



# Annual Report

## 2023-24



## Contents

- [Foreword](#)
- [Executive Summary](#)
- [Board & Inter Regional Group](#)
- [Deliverables](#)
- [Audit and Quality Improvements](#)
- [Contributions to Partner Projects](#)
- [MSN for Neurosurgery Team](#)
- [Appendices](#)
- [Contact](#)



## Foreword



**Mr David Bennett**  
**Consultant Neurosurgeon**  
**National Clinical Director, MSN for**  
**Neurosurgery**

It has been a busy year for the Managed Service Network for Neurosurgery.

We have continued to report on our key audit work streams of the Annual Review of Consultant Outcomes (ARCO) and Clinical Audit of Paediatric Neurosurgical Activity (CAPNA) whilst also completing a review of the National Standards for Neurosurgery.

Training and research is of key importance to all of the members of the Neurosurgery multi-disciplinary team. A successful Neurosurgery Project Springboard event was held in March 2024 with a number of interesting proposals from representatives across Scotland with identification of collaborative projects to take forward. A Training Needs Analysis of the wider nursing team has highlighted areas to target to further elevate the already exceptional care provided by our teams with a view to broadening this to other MDT members.

An awful lot of background work has gone into the governance arrangements of the Network with key work completed on data protection and processing and ongoing work on the reporting and audit functions of the Network.

It has undoubtedly been a difficult time for Medicine in general and Neurosurgery is no exception. We have significant pressures nationally with waiting times, resource allocation and financial constraints. Despite this we continue to provide high standards of care. We are all members of the Network and its strength comes from the contributions that you make.

The Managed Service Network will continue to be dedicated to delivering neurosurgical services to support the needs of our patients. I encourage you all to take an active role in participating in the work of the MSN to continue this support.



## Executive Summary

Welcome to the Managed Service Network (MSN) for Neurosurgery 10<sup>th</sup> Annual Report, for the period 2023-24. The Network is collaborative in approach; working across Scotland to support the planning, design and delivery of an integrated, holistic, person centred neurosurgical care service.

The Network has continued to work alongside key partner organisations and stakeholders to deliver the extensive program of work; with the key results and achievements outlined in this report.

Progress continued at pace on the outcomes from the critical analysis of the Network Governance Framework and Structure, which has formed part of the deliverables of 2023-24. Audit Facilitators and the Project Support Officer were transferred to the host NHS Board of Lanarkshire, centralising the team and resources. Further progress in completing the transfer continues.

The team would like to pay particular tribute to Mrs Nicki Boyd and Miss Ashley Strickland, both Audit Facilitators that moved onto new posts. Their contributions were highly valued in the successful programme of audit work and the support given to the provider Boards.

The Network extended a warm welcome to Mr David Bennett, Consultant Neurosurgeon in his appointment as the National Clinical Director, MSN for Neurosurgery. David brings with him a wealth of experience in the field of Neurosurgery, with a positive vision for the Network and a keen interest in developing the collaboration between all neurosurgery services. The Network thanks David for his contribution as chair for the Inter Regional Group as he steps down from this role to focus on the National Clinical Director position.

Additionally, the Network welcomes Sean Berryman and Sam Atkinson, Clinical Service Managers, as co-chairs for the Inter Regional Group and Sarah Murray as chair of the Allied Health Professionals working group.



## Board & Inter Regional Group



### Board

The Board of the Managed Service Network (MSN) for Neurosurgery is Chaired by Gary Jenkins (Chief Executive, State Hospital Board for Scotland) and meets triennially.

The board provides national strategic leadership, and advises NHS provider and referring Health Boards, and other partners, in relation to the delivery of health and social care services in Neurosurgery. The board utilises audit and quality improvement initiatives and up-to-date evidence in line with strategic local, regional and national NHS priorities.



### Inter Regional Group (IRG)




The Inter Regional Group, is Co-Chaired by Sean Berryman and (Clinical Service Manager, NHS Grampian) Sam Atkinson (Clinical Service Manager, NHS GGC) which meets bi-monthly.

The aim of the group is to work across geographical and organisational boundaries to support the planning, design and delivery of an integrated, holistic, person-centred care across provider and referring NHS Health Boards.

# Deliverables






## Governance and Structure

<b>Deliverable</b> 	<b>Progress/Next Steps</b> 	<b>Benefits</b> 
<p>Effectively manage the work plan of deliverables for the Network</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Draft complete.</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Discussion on the need and benefit of a Target Operating Model prior to progressing the development of the strategy.</b></li></ul>	<p>Enabling the Network to prioritise, allocate resources aligned to capacity and manage interdependencies and provide an accountability to stakeholders on the delivery of the work plan within agreed time scales.</p>
<p>Develop and implement a Strategy for the Network</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Capacity and resources aligned within working groups to achieve deliverables.</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Open dialogue with Chief Executive Officers and Medical Directors of provider Boards to review deliverables, ensuring alignment with strategic delivery plans.</b></li></ul>	<p>Defined governance, vision and mandate. Supporting achievable objectives with clear benefits.</p>

# Deliverables



## Governance and Structure

Deliverable 	Progress/Next Steps 	Benefits 
MSN for Neurosurgery Governance Framework	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Completed - Scottish Government Network review questions</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Engage in the recommendations and actions when available.</b></li><li>• <b>Conclude discussions for potential governance alignment between Scottish National Audit Programme (SNAP) and the Network</b></li></ul>	<p>Provide a framework for effective board oversight, bringing authority and accountability to the Network, with performance and financial monitoring mechanisms in place. Provide stakeholders with transparency on Network activity and reporting structures.</p>
MSN for Neurosurgery Information Governance Framework	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Data Protection Information Agreement (DPIA) and Data Processing Agreement (DPA) between NHSL and NHS Lothian - draft complete</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>DPIA and DPA approval with required signatories</b></li><li>• <b>Approval for DPIA and DPA between NHSL and NHS Tayside, Grampian and GGC</b></li></ul>	<p>Assurance that legislation is adhered to in the safe and effective management of patient information.</p>



## Audit and Quality Improvement




The Managed Service Network for Neurosurgery performs two audits concurrently each year.

- The ARCO audit (Annual Review of Consultant Outcomes) is performed annually on routinely collected hospital Inpatient Discharge data. Automated data collection takes place via the standard Clinical Coding method for inpatient stays, and data is then linked nationally with other clinical databases by Public Health Scotland (National Record of Scotland and the Cancer registry) to provide a complete patient record. This bank of data provides an opportunity for analytical parameters to be routinely audited, and Neurosurgical Clinical Standards to be measured against. Case ascertainment can be seen in appendix 1.
- The CAPNA audit (Clinical Audit of Paediatric Neurosurgical Activity) was derived from a requirement for the MSN Neurosurgery to compile a National Paediatric Operative Database to contain data for outcome measures for Neurosurgical inpatients under the age of 16. Categories of surgery are listed in appendix 2.

# Deliverables



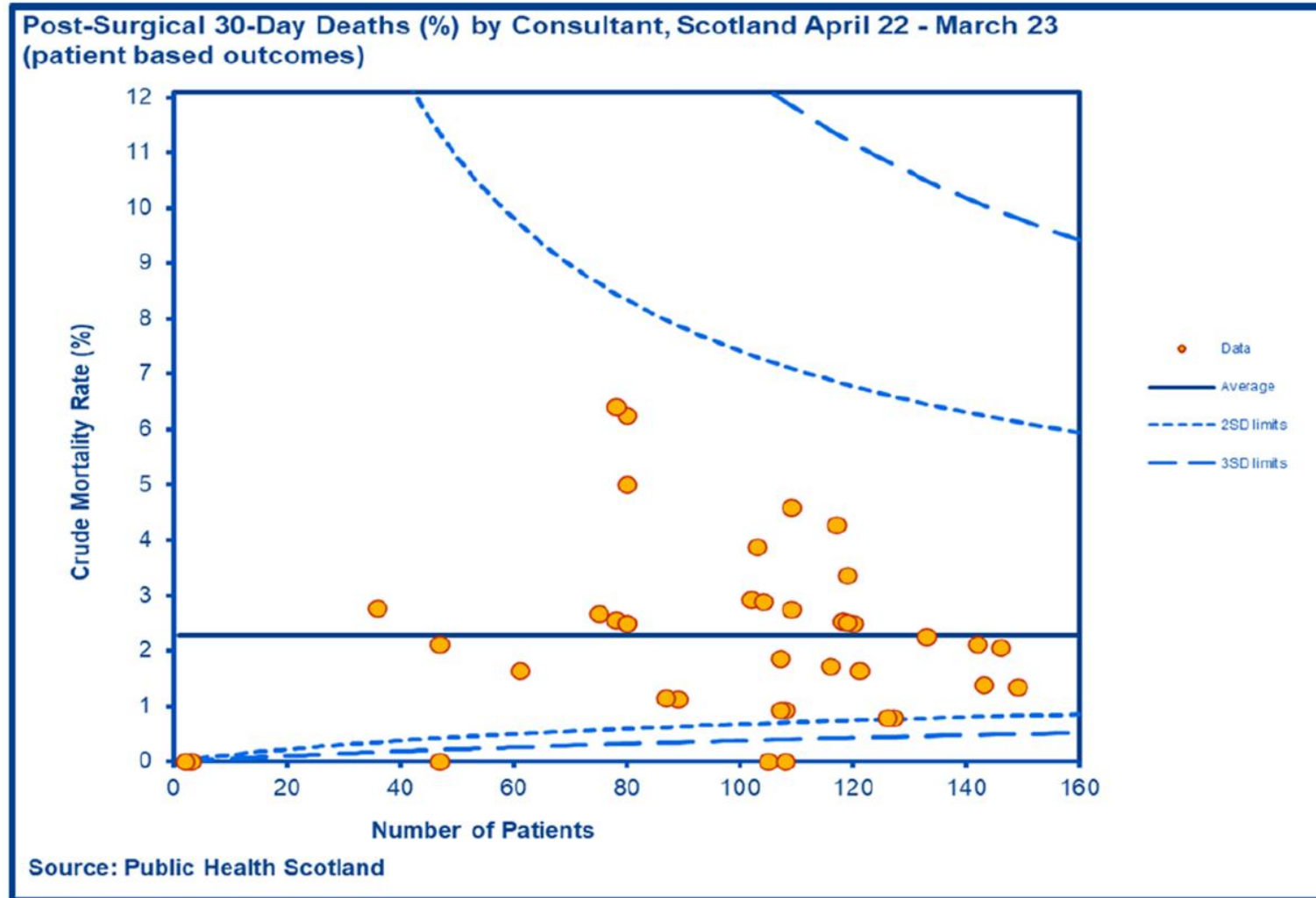
## Audit & Quality Improvement

Deliverable 	Progress/Next Steps 	Benefits 
<p>Annual Review of Consultant Outcomes (ARCO) data analysis and reporting scope</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Data audited for period financial period 2022-23</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Audit team to perform 10% audit on patient outcomes data, and all deaths 2023-2024</b></li></ul>	<p>External data source reduces bias 10% Sample size ensures a good representation of patient population, and a cross section of all consultants in each board.</p>
<p>Clinical Audit Paediatric Neurosurgical Activity (CAPNA) data analysis and reporting scope</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Data collection complete for 2022-23. 4 regional databases merged into one to reflect regional transfers.</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Data collection for 2023-24.</b></li></ul>	<p>Ensures correct procedures are performed in the correct location. Collects patient transfer information between sites.</p>
<p>Review PHS proposal for data request agreement and financial arrangements with Public Health Scotland</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Proposal endorsed</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Action proposal, and recruitment of Information Analyst to join the team</b></li></ul>	<p>Enhanced reporting, cost savings with automated process and capacity gains within audit facilitators team.</p>



# Deaths Within 30-days of Last Procedure (April 2022 to March 2023)

## Crude Mortality Rate (%)

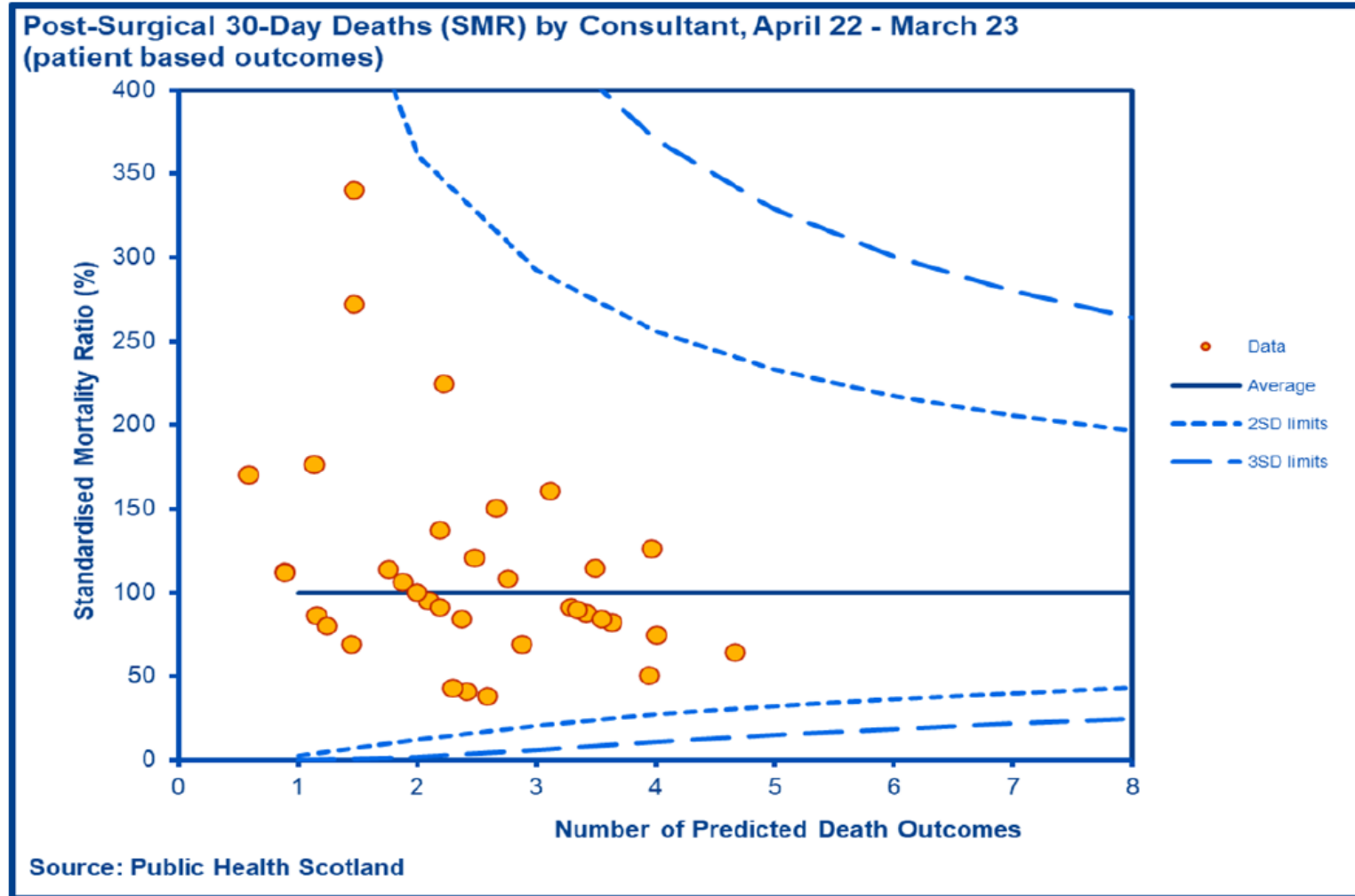




# Deaths Within 30-days of Last Procedure (April 2022 to March 2023)

## Standardised Mortality Ratio (SMR)

Following the validation work, data is entered into a bespoke case mix adjustment tool that accounts for confounding variables which impact on each case. Using this tool the funnel plot generated shows the position of each consultant in relation to the Scottish normal, and shows that there are no outliers.





# Clinical Audit of Paediatric Neurosurgical Activity (CAPNA) (April 2022 to March 2023)

The table below illustrates the data for calendar year 2022 to align with previous years' reporting format. Financial year 2022/23 is also recorded to cover the overlap period as we transition to financial year reporting. See appendix 2 for categories of surgeries.

Region	Year	# Surgeries	Category 1	Category 2	Category 3	Transfers Out	In Patient Deaths
Tayside	2022	3	3	0	0	16	1
	FY 2022/23	4	4	0	0	17	1
Grampian	2022	7	7	0	0	30	0
	FY 2022/23	5	5	0	0	30	0
Lothian	2022	191	97	18	76	0	0
	FY 2022/23	182	90	19	73	0	0
GG&C	2022	311	22	22	267	1	4
	FY 2022/23	333	22	21	290	0	2

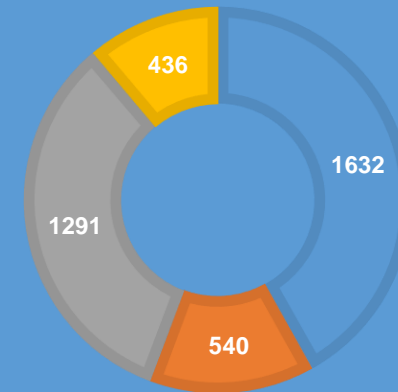


## Audit and Quality Improvement

There were over 4000 surgical cases performed on 3899 patients by 40 Neurosurgeons between April 2022 and March 2023. This is consistent with data from previous years. All deaths within 30 days of surgery, and an additional random 10% of cases were audited. Each Consultant was audited individually due to the diversity of their surgical skillset. A high rate of accuracy in the data is reported.

Number of Cases Performed by Provider Health Board April 2022 – March 2023.




■ GG&C ■ Grampian ■ Lothian ■ Tayside



# Deliverables



## Standards & Pathways

Deliverable 	Progress/Next Steps 	Benefits 
<p>Review and update Neurosurgical Standards 2010</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>MSN Board ratified the Neurosurgical Standards</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Close deliverable</b></li></ul>	<p>Provide a framework of auditable measures which will ensure that wherever a patient is treated in Scotland, their access to care and calibre of service will be similar and of the best possible quality.</p>
<p>Identify and develop audit instructions and quality improvement processes, aligned with revised Neurosurgical Clinical Standards</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Audit instructions written</b></li><li>• <b>Timescales for audit programme finalised.</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Audit service standards</b></li></ul>	<p>Provide the ability for clinical teams, to identify an issue and implement quality improvements to interventions resulting in; efficiencies of practice, improvements in patient care and patient satisfaction.</p>
<p>A review and update of the following National pathways: Cauda Equina, Traumatic Brain Injury, Sub-Arrachnoid Haemorrhage (SAH), and Brain Tumour</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Agreement to review Cauda Equina pathway initially</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Short life working group to be set up</b></li></ul>	<p>Improved patient outcomes and a reduction in hospital admission duration. Defined resources and personnel required to offer specific services, audit structure, enable collaborative working between units.</p>

# Deliverables



## Education and Workforce



## Allied Health Professionals

### Deliverable



Training and Education Needs Analysis

Review by sub speciality AHP pathways, covering; Occupational Therapy, Speech and Language Therapy, Physiotherapy Generic and Physiotherapy Spinal Surgery, and Neurosurgery Dietetic

### Progress/Next Steps



#### Achieved:

- **TNA questions approved by Nursing Working Group and IRG**
- **TNA circulated to Nursing teams**

#### Next steps:

- **Data analysis and recommendations report to be written**

#### Achieved:

- **A compilation of current pathways completed.**

#### Next steps:

- **Review per AHP subspecialty.**

### Benefits



A comprehensive insight into the national training and development needs of staff working in Neurosurgery.

To improve quality of care, effectiveness and productivity across care pathways



## Research & Innovation

Encouraging the proliferation of clinical-research is within the Network remit, with known outcomes of research rich clinical areas delivering better outcomes for patients. The Network hosted the Neurosurgery Project Springboard meeting, held in Edinburgh, to assist in the development of new and existing research projects.

With consideration of best practice, the meeting was delivered successfully, The outcome was a multi-disciplinary and inclusive meeting of Neurosurgery staff with a mix of experience in Clinical Research, covering the follow areas:

- Music Interventions in Paediatric Care
- Art4U initiative (Art therapy for Paediatric Brain Tumour patients)
- Benign Paroxysmal Positional Vertigo in Traumatic brain Injury
- Audit of Stereotactic Radiosurgery Referrals for Trigeminal Neuralgia Patients
- MRgFUS - Magnetic Resonance Guided Focused Ultrasound for brain tumours

All presentations have had follow up from the Network, which is positioned to offer support varying from logistical co-ordination to data retrieval.

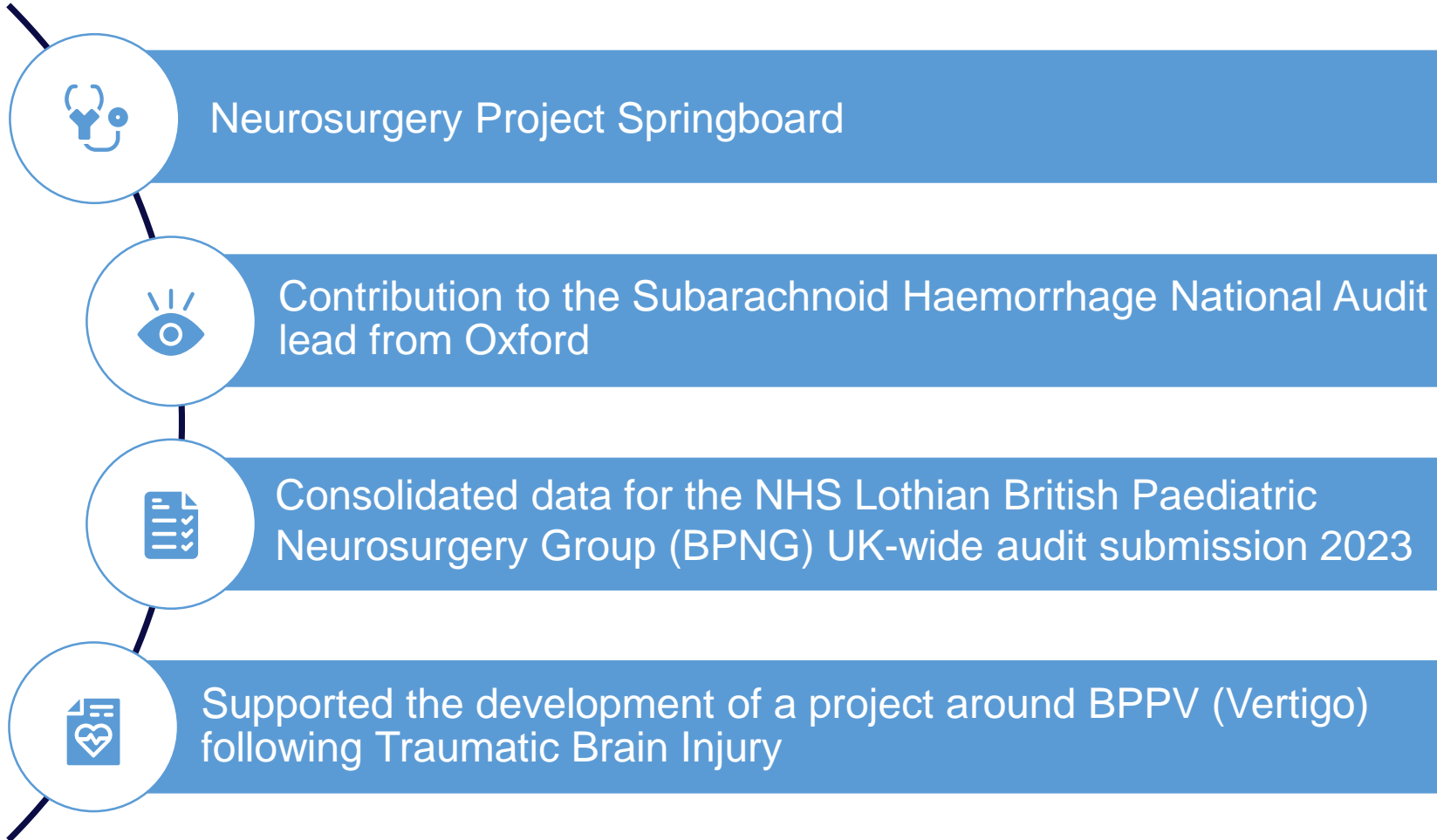
# Deliverables



## Research & innovation

<b>Deliverable</b> 	<b>Progress/Next Steps</b> 	<b>Benefits</b> 
<p>Provide support to Neurosurgical Regional Data Requests</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Submission form for data requests launched on MS forms</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Monitor and action requests</b></li><li>• <b>Close deliverable</b></li></ul>	<p>Optimising Neurosurgical care outcomes through Research and Innovation.</p>
<p>Development of prospective Neurosurgical Projects</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Identified National Endoscopic Skull Base Registry project identified</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Develop standardised data points, establish local and national workflows.</b></li></ul>	<p>Improvements in Neurosurgical practice, governance, and development of national working, standardising lower volume surgery improvements.</p>
<p>Provide opportunities for stakeholder-driven research and innovation</p>	<p><b>Achieved:</b></p> <ul style="list-style-type: none"><li>• <b>Neurosurgery Project Springboard meeting</b></li></ul> <p><b>Next steps:</b></p> <ul style="list-style-type: none"><li>• <b>Take forward actions</b></li><li>• <b>Organise second meeting for Autumn 2024</b></li></ul>	<p>Professional development of clinicians at all levels, innovation in care delivery.</p>

# Contributions to Partner Projects



# MSN for Neurosurgery Team



Mr David Bennett  
National Clinical  
Director



Vaughan Statham  
National Network  
Manager



Denise Pentland  
Clinical  
Coordinator



Niko Triantafillou  
Programme  
Support Officer



Matthew Beven  
Audit Facilitator



Neeta Patel  
Audit Facilitator

Vacancy  
Audit Facilitator



# ARCO audit (Annual Review of Consultant Outcomes)

## Case Ascertainment

- All Neurosurgical procedures listed in the MSN Neurosurgical OPCS Coding document, that take place as an inpatient, in an operating theatre within a Scottish Neurosurgical centre.
- All procedures carried out by a Neurosurgeon, including those carried out as a joint procedure with another specialty, or by a Neurosurgical registrar.
- All neurosurgical procedures carried out in the calendar year to be validated, regardless of date of admission.
- All deaths within 30 days of an operation

10% of the remaining cases to be audited, not including 'day cases' or those cases where there is no index neurosurgery procedure.



# Clinical Audit of Paediatric Neurosurgical Activity (CAPNA)

## Categories of Surgery Definitions - Category 1

All four units should be able to provide care for paediatric patients requiring emergent neurosurgical intervention. This should be provided by any on-call neurosurgical consultant and would include any case where there is significant life-threatening risk of deterioration such that transfer to a dedicated paediatric neurosurgical unit would be unsafe.

Patients requiring paediatric intensive care following emergency surgery will be referred to the neurosurgical and critical care teams in either NHS Lothian or NHS GG&C.

Interventions include:

- Immediate surgical management of life-threatening acutely raised ICP from an expanding haematoma or acute hydrocephalus from shunt malfunction e.g.
  - craniotomy for trauma and evacuation of intracranial haematoma
  - decompressive craniectomy (consideration should be given to the benefits of pre-operative transfer after discussion with colleagues in NHS Lothian or NHS GG&C)
  - revision of ventriculoperitoneal shunt
  - placement of an external ventricular drain



# Clinical Audit of Paediatric Neurosurgical Activity (CAPNA)

## Categories of Surgery Definitions - Category 2

The units in NHS Grampian and NHS Tayside should provide elective or urgent surgery by a neurosurgeon with a paediatric interest. Consideration should be given to the benefits of discussion with colleagues in NHS Lothian or NHS GG&C and potential pre-operative transfer.

The conditions treated and surgery itself cannot rely on the availability of 24/7 paediatric neurosurgery or ventilation in PICU but may involve observation in the local HDU.

In all situations, consideration should be given to option of pre-operative transfer to NHS Lothian or NHS GG&C if required.

Interventions could include:

- management of myelomeningocele
- baclofen pumps in teenagers (NHS Tayside)
- Chiari malformation in teenage patients without syrinx, scoliosis, spinal dysraphism, hydrocephalus or other associated pathology
- vagal nerve stimulation (VNS) in teenagers (NHS Tayside)
- denovo Ventriculoperitoneal shunt insertion in non-complex hydrocephalus
- repair of depressed skull fracture in a stable teenage patient
- endoscopic third ventriculostomy in teenage non-complex hydrocephalus



# Clinical Audit of Paediatric Neurosurgical Activity (CAPNA)

## Categories of Surgery Definitions - Category 3

There are cases that should always be referred to specialist services in NHS GG&C or NHS Lothian.

Interventions would include:

- neonatal intraventricular haemorrhage (IVH) management
- neuro-oncology cranial and spinal cases up to the age of 16
- vascular cases
- craniofacial and craniosynostosis surgery including growing skull fracture
- intervention for congenital malformations
- epilepsy surgery
- selective dorsal rhizotomy
- complex dysraphic syndromes with tethering
- rare complex patients such as Morquio syndrome, NF2, etc.
- the complex hydrocephalus patients (may flit between categories 1, 2 and 3 depending on their presentation)
- complex anomalies at the craniocervical junction
- spinal trauma cases requiring operative consideration
- lumbar disc herniation in patients aged under 16



If you would like to find out more about MSN for Neurosurgery, please contact the team on [MSNNeuro@lanarkshire.scot.nhs.uk](mailto:MSNNeuro@lanarkshire.scot.nhs.uk) or visit [www.msn-neuro.nhs.scot](http://www.msn-neuro.nhs.scot)