# Australian & New Zealand Collaborative Perfusion Registry (ANZCPR) Users Guide

This document is split into a user's guide – the basics that every user will need to know – and an administrator's guide, which covers details on how to configure and manage the database, as well as explanations on how the database is structured.

# Introduction

The ANZCPR is designed to meet the data collection requirements of the collaboration, that is, to provide a de-identified prospective data set on cardiac surgical procedures performed in centres throughout Australia and New Zealand. Patient identifying data is collected at the local site only. Once the data is exported from the database, the identifying information is removed and each record is assigned a unique identity for the master dataset.

Upon receiving the database, the first thing that you will need to do is to appoint a site administrator. The database administrator should refer to the administrator's guide (section 2.0) for instructions on how to install and configure the database. Once the database has been installed and configured, please refer to the user's guide.

The database is password protected, so you must log in to access the data entry forms.

Currently the database can be integrated with the Data Management System, JOCAP, and Connect software.

Procedure types: Currently the procedures in the dataset are grouped as isolated CABG, isolated AVR, isolated MVR or MV repair, combined AVR + CABG, or combined MVR + CABG or Other. For all cardiac surgical procedures however, the data should be entered into the database so that we can accurately track and define the case-mix for our surgical population.

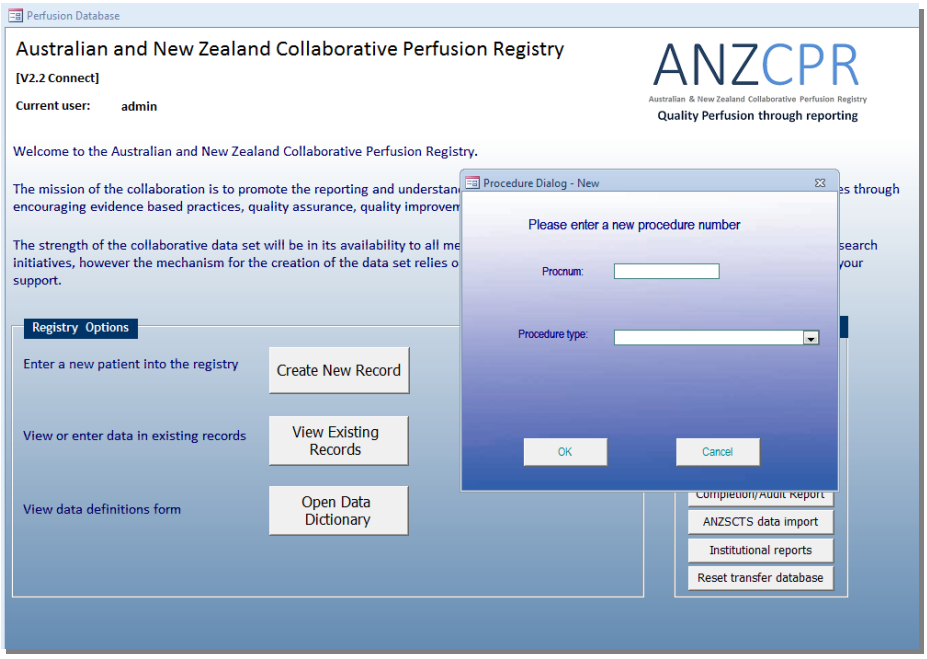
# 1. User's Guide

## 1.1 The front page

The front page refers to the form that is opened after logging in to the database. This page has the options of either: creating a new record, searching for existing records, or accessing the 'data dictionary' to search for data field definitions or code values. The data dictionary is useful when analysing data.

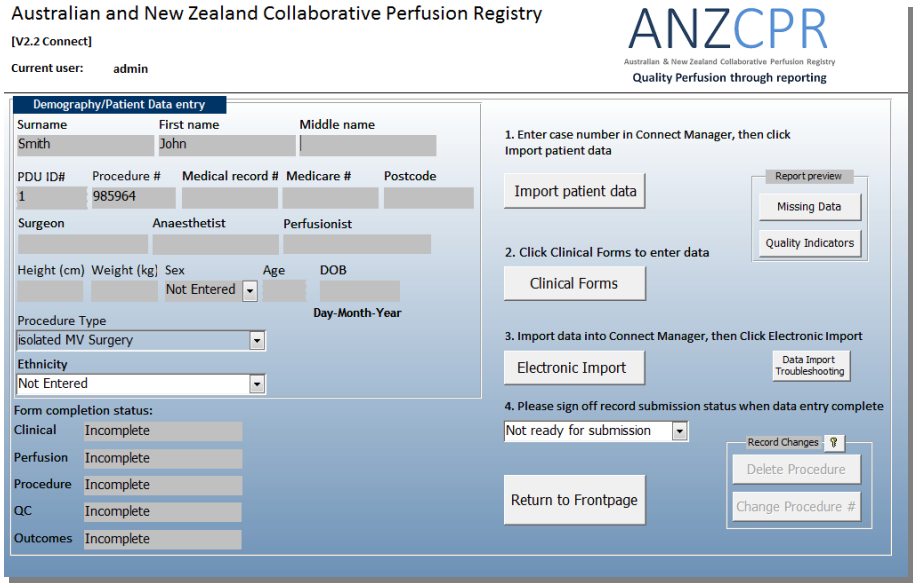
## 1.2 Creating a new record and entering demographic data

1. Click the '**Create New Record**' button




Enter your hospital procedure or case number (**Procnum**), and the Procedure type. Press '**OK**'.

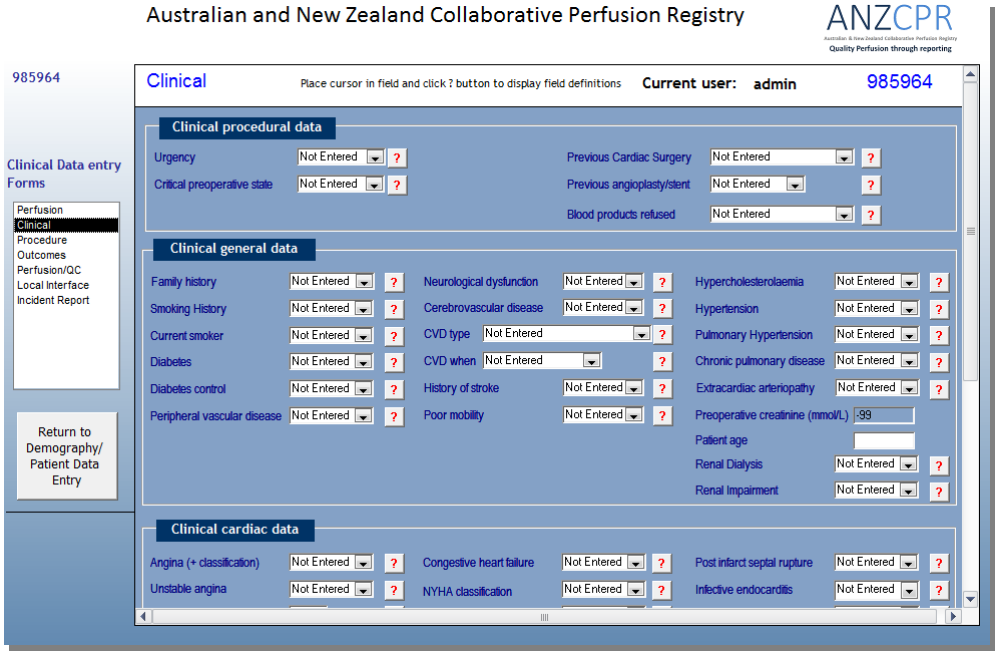
2. Enter the demographic data: Click the '**Import patient data'** button to transfer the demographic data (grey fields). Enter the ethnicity manually.




To enter clinical data, click the '**Clinical Forms**' button.

## 1.3 Clinical data entry

The clinical data entry forms are divided into the following categories: **Clinical**, **Perfusion**, **Procedure**, and **Outcomes**. To enter the clinical forms section click '**Clinical Forms**' button. The following screen appears, and is the data entry form for Clinical Data.

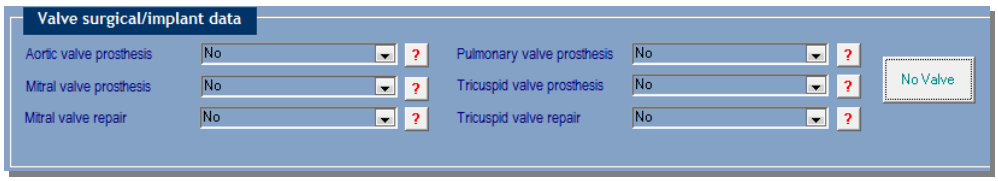



Select each form by clicking on the list on the left hand side of the main data entry form.

***Hint: a quick way to enter the data is to tab from field to field, and type 'N' to enter no or 'Y' for yes.***

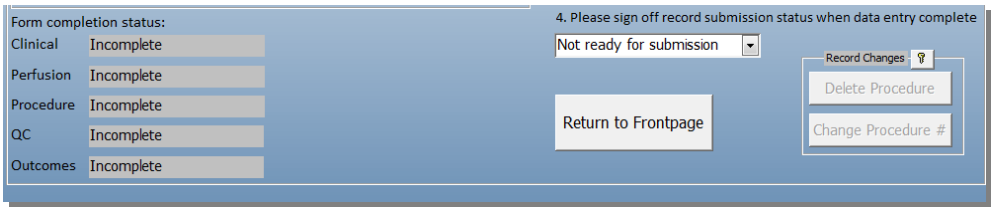
Definitions for each field can be accessed by clicking on the '**?**' button next to the field.

Default values will be populated as per your preferences set in the admin console (by the administrator). Data entry shortcuts can be achieved by clicking the corresponding button where applicable.




For example by clicking '**No Valve**' on the '**other/combined'** Clinical Form will result in "no" being entered into all fields for that table.

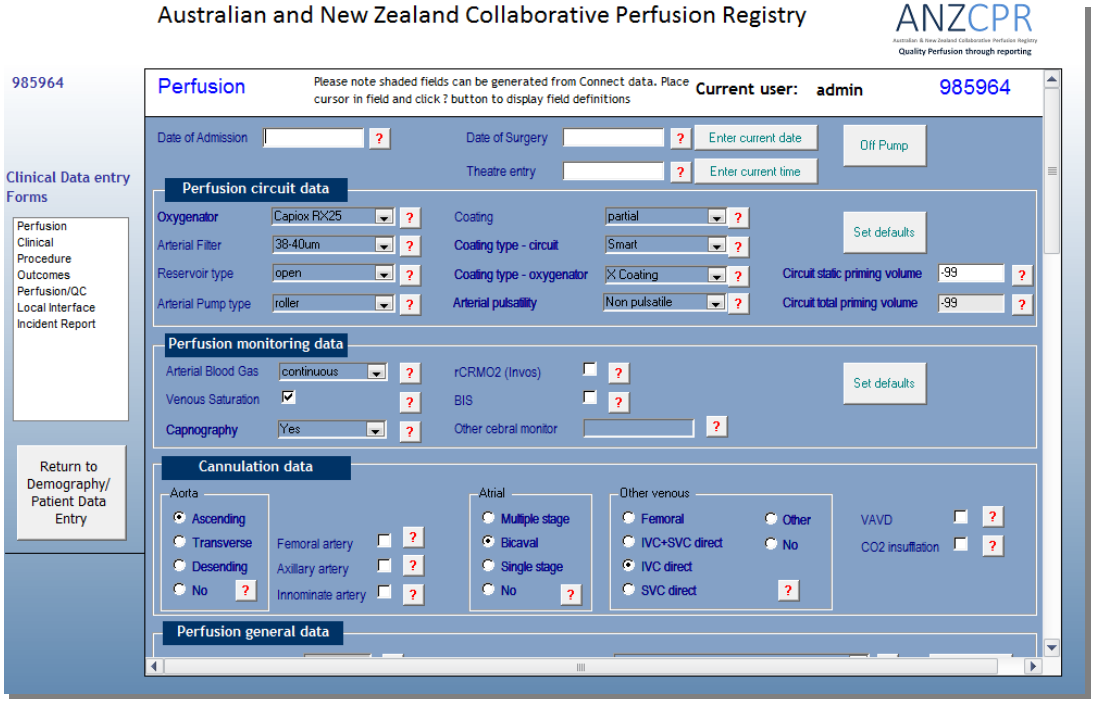
Once data entry is complete for a particular form, the form completion status can be changed to '**Completed**'. This will initiate a data checking process to let the user know if there are any fields missing data. To continue, the user can opt to return to the form and enter the missing data, or, if the data cannot be obtained, the status will be displayed as '**Completed – missing data**'. The clinical form completion status field on the data entry master form will be updated automatically. Once all the clinical forms are completed the record can be signed off as completed.



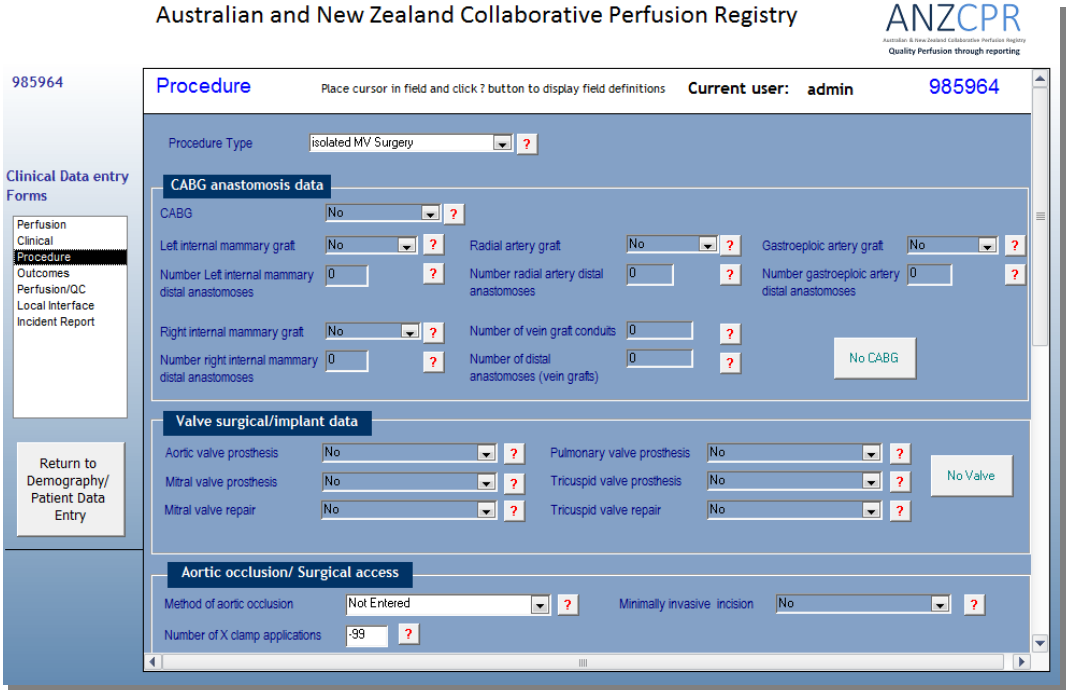
## 1.4 The forms:

### Clinical:
*See above*

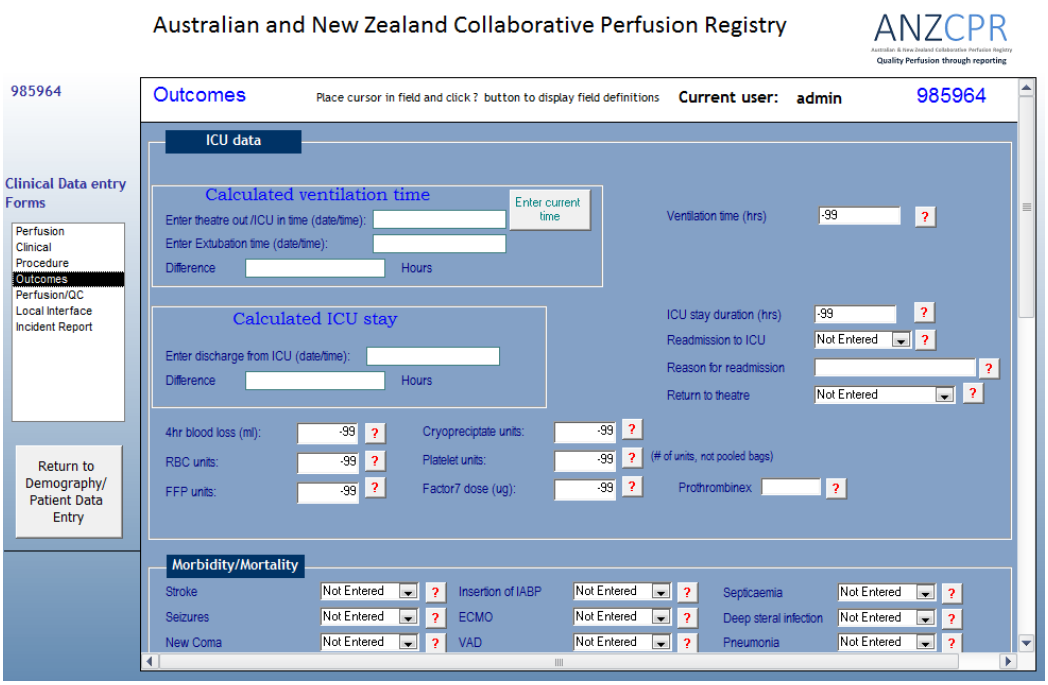
### Perfusion:
***Remember:*** *To use the scroll bar on the right hand side of the form to see all of the fields!*



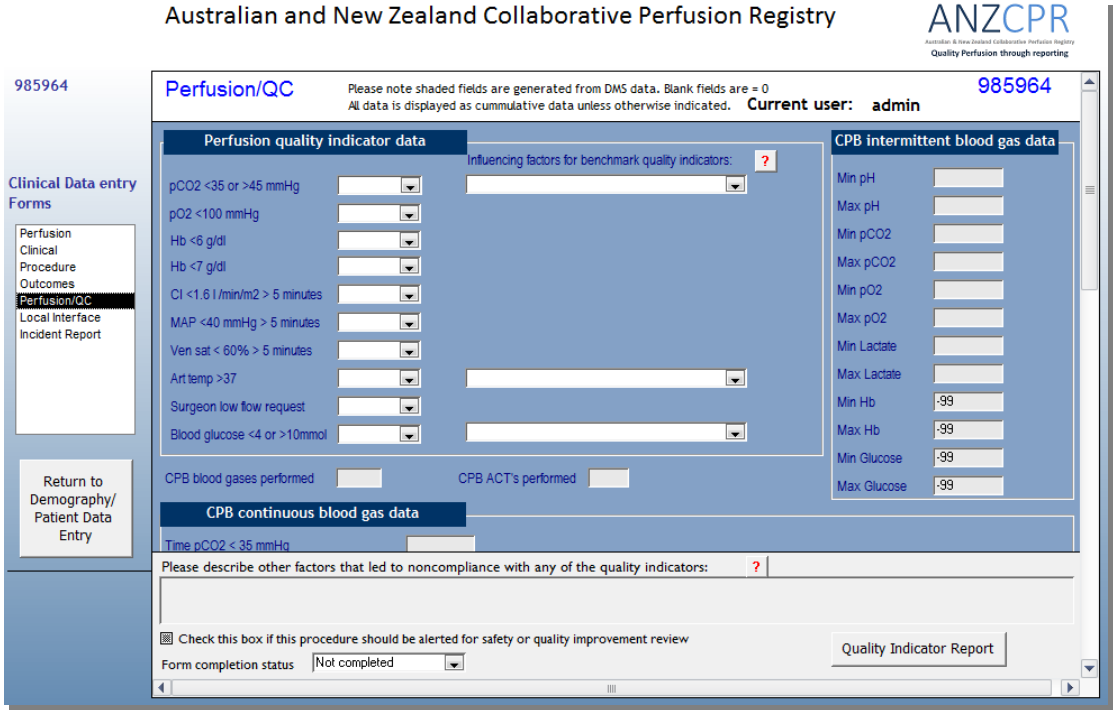

### Procedure:



## Outcomes:



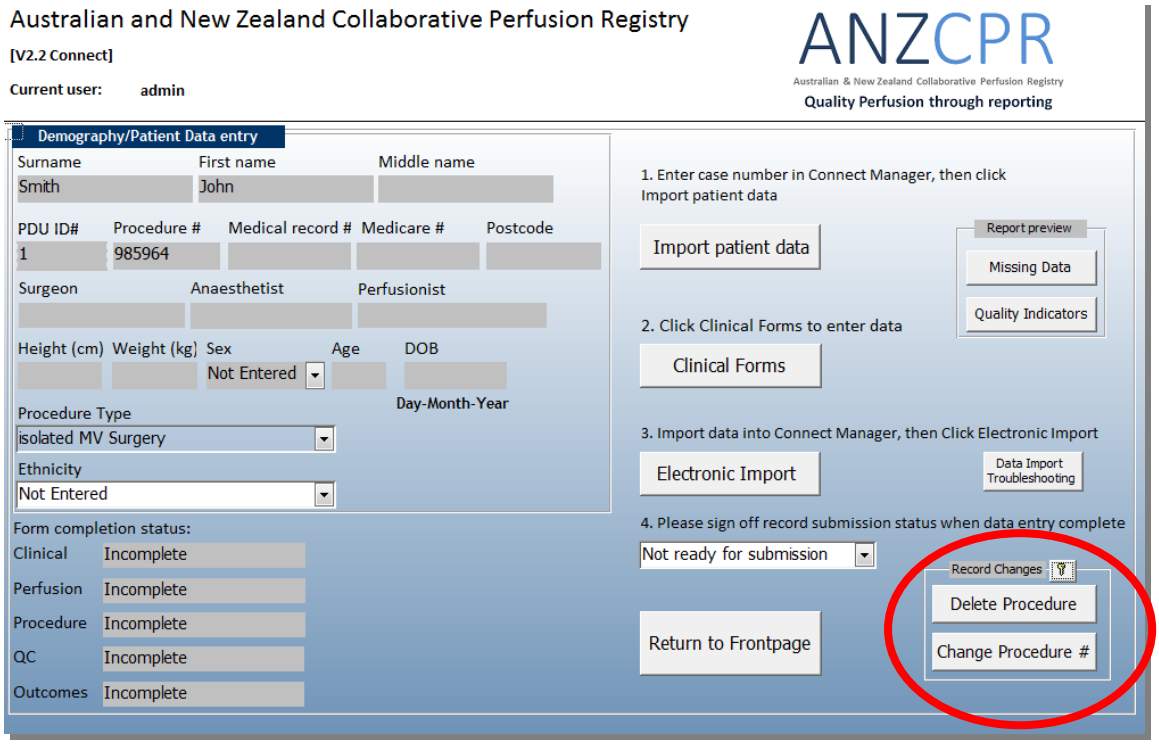

**Perfusion/QC:** This form is completed automatically via electronic data transfer. The data should be checked however and may be edited where appropriate. This is relevant when artefacts may be present, for example nasopharyngeal probe removal during CPB may affect the minimum temperature recorded.



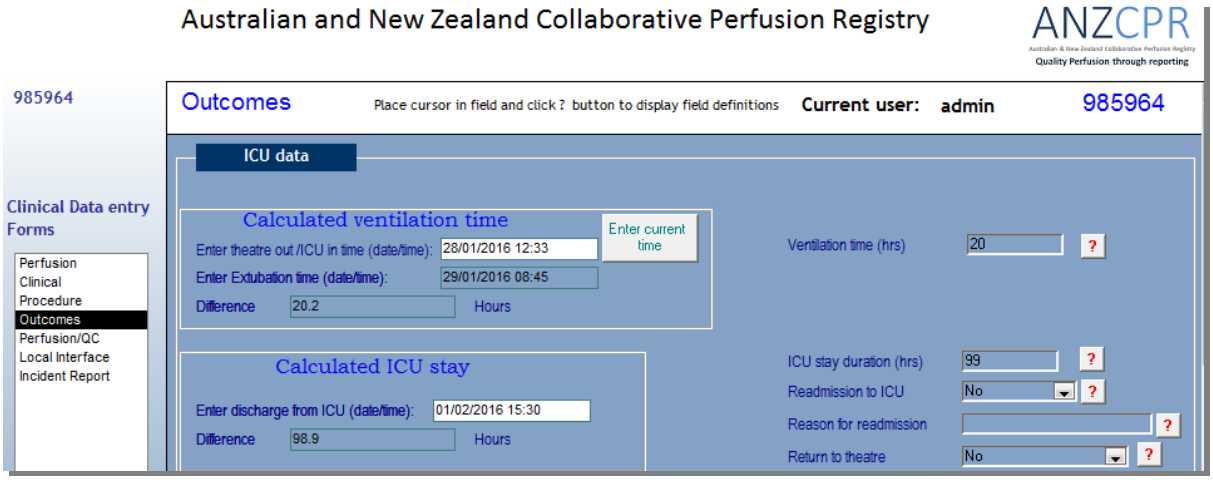
## 1.4 Miscellaneous functionality

Changing a procedure number can be performed using the '**Change Procedure #**' button.

Deleting a procedure requires the administrator to login to the database to access the '**Delete Procedure**' button.




Ventilation time and ICU stay are calculated automatically on the **Outcomes** form, and the exit from theatre time can be entered automatically by clicking the button next to this field when the patient is leaving theatre. The ventilation time and ICU stay are calculated when the extubation time or ICU discharge time is entered.



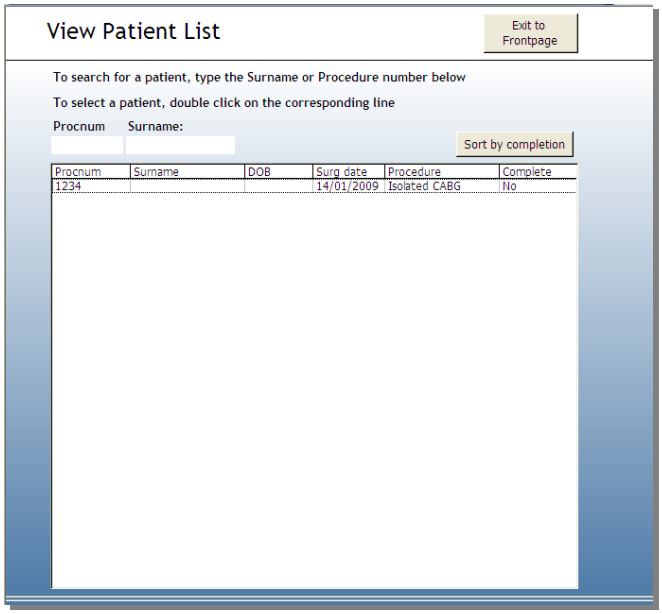
## 1.5 Importing data from the Connect software

Once the record has been imported into Connect Manager, the data can be imported into the ANZCPR. This should be performed on the same computer that the Connect Manager software is installed. If the ANZCPR is installed on the touchscreen PC, exit the clinical forms before running the transfer, to avoid a conflict that may occur if data is being entered for a patient at the same time that data is being transferred from Connect.

Click the electronic import button. Don't interrupt it while it is running. At the completion of the import, a message box will appear with the message 'finished transfer'. The data should then be visible on the perfusion data entry form in the shaded fields.

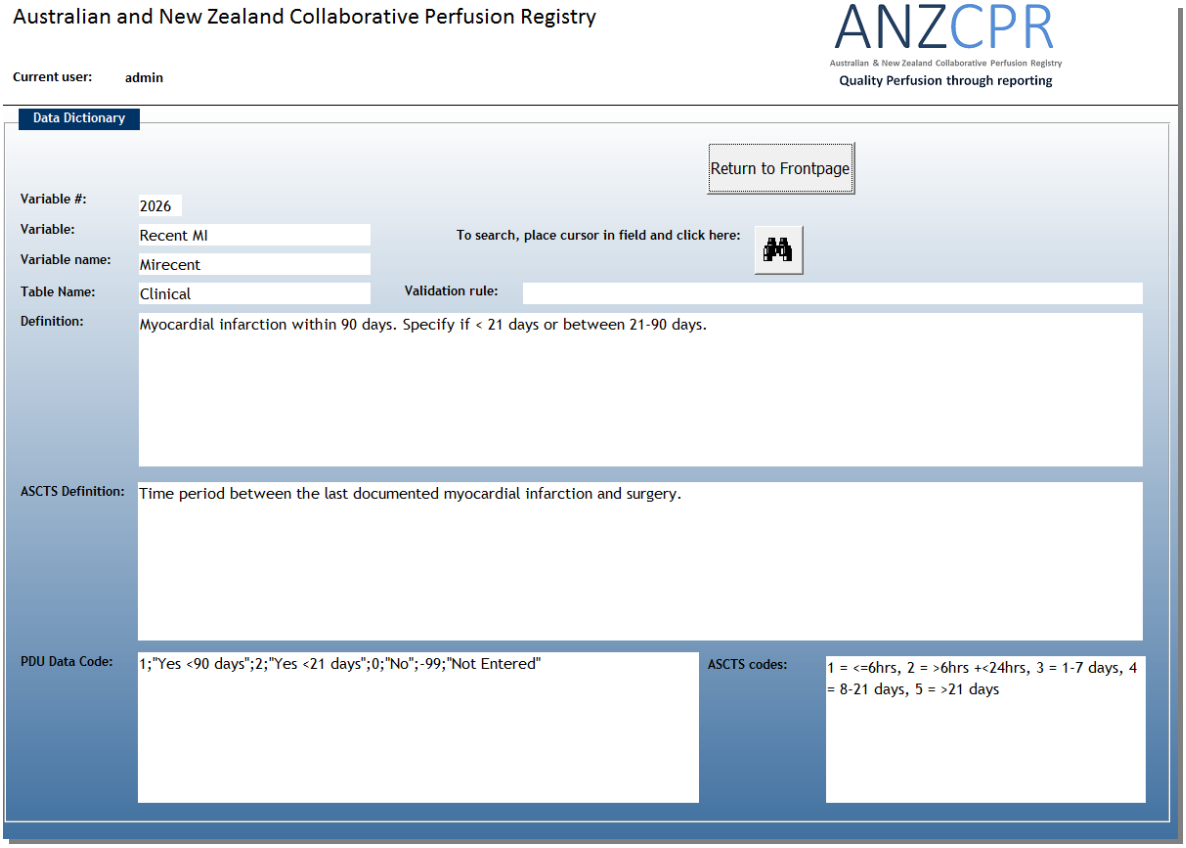
## 1.6 Searching for existing records

Click the 'view existing records' button on the front page to display the patient/procedure list, sorted in descending order of procedure number. This is intended to let you see the most recent patients. You may also choose to sort according to completion status, to track records that require additional data entry.



## 1.7 Data Dictionary

Click the '**Open Data Dictionary**' button to search for data field definitions or code values. It also references the related ANZSCTS database data fields. To search for the data for a field, place the cursor in that field and click the binoculars icon. For example the cursor is on Variable Field, click binoculars then type in the name of the variable you wish to search for.



# 2. Administrator's guide

## 2.1 Introduction/Overview

The ANZCPR database consists of three separate .mdb database files:

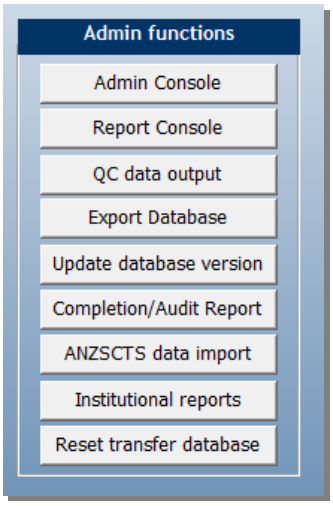
- PDUServer.mdb – the front-end, which contains the forms, reports and the queries used by forms; the tables in PDUTables.mdb are linked to this database file.
- PDUTables.mdb – contains all tables containing clinical data.
- PDUTransfer.mdb – contains all tables, queries and modules needed for importing patients and transferring electronic data – although this database does contain tables, they all store data temporarily only – it also contains linked in tables from PDUTables.mdb

## 2.2 Installation and configuration

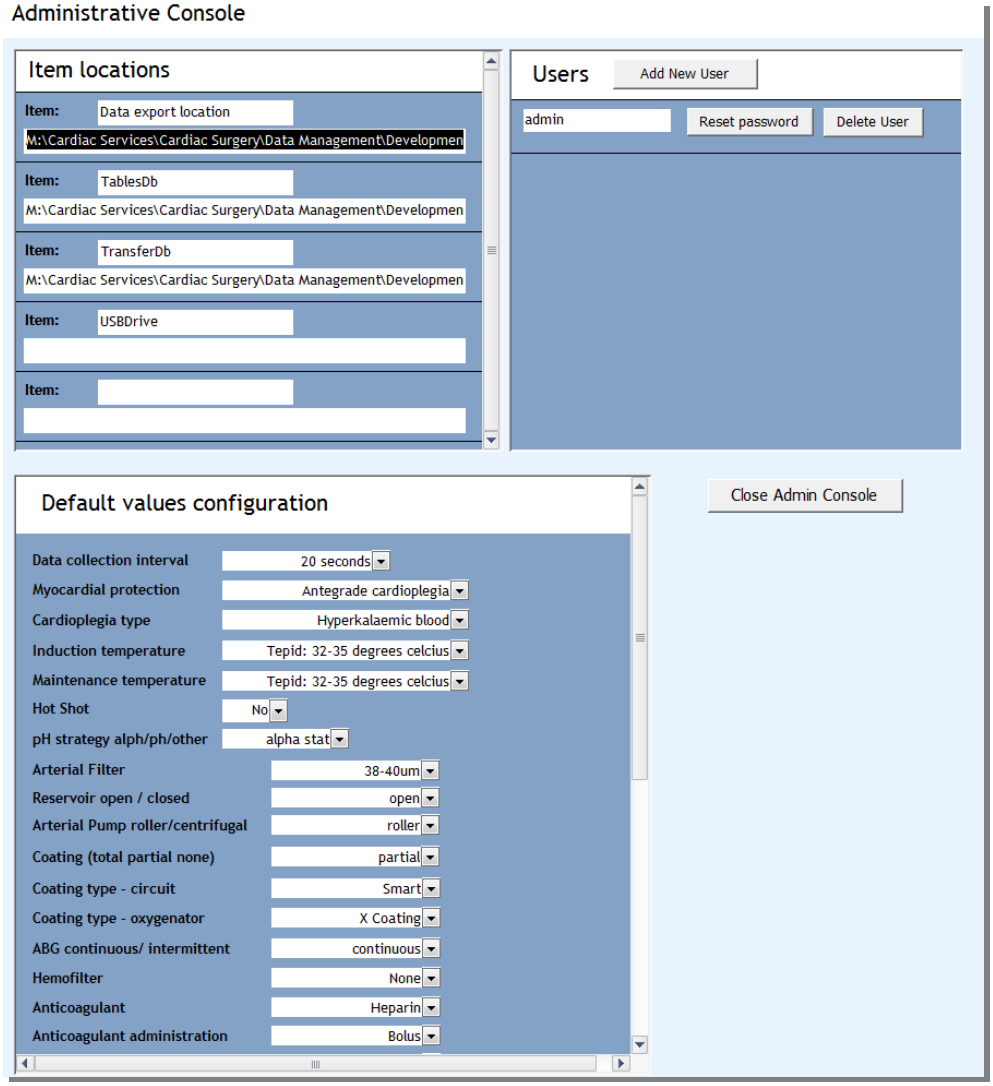
When you receive the database files, follow these steps to get the database up and running. Each site needs to have a 2-3 letter abbreviation code and a numeric code. If this has not been determined, please contact Richard Newland.

1. Create a new folder called ANZCPR, on the C drive (this can be any drive you wish to use but C will be used in this example).
   (To create a new folder, open windows explorer, go into 'My Computer', click on the C drive to select it, then go into File>New>Folder.)
   Copy the three database files – PDUServer, PDUtransfer and PDUtables – into this folder.
2. Create a folder in the ANZCPR folder for storing the data export files (to be used for data harvesting). Name this new folder ANZCPR Transfer.
3. Refer to separate documentation; Step 1 – To configure data sources (ODBC) connection
4. Refer to separate documentation; Step 2 – To set permissions using SQL server management studio.
5. Open the database PDUServer. If you are prompted by a security warning message click open. Click OK to browse for the file PDUtables. Locate the file PDUtables.mdb in the PDUDB folder, select the file and click 'open'. This will link in the tables from PDUtables. A message will appear telling you all tables were re-connected successfully.
6. Click f11 to open the navigation pane, and go to tables. Open the table Hosp_ID and enter the abbreviation for your hospital (2 or 3 letter abbreviation).
7. Close the table and open the table Config. Enter the hospital numeric code in the Hosp field. Close the server database.
8. Open the database PDUTransfer. If you are prompted by a security warning message click open.
9. Select Database utilities / linked table manager and select all Connect tables (with the globe icon). Select 'always prompt for new location', Click Ok and select data source/ Connect.
10. Click on forms and open the form called 'RelinkTables' and press the button. Locate the file PDUtables.mdb in the ANZCPR folder, select the file and click 'open'. Again, this will create a link to the tables database. A message will appear telling you all tables were re-connected successfully.
11. Create an icon on the desktop by right clicking on the desktop and select new/shortcut. Click browse and select the file PDUserver.mdb.
12. Double click the icon to log in as an administrator onto the database PDUServer. Username and password are both 'admin'
13. You are now on the front page of the database.


On the RHS is the admin console




Under **Admin functions**, go into the **Admin Console**




14. Set the item locations:
    - Data export location is the full path of the directory you created in step 2 – include a backslash at the end (e.g., C:\ANZCPR\)
    - TransferDb is the full path the PDUTransfer.mdb file (e.g., D:\ \ANZCPR\PDUTransfer.mdb)
    - TablesDb is the full path of the PDUtables.mdb file (eg, D:\ ANZCPR \PDUTables.mdb)
    - USBdrive is the drive name of the USB device (often E:\ or F:\ or similar)

    It is very important to follow the above instructions correctly and ensure that all folder paths end with a backslash (except TransferDb and TablesDb which include the name of the file)
15. Add usernames for all the users who will need access to this database. New users will be prompted to set a password upon their first login.

16. It is advisable to change the default password for user ‘admin’. Click reset password, confirm that you want to reset it. You will set a new password next time you log in as ‘admin’, so it is important that as soon as you have reset the password, you exit the database and log back on.
17. Enter all usernames, and when each user enters the database for the first time they will be able to set their personal password.

18. Enter the default values for the perfusion form fields if applicable.

19. Exit the database. It is now ready for use.

## 2.3 Deleting records

A record can be deleted by clicking the delete procedure button in the admin functions box. A message box is displayed in order to confirm the deletion of a record. This option is only available when logged in as user ‘admin’.

## 2.4 Exporting the database (data harvesting)

The database can be exported in the form of text files by clicking the export database button. They will be saved to the folder specified in the item locations table (see 2.2, steps 2 and 7). If existing exported files are there, you must confirm that you want to overwrite them.
Data harvests will occur twice yearly; April (data included will be up until the end of February) & October (data included will be up until the end of August).

To export the data:

- Log in to the database as the administrator.
- Check that the data export location is defined in the admin console.
- Check that the data export location directory is empty.
- Click `Export Database' on the front page.

To upload the files to the ANZCPR website, the process to upload the data is as follows;

- Each site has specific login details, so let Richard Newland know if you have forgotten or not been provided your login username/password.
- Go to the website http://www.pducollaboration.com/default.aspx
- Go to Managers/Your hospital
- Go to Data
- Click upload and select the text files
- Keep adding until you have uploaded all the PDU table files that have been exported.

## 2.5 Editing the database

This is not something you should need to do. If changes are necessary, a new database will be sent out to you. Queries can be created in the PDU server database, however whenever a new version of the database is sent out, it will be necessary to import the created queries into the new version. Alternatively, a separate query database can be developed for the purpose of storing site specific queries.

## 2.6 Backing up the database

Backing up the database is easily done by copying the database file PDUTables.mdb. This should be performed daily, and ideally there should be two backups in alternate locations, i.e., backup the database into one location one day, then the alternate location the following day. Copies of the server and transfer databases should be created initially, but do not require routine backups.

## 2.7 Electronic perfusion data entry requirements

In order to make calculations on the data from electronic perfusion software, and to transfer certain data fields, some conventions are required.

Comments:

- The word 'Rewarm' must be included as a comment during the procedure. It can also be entered as 'Rewarm – 37', etc., as long as 'rewarm' is included in the comment.
- The comment 'bypass start and bypass stop' must be used.
- The comment '1st ACT post hep' must be used to define the 1st ACT measurement after the anticoagulant is administered.
- The comment 'Heparin' and quantity must be entered to define heparin given during CPB.
- The comment 'Surgeon low flow' can be used to detect a low flow request for QC purposes.
- The comment 'Partial bypass' can be used to remove the period of partial bypass from evaluation of cardiac index for QC purposes.

Blood gas data:

- Blood gas, haemoglobin and glucose values transferred from an external blood machine (intermittent sampling) are used for quality indicator and preoperative results.
- Continuous data is also used for quantification of $DO_2$ if the Spectrum M4 is utilised. This requires collection of arterial flow data from the M4.

ACT data:

- ACT values should be entered in the coagulation table.

Making corrections to comments:

- Comments cannot be deleted in Connect, however they can be ignored by the ANZCPR transfer process by editing the comment, and entering the letter E (for error) in the edit field for the comment. For example, if the bypass timer button on the heart lung machine was accidently started too early, the comment 'Bypass start' could be edited to have an 'E' as a comment to this entry. In the record, there would be 2 bypass start comments, but the first one would be ignored in the data transfer into ANZCPR.

## 2.8 Quality indicator data output

Perfusion quality indicator data can be exported in excel format. The aim of this feature is so that the data may be used as part of a continuous quality improvement program.

## 2.9 Relinking the Connect tables in the PDU Transfer database

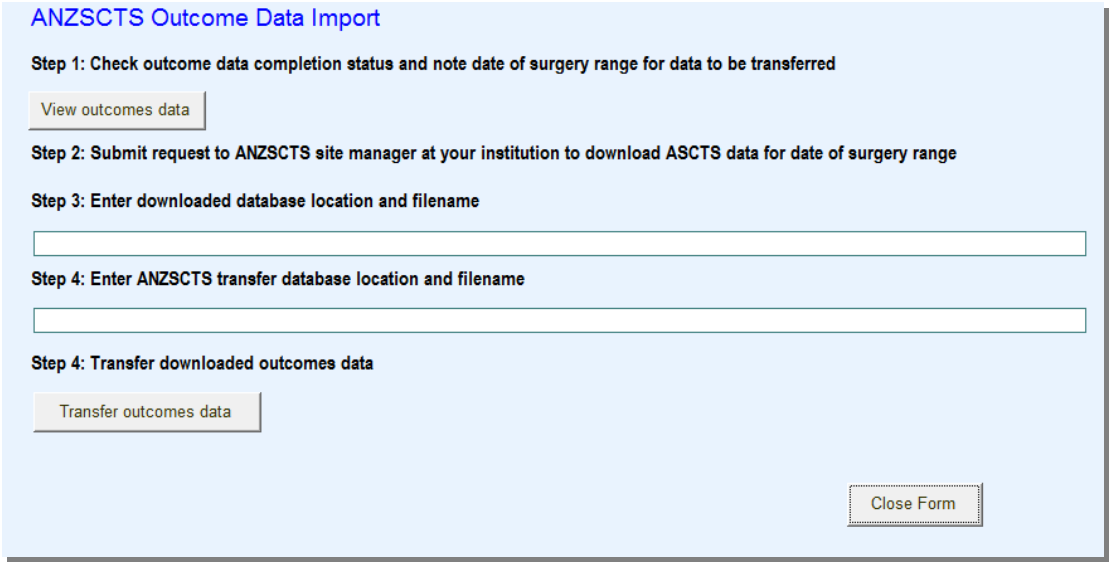
When an update to the PDU Transfer database is made, it will be necessary to relink the tables in the Transfer database to both the PDU Tables and to the Connect tables. To relink the PDU tables, simply click the button once the PDU transfer database is opened. To relink the Connect tables;

- click F11 to access the database window and click on the tables section.
- at the top of the window select tools, and then database utilities / linked table manager.
- tick all of the Connect tables (the ones with a globe icon) and tick Always prompt for new location.
- click OK
- select machine data source and select the link to the Connect database.
- click OK

## 3.0 ANZSCTS data import

Sites that are contributing data to the ANZSCTS database can import clinical and outcomes data that has been submitted to ANZSCTS via the ANZSCTS data interface accessed through the admin console. A request to obtain the data in MS Access format must be made to the ANZSCTS site manager at your institution. To transfer the data, the ANZSCTStransfer database (supplied by PDUC) is also required. This database must be linked to the PDUtables database in the same manner as the PDUtransfer database.

Data may then be transferred according to the instruction on the ANZSCTS data interface form as shown below;

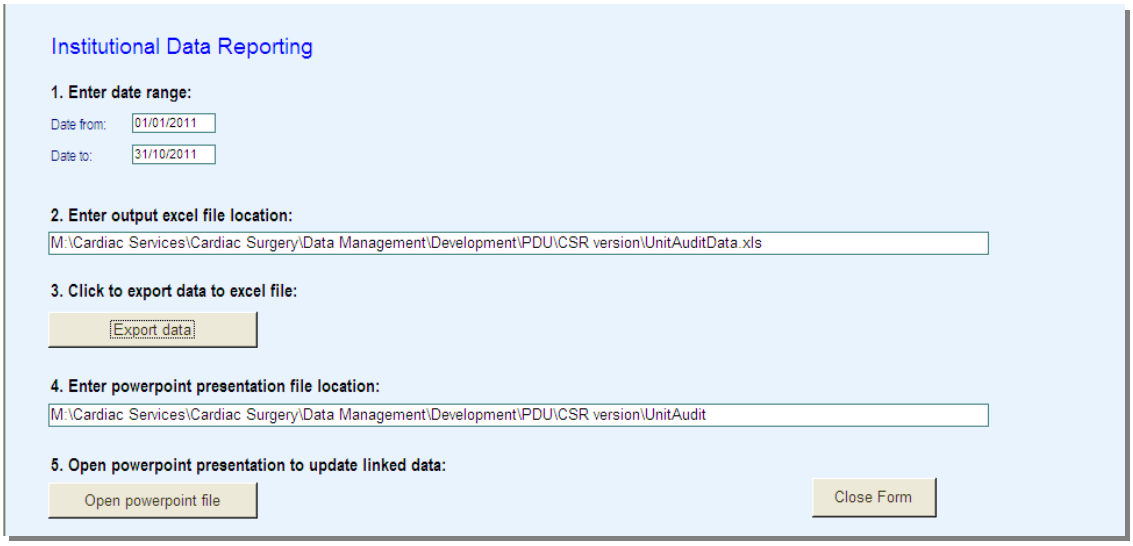



## 3.1 Institutional data reporting

Data output for institutional reporting can be done via the Institutional reports interface form accessed via the admin console. (Note: This requires MS Office 2007 version.)

Enter the location and filenames of the files 'UnitAuditData.xls' and UnitAudit.ppt into the field on the form as shown in the example below (using your local locations).

Once the data has been exported to the excel file, the powerpoint links initially need to be created manually in the powerpoint file. Once this process is complete the links will then be updated automatically (when prompted) when the file is opened.



## 3.2 Data completeness and accuracy

It is the responsibility of all users of the database to ensure the data collected is as complete and accurate as possible, however it is the responsibility of the Data Manager to identify and correct, where possible, missing or incorrect data. As part of the ongoing plan to improve data completeness and accuracy, the database contains various inbuilt functionality to assist with this process.

Currently, this should be achieved by;

- Identifying incomplete records by sorting the patient list by completion status
- Generating data completion reports - missing data and cases with outliers can be identified using the report generators in excel format (located in the admin console – completion reports)
- Auditing: Self audit can be performed by clicking the 'Generate audit data' button on the completion reports page. This will generate a spreadsheet containing 10 records selected at random in order to compare a number of database fields against the source data records.

Reporting of data will occur at least annually, and will comprise reports summarising the total data in the registry, the annual data collected and the individual site data, and will report outcome and quality indicator data.

Unexpected findings (outliers, unexplained variance) will be reported to sites as soon as identified in the report generation process.

## 3.3 Contact Details

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