
- 1 % Unknown



Two types of commercial device were used in mitral TEER procedures

Both types of commercially available device (PASCAL and Mitraclip) were used for mitral TEER procedures in 2023/24.



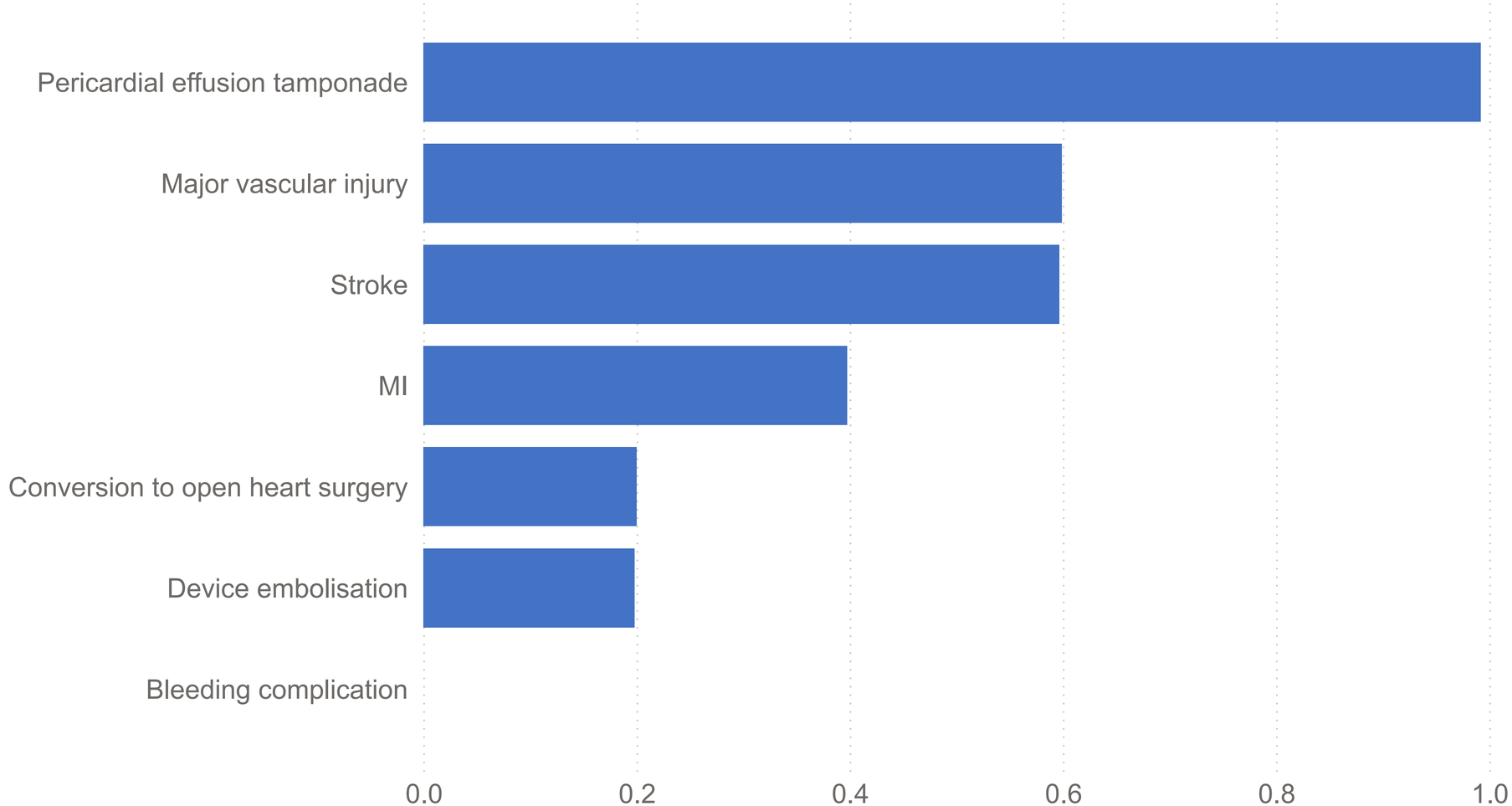
Contents page

Mitral TEER is associated with a low number of complications

The most common complication following a mitral TEER procedure in 2023/24 was pericardial effusion, which occurred in 1% of cases.

Conversion to open heart surgery occurred in 3 cases. This consisted of 2 cases of pericardial effusion drained by surgery and a single case of leaflet injury due to clip entanglement.

Percentage of cases with recorded complications following a mitral TEER procedure (2023/24)



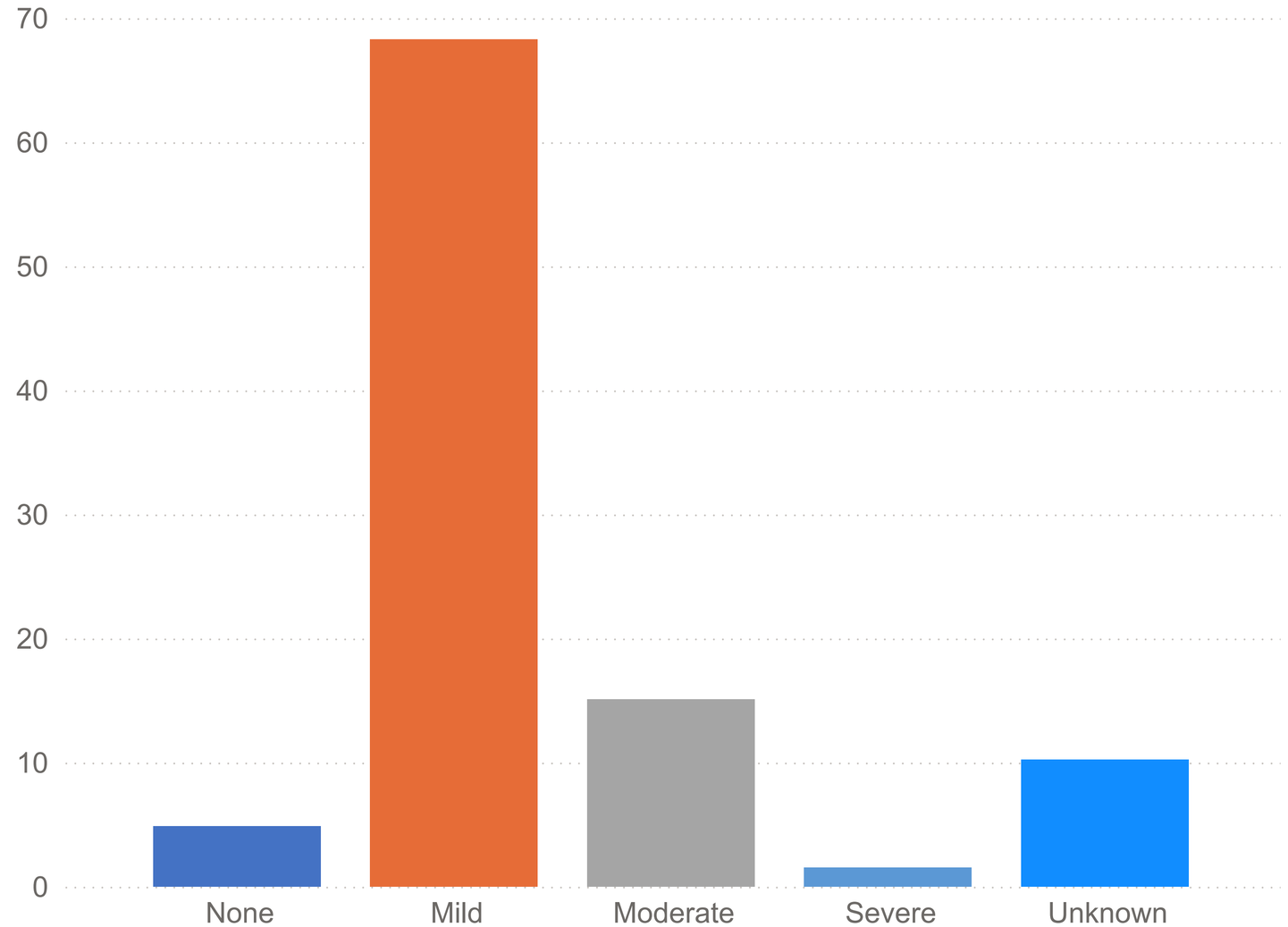
Contents page

The majority of mitral TEER cases reduced mitral regurgitation to mild severity

Following a mitral TEER procedure, 5% of cases had no mitral regurgitation (MR) and 68% had only mild residual MR.

10.2% of submissions were incomplete for this data variable. Hospitals are urged to ensure this is described to enable more accurate interpretation of the effectiveness of the treatment.

Percentage of class of severity of mitral regurgitation following mitral TEER procedures (2023/24)

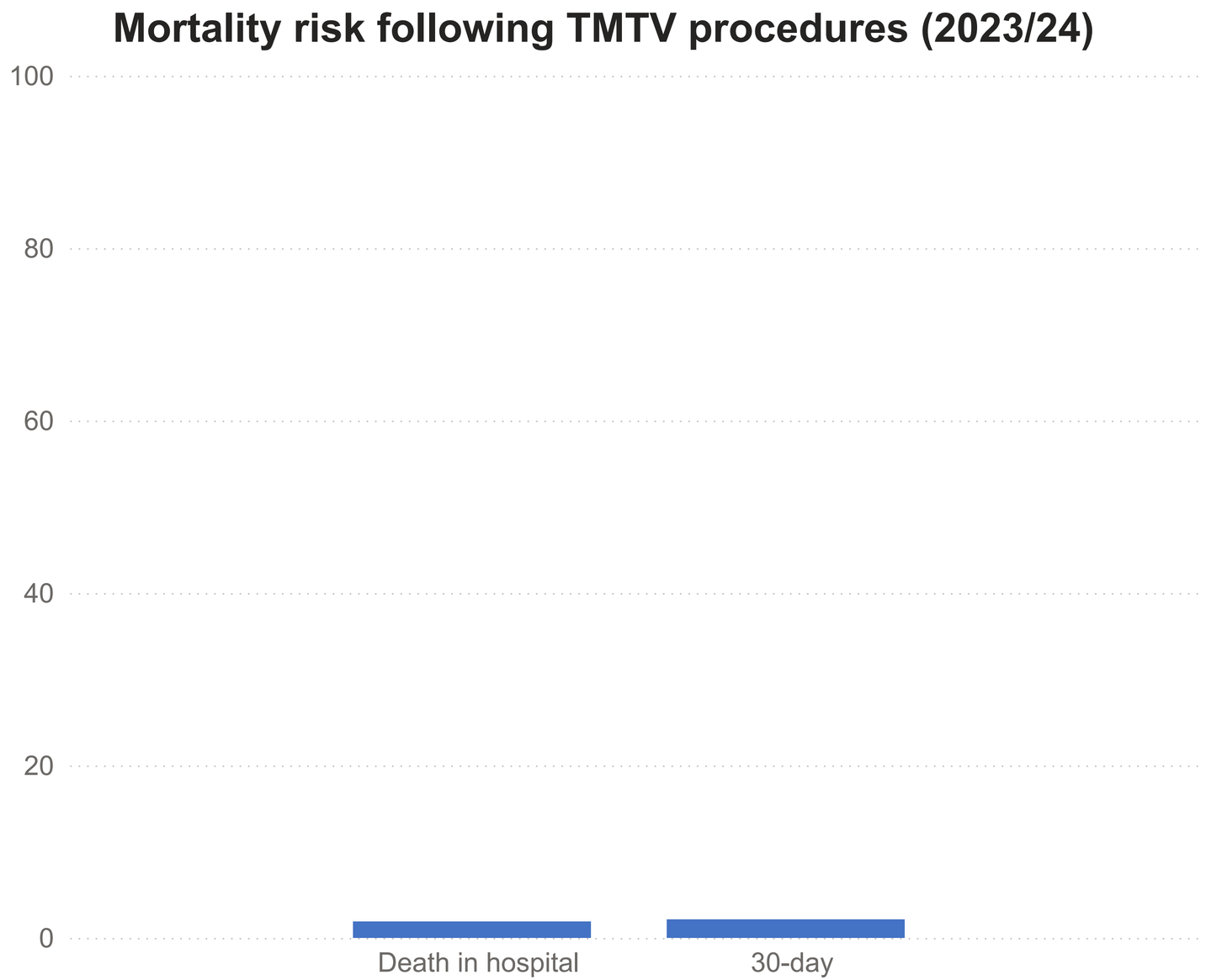


Contents page

There is a small risk of mortality following a TMTV procedure

The overall in-hospital mortality rate following TMTV procedures is 1.9% and 30-day mortality rate is 2.1%.

Longer follow up data will be available over time and enable 1 year mortality rates to be assessed



Contents page