

Survey on the practice of Cardiac Surgery and data collection in Belgium in 2004 By The College for Cardiac Surgery

Members:

- I.Rodrigus – President
- JM. Desmet – Vice President
- P. Kohl – Secretary
- C. Van Kerrebrouck – Vice Secretary
- F.Van Praet – Member
- G.Van Nooten – Member

1. Introduction

In order to fulfil the task of studying quality indicators for Cardiac Surgery, the College decided to obtain an overview of current practice of Cardiac Surgery in Belgium as a first step in the process. Therefore a survey by mail was performed. In this document the set up of this survey and results will be presented.

2. Set up of the survey

The survey was presented in two parts:

- part 1 concerning the practice of Cardiac Surgery
- part 2 concerning the Database activities in each centre

2.1. Part 1: Practice of Cardiac Surgery

Cardiac Surgery is performed in 29 centres recognized for Cardiac Surgery (B3). It is not clear in what kind of practice those centres work (community hospital, private practice, university hospital). Although nearly all cardiac surgeons are member of the Belgian Association of Cardio-Thoracic Surgery (BACTS), we wanted to know how many surgeons perform surgery in each centre and what the actual work load is (duty roster, number of interventions etc.).

2.2. Part 2: Database activities

It is obvious that the data gathering, performed by the Database Committee (DBC) of the BACTS is very difficult and expensive. Despite an explicit obligation for transferring a minimal dataset to this DBC, they experience several problems in presenting a complete yearly report, in due time.

This “**minimal dataset**” includes:

- **Centre:** name of the hospital where the operation is performed
- **Surg 1:** RIZIV number of operating surgeon
- **Surg 2:** RIZIV number of assisting surgeon
- **Patient:** unique patient number
- **Datet:** date of the operation
- **Start:** start operation time
- **End:** end operation time
- **Birth:** date of birth
- **Sex:** gender
- **CPT 1, 2, 3...:** all Current Procedural Terminology (CPT) codes describing the type of intervention performed

In our opinion, possible hazards are:

- Insufficient registration in the centre (too expensive, not useful, time consuming...)
- Difficulties in obtaining a useful database (too expensive, no IT support, no time, no interest...)
- Who is responsible for data input, registration, transfer to DBC ?
- Data are transferred to the DBC in different formats
- Data are not validated
- Strong delay between time of operation, data registration, data transfer
- Data managing by the Limburgs Universitair Centrum is insufficient

Since 2003 the DBC asked to fill in a “full dataset” on a voluntary base. This dataset should enable the DBC to present a risk profile of patients undergoing cardiac surgery, following the European System for Cardiac Operative Risk Evaluation (EuroSCORE).

This “**full dataset**” includes:

- **STATUS**: status of the operation (elective, urgent, emergent, salvage)
- **INCISION**: type of incision (sternotomy, ministernotomy, thoracotomy, minithoracotomy, epigastric incision)
- **DIABETES**: presence of diabetes and treatment
- **COPD**: presence of chronic pulmonary disease
- **ARTER**: presence of extra cardiac arteriopathy
- **LVEF**: estimated left ventricular ejection fraction (poor, fair, good)
- **CREA**: pre operative creatinine level in mg/dl
- **DYSF**: presence of pre operative neurological dysfunction
- **ENDO**: presence of active endocarditis
- **PRE**: patient in critical preoperative state (VT, VF, sudden death, CPR, IABP, ventilation, acute renal failure)
- **ANGINA**: presence of unstable angina
- **INFARCT**: date of recent myocardial infarction
- **SYS**: presence of pulmonary hypertension

Despite a lot of preparation and efforts by the DBC, only half of the centres seem to transfer these data. In our survey we wanted to clarify this issue.

Furthermore, we wanted to know whether surgeons are working on quality improvement by using their database and discuss morbidity and mortality issues within their centre.

A copy of this survey is presented in annex 1.

3. Mailing

This survey was forwarded to the Head of the department of Cardiac Surgery of all centres, with a letter, explaining the task of the College (see annex 2). The first mailing was done on 19/1/2005. A reminder was send on 5/4/2005.

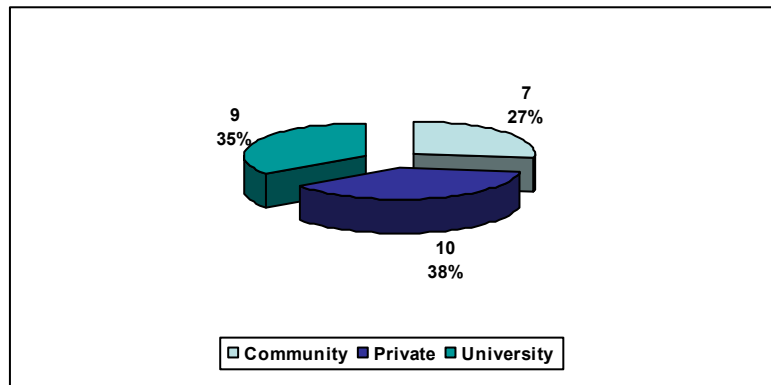
4. Results

Twenty six centres responded to the mailing (89,6 %), of which 4 responded anonymously. Since some centres are fused, they are considered as one centre. It concerns UZ Gent fused with Stedelijk Ziekenhuis Aalst and Hôpital de Jolimont fused with Hôpital Saint Joseph. Therefore, the results of 24 are presented. A list of participating centers is presented in Annex 3.

5. Part 1: Practice of Cardiac Surgery in Belgium

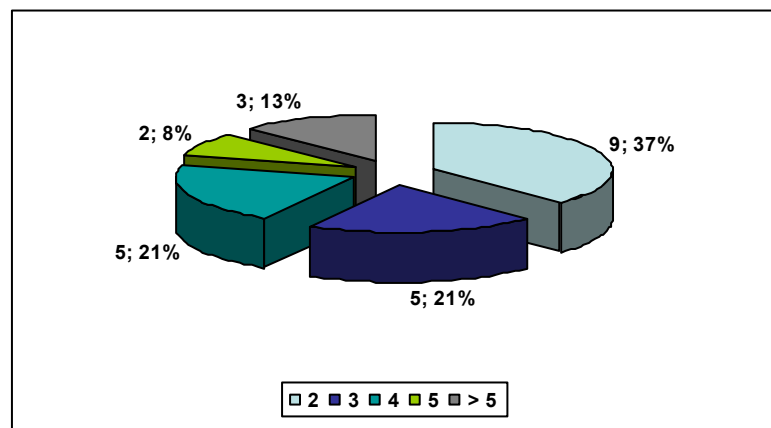
5.1. Kind of Practice

Seven centres are located in a community Hospital (27 %), 10 in private practice (38 %) and 9 (35 %) are designated as University Hospital.



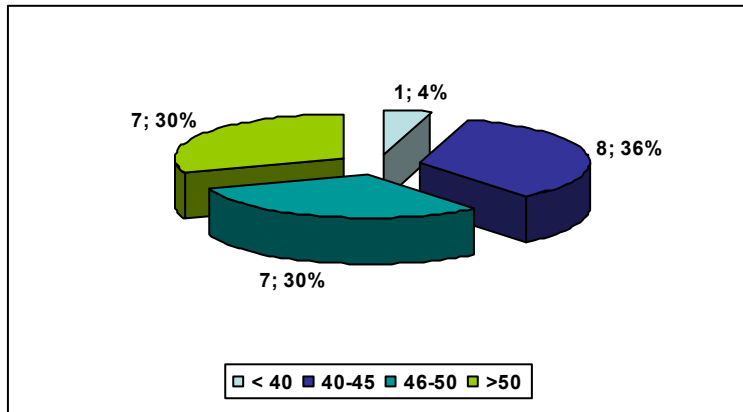
5.2. Number of surgeons per centre

In the majority of centres, only two cardiac surgeons perform cardiac surgery on a regular base. Five centres employ 5 or more surgeons.



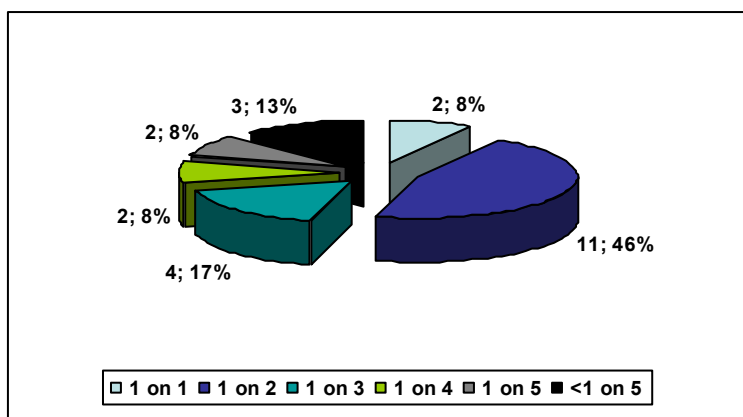
5.3. Age of staff members

The mean age of all cardiac surgeons involved in this survey was 46,8 years with a range from 33 to 64 years. The mean age of the staff members in each centre was calculated. In only one centre, the mean age was below 40 years.



5.4. Duty roster

Nearly half of the surgeons are on call one day on two. This coincides with the fact that nearly half of the centres have only 2 surgeons. Furthermore, in centres for heart transplantation (T), mostly a double duty is foreseen (prelevation and transplantation team).



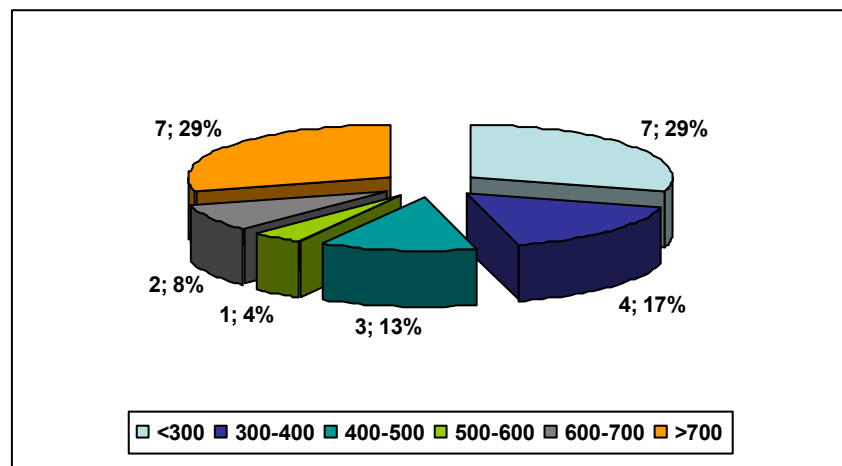
5.5. Duty schedule

In most of the centres, this duty is performed one week at a time, or several days at random.

Schedule	Number of centres	Percentage
1 week at a time	9	38
Several days at random	6	25
1 day fixed	3	13
Several days fixed	2	8
Consecutive days	2	8
1 day at random	1	4
Other	1	4

5.6. Number of interventions

Although the number of cardiac surgical interventions can be extracted in a more precise manner out of the data of the DBC, we sought to make an estimation of low and high volume centres. Nearly one third of the centres have performed less than 300 interventions in 2004. An equal number of centres have performed more than 700 interventions. The case load per surgeon cannot be extracted from these data.



6. Part 2 : Database activities

6.1. Does the service keep patient records in a database ?

Despite the obligation for transferring a minimal dataset to the DBC, one centre responded that they did not keep their patient records in a database.

6.2. Did you develop your own database ?

Eighteen centres (75 %) developed their own database.

6.3. Do you use a commercially available database ?

Seven centres (29 %) use a commercially available database.

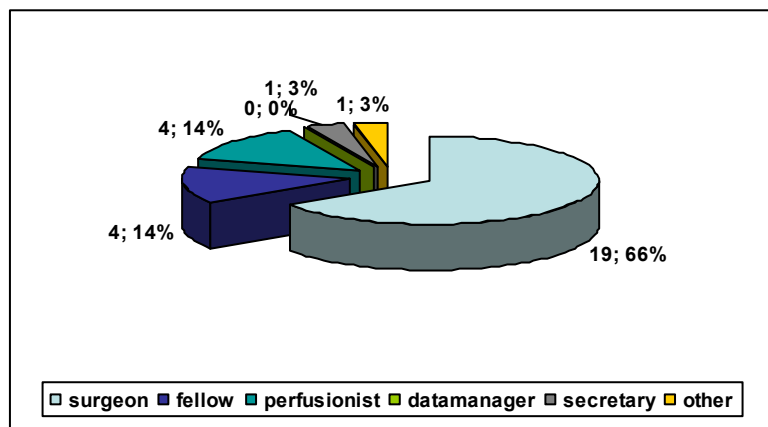
6.4. Which dataset do you record in your database ?

Only ten centres (41 %) included a copy of their database form with the survey. Four centres (16 %) replied they only record the minimal dataset.

This indicates one of the key problems in data management in the Cardiac Surgery centres: most of the centres developed a database, at their own cost, at a time when data transfer was not obliged. Including extra fields in an existing database is not obvious, and IT support in several hospitals is often insufficient. Furthermore, the commercially available databases are very expensive and often redundant information is included. It also indicates a reluctance to data transfer.

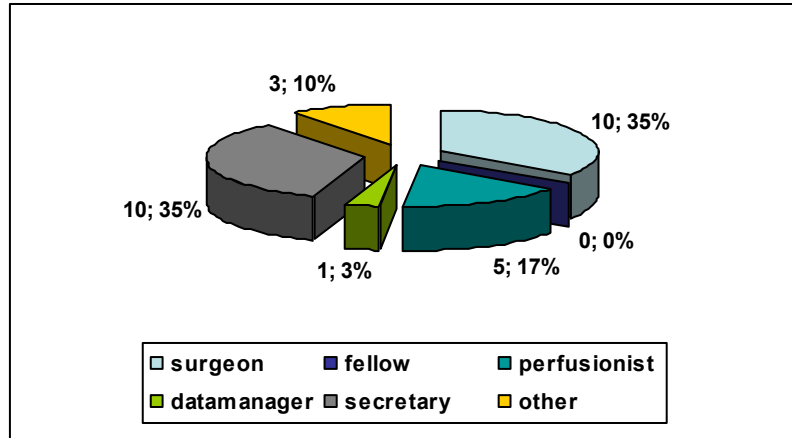
6.5. Who completes the forms ?

The utility of a database is totally dependent on the completeness of data input. The majority of data forms are completed by the surgeon. Other members of the team complete part of the forms. Therefore, the total number of persons involved is 29 in the 24 participating centres.



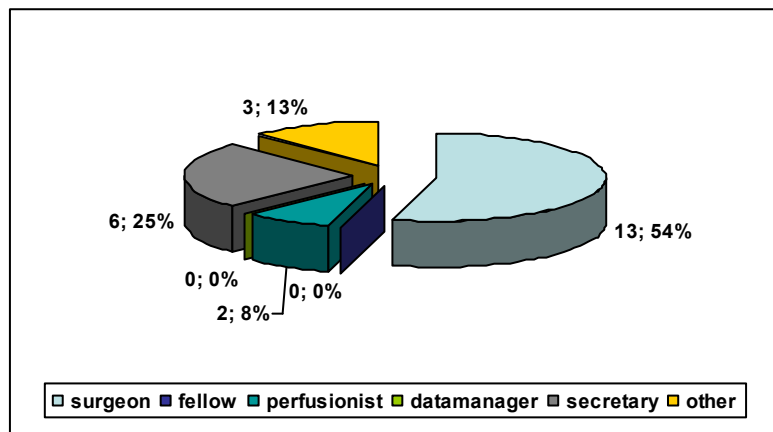
6.6. Who completes the database ?

After recording data on a database form, these data has to be put in a database. Although this seems to be an easy task of typing, copying and pasting, this is often done by the surgeon. In some centres, more people are involved in this part of the process, therefore the number of participating persons is 29 in 24 centres.



6.7. Who is responsible for transferring data to the BACTS DBC ?

In half of the centres (13, 54%), the surgeon is responsible for data transfer. In 6 centres (25 %), this is done by a secretary. Only ten centres (42 %) employ a data manager in their service, although often a secretary will do this job.



6.8. Do you calculate the EuroSCORE for every patient ?

In 11 centres (46 %) the EuroSCORE is calculated for every patient.

6.9. Are you able to calculate the EuroSCORE ?

Twenty three (96 %) centres indicate that they are able to calculate this score.

The EuroSCORE is a system that generates a pre-operative prediction of mortality risk for cardiac surgery patients. It was built using data provided by a large number of hospitals from across Europe employing logistic regression techniques. It is, therefore, particularly pertinent for the European and Belgian cardiac surgery patient and the European cardio-thoracic surgeon. The risk factors and their weightings are defined in the additive or in the logistic EuroSCORE. The appropriate scores are added together to give a patient-specific approximation of the risk of death following cardiac surgery. The detailed version can be found on the EuroSCORE website: www.euroscore.org.

In our opinion, calculating and making use of this EuroSCORE in every patient, can be a first step in the quality improvement process.

6.10. Do you participate in the “EuroSCORE plus” program ?

The DBC asked for a voluntary participation in the “EuroSCORE plus” program. In order to participate, the risk factors as mentioned in the EuroSCORE, with some extra data are to be transferred to the DBC. Only 12 centres (50 %) do participate in this program. Unfortunately, some of the high-volume centres do not participate, by which the usefulness of data is not maximized.

6.11. Other purpose of database ?

Twenty two centres (92 %) use their database for other purposes than transferring data to the BACTS.

6.12. Other purposes are :

- Reports to the service 14
- Reports to the administration 7
- Reports to referring cardiologists 15
- Scientific purpose 15
- Personal purpose 8
- Cumulative risk score analysis 5
- Other 1

6.13. Do you have a mortality and morbidity meeting ?

Studying quality indicators on a national base, should start within each centre, by analyzing own results, morbidity, mortality etc.

This kind of critical analysis is performed in only 14 centres (58 %). It is obvious that in most of the other centres, results are being discussed in a non-official way and that some of the (younger) surgeons are willing to have this kind of discussion within their centre.

6.14. Are you willing to participate in surveys by the College, guided by the DBC ?

Only 18 centres (75 %) are willing to participate in surveys, making use of the data from their database, guided by the Database Committee of the BACTS.

This is the Achilles' heel of the activities of the College. After former discussions within the BACTS, a data flow chart was set up, in order to obtain a realistic communication between the different parties (annex 4). Despite this flow chart, there still exists a strong reluctance towards the College for Cardiac Surgery.

Annex 1: Survey

Survey for the College for Cardiac Surgery

A. Concerning your practice

- A.1. In what kind of practice do you work ?
1. Community hospital
 2. Private practice
 3. University hospital
 4. Other
- A.2. How many cardiac surgeons work in your service (i.e. surgeons performing cardiac surgery on a regular base) ?
1. 2
 2. 3
 3. 4
 4. 5
 5. > 5
- A.3. What is the age of your staff members ?
1.
 2.
 3.
 4.
 5.
 6.
- A.4. What is the duty rooster in your service ?
1. 1 / 1
 2. 1 / 2
 3. 1 / 3
 4. 1 / 4
 5. 1 / 5
 6. < 1 / 5
- A.5. How is your duty rooster scheduled ?
1. One fixed day in the week
 2. One day at random in the week
 3. Several days fixed in the week
 4. Several days at random in the week
 5. Several consecutive days in the week
 6. One week at the time
 7. Other (or a combination) (please specify):

- A.6. How many cardiac surgical interventions were performed in your service in 2004 ?
1. < 300
 2. 300 – 400
 3. 400 – 500
 4. 500 – 600
 5. 600 – 700
 6. > 700

B. Concerning Database activities in your service

B.1. Does your service keep patient records in a database ?
Yes / No

B.2. Did you develop your own database ?
Yes / No

B.3. Do you use a commercially available database ?
Yes / No
If yes: which one ?.....

B.4. Which dataset do you record in your database ?
(Please provide us with a copy of the database form you use)
.....

B.5. Who is responsible for completing the database forms ?

1. Surgeon
2. Fellow
3. Perfusionist
4. Datanurse
5. Secretary
6. Other:.....

B.6. Who is responsible for putting the data in the database ?

1. Surgeon
2. Fellow
3. Perfusionist
4. Datanurse
5. Secretary
6. Other:.....

B.7. Who is responsible for transferring the data to the BACTS Database committee ?

1. Surgeon
2. Fellow
3. Perfusionist
4. Datanurse
5. Secretary
6. Other:.....

- B.8. Do you calculate the EuroSCORE for every patient ?
Yes / No
- B.9. Are you able to calculate the EuroSCORE ?
Yes / No
- B.10. So far, we had the obligation to transfer data to the Database Committee.
Recently a voluntary input of Euroscore “plus” data was asked (Euroscore +
diabetes, creatinine, date of Acute Myocardial Infarction, length and weight).
Do you participate in this “Euroscore plus” program ?
Yes / No
- B.11. Do you use your Database for purposes other than the obligatory data transfer
to the Database committee ?
Yes / No
- B.12. If “yes” on question B.11.: For what purposes ? (several items are possible)
1. Activity report for the service only
 2. Activity report for the administration
 3. Activity report for referring cardiologists and general practitioners
 4. Scientific purposes
 5. Personal goals
 6. Cumulative Risk score analyses (individual or general)
 7. Other:.....
- B.13. Do you have a “mortality & morbidity meeting” in your service ?
Yes / No
- B.14. Are you willing to participate in surveys, making use of data from your
database, guided by the BACTS Database committee ? (i.e. transferring other
data than CPT codes, like previous cardiac intervention, EuroScore, etc)
Yes / No
- B.15. You can put remarks, suggestions or questions for the College on a separate
page.

Thank you for your cooperation.

Please send this survey with a copy of your data form to

**Prof.dr.I.Rodrigus, University Hospital Antwerp, Wilrijkstraat 10, 2650
Edegem, or fax it to: 03/8302099.**

Annex 2: Accompanying letter

19/01/05

Dear Colleague,

As announced at the last General Assembly of the BACTS, the College for Cardiac Surgery is finally installed, by Royal Decree of 14/9/04. The College for Cardiac Pathology is divided in two sections: one for Cardiac non-surgical pathology with 8 members (cardiologists), and one for Cardiac Surgery with 6 members, as proposed by the BACTS.

The members are:

- Rodrigus Inez – President
- Desmet Jean-Marie – Vice President
- Van Kerrebrouck Christiaan – Secretary
- Kohl Philippe – Vice Secretary
- Vannooten Guido
- Van Praet Frank

Our task, as provided by Royal Decree of 15/2/1999 is to put forward “quality indicators and criteria” for good medical practice, concerning infrastructure, manpower and practice. The College has to work out a registration model and provide the Ministry with a yearly report on our cardiac surgical activities. We are authorized to visit centers and to control the reported data.

This, of course, will not be an easy task. Furthermore, previous debates within the BACTS have led to the current guidelines of centers reporting to the Database Committee, analysis of these reports within the Committee, approval by the BACTS and finally reporting these analyses to the Ministry (by the College). A member of the Database Committee is not allowed to be a member of the College. The College strongly pledges to respect these guidelines.

So far, nearly every center reports a minimal dataset (year of birth, gender, data of surgery, duration of surgery, place of surgery, RIZIV/INAMI code, CPT codes and RIZIV/INAMI number of the surgeon), but it is clear that these data do not assess “quality”. Therefore, the College is planning to enlarge this dataset, either for all of us, or in a voluntary way, or concerning specific themes.

In order to fulfill our task, the College has decided to start off by sending a survey to all the Chiefs of the Cardiac Surgery Departments in Belgium. This survey assesses some elements of our practice and of our database activities. The College would also like to obtain a copy of the “data form” you are using (complete data set you are recording).

Therefore, you are kindly asked to fill in this questionnaire (one per service) and to mail or fax it to this address by the end of February 2005.

Prof.dr.I.Rodrigus
Department of Cardiac Surgery
University Hospital Antwerp
Wilrijkstraat 10
2650 Edegem

Fax: 03 8302099

Activities of the College are to be reported at the Board Meetings of the BACTS and at the yearly General Assembly.

We hope we can find a way to further improve the quality of cardiac surgery in Belgium !

Prof.dr.I.Rodrigus
President

dr.JM Desmet
Vice President

Annex 3: Participating centres

Responding centres

Onze Lieve Vrouweziekenhuis	Aalst	Vanermen
A.Z. Middelheim	Antwerpen	Van Cauwelaert
Universitair Ziekenhuis Antwerpen	Antwerpen	Rodrigus
Imeldaziekenhuis	Bonheiden	Deferm
A.Z. Sint Jan	Brugge	Rocher
Hôpital Universitaire Saint-Pierre	Brussel	Brunet
Clinique Générale Saint-Jean	Brussel	Bettendorf
Centre Hospitalier J. Bracops	Brussel	Watel
Clinique Sainte Elisabeth	Brussel	Van Caster
Cliniques Universitaires Saint Luc	Brussel	Noirhomme
C.H.R. de Charleroi (site de Jumet)	Charleroi	Joris
Sint Jansziekenhuis	Genk	Fransen
Maria Middelaersziekenhuis	Gent	Hamerlinck
U.Z. Gent	Gent	Van Nooten
Sted ZH Aalst	Aalst	Van Nooten
U.Z. Gasthuisberg – KUL	Leuven	Daenen
C.H.U. du Sart Tilman	Luik	Limet
C.H.R. de la Citadelle	Luik	De Koster
Hôpital de Jolimont	Haine St Paul	Van Ruysevelt
Hôpital Saint Joseph	Gilly	Detroux
Kliniek Van Het Heilig Hart	Roeselaere	Schroeyers
Centre Hospitalier de Tivoli	La Louviere	Huynh

Anonymously or non/responding centres

Centre Hospitalier Univ. Brugmann Huderf	Brussel	Deuvaert
A.Z. V.U.B. Jette	Brussel	Deuvaert
Hôpital Erasme	Brussel	Decanniere
C.H.R. de Namur	Namen	Marnette
Clinique Saint-Luc	Bouge	Mairy
Cliniques Universitaires de Mont Godinne	Yvoir	Buche
Virga Jesse Ziekenhuis	Hasselt	Mees

Annex 4: Data flow chart

Data flow chart BACTS - DBC - College

