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| **CAPNA** |
| **Clinical Audit of Paediatric Neurosurgical Activity** |
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| **Audit Instructions** |
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| **Clinical Audit of Paediatric Neurosurgical Activity** |

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| 2.0 | 16.05.17 | Replacement of CAPSA with CAPNA. | MW |
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1. **Data Submission** [**14**](#Datasubmission)
2. **Introduction**

The Managed Service Network for Neurosurgery (MSN) is committed to compiling a National Paediatric Operative Database as recommended in the Final Report of the Neuroscience Implementation Group 2008.

The MSN launched the Clinical Audit of Paediatric Neurosurgical Activity (CAPNA) project to fulfil this recommendation. This project centralises data on all neurosurgical procedures in Scotland (core data), whilst also collecting additional neurosurgical activity data in the two smaller neurosurgical sites (NHS Tayside and NHS Grampian).

Thirtysix core variables were approved which encapsulated demographic, admission, operative and outcome details for each paediatric patient undergoing neurosurgery. This data makes up the National Paediatric Neurosurgical database and all 4 neurosurgical sites contribute to it.

In addition it was agreed that NHS Tayside and NHS Grampian would collect additional variables to examine collaborative working with the two major centres (Royal Hospital for Children, Glasgow (G513) and the Royal Hospital for Sick Children, Edinburgh (S225)).

Core data is recorded for **all** children who undergo neurosurgery. Additional data for NHS Tayside and NHS Grampian will be recorded for all children who are admitted to neurosurgery, transferred to a major centre or who are examined by a Neurosurgeon within a minor centre.

1. **Aims**

* To create a national paediatric database of neurosurgery activity.

1. **Case Ascertainment**

All children under the age of 16 years (15 years and 364 days) at the time of surgery, who receive neurosurgery at a neurosurgical site in Scotland, are to be included.

Obtaining this data will vary between sites, the table below specifies the role Consultants/Registrars and the Audit Facilitator (AF) hold in the process for each site.

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| **NHS GGC & Lothian** | * Data collection will be Consultant led. * AF to obtain a data extract from the Consultant held BPNG database on a quarterly basis. * AF to cross reference data with theatre operative system. * AF will complete the “category of surgery” field, and this will be checked by a Consultant Neurosurgeon. |
| **NHS Tayside & Grampian** | * AF to work with the Consultants’/Registrars to collect data prospectively. * Consultants’/Registrars are to inform the AF of any new cases and should complete the Additional Information proforma. * AF to carry out cross referencing of data through obtaining an extract from the electronic theatre operative system to ensure all cases are captured. * AF will complete the “category of surgery” field, and this will be checked by a Consultant Neurosurgeon. |
| **Cross site communication** | * All AFs are to inform the relevant AF via e-mail about any patients they identify as being transferred between sites. * The centre were the child has first contact with neurosurgery is to be the source site. |

1. **Dataset**

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| **CAPNA: Core Data** | | | |
| **Proforma section** | **Question** | **Description** | **Format** |
| **Source Centre ID** | *Generated by the neurosurgical centre the child 1st has contact with.* | | |
|  | Centre Code | Enter the ISD centre code to identify the neurosurgical centre.  Use the ISD “Current NHS Hospitals in Scotland” list, available on: <http://www.isdscotland.org/Health-Topics/Hospital-Care/Hospitals/> | One letter followed by three numbers. Do not include H. |
|  | Proforma Number | Enter the centre specific number followed by a full stop and then starting with 001 number the proformas sequentially.  The centre number followed by a full stop and then a 3 digit number will give a unique number for a patient episode. | 4 numbers  1 for Aberdeen  2 for Dundee  3 for Glasgow  4 for Edinburgh  *Example*: **1.001** *(First case for Grampian.)* |
| **Receiving Centre ID** | *Only completed for children who are transferred to another Neurosurgical site.* | | |
|  | Receiving Centre Code | Confirm the patient was transferred from the source centre using the patient’s electronic patient record (EPR). Identify which neurosurgical centre the patient was transferred to from the EPR. Enter the ISD hospital code for the neurosurgical site the patient was transferred to (<http://www.isdscotland.org/Health-Topics/Hospital-Care/Hospitals/>). | One letter followed by three numbers. Do not include H.  If no transfer enter 9. |
|  | Receiving Centre Proforma Number | Contact the AF at the Neurosurgical site that the patient has been transferred to. Obtain from the AF the form number that they have allocated to the patient.  Enter this number as the receiving centre proforma number. This will allow the patients records to be merged. | Number  1 for Aberdeen  2 for Dundee  3 for Glasgow  4 for Edinburgh  If no transfer enter 9. |
|  | Transfer Code | To complete the receiving centre ID enter the original source centre code in the transfer code box. | Number  1 for Aberdeen  2 for Dundee  3 for Glasgow  4 for Edinburgh  If no transfer enter 9. |

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| **Patient Details** | *Core data – Completed by ALL sites* | | |
|  | CHI Number | Obtain the patient’s Community Health Index (CHI) number from the patient’s EPR. Enter the CHI in full (10 digits).  The CHI number uniquely identifies a person on the Community Health Index (CHI). The first 6 digits of the CHI is the individual’s date of birth. | 10 digit number  *Example*: **1203459876**  If unknown enter 8888888888 |
|  | Date of Birth | **(*Date of birth will be automatically calculated from the CHI in the CAPNA database*.)**  Obtain the patient’s date of birth from the patient’s EPR. Enter the date of birth in full.  The patient’s date of birth is used for future calculations of age. Only children under the age of 16 years old will be included in the audit. | Date: DD/MM/YYYY  If unknown enter 88/88/8888 |
|  | Operative Age | **(*Operative Age will be automatically calculated from the CHI in the CAPNA database*.)**  Establish when the patient was operated on by a Neurosurgeon from the hospital theatre system (OPERA/ORSOS). Using the patient’s date of birth calculate the age of the patient when the surgery was performed. Enter the patient’s age when they underwent neurosurgery.  Operative age helps to ensures only children under 16 years old are included in the dataset.  **T101 & N121**: *When recording advise or admissions with no surgical procedure record the age of the patient at point of contact with neurosurgical service.* | XX yr XX mth  *Example*: 10 yr 10 mth  If no operation enter age at admission manually. |
|  | Forename | Obtain the patients first name from the patient’s EPR. Enter the first name in full.  If no forename is available record as unknown and indicate why not available in the comments section.  The patient’s name will provide an additional identifier when tracking patient in hospital systems and/or cross site communication. | Free text  8=Unknown |
|  | Surname | Obtain the patients surname the patient’s EPR. Enter the surname in full.  If no surname available record as unknown and indicate why not available in the comments section.  The patient’s name will provide an additional identifier when tracking patient in hospital systems and/or cross site communication. | Free text  8=Unknown |
|  | Sex | Identify the patient’s sex as recorded in the patient’s EPR. Enter whether the patient is male or female.  Sex identifies the number of male or female children receiving neurosurgery. | M = male  F = female  8 = not specified (includes not stated by patient, or not recorded). |
|  | Date and Time of Admission | Establish when the patient was admitted to neurosurgery from the electronic hospital administration system (e.g. TRAKcare, Clinical Portal). Enter the date and time in full using the 24 hour clock.  Admission and discharge details are used to calculate length of stay.  **T101 & N121:** *Where the patient was not admitted, record the date and time of Neurosurgical consult in ED.* | DD/MM/YYYY hh:mm  (24 hrs) |
|  | Date and Time of Discharge | Establish when the patient was discharged from neurosurgery from the electronic hospital administration system. Enter the date and time in full using the 24 hour clock.  Admission and discharge details are used to calculate length of stay.  If a request for data is made by the MSN Clinical Coordinator and a patient has not been discharged record the discharge date and time as “unknown”.  **T101 & N121:** *Where the patient was not admitted following a consultation (i.e. Advise only cases) record the end date and time of consult in ED.* | DD/MM/YYYY hh:mm  (24 hrs)  If unknown enter 88/88/8888 88:88 |
| **1st Operative Procedure** | *Core data – Completed by ALL sites* | | |
|  | Date of Operation 1 | Obtain the date of surgery from the hospital theatre system (OPERA/ORSOS) and record in full.  Operation date will assist in calculating the number of paediatric neurosurgical episodes carried out locally and nationally. | DD/MM/YYYY  If no neurosurgery enter 9. |
|  | Operative Neurosurgeon | Establish which Consultant Neurosurgeon was responsible for the neurosurgery from the hospital theatre system. Record the surgeon’s surname.  If surgery was performed by a doctor of another grade enter the Consultant Neurosurgeon whose care the patient is under, identified through the patient’s EPR.  Recording the Operative Neurosurgeon will allow identification of which Neurosurgeon was responsible for each episode of care. | Free text  If no neurosurgery enter 9. |
|  | Operation 1 | Establish which neurosurgical procedure was carried out as documented on the hospital theatre system. Record the name of the procedure.  This description will allow for audit of the type of paediatric neurosurgery being carried out. | Free text  If no neurosurgery enter 9. |

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|  | BPNG Code 1 | Establish which British Paediatric Neurosurgical Group (BPNG) grouping the procedure is under using the latest version of the MSN document: “*BPNG codes*”. Record the BPNG code for that group.  If it is unclear which code to allocate discuss with the Neurosurgeon.  The BPNG code will allow for grouping of procedures locally and nationally. | Text  If no neurosurgery enter 9. |
|  | Category of Surgery 1 | Identify the category of paediatric surgery assigned to the surgical procedure as defined by the Neurosurgeons, using the most recent version of the MSN document: “*MSN paediatric category of surgery*”. Record which category the procedure is in.  If it is unclear which code to allocate discuss with the Neurosurgeon.  Allocating a category of surgery allows for categorisation of procedures carried out locally and nationally. | Cat 1  Cat 2  Cat 3  If no neurosurgery enter 9. |
|  | Status | From the patient’s EPR establish whether the operation was an elective procedure (planned) or a non-elective procedure (unplanned/emergency).  Record the status of the procedure.  Status allows for the number of elective/non-elective procedures to be calculated. | Elective  Non-Elective  If no neurosurgery enter 9. |
| **2nd/ 3rd/ 4th Operative Procedure** | *Core data – Completed by ALL sites* | | |
|  |  | Following the steps for “1st Operative Procedure” complete the data for any additional neurosurgery that took place during the same admission.  If no 2nd or 3rd or 4th procedure took place enter “9” for all questions.  If 5 or more procedures have been carried out complete the details for the first 4 procedures and then record the details for the 5th and any further procedures in the comments section. |  |
| **Outcome** | *Core data – Completed by ALL sites* | | |
|  | Number of additional surgical procedures | Establish the number of neurosurgical procedures the patient had during this episode from the hospital theatre system/EPR. If the patient had 5 or more procedures record the number of additional procedures in addition to the first four the patient had. Include the details of these additional procedures in the “**Comments**” section.  Including the number of additional surgical procedures will allow for accurate recording of the volume of paediatric neurosurgery. | Number |
|  | Transfer Patient | Establish if the patient was transferred from one Neurosurgical site to another from the patient’s EPR. Record whether the patient was transferred.  Recording all transfers will allow for the number of children being transferred between sites nationally to be established. | 1 = Yes  2 = No |
|  | Critical Care Admission | Establish if the patient was admitted to either PICU/ITU or HDU during this neurosurgical episode from the hospital electronic admission system. Record whether the patient had any critical care admission during this episode.  Recording critical care admissions identifies the need for paediatric critical care locally and nationally. | 1 = Yes  2 = No  8 = not known |
|  | Outcome | Establish the outcome of this neurosurgical episode from the patient’s EPR. Patients may be discharged home, to a district general hospital or to another ward on the same site.  Transfer refers to transfers to another neurosurgical site.  For an outcome of “dead” the child must be under the care of a Neurosurgeon when they died.  Record which outcome occurred for the patient.  Outcome will allow for the auditing of how the patients pathway ended following paediatric neurosurgical care. | Discharged  Transferred  Dead |

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| **CAPNA: Additional Data** | | | |
| **Proforma section** | **Question** | **Description** | **Format** |
| **Additional Information** | *Additional information: Completed by T101 and N121 ONLY* | | |
|  | Presenting Neurosurgical Query / Diagnosis | Using the patient’s EPR or department referral database establish why the patient was referred to neurosurgery. Record the referral summary.  Recording the Neurosurgical query/diagnosis allows for the reporting on the diversity of cases seen by the Neurosurgeons. | Free text |
|  | Primary Diagnosis | Establish the diagnosis given by the Neurosurgeon from the patient’s EPR or department referral database. Record this diagnosis.  Primary diagnosis allows for further categorisation of patients. | Free text |
|  | Diagnostic Group | Establish whether the diagnosis is cranial or spinal in nature. Record which group it is.  If it is unclear which code to allocate discuss with the Neurosurgeon.  Diagnostic group will allow for the calculation of the number of spinal and cranial cases locally. | Cranial  Spinal  Both |
|  | Co-Morbidity 1-6 | Identify any co-morbidity (a diagnosed condition **with the potential to impact outcome)**, recorded in the patient’s EPR or on the referral database for this episode. Record up to 6 co-morbidities.  Recording co-morbidities will help give an overall picture of the patient’s health. Risk of mortality is positively correlated to the number of co-morbidities. | Free text  If no co-morbidities recorded enter 9. |
|  | Action by Neurosurgeon | Establish what action the Neurosurgeon took following the consultation with the patient as recorded in the patient’s EPR. Record the action taken.  The actions a Neurosurgeon can take include; giving advice regarding the care of the patient without admitting the patient under the care of a Neurosurgeon. They may admit the patient under the care of a Neurosurgeon or they may transfer the patient to a major centre (S225, G513).  Documenting the action taken by the Neurosurgeon will establish whether consistent action is taking place. | Advice  Admit  Transfer |

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|  | Admission Type | Establish whether the patient was admitted from where they live (new), from another department (internal) or from another hospital (external) from the electronic hospital admission system. Record the admission type.  Admission type will identify where patients are admitted from. | New admission  Transfer – Internal  Transfer – External  If not admitted enter 9. |
|  | Admitting Consultant Neurosurgeon | Identify the Consultant who admits the patient from the electronic hospital admission record. Record the Consultant’s surname.  Recording the admitting Consultant Neurosurgeon will allow identification of which Neurosurgeon was responsible for each episode of care. | Free text  If not admitted enter 9. |
|  | Summary of Advice | If the Neurosurgeon gave advice record the advice given as recorded in the patient’s EPR or on the department referral database.  If it is unclear what the advice given was discuss with the Neurosurgeon.  Summarising the advice given will allow for the accurate recording of the guidance given by Neurosurgery, and will facilitate any case discussion taking place at the Paediatric Advisory Group (PAG). | Free text  If no advice given enter 9. |
|  | Discussed with Major Centre | Establish from the patient’s EPR or on the department referral database whether the Neurosurgeon contacted a major centre (S225/G513) to discuss the case. Record which centre was contacted.  If it is unclear which centre was contacted discuss with the Neurosurgeon.  Documenting if a case was discussed with a major centre will record the activity taking place between the major and minor sites. | G153  S225  Both (*Both centres were contacted for advice.)*  If no major centre contacted enter 9. |
|  | Response by Major Centre | If a major centre was contacted establish what response they gave from the patient’s EPR or on the department referral database. Record the response of the major centre.  If it is unclear what response was given discuss with the Neurosurgeon.  Recording the response from the major centre will establish what advice was given and whether it was followed. This will assist any case discussion carried out at the PAG. | Advice  Advised transfer  If no major centre contacted enter 9. |

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|  | Further comment on response from Major Centre | Record any further comments regarding the communication between the major and minor sites. Include here if both major centres were contacted was the response the same.  If it is unclear what the advice was discuss with the Neurosurgeon.  Recording any further comments from the major centre will further assist any case discussions at the PAG. | Free text  If no further comments given enter 9. |
| **Adverse Events** | *Additional information: Completed by T101 and N121 ONLY* | | |
|  | Date Adverse Event Registered | Establish from the patient’s EPR whether any adverse event occurred; infection within 30 days of surgery, an unplanned return to surgery during the same admission, or a readmission to neurosurgery 30 days post discharge.  If an adverse event has occurred enter the date in full the adverse event was registered.  Detailed recording of adverse events is vital for morbidity monitoring, for future learning and trend analysis. | DD/MM/YYYY  If no adverse event enter  99/99/9999 |
|  | Consultant Neurosurgeon | If an adverse event has occurred establish the Consultant Neurosurgeon whose care the patient was under from the patient’s EPR. Record the Consultant’s surname.  Identifies the Consultant in charge of the case when the adverse event occurred. | Free text  If no adverse event enter 9. |
|  | Adverse Event Type | Establish the severity of the event through discussing with the Neurosurgeon.  The event may be minor (readily resolvable), moderate (short term impact, resolved within a week) or major (long term impact, resolved in over a week).  Adverse event type allows for the categorisation of the event. | Minor  Moderate  Major  If no adverse event enter 9. |
|  | Linked to whichprocedure | Establish, from the patient’s EPR which surgical procedure the adverse event was linked to. Record the procedure name.  Identifying the procedure allows for a clear discussion of morbidity events. | Free text  If no adverse event enter 9. |
|  | Post operative infection | Identify from the patient’s EPR if the patient has an infection which has occurred within 30 days of surgery. Record whether the infection was within 30 days.  Identifying an infection allows for morbidity monitoring to be carried out, and for an infection rate to be calculated. | 1 = Yes  2 = No  If no infection enter 9. |
|  | Infection Type | Determine the severity of the infection through discussion with the Neurosurgeon. Record the severity of the infection.  Infection type will allow for the categorisation of infections. | Superficial  Deep  If no infection enter 9. |
|  | Return to theatre | Establish from the hospital theatre system whether there was an unplanned return to theatre within the same admission. Record whether there was an unplanned return to theatre.  Identifying a return to theatre allows for morbidity monitoring to be carried out. | 1 = Yes  2 = No  If no return to theatre enter 9. |
|  | Return to Theatre Date (DD/MM/YYYY) | If the patient had an unplanned return to theatre, establish from the hospital theatre system when this was. Enter the date the patient returned to theatre in full.  Recording the date of the return to theatre allows calculation of days post surgery that the event occurred. | DD/MM/YYYY  If no return to theatre enter 99/99/9999. |
|  | Return to theatre Procedure | If the patient had an unplanned return to theatre, establish from the hospital theatre system which procedure was carried out. Record the procedure carried out.  Identifying the procedure allows for a clear discussion of morbidity events. | Free text.  If no return to theatre enter 9. |
|  | Readmission | Establish if there was a readmission to neurosurgery within 30 days of discharge from the hospital electronic admission system. Record whether there was a readmission.  Identifying a readmission allows for morbidity monitoring to be carried out. | 1 = Yes  2 = No  If no readmission enter 9. |
|  | Readmission Date (DD/MM/YYY) | If the patient was readmitted within 30 days of discharge establish when this was from the hospital electronic admission system. Enter the date the patient was readmitted in full.  Recording the date of a readmission allows calculation of days post discharge/surgery the event occurred. | DD/MM/YYYY  If no readmission enter 99/99/9999. |
|  | Reason for readmission | Identify why the patient was readmitted from the hospital electronic admission system. Record the reason for readmission.  Identifying the details of a readmission allows for morbidity monitoring to be carried out. | Free text.  If no readmission enter 9. |

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| **Comments** |  | | |
|  | Comments | Include any information relevant to admission either at the initial centre or receiving centre. Text entered may provide additional information relating to specific data fields or information that is not collected as part of the data set but would be useful for feedback purposes.  Include also details of additional neurosurgical procedures carried out in addition to the 4 procedures recorded in the operative procedure sections. Including the category of surgery and BPNG code for these procedures.  No identifiers should be included in this text (patient, staff, etc.). | Free text. |

1. **Data submission**

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| **Data Submission** | *To be submitted as requested by the MSN Clinical Coordinator.* | | |
|  | Core data | The core data from all 4 Paediatric sites will be merged to create the National database. In the National database one row will represent one patient episode across neurosurgical sites.  The number of patients and number of neurosurgical procedures can be obtained from this source. |  |
|  | Request for core data | The MSN Clinical Coordinator will request CAPNA data from the AF’s in line with the PAG meetings (approximately 3 times a year) or as required. |  |
|  | Creating the core data file | To create the data extract copy the core data for the requested time period from the cross index into the denominator database **except for** CHI, forename and surname. The cross index will be retained in full locally. |  |
|  | Saving the core data file | Save the denominator database as:  MSN CAPNA denominator database\_[hospital code] \_ [month – month] \_ [year]  *Example:* A request for data from 1st January to 30th April 2017 from Tayside would be saved as:  **MSN CAPNA denominator database\_ T101 \_ Jan-April\_2017** |  |
|  | Sending the core data file | As per the deadline outlined in the project plan data should be sent via e-mail to the MSN Clinical Coordinator **and also** to the MSN Project Support Officer. This data will then be merged. |  |
|  | Additional data | Tayside and Grampian will submit the additional data collected for discussion at the PAG.  This data will include details of:   * Number of cases seen by Neurosurgery. * Number of procedures carried out. * The category of surgery. * The BPNG code. * The outcome following surgery. * What action was taken by the Neurosurgeon? * Was the case discussed with a major centre? * Any adverse events.   How this data is collated will be site specific. |  |