The National Congenital Heart Disease Audit Database

Data Quality Audit for CONGENITAL HEART DISEASE PROCEDURES

Apr 2024 - Mar 2025

Glenfield Hospital
University of Leicester NHS Trust

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Summary

Prior to the log book review on the day of the validation visit, the NCHDA data return from the East Midland Congenital Cardiac Department of Leicester Hospitals NHS Foundation Trust indicated that that 554 (surgery 277, catheter 271, others 6, and 5 deaths within 30 days of a specific procedure) procedures have been undertaken in patients with congenital heart disease during the data collection year of 2024/25.

This visit has been fully funded by University of Leicester Teaching Hospitals NHS Foundation Trust.

Following review of the catheter laboratory and operating room activity logs via ORMIS on the day of the validation visit, 24 additional procedures were identified for local review and where found to be congenital cardiac procedures were submitted to the Registry. 19 surgical records appeared to have consistently absent data in the Procedure Urgency field.

Since November 2014 there has been a Data and Outcomes Analyst (DM) role and the post holder is responsible for submitting the data to the NCHDA. However, as previously reported, this individual has responsibilities to other clinical areas and this role is not dedicated to and has no protected time for NCHDA.

As reported in 2011- 24, there is also a specifically identified data clerk role (DM) supervising the data collection for congenital cardiology and has some time protected specifically for the NCHDA data registry. Neither of these individuals have a clinical background. The DM does not appear to have access to the NCHDA database.

There is real-time data input in operating rooms and cath labs using the HeartSuite cardiac information system. However, it appears that not all clinicians fully the complete the clinical aspects for the data all the time.

The national standard for roles related to NCHDA congenital data collection outlined within with the New Congenital Heart Disease Review (NHSE July 2015) recommendation are B32(L1) that there should be a minimum of 1.0 WTE dedicated paediatric cardiac surgery/cardiology data collection manager, with at least 1.0 WTE assistant, responsible for audit and database submissions in accordance with necessary timescales are in post. The same Review also states (at point B33L1) that a dedicated 1.0WTE data collection manager to be responsible for ACHD audit and database submissions in accordance with necessary timescales.

From August 2021, the congenital cardiac service was divided across two sites within the Trust. The paediatric congenital cardiac service moved location to Leicester Royal Infirmary where other paediatric

services are co-located. The ACHD service has remained at Glenfield Hospital within the same Trust. This site visit was hosted at Leicester Royal Infirmary. This NHS Trust continues to use predominantly paper hospital case notes. A new Trust wide electronic health record known as Nervecentre https://nervecentresoftware.com/About-us/ was launched in July 2025 just prior to this visit. Nervecentre is an iCloud based system.

Actions on Recommendations or Changes since Last Validation Visit in 2024:

- GRL report that since the 2024 NCHDA validation visit there are now regular meetings with the Cardiology SpR to discuss previous week's data completion.
- GRL also report that at Glenfield Hospital where ACHD patients have their procedures that catheter laboratory activity is now recorded on the software Operating Room Management Information System (ORMIS). ORMIS is a software system used in healthcare to manage and optimize the sessions of the operating rooms. It does have the facility to record OPCS coding within the application.

Electronic Patient Records at GRL.

As previously reported in 2015, GRL have implemented and then paused an electronic records storage and retrieval system. Nervecentre is a new application and is going through a planned rollout process. Paper bound hospital records, sometimes in large volumes, continue to be used.

Data Quality Indicator (DQI) Score

The DQI score for GRL is (with previous years in parentheses: **96%** (96.75, 97.75, 96) with domain scores Demographics 1.0 (1.0, .99, 1.0, .98), Pre Procedure .93 (.94, .98, .93) Procedure .97 (.96, .98, .94) and Outcome .94 (.97, .96, .97).

This is a cumulative decrease of 1.75 % over 2 years.

We reviewed the hospital notes of 20 patients who had undergone 25 procedures (13 operations and 12 therapeutic catheter procedures.

This amounted to 953 data points and 41 discrepancies that were identified.

The fields with the most discrepancies are:

Comorbidities	10 discrepancies
Pre Procedure Diagnosis	5 discrepancies

Duration of Post Op Ventilation	5 discrepancies
Implanted Device Details	4 discrepancies

Since 2009, separate DQI scores are being calculated for both catheters and surgery. A minimum number of 5 records are required in either group for this to be done. The DQI scores are;

Year of Visit	Data Year Validated	Surgery DQI	Catheter DQI
2015	14/15	92.5%	97%
2016	15/16	97%	97.25%
2017	16/17	94%	98%
2018	17/18	97%	94.8%
2019	18/19	94.25%	96%
2020	19/20	95%	94%
2021	20/21	96%	92%
2022	21/22	96.25%	95.5%
2023	22/23	97.25%	99%
2024	23/24	98%	95%
2025	24/25	95.75%	96.25%

Pre visit Questionnaire

Neither of the requested pre visit questionnaires (PVQs) were completed by this Centre for the 2023 or 2024 validation visits. For 2025 a partially completed PVQ was initially returned a month later than requested. Upon further request the full PVQ was completed for 2025.

The questionnaire for 2025 confirms that the GRL internal standards for Data Security and Management Validation and Quality Assurance are fully met.

Training in Data Management is provided for all new users as relevant to their role at GRL. However, there are no on-going refresher sessions for clinicians and other users of HeartSuite and it is reported that only two people may have any access to the NCHDA database.

Information Governance Training is from NHS Statutory and Mandatory training requirements for all NHS staff pertinent to their roles.

There is or are identified accountable person/people for NCHDA data quality and information validity and Data Submissions are made quarterly where possible.

Data Maturity in 2025

As documented elsewhere, GRL does not have a fully digital electronic health record system that requires a single user ID and sign in process to access all health records to view the NCHDA applicable data. The DBMs may need to log in to different domains within the electronic health records databases with different passwords to access some parts of the information required for NCHDA.

On average, each DBM user may need to log in and out to between 6 and 7 different parts of the electronic health records databases at GRL to record, collect, view or edit NCHDA data depending on level of access.

There are still paper based systems such as operating room, anaesthetic and perfusion records, as well vital observations at both ward and ITU/PICU and patients hospital notes.

The recently launched Nervcentre cannot yet record where a patient is discharged to from a hospital episode although a date of discharge is recorded as well as any follow-up arrangements.

It is reported that there are no future Trust plans to have a fully integrated electronic health record

Introduction

Prior to the validation visit, the NCHDA return from the cardiac department of the University Hospital of Leicester (GRL) indicates that that 554 (surgery 277, catheter 271, 6 others and 5 deaths within 30 days of a specific procedure) procedures have been undertaken in patients with congenital heart disease during the data collection year of 2024/25.

The NCHDA Clinical Data Auditor and a Consultant Paediatric Cardiologist from Glasgow were present in person for this site validation visit.

A list of 20 sets of notes for the case note review were supplied by NCHDA in advance of the visit. Also included in this list were 10 further reserve cases should any of the first 20 not be available. On the day 2 records were used from the reserve list. The accuracy of the NCHDA data return was then checked against each set of notes and used to calculate the Data Quality Indicator (DQI) score.

Review of notes

The case notes reviewed at this visit were printed packs of the information for each of the patients that would be audited. The printouts were from a mixture of the Trusts ePR – Nervecentre, (an iCloud based system) that has been in use at GRL since July 2025 and the original bound case note that were also present in case of further queries or questions arising, however these were often not in chronological order of events. The reviewers would like to again thank the Data and Outcomes Analyst and DM for taking the time to assemble each pack. The Reviewers are also grateful to the local consultant cardiologists consultant surgeons and specialty trainees who spent most of the day with them to assist with navigating the packs of hospital notes and discuss issues arising during the review and to the General Manager and Lead Nurse for the EMCH Network for making time to attend the site validation.

1. The photocopied packs of selected pages from the hospital notes were well organised and prepared with key data fields identified. The complete hospital case notes were nearly all available when the Reviewers needed to access them although some were missing volumes.
2. The discharge sheet from ITU/PICU to the ward, when seen, was very useful.
3. It was challenging at times to find the explicit information of the date and time of extubation as the ITU/PICU vital observations charts do not appear to always be kept with the narrative hospital notes and narrative documents were sometimes vague and non specific on this information
4. For patients who undergo catheter procedures, the radiation dosage submitted to NCHDA should be in centi-gray (cGys/m2) as specified in the NCHDA Data Manual p51

5. The template for documentation of the ACHD risk fields required for NCHDA was seen. It would be helpful when trying to gauge the NYHA status to perhaps specify the job or current occupation or gym/sport activity of patients as what was stated was found to be incorrect at the time of admission on occasions when the hospital notes were examined further.
6. It was also challenging to find reporting of ventricular function in the hospital notes of some ACHD patients.
7. It appeared in 3 different hospital records that the most correct and specific diagnostic coding was not selected ie the code for Tetralogy of Fallot was submitted when in fact the correct code was Atrioventricular septal defect and tetralogy of Fallot. It is very important that the preprocedural diagnoses reconcile with the procedure performed for every procedure entry.
8. In a complex paediatric record submitted, and selected in the random sample for review, the diagnosis of truncus arteriosus was absent in the data submission.
9. One patients record with an incomplete post operative complication of acute kidney injury requiring dialysis was found to be absent from the NCHDA submission.
10. It also appears that there may be an issue with HeartSuite duplicating previous procedures to appear to suggest that a patient may have had 2 Norwood procedures or 2 coarctation repairs. When the hospital notes were checked both of these were found to be incorrect.
11. Some of the day case patients whose notes were validated, did not appear to have a discharge summary in their hospital file.
12. The Attribution of Death field should be completed whenever this information is available after a patient has died. It is important that this is discussed in the appropriate forum and completed by the lead clinicians. Many centres are now choosing to do this as part of their monthly Mortality and Morbidity meetings and include the MCCD (medical certificate of cause of death) in the hospital notes.

Review of the activity log books

The electronic theatre management system ORMIS is used in operating rooms and catheter labs at both sites was presented. This is essentially a theatre booking system and does not have any fields for clinical diagnosis or recognised clinical diagnostic coding. The information is entered by non clinical staff and this is not audited for accuracy. Patients may be entered more than once if for instance their procedure is cancelled or postponed. It also does not have any clinical procedural coding activated within its function to accurately record exactly what operation has been performed only the name of the scheduled procedure which may be something quite different. Therefore it is extremely difficult to know how complete and accurate ORMIS is at this time or to know how the Trust use the information collected.

The Trust should be aware that there is flexibility within ORMIS to load OPCS4.9 procedure coding and this, when used correctly after suitable education and training, will add to the accuracy of the data being collected.

It was reported at this visit that one of the NCHDA DBMs translates the procedure entries on ORMIS to correlate with what is entered on HeartSuite.

Review of ORMIS for 2024/25 for both Operating room and Cath Labs identified;

1. 30 of the submitted records for congenital surgery from GRL may have errors in them
2. 19 of the submitted surgical records for 1 operator were incomplete in the field for Procedure Urgency.
3. 1 of the submitted records for congenital surgery was not validated in ORMIS
4. 13 surgery procedures were identified that may have been missed from the data submission as it was not always clear exactly what procedure had been performed or whether or not the patient had congenital heart disease.
5. Hybrid procedures should only be submitted once following the guidelines in the NCHDA Manual
6. 9 submitted catheter records may have an error or unfilled field in them
7. 11 catheter procedures were identified in the logs that may be suitable for submission to NCHDA
8. 6 submitted records for catheter procedures were not validated in the cath lab log from ORMIS that were seen
9. 2 catheter procedures for pacemakers were found to be submitted in the category ‘Other’ and should be ‘Catheter Electrophysiology’
10. 2 submitted catheter records were found to be for non NCHDA procedures and should be removed
11. 1 submitted catheter intervention procedure was found to be incorrectly listed as ‘Other’
12. It was observed again this year that there appears to be a smaller than expected number of electrophysiology and other EP procedures such as Pacing, reported from GRL in the NCHDA data. It was also reported that these cases may be being performed by non congenital colleagues and the NCHDA audit team are not aware of these procedures and also that ACHD pacing and EP procedures are not discussed at the Congenital MDT meetings.

Validation of Deceased Patients Diagnostic and Procedure Coding

Commencing with the validation of the 2013/14 data, the National Congenital Heart Disease Audit wish to verify all dates of death of deceased patients included in the year under review. These are post procedural deaths. The diagnosis, comorbidity, pre operative weight, procedure and complication coding will also be validated.

Five 30 day post procedural deaths were submitted in the data from GRL for the year 2024/25. Photocopies of the Mortality and Morbidity presentations derived from the case notes were made available to the reviewers. Some volumes of hospital notes were also available to the Reviewers.

The following observations were made;

1. All dates of death were confirmed as correct.
2. 1 record is an incomplete duplicate of a Hybrid procedure and should be removed
3. 2 records appear to have incomplete Diagnoses fields
4. 3 records appear to have incomplete Comorbidity fields
5. 1 record appears to have an incomplete Procedure Performed field
6. 4 records appear to have incomplete Complications fields
7. As in 2024, it is reported that the completion of this data for NCHDA is not discussed at the mortality meeting

Some death MCCD certificates were seen but no Coroners Reports. There was some documentary evidence of discussions with the Medical Examiner and Coroners Office but these were not consistently seen

Casenote Audit

	Parameter	Total Score	Total No	Comments	Scores for Cardiology & Surgery	
					C	S
1	Hospital Number	20	20		11	9
2	NHS Number	20	20		11	9
3	Surname	20	20		11	9
4	First Name	20	20		11	9
5	Sex	20	20		11	9
6	DOB	20	20		11	9
7	Ethnicity	20	20		11	9
8	Patient Status	20	20		11	9
9	Postcode	20	20		11	9
10	Pre Procedure Diagnosis	20	25	5 incomplete of major components	9/12	11/13
11	Previous Procedures	71	75	4 absent	22/25	49/50
12	Patients Weight at Operation	24	25	1 incorrect	11/12	13
13	Height	24	24		11	13
14	Ante Natal Diagnosis	3	3		1	2
15	Pre Proc Seizures	25	25		12	13
16	Pre Proc NYHA	5	6	1 incorrect	½	4
17	Pre Proc Smoker	6	6		2	4
18	Pre Proc Diabetes	6	6		2	4
19	Hx Pulmonary Dis	6	6		2	4
20	Pre Proc IHD	6	6		2	4
21	Comorbidity Present	25	25		12	13
22	Comorbid Conditions	24	34	1 incorrect, 9 absent	12/21	11/13
23	Pre Proc Systemic Ventricular EF	25	25		12	13
24	Pre Proc Sub Pul Ventricular EF	22	22		11	11
25	Pre-proc valve/septal defect/ vessel size	5	5		5	-
26	Consultant	25	25		12	13

	Parameter	Total Score	Total No	Comments	Scores for Cardiology & Surgery	
					C	S
27	Date + Time Start	25	25		12	13
28	Proc Urgency	23	25	1 absent, 1 incorrect	11/12	12/13
29	Unplanned Proc	-	-		-	-
30	Single Operator	-	-		-	-
31	Operator 1	25	25		12	13
32	Operator 1 Grade	25	25		12	13
33	Operator 2	24	25	1 absent	12	13
34	Operator 2 Grade	24	25	1 absent	12	13
35	Procedure Type	25	25		12	13
36	Sternotomy Sequence	12	12		-	12
37	Operation Performed	25	25		12	13
38	Sizing balloon used for septal defect	-	-		-	-
39	No of stents or coils	2	3	1 incorrect	2/3	-
40	Device Manufacturer	9	10	1 absent	4	5/6
41	Device Model	9	10	1 absent	4	5/6
42	Device Ser No	9	10	1 absent	4	5/6
43	Device Size	8	9		3	5/6
44	Total Bypass Time	11	12	1 absent	-	11/12
45	XClamp Time,	7	8	1 absent	-	7/8
46	Total Arrest	-	-		-	-
47	Cath Proc Time,	11	12	1 incorrect	11/12	-
48	Cath Fluro Time,	12	12		12	-
49	Cath Fluro Dose,	12	12		12	-

	Parameter	Total Score	Total No	Comments	Scores for Cardiology & Surgery	
					C	S
50	Duration of Post Op Intubation	12	12	5 incorrect	-	7/12
51	Post Procedure Seizures	24	25	1 absent	12	12/13
52	Post Proc Complications	5	6	1 absent	-	5/6
53	Date of Discharge	25	25		12	13
54	Date of Death	1	1		-	1
55	Attribution of Death	1	1		-	1
56	Status at Discharge	25	25		12	113
57	Discharge Destination	25	25		12	13

Data Quality Indicator Assessment:

The Overall Trust DQI = 96% Cardiology DQI = 96.25% Surgery DQI = 95.75%

This DQI is based upon the domain scoring below. The methodology for this DQI is provided in the paper The CCAD Audit – An Introduction to the Process.

DOMAIN	DOMAIN Score	
Demographics Hospital Number, NHS Number, Surname, First Name, DOB, Sex, Ethnicity, Postcode, Patient Status,	**Overall 1.0**	
	Card 1.0	**Surg** 1.0
Pre Procedure Pre procedure Diagnosis, Selected Previous Procedures, Patient Weight at Operation, Consultant, Antenatal Diagnosis, Pre Procedure Seizures, Comorbid Conditions, **Height, Pre Procedure NYHA, Pre Procedure Smoker, Pre Procedure Diabetes, Previous Pulmonary Disease, Pre Procedure Ischaemic Heart Disease, Comorbidity Present, Pre Procedure Systemic Ventricular Ejection Fraction, Pre Procedure Sub Pulmonary Ejection Fraction, Pre Procedure valve/septal defect/vessel size,** Note, the scores for his domain are affected by the selected previous procedure and pre procedure diagnosis	**Overall .93**	
	Card .87	**Surg** .98
Procedure Date of procedure, Operator 1, Operator 2 Cardiopulmonary Bypass used, Operator 1 grade, Operator 2 grade, Operation performed, Sternotomy sequence, Bypass Time, CircArrest, XClamp Time, Cath Proc Time, Cath Fluro Time, Cath Fluro Dose, **Time Start, Procedure Urgency, Unplanned Procedure, Single Operator, Sizing Balloon Used, No of Stents/Coils, Device Mfr, Device Model, Device Ser No, Device Size,**	**Overall** .97	
	Card .98	**Surg** .95
Outcome Duration of Post Op Intubation, Post Procedure Seizures, Date of Discharge, Date of Death, Status at Discharge, Discharge Destination. **Post Procedure Complications.**	**Overall** .94	
	Card 1.0	**Surg** .90

Data Quality Indicator Assessment

The Trust DQI = 96%

This DQI is based upon the domain scoring below. The methodology for this DQI is provided in the paper The NCHDA Audit – An Introduction to the Process.

DOMAINS	2022 21/22	2023 22/23	2024 23/24	2025 24/25
Demographics	1.0	.99	1.0	1.0
Pre Procedure	.93	.98	.94	.93
Procedure	.94	.98	.96	.97
Outcome	.96	.96	.97	.94

Conclusions

On the whole the NCHDA data were accurate, well documented, of good quality and were appropriately recorded in the Theatre and Cath Lab ORMIS excerpts with some translation from one of the NCHDA DBMs. This centre is still using paper hospital case notes.

The overall DQI score is 96%. This is a decrease of 0.75% on the 2024 score and this is cumulatively 1.75% since 2023.

The Reviewers are pleased to note that there continues to be some clinician involvement with validating the data locally prior to submission. However, it became clear that amongst some clinicians there appears to be a lack of ownership of the data causing fields to be unfilled or unchecked in the appropriate forums. Local validation is an important part of ensuring only complete, good quality data are collected. Reverse validation – that is submitting data and exporting the submitted data to NCHDA back to the local forum for the local data review. This should be done on a regular (ie monthly) basis as it demonstrates exactly how data will be analysed by NCHDA and will highlight any coding errors quickly and easily. It does not appear that this happening consistently at GRL. To do this exercise monthly with the responsible clinicians is often more beneficial as recall of a smaller number of cases may be much easier.

It is essential that adequate support is provided for the current Information and Data Managers, who are not clinically trained, who undertake a vast majority of this task, to do this equitably with all clinicians. It is also very important that local clinicians using HeartSuite see how the Long List codes that this application uses are mapped to the Short List codes that NCHDA uses.

It should also be recognised by the Trust that both the Information and Data Manager assigned to NCHDA must have totally dedicated and protected whole time to sufficiently support the registry.

As noted elsewhere and repeatedly documented at NCHDA validation visits, it is observed that GRL still does not meet the standards outlined within with the New Congenital Heart Disease Review (NHSE July 2016) recommendation B32(L1) that there should be a minimum of 1.0 WTE dedicated paediatric cardiac surgery/cardiology data collection manager, with at least 1.0 WTE assistant, responsible for audit and database submissions in accordance with necessary timescales are in post. The same NHSE Standards document but for ACHD also stipulate (at point B33L1) a dedicated 1.0WTE data collection manager to be responsible for ACHD audit and database submissions in accordance with necessary timescales. The congenital paediatric service has relocated to Leicester Royal Infirmary in summer 2021 leaving the ACHD service at its present location at Glenfield apparently without any data collection support at all.

It should also be noted that NHSE use NCHDA data to underpin parts of the quarterly paediatric cardiac and ACHD/Transition and CQUINs dashboards for current and future activity provision. So monthly data submission to NCHDA would seem to be an easier way to manage smaller blocks of data rather than 1 larger one every 3 months.

As noted by the Reviewers when validating above, and as in previous years, in the activity ascertainment, that there is a lack of procedures for electrophysiology and devices implantation from GRL.

It was also clear to the reviewers at times that what was actually recorded in ORMIS did not always accurately portray the procedure that was performed.

Using ORMIS for the theatre ascertainment validation was useful but it is clear that there still needs to be much more clarity in describing the actual procedures performed and also using OPCS 4.9 codes would be helpful in ensuring accuracy of the data entries. The procedure performed should reconcile with the presenting diagnosis of the patient for each episode.

Review of Deceased Patients Diagnostic and Procedural Coding

As reported above, there were a number of disecrepancies identified. All dates of death that were validated, were correct. However if these data had been reverse validated it may have been clearer exactly which data were missing for diagnoses, comorbidities and complications. As stated elsewhere, it was not always possible to tell if patients who had died within 30 days were discussed with the Medical Examiner or Coroner and discharge/death summaries for ACHD patients were very hard to find in the hospital notes that were provided.

It was agreed during this part of the validation visit in 2024 that the data fields for these patients and in particular the field for Attribution of Death, it would be most appropriate to discuss its completion at monthly mortality meetings but this did not appear to be happening in 2025.

The Reviewers were also made aware that there is no process to regularly report and inform the NCHDA Data Managers of any out of hospital patient deaths.

Recommendations (unchanged from2022)

1. It is strongly recommended that in line with the New Congenital Heart Disease Review National Standards (NHSE July 2016) recommendation B32(L1), that there should be a minimum of 1.0 WTE dedicated senior paediatric cardiac surgery/cardiology data collection manager and 1.0WTE assistant paediatric cardiac surgery/cardiology data collection manager in post. The recommended pay banding for the senior data collection manager is contained in this document: https://www.hqip.org.uk/resource/national-congenital-heart-disease-audit-2013-2016/#.XiHWkojgqt8
2. It is also strongly recommended that in line with the recommendation within with the New Congenital Heart Disease Review National Standard (NHSE July 2016, point B33L1), that there should be a 1.0WTE dedicated data collection manager that is responsible for ACHD audit data and database submissions in post to facilitate data collection, data validity and submission to NCHDA.
3. It is recommended that any Standard Operating Protocols devised and/or reviewed for the congenital data collection, should be done regularly to ensure that they include detailed guidance on 'how to' and exactly **who** is responsible for and in what timeframe for each of the following;

    a) Input of the data for each relevant procedure and identifying at which point of the service delivery this should be done, particularly data that cannot be input at the time of procedure such as intubation duration and complications.

    b) Validity checking for completeness and the time intervals for feedback to responsible clinicians on this along with a clear time scale and line of responsibility for rectifying any omissions or errors in both surgery and cardiology disciplines. Monthly face to face meetings with all clinicians are recommended.

    c) Running PRAiS analysis software monthly and completion of any quarterly NHSE Commissioner Dashboards or data returns as required.

    d) Leading the local review for internally collected data and for the same after submission to NCHDA monthly in a face to face setting with the responsible clinicians. This will encourage more clinician ownership of the data.

    e) Making timely submissions to NCHDA (monthly is recommended) and then reverse validation with clinicians in a regular forum

    f) Clearly documenting the date of any discussion with the local Medical Examiner/Coroner and its outcome following a patient death post procedure and including a copy of the MCCD in the hospital notes.

    g) Documentation of the attribution of death as this is an NCHDA required data field.

h) Identifying the responsible clinicians for completing the field for Attribution of Death (above) at Mortality Meetings as this should not be a non clinical DBMs responsibility.
i) Devising a mechanism to identify and capture dates of death in patients who have been discharged following a procedure
j) Timely (ie monthly) reverse validation at GRL data against an acknowledged 'gold standard' record of activity and procedures performed.
k) Updating these SOPs at timely intervals

4. To encourage a more restricted list of adjectives to describe right and left ventricular function to match with the NCHDA Dataset Requirements. See NCHDA Data Manual pages 28 and 29. https://www.nicor.org.uk/datasets/supporting-data-set-documentation
5. To encourage clearer data entry in cath lab and operating activity logs/electronic data bases to assist with identity of procedures in patients with congenital heart disease.
6. To develop training for all other staff who may be involved with data input. This could involve visiting other centres who submit data to NCHDA and for sharing ideas, knowledge and experience.
7. Provide access to RIS (or CRIS) for NCHDA Data Managers to enable capture of xray dose and times if not clear in the patients hospital records.
8. To have clear guidance on exactly where sticky labels from implanted devices should be located in the patients hospital case note.
9. Encourage trainees at ST6 or above to volunteer to be the assisting clinician at external NCHDA validations to other Level 1 service providers.
10. For local NCHDA Data/Information Managers to attend and observe a validation visit to another centre annually.