EACTS Clinical Database Initiatives: The European Adult Cardiac Surgical Database

Bruce E. Keogh
Chairman, Joint EACTS/ESTS Database Committee
Frequently raised issues

1. Why collect data?
2. What sort of data?
3. Process & methodology
4. Reporting and ownership
5. Future plans?
6. Why should a national society contribute to the EACTS database?
Why collect data?

- Understand European practice
  - Define variations in practice
  - Understand risks and outcomes
- Inform the Quality Accreditation Programme
- Provide an evidence base for national discussion & resource negotiations
  - European and national levels
Why collect data?

European Union

Changing clinical practice
Increasing national & EU regulation

- Strength in numbers, politically & statistically
- Strength through shared data
- Strength through supra national support

- EACTS Congenital Database
- ESTS Thoracic Surgery Database
- EACTS adult cardiac Surgery Database
Gathering evidence: What sort of data?

• National demographics
  – population, age, national SMRs etc.
• How many institutions in each country?
• How many operations in each country?
• Patient data
  – Demographics
  – Outcomes
Gathering evidence: A meaningful dataset

EACTS Adult Cardiac Surgical Database Dataset

- **Patient Data**
  - Demographics
  - Cardiac history
  - Co-morbidities
  - Preoperative investigations
  - Preoperative support

- **Operative Data**
  - Operative priority
  - Procedure data
  - Training data

- **Outcome Data**
  - 3 Complications
  - Survival

Harmonised with STS but smaller
Dataset size limitations: Evolution of STS Risk Factor Influence over time

- Hypertension
- Smoking
- Peripheral vascular disease
- Cerebrovascular disease
- Redo surgery
- COAD
- 3-vessel disease
- Female Gender
- Renal impairment
- Left main stem disease
- Ejection fraction
- Emergency
- Age>70

Risk factor

Odds ratio

1980's
2000
Process & Methodology: 
How to collect data across Europe

Hospital direct
- Considerable communication
- Unclear authority
- Ownership unclear

Via national associations
- Less communication
- Clear lines of authority
- Nationally owned
- Data cleaner
- Reproducible model

➢ High cost, high risk

➢ Low cost, low risk
Process & Methodology: 
The preferred option

Institution

Country (Specialist Association)

Direct submission
- EACTS Congenital Database
- ESTS Thoracic Surgical Database

EACTS Adult Cardiac

Consultative, Comparative analysis
Process & Methodology:
Generating the first report

1. January 2003 – Each Country’s Society President was asked to nominate a database “link” person
2. Each Society invited to contribute data
3. Anonymised individual case records requested
4. Data merged onto a central database
5. 1st Report in 2003 designed to illustrate how results can be presented
Each Country Agrees to Submit Data to the EACTS Registry and sends a datafile to Dendrite Offices
Step 1: Data Submission
Step 1: Data Submission
Step 2: Import Data to create “interim” databases
Process & Methodology

Step 1: Data Submission
Step 2: Import Data to create “interim” databases
Step 3: Correspond, run Validation Checks for Data Consistency and Merge Data
Process & Methodology

Step 1: Data Submission
Step 2: Import Data to create “interim” databases
Step 3: Correspond, run Validation Checks for Data Consistency and Merge Data
Step 4: Data Analysis, (& Risk Modelling)
1st European Adult Cardiac Surgical Report

- Jointly Produced by EACTS / Dendrite
- Published October 2003
- As a “Demonstration” Report with data
  - 220,000 patient records
  - 99 hospitals
  - 12 countries
  - 14 software systems
- Distributed free to all EACTS Delegates at the 2003 EACTS Meeting in Vienna
- Available on EACTS website
Growth of the Adult Cardiac Surgical Database

- Procedure year
- Number of procedures
- EACTS
- STS

Graph showing the growth of EACTS and STS from 1991 to 2002.
Variation in surgical practice across Europe
Valve surgery constitutes 16% – 40% casemix
Increasing age of patients undergoing Isolated CAB Procedures

![Chart showing increasing age of patients undergoing isolated CAB procedures from 1995 to 2003.](chart_image)

- **STS** and **EACTS** trends over the years.
Almost three-fold increase in CAB patients over the age of 75 years
Different age profiles of cardiac surgery patients across Europe

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Percentage of patients

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%
Proportion of female patients undergoing Isolated CAB Procedures

- STS
- EACTS
Varying proportion of female patients

Percentage of female patients

- Latvia
- France
- Portugal
- Italy
- Holland
- Denmark
- United Kingdom
- Switzerland
- Ireland
- Turkey
- Cyprus
- Norway
Increasing proportion of diabetic patients undergoing Isolated CAB Procedures

% women

Procedure year

STS EACTS
Varying proportion of diabetic patients

- Portugal
- France
- Italy
- Cyprus
- Switzerland
- Turkey
- Holland
- United Kingdom
- Ireland
- Norway

0% 5% 10% 15% 20% 25% 30% 35% 40% 45%
Post-Procedural Length of Stay for Isolated CAB Procedures

![Graph showing the trend of post-procedure length of stay for isolated CAB procedures from 1991 to 2002, with separate lines for STS and EACTS data.](image-url)
Post-Procedure Length of Stay for Isolated CAB Procedures

Turkey
France
Italy
Switzerland
United Kingdom
Holland
Ireland
Portugal
Cyprus

Average post-operative stay / days

4 5 6 7 8 9 10 11
EACTS Adult Cardiac Surgical Database - progress

• STREAM 1 (2002 - 5)
  – Defined and agreed dataset
  – Downloading and merging of data
  – Some analysis
  – Establish mechanism of joint governance with national associations

• STREAM 2 (2004 - 2010)
  – EU funding for EACTS & contributing associations
  – Validation
  – Refine analysis & presentation

• STREAM 3
  – Specific projects
Summary of future plans: 
*Progress with the EACTS Database*

1. To recruit all European Countries
2. To be a resource for all contributors
3. To expand the data analyses
4. To produce an annual report
5. To seek EU funding
6. To analyse outcomes
7. To explore quality issues
Mission statement:

EACTS / ESTS Databases

“To work with other organisations towards a global culture of data collection to create a European wide repository of information on the practice of cardio-thoracic surgery as a tool for quality improvement and to disseminate that information in such a way that it is easily accessible and understandable to our patients and the public.”
Should BACTS consider joining the Adult Cardiac Surgical Database?

Opportunities:
1. To help lead a European Collaboration
2. To influence development of the database
3. To bring new ideas and expertise
4. To enlarge the database to make it more reflective of pan-European practice
5. To use the database as a comparator
6. To hopefully receive some EU support
EACTS Clinical Database Initiatives

Questions

&

Helpful suggestions

Please