EACTS
ADULT CARDIAC DATABASE

EACTS Adult Cardiac Database

Quality Improvement Programme

User Guide

Version 1.2

05 March 2025

Version	Date	Author	Changes	Approved By
1.1	19/01/2025	Mazen Ahmed	-	Paola Quatronni, Kevin Veen
1.2	05/03/2025	Mazen Ahmed	Addition of ACD Web Platform System requirements – general revision of material	Paola Quatronni, Kevin Veen

Contents

Introduction

ACD Overview and Objectives

The European Association for Cardio-Thoracic Surgery (EACTS) Adult Cardiac Database (ACD) is a collaborative registry and benchmarking tool of cardiac surgical data for centres on an international scale, giving surgical teams the advanced data tools and insights to continually improve outcomes for patients.

The ACD aims to:

- Bring participating hospitals, national registries and surgeons together to advance the field of cardiothoracic surgery through comparative data analysis and sharing of best practice.
- Support surgical training and education and informing evidence-based practices for current and future cardiothoracic surgeons.
- Provide a controlled access mechanism for researchers to request access to the data, regulated by a scientific committee and in line with established governance frameworks.

Important Documents

Along with this user guide there are some important documents to be aware of:

1. **The Adult Cardiac Database Founding Charter**

   The ACD Founding Charter establishes the governance framework for the ACD**,** outlining the terms of the agreement between EACTS and participants hospitals. It outlines the database's purpose of collecting anonymised cardiothoracic surgical data for quality improvement, benchmarking, and scientific research. It also includes information about General data Protection Regulation (GDPR) compliance.

2. The Adult Cardiac Database Data Dictionary

This document outlines each variable collected in the ACD and provides detailed information on data types and definitions. It also outlines what mandatory variables are collected.

The latest version can be downloaded here:
https://zenodo.org/records/14215704

3. The Adult Cardiac Database Registration forms

The QUIP Registration Form is used for individual cardio-thoracic surgery centres to register with the EACTS Adult Cardiac Database (ACD)**,** agreeing to its terms outlined in the Founding Charter for data submission, research use, and quality improvement.

The ACD provides three registration forms dependent on institution type and data submission requirements:

a) Individual Centre Registration Form

This form is for individual cardio-thoracic surgery centres registering with the QUIP Adult Cardiac Database (ACD)

b) Third-Party Registration Form via Individual Centre

This form is for third-party organisations submitting data on behalf of a cardio-thoracic surgery centre**.** The form designates a third-party organization responsible for data submission until direct submission becomes available.

c) Third-Party Registration Form via National Society or Registry

This form is for National Societies and Registries submitting data on behalf of multiple cardio-thoracic surgery centres. They must authorise data submission**,** confirm that surgeons are informed, and provide a list of affiliated canters**.**

4. The Adult Cardiac Database Data Request Protocol

The ACD Data Request Protocol governs access to anonymised data from the QUIP Adult Cardiac Database (ACD) for research. It ensures compliance with GDPR, maintains patient and surgeon anonymity, and enforces strict governance.

The protocol outlines the process for requesting access to data while ensuring ethical data use, and public benefit in cardio-thoracic research.

The ACD Task Force

The Adult Cardiac Database (ACD) Task Force is a specialized sub-committee within the European Association for Cardio-Thoracic Surgery (EACTS) responsible for overseeing the management, integrity, and scientific utility of the QUIP Adult Cardiac Database (ACD). The Task Force plays a central role in ensuring that the database serves its primary objectives of improving clinical outcomes, facilitating research, and enabling performance benchmarking across participating cardiothoracic surgery centres, national societies, and registries.

Key Responsibilities of the ACD Task Force:

1. **Oversight and Management of the ACD**

   Regularly reviews the performance and effectiveness of the database in achieving its quality improvement and research objectives. Organises periodic assessments of data fields and definitions, ensuring they remain relevant and aligned with contemporary cardiothoracic surgical practices. Reports its findings and recommendations to the QUIP Committee, which oversees strategy and management of all EACTS databases.

2. **Promoting and Approving Scientific Research**

   Encourages the use of ACD data for scientific research aimed at identifying trends, improving surgical techniques, and enhancing patient safety. Reviews and approves research requests from external researchers, ensuring they comply with data security, ethical, and privacy standards. Works in conjunction with the QUIP Committee, EACTS Council, or other specialist scientific bodies to evaluate the scientific merit and impact of proposed research projects.

3. **Strategic Development and Future Enhancements**

   Works towards enhancing the ACD's capabilities, including improving data analytics tools, dashboards, and risk stratification models. Collaborates with the EACTS Council and QUIP Committee to expand the database's scope and improve participation rates from surgery centres across Europe and beyond. Evaluates new technologies to enhance the database's analytical capabilities.

Registration

Users that are **EACTS Members** or from an **Individual Centre, National Society or Registry that contributes data** to the ACD are eligible to register with the ACD and gain access to the ACD Web Platform.

ACD registration is officially completed through the ACD registration form, which must be signed by the chief surgeon of an individual centre or a representative from a national society or registry.

If you are interested in enrolling, please get in touch by emailing quip@eacts.co.uk

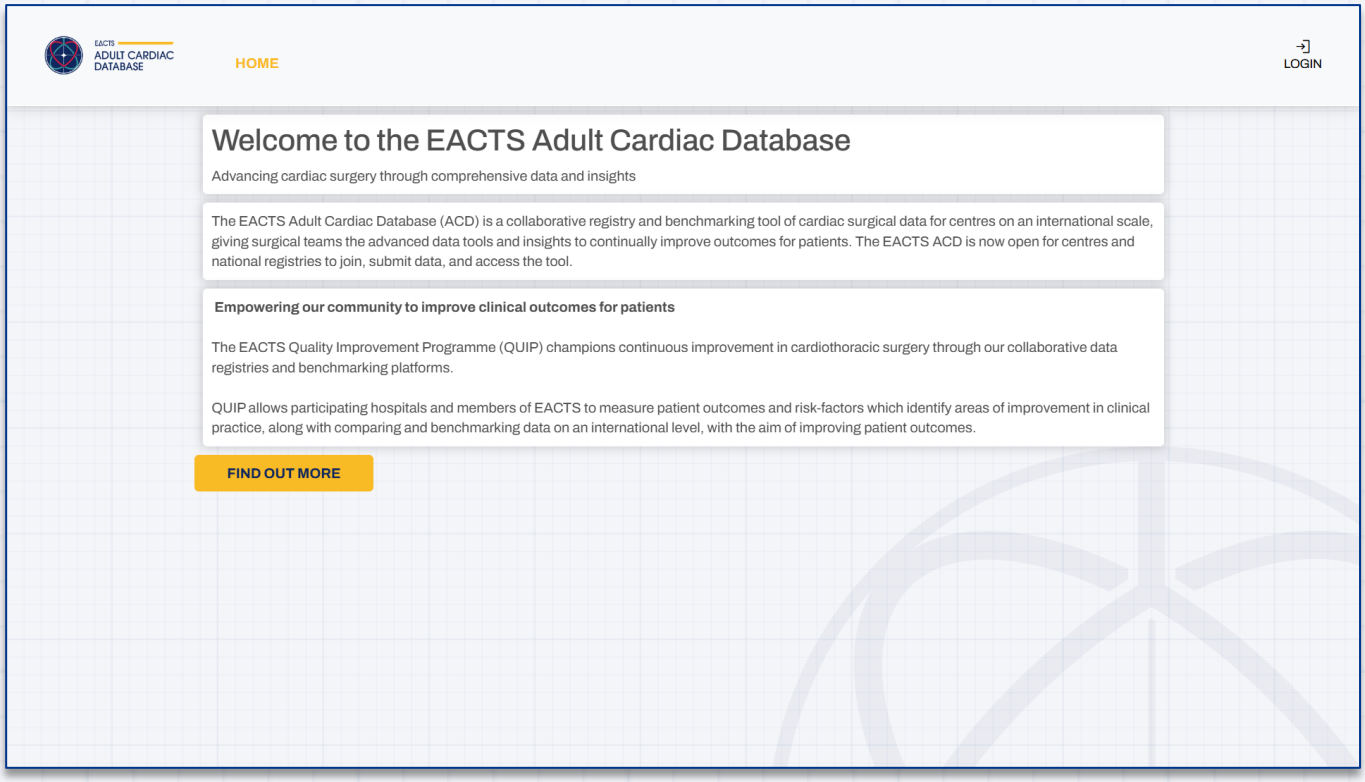
Web Platform

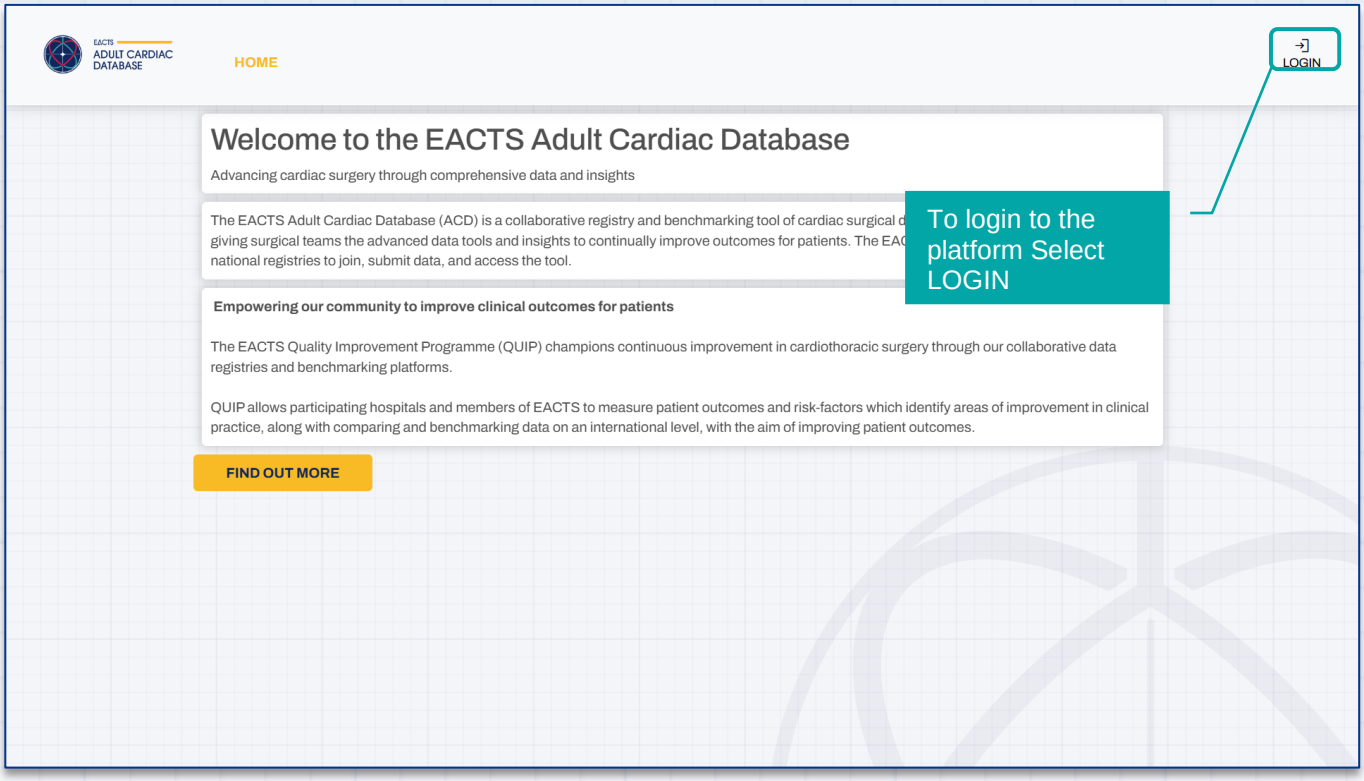
Registering a User Account

To access the ACD web platform please visit:

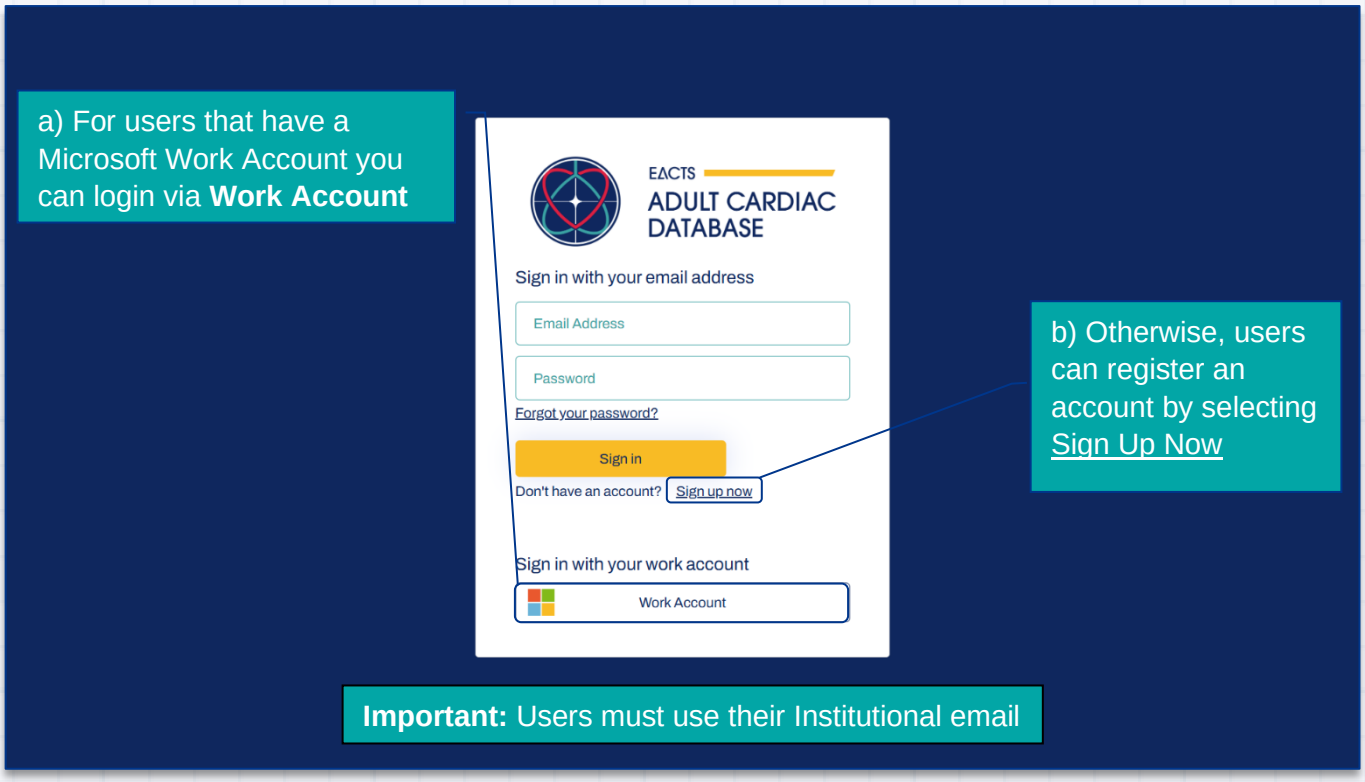
https://acd.eacts.org/

1. First time users will be taken to the ACD **HOME** page:

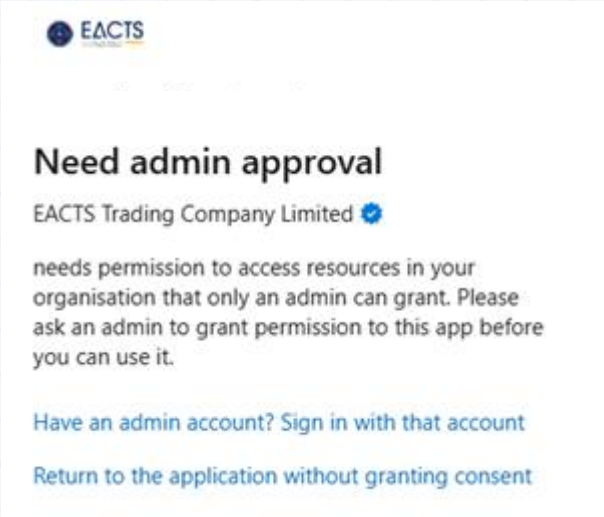




2. Users can register an account via two methods:

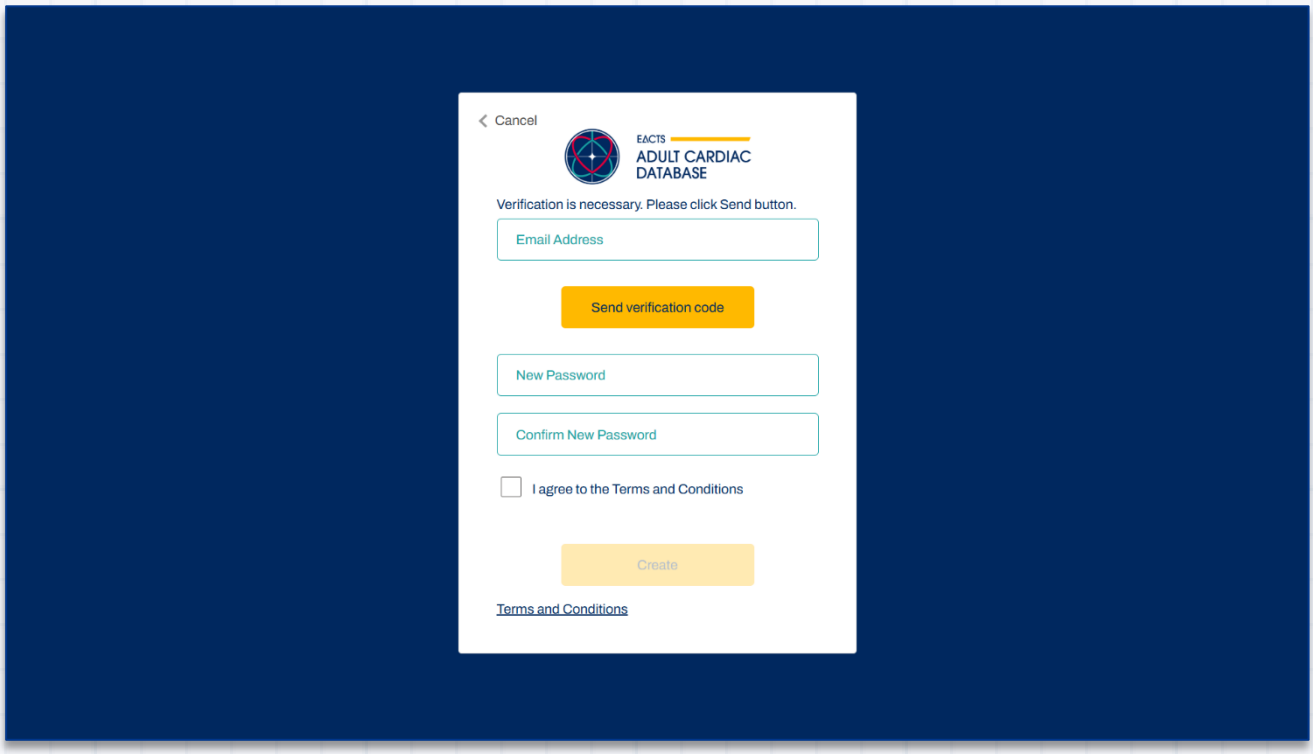


Users signing in via their **Work Account** for the first time may receive the following message:



Your hospital's IT administrator will need to provide you access to the platform. Details on how to do this are outlined here.

3. Selecting (b) will take you to the **Sign Up** page:

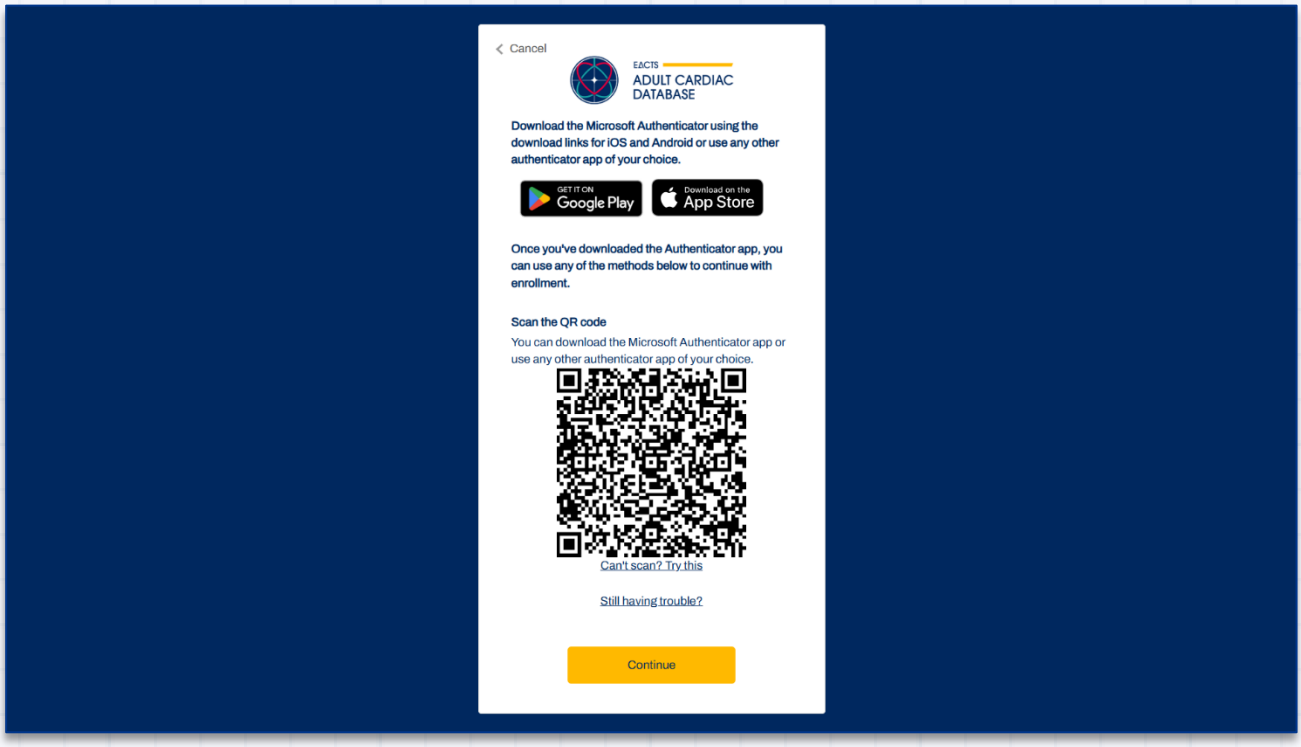


Verify your email address and ensure you **pick a secure password** that is:

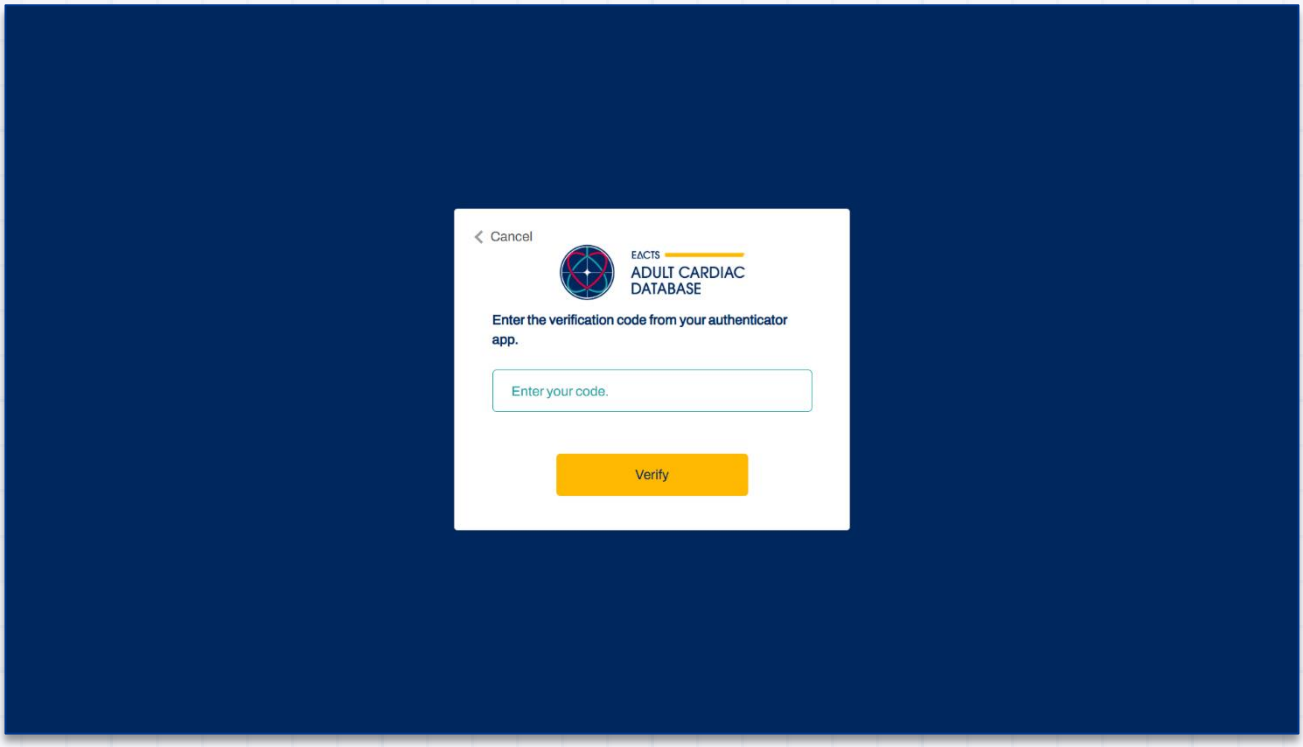
- 8-16 characters
- Must contain 3 out of 4 of the following:
    1. Lowercase characters
    2. Uppercase characters
    3. Digits (0-9)
    4. One or more of the following symbols: @ # $ % ^ & * - _ + = [ ] { } | \ : ' , ? / ` ~ " ( )

and click **Create**

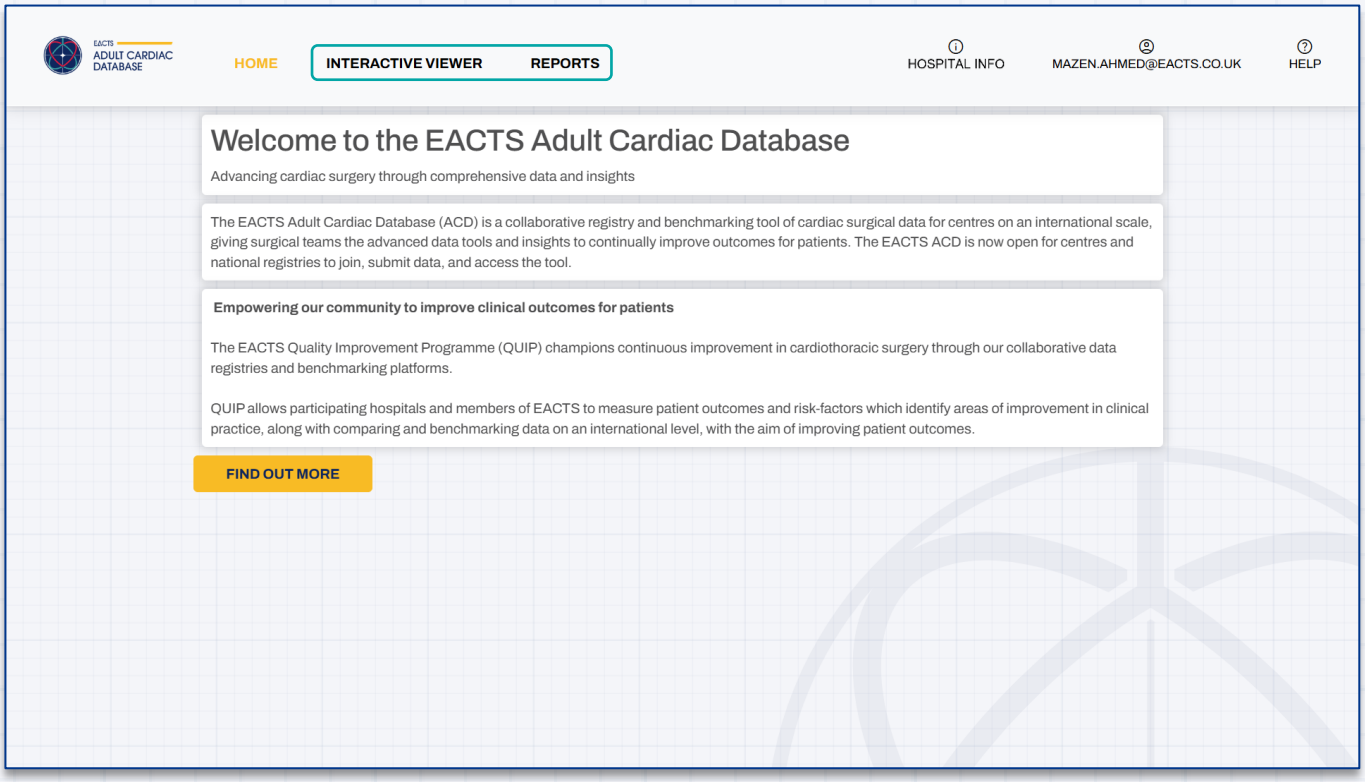
4. Scan the QR code through Microsoft Authenticator App which can be installed from the App Store or Google Play.



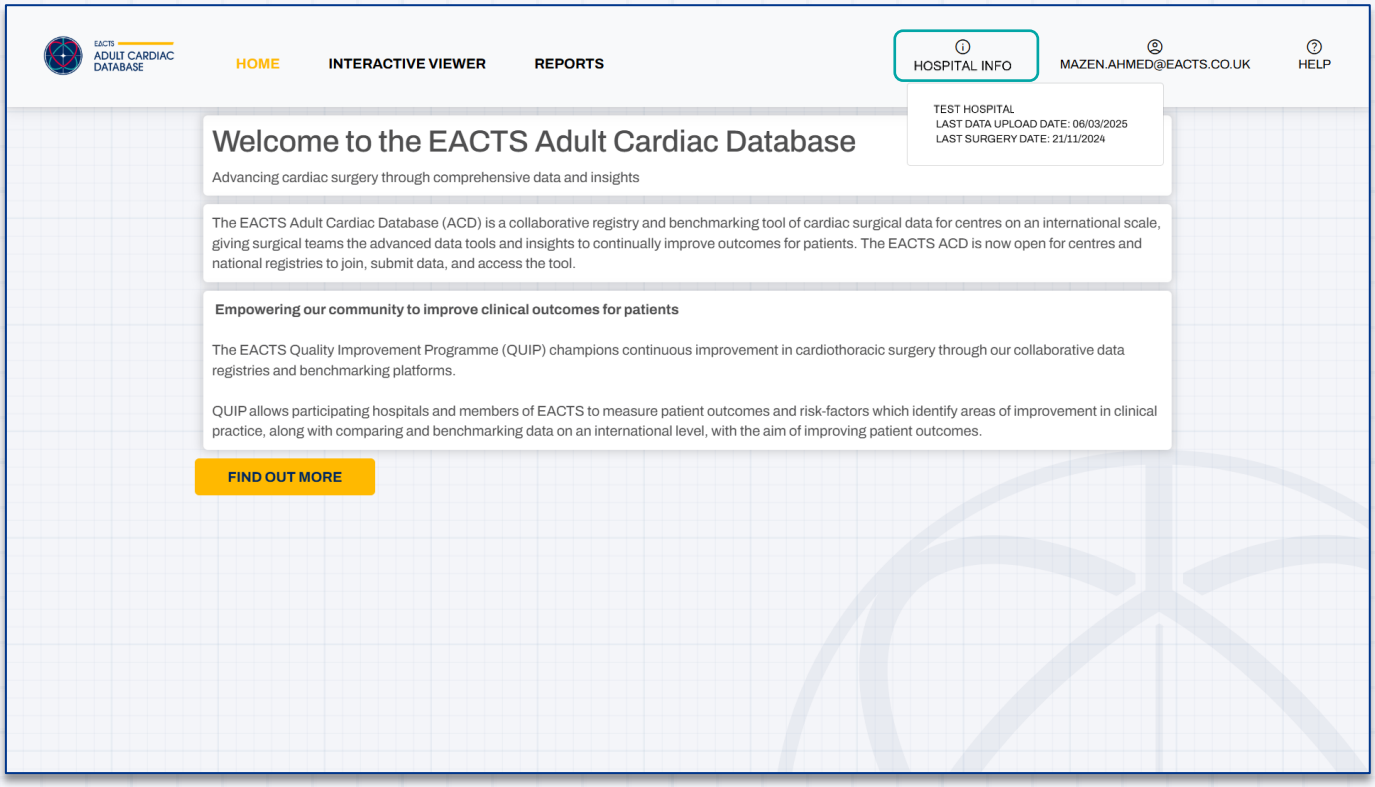
5. After pressing continue, enter the verification code from your authenticator app:



6. Once you have registered an account you will gain access to the **INTERACTIVE VIEWER** and **REPORTS** tabs



Users that belong to a participating hospital should see HOSPITAL INFO:



Selecting this will display:

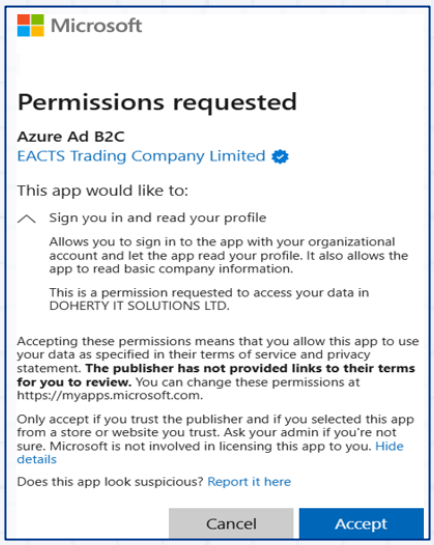
- Your hospital name
- Last data upload date for your hospital
- Last surgery date for your hospital

If you find that this information is not correct, please contact quip@eacts.co.uk

Granting User Access

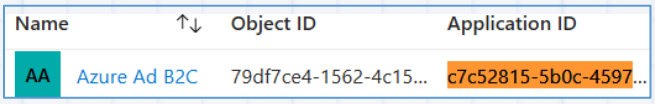
The following section is applicable to **Hospital IT administrators** authorised to register applications themselves.

1. Login to https://acd.eacts.org/ using an administrator account and accept the requested permission:

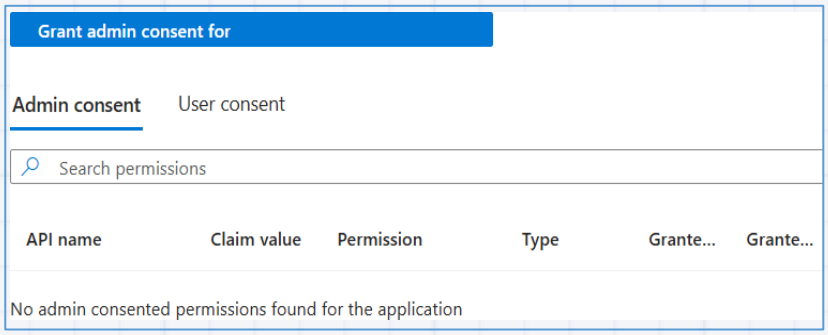


2. The Administrator should then approve the Enterprise Application for all other users within their tenant:

    a. Navigate to the Azure Portal, Entra ID and finally Enterprise Applications
    b. Search for “Azure AD B2C” and select the entry with an Application ID of:
        i. c7c52815-5b0c-4597-986a-7c7f6db2cb24



c. Navigate to Permissions



d. Select Grant admin consent for the Microsoft 365 tenant name to allow access for all future users.

Appendix 3 of the ACD Founding Charter outlines the ACD's technical and security specifications

For help please contact quip@eacts.co.uk

Interactive Viewer

The ACD Interactive Viewer is an advanced analytics tool designed to enable real-time data visualisation, benchmarking, and research support for cardiothoracic surgery centres.

EACTS members and licensed users from an Individual Centre, National Society or Registry that contributes data are granted access to the ACD Interactive viewer.

The ACD Interactive viewer has three levels of access which are managed in the admin portal by a centre's chief surgeon:

1. **General View**

   General view is granted by default to all EACTS members and licensed users from participating centres.

   This access enables an aggregated overview of all hospitals in the database. Individual centres cannot be identified.

2. **General and Own Hospital View**

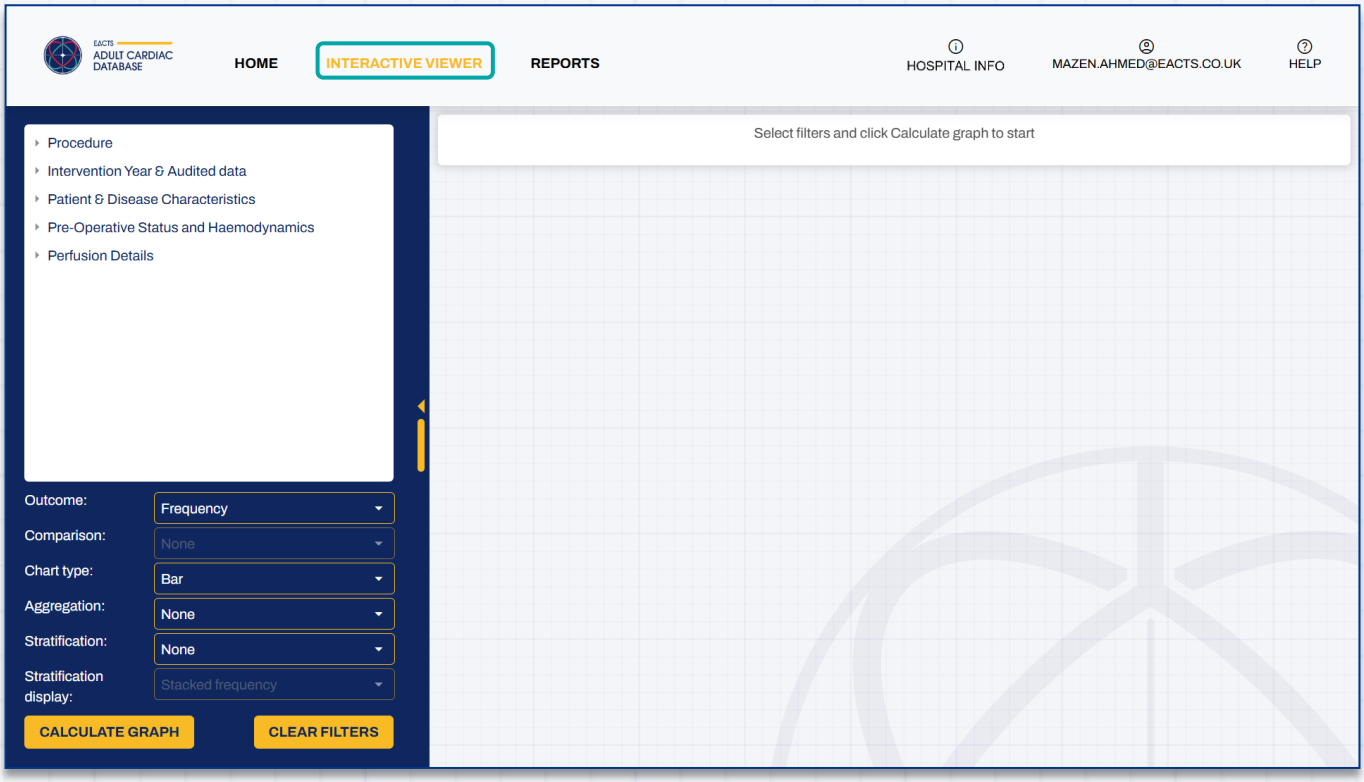
   General and Own Hospital View is granted to EACTS members from participating hospitals and licensed users from participating centres.

   This access enables all that is mentioned in general view, in addition to being able to compare your own centre's data with all centres in the ACD. Other centres will not be able to identify your own centre.

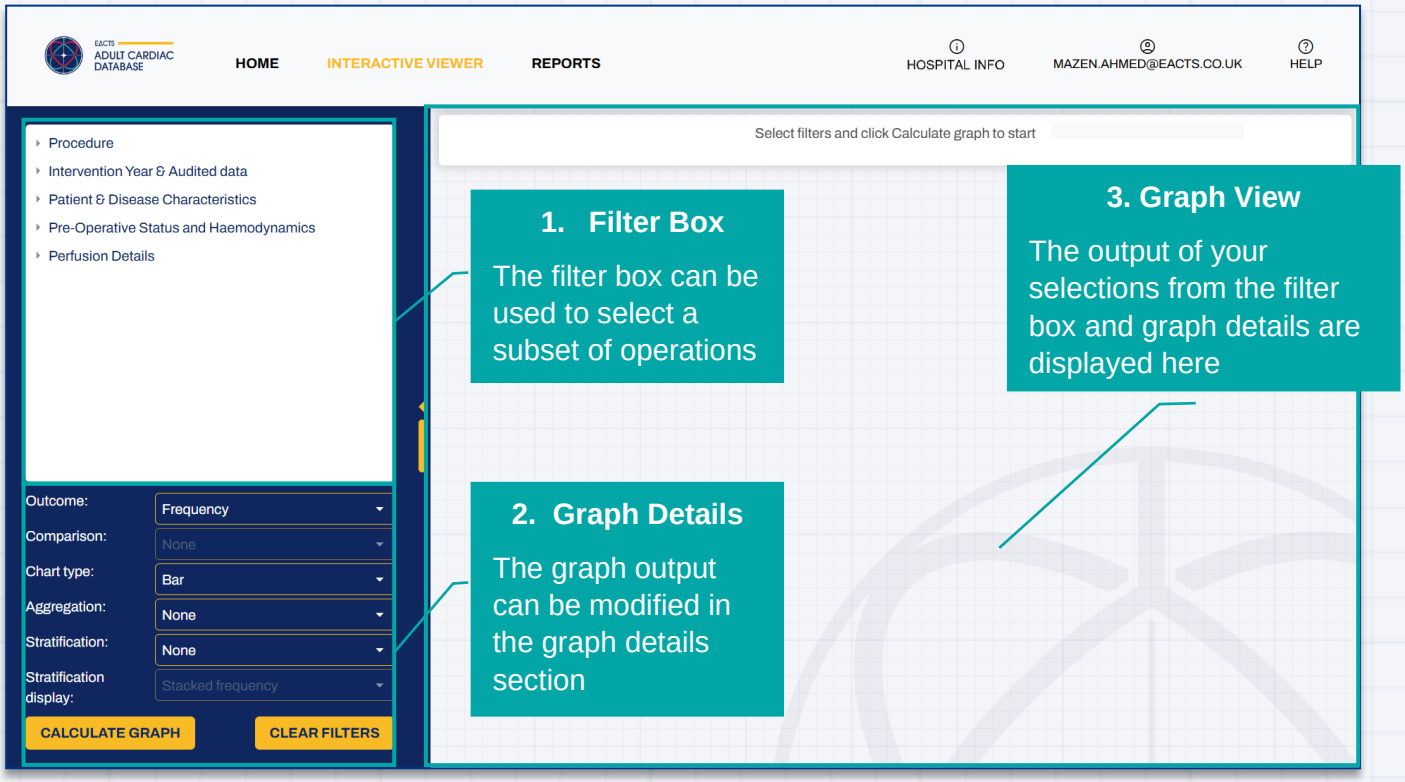
3. **Full Access**

   Includes all access granted in General and Own Hospital View in addition to being able to make a csv export of your own hospital's data. This access should be reserved for hospital data managers.

1. To access the ACD Interactive Viewer Select **INTERACTIVE VIEWER** in the header tab:



The Interactive Viewer has the following structure:



Filter Box

The filter box is used to subset populations and procedures in the ACD for analysis. Filters are split into two types:

Level 1 filters: These filters are enabled by default and have no dependencies. Examples include, Procedure Type, Operation Urgency, Age and Weight.

Level 2 filters: These filters are enabled depending on which level 1 filters are selected. For example, selecting the level 1 Filter Procedure Type as Isolated Valve will enable the Level 2 filter Valve Treated.

The filter box contains **5 key sections** and a brief overview of each section is given here. For more details, please see ACD Filters 6.7.

1. **Procedure**

   The procedure section is composed of two key components:

   a) Level 1: Procedure Type

      - CABG, Valve or Other (Cardiac) can be selected in any combination

      Level 2: CABG

      - Contains information on target CABG conduits, number of arterial anastomosis, and number of venous conduits

      Level 2: Valve Treated

      - Contains information on Aortic, Mitral, Tricuspid and Pulmonary Valves, including indication, pathology and procedure

      Level 2: Other Procedures

      - Detailed list of other cardiac and non-cardiac procedures

   b) Level 1: Surgery Urgency

      - Elective, Urgent Emergency or Salvage

2. **Intervention Year and Audited data**

a) Level 1: Intervention Month – Year

- Here you can select procedures performed between two selected dates

b) Level 1: Audited Data

- This filter enables users to filter on data that has been audited. Proof of audited and accurate data must be demonstrated by Hospitals and National Societies/Registries to EACTS (for example via audit certificate, standard data check procedural document or audit agreement with centre if via National Registry). For more details, please see Data Validation.

3. **Patient and Disease Characteristics**

- Extensive list of level 1 and level 2 filters of patient and disease characteristics. Examples include Age, Sex, CCS Class, NYHA Class, Previous PCI, Smoking History, Diabetes, Poor Mobility and Endocarditis.

4. **Pre-Operative Status and Haemodynamics**

- Level 1 filters including Critical Pre-Operative State, IV Nitrates, Cardiogenic Shock, Ejection Fraction Category, Pulmonary Hypertension, RV Dysfunction.

5. **Perfusion Details**

- Detailed list of level 1 and level 2 filters, including but not limited to Cardio-Pulmonary Bypass, Predominant Form of Myocardial Protection, Cardioplegia Solution, Cardioplegia Temperature, Cardioplegia Timing and Surgical Access.

Graph Details

This section contains 6 components that enables the user to configure the graph type and outcome based on filtered procedures selected using the filter box. Graphs can be produced on all procedures by simply not selecting any filters.

1. Outcomes

Outcomes currently captured in the EACTS ACD are all short-term outcomes, without a time component adjacent to them. Therefore, all outcomes (Except Frequency) are presented as a proportion.

The ACD currently supports 20 outcomes shown in the table below:

Frequency	Sternal Resuturing for any Reason	New Post-Operative Dialysis	Pneumonia
30 Day Mortality	New Permanent Pacemaker Implanted	Prolonged Ventilation > 48hrs	Urinary Tract Infection (UTI)
Re-Operation for Bleeding or Tamponade	Post-Operative AF	Tracheostomy	Sepsis
Re-Operation for Graft Problems	AMI Post-Op	Deep Sternal Wound Infection	Short Stay (<6 days)
Re-Operation for Valve Problems	New Cerebrovascular Stroke	Mediastinitis	Long Stay (>14 days)

Frequency is defined as the number of procedures.

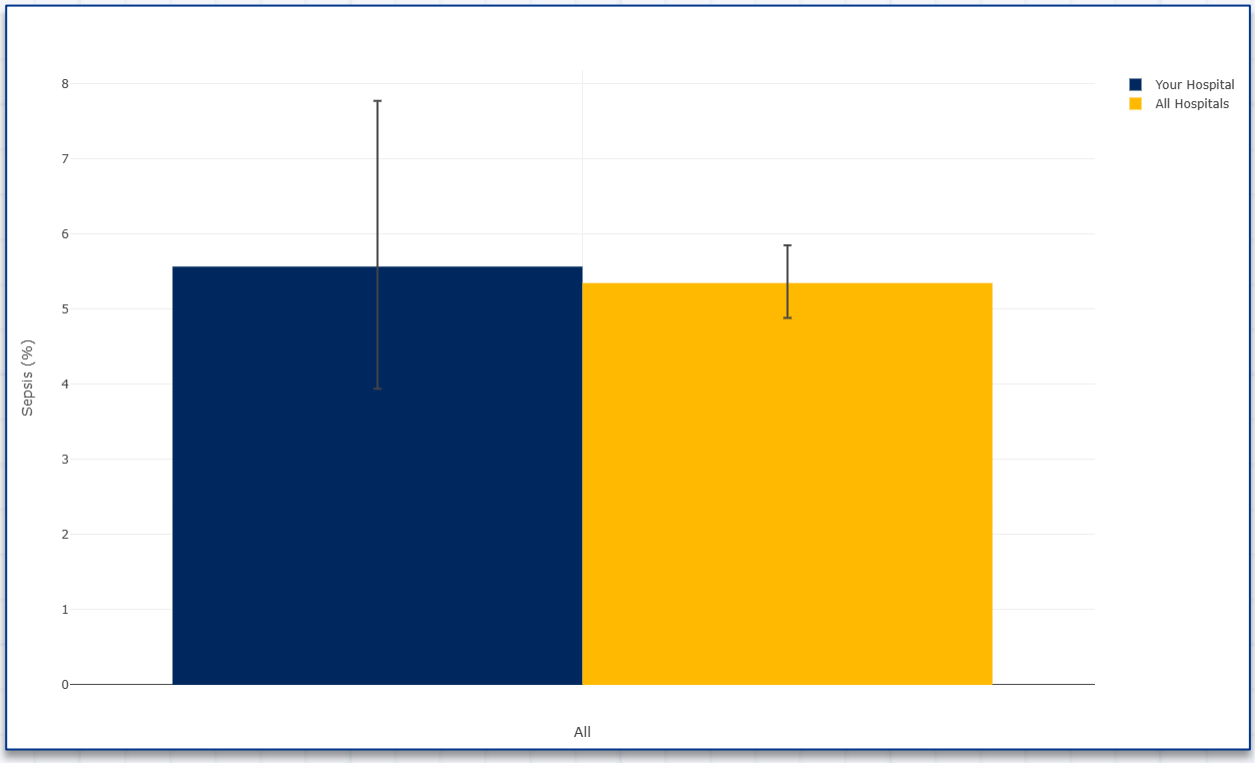
Definitions of each outcome can be found in ACD Data Dictionary.

2. Comparisons

Users can configure their graph with the following comparisons:

Non	No Comparison
Your Hospital	Include just your hospital's data
Your Hospital vs All Hospitals	Compare your own hospital data, with all hospital data in the ACD (including your hospital)
Your Country vs All Countries	Compare your country's data with all country data in the ACD (including your country)

Below is an example of a bar chart with outcome selected as Sepsis, comparing your hospital vs all Hospitals:

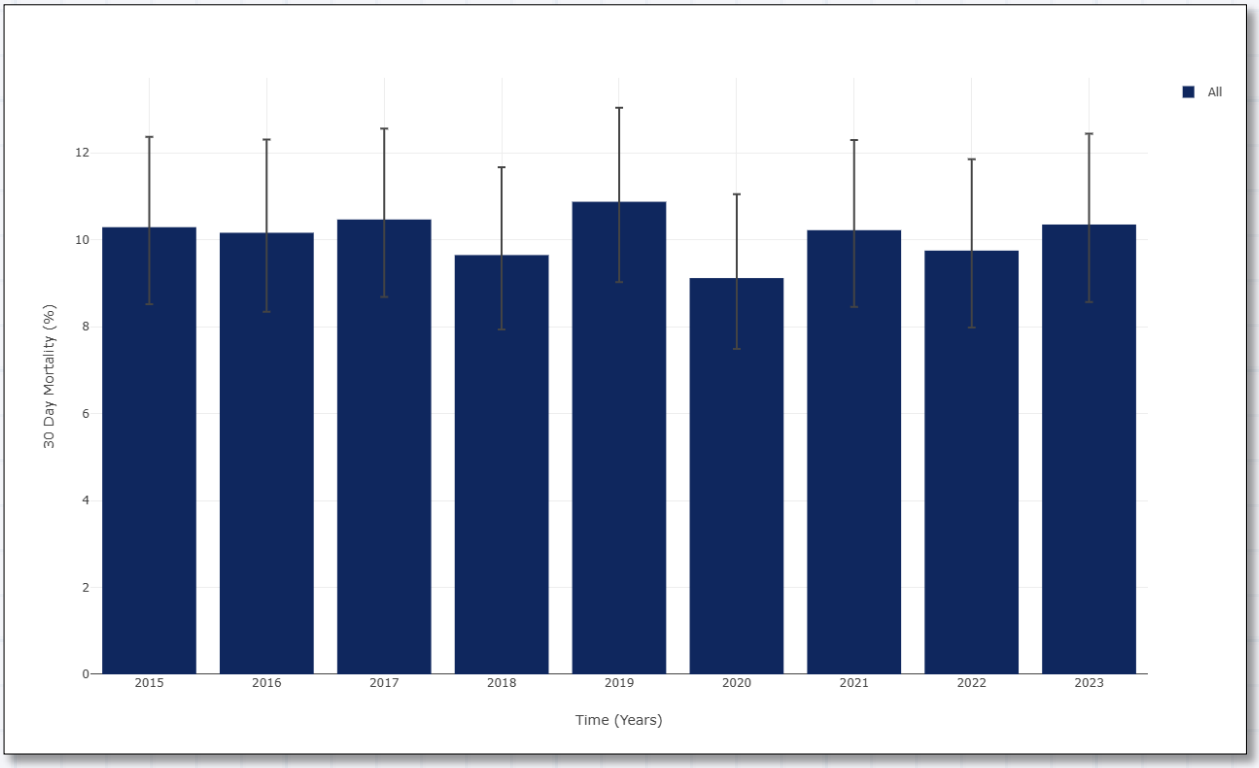


3. Chart Types

Currently the ACD supports three chart types. Each chart is interactive where users can zoom in or out and hover to view values.

a) Bar Chart

Below is an example of a bar chart from the ACD interactive viewer with outcome selected as 30 Day Mortality and aggregated by year. Each bar has a corresponding 95% confidence interval, this is applicable to all outcomes except frequency.



95% confidence intervals are provided for each aggregation and calculated using the formulae suggested by Wilson [1].

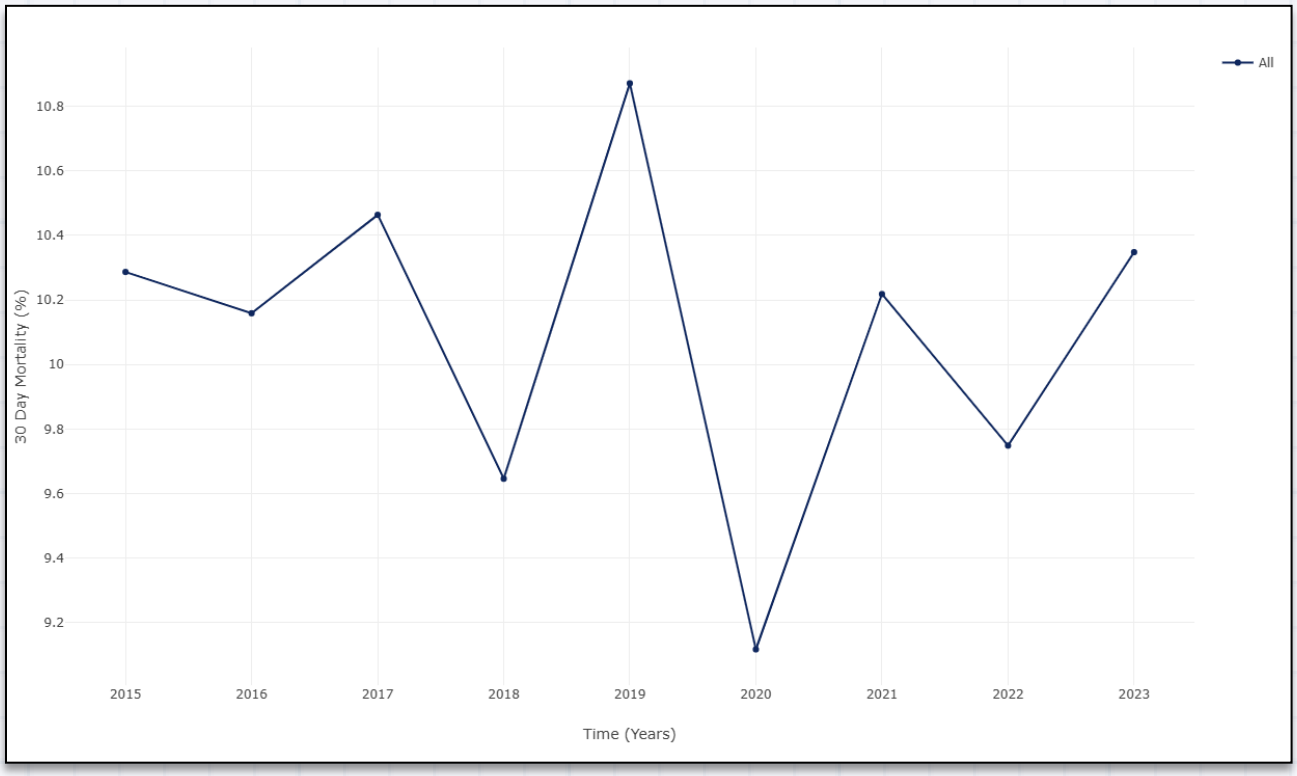
The Wilson score interval offers several advantages over the standard normal approximation interval. Unlike the symmetric normal interval, the Wilson interval is asymmetric, which helps address issues such as overshoot and zero-width intervals that often occur with the normal approach. Moreover, it performs reliably even with small sample sizes and skewed data [2].

The 95% confidence interval should not be interpreted in the sense that one is 95% sure the true proportion is within the 95% confidence interval. A 95% CI simply implies that if the study is conducted multiple times (multiple sampling from the same

population) with corresponding 95% CI for the proportion constructed, we expect 95% of these CIs to contain the true population proportion [3].

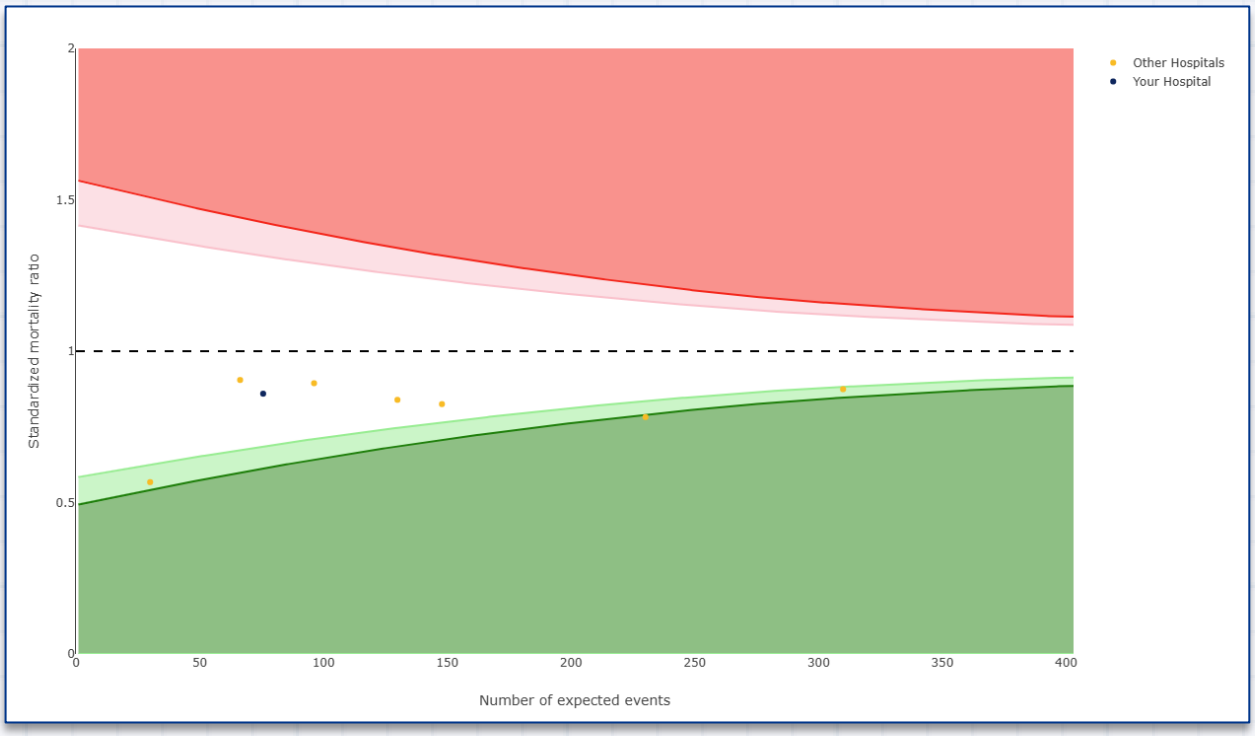
b) Line Chart

To clearly visualise trends, a line chart can also be used:



c) Funnel Plot

The funnel plot is used to investigate if 30-day mortality probability is within the expected 30-day mortality probability. Here as an example of a funnel plot with the comparison your hospital vs all hospitals.



Note: *Chart type Funnel Plot is only enabled when Outcome is 30 Day Mortality*

The y-axis of the funnel plot represents the standardised mortality ratio which is calculated as:

$$Standardised\ mortality\ ratio = \frac{\sum Observed\ mortality}{\sum Expected\ mortality}$$

The sum of *observed mortality* is the cumulative frequency of mortality found in the selected data. The *expected mortality* is based on EuroScore II model [4]. This model was published in 2012 and validated with satisfactory discrimination and calibration [5].

The sum of expected mortality is the sum of predicted probabilities generated by the EuroScore II for the selected data.

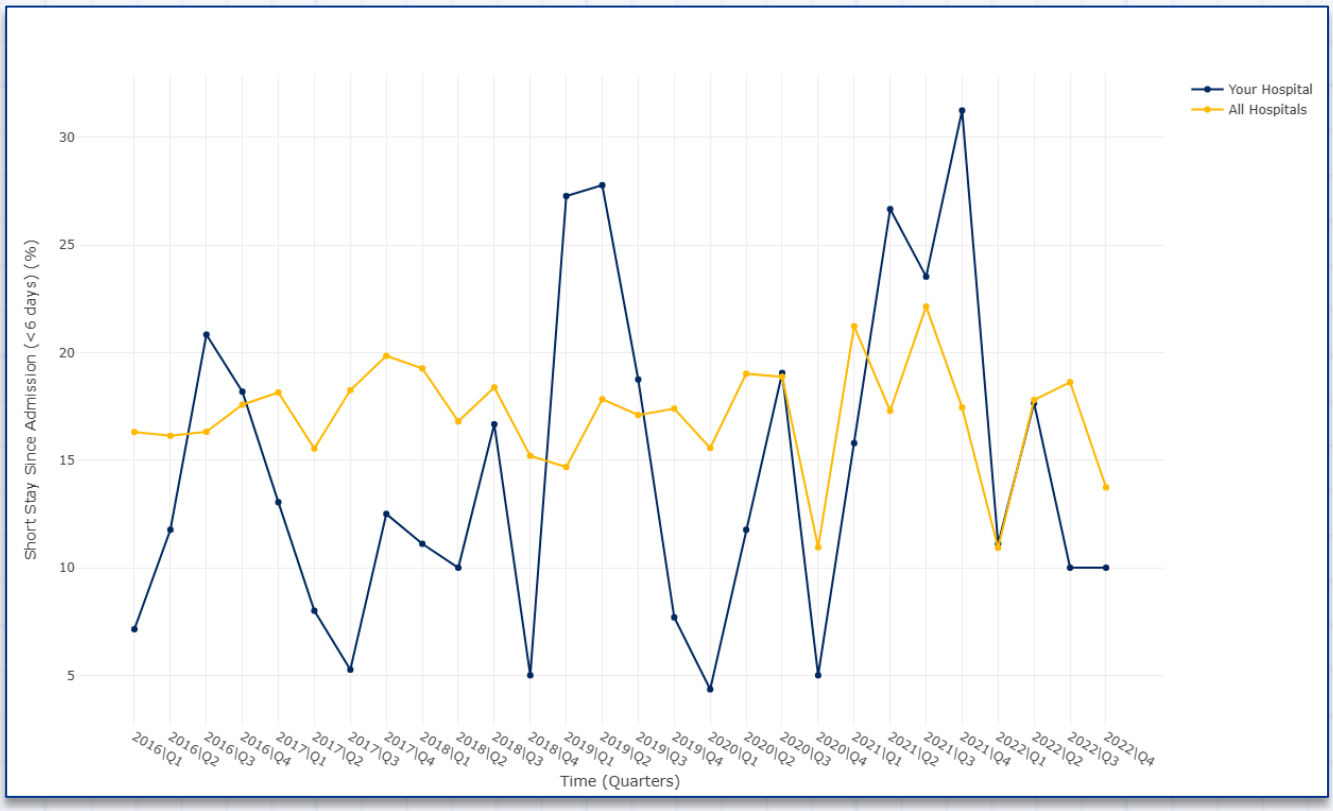
If the *observed mortality* is the same as the *expected mortality*, the standardised outcome ratio will be 1, that is the centre is doing as expected. If the *observed*

mortality is higher than the *expected mortality* the standardised outcome ratio will be >1, that is the centre is doing worse than expected. Lastly, if the *observed mortality* is lower than the *expected mortality*, the standardised mortality ratio will be <1, that is the centre is doing better than expected.

The green and red areas in the funnel plot denote the 95% (light color) and 99% (darker color) control limits. These control limits are based on a Poisson-distribution, as rates are presented. On the x-axis the number of expected deaths are shown, and control limits get smaller when more events are expected. Of note, in the current version of the ACD the control limits are not adjusted for potential overdispersion [6].

4. Aggregation

Both bar and line charts can be aggregated by either Year, Quarter or Month. Here is an example of a line chart showing the outcome Short Stay Since Admission, comparing Your Hospital vs All Hospitals, aggregated by quarter between 2016/01 and 2022/12.



5. Stratification

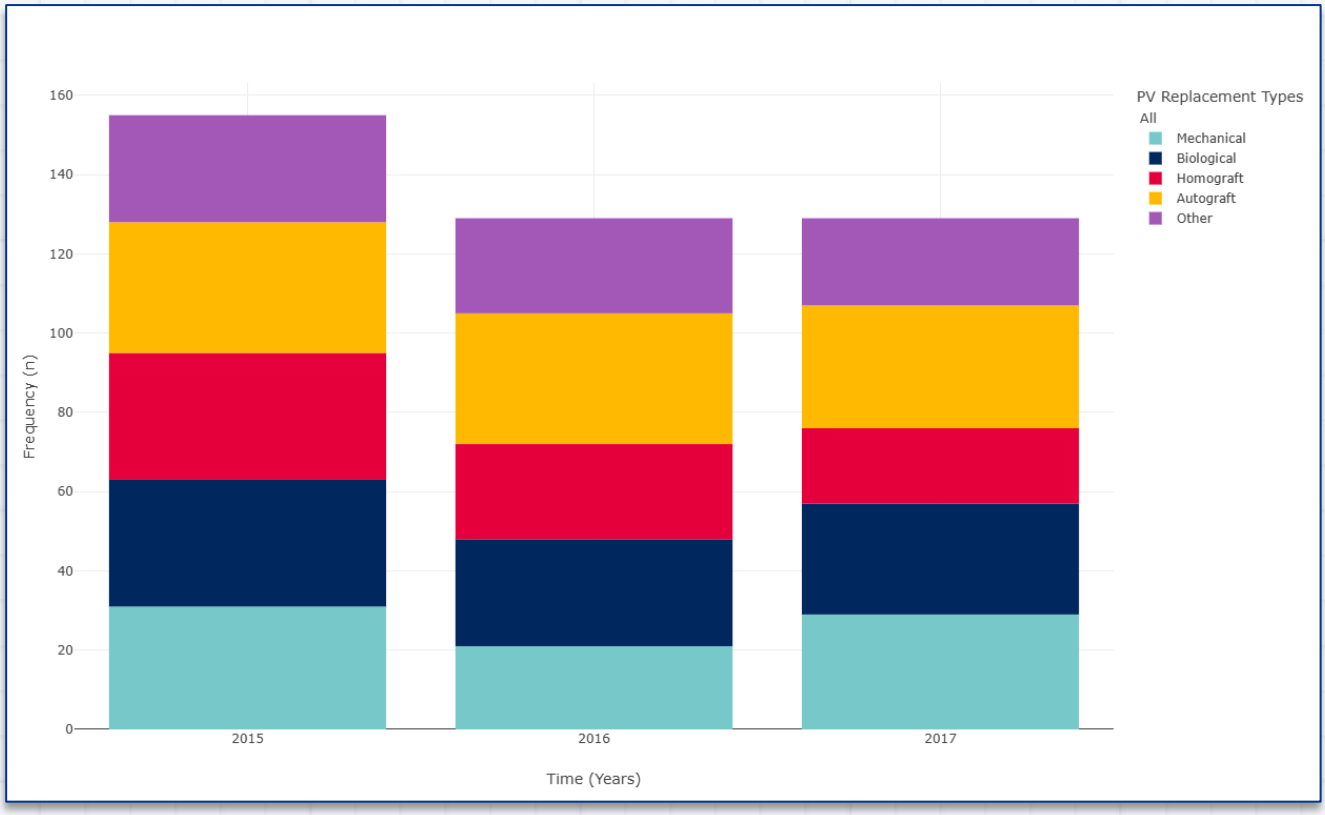
Bar charts can be stratified according to 15 categories listed below. Currently stratification is supported for two outcomes: Frequency and 30 Day Mortality.

Patient Characteristics		EuroScore II Groups
Age Groups: - <51 - 51-60 - 61-70 - 71-80 - 81+	Sex: - Male - Female	- 0-2 - 2-5 - 5+

Procedure		
Procedure Types: - Isolated CABG - CABG & Valve - CABG & Valve & Other (cardiac) - CABG & Other (cardiac) - Isolated Valve - Valve & Other (cardiac) - Other (cardiac)	Aortic Valve Procedures - Replacement - Repair	Tricuspid Valve Replacement Types - Mechanical - Biological - Homograft - Autograft - Other
Isolated vs Non-Isolated CABG - Isolated CABG - Non-isolated CABG	Mitral Valve Procedures - Replacement - Repair	Aortic Valve Replacement Types - Mechanical - Biological - Homograft - Autograft - Other -

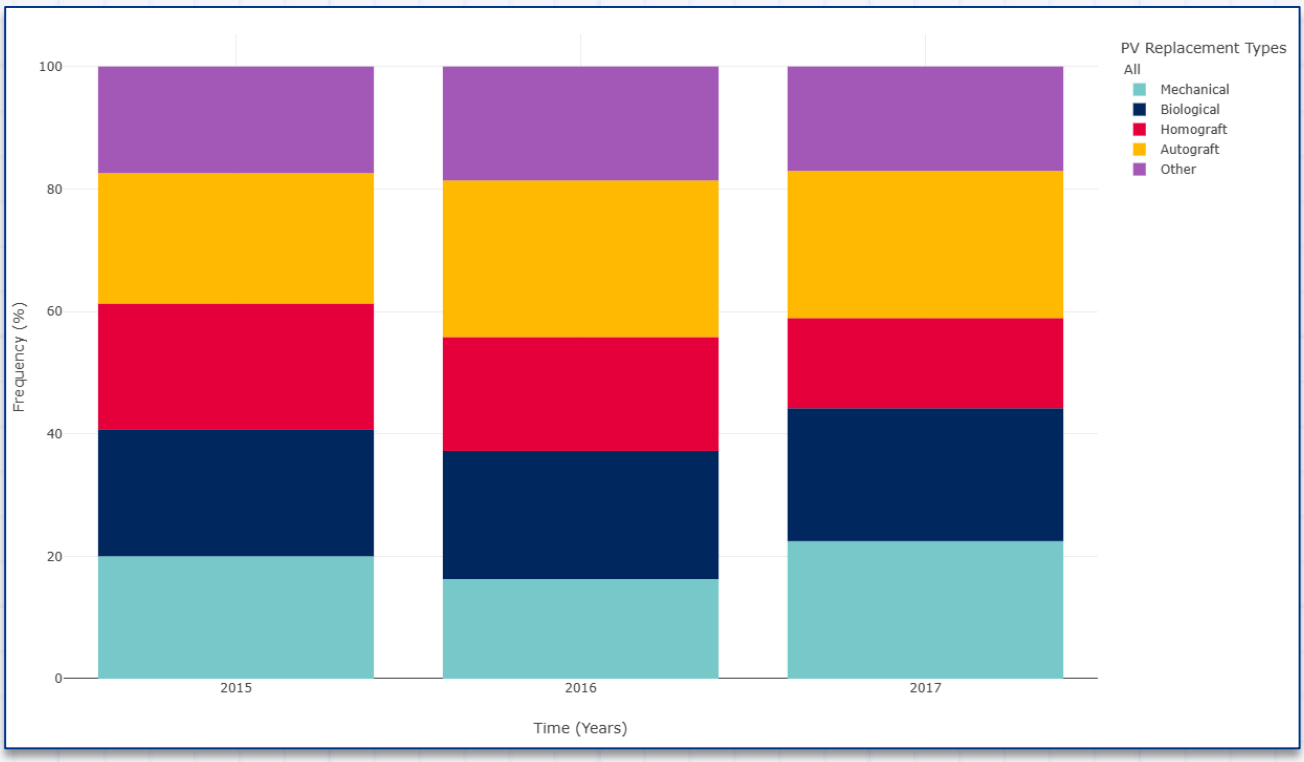
Graft Types - Total Arterial - Total Venous - Mixed Arterial/Venous - Unknown	Tricuspid Valve Procedures - Replacement - Repair	Mitral Valve Replacement Types - Mechanical - Biological - Homograft - Autograft - Other
	Pulmonary Valve Procedures - Replacement - Repair	Tricuspid Valve Replacement Types - Mechanical - Biological - Homograft - Autograft - Other

Here is an example of a Bar char with the outcome Frequency (n), aggregated by year between 2013 and 2017 and stratified by Pulmonary Valve Replacement Types:



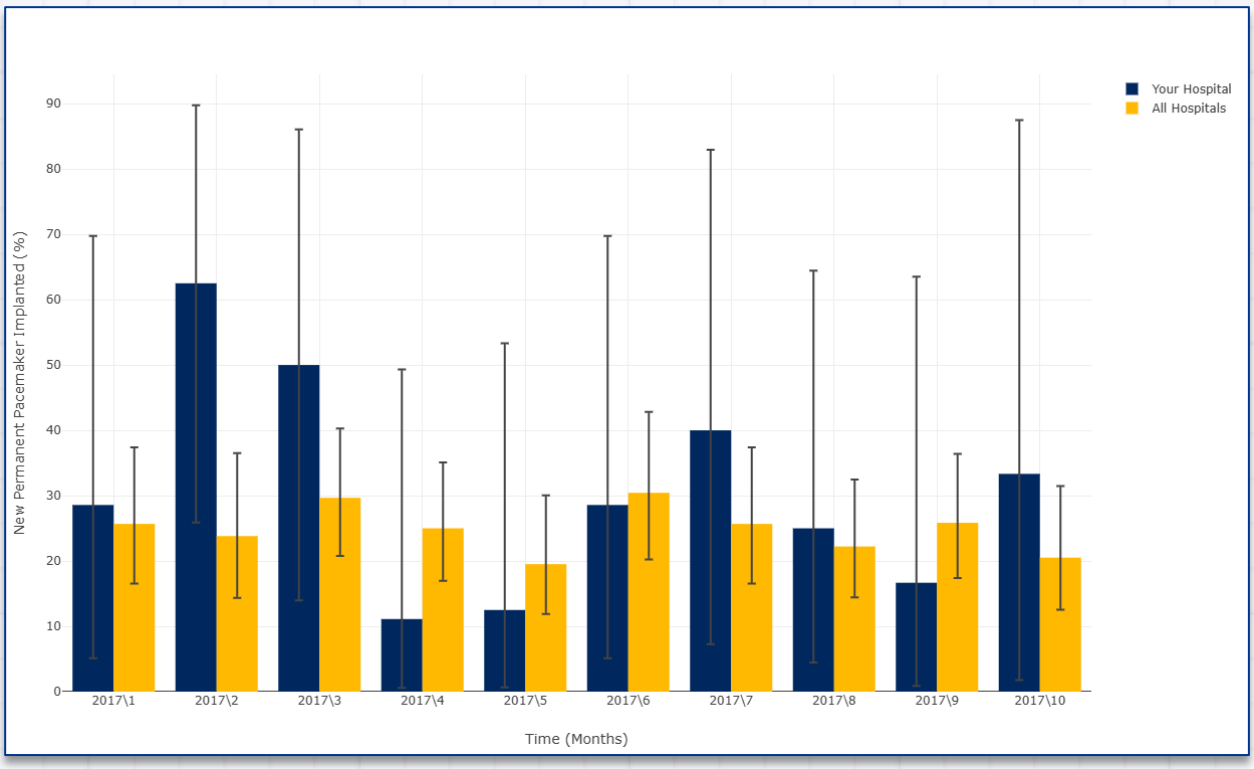
6. Stratification Display

Stratified graphs can be displayed as either stacked percentage or stacked frequency. Here is an example of the above graph displayed as stacked percentage:

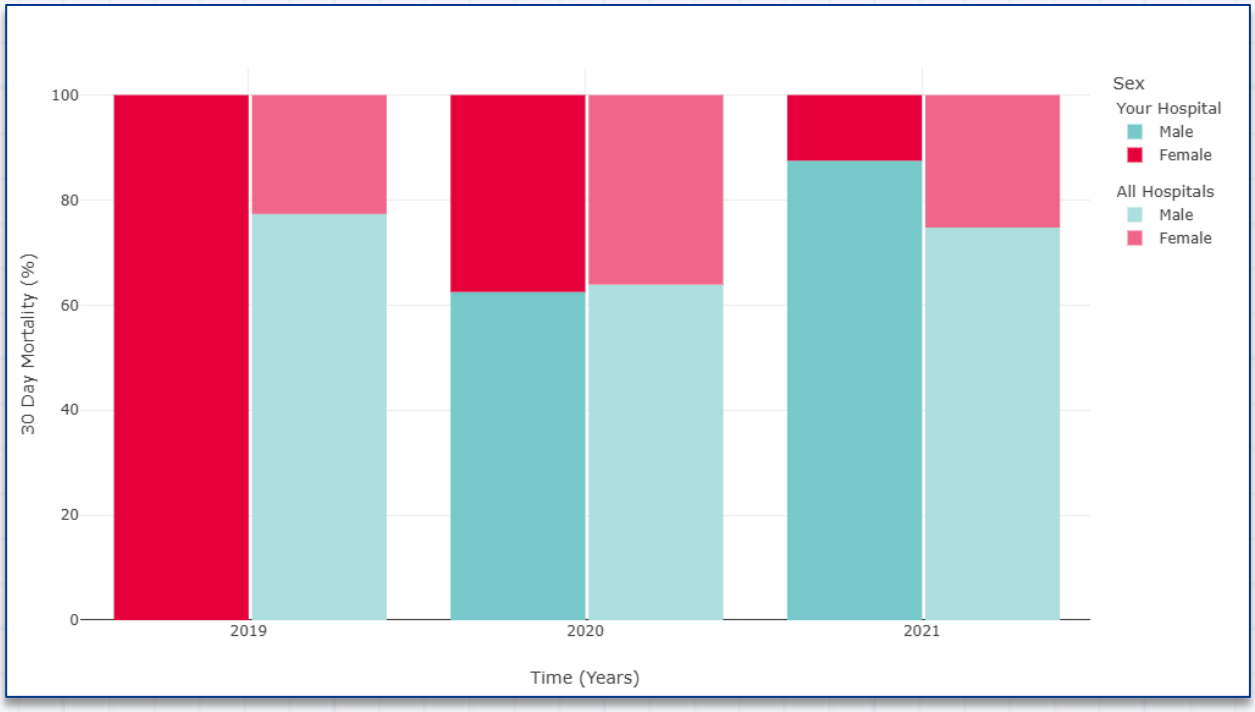


Example Graphs

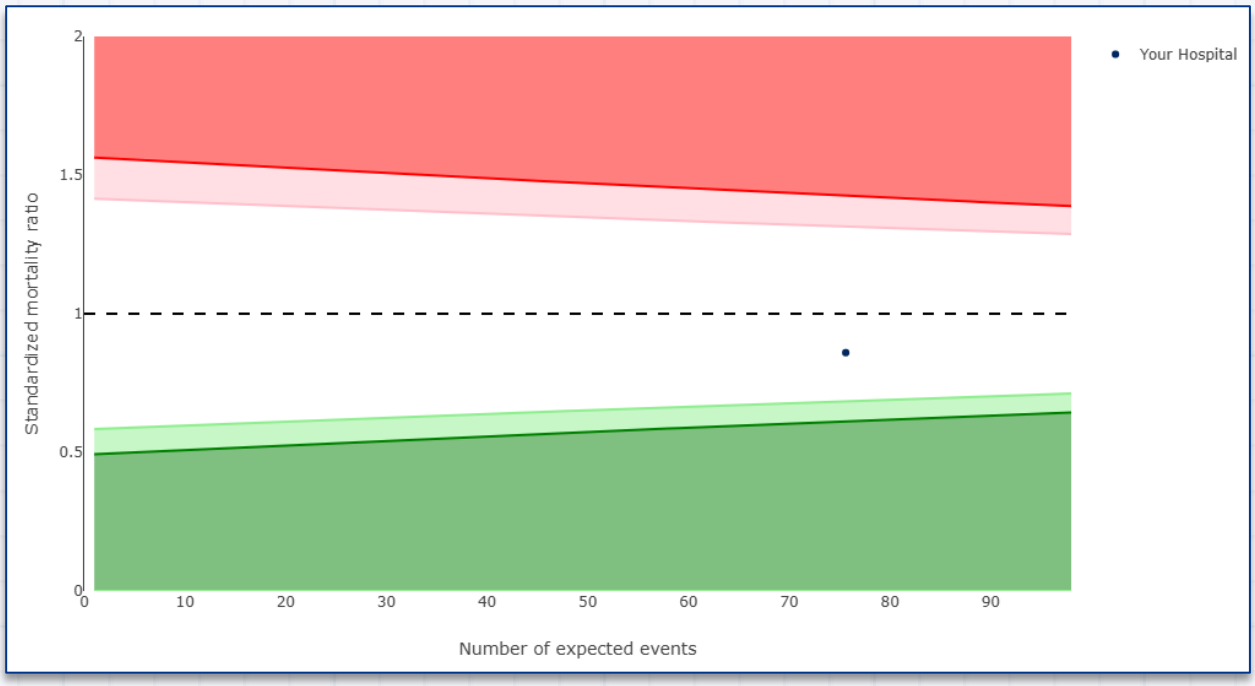
Example 1: *Bar chart with outcome selected as New Permanent Pacemaker Implanted, comparison set as your hospital vs all hospitals aggregated by month between 2017/01 and*



Example 2: *Bar chart with outcome selected as 30 Day Mortality, comparison set as your hospital vs all hospitals, aggregated by year between 2019/01 and 2021/12, stratification assigned as sex and stratification display chosen as stacked percentage.*

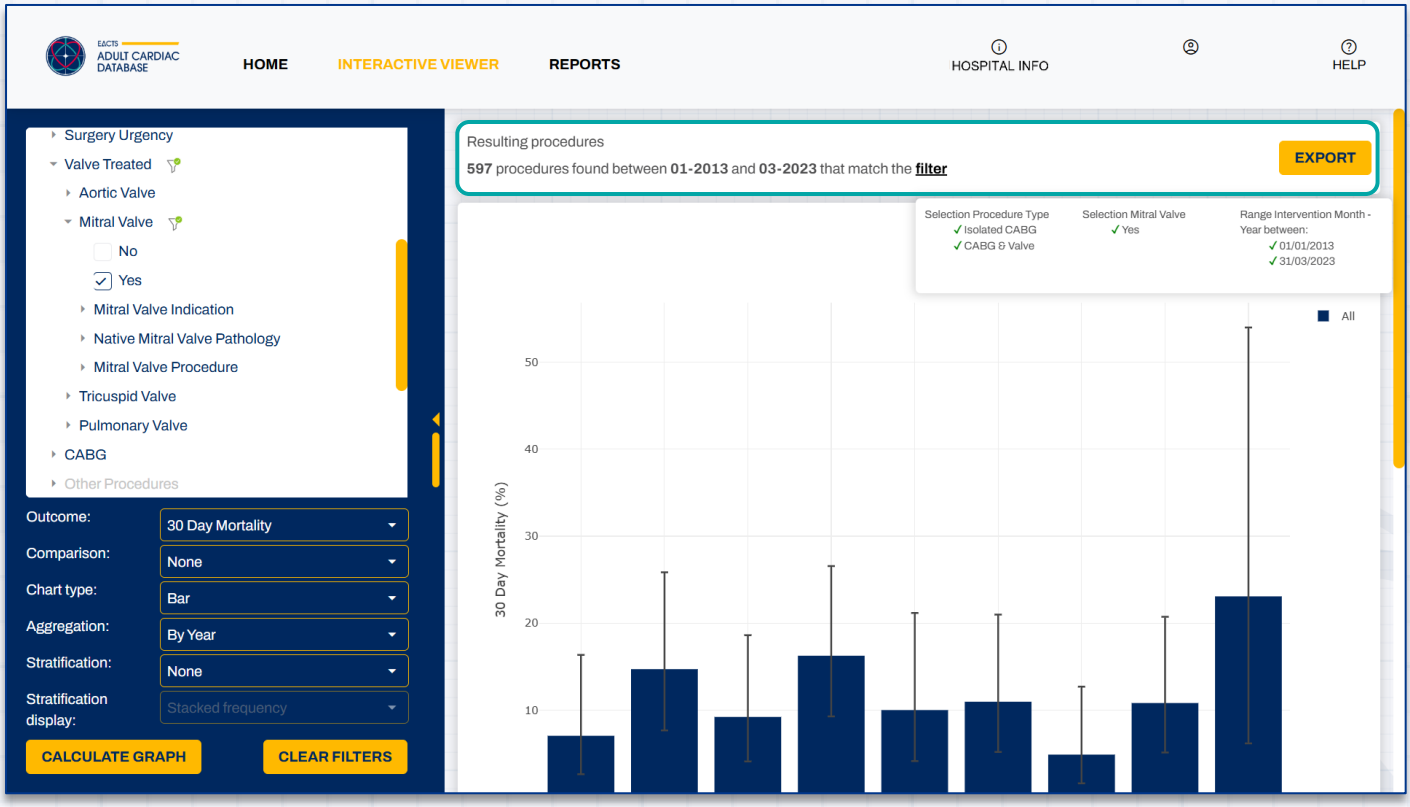


Example 3: *Funnel plot with comparison set as your hospital.*



Additional Graph Information

Within the interactive viewer at the top of each graph is displayed the number of procedures returned from your filter and which filters were used:

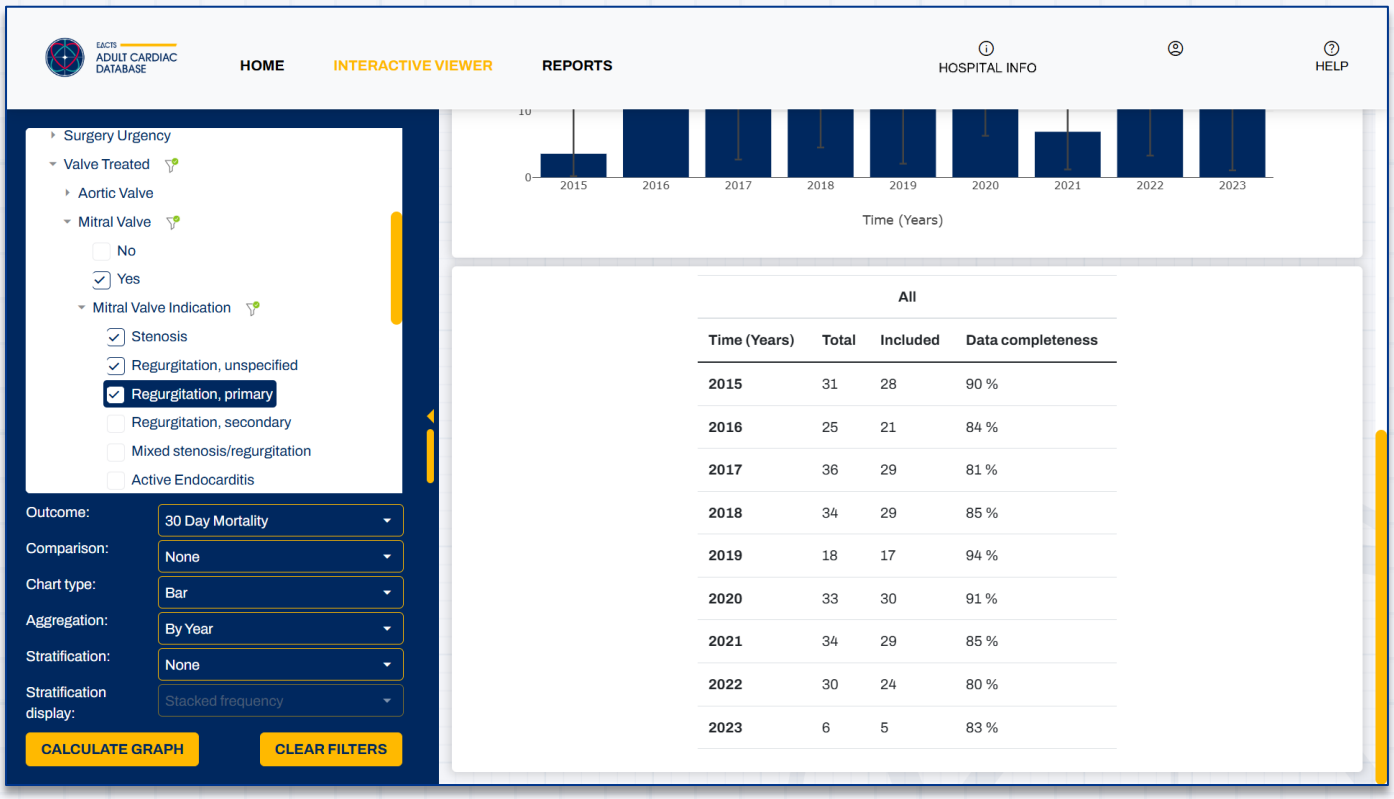


Data Completeness Table

Not all variables in the EACTS ACD are mandatory, so some values may be missing.

The outcomes are presented using **complete case analyses**. This means for example that if a user decides to filter on 6 variables, and one of these variables is missing, the whole patient will be excluded from the analyses.

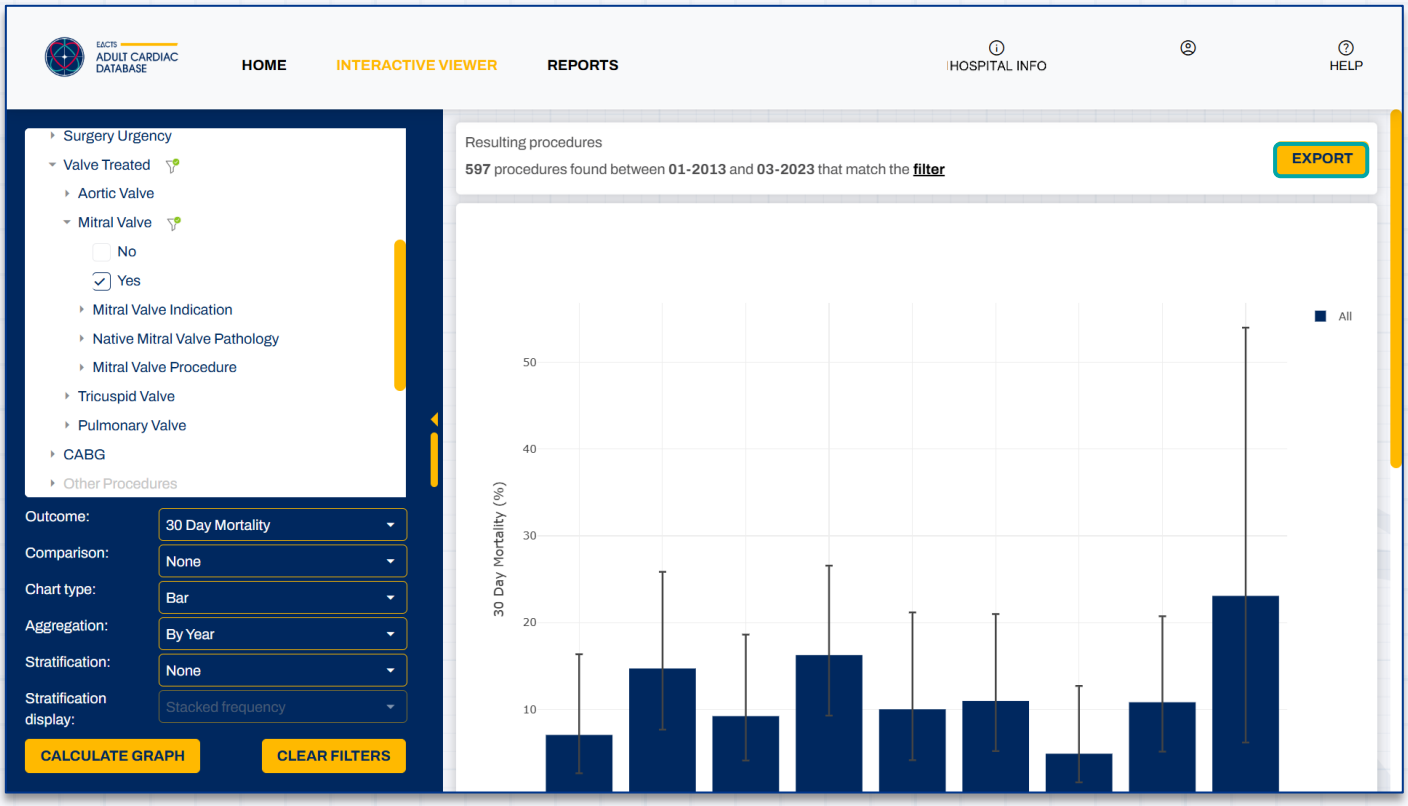
To effectively communicate this, a completeness table is included in the ACD interactive viewer which can be viewed beneath the graph view:



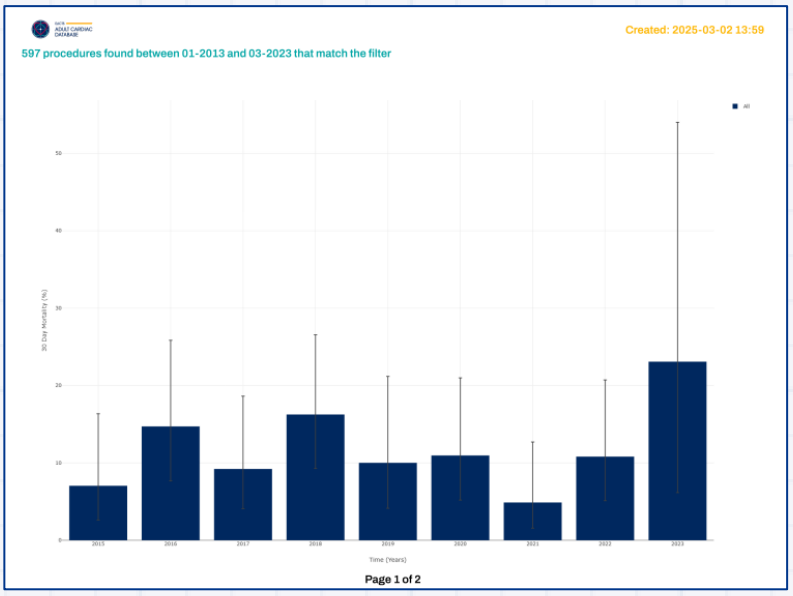
- **Total** represents the total number of records retrieved based on your filter for each aggregation.
- **Included** refers to the total number of filtered records per aggregation, excluding those with missing values in the filtered variable.
- **Data completeness** is calculated as the percentage of included records relative to the total records.

Exporting your Graphs

To export your graph as a pdf document, select **EXPORT:**



A pdf export of your graph, filters used, and data completeness table will be made:



Created: 2025-03-02 13:59

597 procedures found between 01-2013 and 03-2023 that match the filter

Page 1 of 2

Created: 2025-03-02 13:59

597 procedures found between 01-2013 and 03-2023 that match the filter

Outcome: 30 Day Mortality
Aggregation: By Year
Comparison: None
Stratification: None

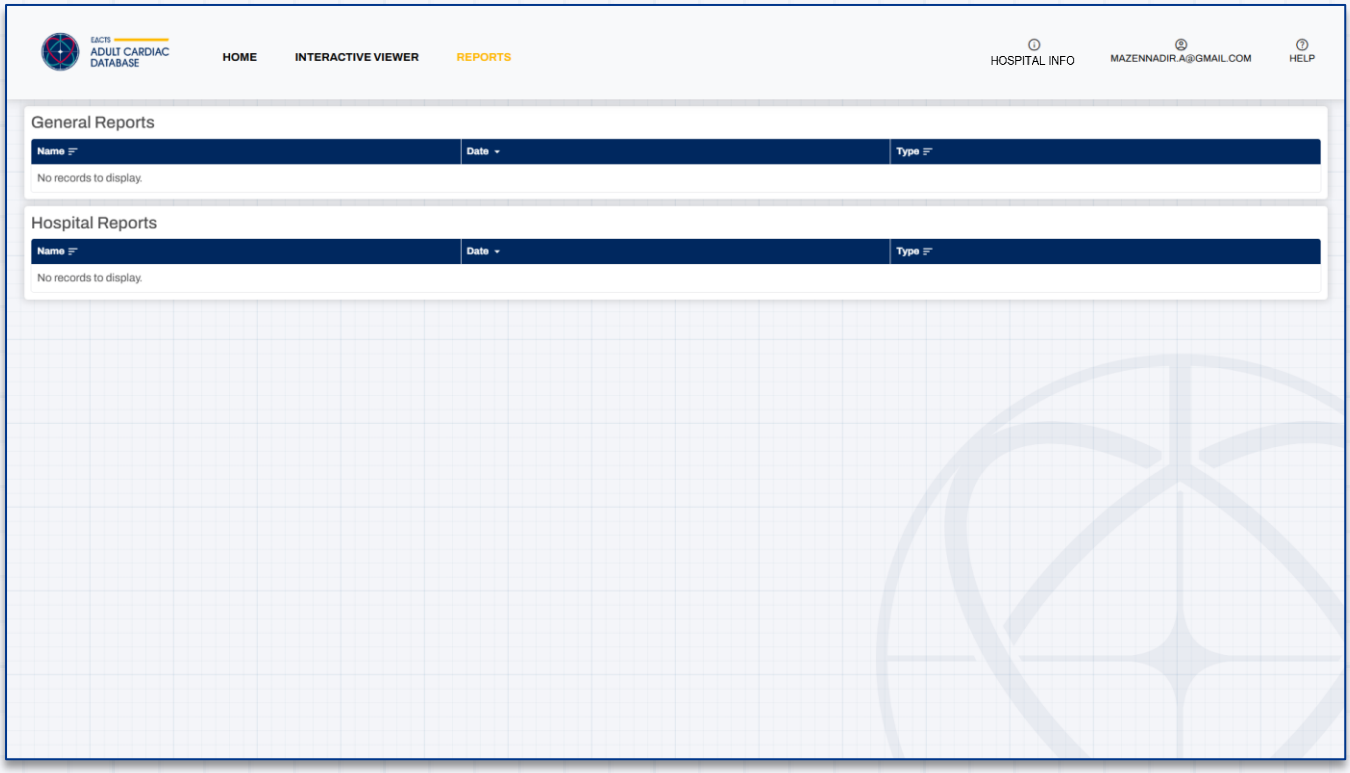
Filters:
Procedure Type - Isolated CABG
- CABG & Valve
Mitral Valve - Yes
Intervention Month - Year 01/01/2013 - 31/03/2023

All			
Time (Years)	Total	Included	Data completeness
2015	71	71	100 %
2016	68	68	100 %
2017	76	76	100 %
2018	80	80	100 %
2019	60	60	100 %
2020	73	73	100 %
2021	82	82	100 %
2022	74	74	100 %
2023	13	13	100 %

Page 2 of 2

Reports

To access ACD reports select **REPORTS** in the header tab:



Currently the ACD supports two types of reports.

General Reports:

Available to all EACTS members and users from participating institutions.

- Annual statistical reports on aggregated data in the ACD
- Most up to date ACD Data Dictionary
- EACTS Charter
- Research request study protocol

Hospital Reports

Available to users from participating institutions.

- Annual statistical reports on your centres data, including key clinical metrics and benchmarking.

Guidelines for External Use of ACD Material

Please see the section on **Copyright (and other intellectual property rights) restriction**s from ACD terms and condition regarding guidance on external use of ACD Material.

Admin Portal

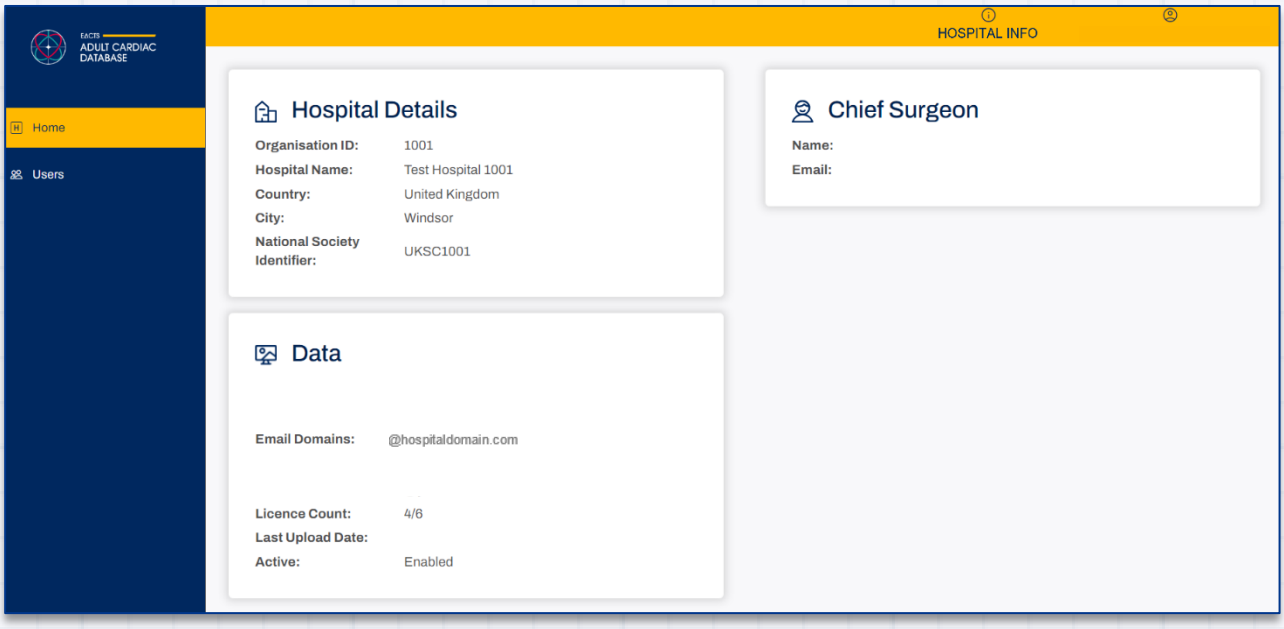
This section is applicable to hospital chief surgeons and data managers responsible for assigning user access to the ACD Web Platform.

Home

Hospital chief surgeons and **data managers** are given access to the ACD admin portal which can be accessed through the following link:

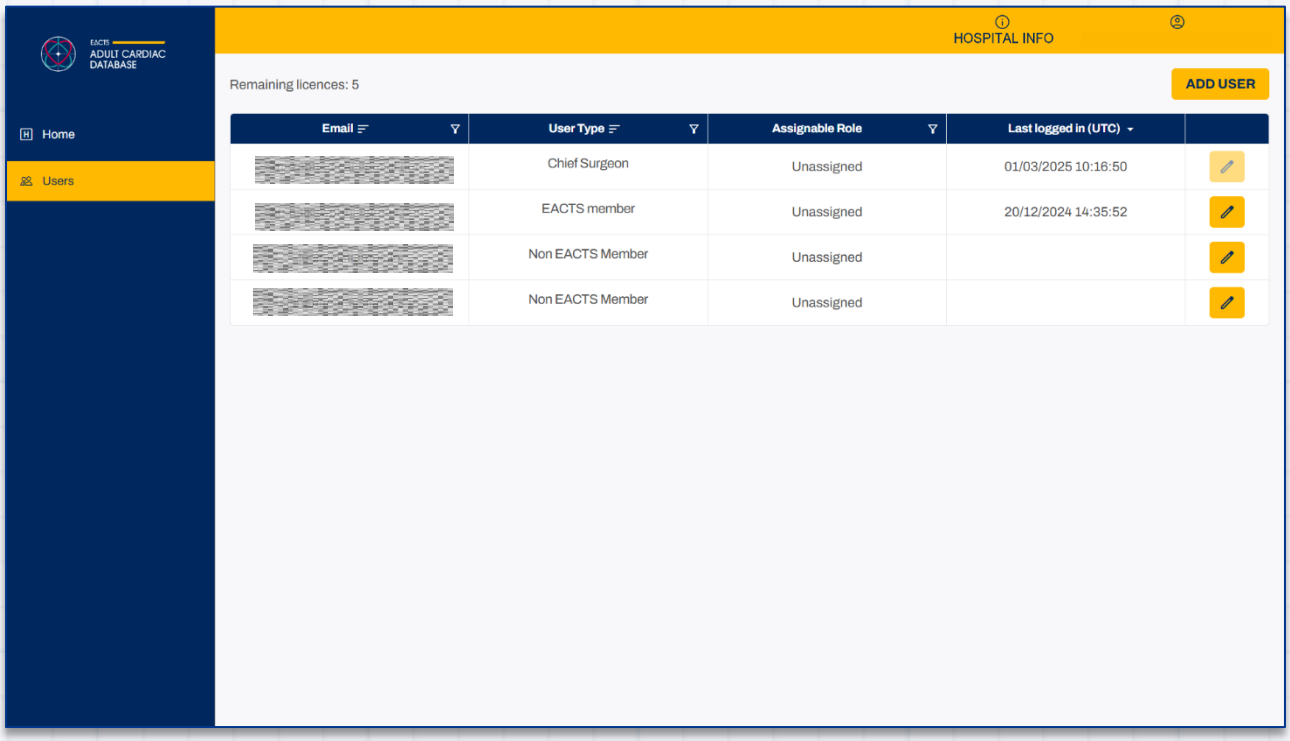
https://acdadminportal.eacts.org/

After login, you will be given access to the following **Home** page giving an overview of your hospital details, chief surgeon, email domains associated with your hospital, licenses, and last data upload date:



Adding and Managing ACD User Access

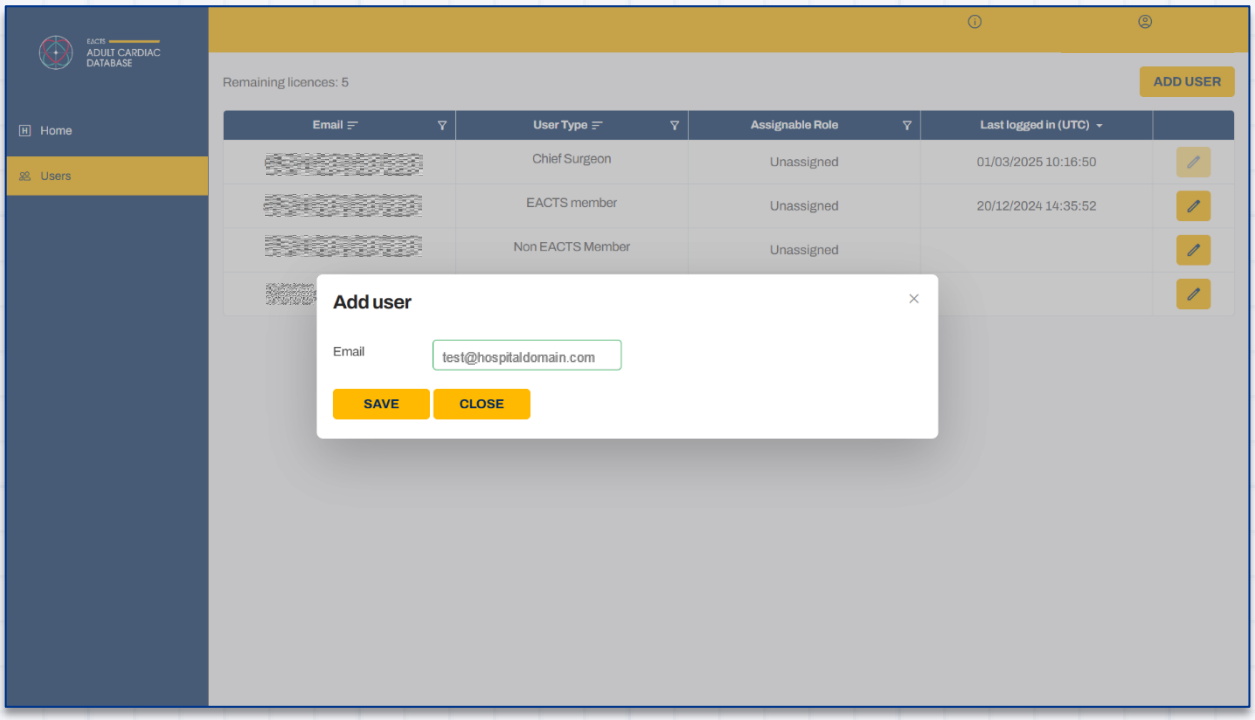
Selecting Users on the left-panel will take you to the following page:



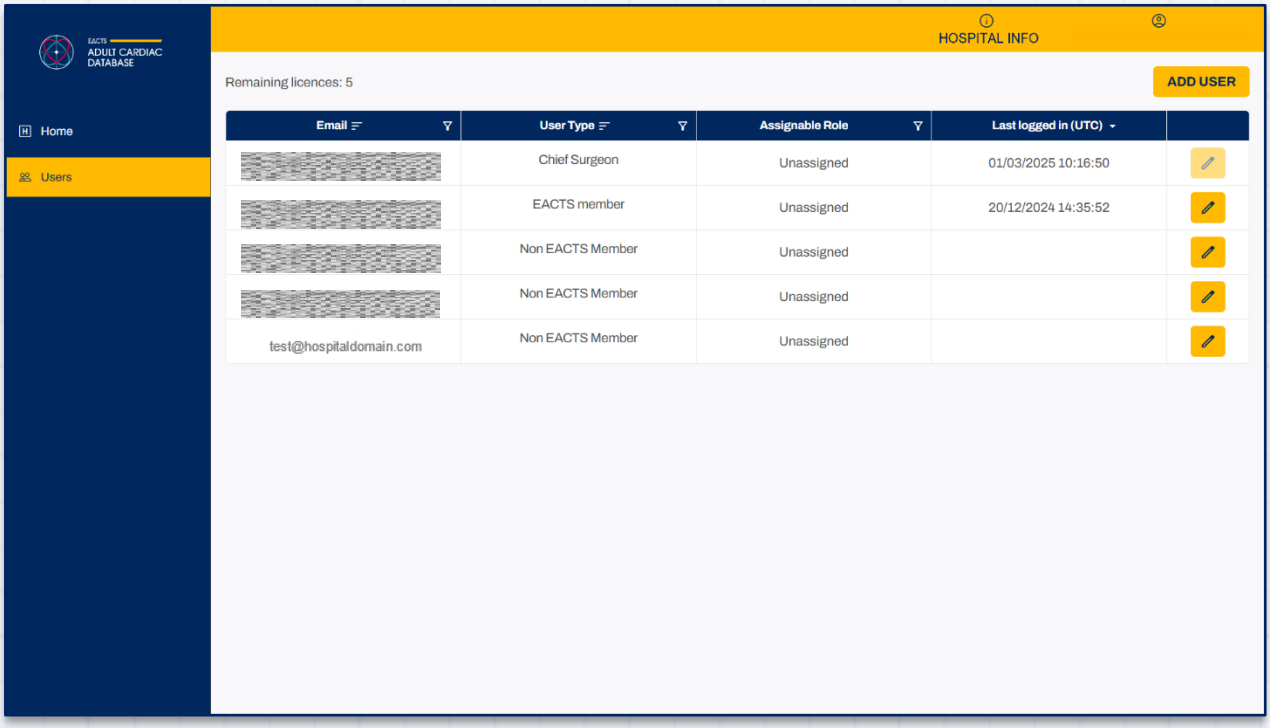
In the above example we have 3 users that have been added to the hospital.

1 is an EACTS member and the other two are non-EACTS Member.

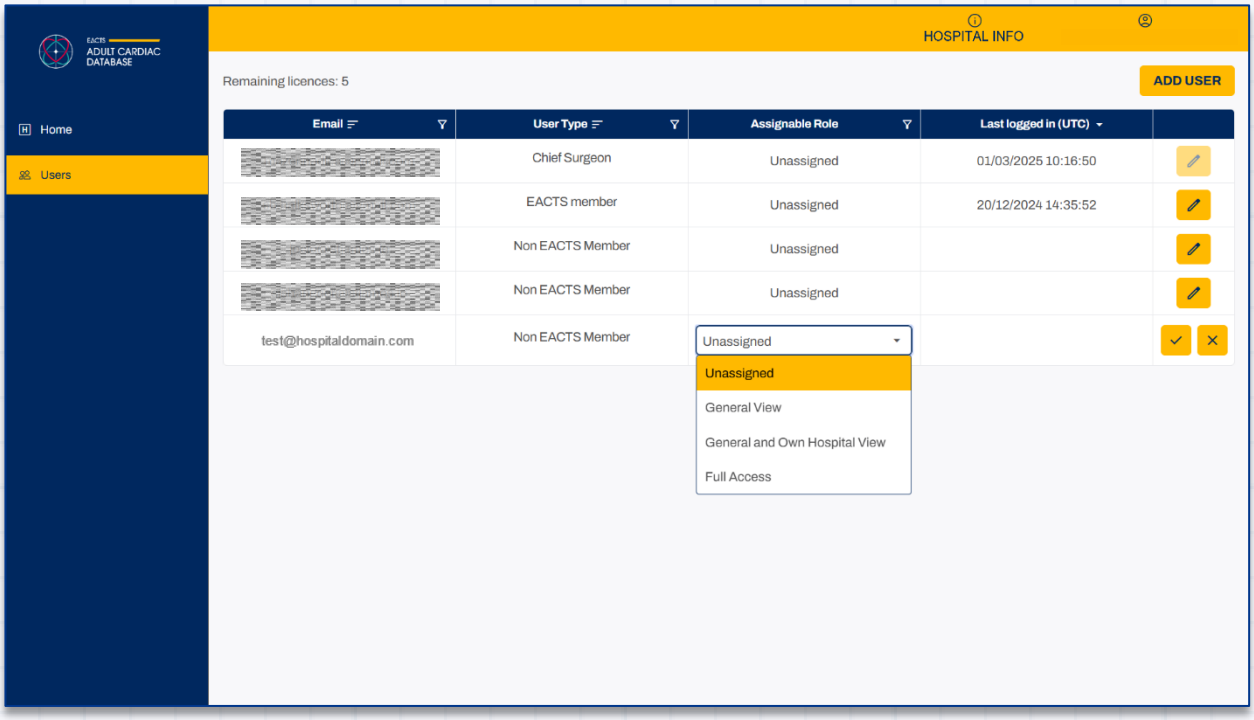
To add a new user, select **ADD USER** and add the users email address:



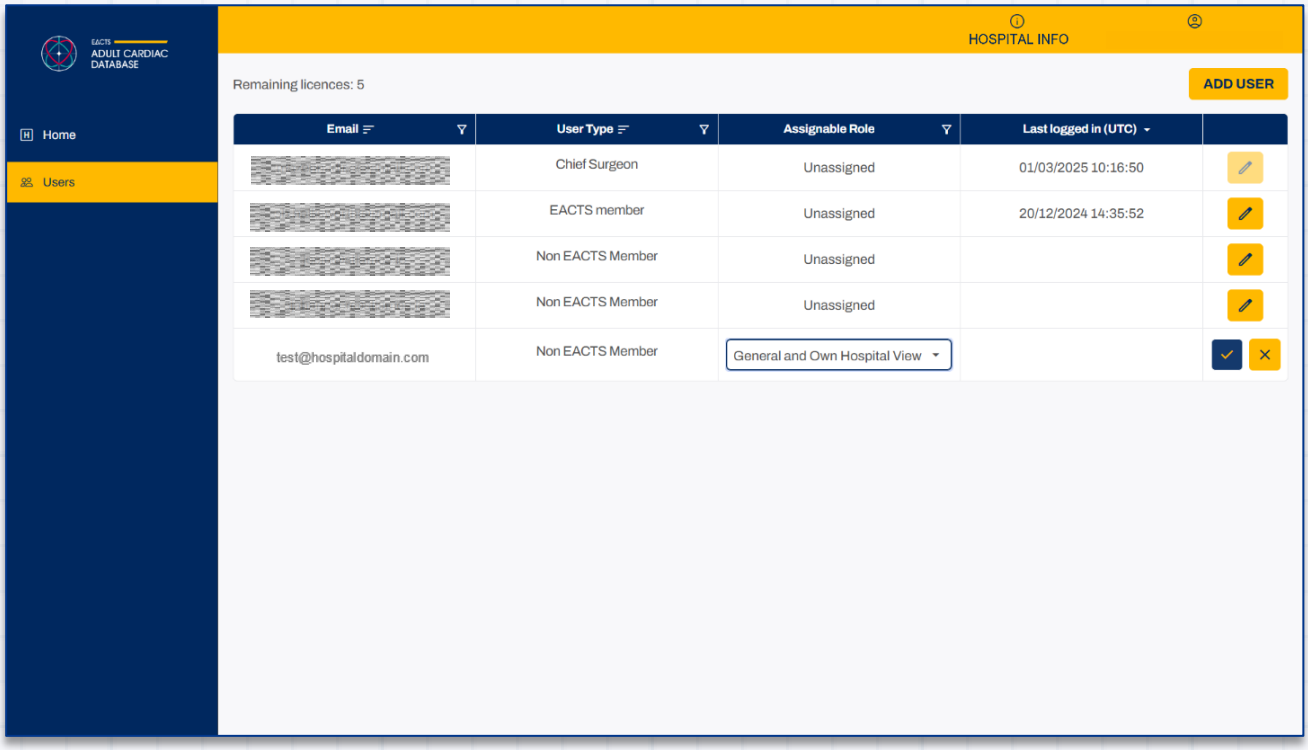
The new user will appear in your table:



Select the pencil button to assign a role to your user:



The ACD has three levels of access explained here.



In the below example we give the new user with email test@hospitaldomain.com General and Own Hospital View. Select the tick to confirm your choice.

Upon confirming our choice, when the user next logs in they will be granted General and Own Hospital View.

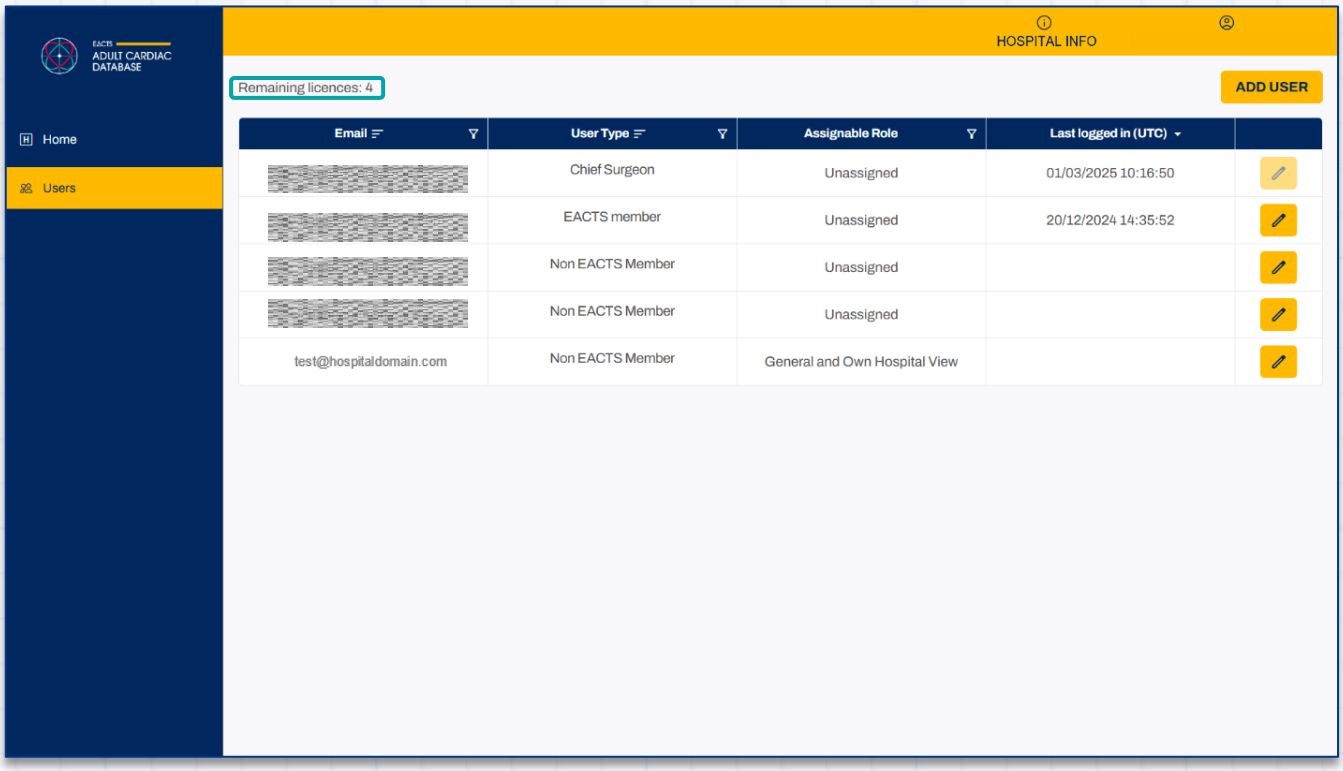
Licenses

All centres registered with the ACD are granted a maximum of 5 licenses.

The **Chief Surgeon** and **EACTS members** do not consume a license.

Non-EACTS members from a participating centre that are assigned General and Hospital View or Full Access consume a license.

In the example above, we assigned General and Hospital View to the user with email test@hospitaldomain.com. This user is a Non-EACTS member and therefore consumes a license which is reflect at the top of the table:



If a centre would like additional licenses, please contact quip@eacts.co.uk.

Data Upload and Management

Data Onboarding

Once you institution has registered with the ACD, a data request will be sent to your centre's data manager.

There are two options to prepare your centre's data for upload:

1. You can map your data to the EACTS ACD format yourself using the ACD data dictionary and specification file.

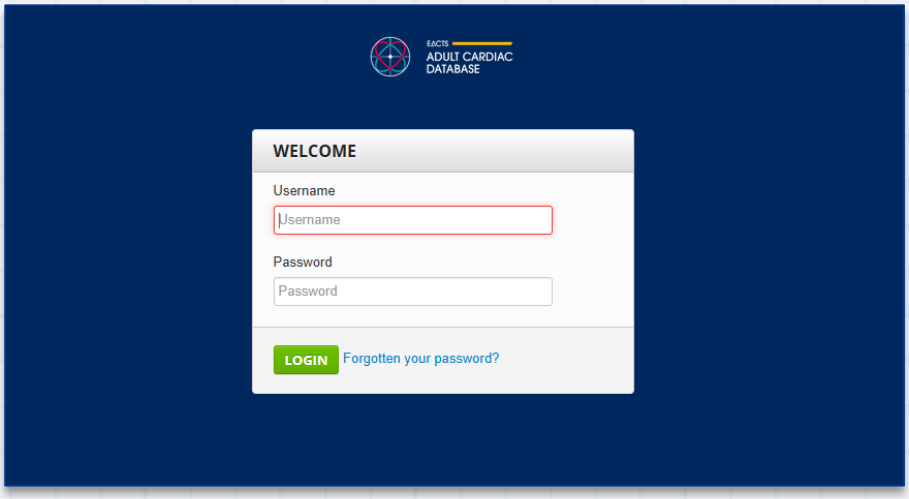
2. If you need support, EACTS can map your data to match with the ACD format. Please provide us with your most up to date data dictionary to do so.

   Please DO NOT upload:
   - The names of any individuals including patients, surgeons, assistants etc.
   - The address of any individuals
   - The IDs of any clinicians

   Please ensure:
   - String representations where possible (i.e. using "Male" and "Female" as opposed to 0 and 1)
   - Your data is uploaded as a csv or xlsx file

A space will be created for your centre to upload data on our UK based secure web platform: https://www.iweb-ftp.co.uk/

A username and password will be provided to your centre's data manager to access your space.



Data Validation

After data upload, all hospitals participating in the ACD will have their data go through a **data completeness**, **data error** and **data audit check**. The aim of each check is to increase the data quality of the ACD and enable centres to make a fair comparison of their data. Information gathered at each check is summarised in a data quality and completeness report.

Data Completeness Check

EACTS will review the hospital unit's data to assess whether it complies with the data completeness rules which will determine if the data can be uploaded into the ACD.
The overview of mandatory, essential, and optional data fields is listed in the EACTS ACD Data Specification document and Data Dictionary.

To be allowed into the ACD **ALL mandatory fields** must have been filled.

Records with incomplete mandatory fields will not pass. Essential fields are more important than optional fields but have no data completeness requirements to be accepted into the ACD.

Data Error Check

Upon a centre's data upload an error check is conducted.

Errors can include but are not limited to:
- Duplicate records
- Invalid entries (Entries outside a feasible range or not in the correct format)
- Invalid dependencies (I.e. Procedure type is Coronary Artery Bypass Graft (CABG), but aortic valve implant type is mechanical valve in that record)

Duplicate records and invalid dependencies will be automatically rejected upon data upload.

Essential and optional records that contain values outside a feasible numerical range will be set to missing but still be uploaded to the ACD.

Errors that are flagged are compiled and placed in the data quality and completeness report where data managers can identify records that have been rejected or contain errors.

Data Audit Assessment

EACTS will assess the verification of a hospital unit's data based on pre-defined criteria and categorise them in the levels below. The assessment of the data verification will be held at data level, not hospital level, meaning a hospital can have data at both levels.

Data Audit Levels

Audited Data

Data that complies with **ALL** the data validation rules below will be categorised as audited data:

1. Data has been audited by Hospital/National Registry before submission to the ACD.
2. Proof of audited and accurate data must be demonstrated by Hospitals and National Societies/Registries to EACTS (for example via audit certificate, standard data check procedural document or audit agreement with centre if via National Registry).

EACTS will keep a record of all demonstrated audit documents, certificates, and written confirmation of audits within the secured EACTS Cloud (only visible to QUIP administrative staff).

Non-audited Data

Data that does not comply with the criteria set out in Level 2 will be categorised as Level 1 – not audited therefore unverified data. Level 1 data does not mean the data is not good quality, but that EACTS cannot verify the data if there is no proof of audit.

Categorisation of Data

Even after submission to the ACD, Data Audit Levels can change for a hospital's data. For example, if a hospital submits their audit certificate after submitting their data, EACTS will update the Level accordingly (to Level 2 – audited and verified).

In rarer circumstances it may occur that a Data Audit Level goes down, for example if EACTS has been made aware that the audit procedure was not fulfilled correctly.

Filtering Audited Data

Audited data can be filtered in the Interactive viewer filter box under the filter named 'Audited Data' (Yes or No) for the purpose of ensuring more accurate data for specific outcomes and to enable a fair comparison between audited and non-audited data. Data Audit levels are anonymous for all ACD participant users.

Troubleshooting and Feedback

If you encounter any issues with the ACD or have feedback and suggestions for improvement, please reach out to quip@eacts.co.uk

Your input helps us enhance the system and better support your needs.

References

[1] Wilson, E. B. (1927) 'Probable Inference, the Law of Succession, and Statistical Inference', Journal of the American Statistical Association, 22(158), pp. 209–212. doi: 10.1080/01621459.1927.10502953.

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[3] O'Brien SF, Yi QL. How do I interpret a confidence interval? Transfusion. 2016 Jul;56(7):1680-3. doi: 10.1111/trf.13635. Epub 2016 May 17. PMID: 27184382.

[4] Samer A.M. Nashef, François Roques, Linda D. Sharples, Johan Nilsson, Christopher Smith, Antony R. Goldstone, Ulf Lockowandt, EuroSCORE II, European Journal of Cardio-Thoracic Surgery, Volume 41, Issue 4, April 2012, Pages 734–745, https://doi.org/10.1093/ejcts/ezs043

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[6] Spiegelhalter DJ. Funnel plots for comparing institutional performance. Stat Med. 2005 Apr 30;24(8):1185-202. doi: 10.1002/sim.1970. PMID: 15568194.