

Brain and Central Nervous System Cancers – Clinical Audit Report

Quality Performance Indicators: 01 January – 31 December 2024

Contents

Introduction	3
Methodology	3
Results	3
Next Steps	4
Performance Summary	5
QPI 1: Documentation of Performance Status	8
QPI 2: Multi-disciplinary Team Meeting (MDT)	9
QPI 3: Molecular Analysis	10
(i) Molecular Analysis of biopsied or resected gliomas	11
(ii) Molecular Analysis of glioblastomas for MGMT hypermethylation status	12
QPI 6: Maximal Surgical Resection	13
QPI 7: Early Post-Operative Imaging	14
QPI 9: Access to Adjuvant Treatment	15
QPI 11: Seizure Management	16
QPI 13: 30 Day Mortality after Treatment for Brain/CNS Cancer	17
(i) 30 Day Mortality after Surgery for Brain/CNS Cancer	18
(ii) 30 Day Mortality after Radiotherapy for Brain/CNS Cancer	18
(iii) 30 Day Mortality after Chemoradiotherapy for Brain/CNS Cancer	18
References	19
Appendix 1: Methodology and Meta Data	20
Document Control Sheet	21

Introduction

This report presents an assessment of the performance of Adult Neuro-Oncology services using clinical audit data relating to patients diagnosed with brain and/or central nervous system (CNS) cancers across Scotland from 01 January 2024 to 31 December 2024.

These results are measured against version 4 of the Brain and CNS Cancer Quality Performance Indicators (QPIs), which were updated in February 2021¹.

In December 2025, the NHS Scotland Cancer Collaborative (NSCC) initiated a review of the National Network QPI reporting process. This review aimed to standardise and simplify the report content, focusing on identifying areas of concern or where QPIs are unable to be met.

This work aligns with the wider National Cancer Quality Improvement Board (NCQIB) review of the National QPI processes and will continue to evolve and standardise over the coming years.

In 2024, the Brain and CNS QPIs underwent a formal review², and therefore for 2025 data onwards, there will be a change to how some of the QPIs are reported. Where there is an upcoming change to a QPI, this has been noted in the relevant results section. Two new QPIs will be reported in next year's report (QPI 16: Access to Timely Surgery and QPI 17: Neuropsychological Assessment)².

Methodology

Detail on the audit and analysis methodology and data quality is available in the meta data within Appendix 1.

Results

A summary of the Brain/CNS Cancer QPIs 2024 clinical audit data is presented in the table below, with more detailed analysis presented for each QPI thereafter.

Where a QPI has not been met either nationally or regionally, a table has been included which outlines any relevant commentary from Boards/Regions and any actions the Boards/Regions have identified for themselves.

Information is also included where actions have been identified for the national network and any additional comments regarding the results.

Next Steps

The national networks will build any actions identified below into their workplans, as well as consider how best to present QPIs in future, particularly where small patient numbers can be challenging to both present and interpret.

NSCC and the national networks will continue to work closely with the NCQIB to agree standardised reporting outputs and pathways for escalation where required.

Performance Summary

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 1: Documentation of Performance Status Proportion of newly diagnosed patients with brain/CNS cancer who have a documented WHO performance status at the time of multidisciplinary team (MDT) discussion.	95%	2024	80.0%	90.8%	100.0%	92.2%
		2023	96.7%	94.2%	99.3%	96.6%
		2022	92.7%	92.6%	99.3%	94.9%
QPI 2: Documentation of MDT meeting Proportion of patients with Brain/CNS cancer who are discussed at MDT meeting before surgery.	90%	2024	84.8%	92.0%	81.1%	85.7%
		2023	89.10%	94.20%	80.0%	87.60%
		2022	92.2%	94.1%	79.8%	88.1%
QPI 3(i): Molecular Analysis Proportion of patients with biopsied or resected gliomas who undergo 1p/19q molecular analysis of tumour tissue within 21 days of surgery.	90%	2024	42.9%	78.6%	23.1%	50.0%
		2023	62.5%	58.8%	60.0%	60.0%
		2022	37.5%	69.2%	52.9%	55.3%
QPI 3(ii): Molecular Analysis Proportion of patients with biopsied or resected gliomas who undergo MGMT promoter hypermethylation status testing within 21 days of surgery.	90%	2024	79.5%	96.9%	90.8%	90.3%
		2023	74.4%	92.0%	89.7%	87.5%
		2022	89.1%	91.5%	89.3%	90.1%

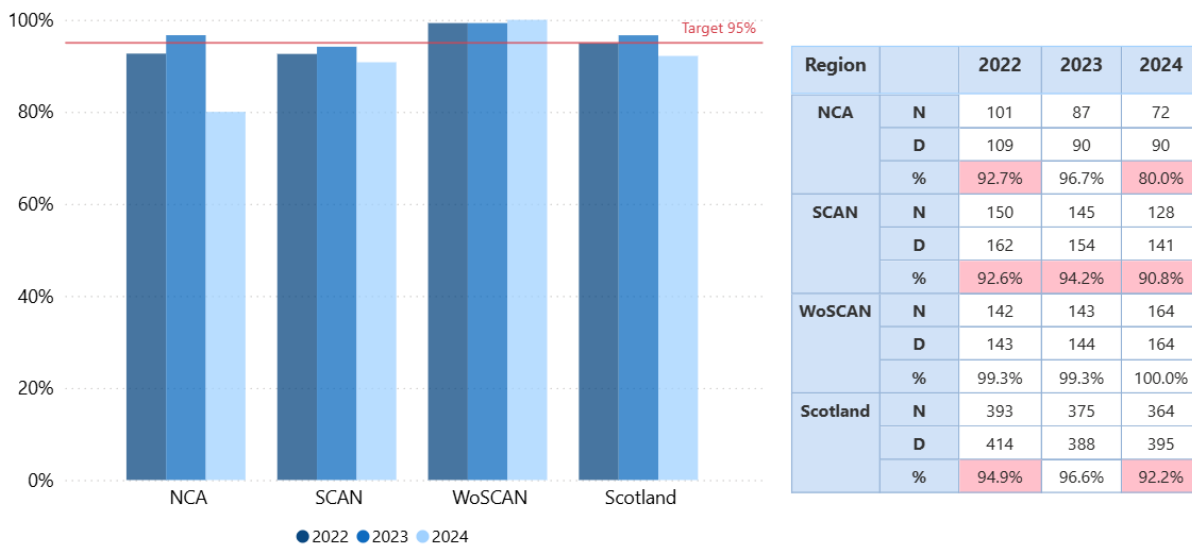
QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 6: Maximal surgical resection Proportion of patients with malignant glioma (with enhancing component on pre-operative imaging) who undergo surgical resection where 90% or greater reduction in tumour volume is achieved provided it is considered consistent with safe outcome.	40%	2024	26.9%	46.5%	60.6%	49.6%
		2023	42.9%	55.1%	61.3%	56.1%
		2022	45.0%	50.7%	63.9%	55.9%
QPI 7: Early Post-Operative Imaging Proportion of patients with malignant glioma (with enhancing component on pre-operative imaging) who receive early post-operative imaging with MRI within 3 days (72 hours) of surgical resection.	90%	2024	88.5%	95.3%	98.5%	95.6%
		2023	90.5%	100.0%	95.1%	96.2%
		2022	100.0%	100.0%	95.8%	98.1%
QPI 9: Access to Adjuvant Treatment Proportion of patients with high grade glioma (WHO Grade III and IV) undergoing surgery who commence their oncological treatment (chemotherapy, radiotherapy or chemoradiotherapy) within 6 weeks of surgery.	90%	2024	64.1%	94.9%	92.9%	86.9%
		2023	74.1%	93.1%	92.1%	89.5%
		2022	72.5%	91.2%	87.3%	85.4%
QPI 11: Seizure Management Proportion of patients with brain/CNS cancer presenting with seizures at diagnosis who are seen by a neurologist or a named ESN within four weeks of MDT discussion.	95%	2024	55.6%	36.4%	14.7%	31.8%
		2023	73.1%	46.9%	2.8%	38.7%
		2022	75.0%	36.2%	17.9%	40.4%
QPI 13: Mortality-Surgery Proportion of patients with Brain/CNS cancer who die within 30 days of surgery.	< 5%	2024	1.5%	4.6%	1.8%	2.6%
		2023	5.4%	3.8%	4.0%	4.2%
		2022	4.8%	1.0%	2.8%	2.6%
QPI 13: Mortality- Radiotherapy Proportion of patients with Brain/CNS cancer who die within 30 days of radiotherapy.	< 5%	2024	0.0%	3.8%	0.0%	2.0%
		2023	5.9%	5.6%	0.0%	4.4%
		2022	11.1%	3.6%	0.0%	3.1%

QPI	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 13: Mortality-Chemoradiotherapy Proportion of patients with Brain/CNS cancer who die within 30 days of chemoradiotherapy.	< 5%	2024	3.4%	0.0%	2.1%	1.9%
		2023	13.0%	0.0%	2.0%	3.9%
		2022	5.9%	0.0%	2.2%	2.6%

QPI 1: Documentation of Performance Status

QPI 1:	Patients with newly diagnosed brain/ CNS cancer should have a WHO performance status documented at time of MDT discussion
Description:	Proportion of newly diagnosed brain/CNS cancer patients who have a documented WHO performance status at the time of MDT discussion
Numerator:	Number of newly diagnosed brain/CNS cancer patients discussed at MDT meeting with a documented WHO performance status at the time of MDT discussion
Denominator:	All newly diagnosed brain/CNS cancer patients discussed at MDT meeting
Exclusions:	None
Target:	95%

Figure 1: Proportion of newly diagnosed brain/CNS cancer patients who have a documented WHO performance status at the time of MDT discussion 2022 – 2024



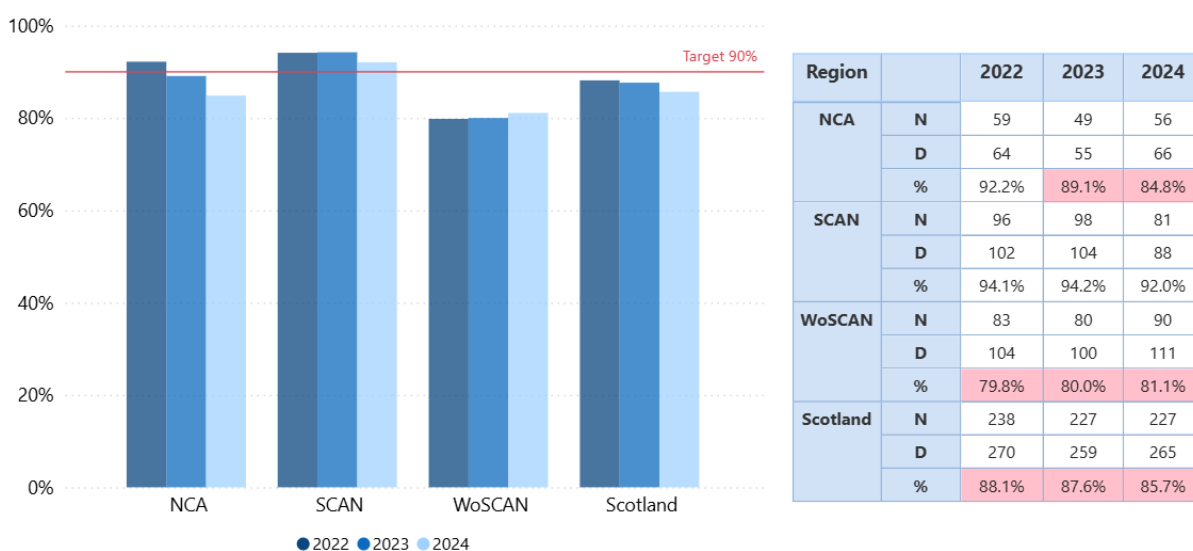
The performance target of 95% was not met nationally at 92.2%. Regionally NCA and SCAN were below the target achieving 80% and 90.8% respectively.

Region	Description	Action Identified by Board	Network Action	Comment
NCA	Performance status was not recorded for twelve cases; in all instances the MDT occurred appropriately, and performance status was known clinically but not documented.	Increase rigour in MDT documentation; especially in urgent cases.	No further network action required	Issue relates to documentation rather than clinical practice.
SCAN	Key performance status (KPS) was not recorded at the time of first MDM discussion in thirteen cases.	MDM chairs reminded to ensure the KPS field is completed at MDT discussion.		Issue relates to documentation rather than clinical practice.

QPI 2: Multi-disciplinary Team Meeting (MDT)

QPI 2:	Patients with Brain/CNS cancer should be discussed by a multidisciplinary (MDT) team prior to any surgical procedure
Description:	Proportion of patients with Brain/CNS cancer who are discussed at MDT meeting before surgery
Numerator:	Number of patients with Brain/CNS cancer discussed at MDT before surgery
Denominator:	All patients with Brain/CNS cancer undergoing surgery
Exclusions:	Patients who died before first treatment
Target:	90%

Figure 2: Proportion of Brain/CNS cancer patients who are discussed at MDT meeting before surgery, 2022 – 2024



The performance target of 90% was not met nationally with 85.7%. Regionally, NCA and WoSCAN were below the target achieving 84.8% and 81.1% respectively.

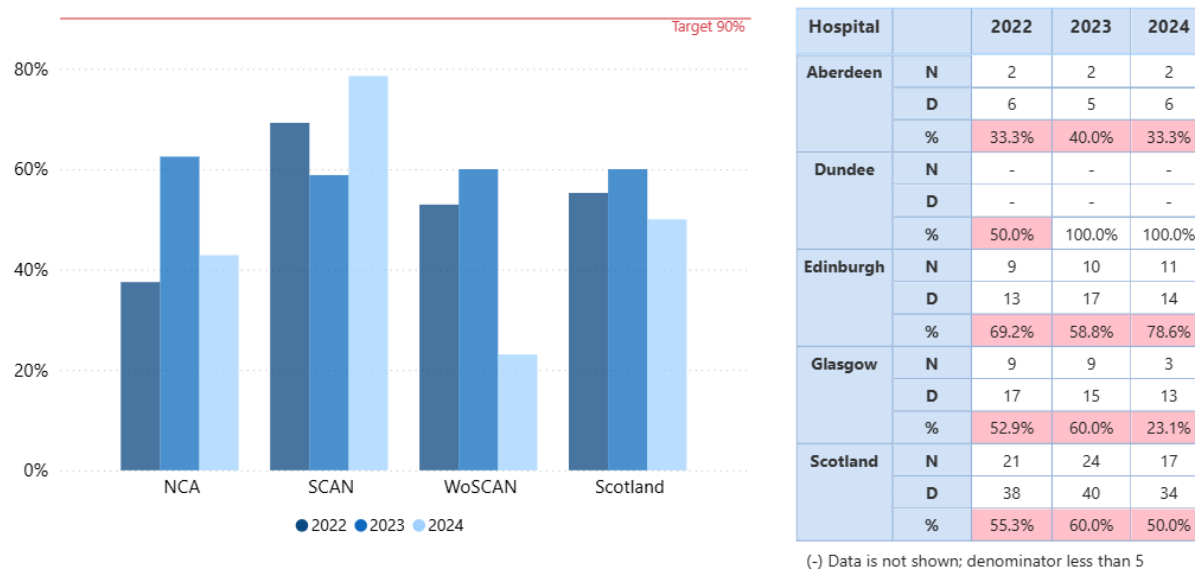
Region	Description	Action Identified by Board	Network Action	Comment
NCA	<p>Urgent or emergency surgery was undertaken prior to MDT discussion in several cases, including patients operated within 72 hours of admission.</p> <p>Some were meningioma cases that are not routinely discussed preoperatively.</p> <p>One case was affected by Christmas and bank holiday timing.</p>	Ensure emergency patients are discussed at MDT as soon as possible postoperatively.	Network to seek clarification from all MDTs on the eligibility of cases for preoperative MDT discussion (i.e. meningioma's) to determine if there is variation in practice across Scotland	In several urgent cases, delaying surgery to meet MDT timing would not have been clinically appropriate due to mass effect or theatre logistics.
WoSCAN	Twelve patients required urgent or emergency surgery, with nine operations occurring prior to MDT discussion, largely due to theatre availability and service capacity factors.	Discuss QPI 2 at MDT business meeting, with a focus on documentation and compliance where there is no clinical urgency.		Emergency presentations accounted for the majority of cases.

QPI 3: Molecular Analysis

QPI 3:	Patients with biopsied or resected gliomas should have molecular analysis performed on the tumour tissue within 21 days of surgery to inform treatment decision making
Description:	<p>Proportion of patients with biopsied or resected gliomas who undergo relevant molecular analysis of tumour tissue within 21 days of surgery.</p> <p>Please note this QPI measures two distinct elements:</p> <p>(i) Patients with Grade II or III gliomas who have the tumour tested for combined loss of 1p/19q</p> <p>(ii) Patients with glioblastomas who have the tumour tested for MGMT promoter methylation status</p>
Numerator:	<p>Number of patients with:</p> <p>(i) a Grade II or III glioma undergoing surgery where tissue sample is tested for 1p/19q within 21 days of surgery</p> <p>(ii) glioblastomas undergoing surgery where tissue sample is assessed for MGMT promoter hypermethylation status within 21 days of surgery</p>
Denominator:	<p>All patients with:</p> <p>(i) a Grade II or III glioma undergoing surgery</p> <p>(ii) Glioblastomas undergoing surgery</p>
Exclusions:	None
Target:	90%

(i) Molecular Analysis of biopsied or resected gliomas

Figure 3: Proportion of patients by Surgical Centre with biopsied or resected gliomas who undergo 1p/19q molecular analysis of tumour tissue within 21 days of surgery, 2022 - 2024

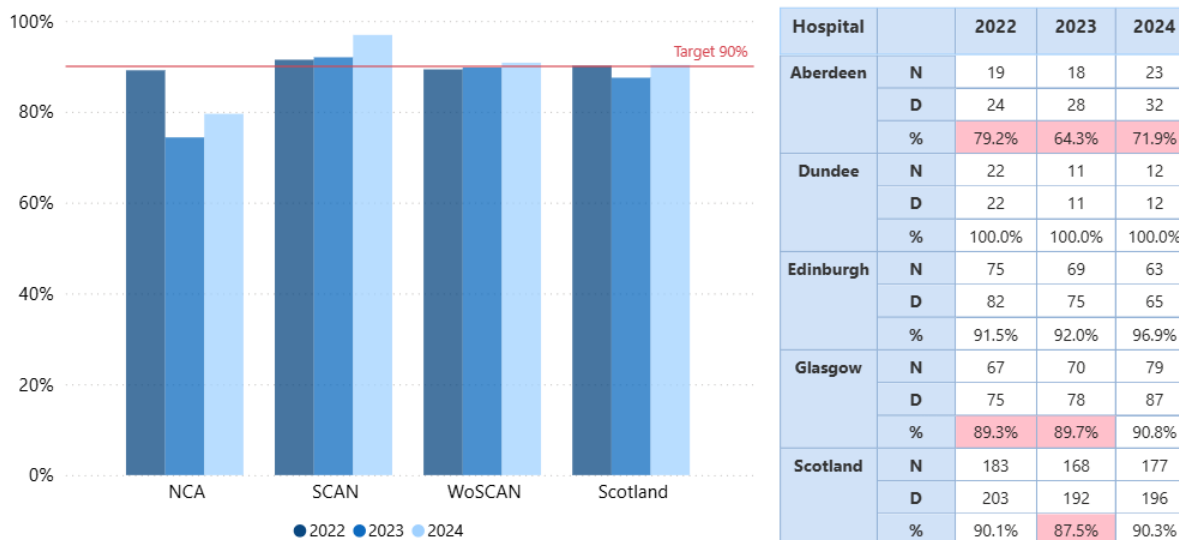


The performance target of 90% was not met nationally. Dundee was the only centre to meet the target. This QPI was updated at formal review in 2024 to revise the timeframe and the scope². These changes will be reported in next year’s report.

Centre	Description	Action Identified by Board	Network Action	Comment
Aberdeen	Four cases reviewed, most breaches occurred within a few days of the target; one extended delay due to additional external molecular testing; dependency on Lothian neuropathology.	Ongoing discussions to improve diagnostic turnaround.	QPI amended as per formal review (from next cohort). Monitor performance in the next cohort and consider escalation if decline persists.	Delays largely related to external testing and interregional pathology dependency.
Edinburgh	Three cases breached the 21day target (22–23 days) due to lack of fresh tissue requiring FISH slide ordering.	No Board action proposed.		Delays related to tissue availability rather than process failure.
Glasgow	Neuropathology capacity issues.	No Board action proposed.		Capacity constraints acknowledged, review QPI results in next cohort.

(ii) Molecular Analysis of glioblastomas for MGMT hypermethylation status

Figure 4: Proportion of patients with biopsied or resected gliomas who undergo MGMT promoter hypermethylation status testing within 21 days of surgery 2022 - 2024



The performance target of 90% was met nationally. Aberdeen was the only centre to be below the target achieving 71.9%, although this was an improvement on their 2023 result.

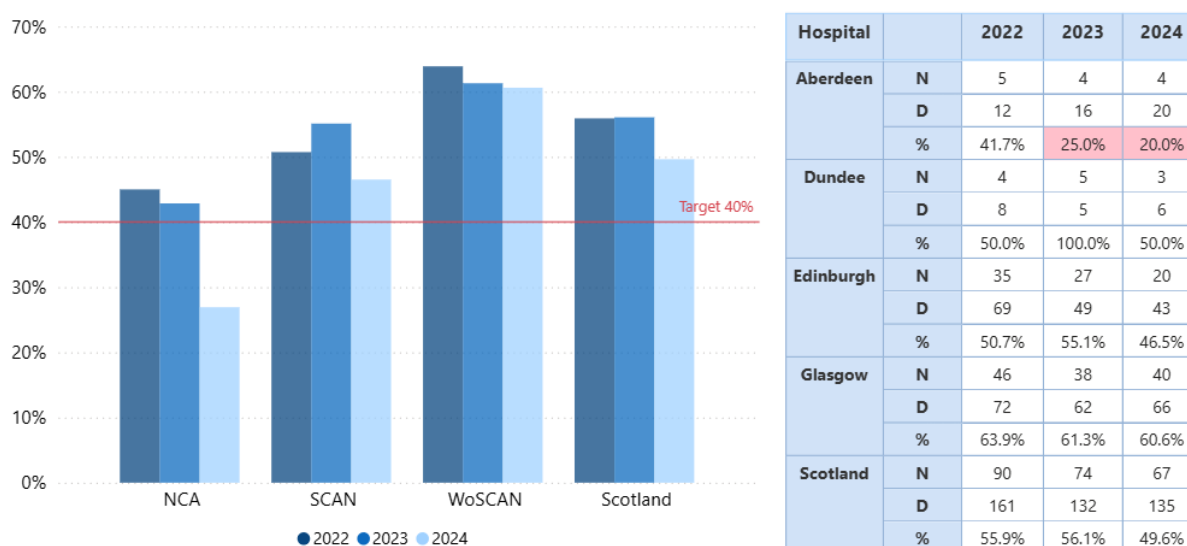
This QPI was updated at formal review in 2024 to revise the timeframe and the scope². These changes will be reported in next year's report.

Centre	Description	Action Identified by Board	Network Action	Comment
Aberdeen	Nine cases reviewed; seven breached the target by less than four days. One case was delayed by ten days for unknown reasons and one due to technical issues related to limited tissue and diagnostic complexity. Dependent on neuropathology in Lothian for analysis.	No Board action proposed.	QPI amended per formal review (from next cohort). Monitor performance in the next cohort to assess for impact.	Revised QPI timelines may support improvement in performance.

QPI 6: Maximal Surgical Resection

QPI 6:	Wherever possible patients should undergo maximal surgical resection of malignant gliomas
Description:	Proportion of patients with malignant glioma (with enhancing component on pre-operative imaging) who undergo surgical resection where $\geq 90\%$ reduction in tumour volume is achieved provided it is considered consistent with safe outcome
Numerator:	Number of patients with resectable malignant glioma (with enhancing component on pre-operative imaging) undergoing surgical resection where $\geq 90\%$ reduction in tumour volume is achieved
Denominator:	All patients with malignant glioma (with enhancing component on pre-operative imaging) undergoing surgical resection
Exclusions:	Patients undergoing biopsy only
Target:	40%

Figure 5: Proportion of patients with malignant glioma undergoing surgical resection where $\geq 90\%$ reduction in tumour volume is achieved, 2022 – 2024



The performance target of 40% was met nationally. Aberdeen was the only centre to be below the target, achieving 20%.

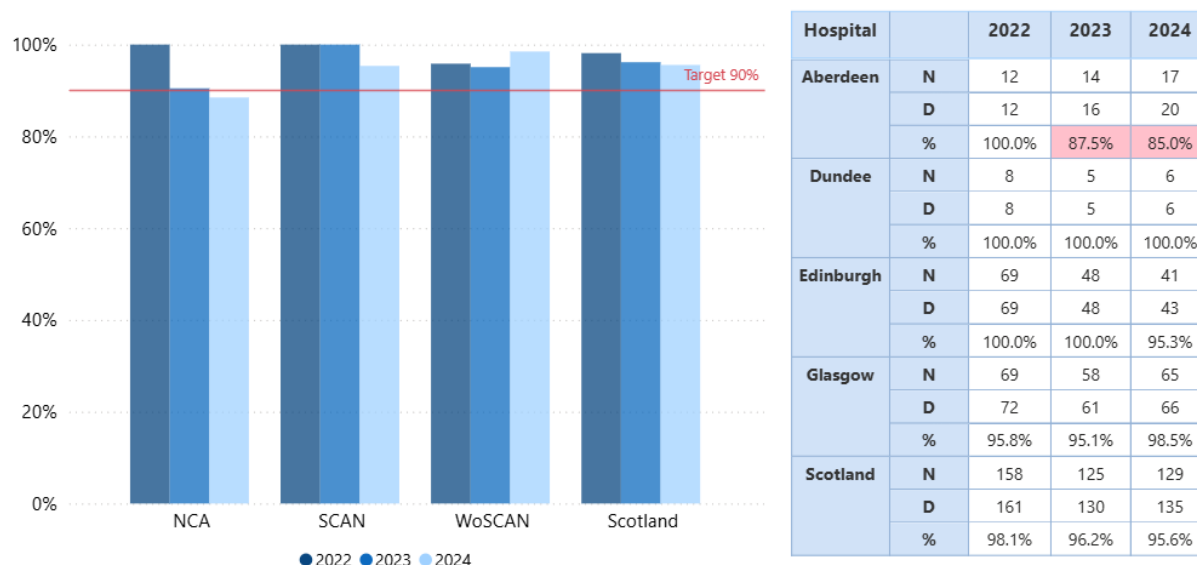
This QPI was updated at formal review in 2024 to include reporting where one or more surgical techniques have been used to aid the extent of resection². This information will be included in next year's report.

Centre	Description	Action Identified by Board	Network Action	Comment
Aberdeen	Low proportion achieving $\geq 90\%$ resection, reflecting clinical complexity and challenges in confirming extent of resection.	Continue to offer maximal resection where safe.	No network action required.	Dip in results may reflect some expected variation with small numbers. As with all QPIs, will continue to review for trends.

QPI 7: Early Post-Operative Imaging

QPI 7:	Patients with malignant glioma (with enhancing component on pre-operative imaging) undergoing surgical resection should be subject to early post-operative imaging
Description:	Proportion of patients with malignant glioma (with enhancing component on pre-operative imaging) who receive early post-operative imaging with MRI within 3 days (72 hours) of surgical resection
Numerator:	Number of patients with malignant glioma (with enhancing component on pre-operative imaging) undergoing surgical resection receiving MRI within 3 days (72 hours) of surgical resection
Denominator:	All patients with malignant glioma (with enhancing component on pre-operative imaging) undergoing surgical resection
Exclusions:	<ul style="list-style-type: none"> • Patients who are unable to undergo an MRI scan • Patients who refuse an MRI scan • Patients undergoing biopsy only
Target:	90%

Figure 6: Proportion of patients with malignant glioma (with enhancing component on pre-operative imaging) who receive early post-operative imaging with MRI within 3 days (72 hours) of surgical resection, 2022 - 2024



The performance target of 90% was met nationally. Aberdeen was the only centre to be below the target, achieving 85%.

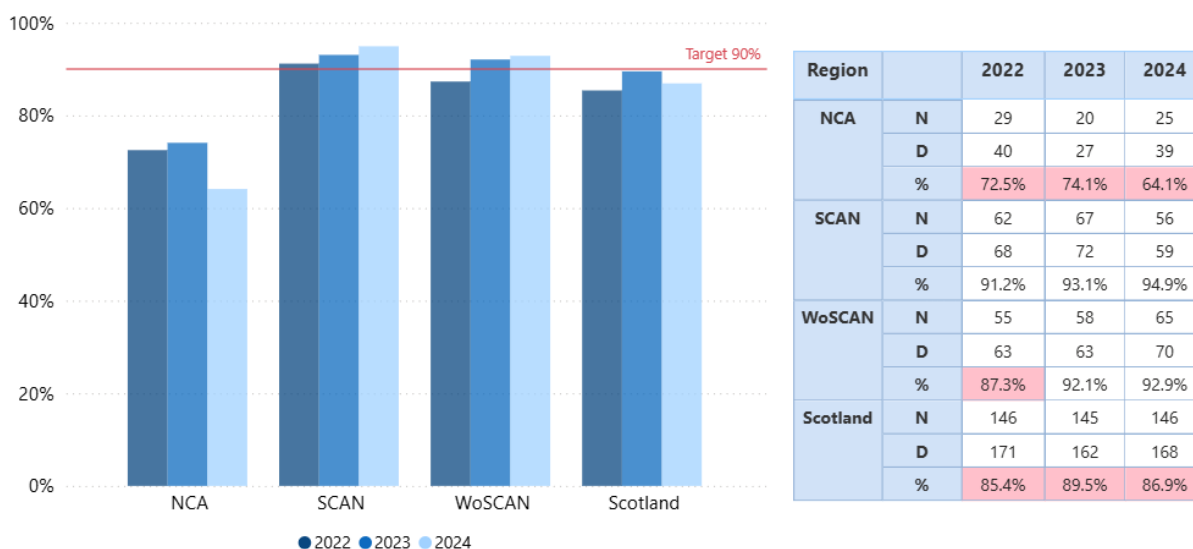
This QPI was updated at formal review in 2024 to include more information to aid reporting². This information will be included in next year's report.

Centre	Description	Action Identified by Board	Network Action	Comment
Aberdeen	Three cases breached the target. One delay of one day was due to Christmas bank holidays; two cases had delayed MRI as initial imaging suggested metastatic disease, later confirmed as multifocal glioma.	Continue to aim for MRI for all suspected glial tumours where clinically appropriate	No network action required	Delays related to timing and atypical presentation rather than failure of process

QPI 9: Access to Adjuvant Treatment

QPI 9:	The maximum time between surgical resection and oncological treatment for patients with high grade glioma (WHO Grades III and IV) should be 6 weeks
Description:	Proportion of patients with high grade glioma (WHO Grade III and IV) undergoing surgical resection who commence their oncological treatment (chemotherapy, radiotherapy or chemoradiotherapy) within 6 weeks of surgical resection
Numerator:	Number of patients with high grade glioma (WHO Grades III and IV) who undergo oncological treatment (chemotherapy, radiotherapy or chemoradiotherapy) who commence oncological treatment within 6 weeks of surgery
Denominator:	All patients with high grade glioma (WHO Grades III and IV) who undergo oncological treatment (chemotherapy, radiotherapy or chemoradiotherapy)
Exclusions:	None
Target:	90%

Figure 7: Proportion of patients with high grade glioma (WHO Grade III and IV) undergoing surgical resection who commence their oncological treatment within 6 weeks of surgery, 2022 – 2024



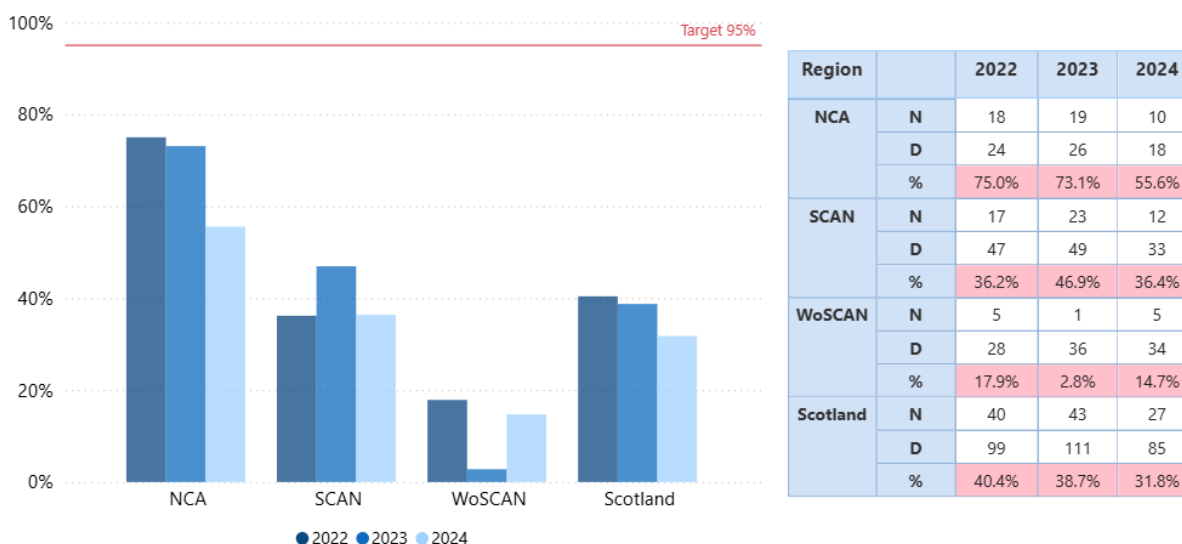
The performance target of 90% was not met nationally with 86.9%. Regionally, NCA were below the target, achieving 64.1%.

Region	Description	Action Identified by Board	Network Action	Comment
NCA	Delays in commencement of chemo influenced by patient condition, pathology reporting, single-handed service, capacity and rural transport logistics.	No Board action proposed.	Network to consider more detailed analysis of logistical constraints and feed into Target Operating Model for Oncology Services.	Delays were clinically appropriate or related to service and logistical constraints.

QPI 11: Seizure Management

QPI 11:	Patients with brain/central nervous system (CNS) cancer presenting with seizures at diagnosis should be seen by a neurologist and/or a named epilepsy specialist nurse (ESN)
Description:	Proportion of patients with brain/CNS cancer presenting with seizures at diagnosis who are seen by a neurologist or a named ESN within four weeks of diagnosis
Numerator:	Number of patients presenting with seizures at diagnosis seen by a neurologist or a named ESN within four weeks of diagnosis
Denominator:	All brain/CNS cancer patients presenting with seizures at diagnosis
Exclusions:	None
Target:	95%

Figure 8: Proportion of patients with brain/CNS cancer presenting with seizures at diagnosis who are seen by a neurologist or a nurse with expertise in epilepsy management, 2022 – 2024



The performance target of 95% was not met nationally or regionally.

This QPI was updated at formal review in 2024 to extend the timeframe to 4 months². This is the last time this QPI will be reported against 4 weeks.

Region	Description	Action Identified by Board	Network Action	Comment
NCA	Four week timeframe not achievable. Neurology services report waiting times of approximately four months. Referrals not made where seizures were controlled or diagnosis was felt unlikely, or patients declined follow-up.	No board action proposed.	QPI amended following formal review, monitor results for next cohort.	Original timeframe not supported by clinical evidence. Indicator timeframe amended following formal review.
SCAN	Original four week timeframe not considered achievable.	No Board action proposed.		Original timeframe not supported by clinical evidence. Indicator timeframe amended following formal review.
WoSCAN	The four-week target was not achievable. Delays in referral timing, constraints in previously singlehanded service and method for measuring the QPI not reflecting the intended pathway (the time from referral to review). This measurement issue has now been resolved.	CNS now attached to service, MDT referral prompt added, will be discussed at MDT business meeting.		Original timeframe not supported by clinical evidence. Indicator timeframe amended following formal review.

QPI 13: 30 Day Mortality after Treatment for Brain/CNS Cancer

Please note that 30 Day Mortality following Systemic Anti-Cancer Therapy (SACT) is measured and reported separately by PHS.

QPI 13:	30 day mortality following treatment for brain/CNS cancer
Description:	Proportion of patients with brain/CNS cancer who die within 30 days of treatment (surgery, radiotherapy and chemotherapy) for brain/CNS cancer.
Numerator:	Number of patients with brain/CNS cancer who undergo treatment that die within 30 days of treatment
Denominator:	All patients with brain/CNS cancer who undergo treatment. (i) Surgery (ii) Radiotherapy (iii) Chemoradiotherapy
Exclusions:	None
Target:	<5%

(i) 30 Day Mortality after Surgery for Brain/CNS Cancer

Table 1: Proportion of patients with brain/CNS cancer who die within 30 days of surgery, 2022 – 2024

Hospital	Aberdeen			Dundee			Edinburgh			Glasgow			Scotland		
Year	N	D	%	N	D	%	N	D	%	N	D	%	N	D	%
2022	2	35	5.7%	1	27	3.7%	1	102	1.0%	3	107	2.8%	7	271	2.6%
2023	2	34	5.9%	1	22	4.5%	4	105	3.8%	4	101	4.0%	11	262	4.2%
2024	1	48	2.1%	0	20	0.0%	4	87	4.6%	2	112	1.8%	7	267	2.6%

The performance target was met by all centres.

(ii) 30 Day Mortality after Radiotherapy for Brain/CNS Cancer

Table 2: Proportion of patients with brain/CNS cancer who die within 30 days of radiotherapy, 2022 – 2024

Region	NCA			SCAN			WoSCAN			Scotland		
Year	N	D	%	N	D	%	N	D	%	N	D	%
2022	1	9	11.1%	2	56	3.6%	0	33	0.0%	3	98	3.1%
2023	1	17	5.9%	3	54	5.6%	0	19	0.0%	4	90	4.4%
2024	0	14	0.0%	2	53	3.8%	0	32	0.0%	2	99	2.0%

The performance target was met by all regions.

(iii) 30 Day Mortality after Chemoradiotherapy for Brain/CNS Cancer

Table 3: Proportion of patients with brain/CNS cancer who die within 30 days of chemoradiotherapy, 2022 - 2024

Region	NCA			SCAN			WoSCAN			Scotland		
Year	N	D	%	N	D	%	N	D	%	N	D	%
2022	2	36	5.6%	0	37	0.0%	1	45	2.2%	3	116	2.6%
2023	3	23	13.0%	0	31	0.0%	1	49	2.0%	4	103	3.9%
2024	1	29	3.4%	0	31	0.0%	1	48	2.1%	2	108	1.9%

The performance target was met by all regions.

References

1. Healthcare Improvement Scotland. Brain and CNS Cancer Quality Performance Indicators, v4.0; December 2013 (updated February 2021) - this version has now been archived and is no longer available online.
2. Healthcare Improvement Scotland. Brain and CNS Cancer Quality Performance Indicators, v5.0; December 2013 (updated April 2024) Available at: <https://www.healthcareimprovementscotland.scot/publications/brain-and-central-nervous-system-cancer-clinical-quality-performance-indicators-april-2024/>

Appendix 1: Methodology and Meta Data

Report Title	Cancer Audit Report: Brain and Central Nervous System Cancers Quality Performance Indicators
Time Period	Patients diagnosed between 01 January 2024 to 31 December 2024
Data Source	Cancer Audit Support Environment (eCASE). A secure centralised web-based database which holds cancer audit information in Scotland.
Data Extraction Date	The data contained within this report was extracted from eCASE on 15 th May 2025.
Methodology	<p>Analysis was performed centrally by NSS Information Management Service. The timescales agreed considered the patient pathway to ensure that a complete treatment record was available for the majority of patients.</p> <p>Initial results were provided to Health Boards to check for inaccuracies, inconsistencies or obvious gaps and a subsequent download taken upon which final analysis was carried out.</p> <p>The final data analysis was disseminated for NHS Board & Region verification in line with the regional audit governance process to ensure that the data was an accurate representation of service in each area.</p> <p>Due to data presented in these reports having the potential to be low values (<5), careful consideration has been given to what values are presented. Where low values are published or calculatable, we have verified and logged these instances with the NHS National Services Scotland Caldicott Guardian.</p>

Document Control Sheet

Title	Brain and Central Nervous System Cancers – 2024 Clinical Audit Report
Version Number	V1.0
Document Type	Clinical Audit Report
Author/Owner	Marie Gallagher, Programme Manager, NSCC
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