North, South East and West of Scotland Cancer Networks

Brain and Central Nervous System Cancers
Scottish Adult Neuro Oncology Network

Audit Report

Brain and Central Nervous System Cancers
Quality Performance Indicators

Report of the 2020 Clinical Audit Data

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Brain/CNS Cancer QPI Overview

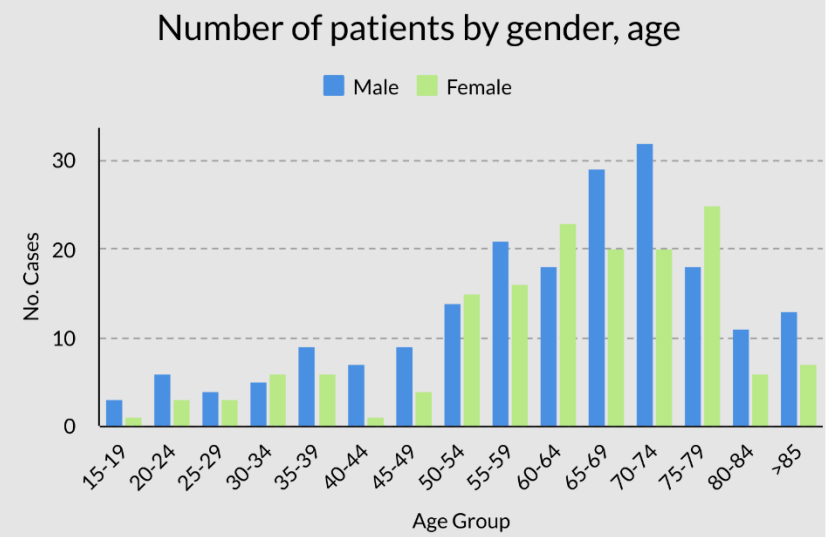
Patients diagnosed between 1st January - 31st December 2020

Number of cases diagnosed: **355**

Gender split: **Males: 56.1%** **Females: 43.9%**

Median age: **Males: 65** **Females: 64**

Case ascertainment: **86.6%**



Quality Performance Indicators

QPI 1: Documentation of performance status 91.7% 95%	QPI 2: Documentation of MDT meeting 79.6% 90%	QPI 3 i): Molecular analysis 74.0% 90%	QPI 3 ii): Molecular analysis 81.1% 90%	QPI 4: Neuropathologic -al diagnosis 99.6% 95%
QPI 6: Maximal surgeon resection 46.1% 40%	QPI 7: Early post-operative imaging 96.5% 90%	QPI 9: Access to adjuvant treatment 71.2% 90%	QPI 11: Seizure management 37.0% 95%	QPI 12: Key worker 31.8% 95%
QPI 13: Mortality (chemoradioth -erapy) 1.0% <5%	QPI 13: Mortality (Surgery) 2.9% <5%	QPI 13: Mortality (Radiotherapy) 3.2% <5%	Clinical Trials 6.2% 15%	

Achievements

Performance across regional centres is variable for a number of QPIs however it is encouraging that targets were consistently met by all centres for the following indicators

- Neuropathological diagnosis in 99.6% of cases across Scotland.
- Early post-operative imaging in 97% of cases.
- Low mortality within 30 days following chemoradiotherapy, radiotherapy and surgery.

Executive Summary

Introduction

The purpose of this report is to present an assessment of the performance of Adult Neuro-Oncology services using clinical audit data relating to patients diagnosed with brain and central nervous system (CNS) cancers across Scotland from 1st January 2020 to 31st December 2020, with twelve months of data measured against the Brain and CNS Cancer QPIs[1] for the seventh consecutive year.

Methodology

Further 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 2020 clinical audit data is presented below, with a more detailed analysis of the results set out in the main report. Results for each QPI are shown in detail in the main report and illustrate regional/treatment centre performance against each target and overall national results for each performance indicator. Results are presented graphically and the accompanying tabular format also highlights any missing data and its possible effect on any of the measured outcomes.

Where the number of cases meeting the denominator criteria for any indicator is between one and four, the percentage calculation has not been shown on any associated charts or tables. This is to avoid any unwarranted variation associated with small numbers and to minimise the risk of disclosure. Any charts or tables impacted by this restricted data are denoted with a dash (-). An asterisk (*) is applied to indicate a denominator of zero and to distinguish between this and a 0% performance.

Any commentary provided by NHS Region or MDT/neuro-oncology centre relating to the impacted indicators will, however, be included as a record of continuous improvement. Specific NHS Region or MDT/neuro-oncology centre actions have been identified to address issues highlighted through data analysis.

Summary of QPI Results

Colour Key	
	Above QPI target
	Below QPI target

Quality Performance Indicator (QPI)	Performance by NHS Board of Diagnosis					
	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%**	**2020**	**94.4%**	**88.2%**	**92.6%**	**91.7%**
		2019	**94.3%**	**89.3%**	**90.2%**	**91.1%**
		2018	**90.0%**	**94.1%**	**91.7%**	**92.0%**
QPI 2: Documentation of MDT meeting - **Proportion of patients with Brain/CNS cancer who are discussed at MDT meeting before surgery.**	**90%**	**2020**	**82.8%**	**95.8%**	**67.6%**	**79.6%**
	95%	**2019**	**82.4%**	**82.9%**	**63.4%**	**74.4%**
		2018	**71.6%**	**83.3%**	**76.5%**	**77.1%**
QPI 4: Neuropathological Diagnosis – **Proportion of patients with brain/CNS cancer where the pathology report contains a full set of data items (as defined by the Royal College of Pathologists) including WHO Grade.**	**95%**	**2020**	**98.3%**	**100%**	**100%**	**99.6%**
		2019	**92.3%**	**98.7%**	**98.2%**	**96.8%**
		2018	**93.3%**	**100.0%**	**91.7%**	**94.8%**
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%**	**2020**	**47.4%**	**65.9%**	**89.1%**	**71.2%**
	95%	**2019**	**34.9%**	**86.0%**	**89.6%**	**74.7%**
		2018	**31.0%**	**89.5%**	**95.8%**	**77.8%**
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 diagnosis.**	**95%**	**2020**	**60.0%**	**56.4%**	**7.3%**	**37.0%**
		2019	**39.3%**	**43.3%**	**29.4%**	**37.0%**
		2018	**57.1%**	**50.0%**	**18.2%**	**38.9%**

Quality Performance Indicator (QPI)	Performance by NHS Board of diagnosis					
	QPI target	Year	NCA	SCAN	WoSCAN	Scotland
QPI 12: Key Worker - **Proportion of patients with Brain/CNS cancer who have an identified key worker by the first MDT meeting.**	**95%**	**2020**	**72.1%**	**43.5%**	**0.0%**	**31.8%**
		2019	**90.9%**	**0.0%**	**5.6%**	**28.3%**
		2018	**95.3%**	**0.0%**	**18.0%**	**35.3%**
QPI 13: Mortality **- Proportion of patients with Brain/CNS cancer who die within 30 days of** chemoradiotherapy.	**<5%**	**2020**	**0.0%**	**4.3%**	**0.0%**	**1.0%**
		2019	**0.0%**	**2.6%**	**3.5%**	**2.5%**
		2018	**3.2%**	**0.0%**	**3.2%**	**2.3%**
QPI 13: Mortality **- Proportion of patients with Brain/CNS cancer who die within 30 days of** radiotherapy.	**<5%**	**2020**	**0.0%**	**4.2%**	**3.1%**	**3.2%**
		2019	**9.5%**	**9.4%**	**7.7%**	**8.9%**
		2018	**15.0%**	**11.8%**	**0.0%**	**10.0%**
QPI 14(i): Clinical Trials Access – **Proportion of patients with brain/CNS cancer who CONSENT TO PARTICIPATE in a clinical trial.**	**15%**	**2020**	**5.5%**	**10.9%**	**3.0%**	**6.2%**
		2019	**13.1%**	**1.6%**	**15.6%**	**11.1%**
		2018	**3.5%**	**5.8%**	**13.9%**	**8.4%**

Quality Performance Indicator (QPI)	Performance by NHS Board (Reported by Hospital of Surgery)						
	QPI target		Aberdeen	Dundee	Edinburgh	Glasgow	Scotland
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%**	**2020**	**80.0%**	**0.0%**	**71.4%**	**78.3%**	**74.0%**
		2019	**33.3%**	**50.0%**	**75.0%**	**43.5%**	**47.6%**
		2018	**40.0%**	**33.3%**	**68.4%**	**50.0%**	**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%**	**2020**	**57.1%**	**81.3%**	**76.1%**	**92.4%**	**81.1%**
		2019	**57.1%**	**64.3%**	**92.3%**	**92.3%**	**83.9%**
		2018	**28.3%**	**84.6%**	**100.0%**	**98.9%**	**80.4%**
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%**	**2020**	**27.8%**	**60.0%**	**51.2%**	**45.7%**	**46.1%**
		2019	**50.0%**	**100.0%**	**81.8%**	**70.5%**	**74.7%**
		2018	**62.5%**	**0.0%**	**70.4%**	**45.0%**	**58.9%**
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%**	**2020**	**94.4%**	**100%**	**92.9%**	**98.6%**	**96.5%**
		2019	**78.6%**	**84.6%**	**97.3%**	**100.0%**	**94.8%**
		2018	**84.6%**	**80.0%**	**97.6%**	**95.4%**	**92.3%**
QPI 13: Mortality **- Proportion of patients with Brain/CNS cancer who die within 30 days of** surgery.	**<5%**	**2020**	**5.3%**	**0.0%**	**5.4%**	**0.9%**	**2.9%**
		2019	**4.3%**	**0.0%**	**1.4%**	**2.4%**	**2.2%**
		2018	**9.8%**	**4.8%**	**2.4%**	**3.2%**	**4.5%**

**Small numbers in some Boards - percentage comparisons over a single year should be viewed with caution.*

Conclusions and Action Required

The Scottish Adult Neuro-Oncology Network (SANON) is encouraged by the continued support and commitment of Network members to deliver a high quality service to brain/CNS cancer patients across the country. The results presented in this report demonstrate that patients with brain/CNS cancer receive a consistent and improving standard of care across all geographical locations. Case ascertainment and data capture is of a high standard enabling robust assessment of performance against QPIs. However, despite improvements in a number of QPI measures against historical results, specific challenges exist in all units. In particular, QPI 3(i) – Molecular Analysis, QPI 9 – Access to Adjuvant Treatment, QPI 11- Seizure Management and QPI 12 – Key Worker all remain challenging in all units.

In line with the agreed regional governance process, each NHS Board was asked to complete a Performance Summary Report (PSR), providing detailed comments where QPI targets were not met. In the main, feedback from the Boards indicates valid clinical reasons or that, in some cases, patient choice or co-morbidities have influenced patient management. Additionally, these Boards have indicated where positive action has already been taken at a local level to address any issues highlighted through the QPI data analysis. It is anticipated that these positive changes will result in improved performance going forward.

Action required:

QPI 2: Multi-Disciplinary Team Meeting

- NHSGGC to review MDT referral processes and identify ways in which to improve the proportion of patients being discussed prior to surgery. Additionally it is anticipated that the MDT FiT programme led by WoSCAN will help to support improvement in this area.

QPI 12: Key Worker

- NHS GGC to update MDT proforma to ensure allocation of key worker is documented at MDT.

SANON, MDTs and neuro-oncology centres are asked to develop local Action/Improvement Plans in response to the findings presented in the report. A summary of actions for SANON, MDTs and neuro-oncology centres has been included within the Action Plan templates in the Appendix.

Completed Action Plans should be returned to WoSCAN within two months of publication of this report.

Progress against these plans are monitored by SANON and any service or clinical issue which SANON considers not to have been adequately addressed will be escalated to the NHS Board Territorial Lead Cancer Clinician and Regional Lead Cancer Clinician. SANON plans to discuss challenging QPIs, where targets have not been met with Regional Cancer Leads and where appropriate the Territorial Lead Cancer Clinician.

Additionally, progress will be reported annually to the Regional Cancer Advisory Group (RCAG) by NHS Board Territorial Lead Cancer Clinicians and NMCN Clinical Leads, and nationally on a three-yearly basis to Healthcare Improvement Scotland as part of the governance processes set out in CEL 06 (2012).

1. Introduction

The purpose of this report is to present an assessment of the performance of Adult Neuro-Oncology services using clinical audit data relating to patients diagnosed with brain and central nervous system (CNS) cancers across Scotland from 1st January to 31st December 2020, for the seventh consecutive year. Results are measured against the Brain and CNS Cancer Quality Performance Indicators[1] (QPIs) which were introduced for patients diagnosed on or after 1st January 2014.

In order to ensure the success of the National Cancer QPIs in driving quality improvement in cancer care across NHS Scotland it is critical that the QPIs continue to be clinically relevant and focus on areas which will result in improvements to the quality of patient care. A programme of formal review of all QPIs was implemented whereby all tumour specific QPIs were reviewed following three years of comparative reporting. Formal review of the Brain/CNS QPIs was initiated in October 2020, with the revised QPIs published in February 2021.

Twelve months of data were measured against the Brain and CNS Cancer QPIs for the seventh consecutive year. QPI data has been presented alongside data for previous years where results have remained comparable after processes of review. Future reports will continue to compare clinical audit data in successive years to further illustrate trends.

2. Background

The Scottish Adult Neuro-Oncology Network (SANON) was established in 2006 and is one of four national cancer networks in Scotland. The aim of the network is to link together health professionals, researchers, patients, their families and carers, social care, voluntary sector representatives and external companies to ensure the delivery of equitable, high quality and clinically effective care for patients in Scotland[7].

The table below details the four MDTs which manage all cases of brain and CNS cancer in Scotland. There are five specialist centres carrying out neuro-oncology treatment in Scotland and these are considered the centres for specialist treatment, which includes surgery (not in Inverness), chemotherapy and radiotherapy. Patients may receive diagnostic or palliative care in their local hospital where appropriate; however the majority of patients are referred to one of the four MDTs for specialist management.

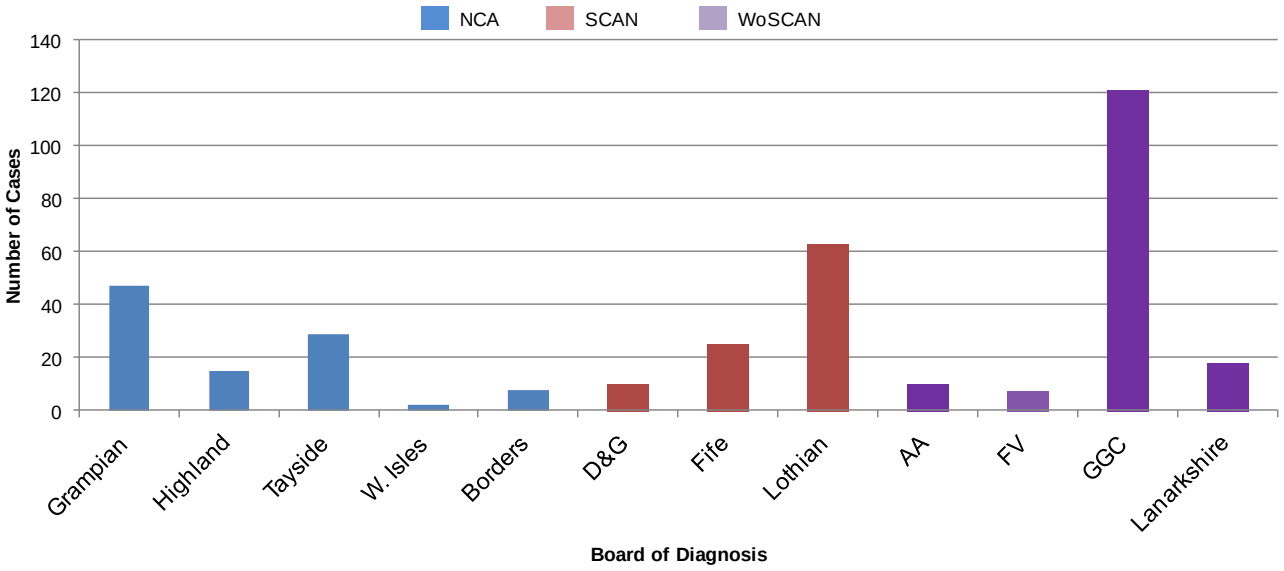
Neuro-oncology MDT	Constituent Hospital(s)
Aberdeen/Inverness	Aberdeen Royal Infirmary (surgery and oncology) Raigmore Hospital – Inverness (oncology)
Dundee	Ninewells Hospital (surgery and oncology)
Edinburgh	Edinburgh Royal Infirmary (surgery from July 2020) and Western General Hospital (surgery until June 2020 and oncology)
Glasgow	Queen Elizabeth University Hospital (surgery) and Beatson West of Scotland Cancer Centre (oncology)

2.1 National Context

Brain and CNS cancers are relatively rare cancers with approximately 410 adult cases diagnosed in Scotland each year between 2015 and 2019[4]. The 2020 audit identified 355 patients diagnosed with a new primary cancer of the brain or CNS in Scotland.

The distribution of the 355 newly diagnosed cases in 2020 is presented in Figure 1 by location of diagnosis across the fourteen NHS Boards. The West of Scotland Cancer Network (WoSCAN) recorded 42% of new diagnoses in 2020 with 149 new cases of brain and CNS cancers captured by audit. This is in line with the adult population distribution in this region as 2018 mid-year population estimates[8] show that 46.1% of the Scottish adult population reside within West of Scotland (WoS) region. It should be noted that 7 of the cases diagnosed in the WoS, specifically NHS Forth Valley, are included in SCAN results throughout the report as these patients are managed through the Edinburgh MDT.

Figure 1: Number of patients diagnosed with brain or CNS cancer across Scotland by NHS Board, 2020.



NCA	Grampian	Highland	Tayside	W. Isles	Total
Number of cases	47	15	29	2	93

SCAN	Borders	D&G	Fife	Lothian	Total
Number of cases	8	10	25	63	113

WoSCAN	AA	FV	GGC	Lanarkshire	Total
Number of cases	10	7	121	18	149

* Patients diagnosed in Forth Valley are managed through the Edinburgh MDT and are included in SCAN performance for QPI results. There were no cases diagnosed in NHS Orkney or NHS Shetland.

The tumour morphology of cases diagnosed in the audit of 2020 data is detailed below in Table 1, and is classified according to the International Classification of Diseases for Oncology (ICD-O 3). The majority of cases have astrocytic/oligodendroglial tumour morphology. Where cases are noted as "Not Applicable", no sample was sent to pathology for testing.

Table 1: Tumour morphology for patients diagnosed with Brain/CNS cancer across Scotland by Region of Diagnosis, 2020.

	Region of Diagnosis							
	NCA		SCAN		WOSCAN		Scotland	
Tumour Type	n	%	n	%	n	%	n	%
Astrocytic and Oligodendroglial	55	59.1%	67	59.3%	102	68.5%	224	63.1%
Embryonal	2	2.2%	0	0.0%	5	3.4%	7	2.0%
Ependymal	2	2.2%	3	2.7%	1	0.7%	6	1.7%
Meningioma	1	1.1%	1	0.9%	1	0.7%	3	0.8%
Other Glioma	0	0.0%	1	0.9%	2	1.3%	3	0.8%
Not Applicable	33	35.5%	40	35.4%	38	25.5%	111	31.3%
Not Assessable	0	0.0%	1	0.9%	0	0.0%	1	0.3%
Not Recorded	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Total No of Pts	93		113		149		355	

Table 2 shows a description of the WHO classification of tumour grade. This is a scale to determine the aggressiveness of tumours and to estimate prognosis.

Table 2: Description of the WHO tumour grade classification.

Grade	Description
1	Tumours with low proliferative potential, a frequently discreet nature and a possibility of cure following surgical resection alone.
2	Generally infiltrating tumours low in mitotic activity but with a potential to recur.
3	Histological evidence of malignancy, generally in the form of mitotic activity, clearly expressed infiltrative capabilities and anaplasia.
4	Mitotically active, necrosis prone neoplasms, generally associated with a rapid pre- and post-operative evolution of the disease.

Table 3 illustrates the proportion of cases from the 2019 audit assigned to each tumour grade. The majority of cases are Grade 4 which is associated with poorer outcomes. Cases have been assigned as "Not Applicable" where no sample has been sent to pathology for analysis.

Table 3: Tumour grade for patients diagnosed with Brain/CNS cancer across Scotland by Region of Diagnosis, 2020.

	Region of Diagnosis							
	NCA		SCAN		WOSCAN		Scotland	
	n	%	n	%	n	%	n	%
1	0	0.0%	0	0.0%	1	0.7%	1	0.3%
2	5	5.4%	12	10.6%	7	4.7%	24	6.8%
3	5	5.4%	16	14.2%	19	12.8%	40	11.3%
4	49	52.7%	44	38.9%	83	55.7%	176	49.6%
Not Applicable	34	36.6%	41	36.3%	38	25.5%	113	31.8%
Not Recorded	0	0.0%	0	0.0%	1	0.7%	1	0.3%
Total No of Pts	93		113		149		355	

2.2 Incidence and survival

Brain and CNS cancers are relatively rare cancers with approximately 410 cases diagnosed in Scotland each year between 2015 and 2019[4]. The percentage frequency of brain and CNS cancers (malignant and non-malignant) in Scotland is comparatively low at 1.4% of all cancers diagnosed in 2018. It was ranked as the 17th most commonly diagnosed cancer in females and the 15th most commonly diagnosed cancer in males in Scotland in 2018[5].

The incidence of brain and CNS cancers has decreased in females by 1.4% in the ten years from 2008-2018, with a decrease in the incidence for males of 3.7%. Overall there has been a decrease in incidence of 2.7%[5]. The mortality of Brain/CNS cancer has increased for males with female mortality essentially static in the ten years from 2008-2018 (females 5.4%, males 4.7%) with an overall increase of 4.9%[5]. Brain and CNS cancers are ranked as the 12th most common cause of death from cancer and accounted for 2.6% of all deaths from cancer in 2018[5].

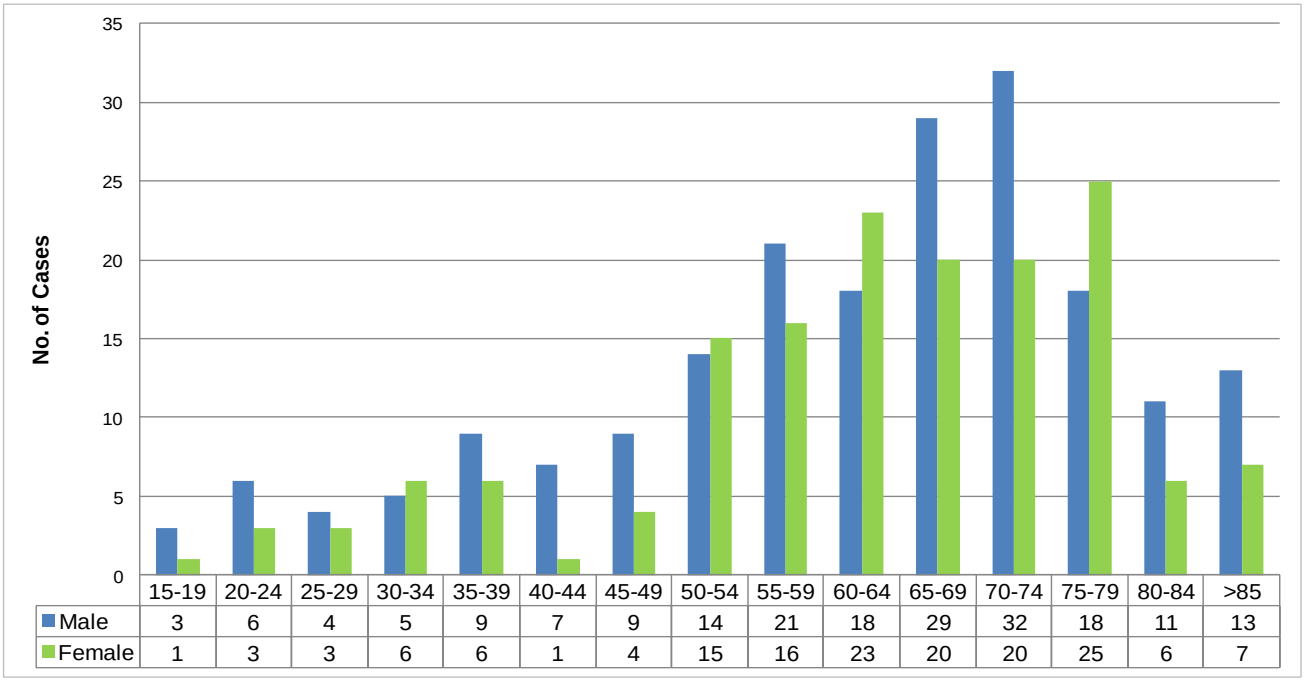
Relative survival at one year is increasing for brain and CNS cancers[6]. Table 4 shows the percentage change in survival rates for patients diagnosed between 1987 and 1991 compared to those diagnosed between 2007 and 2011.

Table 4: Percentage change in relative survival for brain and CNS cancer in Scotland at 1 year and 5 years from 1987-1991 to 2007-2011. Source data: ISD[6]

Age 15 – 99 years	Relative survival at 1 year (%)		Relative survival at 5 years (%)	
	2007 – 2011	% change	2007 – 2011	% change
Male	41.2 %	+ 9.9 %	15.1 %	+ 1.0 %
Female	39.5 %	+ 7.8 %	15.8 %	- 0.9 %

This report includes all cases aged 16 and over and the age distribution for males and females diagnosed in 2019 in Scotland is illustrated in Figure 2. The incidence of brain and CNS cancer is higher for males in almost all age groups and approximately 5 males are diagnosed for every 4 female cases.

Figure 2: Number of patients diagnosed with brain and CNS cancers in Scotland in 2020 by age group and sex.



	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	>85
Male	3	6	4	5	9	7	9	14	21	18	29	32	18	11	13
Female	1	3	3	6	6	1	4	15	16	23	20	20	25	6	7

3. Methodology

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

4. Results and Action Required

Results of the analysis of Brain and CNS Cancer Quality Performance Indicators are set out in the following sections. Graphs and charts have been provided where this aids interpretation and, where appropriate, numbers have also been included to provide context.

Data are presented for each QPI by region of diagnosis or by location of treatment (neuro-oncology centre) both graphically and in tabular format, with performance also shown as an overall national representation. Where possible, 3 years' worth of data (Years 5-7) data is presented.

Where the number of cases meeting the denominator criteria for any indicator is between one and four, the percentage calculation has not been shown on any associated charts or tables. This is to avoid any unwarranted variation associated with small numbers and to minimise the risk of disclosure. Any charts or tables impacted by this restricted data are denoted with a dash (-). An asterisk (*) is applied to indicate a denominator of zero and to distinguish between this and a 0% performance.

Specific national and regional actions have been identified to address issues highlighted through the data analysis.

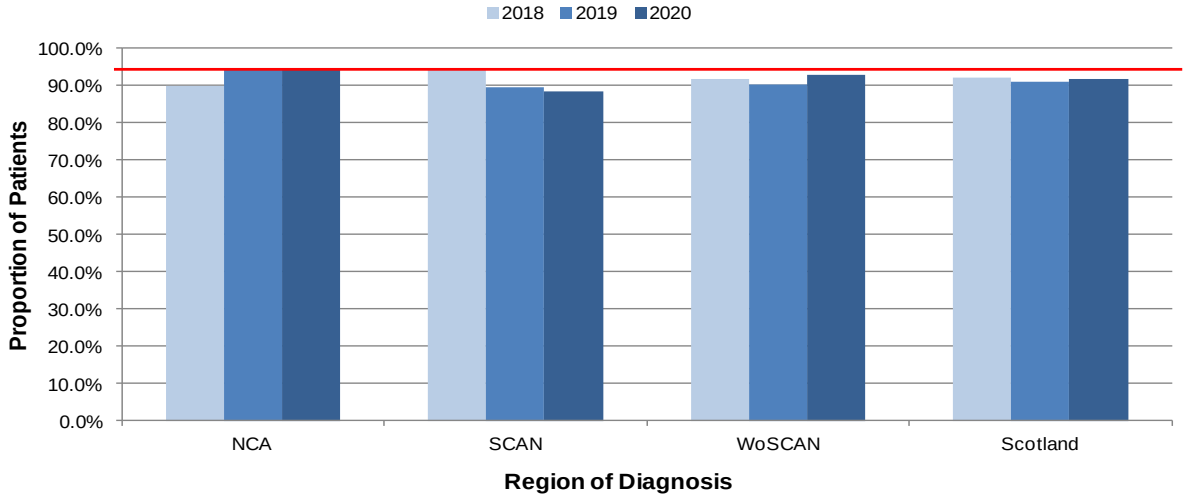
QPI 1: Documentation of Performance Status

Performance status is an important prognostic indicator in patients with brain/CNS cancer. Accurate communication of performance status is vital in guiding complex management decisions, including recruitment into clinical trials[1]. In patients referred from other sites, who have not yet met a member of the neuro-oncology MDT, an estimated performance status should be given based on the available information from the referring site[1].

The tolerance within the 95% target against QPI 1 accounts for situations where there is insufficient information from the referring site to estimate the World Health Organisation (WHO) performance status.

QPI 1:	Patients with newly-diagnosed brain/central nervous system (CNS) cancer should have a world health organisation (WHO) performance status documented at time of MDT discussion.
Description:	Proportion of newly diagnosed patients with brain/CNS cancer who have a documented WHO performance status at the time of MDT discussion.
Numerator:	Number of newly diagnosed patients with brain/CNS cancer discussed at MDT meeting with a documented WHO performance status at the time of MDT discussion.
Denominator:	All newly diagnosed patients with brain/CNS cancer discussed at MDT meeting
Exclusions:	None
Target:	95%

Figure 4: Proportion of newly diagnosed patients with brain/CNS cancer who have a documented WHO performance status at the time of MDT discussion, 2018 - 2020.



QPI 1	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
NCA	94.4%	85	90	0	0	0
SCAN	88.2%	87	110	0	0	0
WoSCAN	92.6%	138	149	0	0	0
Scotland	91.7%	320	349	0	0	0

No region met the 95% target. Performance ranged from 88.2% in SCAN to 94.4% in NCA. The overall national performance was 91.7% against the 95% target. MDTs have reviewed cases not meeting the QPI and provided feedback.

The Edinburgh MDT stated that all cases have been reviewed and 13 cases did not have performance status recorded at time of first MDT discussion. A rota for a nominated person to chair the MDT has been implemented. The chair will review MDT minutes to ensure that all the correct information has been documented. This should improve the documentation of performance status for the 2021 cohort.

The Glasgow MDT commented that the Chair is requesting PS to be confirmed after each discussion. The current WoS Neuro-Oncology MDT Referral Form includes accurate PS information at source of referral.

The Aberdeen/Inverness MDT commented that all cases not meeting the QPI were reviewed. One case was operated urgently prior to MDT and in the remaining cases the PS was known but unfortunately not stated at MDT. Continual improvement in this QPI was noted however a reminder has been sent to all colleagues regarding importance of PS at MDT.

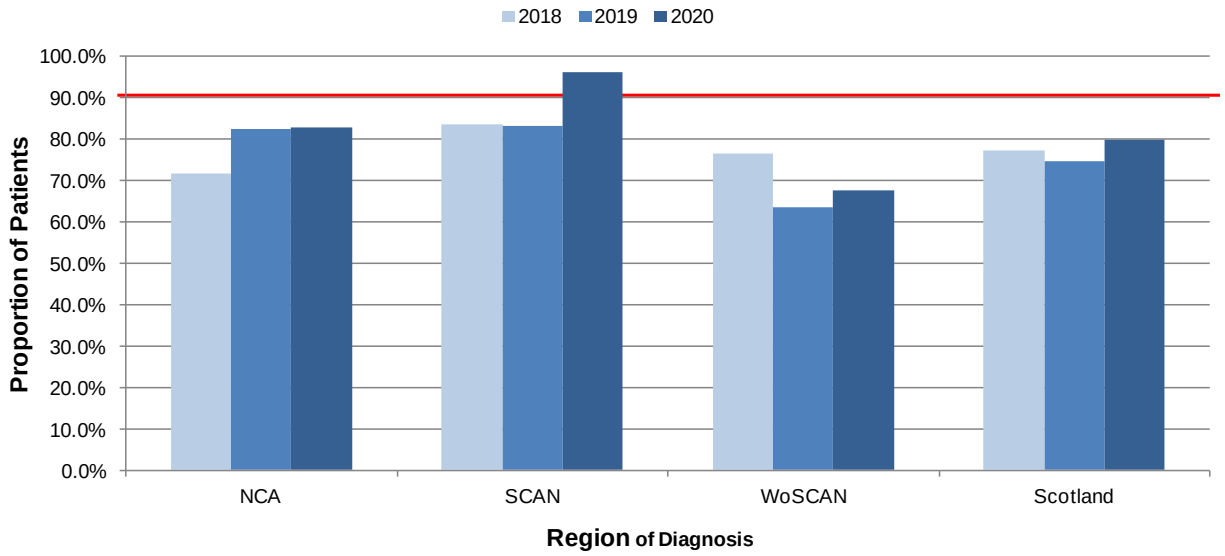
QPI 2: Multi-disciplinary Team Meeting (MDT)

Evidence suggests that patients with cancer managed by a MDT have a better outcome. There is also evidence that the multidisciplinary management of patients increases their overall satisfaction with care.[1]

Discussion prior to definitive management decisions being made provides reassurance that patients are being managed appropriately. In the majority of cases, patients with brain/CNS cancer will undergo surgery (biopsy or resection) as their initial intervention prior to any treatment. The measurement of this QPI will therefore focus on discussion of patients at this initial point within the clinical pathway.[1]

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 5: Proportion of patients with Brain/CNS cancer who are discussed at MDT meeting before surgery, 2018 – 2020



QPI 2	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
NCA	82.8%	48	58	0	0	0
SCAN	95.8%	68	71	0	0	0
WoSCAN	67.6%	75	111	0	0	0
Scotland	79.6%	191	240	0	0	0

During the QPI formal review the decision was made to reduce the target from 95% to 90% to account for patients that require urgent treatment.

Only SCAN met the new 90% target with performance ranging from 67.6% in WoSCAN to 95.8% in SCAN. The overall national performance was 79.6%.

The Aberdeen MDT commented that all six cases not meeting were reviewed. All were felt to have significant mass effect or clinical deterioration likely before next MDT so required to be operated on more urgently.

The Glasgow MDT flagged that prolonged issues with theatre capacity impacted upon performance against this measure, as a number of brain cancer referrals are treated on Emergency Lists/Urgency of Treatment-Theatre Capacity to ensure the next available oncological theatre session is used. The centre will review cases to look for differences in practice across the department. The Glasgow MDT added that for some cases where emergency surgery has been performed patients are discussed at MDT after surgery and also where cases have been referred over the weekend there are delays in referral to MDT due to insufficient information.

Action required:

- NHSGGC to review MDT referral processes and identify ways in which to improve the proportion of patients being discussed prior to surgery. Additionally it is anticipated that the MDT FiT programme led by WoSCAN will help to support improvement in this area.

QPI 3: Molecular Analysis

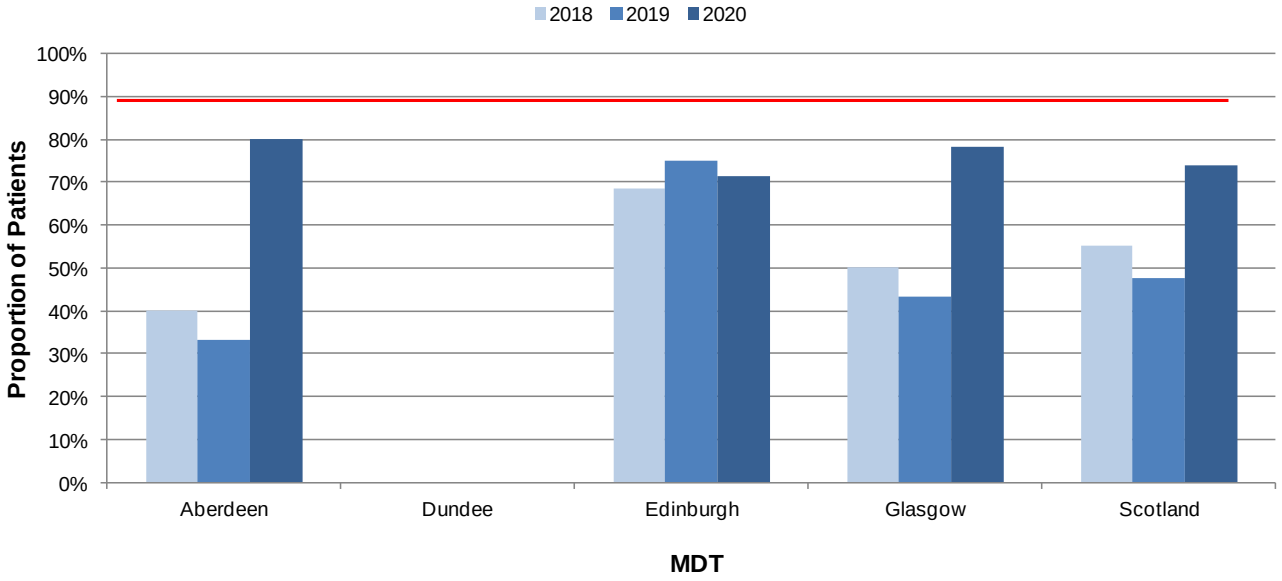
Combined loss of 1p/19q in gliomas is associated with a more favourable response to therapy (chemotherapy or radiotherapy) and is associated with considerably better prognosis when compared to tumours with intact 1p/19q. As such, where indicated, 1p/19q analysis should be carried out to help determine treatment and provide information on predicted tumour response to therapy and prognosis.

Determination of MGMT promoter methylation status predicts response to therapy (chemotherapy or concomitant chemoradiotherapy) in glioblastomas and assists in determination of prognosis. As such, where indicated, MGMT promoter methylation analysis should be carried out to help determine treatment and provide information on predicted tumour response to therapy and prognosis.

A 21 day timeframe is associated with this QPI to ensure that the molecular analysis is undertaken and reported before treatment takes place.

QPI 3(i):	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:	Proportion of patients with biopsied or resected Grade II or III gliomas who have the tumour tested for combined loss of 1p/19q.
Numerator:	Number of patients with a Grade II or III glioma undergoing surgery where tissue sample is tested for 1p/19q within 21 days of surgery.
Denominator:	All patients with a Grade II or III glioma undergoing surgery.
Exclusions:	No exclusions.
Target:	90%

Figure 6: Proportion of patients with biopsied or resected Grade II or III gliomas who have the tumour tested for combined loss of 1p/19q, 2018 - 2020



QPI 3(i)	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
Aberdeen	80.0%	4	5	0	0	0
Dundee	-	-	-	0	0	0
Edinburgh	71.4%	15	21	0	0	0
Glasgow	78.3%	18	23	0	0	0
Scotland	74.0%	37	50	0	0	0

The data definition changed at Formal Review to record the 'earliest date that the results are available'. This will take into account the date the report is issued or results emailed to clinicians

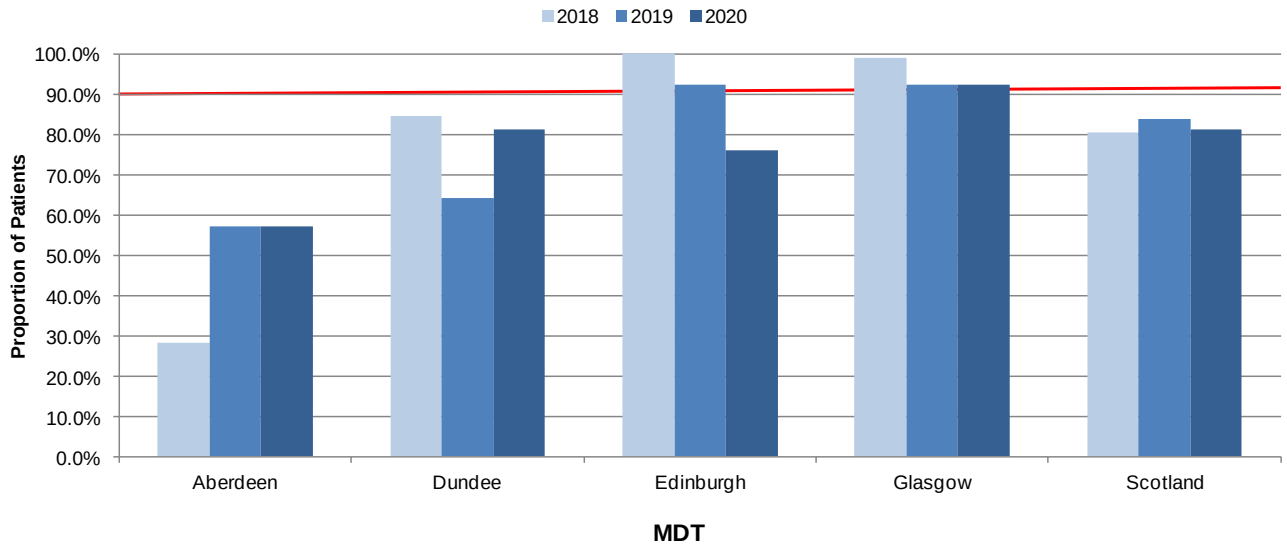
No centres met the 90% target with performance ranging from 71.4% in Edinburgh to 80% in Aberdeen. Performance for Dundee is not shown due to small numbers. The overall national performance was 74.0%. Boards have reviewed cases not meeting the target and provided feedback. As this is an Edinburgh or Glasgow based service, other centres indicated that there is limited scope for improvement at a local level.

The Edinburgh MDT commented that all cases have been reviewed. Increased workload and quality assurance are contributing factors for delays in reporting. Several cases required repeat quality control testing for quality assurance purposes and this led to a delay in reporting. The centre added that reporting of 1q/ 19q is now becoming quicker and this should lead to an improvement in timelines. This will be monitored by Neuropathology.

The Glasgow MDT stated that neuropathology has no influence on the processing speed of a case within Genetics. Some analyses had to be repeated by genetics due to failure; this is outwith processing speed. Neuropathology sends every case requiring molecular analysis on the same day the histological section is done in Pathology, and reports every case with a molecular analysis on the same day it is received from Genetics. In view of the limited nature of the breaches of the QPI target (by at most 2 days) improvement actions are not identified.

QPI 3(ii):	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:	Proportion of patients with biopsied or resected glioblastomas who have the tumour tested for MGMT promoter methylation status.
Numerator:	Number of patients with glioblastomas undergoing surgery where tissue sample is assessed for MGMT promoter hypermethylation status within 21 days of surgery.
Denominator:	All patients with glioblastomas undergoing surgery.
Exclusions:	No exclusions.
Target:	90%

Figure 7: Proportion of patients with biopsied or resected glioblastomas who have the tumour tested for MGMT promoter methylation status, 2018 - 2020.



QPI 3(ii)	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
Aberdeen	57.1%	16	28	0	0	0
Dundee	81.3%	13	16	0	0	0
Edinburgh	76.1%	35	46	0	0	0
Glasgow	92.4%	73	79	0	0	0
Scotland	81.1%	137	169	0	0	0

The Glasgow MDT met the 90% target with 92.4%. Performance in the other centres ranged from 57.1% in Aberdeen to 81.3% in Dundee. The overall national performance was 81.1%.

The Aberdeen MDT commented that 12 cases were reviewed. MGMT was available within 5 days of target in 4 patients and for 1 patient MGMT sampling was technically not possible. The remaining cases were available within 10 days of target. Since testing is carried out in Edinburgh there is limited scope for improvement by the Aberdeen centre.

The Dundee MDT stated that improvement was noted from the previous year, emails with molecular pathology results are being sent to oncology and audit facilitator.

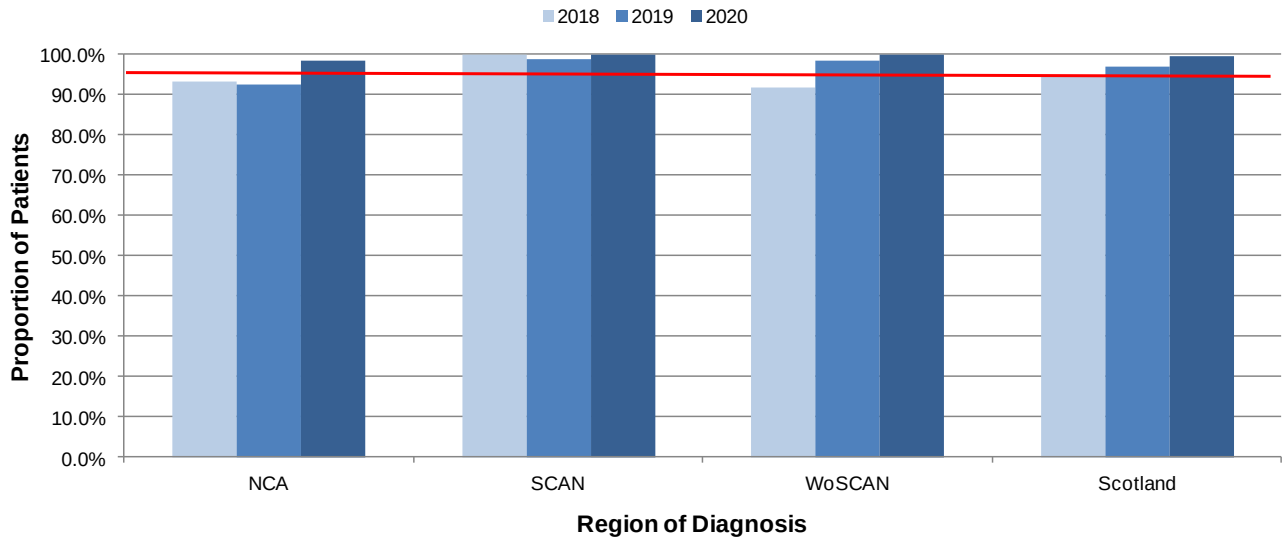
Edinburgh MDT comments reflect feedback in part 1. The centre also added that digital pathology technology has been implemented and MGMT analysis can now be requested at the same time as immunohistochemistry, this should shorten the reporting times.

QPI 4: Neuropathological Diagnosis

Accurate and robust standardisation of tumour diagnosis is required for appropriate patient management. Neuropathologists should report to the standards defined by the Royal College of Pathologists in 'Standards and Datasets for Reporting Cancers: Dataset for Tumours of the Central Nervous System, including Pituitary Gland.' [1]

QPI 4:	All pathology reports for brain/central nervous system (CNS) cancer should contain full pathology information (including tumour type as described in World Health Organisation (WHO) Classification of CNS tumours (2016) and WHO grade where appropriate) to inform patient management.
Description:	Proportion of patients with brain/CNS cancer where the pathology report contains a full set of data items (as defined by the Royal College of Pathologists).
Numerator:	Number of patients with a histological diagnosis of brain/CNS cancer where histological pathology report contains all data items.
Denominator:	All patients with a histological diagnosis of brain/CNS cancer.
Exclusions:	None.
Target:	95%

Figure 8: Proportion of patients with brain/CNS cancer where the pathology report contains a full set of data items (as defined by the Royal College of Pathologists), 2018 - 2020



QPI 4	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
NCA	98.3%	57	58	0	0	0
SCAN	100.0%	73	73	0	0	0
WoSCAN	100.0%	111	111	0	0	0
Scotland	99.6%	241	242	0	0	0

All regions met the 95% target. Performance ranged from 98.3% in NCA to 100.0% in SCAN and WoSCAN. The overall national performance was 99.6%.

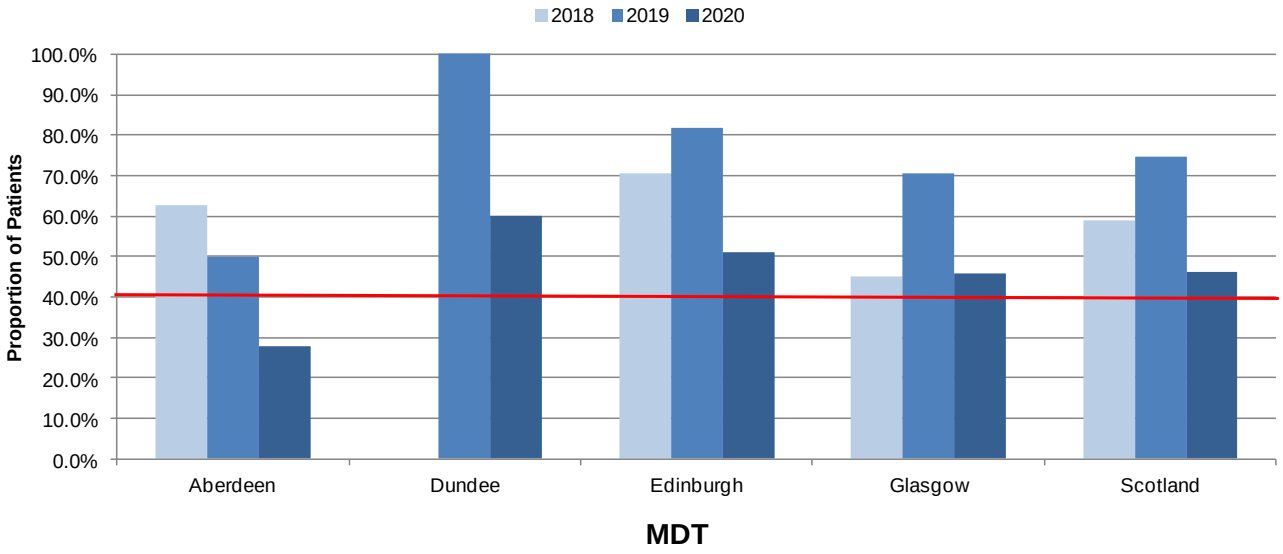
QPI 6: Maximal Surgical Resection

The extent of surgical resection is an independent prognostic factor in Grade III and Grade IV malignant gliomas. Maximal safe surgical resection (≥90%) prolongs time to tumour recurrence and is associated with prolonged survival. Maximum safe surgical resection is recommended by several published guidelines.

Measurement of this QPI will focus on those patients with the intention for maximal safe surgical resection. This will be identified pre-operatively and documented at the MDT.

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 ≥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 ≥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 10: Proportion of patients with malignant glioma undergoing surgical resection where ≥90% reduction in tumour volume is achieved, 2018 – 2020.



QPI 6	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
Aberdeen	27.8%	5	18	0	0	0
Dundee	60.0%	6	10	0	0	0
Edinburgh	51.2%	22	43	0	0	0
Glasgow	45.7%	32	70	0	0	0
Scotland	46.1%	65	141	0	0	0

At formal review the exclusion ‘patients in whom surgeons’ intent is partial resection / debulking surgery was removed. This allows for benchmarking against the 40% international standard and is easier to define and measure comparably between the 3 regions.

The Dundee, Edinburgh and Glasgow MDTs met the 40% target. Aberdeen centre did not meet the QPI with a performance of 27.8%. The overall national performance was 46.1%.

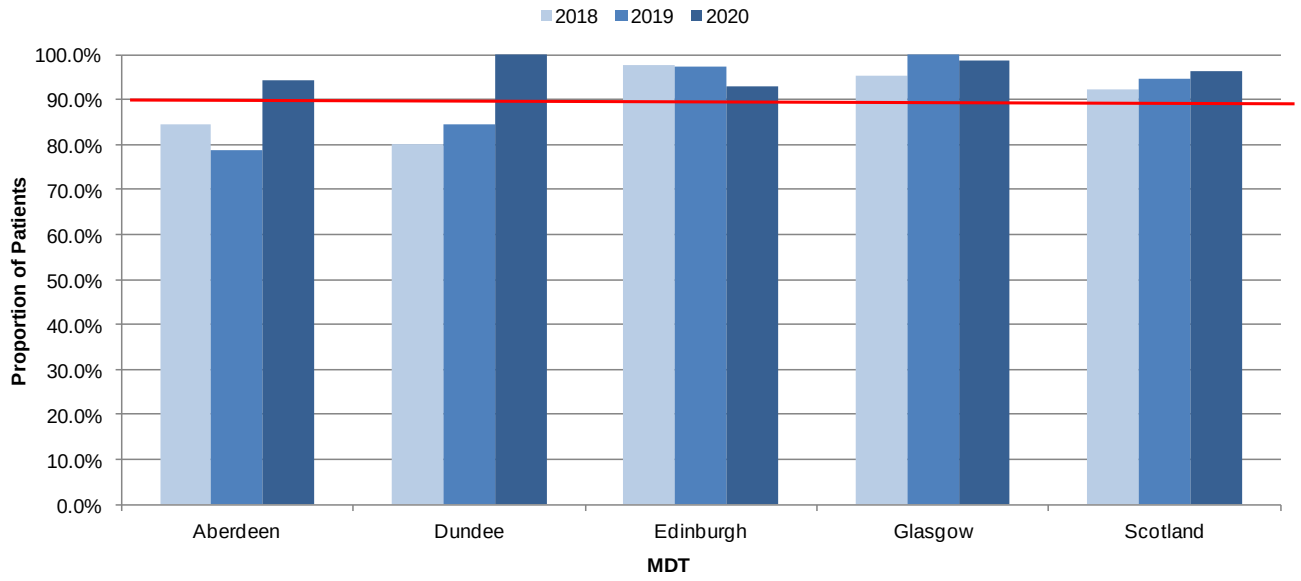
The Aberdeen MDT commented that the majority of cases were felt to have had maximal resection possible but did not reach 90% volume. The centre added that it is hard to meet this target consistently as it depends highly on location and vascularity of tumours.

QPI 7: Early Post-operative Imaging

Post-operative imaging is important for a number of reasons; it provides a measurement of surgical performance and helps to determine whether and what type of further treatment is required. It also helps to assess prognosis[1]. Imaging should be carried out within 72 hours to enable reliable assessment of the extent of the resection. MRI is the preferred imaging modality for patients with glioma. After this time, changes in the tumour resection bed confound estimation[1].

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:	• Patients who are unable to undergo an MRI scan. • Patients who refuse an MRI scan. • Patients undergoing biopsy only.
Target:	90%

Figure 11: 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, 2018- 2020.



QPI 7	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
Aberdeen	94.4%	17	18	0	0	0
Dundee	100.0%	11	11	0	0	0
Edinburgh	92.9%	39	42	0	0	0
Glasgow	98.6%	69	70	0	0	0
Scotland	96.5%	136	141	0	0	0

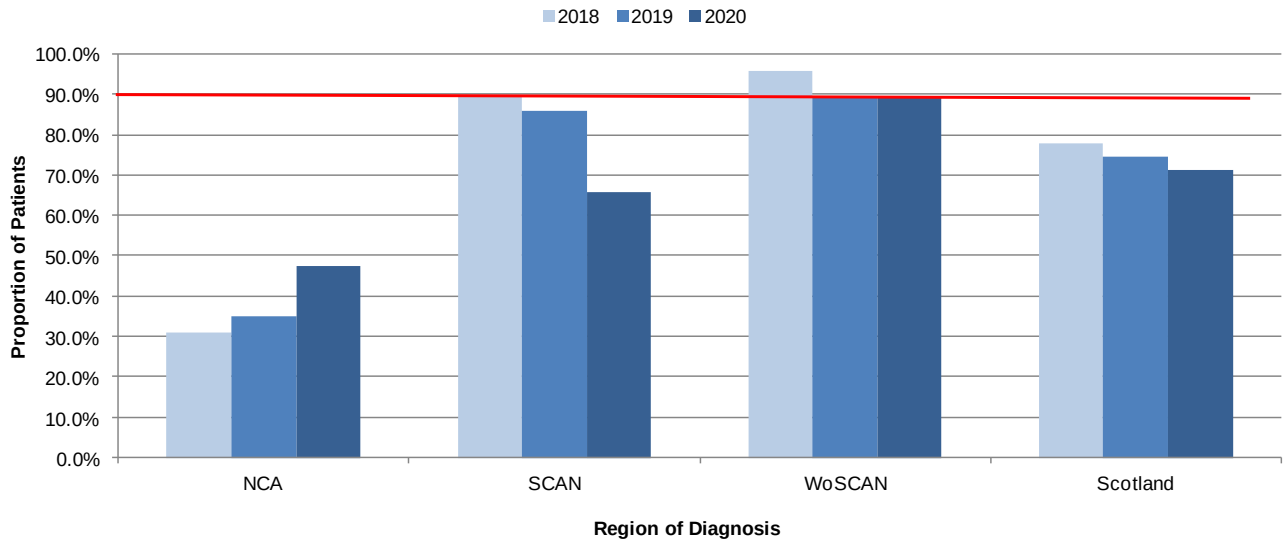
All regions met the 95% target. Performance ranged from 92.9% in Edinburgh to 100.0% in Dundee. The overall national performance was 96.5%.

QPI 9: Access to adjuvant treatment

Evidence demonstrates a negative impact on patient outcome if adjuvant treatment is delayed. It has been reported that by delaying oncological treatment, the risk of death increased by 8.9% for each week from the date of first surgery[1]. In addition, evidence shows that patients commencing radiotherapy within 6 weeks of the date of surgery had improved overall survival. Hence a maximum interval of 6 weeks between surgery and first day of radiotherapy is recommended[1].

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 13: 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, 2018 – 2020.



QPI 9	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
NCA	47.4%	18	38	0	0	0
SCAN	65.9%	29	44	0	0	0
WoSCAN	89.1%	57	64	0	0	0
Scotland	71.2%	104	146	0	0	0

Target reduced from 95% to 90% to account for patients who are clinically unfit post-operatively for oncological treatment.

All regions failed to meet the 90% target. Performance ranged from 47.4% in NCA to 89.1% in WoSCAN. The overall national performance was 71.2%. MDTs have reviewed cases not meeting the target and provided feedback.

The Aberdeen MDT commented that all eight cases were reviewed. All but two were commenced on treatment within five days of target. Four of the eight cases had delayed pathology results particularly MGMT results which impaired treatment planning. In the remaining two cases which commenced within eight weeks both had clinical deterioration or conditions which delayed treatment. The centre added that it is challenging to improve this QPI further without improvements in pathology reporting times as this often limits ability to plan chemotherapy timely. Most studies also suggest treatment under 8 weeks is ideal, if this measure was used then all patients would meet target.

The Dundee MDT stated that there is an association with delayed pathology reports and single handed neuro-oncology practice is another factor.

The Edinburgh MDT commented that 15 cases were outliers. A quarter of patients had post-operative problems with wound healing which prolonged the planning process for radiotherapy. A quarter of patients had difficult pathology which required additional investigations to clarify diagnosis before treatment could be commenced. One case missed the target due to an administrative error. For half the patients the planning progress was prolonged after the Christmas period when the service is under increased pressure.

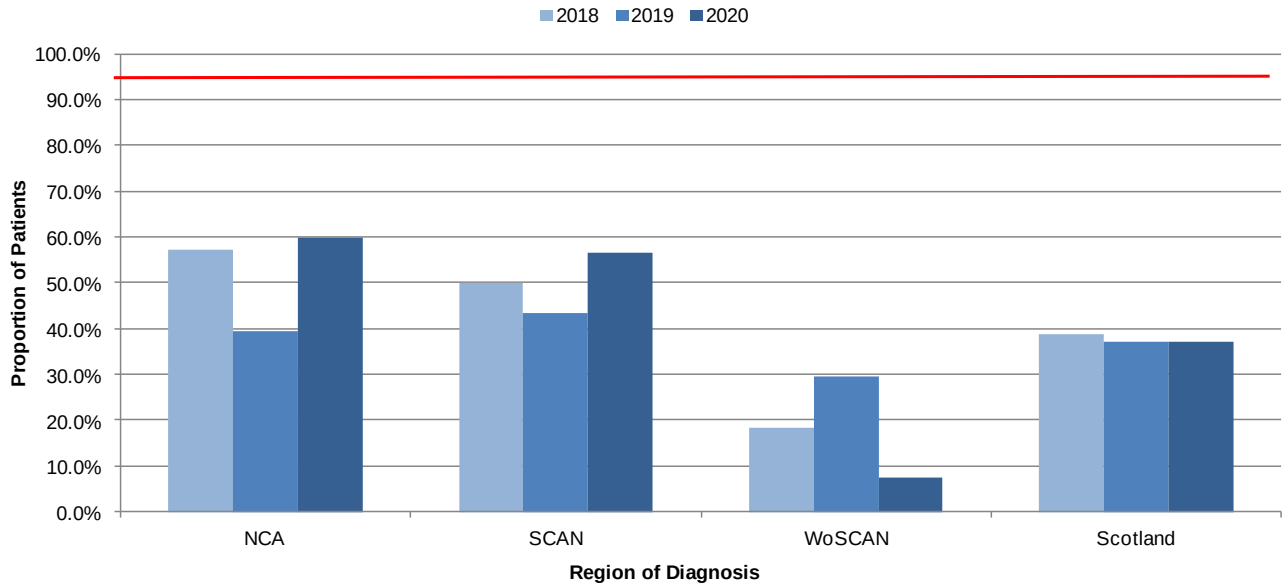
The Glasgow MDT commented that 5 patients had poor performance status and required additional time after surgery to recover to a level where a decision could be made safely on oncological treatment. One patient had uncertain pathology which required additional testing to determine whether the tumour was of a type requiring further treatment, and this caused a 3 week delay. For the remaining patient, the patient's choice of treatment location resulted in delays to the start of treatment while their care was transferred to another Board.

QPI 11: Seizure Management

The diagnosis of epilepsy is more accurate when made by a medical practitioner who specialises in epilepsy, resulting in better patient outcomes. Access to a nurse with expertise in epilepsy management enhances quality of life for patients and gives a more patient-centred approach to care[1].

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 15: 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, 2018- 2020.



QPI 11	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
NCA	60.0%	12	20	3	0	0
SCAN	56.4%	22	39	0	0	0
WoSCAN	7.3%	3	41	0	0	0
Scotland	37.0%	37	100	3	0	0

The QPI timeframe changed for patients seeing a neurologist or named Epilepsy Specialist Nurse at Formal Review – the new requirement is that this is within 4 weeks of first MDT discussion (previously 4 weeks of diagnosis).

No Region met the 95% target. Performance ranged from 7.3% in WoSCAN to 60% in NCA. The overall national performance was 37%.

The Aberdeen MDT reviewed all cases and noted that two cases were seen by neurologist or ESN but just outwith the target time. The remaining 3 cases had a presenting seizure but were managed by the Neurosurgical team. A reminder has been sent to colleagues regarding onwards referral and the ESN is engaged with faster review times.

The Edinburgh MDT commented that of the 17 cases not meeting the target 9 were reviewed by the ENS Telephone clinic due to the COVID-19 pandemic. A further two were seen outwith the 28 days but both had phone consultations with ESN within the 4 week timeframe. SCAN added that due to the COVID-19 pandemic the majority of patients are now having phone consultations rather than being seen in person and for future audits these patients should be considered as meeting the QPI. The ESN provide a very responsive supportive service to the patients and families and this figure greatly represents this. If the 7 cases that had phone consultations within 4 weeks of MDM were included this would mean that SCAN has a result of 74.4%.

The Glasgow MDT reported that this is a challenging target to meet given the limited resource, and accumulated workload on Neurology Epilepsy Services. The Glasgow MDT has an affiliated Neuro-oncology Epilepsy Neurologist but referral is more common to LGG related seizures and in very few cases to HGG. Glasgow stated that this service needs to be better resourced to satisfy QPI 11.

Action:

- NHS GGC to review the resource allocated to this service and establish what action is required to ensure appropriate resource is in place.

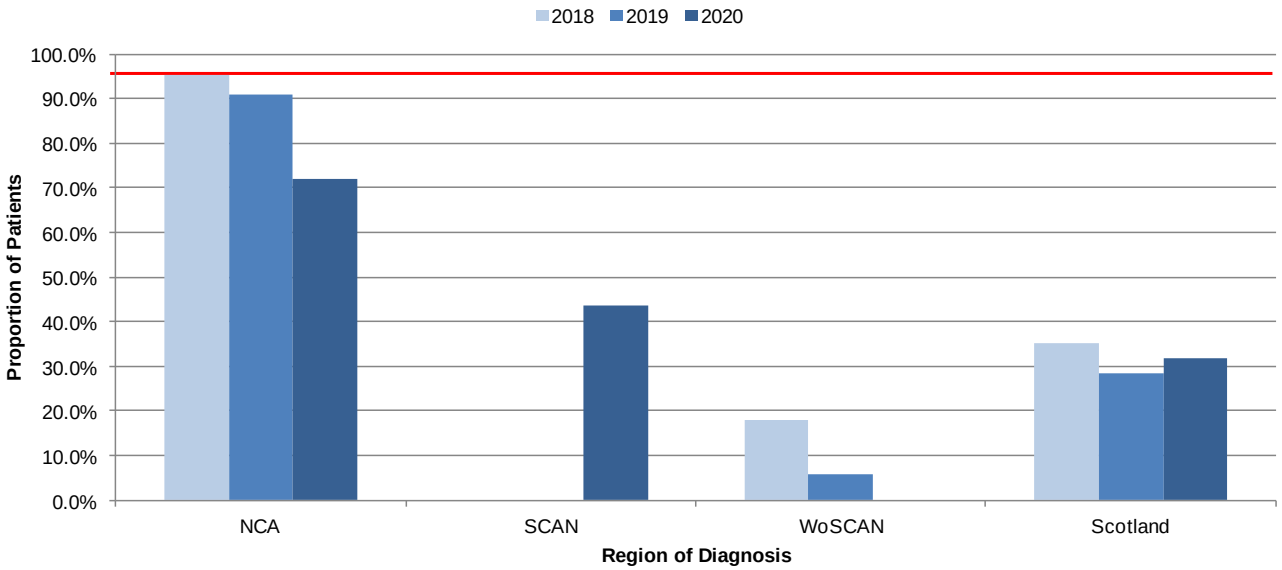
QPI 12: Key Worker

It is recommended that all patients with CNS tumours should have an identified key worker. Having a clearly identified key worker is important to ensure that care is adequately coordinated for patients with CNS tumours. While the patient is being managed under the care of the neuroscience or oncology/radiotherapy centre the key worker is likely to be the Clinical Nurse Specialist (CNS).

Supportive care patients have been excluded from this QPI as they are managed separately through a palliative care route.

QPI 12 :	Patients with brain/CNS cancer should have an identified key worker to coordinate care across the patient pathway.
Description:	Proportion of patients with brain/CNS cancer who have an identified key worker by the first MDT meeting.
Numerator:	Number of patients with brain/CNS cancer who have an identified key worker by the first MDT meeting.
Denominator:	All patients with brain/CNS cancer.
Exclusions:	Patients undergoing supportive care.
Target:	95%

Figure 16: Proportion of patients with brain/CNS cancer who have an identified key worker by the first MDT meeting, 2018 – 2020.



QPI 12	Performance (%)	Numerator	Denominator	Not Recorded Numerator	Not Recorded Exclusions	Not Recorded Denominator
NCA	72.1%	44	61	1	0	0
SCAN	43.5%	37	85	48	0	0
WoSCAN	0.0%	0	109	109	0	0
Scotland	31.8%	81	255	158	0	0

No centres met the 95% target with performance ranging from 0.0% in WoSCAN to 72.10% in NCA. The overall national performance was 31.8%.

The Aberdeen MDT commented that all cases not meeting the QPI were reviewed. Reasons provided included cases where patients declined surgery or CNS input, patients that died prior to MDT documentation and cases where CNS was involved with patient but this was not documented. The centre added that they will aim to improve the recording of CNS at first MDT.

The Glasgow MDT stated that although each patient is allocated to a Key Worker at the Glasgow site this is not documented on MDT forms. The Glasgow centre will aim to include the name of the key worker on the MDT proforma going forward.

The Edinburgh MDT noted that a new tick box was added to MDM forms to record the Key worker at the time of the MDM. It has been agreed that the Oncology CNSs will be named key workers. This led to an anticipated improvement. The centre added that they will try to ensure that key worker is consistently recorded for all eligible patients at the time of MDM discussion.

Action Required:

- NHS GGC to update MDT proforma to ensure allocation of key worker is documented at MDT.

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

Treatment related mortality is a marker of the quality and safety of the whole service provided by the MDT. Outcomes of treatment, including treatment related morbidity and mortality should be regularly assessed.

Treatment should only be undertaken in individuals that may benefit from that treatment. This QPI is intended to ensure that treatment is given appropriately, and the outcome reported on and reviewed.

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) Chemotherapy (iii) Chemoradiotherapy (iv) Radiotherapy
Exclusions:	No exclusions
Target:	<5%

Table 5: Proportion of patients with brain/CNS cancer who die within 30 days of surgery, 2019 – 2020.

	Aberdeen			Dundee			Edinburgh			Glasgow			Scotland		
	N	D	%	N	D	%	N	D	%	N	D	%	N	D	%
2019	2	46	4.3%	0	26	0.0	1	70	1.4%	3	127	2.4%	6	269	2.2%
2020	2	38	5.3%	0	17	0.0%	4	74	5.4%	1	113	0.9%	7	242	2.9%

Overall national performance was noted as 2.2%. Both Aberdeen and Edinburgh reviewed all cases not meeting the QPI and provided detailed feedback.

Table 6: Proportion of patients with brain/CNS cancer who die within 30 days of chemoradiotherapy, 2019 – 2020.

	NCA			SCAN			WoSCAN			Scotland		
	N	D	%	N	D	%	N	D	%	N	D	%
2019	0	24	0.0%	1	38	2.6%	2	57	3.5%	3	119	2.5%
2020	0	30	0.0%	1	23	4.3%	0	43	0.0%	1	96	1.0%

All Regions were within the <5% target, with performance ranging from 0.0% in NCA to 4.3% in SCAN.

Table 7: Proportion of patients with brain/CNS cancer who die within 30 days of radiotherapy, 2019 – 2020.

	NCA			SCAN			WoSCAN			Scotland		
	N	D	%	N	D	%	N	D	%	N	D	%
2019	2	21	9.5%	3	32	9.4%	2	26	7.7%	7	79	8.9%
2020	0	14	0.0%	2	48	4.2%	1	32	3.1%	3	94	3.2%

(-) Data is not shown; less than 5. (*) denotes a zero.

All Regions were within the <5% target, with performance ranging from 0.0% in NCA to 4.2% in SCAN.

With regards to mortality following SACT, a decision has been taken nationally to move to a new generic QPI (30-day mortality for SACT) applicable across all tumour types. This new QPI will use CEPAS (Chemotherapy ePrescribing and Administration System) data to measure SACT mortality to ensure that the QPI focuses on the prevalent population rather than the incident population. The measurability for this QPI is still under development to ensure consistency across the country and it is anticipated that performance against this measure will be reported using CEPAS data in the next audit cycle. In the meantime all deaths within 30 days of SACT will continue to be reviewed at a NHS Board level.

QPI 14: Clinical Trials Access

Clinical trials are necessary to demonstrate the efficacy of new therapies and other interventions. Evidence suggests improved patient outcomes when hospitals are actively recruiting patients into clinical trials[1].

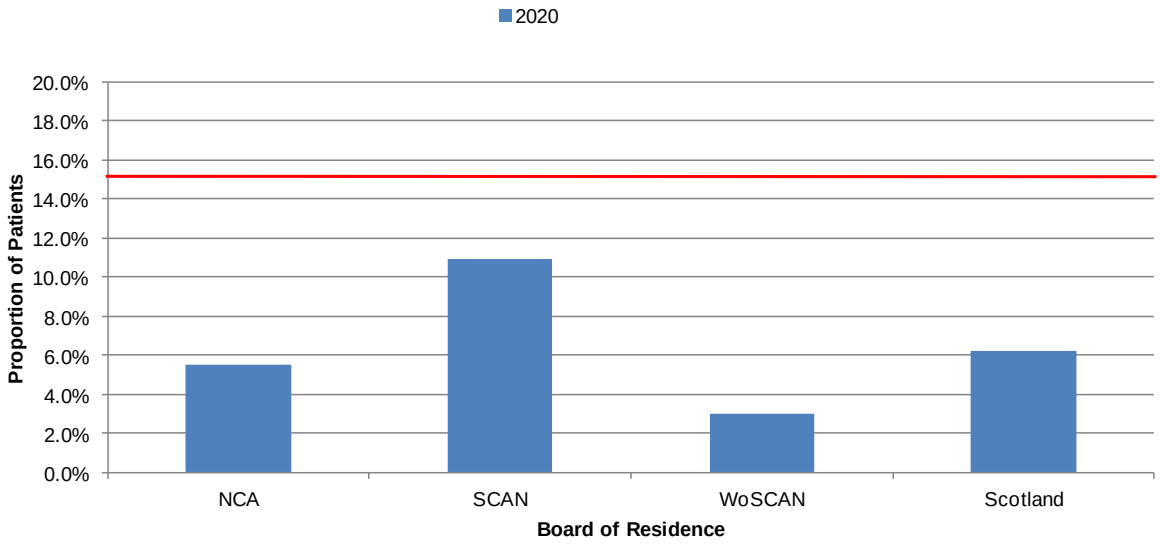
Clinicians are therefore encouraged to enter patients into well designed trials and to collect longer term follow up data. High accrual activity into clinical trials is used as a goal of an exemplary clinical research site.

The measurement of this QPI focuses on those patients who have consented in order to reflect the intent to join a clinical trial and demonstrate the commitment to recruit patients. Often patients can be prevented from enrolling within a trial due to stratification of studies and precise inclusion criteria identified during the screening process.

The clinical trials QPI is measured utilising Scottish Cancer Research Network (SCRN) data and ISD incidence data, as this is the methodology currently utilised by the Chief Scientist Office (CSO) and the National Cancer Research Institute (NCRI). The principal benefit of this approach is that this data is already collected utilising a robust mechanism[1].

QPI 14:	All patients should be considered for participation in available clinical trials/research studies, wherever eligible.
Description:	Proportion of patients diagnosed with brain/CNS cancer who are consented for a clinical trial/research study.
Numerator:	Number of patients diagnosed with brain/CNS cancer consented for a clinical/research study.
Denominator:	All patients with Brain/CNS cancer.
Exclusions:	No exclusions
Target:	15%

Figure 17: Proportion of patients consented for clinical trials for brain/CNS cancer by NHS Board of residence, 2020



	Consented Target 15%		
	N	D	%
NCA	7	128	5.5%
SCAN	14	129	10.9%
WoSCAN	5	165	3.0%
Scotland	26	422	6.2%

It should be noted that due to the COVID-19 pandemic recruitment to clinical trials has decreased since 2019. This is partly due to all clinical trials across the UK being closed to recruitment on 13th March 2020. Trials began to reopen in a phased manner shortly after the closure based on local health board risk assessments. The cancer portfolio has since reopened the majority of trials and has been able to open new trials in all health boards. Impacts of COVID-19 on research staff have also affected the running of trials such as staff deployment to wards and COVID research. Also the impact of a reduced number of patients being diagnosed and coming into the cancer centres has had an impact on recruitment.

6. Acknowledgement

This report has been prepared using clinical audit data provided by each of the fourteen NHS Boards in Scotland. We would like to thank colleagues in the clinical effectiveness departments throughout Scotland for gathering, submitting and verifying these data.

We would also like to thank the clinicians, nurses and others involved in the management of brain and CNS cancers for their contribution to the clinical audit process.

7. Abbreviations

AA	NHS Ayrshire & Arran
ACaDMe	Acute Cancer Deaths and Mental Health
BWoSCC	Beatson West of Scotland Cancer Centre
CEL	Chief Executive Letter
CNS	Central Nervous System
CT	Computed Tomography
D&G	NHS Dumfries & Galloway
eCASE	Electronic Cancer Audit Support Environment
FV	NHS Forth Valley
GGC	NHS Greater Glasgow and Clyde
GTV	Gross Tumour Volume
HIS	Healthcare Improvement Scotland
ISD	Information Services Division
KPS	Karnofsky Performance Status
MCN	Managed Clinical Network
MDT	Multidisciplinary Team
MGMT	O6-methylguanine-DNA methyltransferase
MRI	Magnetic Resonance Imaging
NCQSG	National Cancer Quality Steering Group
NMCN	National Managed Clinical Network
NOSCAN	North of Scotland Cancer Network
QPI(s)	Quality Performance Indicator(s)
RCAG	Regional Cancer Advisory Group
SANON	Scottish Adult Neuro-Oncology Network
SCAN	South East of Scotland Cancer Network
VMAT	Volumetric Modulated Arc Therapy
WHO	World Health Organisation
WoS	West of Scotland
WoSCAN	West of Scotland Cancer Network

8. References

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8. ScotPHO, Public Health Information for Scotland. Mid 2018 Population Estimates Scotland. Available at: https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates/mid-2018

9. Copyright

Appendix 1: Meta Data

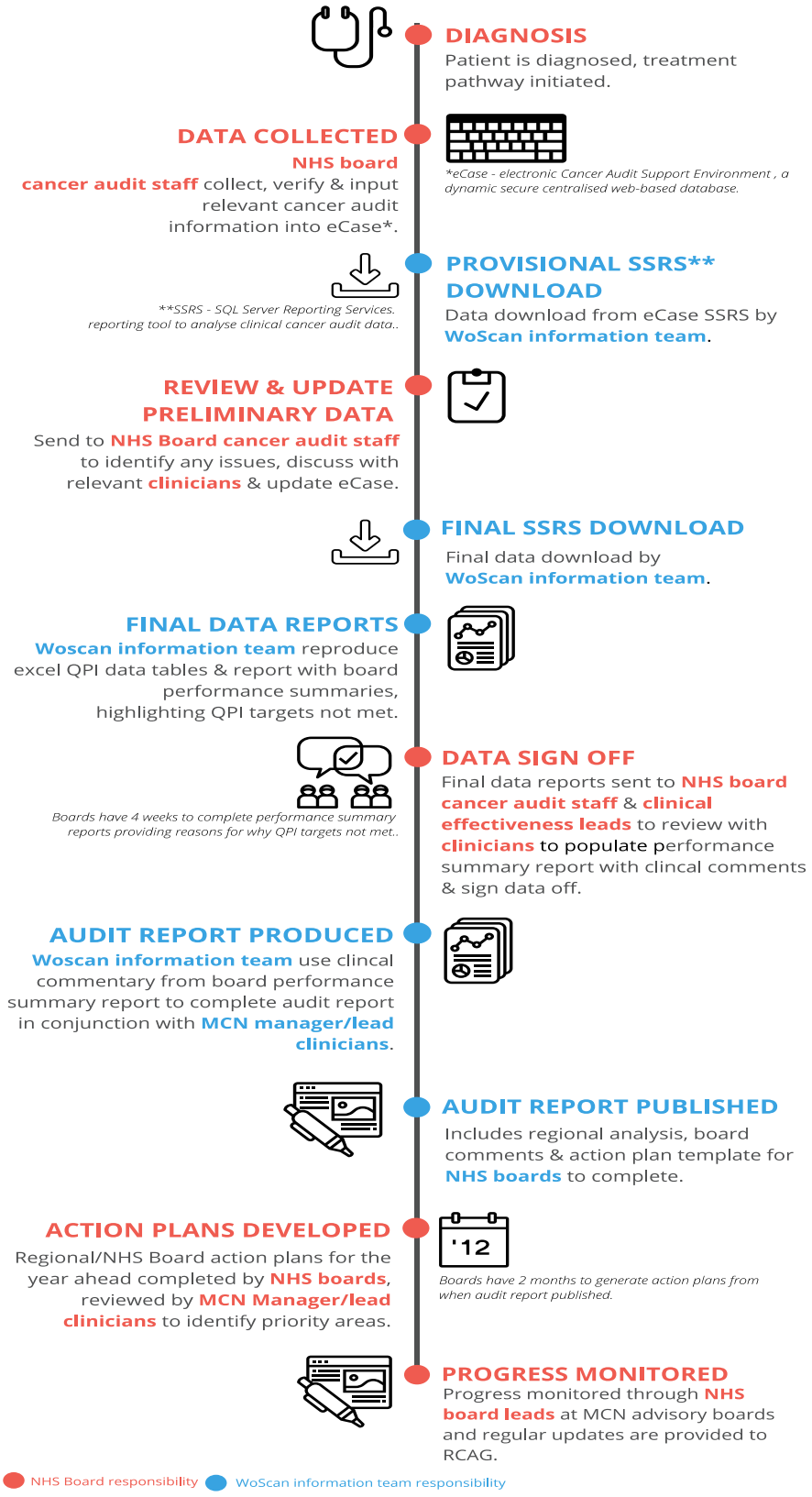
<table>
<tr><td>Report Title</td><td>Cancer Audit Report: Brain and Central Nervous System Cancers Quality Performance Indicators</td></tr>
<tr><td>Time Period</td><td>Patients diagnosed between 01 January 2020 to 31 December 2020</td></tr>
<tr><td>Data Source</td><td>Cancer Audit Support Environment (eCASE). A secure centralised web-based database which holds cancer audit information in Scotland.</td></tr>
<tr><td>Data extraction date</td><td>The data contained within this report was extracted from eCASE at 2200 hrs on 16/06/2021.</td></tr>
<tr><td>Methodology</td><td>Analysis was performed centrally for the region by the WoSCAN Information Team. The timescales agreed took into account the patient pathway to ensure that a complete treatment record was available for the majority of patients.

Initial results were provided to Boards to check for inaccuracies, inconsistencies or obvious gaps and a subsequent download taken upon which final analysis was carried out.

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. Please see info graphic in appendix 2 for a more detailed look at the reporting process.</td></tr>
<tr><td>Data Quality</td><td>Audit data completeness can be assessed by estimating the proportion of expected patients that have been identified through audit compared to the number reported by the National Cancer registry (provided by ISD, National Services Division), this is known as case ascertainment. Figures should only be used as a guide as it is not possible to compare the same exact cohort from each data source. Note that a 5 year average is taken for cancer registry cases to take account of annual fluctuations in incidence within regions.

<table>
<tr><th></th><th>NCA</th><th>SCAN</th><th>WoSCAN</th><th>Scotland</th></tr>
<tr><td>Cases from audit</td><td>93</td><td>113</td><td>149</td><td>355</td></tr>
<tr><td>Cases from ISD (2015-2019)*</td><td>116</td><td>129</td><td>165</td><td>410</td></tr>
<tr><td>Case ascertainment</td><td>80.2%</td><td>87.6%</td><td>90.3%</td><td>86.6%</td></tr>
</table>
</td></tr>
</table>

Appendix 2: Cancer audit timeline



Appendix 3: NHS Board Action Plans

A summary of actions has been provided within the Audit Report. Neuro-oncology centres should populate the template with relevant actions and completed Action Plans should be returned to WoSCAN within two months of publication of this report.

Action / Improvement Plan - Glasgow

1st January - 31st December 2020

Area:	**Glasgow MDT**
Action Plan Lead:	
Date:	

KEY (Status)	
1	Action fully implemented
2	Action agreed but not yet implemented
3	No action taken (please state reason)

QPI No.	Action Required	Health Board Action Taken	Timescales		Lead	Progress/Action Status	Status (see Key)
			Start	End			
QPI 2	*Multi-Disciplinary Team Meeting* NHSGGC to review MDT referral processes and identify ways in which to improve the proportion of patients being discussed prior to surgery. Additionally it is anticipated that the MDT FiT programme led by WoSCAN will help to support improvement in this area.	***Detail specific actions that will be taken by the NHS Board.***	***Insert date***	***Insert date***	***Insert name of responsible lead for each specific action.***	***Provide detail of action in progress, change in practices, problems encountered or reasons why no action taken.***	***Insert No. from key above.***
QPI 12	*QPI 12: Key Worker* NHS GGC to update MDT proforma to ensure allocation of key worker is documented at MDT.						