Brain and CNS Cancer

Measurability of Quality Performance Indicators
Version 2.3

To be read in conjunction with:

- **Brain and Central Nervous System Cancer Clinical Quality Performance Indicators**
- **Brain and Central Nervous System Cancer Data Definitions (latest published version)**

Measurability of Quality Performance Indicators for Brain & CNS Cancer

Please refer to the Brain and CNS Cancer Quality Performance Indicators published by Healthcare Improvement Scotland for a full description of individual QPIs

Please refer to the Brain and CNS Cancer QPI Dataset published by ISD Scotland for a full description of individual data items

Document control:

This version

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Effective From	December 2014	**Author**	Charlotte Anthony, ISD
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Summary of changes	Final		

Revision History

Version	Date	Status	Summary of Changes	QPI (s)
0.1	June 2013	Draft	First version	All
0.2	Dec 2013	Draft	Changes following public engagement	
1.2	June 2014	Final	Amendments made out-with review, incorporating additional data item into the dataset updating the MDT QPI.	2
2.0	Nov 2014	Final	Change to version number due to changes in dataset	n/a
2.1	May 2015	Final	Amendments made out-with review	1, 2, 9
2.2	August 2015	Final	Amendments made out-with review	6,9
2.3	March 2016	Final	Amendments made following Baseline Review	3,5,6,7,8,9,10

Updates from Previous Version

QPI	Summary of changes (excluding formatting changes) (March 2016)
3	**Description, Numerator & Denominator** changed reference numbers to letters and inserted reference text to align with the QPI document - [a] This includes: - oligodendroglioma (WHO Grade II) - anaplastic oligodendroglioma [b] (WHO Grade III) - oligoastrocytomas [c] (WHO Grade II) - anaplastic oligoastrocytoma (WHO Grade III) - glioblastoma with an oligodendroglial component (WHO Grade IV) including subtypes (WHO Grade IV) The O(6)-methylguanine-DNA methyltransferase (MGMT) gene
5	Denominator – removed 'and Patients undergoing biopsy only';' Main type of Definitive Operation' changed to' Main Type of Definitive Surgery'; deleted 'SCAN' from 'MRI SCAN' changed equation from [SCAN <> (95 OR.....)] to [MRI <> (95 OR .....)]
6	Deleted 'high grade (world health organisation (WHO) Grades III and IV) from **QPI title** and inserted [d] after malignant gliomas. **Description** deleted high grade and after malignant glioma inserted '[d] (with enhancing component on pre-operative imaging)' also after 90% inserted 'resection of the measurable enhancing component' Numerator and Denominator have now been split into 2 specifications. **Numerator (i)** is 'Number of patients with resectable malignant gliomad (with enhancing component on pre-operative imaging) undergoing surgical resection where >90%* reduction in tumour volume is achieved.' **Denominator (i)** is 'All patients with malignant gliomad (with enhancing component on pre-operative imaging) undergoing surgical resection. (Excluding patients undergoing biopsy only[1]). Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Morphology of Tumour coded as Glioblastoma, NOS; Giant cell glioblastoma, Oligodendroglioma, NOS; Oligodendroglioma, anaplastic; AND Main Type of Definitive Surgery {Brain/CNS Cancer} coded as Craniotomy for lesion of frontal lobe, Craniotomy for lesion of temporal lobe, Craniotomy for lesion of parietal lobe, Craniotomy for lesion of occipital lobe, Craniotomy for lesion of cerebellum, Craniotomy for lesion of brain tissue - other site AND Enhancing component present on pre-operative imaging coded as yes AND Post Surgical MRI coded as Yes - [MORPHOL = 9440/3 OR 9441/3 OR 9442/3 OR 9382/3 OR 9450/3 OR 9451/3] AND [OPCODE1 OR OPCODE2 OR OPCODE3 OR OPCODE4 = A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8]

	AND [ENHANC = 1] AND [POSTMRI = 1].' **Numerator (ii)** is 'Number of patients with resectable malignant glioma[d] (with enhancing component on pre-operative imaging) undergoing surgery (biopsy and surgical resection) where >90%* reduction in tumour volume is achieved. - Reduction in Tumour Volume {Brain/CNS Cancer} coded as 90-99% or 100% - [REDUCT = 3 OR 4].' **Denominator (ii)** is 'All patients with malignant glioma[d] (with enhancing component on pre-operative imaging) undergoing surgery (biopsy and surgical resection) (No exclusions).- Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Morphology of Tumour coded as Glioblastoma, NOS; Giant cell glioblastoma, Oligodendroglioma, NOS; Oligodendroglioma, anaplastic; AND Main Type of Definitive Surgery {Brain/CNS Cancer} coded as Craniotomy for lesion of frontal lobe, Craniotomy for lesion of temporal lobe, Craniotomy for lesion of parietal lobe, Craniotomy for lesion of occipital lobe, Craniotomy for lesion of cerebellum, Craniotomy for lesion of brain tissue - other site, Biopsy only AND Enhancing component present on pre-operative imaging coded as yes AND Post Surgical MRI coded as Yes - [MORPHOL = 9440/3 OR 9441/3 OR 9442/3 OR 9382/3 OR 9450/3 OR 9451/3] AND [OPCODE1 OR OPCODE2 OR OPCODE3 OR OPCODE4 = A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98] AND [ENHANC = 1] AND [POSTMRI = 1].' **NR for Exclusion** replaced [OPCODE1 OR OPCODE2 OR OPCODE3 OR OPCODE4 =99] with N/A; **NR Denominator** changed to 2 specs '(i) [MORPHOL = 9999/9] OR [OPCODE1 = 99 AND OPCODE2-4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8) OR OPCODE2 = 99 AND OPCODE1, 3, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8) OR OPCODE3 = 99 AND OPCODE 1, 2, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8) OR OPCODE4 = 99 AND OPCODE1-3 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8)] OR [ENHANC = 99] OR [POSTMRI = 99]' and '(ii) [MORPHOL = 9999/9] OR [OPCODE1 = 99 AND OPCODE2-4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE2 = 99 AND OPCODE1, 3, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE3 = 99 AND OPCODE 1, 2, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE4 = 99 AND OPCODE1-3 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98)] OR [ENHANC = 99] OR [POSTMRI = 99]' **References** have now changed from 'Malignant gliomas include: Grade IV (Glioblastoma multiforme- GBM and its variants e.g. gliosarcoma), Grade III (Anaplastic Astrocytoma- AA), Grade III anaplastic oligodendrogliomas, Grade III or IV mixed tumours e.g. oligoastrocytoma, glioblastoma with oligodenroglial component, High-grade ependymoma' To [d] 'Malignant gliomas include: Glioblastoma multiforme- GBM and its variants e.g. gliosarcoma, Anaplastic Astrocytoma- AA, Anaplastic oligodendrogliomas, Mixed tumours e.g.oligoastrocytoma, glioblastoma with oligodenroglial component, High-grade ependymoma [e] Patients undergoing biopsy only are excluded by default due to the operation codes used within this measurability * Percentage tumour reduction should be assessed by comparing pre surgical imaging to post surgical 72hr Magnetic Resonance Imaging (MRI)
7	**QPI title, Description and Numerator** inserted [d] after malignant glioma, removed (WHO Grades II, III and IV) and inserted '(with enhancing component on pre-operative imaging); **Denominator** inserted [d] after malignant glioma, removed (WHO Grades II, III and IV) and inserted '(with enhancing component on pre-operative imaging), deleted AND WHO Grade coded as Grade II, Grade III or Grade IV, ' Main type of Definitive Operation' changed to' Main Type of Definitive Surgery', removed or Craniotomy for lesion of cerebellum, inserted 'Enhancing component present on pre-operative imaging coded as yes; AND', removed 'Not applicable – patients undergoing biopsy only', removed 'AND [GRADE = 2 OR 3 OR 4]', OPCODE 'OR A02.5', POSTMRI 'OR 96' inserted 'AND [ENHANC =1]; **NR for Denominator** removed 'OR [GRADE = 99]' and inserted 'OR [ENHANC = 99]' **Reference** [d] 'Malignant gliomas include: Glioblastoma multiforme- GBM and its variants e.g. gliosarcoma, Anaplastic Astrocytoma- AA, Anaplastic oligodendrogliomas, Mixed tumours e.g.oligoastrocytoma, glioblastoma with oligodenroglial component, High-grade ependymoma' is now inserted.
8	**Denominator** removed radiotherapy course type coded as 'Adjuvant, Neo adjuvant' '1 OR 2 OR'
9	Changed from 'Access to Adjuvant Treatment' to 'Access to Oncological Treatment'; **QPI Title** removed 'surgical resection' and inserted 'surgery'; **Description** changed 'surgical resection' to 'surgery' throughout and 'receive' to 'commence'; **Numerator** changed from 'Number of patients with high grade glioma (WHO grades III and IV) who undergo surgical resection who commence oncological treatment (chemotherapy, radiotherapy or chemoradiotherapy) within 6 weeks of surgical resection. - Radiotherapy Course Type {Brain/CNS Cancer} 1; or Type of Systemic Anti-Cancer Therapy (SACT) {Brain/CNS Cancer} 1 coded as adjuvant or chemoradiotherapy; AND Date Treatment Started {Cancer} (Radiotherapy) 1; or Date Treatment Started Systemic Anti-Cancer Therapy (SACT) 1 minus Date of Definitive Surgery is less than or equal to 42 - **(** [RADIO1 = 1 OR 7] AND [RADDATE1 – DSURG ≤ 42] **) OR (** [CHEMTYPE1 = 1 OR 5] **AND** [CHEMDATE1 – DSURG ≤ 42] **)' To '**Number of patients with high grade glioma (WHO grades III and IV) who undergo oncological treatment (chemotherapy, radiotherapy or chemoradiotherapy) who commence treatment within 6 weeks of surgery. - Date Treatment Started {Cancer} (Radiotherapy) 1; or Date Treatment Started Systemic Anti-Cancer Therapy (SACT) 1 minus Date of Definitive Surgery is less than or equal to 42 - [RADDATE1 – DSURG ≤ 42] **OR** [CHEMDATE1 – DSURG ≤ 42] **)'; Denominator** changed from 'All patients with high grade glioma (WHO grades 3 and 4) who undergo surgical resection. (No exclusions) - Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Morphology of Tumour coded as Glioblastoma, NOS; Giant cell glioblastoma, Oligodendroglioma, NOS; Oligodendroglioma, anaplastic; AND WHO Grade coded as Grade III or Grade IV; AND Main Type of Definitive Surgery {Brain/CNS Cancer} 1-4 coded as Craniotomy for lesion of; frontal lobe, temporal lobe, parietal lobe, occipital lobe, cerebellum or brain tissue – other site. - [MORPHOL = 9382/3 OR 9440/3 OR 9441/3 OR 9442/3 OR 9450/3 OR 9451/3] **AND** [GRADE = 3 OR 4] **AND (**[OPCODE1 OR OPCODE2 OR OPCODE3 OR OPCODE4 = A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8**])'; NR Numerator** equation changed from '[RADDATE1 = 09/09/0909] **OR** [CHEMDATE1 = 09/09/0909] **OR** [DSURG = 09/09/0909] **OR** [RADIO1 = 99] **OR** [CHEMTYPE1 = 99]' **To '**([RADDATE1 = 09/09/0909] AND [CHEMDATE1 = 09/09/0909]) **OR** [DSURG = 09/09/0909]'; **NR**

	Denominator equation changed from '[MORPHOL = 9999/9] **OR** [GRADE = 99] **OR** [OPCODE1 OR OPCODE2 OR OPCODE3 OR OPCODE4 **=** 99]' **To** '[MORPHOL = 9999/9] **OR** [GRADE = 99] **OR** [OPCODE1 = 99 AND OPCODE2-4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE2 = 99 AND OPCODE1, 3, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE3 = 99 AND OPCODE 1, 2, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE4 = 99 AND OPCODE1-3 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98)] OR [(RADIO1 = 99 AND CHEMTYPE1 <>(1 OR 5)] **OR** [(CHEMTYPE1 = 99 AND RADIO1 <> (3 OR 7)]
10	**Denominator** added **Chemoradiotherapy** for Radiotherapy Course Type – [RADIO1 OR RADIO2 = 3 **OR 7**]

QPI	**Summary of changes (excluding formatting changes) (August 2015)**
6	Remove duplicate 'or Craniotomy for lesion of cerebellum' and duplicate opcode 'OR A02.5
9	NR for Denominator MORPHOL = 9999/9 instead of 99 and OPCODE = 99 instead of 9999/9.

QPI	**Summary of changes (excluding formatting changes) (May 2015)**
1	NR for Num changed to [PSTATUS <>9] **AND (**[WHODATE = 09/09/0909] **OR** [MDTDATE = 09/09/0909]), NR for Den changed to [ICDSITE = C99.X] ~~**OR** [MDTDATE = 09/09/0909]~~
2	Numerator changed to [MDTDATE <> 10/10/1010] AND ([MDTDATE ≤ DEFTREATDATE] OR [DEFTREATDATE **=** 10/10/1010])
9	RADIO2 and CHEMTYPE2 removed, chemoradiotherapy added

QPI	**Summary of changes (excluding formatting changes) (June 2014)**
2	Inserted new MDT QPI.
8	Numerator amended Specialist Neuro-oncologist {Brain/CNS Cancer} coded as Yes [SPECNEURO = 01], NR Numerator amended [SPECNEURO = 99]

QPI 1 - Documentation of Performance Status

QPI Title:	Patients with newly-diagnosed brain/central nervous system (CNS) cancer should have a world health organisation (WHO) performance status documented at time of diagnosis.
Description:	Proportion of newly-diagnosed patients with brain/CNS cancer who have a documented WHO performance status at the time of multi-disciplinary team (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. WHO/ECOG Performance Status not coded as Not Applicable; AND Date of Assessment of WHO/ECOG Performance Status (KPS) is less than or equal to Date Discussed by Care Team (MDT) [PSTATUS <> 9] **AND** [WHODATE ≤ MDTDATE]
Denominator:	All newly-diagnosed patients with brain/CNS cancer discussed at MDT meeting *(No exclusions).* Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Site of Origin of Primary Tumour {Brain/CNS Cancer} 1-4 coded as Brain/CNS Cancer; AND Date Discussed by Care Team (MDT) not coded as Inapplicable [ICDSITE = C700 OR C701 OR C709 OR C71 OR C72 OR C75.2 OR C75.3] **AND** [MDTDATE <> 10/10/1010]
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [PSTATUS <>9] **AND ((**[WHODATE = 09/09/0909] **OR** [MDTDATE = 09/09/0909])
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. N/A
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [ICDSITE = C99.X]

QPI 2 – Multi-Disciplinary Team Meeting

QPI Title:	Patients with brain/CNS cancer should be discussed by a multidisciplinary (MDT) team prior to definitive management.
Description:	Proportion of patients with Brain/CNS cancer who are discussed at MDT meeting before definitive management
Numerator:	Number of patients with Brain/CNS cancer discussed at the MDT before definitive treatment. Date Discussed by Care Team (MDT) not coded as not applicable; AND Date Discussed by Care Team (MDT) is before or equal to Date of Definitive Treatment OR Date of Definitive Treatment is equal to not applicable. [MDTDATE <> 10/10/1010] AND ([MDTDATE ≤ DEFTREATDATE] OR [DEFTREATDATE = 10/10/1010])
Denominator:	All patients with Brain/CNS cancer (Excluding patients who died before first treatment). Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; **AND** Site of Origin of Primary Tumour {Brain/CNS Cancer} 1-4 coded as Brain/CNS Cancer; AND 'Type of First Treatment not coded as Patient died before treatment'. **(** [ICDSITE = C700 OR C701 OR C709 OR C71 OR C72 OR C75.2 OR C75.3] **) AND** [FIRSTTREATTYPE <>94]
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [MDTDATE = 09/09/0909] **OR** [DEFTREATDATE = 09/09/0909]
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. [FIRSTTREATTYPE = 99]
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [ICDSITE = C99.X]

QPI 3 – Molecular Analysis

QPI Title:	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 gliomas who undergo relevant molecular analysis of tumour tissue within 21 days of surgery. **Please note:** This QPI measures 2 distinct elements: (i): Patients with gliomas with an oligodendroglial[a] component who have the tumour tested for combined loss of 1p/19q; and (ii): Patients with glioblastomas[b] who have the tumour tested for MGMT[c] promoter methylation status.	
Specification (i)	**Numerator (i)**	Number of patients with glioma with an oligodendroglial[a] component where tissue sample is tested for 1p/19q within 21 days of surgery. 1P/19Q Tissue Analysis {Brain/CNS Cancer} not coded as Not Done or Insufficient Sample; and Date of 1P/19Q Tissue Analysis {Brain/CNS Cancer} minus Date of Definitive Surgery less than or equal to 21 days [SAMP1P <> 03 OR 04] AND [SAMP1PDATE – DSURG ≤ 21]
	Denominator (i)	All patients with glioma with an oligodendroglial[a] component undergoing surgery (No exclusions). Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Morphology of Tumour coded as Mixed glioma; Oligodendroglioma, NOS; Oligodendroglioma, anaplastic; AND WHO Grade coded as Grade II, Grade III or Grade IV; and Date of Definitive Surgery not coded as Inapplicable. [MORPHOL = 9382/3 OR 9450/3 OR 9451/3] **AND** [GRADE = 2 OR 3 OR 4] **AND** [DSURG <> 10/10/1010]
Specifications (ii):	**Numerator (ii)**	Number of patients with glioblastomas where tissue sample is assessed for MGMT promoter hypermethylation status within 21 days of surgery. MGMT Tissue Analysis not coded as Not Done or Insufficient Sample; and Date of MGMT Tissue Analysis minus Date of Definitive Surgery less than or equal to 21 days [MGMTSAMP <> 03 OR 04] AND [MGMTSAMPDATE – DSURG ≤ 21]

[a] This includes:
- oligodendroglioma (WHO Grade II)
- anaplastic oligodendroglioma (WHO Grade III)
- oligoastrocytomas (WHO Grade II)
- anaplastic oligoastrocytoma (WHO Grade III)
- glioblastoma with an oligodendroglial component (WHO Grade IV)

[b] including subtypes (WHO Grade IV)

[c] The O(6)-methylguanine-DNA methyltransferase (MGMT) gene

	Denominator (ii)	All patients with glioblastoma undergoing surgery (No exclusions). Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Morphology of Tumour coded as Glioblastoma, NOS; Giant cell glioblastoma; or Gliosarcoma (Glioblastoma with Sarcomatous Component); AND WHO Grade coded as Grade IV, and Date of Definitive Surgery not coded as Inapplicable. [MORPHOL = 9440/3 OR 9441/3 OR 9442/3] AND [GRADE = 4] **AND** [DSURG <> 10/10/1010]
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target **(i)** [SAMP1P = 99] OR [SAMP1PDATE = 09/09/0909] OR [DSURG = 09/09/0909] **(ii)** [MGMTSAMP = 99] OR [MGMTSAMPDATE = 09/09/0909] OR [DSURG = 09/09/0909]	
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. **(i)** and **(ii)** N/A	
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard **(i)** and **(ii) [**MORPHOL = 9999/9] OR [GRADE = 99] OR [DSURG = 09/09/0909]	

QPI 4 – Neuropathological Diagnosis

QPI Title:	All pathology reports for brain/central nervous system (CNS) cancer should contain full pathology information (including WHO grade) to inform patient management.
Description:	Proportion of patients diagnosed 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, as defined by relevant Royal College of Pathologists publication. Histopathology Report Complete {Brain/CNS Cancer} coded as Complete [PATHCOMPL = 1]
Denominator:	All patients with a histological diagnosis of brain/CNS cancer (No exclusions). Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Site of Origin of Primary Tumour {Cancer} coded as Brain/CNS Cancer; AND Most Valid Basis of Diagnosis {Cancer} coded as Histology of metastasis, or Histology of primary [ICDSITE = C700 OR C701 OR C709 OR C71 OR C72 OR C75.2 OR C75.3] **AND** [VALID = 6 OR 7]
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [PATHCOMPL = 99]
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. N/A
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [ICDSITE = C99.X] **OR** [VALID = 99]

QPI 5 – Pre-Treatment Magnetic Resonance Imaging (MRI)

QPI Title:	Patients with brain/central nervous system (CNS) cancer should have Magnetic Resonance Imaging (MRI) prior to treatment.
Description:	Proportion of patients with brain/CNS cancer undergoing resection and/or radical radiotherapy or chemotherapy, who have an MRI prior to treatment.
Numerator:	Number of patients with brain/CNS cancer undergoing resection of tumour, radical radiotherapy or chemotherapy who receive an MRI prior to treatment. MRI SCAN (Pre-treatment) coded as Yes [MRI = 1]
Denominator:	All patients with brain/CNS cancer undergoing resection of tumour, radical radiotherapy or chemotherapy (Excluding Patients unable to undergo an MRI scan (e.g.Pacemaker or other MRI incompatible implanted device; Cerebral aneurysm clip; Metal in eye; Claustrophobia; Unable to fit bore of scanner; Too heavy for MRI table); Patients who refuse MRI; and Patients with Contraindication to intravenous contrast medium;. Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Site of Origin of Primary Tumour {Cancer} coded as Brain/CNS Cancer; AND (Main Type of Definitive Surgery{Brain/CNS Cancer} 1-4 coded as Craniotomy for lesion of frontal lobe, Craniotomy for lesion of temporal lobe, Craniotomy for lesion of parietal lobe, Craniotomy for lesion of occipital lobe, Craniotomy for lesion of cerebellum, Craniotomy for lesion of brain tissue - other site, or Craniotomy for lesion of cerebellum; OR Radiotherapy Course Type {Brain/CNS Cancer} 1-2 coded as Radical, or Chemoradiotherapy; OR Type of Systemic Anti-Cancer Therapy (SACT) (Brain/CNS Cancer) 1-2 coded as Neoadjuvant, or Chemoradiotherapy; AND MRI (Pre-treatment) not coded as Patient refused investigation, Contraindication to intravenous contrast medium, or Clinically inappropriate [ICDSITE = C700 OR C701 OR C709 OR C71 OR C72 OR C75.2 OR C75.3] **AND (** [OPCODE1 **OR** OPCODE2 **OR** OPCODE3 **OR** OPCODE4 = A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.8 OR A02.5] **OR** [RADIO1 **OR** RADIO2 = 3 OR 7] **OR** [CHEMTYPE1 **OR** CHEMTYPE2 = 02 OR 05] **) AND** [MRI<> (95 OR 97 OR 98)]
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [MRI = 99]
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. [MRI = 99]
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [ICDSITE = C99.X] **OR** [OPCODE1 **OR** OPCODE2 **OR** OPCODE3 **OR** OPCODE4 = 99] **OR** [RADIO1 **OR** RADIO2 = 99] **OR** [CHEMTYPE1 **OR** CHEMTYPE2 = 99]

QPI 6 – Maximal Surgical Resection

QPI Title:		Wherever possible patients should undergo maximal surgical resection of malignant gliomas[d].
Description:		Proportion of patients with malignant glioma[d] (with enhancing component on pre-operative imaging) who undergo maximal surgical resection (>90% resection of the measurable enhancing component), provided it is considered consistent with safe outcome.
Specification (i):	**Numerator (i):**	Number of patients with resectable malignant glioma[d] (with enhancing component on pre-operative imaging) undergoing surgical resection where >90%* reduction in tumour volume is achieved. Reduction in Tumour Volume {Brain/CNS Cancer} coded as 90-99% or 100% [REDUCT = 3 OR 4]
	Denominator (i):	All patients with malignant glioma[d] (with enhancing component on pre-operative imaging) undergoing surgical resection. *(Excluding patients undergoing biopsy only[d]).* Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Morphology of Tumour coded as Glioblastoma, NOS; Giant cell glioblastoma, Oligodendroglioma, NOS; Oligodendroglioma, anaplastic; ; AND Main Type of Definitive Surgery {Brain/CNS Cancer} coded as Craniotomy for lesion of frontal lobe, Craniotomy for lesion of temporal lobe, Craniotomy for lesion of parietal lobe, Craniotomy for lesion of occipital lobe, Craniotomy for lesion of cerebellum, Craniotomy for lesion of brain tissue - other site AND Enhancing component present on pre-operative imaging coded as yes AND Post Surgical MRI coded as Yes [MORPHOL = 9440/3 OR 9441/3 OR 9442/3 OR 9382/3 OR 9450/3 OR 9451/3] **AND** [OPCODE1 **OR** OPCODE2 **OR** OPCODE3 **OR** OPCODE4 = A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8] **AND** [ENHANC = 1] AND [POSTMRI = 1]
Specification	**Numerator (ii):**	Number of patients with resectable malignant glioma[d] (with enhancing component on pre-operative imaging) undergoing surgery (biopsy and surgical resection) where >90%* reduction in tumour volume is achieved. Reduction in Tumour Volume {Brain/CNS Cancer} coded as 90-99% or 100% [REDUCT = 3 OR 4]

[d]Malignant gliomas include:
Glioblastoma multiforme- GBM and its variants e.g. gliosarcoma)
Anaplastic Astrocytoma- AA)
Aanaplastic oligodendrogliomas
Mixed tumours e.g. oligoastrocytoma, glioblastoma with oligodenroglial component
High-grade ependymoma
[e]Patients undergoing biopsy only are excluded by default due to the operation codes used within this measurability

(ii):	**Denominator (ii):**	All patients with malignant glioma[d] (with enhancing component on pre-operative imaging) undergoing surgery (biopsy and surgical resection) *(No exclusions).* Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; **AND** Morphology of Tumour coded as Glioblastoma, NOS; Giant cell glioblastoma, Oligodendroglioma, NOS; Oligodendroglioma, anaplastic; **AND** Main Type of Definitive Surgery {Brain/CNS Cancer} coded as Craniotomy for lesion of frontal lobe, Craniotomy for lesion of temporal lobe, Craniotomy for lesion of parietal lobe, Craniotomy for lesion of occipital lobe, Craniotomy for lesion of cerebellum, Craniotomy for lesion of brain tissue - other site, Biopsy only **AND** Enhancing component present on pre-operative imaging coded as yes AND Post Surgical MRI coded as Yes [MORPHOL = 9440/3 OR 9441/3 OR 9442/3 OR 9382/3 OR 9450/3 OR 9451/3] **AND** [OPCODE1 **OR** OPCODE2 **OR** OPCODE3 **OR** OPCODE4 = A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98] **AND** [ENHANC = 1] AND [POSTMRI = 1]
Not recorded for numerator		Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [REDUCT = 99]
Not recorded for exclusion		Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. N/A
Not recorded for denominator		Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard (i) [MORPHOL = 9999/9] **OR** [OPCODE1 = 99 AND OPCODE2-4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8) OR OPCODE2 = 99 AND OPCODE1, 3, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8) OR OPCODE3 = 99 AND OPCODE 1, 2, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8) OR OPCODE4 = 99 AND OPCODE1-3 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8)] OR [ENHANC = 99] OR [POSTMRI = 99] (ii) [MORPHOL = 9999/9] **OR** [OPCODE1 = 99 AND OPCODE2-4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE2 = 99 AND OPCODE1, 3, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE3 = 99 AND OPCODE 1, 2, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE4 = 99 AND OPCODE1-3 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98)] OR [ENHANC = 99] OR [POSTMRI = 99]

*****Percentage tumour reduction should be assessed by comparing pre surgical imaging to post surgical 72hr Magnetic Resonance Imaging (MRI)

QPI 7 – Early Post-Operative Imaging

QPI Title:	Patients with malignant glioma[d] (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[d], (with enhancing component on pre-operative imaging) who receive early post operative imaging with Magnetic Resonance Imaging (MRI) within 3 days (72hrs) of surgical resection.
Numerator:	Number of patients with malignant glioma[d], (with enhancing component on pre-operative imaging) undergoing **s**urgical resection receiving MRI within 3 days (72hrs) of surgical resection. Date of Post Surgical MRI SCAN minus Date of Definitive Surgery less than or equal to 3 [POSTMRIDATE – DSURG ≤ 3] ***NB Dates do not allow specification in hours***
Denominator:	All patients with malignant glioma[d], (with enhancing component on pre-operative imaging), undergoing surgical resection. *(Excluding Patients unable to undergo an MRI scan (e.g.Pacemaker or other MRI incompatible implanted device; Cerebral aneurysm clip; Metal in eye; Claustrophobia; Unable to fit bore of scanner; Too heavy for MRI table); Patients who refuse MRI; Contraindication to intravenous contrast medium; and Patients undergoing biopsy only[e]).* Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Morphology of Tumour coded as Glioblastoma, NOS; Giant cell glioblastoma, Oligodendroglioma, NOS; Oligodendroglioma, anaplastic; ; AND Main Type of Definitive Surgery {Brain/CNS Cancer} coded as Craniotomy for lesion of frontal lobe, Craniotomy for lesion of temporal lobe, Craniotomy for lesion of parietal lobe, Craniotomy for lesion of occipital lobe, Craniotomy for lesion of cerebellum, Craniotomy for lesion of brain tissue - other site ; AND Enhancing component present on pre-operative imaging coded as yes; AND Post Surgical MRI SCAN not coded as Patient refused investigation, , Contraindication to intravenous contrast medium, or Clinically inappropriate. [MORPHOL = 9440/3 OR 9441/3 OR 9442/3 OR 9382/3 OR 9450/3 OR 9451/3] **AND** [OPCODE1 **OR** OPCODE2 **OR** OPCODE3 **OR** OPCODE4 = A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8] **AND** [ENHANC = 1] **AND** [POSTMRI <> (95 OR 97 OR 98)]
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [POSTMRIDATE = 09/09/0909] **OR** [DSURG = 09/09/0909]

[d] Malignant gliomas include:
Glioblastoma multiforme- GBM and its variants e.g. gliosarcoma)
Anaplastic Astrocytoma- AA)
Aanaplastic oligodendrogliomas
Mixed tumours e.g. oligoastrocytoma, glioblastoma with oligodenroglial component
High-grade ependymoma

[e] Patients undergoing biopsy only are excluded by default due to the operation codes used within this measurability

Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. [POSTMRI = 99]
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [MORPHOL = 9999/9] **OR** [OPCODE1 **OR** OPCODE2 **OR** OPCODE3 **OR** OPCODE4 = 99] OR [ENHANC = 99]

QPI 8 – Specialist Neuro-Oncology Access

QPI Title:	Patients with brain/central nervous system (CNS) cancer undergoing oncological treatment should be managed by a site specialist neuro-oncologist.
Description:	Proportion of patients with brain/CNS cancer undergoing oncological treatment (chemotherapy or radiotherapy) who are managed by a specialist neuro-oncologist.
Numerator:	Number of patients with brain/CNS cancer undergoing oncological treatment (chemotherapy or radiotherapy) who are managed by specialist neuro-oncologist. Specialist Neuro-oncologist {Brain/CNS Cancer} coded as Yes [SPECNEURO = 01]
Denominator:	All patients with brain/CNS cancer undergoing oncological treatment (chemotherapy or radiotherapy) *(No exclusions*). Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Site of Origin of Primary Tumour {Cancer} coded as Brain/CNS Cancer; AND (Radiotherapy Course Type {Brain/CNS Cancer} 1-2 coded as Radical, Palliative, or Chemoradiotherapy; OR Type of Systemic Anti-Cancer Therapy (SACT) (Brain/CNS Cancer) 1-2 coded as Adjuvant, Neoadjuvant, Palliative, Chemoradiotherapy, or Biological Therapy) [ICDSITE = C700 OR C701 OR C709 OR C71 OR C72 OR C75.2 OR C75.3] **AND (** [RADIO1 **OR** RADIO2 = 3 OR 4 OR 7] **OR** [CHEMTYPE1 **OR** CHEMTYPE2 = 1 OR 2 OR 4 OR 5 OR 7] **)**
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [SPECNEURO = 99]
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. N/A
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [ICDSITE = 99] **OR** [RADIO1 **OR** RADIO2 = 99] **OR** [CHEMTYPE1 **OR** CHEMTYPE2= 99]

QPI 9 – Access to Oncological Treatment

QPI Title:	The maximum time between surgery 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 grades III and IV) undergoing surgery who commence their oncological treatment (chemotherapy, radiotherapy or chemoradiotherapy) within 6 weeks of surgery..
Numerator:	Number of patients with high grade glioma (WHO grades III and IV) who undergo oncological treatment (chemotherapy, radiotherapy or chemoradiotherapy) who commence treatment within 6 weeks of surgery. Date Treatment Started {Cancer} (Radiotherapy) 1; or Date Treatment Started Systemic Anti-Cancer Therapy (SACT) 1 minus Date of Definitive Surgery is less than or equal to 42 [RADDATE1 – DSURG ≤ 42] **OR** [CHEMDATE1 – DSURG ≤ 42] **)**
Denominator:	All patients with high grade glioma (WHO grades 3 and 4) who undergooncological treatment (chemotherapy, radiotherapy or chemoradiotherapy) following surgery. . (No exclusions) Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Morphology of Tumour coded as Glioblastoma, NOS; Giant cell glioblastoma, Oligodendroglioma, NOS; Oligodendroglioma, anaplastic; AND WHO Grade coded as Grade III or Grade IV; AND Main Type of Definitive Surgery {Brain/CNS Cancer} 1-4 coded as Craniotomy for lesion of; frontal lobe, temporal lobe, parietal lobe, occipital lobe, cerebellum or brain tissue – other site, biopsy only AND Radiotherapy Course Type {Brain/CNS Cancer} 1 coded as radical or chemoradiotherapy; or Type of Systemic Anti-Cancer Therapy (SACT) {Brain/CNS Cancer} 1 coded as adjuvant or chemoradiotherapy. [MORPHOL = 9382/3 OR 9440/3 OR 9441/3 OR 9442/3 OR 9450/3 OR 9451/3] **AND** [GRADE = 3 OR 4] **AND (**[OPCODE1 OR OPCODE2 OR OPCODE3 OR OPCODE4 = A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98**]) AND ([RADIO1 =3 or 7] OR [CHEMTYPE1 = 1 or 5])**
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target ([RADDATE1 = 09/09/0909] AND [CHEMDATE1 = 09/09/0909]) **OR** [DSURG = 09/09/0909]
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. N/A
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [MORPHOL = 9999/9] **OR** [GRADE = 99] **OR** [OPCODE1 = 99 AND OPCODE2-4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE2 = 99 AND OPCODE1, 3, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE3 = 99 AND OPCODE 1, 2, 4 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98) OR OPCODE4 = 99 AND OPCODE1-3 <> (A02.1 OR A02.2 OR A02.3 OR A02.4 OR A02.5 OR A02.8 OR 98)] OR [(RADIO1 = 99 AND CHEMTYPE1 <>(1 OR 5)] **OR** [(CHEMTYPE1 = 99 AND RADIO1 <> (3 OR 7)]

QPI 10 – Radical Radiotherapy Planning Process

QPI Title:	The radical radiotherapy planning process for patients with primary brain/CNS cancer should include Magnetic Resonance Imaging (MRI) fusion.
Description:	Proportion of patients with primary brain/central nervous system (CNS) cancer undergoing radical radiotherapy for whom the radiotherapy planning process includes MRI fusion.
Numerator:	Number of patients with primary brain/CNS cancer undergoing radical radiotherapy for whom radiotherapy planning includes MRI fusion. MRI Fusion in Radiotherapy Planning {Brain/CNS Cancer} coded as Yes – MRI fusion included [MRIFUS = 1]
Denominator:	All patients with primary brain/CNS cancer undergoing radical radiotherapy *(Excluding Patients unable to undergo an MRI scan e.g. Pacemaker or other MRI incompatible implanted device; Cerebral aneurysm clip; Metal in eye; Claustrophobia; Unable to fit bore of scanner; Too heavy for MRI table; Patients who refuse MRI, Contraindication to intravenous contrast medium)* Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Site of Origin of Primary Tumour {Cancer} coded as Brain/CNS Cancer;; AND (Radiotherapy Course Type {Brain/CNS Cancer} 1-2 coded as Radical or Chemoradiotherapy; AND MRI Fusion in Radiotherapy Planning {Brain/CNS Cancer} not coded as Clinically inappropriate or Not applicable or Patient Refused or Contraindication to Intravenous Contrast Medium [ICDSITE = C700 OR C701 OR C709 OR C71 OR C72 OR C75.2 OR C75.3] **AND** [RADIO1 **OR** RADIO2 = 3 or 7] **AND** [MRIFUS <> 95 OR 96 OR 97 OR 98]
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [MRIFUS = 99]
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. [MRIFUS = 99]
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [ICDSITE = 99] **OR** [RADIO1 OR RADIO2 = 99]

QPI 11 – Seizure Management

QPI Title:	Patients with brain/central nervous system (CNS) cancer presenting with seizures at diagnosis should be seen by a neurologist and/or a nurse with expertise in epilepsy management.
Description:	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.
Numerator	Number of patients presenting with seizures at diagnosis seen by a neurologist or a nurse with expertise in epilepsy management. Seen by Neurologist and/or Nurse with Expertise in Epilepsy Management {Brain/CNS Cancer} coded as seen by Nurse with expertise in epilepsy management or Neurologist or Seen by both (nurse with expertise in epilepsy management and Neurologist). [EPILNESN = 1 OR 2 OR 3]
Denominator	All brain/CNS cancer patients presenting with seizures at diagnosis *(No exclusions)* Date of Diagnosis [DIAGDATE] in range specified for comparative analysis; AND Site of Origin of Primary Tumour {Cancer} coded as Brain/CNS Cancer; AND Seizure Presentation coded as Yes [ICDSITE = C700 OR C701 OR C709 OR C71 OR C72 OR C75.2 OR C75.3] **AND** [EPIL = 01]
Not recorded for numerator	Include in the denominator for measurement against the target. Present as not recorded only if the patient cannot otherwise be identified as having met/not met the target [EPILNESN = 99]
Not recorded for exclusion	Include in the denominator for measurement against the target unless there is other definitive evidence that the record should be excluded. Present as not recorded only where the record cannot otherwise be definitively identified as an inclusion/exclusion for this standard. N/A
Not recorded for denominator	Exclude from the denominator for measurement against the target. Present as not recorded only where the patient cannot otherwise be definitively identified as an inclusion/exclusion for this standard [ICDSITE = C99.X] **OR** [EPIL = 99]