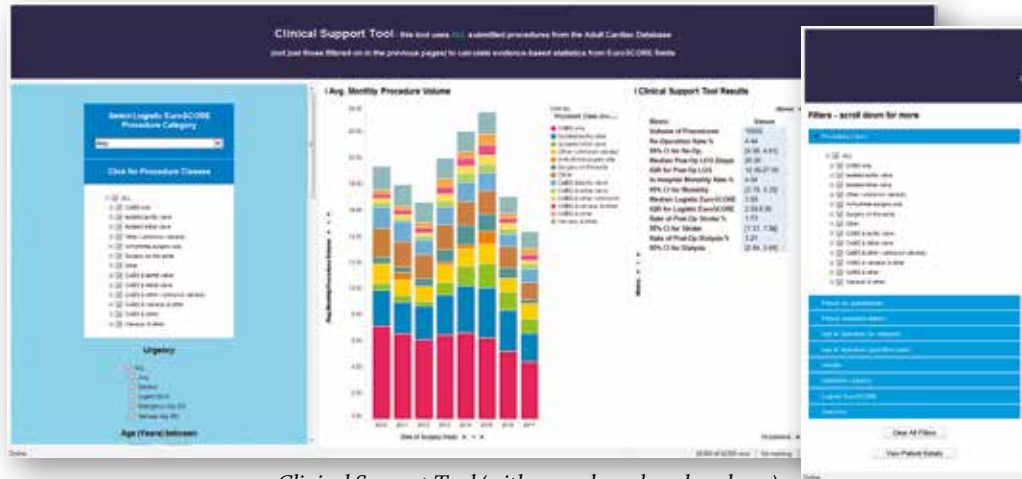


EACTS Quality Improvement Programme

The Quality Improvement Programme (QUIP) was launched in 2012 by EACTS to improve clinical outcomes for patients. Since its inception, two databases and a benchmarking tool operate on an international scale, providing data to help identify areas of improvement for patient clinical outcomes, enhance statistical analysis and research opportunities.

The EACTS Quality Improvement Programme's Database Task Force is made up of six clinical members to further develop all aspects of the Programme's quality improvement initiatives. The task force presented their research and advancements in adult cardiac surgical data and discussed quality outcomes for patients in the EACTS Quality Improvement Programme's Focus Session at the 31st EACTS Annual Meeting in 2017. You can access the EACTS Annual Meeting Media Library (<http://medialibrary.eacts.cyim.com/>) to view their presentations.

EACTS welcomes Dr Örjan Friberg, from the Örebro University Hospital in Sweden,



Clinical Support Tool (with procedure class dropdown)

who has been appointed as the new Quality Improvement Programme's Database Task Force Chair.

EACTS Adult Cardiac Database (ACD)

Cardiac units and national registries from 17 European countries have been contributing surgical data to the EACTS Adult Cardiac

Database for the purpose of developing a benchmarking library where they are able to compare outcomes of like for like cases. Surgeons from contributing units can access anonymous data of surgical procedures and compare their hospital's data with all other hospitals in the database. The growing number of centres and countries participating demonstrates the increasing necessity to benchmark hospital data on an international scale.

National Registries in Europe have been collaborating with the EACTS Quality Improvement Programme to send national adult cardiac data to the ACD.

- Belgium** – the Belgian Association of Cardio-Thoracic Surgery (BACTS)
- Czech Republic** – the Institute of Health Information and Statistics
- France** – a national registry, EPICARD, led by the French Society of Thoracic and Cardiovascular Surgery
- Netherlands** – National Registry BHN
- Spain** – the Spanish Society of Cardio-Thoracic and Vascular Surgery (SECTCV)
- Sweden** – Swedeheart
- Switzerland** – Nationales Herzchirurgie-Register

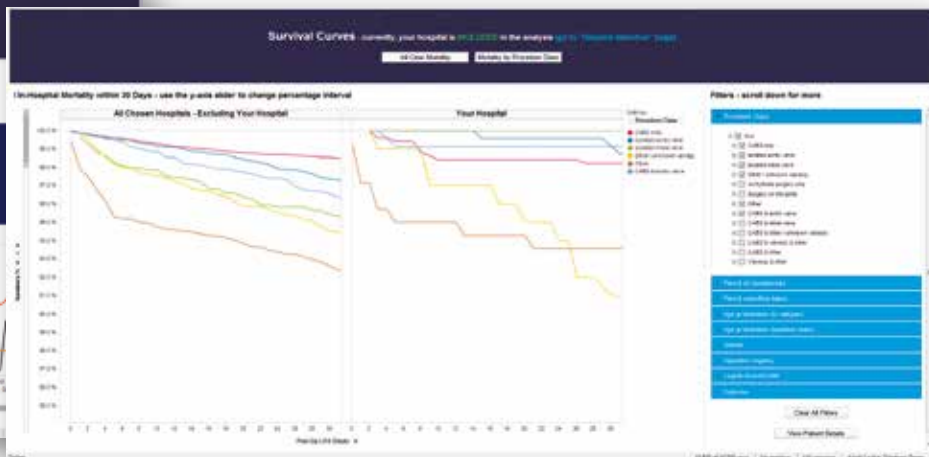
Figure 1: Map of countries contributing to the EACTS Adult Cardiac Database. With already over 80,000 procedures in the database from 74 registered centres across 17 countries since 2015, the Adult Cardiac Database is becoming a key tool in European benchmarking of adult cardiac data.



Örjan Friberg, Database Chairman



Hospital Selection (with mortality control chart)



Survival Curves (mortality by procedure class)

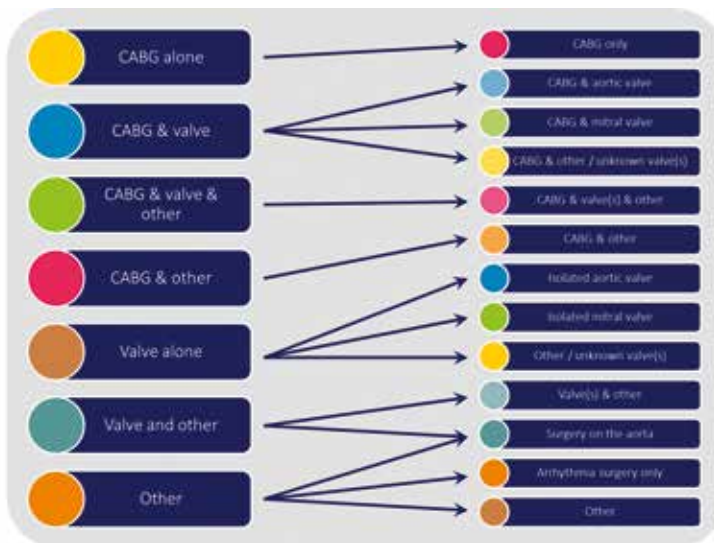
New advanced features on the tool

In 2017, advanced benchmarking features had been added to the tool to improve the user's experience with the data. When you log in to the Adult Cardiac Database*, you will be able to compare your hospital's data and use these new features:

- The new Hospital Selection Page includes more metrics for hospital comparison, additional statistical controls (mean + / - 1SD, 95% CIs and IQRs) and detailed filters enabling you to focus on different sub categories.
- You can also compare your hospital with other anonymous hospitals in the database via the survival curves comparing individual procedures or all cases, filtered by period, age at operation, gender, operation urgency, logistic EuroSCORE and outcome.
- One of the most widely used features of the database includes the clinical support tool page, which has been updated with the advanced filters. Through this page you can find representative outcome statistics on patients with comorbidities for the type of procedure they will be undergoing.

Bespoke reports and data validation

EACTS is convinced that better data quality and benchmarking can lead to better outcomes in cardiac surgery, thus has implemented more rigorous processes to ensure high quality data. To help improve data quality and outcomes, EACTS conducted a survey in 2017 with



Simplified infographic showing breakdown of procedures available in the tool. Further detailed filters are also available on the hospital selection page

participating hospitals to assess current practices in data validation. Based on these results, the QUIP team is able to provide bespoke data validation reports for individual centres. EACTS also generates individual reports for each contributing hospital with the data used from the Adult Cardiac Database, which provides statistical support for scientific research.

“In order for the Adult Cardiac Database to be useful for benchmarking and for clinical support, the reliability of the data should be of a high level,” commented Dr Friberg. “Importing non-validated data compromises data quality. Rather than expanding to many centres as quickly as possible, we want to concentrate on importing data from hospital sources that have been validated one way or another.

“Validation can be conducted on a hospital level, on a national level, by statistical

methods or by audits, and preferably by several means. Merging data from a number of different local databases and several national registries also requires thorough considerations in terms of valid data in relation to potentially differing data definitions. The task force aims to publish recommendations for data validation shortly.”

Adult Cardiac Database benchmarking outputs

As an effective benchmarking tool, hospitals are able to apply data to statistical reports using outcomes

from the Adult Cardiac Database and use the data to identify areas of improvement. As a participant in the EACTS Quality Improvement Programme, the Adult Cardiac Surgery Department of Hospital Universitario La Paz (www.cirurgiacardiacalapaz.com) has published their results from the Adult Cardiac Database, which convey indicators of activity, effectiveness and performance. The Adult Cardiac Surgery Department of Hospital Universitario La Paz has developed a Total Quality Plan based on a redesign of processes oriented towards the patient, and through their participation in initiatives such as the EACTS Quality Improvement Programme, has demonstrated dedication to their goal of improving clinical outcomes for patients.

Go to www.eacts.org/quip/adultcardiacdatabase or contact quip@eacts.co.uk to find out more.

* To access the Adult Cardiac Database and the Benchmarking Tool your centre must be a contributor to the database.



Theo de By

EUROMACS Managing Director,
EACTS, Windsor, UK

Continuous growth and increasing quality of the Database

EUROMACS, the European Registry for Patients with Mechanical Circulatory Support, has continued to grow as a registry and pool of scientific research in the field of mechanical circulatory support. The participating hospitals have now contributed data of more than 3,700 implantations (including 212 in children) of long-term assist devices and >17,000 follow-up records.

Feedback with respect to data quality was provided to the participants by means of statistical analysis and several on-site audits. By continuous communication with the data managers and responsible staff of the implant centres, the quality of the submitted data could be substantially improved.

New Committee Chairman and Vice Chairman

The EUROMACS Committee rotary scheme functions so that Committee membership lasts for three years, and can be extended with a second period of three years. Following this scheme, Professor Jan Gummert and Professor Paul Mohacsi stepped down as Chairman and Vice Chairman at the end of 2017. In their last meeting, the Committee members expressed their gratitude for all the contributions both gentlemen have provided to EUROMACS since its inception in 2009.

Since 1 January 2018, Professor Bart Meyns has taken over as Chairman, and Dr Felix Schönrrath as Vice Chairman. Professor Meyns is Chief of Cardiac Surgery at the University Hospitals Leuven, Belgium. He received a PhD in 1997 with his thesis, "Ventricular Support with Miniature Rotary Blood Pumps" – one of his primary interests amongst the clinical applications of mechanical support systems and congenital heart surgery.

Dr Schönrrath is Senior Consultant of the Department of Cardiothoracic and Vascular Surgery of the Deutsches Herzzentrum Berlin, Germany. He began his training in medicine in 2004 in Berlin and undertook internships and fellowships in both Berlin and at the University Hospital of Zurich. He is board certified in internal medicine,

emergency medicine and cardiology. His main research interests are in advanced therapies in end-stage heart failure, and anticoagulation management in cardiac surgery.

New EUROMACS Committee Members

Since Professors Gummert and Mohacsi stepped down, the Committee, with support of the EUROMACS members, found Professor Steven Tsui and Professor Daniel Zimpfer willing to fulfil the vacancies.

Professor Tsui is Chairman of the Cardiothoracic Advisory Group at NHS Blood & Transplant (NHSBT), UK and Chairman of the Specialty Training Committee for Cardiothoracic Surgery in Health Education East of England. His clinical interests focus on surgical device therapies for end-stage heart and lung failure including extra-corporeal membrane oxygenation (ECMO), ventricular assist devices (VAD), and total artificial hearts (TAH).

Professor Zimpfer is the Director of Mechanical Circulatory Support at the Department of Cardiac Surgery and Director of Pediatric Cardiac Surgery, Medical University Vienna, Austria. His main areas of research are mechanical circulatory support in adult and paediatric patients, coronary revascularisation and treatment of hypoplastic left heart complex as well as aortic arch pathologies. Furthermore, he was involved in the preclinical and clinical testing of multiple rotary blood pumps.

Scientific research projects: how to request for EUROMACS data

Increasingly, researchers have approached the EUROMACS Committee with requests to obtain data for research purposes. In 2017, 12 such requests were received, 10 of which were granted. Three studies initiated in 2016 have been ongoing.

To request data for research purposes, participating centres can submit a designated form and a short description of the research project to the Managing Director. The Study Proposal Evaluation Sub-Committee, consisting of five academic members of the EUROMACS Committee, will subsequently evaluate the research project, respecting the confidentiality of the proposal and its investigators. The Sub-Committee will ascertain that there is no conflict of interest

with other studies and prioritise the subject for its contribution to the scientific insights concerning mechanical circulatory support. Providing the proposal has been accepted then a research agreement is signed by both parties to consolidate that data provided are to be used exclusively for the purpose stated in the research proposal.

Additionally, the EUROMACS Committee applies a timeframe for the completion of the research study, requesting that the researchers work on the project at such a pace that a clear beginning of the study can be shown after six months. At 12 months, the study should be in a phase of completion. If after 18 months the study is not close to completion, the EACTS would be able to withdraw the rights to use and publish the data.

To see the list of scientific publications with data from EUROMACS please see the EUROMACS website at www.euromacs.org/downloads/scientific-articles.

Increasing the research possibilities

Following the increasing need to use the EUROMACS Registry as a source for clinical studies, the Committee has decided to re-develop the database with REDCap software. The advantage of REDCap is that, apart from the standard data, additional data fields can be programmed which can exclusively be seen by the study participants. In this way, prospective studies can be executed without "hindering" the regular data submission activities.

In addition to this, REDCap recognises each participant data manager and adapts questions to the specific characteristics of the hospital he or she represents. As compared to the present situation in which the EUROMACS generates "manual" follow-up requests for each centre at a time, the possibility of REDCap to automatically send follow-up alerts will add to the efficiency of the process.

In the months to come, the members of EUROMACS and the hospitals that contribute data will be kept up to date with the development and the availability of REDCap.

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To find out more about EUROMACS, please visit www.eacts.org/quip/euromacs/.