Operational Policy for the Combined Rehabilitation and Non Surgical Oncology (RNS) and Neurosciences - Intrinsic Brain and Spinal cord, rare CNS and Skull Base (NS) MDTs

Version Control

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Agreements

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<tr>
<th>Name</th>
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<tr>
<td>Venkat Iyer</td>
<td>MDT Lead Clinician RNS &amp; NS MDT Chair of NDSG</td>
<td>July 2014</td>
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<tr>
<td>David Porter</td>
<td>MDT Co-Lead Clinician Skull Base MDT</td>
<td>July 2014</td>
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<tr>
<td>Richard Nelson</td>
<td>MDT Co-Lead Clinician Skull Base MDT</td>
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<tr>
<td>Alastair Whiteway</td>
<td>Lead Cancer Clinician for NBT</td>
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# Measures Covered in this Policy

**11-2K-2 - THE COMBINED RNS & NEUROSCIENCE MDT (Intrinsic Brain and Spinal cord, rare CNS and Skull base tumours)**

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1 INTRODUCTION

1.1 Background

Neuro-oncology covers a heterogeneous range of intracranial and spinal neoplasia ranging from high intrinsic brain malignancies to indolent pituitary tumours. The multidisciplinary management of neuro-oncology patients was pioneered in Bristol in the 1980s by the establishment of combined neuro-oncology (glioma) clinics, joint pituitary clinics and multi-specialty surgical teams. Weekly combined clinico-pathological and radiological case reviews were established shortly after the introduction of CT scanning to Bristol in 1973 and have continued ever since. Consultant sub-specialisation has developed steadily over the last 20 years. Specialist nurses have become an established and highly valued part of the MDTs.

1.2 IOG Developments 2008 - 2011

The publishing of Improving Outcomes in Brain and other CNS Tumours (NICE 2008) provided a framework for both formalising and further developing the existing service provision. The following service improvements have been undertaken:

1. Establishment of two multidisciplinary teams that may respond flexibly and appropriately to the differing needs of patients with distinct neuro-oncological conditions:
   a. Malignant intrinsic and metastatic tumours (including rare CNS tumours), Spinal cord tumours and intrinsic brain tumours  
      - Chaired by Mr Venkat Iyer
   b. Pituitary adenomas, Acoustic Neuromas & Other Skull Base Tumours  
      - Chaired by Mr Richard Nelson & Mr David Porter
2. Clarification of the roles of specialist surgeons in all aspects of the neuro-oncology service
3. Inclusion in the MDTs of allied professionals - specialist physiotherapists, occupational therapists, speech and language therapists, hearing therapists - and other medical specialists particularly in the field of palliative care.
4. Appointment of additional specialist nurses
5. Involvement of dedicated neuroradiologists and neuropathologists in the skull base tumour MDTs.
6. Appointment of additional neuro-oncologists to support the two MDTs.
7. Appointment of a Neuroscience MDT administrative coordinator to provide timely communication to all clinicians involved in a patient’s care within 24 hours.
8. Development of an electronic service for data collection and MDT decisions.
9. Development of a web based referral system for all MDTs which enables secure easy referral across the NHS and timely electronic communication.
10. Appointment of a dedicated Neuropsychologist 2 days per week
11. Funding identified to support Occupational Therapist and Physiotherapist attendance at MDT
12. Appointment of a dedicated Neuro-Oncology Speech and Language Therapist

Some of these developments and associated workload pressures have been absorbed by clinical oncology, neuro-radiology and neuropathology services with little or no additional resources. Aspects of the rehabilitation for brain tumour patients remains fragmented and poorly resourced. The requirement for additional resources will be specified in this policy.

1.3 Aims of the Operational Policy

The aims of this operational policy are to ensure that:

- Decisions regarding all aspects of the diagnosis, treatment and care of individual patients are reviewed, discussed and agreed by appropriate members of each MDT.
- Care is given according to recognised local and national guidelines
- Appropriate information is collected to inform clinical decision-making and to support clinical governance and audit.
- Mechanisms are in place to support entry of eligible patients into clinical trials.
2 Membership and responsibilities

2.1 Core Team Members NBT and Local/Specialist MDT

*Measures 11-2K-206* Lead Clinician and Core Team Membership for anMDT dealing with combinations of Tumour groups

<table>
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<th>NSMDT (dealing with Intrinsic Brain tumours, Rare CNS tumours, Spinal cord tumours and Skull base tumours excluding Acoustic Neuromas) Held every Wednesday</th>
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<td><strong>Title</strong></td>
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<tr>
<td>Chair (Consultant Neurosurgeon)</td>
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Measure 11-2K-212: Extended Membership for an MDT dealing with combinations of Tumour groups

<table>
<thead>
<tr>
<th>Title</th>
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<tbody>
<tr>
<td>Consultant ENT Surgeon</td>
<td>Mr David Baldwin</td>
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<td>Consultant Plastic Surgeon</td>
<td>Mr Rob Warr</td>
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<td>Psychiatrist</td>
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<tr>
<td>Epilepsy Nurse Specialist</td>
<td>Helen Hodgson</td>
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<tr>
<td>Epilepsy Nurse Specialist</td>
<td>Samantha Travis</td>
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2.3 Lead Clinician

**Measures** 10-1D-101K and 10-2K-101/201

Mr Venkat Iyer is the lead clinician for the RNS & NSMDT (Wednesday).
Mr Richard Nelson and Mr David Porter are the lead Clinicians for the Skull Base, Pituitary and Acoustic Neuroma MDT (Thursday).

The MDT Lead Clinician is responsible for:

- The development and co-ordination of the MDT and its activities: Including the organisation of an annual meeting to review operational polices and team functionality, ensuring team attendance at meetings and maintaining effective multi-disciplinary working and decision making processes.
- Ensuring the MDT’s activities are audited, case review is undertaken and the results documented including where appropriate discuss case reviews at monthly Mortality and Morbidity (M & M) meetings.
- Liaising with the Lead Clinician for Cancer Services for the Trust.
- Ensuring appropriate representation in the Cancer Network Site Specific Group
- In conjunction with the Lead Clinician for the Trust, identifying the requirements for compliance with appropriate national, regional and network standards and the
guidelines for the specific tumour site, e.g. IOG guidelines, Manual for Cancer Services assessment standards, National Cancer Plan.

- Dissemination of guidelines within the MDT and ensuring implementation and ongoing assessment against the standards.
- Identifying appropriate training needs of members of the MDT.
- Ensure all core members of MDT have 50% PA’ within their job plan for their defined area of specialty for management of Brain and CNS Tumours.
- Lead on, or nominate a service improvement lead
- Ensure that mechanisms are in place to support entry of eligible patients into clinical trials.
- To ensure that all newly diagnosed patients with Brain and CNS Tumours are referred to a member of the appropriate MDT in a timely and appropriate manner and that communication to primary care in a timely fashion is achieved.
- Ensure that the outcomes of the meeting are clearly recorded and the appropriate date collection is supported.

2.4 Nurse Specialist

The CNS service is integral in the management of patients with high grade gliomas, low grade gliomas, spinal primary tumours and cerebral metastases and supported by the neurosurgical, neuro-oncology and palliative medicine clinicians. Referrals to other clinicians are made throughout the patient journey.

There are 3 neuro-oncology nurse specialists who are responsible for the workload, ensuring cover for all the various tumour groups.

All 3 CNS’s, take responsibility, for the management and development of the service on a day to day basis. Professional and line management support is via the Lead Cancer Nurse.

The CNS’s are:
1 wte Belinda Coghlan
1 wte Lois Baldry
1 wte Sheryll Bautista-Pike

Patients from Wiltshire and Bath do not have regular services of a CNS. Patients on treatment from this geographical region are discussed at a Cancer network MDT, now that Oncologists from Bath (where patients from Wiltshire and Bath get radio and chemotherapy) participate in the Neuroscience MDT.

1 WTE for the 3 Counties Network: Anita Ashton – Funded by Three counties cancer network and covers patients from Cheltenham and Gloucester.

1 Neurosurgical Nurse Practitioner (working within Skull Base and Pituitary specialty- Sam Cooper)
1 Associate Nurse Practitioner (working within Skull Base and Pituitary specialty – Rosalind Taylor)

Qualifications of the Core Nurse Specialist

- The core nurse specialist should be undertaking or have successfully completed an accredited, level III programme of study in cancer
- The core nurse specialist should be undertaking or have successfully completed an accredited course/module in communication skills
- The Core Nurse Specialist should be undertaking or have successfully completed good clinical practice training

The role of the Specialist Nurse in the Core MDT

The MDT core specialist nurse attends the weekly MDT meeting and has the following responsibilities within the MDT:

- Work with the MDT to promote and achieve a planned, effective holistic approach to the care and management of patients with Brain and CNS Tumours.
- Contributing to the multidisciplinary discussion and patient assessment/care planning decisions of the team at their regular meetings.
- Providing expert nursing advice and support to other health professionals in the nurse’s specialist area of practice.
- Involvement in clinical audit and sharing/utilising research in the nurse’s specialist area of practice. Ensure that users’ issues are discussed appropriately.
- Undertake annual survey of User’s experience and feedback to MDT
- Act as patient advocate to ensure that their wishes regarding the management of their cancer are conveyed to the MDT and providing access to MDT members for the patient and/or carers to discuss problems or concerns.
- Leading on patient communication issues and co-ordination of patient’s pathway for patients referred to the team, communicating treatment plans/decisions to patients and their carers.
- Providing access to the MDT members for the patient and/or carers to discuss problems or concerns
- Be responsible for the provision of written and verbal information, advice and support for all patients and their carers throughout the course of the illness.
- Give all patients and carers a point of contact (key worker) within the multidisciplinary team, for any queries relating to an individuals management.
- Contributing to the management of the service.
- Communication with extended members of the MDT to ensure timely and appropriate referrals of the patient to palliative care services, clinical trials and many
AHPs including Epilepsy CNS’s, SALT, Physio, OT, Clinical Psychology, Psychiatry, Support Groups (i.e. Hammer Out Brain Tumour Charity and Support Group for the South West), District Nurses, Social Services, Orthotics, GPs).

- Encourage and promote effective and timely communication channels between the local and specialist MDT.

### 2.5 The MDT Co-ordinator

The MDT co-ordinator is Andrew Filby.

The MDT co-ordinator provides the following support to the MDT team:

- Liaising with consultants, nursing staff, secretaries, histopathology and radiology team in preparing for the MDT meeting.
- Notes will be obtained by the MDT co-ordinator and taken to the meeting.
- An attendance record for every meeting will be kept by the MDT Co-ordinator.
- Any patient on the MDT list not discussed (notes, films or results missing, lack of time) will automatically be added to the following meeting’s list.
- The co-ordinator/data entry clerk also collects / validates the dataset for new cancers and waiting times.
- The Somerset Cancer Register will be completed during or after the meeting. An audit of this will be undertaken annually.

### 2.6 Chair of the MDT Meeting

A designated member of the MDT will chair the meeting.

The responsibility of the MDT Chair is to ensure:

- the meeting runs to time
- each patient discussed has a clear treatment plan
- the presenting clinician is responsible for carrying out any action plan (for example: contacting a patient, arranging further tests etc)
- development of the MDT and its activities
- training needs of the team are identified and met - including junior doctors and medical students

### 3 Organisation of MDT Meetings

- The Neuroscience MDT dealing with combinations of tumour groups (Intrinsic Brain and Spinal cord tumours & Rare CNS Tumours) is held every Wednesday. Attendance at the MDT is recorded on the Somerset Cancer Registry
- The Skull Base MDT is held bi-monthly on Thursday. Attendance at the MDT is recorded on the Somerset Cancer Registry.
● The pathologists supporting the service and MDT’s participate in neurohistopathology EQA.

● Each core member of the team should arrange cover for their absence. Core members or their arranged cover will attend at least two thirds of the number of meetings. Attendance records are kept by the MDT Co-ordinator to facilitate audit of this requirement.

● MDT Operational Policy review meetings will be scheduled annually. Any operational issues requiring discussion in the interim may be dealt with during the weekly MDT meeting and agreed outcome are recorded in the MDT minutes.

● Any meetings which need to be cancelled e.g. due to bank holidays, sickness, courses must be highlighted to the MDT co-ordinator who will ensure all members of the MDT are aware of the cancellation.

● There are opportunities to discuss treatment outside of the MDT should the need arise to progress treatment more urgently.

● Electronic scan images from referring organisations are reviewed within the MDT to help determine the appropriate treatment. Where the images provided are insufficient the MDT will arrange for the patient to have further scans before a treatment plan is agreed.

4 The Role of the MDT’s

The MDT and its’ constituent members (within constraints of budget and manpower) will:

● Provide a rapid diagnostic and assessment service.

● Identify and manage patients with Brain and CNS Tumours

● Ensure a record is made of the treatment planning decision electronically on the Somerset Cancer Register and also filed in Medical Notes.

● Be responsible for the provision of information, advice and support for all patients and their carers throughout the course of the illness.

● Give all patients and carers a point of contact (keyworker) within the multidisciplinary team, for any queries relating to an individual’s management.

● Provide treatment and follow-up for these patients and ensure that every patient with Brain and CNS cancer receives multi-disciplinary management.

● Where necessary, treatment plans can be made between meetings by discussion between members of the MDT. This will be recorded in the case notes followed by retrospective discussion at the next MDT meeting.

● Using the Clinical Guidelines the core team members of the MDT, having agreed the identity of the patient, decide on what modality of specialist care the patient will receive. These details should be recorded on the Somerset Cancer Register, the proforma printed and filed in the patient’s notes.

● Provide copy letters of consultations if patients wish this.
● A non-MDT surgeon may treat patients in emergency situations where the diagnosis is unforeseen (following the clinical protocol for Brain Tumour management – appendix).

● Provide a rapid onward referral service for patients who require more specialised management.

● Ensure a robust mechanism to allow the follow-up of patients who have been referred to specialist teams.

● Once a diagnosis has been made, ensure prompt communication to the General Practitioner of the decision.

● Ensure that GPs are given prompt and full information about any changes in their patients’ illness or treatment.

● Attend NDSG meetings and participate in NDSG audit projects and present results to the NDSG.

● Implement service improvement – working with the oncology, radiology and pathology departments and cancer services collaborative to adopt modernisation to benefit the patient journey. This should include process mapping and action planning. One member of the MDT will be identified as the lead for service improvement activities.

● Provide a forum for training juniors and informing medical students of the process and function of a MDT.

● To develop a portfolio of clinical trials and ensure that patients are considered for trials in line with the national guidance.

● Ensure that protocols/guidelines/standard operating procedures are developed /updated for all aspects of management/diagnosis/treatment of patients with Brain and CNS tumours.

5  Neuroscience Services at Southmead Hospital, North Bristol NHS Trust.

5.1  Referrals and Diagnosis

● GPs have referral guidelines that enable them to identify those patients most likely to have Brain and CNS Tumours.

● Patients referred via the 2 week wait are by Choose and Book on the specified referral proforma.

● All referrals to the NSMDT and skull base and pituitary MDT are referred through a website (www.bnog.co.uk), and an electronic response is sent back before the close of the day of the MDT.

● The Consultant counsels new patients with Brain and CNS Tumours as soon as possible in the outpatient clinic after the radiological diagnosis is made. A treatment plan is mutually agreed and explained.
Appropriate cases will on occasion be delegated to a surgeon who has not attended the MDT at which the care plan was agreed. The surgeon will competently perform the procedure agreed by the MDT, and ensure that details and outcomes of the case will be discussed and recorded at the MDT post-surgery.

Following excision surgery or biopsy (decision based on Preoperative MDT discussion) the results are discussed again at the MDT and a treatment plan made depending on the post operative performance status of the patient. The Consultant Neurosurgeon or his nominated deputy then meets the patient and family again in a clinic along with a Specialist Nurse to explain the results and treatment plan.

The Histology results of all brain tumour surgery will be discussed at the MDT meeting and a plan for further management formulated.

The Neuro-Oncology Specialist Nurses can be contacted at any time during the working week (each patient is given contact details on a business card) so providing a link through which patients can contact the CNS at times other than scheduled clinics.

Extensive patient information booklets and leaflets are available covering all aspects of the patient journey. The Neuro Oncology Specialist Nurses supply these.

For patients having surgery either for diagnostic or therapeutic purposes, the admission date will be agreed with the patient.

Patients who receive outpatient treatment will be able to choose and pre book their first treatment date.

Where appropriate the patient will be offered either a Joint Clinic appointment or meeting with any member of the MDT to be assessed and/or to discuss and arrange further diagnostic tests/treatment.

5.2 Surgery/treatment

All patients with a radiological diagnosis of Brain and CNS Tumour are seen by the designated consultant in a clinic as soon as possible after the MDT. The diagnosis is discussed and an appropriate treatment plan is formulated.

On the day before or day of surgery all patients will be given the opportunity to ask any further questions before the consent form is signed and counter signed by the consultant.

All operative procedures will be performed either by the Consultant or a trainee under their direct supervision.

The inpatient wards for neuro surgery are wards 6B and 25A at Southmead Hospital and wherever possible patients for surgery are accommodated here.

Oncological treatments if required are delivered at the Bristol Haematology and Oncology Centre or Weston General Hospital for Bristol and North Somerset patients, and the Royal United Hospital, Bath, for Bath and Wiltshire residents.
5.4 **Communication with Patients and GPs**

- The Cancer Services Manager will collate information on the timeliness and appropriateness of urgent referrals. This data will be fed back to the relevant Clinical Commissioning Group on a monthly basis.

- Should discussion at the MDT or with the patient lead to alterations in the treatment plan, the GP should also be informed.

- The ASWCS guidelines for the breaking of bad news should be followed when a patient and/or member of their family are given a diagnosis.

5.5 **Multidisciplinary specialist clinics**

- MDT Specialist clinics are held weekly at Southmead hospital.

- MDT Pituitary clinics are held regularly in Bristol, Cheltenham and Bath

- MDT Acoustic Neuroma clinics are held monthly at Southmead hospital.

6 **Clinical Guidelines**

- The MDT uses the Network Site Specific Group Clinical Guidelines.

- These guidelines have not been recently updated but will be reviewed in the imminent future by the re-established NSSG to promote evidence based practice.

- Management flow charts for high grade and low grade gliomas and metastases have been produced and are included in the appendix. Also included is a management algorithm for emergency referral and management of Brain tumours.

- These guidelines have been disseminated throughout the network as outlined in the IOG for Brain Tumours.

7 **Diagnostic and Surgical treatment pathway**

7.1 **INTRINSIC BRAIN TUMOURS**

- Referrals from Primary care follow published documentation from NICE for suspected Brain Cancer

- In appropriate situations patients are referred via the 2 week wait cancer pathway, for suspected Brain cancer.
  - These patients are seen in a clinic by a specialist (Neurosurgeon or Neurologist) within 2 weeks
  - Appropriate scans are arranged and followed up.
  - If a Brain or CNS tumour is diagnosed on scan then a referral is made to the Neuro-Oncology MDT through the web based referral system ([www.bnog.co.uk](http://www.bnog.co.uk)).
The majority of patients with Brain and CNS tumours are referred from secondary care district general hospitals with an abnormal scan.

All new referrals with a Brain and CNS tumour are discussed at the ‘Brain and other CNS tumours MDT’ every Wednesday and an appropriate management plan instituted.

Patients who require an operation for biopsy or resection of tumour are seen as soon as possible by the Neurosurgeon in the Oncology team, in the outpatient clinic.

- At the clinic the scan findings are discussed with the patient and family and counselling provided by the Consultant
- The risks / benefits of surgery are discussed and consent obtained.
- A Booklet about preparing for Brain tumour surgery is given to patient or family.
- Further scans arranged as appropriate.

Immediately prior to surgery the patient and or family get another opportunity to seek any further clarifications regarding surgery.

The patient undergoes image guided surgery – either complete resection of all contrast enhancing tumour or biopsy only depending on several patient and tumour criteria (as per MDT recommendations), and tumour tissue removed at surgery is sent to the Neuropathology department.

- During surgery an intraoperative smear is obtained in all patients, which is reported to the operating surgeon by a Consultant Neuropathologist.
- The remaining tissue is transferred in formalin and undergoes paraffin fixation and immunohistochemical staining.
- The final histopathology report is obtained in about 5 working days.
- Fresh tumour tissue is frozen and sent to Molecular genetics laboratory at Southmead for MGMT methylation status and 1p19q status in all gliomas.
- In addition to routine Histological examination all glial tumours are stained for IDH1, which is also examined by the genetics laboratory in frozen tissue.
- There is a state of the art Genetics laboratory at Southmead. This facilitates examination of other rarer antigen testing like BRAF and other markers where appropriate.

All patients who have attempted resection of tumour undergo a postoperative MRI scan with contrast within 24 – 48 hrs of surgery to assess extent of resection, which is documented in the MDT discussion below.

A new Intraoperative MRI (iMRI) scanner has been commissioned at Southmead hospital – this is only the second adult iMRI in the UK. It is anticipated that this will increase the number of patients having complete tumour excision, along with decreased morbidity.

The patient recovers from surgery and is discharged home appropriately.
The clinical details including postoperative performance status and postoperative scans are discussed at the next available ‘Brain and other CNS tumours’ MDT and appropriate further management is planned.

The patient and Family are then seen in the Neurosurgical clinic by the Consultant Neurosurgeon or his authorised deputy where the histology results are discussed. Further management including radiotherapy and chemotherapy where appropriate is also discussed. This consultation occurs in the presence of a Neuro-Oncology specialist Nurse who provides support and counselling.

7.2 EXTRINSIC OR EXTRA AXIAL BRAIN TUMOURS

Meningioma
These are the commonest benign tumour of brain and are slow growing lesions. At the Department of Neurosurgery in Bristol, microsurgical excision is the preferred method of treatment with radiotherapy based techniques held in reserve for:

a. WHO grade 2/3 tumours;
b. Recurrence or growth of a residuum;
c. Strong contra-indication to surgery
d. Asymptomatic but radiological progression in a ‘deeply-placed’ petroclival meningioma.

Referral

Primary Care: receipt by fax or letter; OPD within 4 to 6 weeks. Consideration given to commencing steroids and anticonvulsants.

Secondary Care: receipt by fax or letter; OPD 4 to 6 weeks. Consideration given to commencing steroids and anticonvulsants.

Discussion at MDT prior to surgery if required.

Patients referred via the secondary care on an urgent basis.
- Admission under the on-call team;
- Medically stabilised: steroids and anticonvulsants
- Scans (MRI and CT) as appropriate
- Referral to Skull Base Surgeon if required;

Process

Patients who require an operation for resection of tumour are seen in the outpatient clinic.
- At the clinic the scan findings are discussed with the patient and family and counselling provided by the Consultant
- The risks / benefits of surgery are discussed and questions answered
- Further scans arranged as appropriate
- Further assessments arranged as appropriate
- Pre-admission clinic with Skull Base Nurse.

Immediately prior to surgery the patient and or family get another opportunity to seek any further clarifications regarding surgery and consent is taken.
The patient will undergo microsurgical resection with a view to complete excision in the majority of cases. Neuro-navigation is available if required. All tumour tissue removed at surgery is sent to the Neuropathology department.

- During surgery an intraoperative smear is obtained in patients if required with the result reported to the operating surgeon by a Consultant Neuropathologist.
- All tissue is transferred in formalin and undergoes paraffin fixation and immunohistochemical staining.
- The final histopathology report is obtained in about 5 working days.

All patients who have resection of tumour undergo a postoperative CT scan on the following working day.

- The patient recovers from surgery and is discharged home appropriately.
- Steroid medication is slowly weaned and a plan for anticonvulsants formalised.
- A post-operative MRI scan is booked for 3 months time.
- The clinical details including postoperative performance status and postoperative scans are discussed at the next available Neuroscience MDT and appropriate further management is planned.
- The patient and family are then seen in the Neurosurgical clinic by the Consultant Neurosurgeon or his authorised deputy at 6 weeks where the histology results are confirmed.

**INTRINSIC SPINAL CORD TUMOURS**

- All tumours within the spinal cord identified on imaging are referred to the Neuroscience MDT on a Wednesday.
- The majority of these require a biopsy or excision.
- As the number of these tumours per year are very small and the morbidity quite high, Surgery is undertaken by a small group of Neurosurgeons to increase expertise and experience.
- Surgery for these tumours is undertaken with intra operative Neurophysiological monitoring to minimise complications.
- The histology is discussed at the MDT and further radio or chemotherapy is planned if appropriate, and referral is made to the appropriate local Neuro-Oncologist.

**8 Treatment and Follow-up pathway**

**8.1 TREATMENT AND FOLLOW UP PATHWAY FOR PATIENTS WITH INTRINSIC BRAIN TUMOURS**

- Patients with primary brain tumours are discussed at The Neurosciences MDT, with review of the pathology where a biopsy or resection has been undertaken, or, in very unusual circumstances, where this diagnosis has been made on radiological grounds.
- The team discuss whether further treatment with radiotherapy, chemotherapy or palliative medicine would be of benefit. The patient is then referred to a Consultant Oncologist and/or Consultant in Palliative Medicine.
Oncology services for patients from Bristol, North Somerset, Taunton and Yeovil are at The Bristol Haematology and Oncology Centre, for patients from Wiltshire at The Royal United Hospital in Bath, and for patients from Gloucestershire at The Cheltenham Oncology Centre. Occasional patients may be referred to other neuro-oncology centres.

Consultants in Palliative Medicine are based in all General Hospitals and Hospices, and referral to the patient's local facility is made.

Patients with seizures which are difficult to control are referred to a Consultant Neurologist specialising in this field at their local hospital.

Where appropriate patients are referred to allied health professionals including speech therapy, physiotherapy, clinical psychology and occupational therapy. They are also made aware of the local patient focus group, and options for counselling sponsored by this group.

Patients referred for radiotherapy and/or chemotherapy are seen as new patients by a Consultant Oncologist specialising in Neuro-oncology in the presence of their specialist nurse wherever possible.

The diagnosis and implications are re-discussed. The proposed treatment options are discussed, including the aim of treatment, expectations of achieving this aim, the side effects and risks of treatment and any alternatives.

Where appropriate, enrolment in a clinical trial is discussed. If patients would consider recruitment, then written information is supplied, and details forwarded to the site specialist research nurse. They would telephone the patient after at least 24 hours to ask if they would like to take this further.

Patients are treated with radiotherapy and chemotherapy according to clinical guidelines, taking into account individual wishes and medical factors.

Support is provided during treatment by the specialist nurses, therapy radiographers, allied health professionals and chemotherapy team. Problems arising during treatment are discussed at the weekly Cancer Network MDT.

The majority of patients with primary intrinsic brain tumours still die of their disease and hence remain on follow up lifelong. Their needs during this time vary, and include medical and supportive therapies, but also counselling about employment, driving, fertility, care in pregnancy and benefits. The specialist nurses play a major role ‘signposting’ appropriate services.

When patients relapse, their case is reviewed at The Neurosciences MDT to consider the options for further treatment. This may include reoperation where this is considered to be in the overall interest of the patient. Other options might include further chemotherapy, radiotherapy, palliative care and/or inclusion in a clinical trial.

When no further treatment options which might control tumour growth are available, patients and their families are counselled of this with respect and support. If not already involved, referral to palliative care is discussed. Routine follow up and scanning is discontinued, but further review and/or investigations would be undertaken if the Consultant in Palliative Medicine felt it to be clinically beneficial.
• Whilst handing over clinical responsibility to the Palliative care teams during this period, the Neuro-oncology specialist nurses usually maintain contact with families during the terminal phase and offer further telephone support at the time of bereavement.

8.2 EXTRINSIC OR EXTRA AXIAL BRAIN TUMOURS

Meningioma WHO Grade 1

MRI-scan at 3 months with and without Gadolinium IV contrast then the subsequent agreed scan protocol;

a. No tumour residue, annual scans for 3 years; 2-year scan; 3-year scan; 5-year scan.
b. Small tumour residue, annual scans for 5 years; 2-year scan; 3-year scan; 5-year scan.
c. Large tumour residue, annual scans for 5 years; bi-annual scans for 10 years.

• Pathology in patients with meningiomas is discussed at the pathology section of the Wednesday Neuroscience MDT.
• Skull Base out patient follow-up 2 to 4 weeks post scan.
• Patients with seizures which are difficult to control are referred to a Consultant Neurologist specialising in this field at their local hospital.
• Patients with visual impairment are referred to a Consultant Ophthalmologist at their local hospital.
• Patients with endocrine disorders are referred to a Consultant Endocrinologist at their local hospital.
• Where appropriate, patients are referred to allied health professionals including speech therapy, physiotherapy, clinical psychology and occupational therapy.
• The majority of patients with a meningioma would be expected to enjoy a normal life expectancy and would receive help and encouragement to do so.

Meningioma WHO Grade 2/3

MRI-scan at 1 month with and without Gadolinium IV contrast

All discussed at the next Neuroscience MDT.

• The team discuss whether further treatment with radiotherapy would be of benefit.

• Oncology services for patients from Bristol, North Somerset, Taunton and Yeovil are at The Bristol Haematology and Oncology Centre, for patients from Wiltshire at The Royal United Hospital in Bath, and for patients from Gloucestershire at The Cheltenham Oncology Centre. Occasional patients may be referred to other neuro-oncology centres.

• Stereotactic Radiotherapy is performed at The Bristol Haematology and Oncology Centre with the newly acquired Gamma Knife Perfection Plus.
• Patients with seizures which are difficult to control are referred to a Consultant Neurologist specialising in this field at their local hospital.
• Patients with visual impairment are referred to a Consultant Ophthalmologist at their local hospital.
• Patients with endocrine disorders are referred to a Consultant Endocrinologist at their local hospital.
• Where appropriate, patients are referred to allied health professionals including speech therapy, physiotherapy, clinical psychology and occupational therapy
• Patients referred for radiotherapy are seen as new patients by a Consultant Clinical Oncologist
• The diagnosis and implications are re-discussed. The proposed treatment options are discussed, including the aim of treatment, expectations of achieving this aim, the side effects and risks of treatment and any alternatives.
• Treatment is administered
• Clinical follow-up for the first year after treatment is via the Oncology centre and imaging is reviewed at the Neuroscience MDT. Referral back to the treating neurosurgical team then occurs with MDT follow up.
• In view of the tumour rarity further follow-up imaging is decided on a case-by case basis at the MDT.
• The majority of patients with malignant meningiomas die of their disease and hence remain on lifelong follow-up. Their needs during this time vary, and include medical and supportive therapies, but also counselling about employment, driving, fertility, care in pregnancy and benefits. The skull base nurses play a major role ‘signposting’ appropriate services.
• When patients relapse, their case is reviewed at The Neurosciences MDT to consider the options for further treatment. This may include reoperation where this is considered to be in the overall interest of the patient. Other options might include further radiotherapy or referral to palliative care.

9 Communication framework

The network adheres to the communication framework laid out in the Brain and CNS IOG for communication about MDT decisions to Referrers, Inpatients and outpatients. The Bristol Neuro-Oncology Group website informs referrers about the service and enables them to make an electronic referral to the relevant MDT. After discussion at the MDT the co-ordinator emails the decision and correspondence back to the referring centre within 24 hrs.

10 Emergency surgical intervention pathway

Please see appendix for clinical algorithm

11 Electronic Image Transfer

The Trust has a process for electronic image transfer.

12 Neuro rehabilitation facilities

The AHP lead for Neuro-Rehabilitation is Kerry Joyce. There are no dedicated rehabilitation facilities for Brain Cancer patients. Rehabilitation for all patients with Brain and CNS Tumours is provided as part of General Neuro-rehabilitation and is essentially ward based. Where on going rehabilitation is required in the community, the Specialist Nurses liaise with the District General Hospital, GP, or local Hospice to arrange appropriate services that will benefit the individual patient.
13 **Principal clinician policy**

All patients have a principal clinician who is responsible for the patient’s pathway and management. The consultant responsible for the patient is identified within the patient’s medical records.

14 **Patient permanent consultation record**

All patients have the opportunity to receive a copy letter of their consultation.

15 **Data Collection**

- The MDT collects the network wide minimum dataset and uses the electronic Somerset Cancer Register (SCR).
- Data concerning new cancer patients discussed at the MDT will be returned to the Cancer Registry.

16 **Research and Audit**

- Wherever an appropriate trial is available a patient should, through informed consent and agreement be entered. The team endorse the agreed network trials for Brain and CNS Tumours.
- Patients are invited to contribute their opinions of the service via a detailed questionnaire. The MDT team discusses the resulting report; an action plan is formulated and reviewed to ensure that at least on action has been implemented.
- The MDT will actively participate in the Network Audit programme.
- Research and Audit leading to evidence should be the basis of the practice of the whole team. All professions should be encouraged to share the findings.

17 **The Key Worker**

- For patients who undergo surgery or other Oncological treatment either at North Bristol Trust or at University Hospital Bristol Foundation Trust, the MDT core specialist nurse will be responsible for identifying a single named key worker for the patient’s Brain and CNS Tumour. It is anticipated that in almost all cases the key worker will be the MDT core specialist nurse. A second key worker may also be assigned to the patient for specialist palliative care as appropriate.
- For patients who undergo Oncological treatment at Royal United Bath Hospital, the Consultant Oncologist will act as the Key worker as there is no Specialist Nurse provision at Bath.
- Where a decision has been made to treat the patient only with Palliative care at the local hospital, then the local referring clinician takes on the Key worker role and transfers it to the appropriate palliative care specialist.
- In all cases where the patient undergoes surgery the identification of the key worker (the Specialist Nurse) will be made at the outpatient clinic appointment where a
tissue diagnosis of malignancy is confirmed to the patient. Prior to Surgery the Consultant Neurosurgeon will act as the Key worker.

- In the event of an emergency inpatient admission for a subsequently confirmed Brain and CNS Tumours, it is the responsibility of the patient’s consultant’s team to refer the patient to the MDT core specialist nurse. The referring clinician must in every case advise the specialist nurse of the information the patient and/or (as appropriate) next of kin has already been given about his/her confirmed or anticipated diagnosis of malignancy.

- Patients will be given contact details for their key worker at the earliest opportunity.

- On identification of the key worker this information will be pasted in the inside cover of the patient’s clinical notes.

- Patients with metastatic brain tumours will remain under the key worker for their primary tumour to ensure continuity of care and support.

18 Advanced Communications Skills Training

As the National Advanced Communication Skills Training programme is no longer available, North Bristol NHS Trust is developing an in-house training module to support team members to communicate effectively with patients and their families.
APPENDIX 1

PATHWAY FOR MANAGEMENT OF MALIGNANT PRIMARY BRAIN TUMOURS IN ADULTS

Primary care Referral – Urgent or Routine

Two Week wait Referral Process

Clinic and Scan

Central Web based referral (www.bncog.co.uk)

Symptomatic Patient

Secondary Care Referral

Emergency Surgery

Non Surgical Management

Key worker

Consideration of Surgical Management

Neurosurgical / Oncology clinic

Planned Surgery – Biopsy or Excision

Direct Admission

Oncological Treatment – Radiotherapy / Chemotherapy

Follow up and Surveillance

Further Surgery

Palliative Care

Oncology Network MDT

Psych Social Support – MSK OCCUPATIONAL THERAPY, PSYCHOLOGY, SPEECH & LANGUAGE THERAPY
APPENDIX 2

CLINICAL PROTOCOL FOR MANAGEMENT OF BRAIN TUMOURS – ASWCS

- Imaging diagnosis of Brain tumour at Secondary care centre (i.e. DGH)
- Patient clinically deteriorating.
  - Urgent referral to On call Neurosurgical Registrar at Bristol
  - Emergency medical management
  - Emergency surgery required
  - Urgent Referral to Neuro-Oncology MDT
  - Inform Oncology Neurosurgeons about the patient
  - Ensure fresh tissue is taken for genetic studies; sent from tissue for biopsy

- Imaging report suggests intrinsic primary Brain tumour – High grade
  - Referral to Neuro-Oncology MDT (www.bnog.co.uk)
  - Please confirm that patient has had an urgent MRI scan of the brain with contrast and a Diffusion-weighted imaging in suspected lymphoma or cerebral abscess
  - If patient is female ensure that a breast examination has been performed
  - Ensure that patient has an up-to-date CT scan of chest/lumbar/spine to look for a primary lesion or to assess current state of primary cancer
  - Please see pathway for Cerebral metastases

- Imaging report suggests Primary Brain tumour – Low grade
  - Imaging report suspicious for a metastatic brain lesion
  - Referral to Neuro-Oncology MDT (www.bnog.co.uk)
  - Urgent referral to On call Neurosurgical team** if patient clinically unwell or unstable
  - On Call Neurosurgical team to liaise directly with Oncology Neurosurgeons* for an urgent biopsy

- Imaging report suggests skull base meningioma / vestibular schwannoma / pituitary adenoma
  - Referral to Skull base MDT (www.bnog.co.uk)
  - Please see separate pathway for Vestibular schwannoma or pituitary adenoma

- Imaging report suspicious for a metastatic brain lesion
  - DO NOT START DEXAMETHASONE OR OTHER STEROIDS
  - Radiological appearance consistent with or suspicious for Cerebral lymphoma

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*Oncology Neurosurgeons: Mr Y Iyer (Clinical Lead), Venkat Iyer (bnog.co.uk), Mr G Malik (George.malik@nhs.uk), Mr K Aquilia (Krisann.aquilina@nhs.uk), Mr D Porter (David.porter@nhs.uk), Mr R Edwards (Richard.edwards@bnog.co.uk)

**On-Call Neurosurgical Team at Bristol: Contact Hospital switchboard on 0117901212 and speak to Neurosurgical Registrar on call (bleep 1748)
APPENDIX 3:
Pathway for Management of Low Grade Gliomas.

- New onset epilepsy
- Focal Neurological deficit
- Visual symptoms
- Headaches
- Neuro-endocrine disturbances

Emergency presentation to Secondary care

Presenting to Primary Care

Two week wait referral process

Brain Imaging requested by Primary care

Referral to Neurologist / Neurosurgeon / Paediatrician

Brain Imaging shows an intrinsic brain lesion presumed low grade

Further Specialised Studies:
- MRI Spectroscopy and Functional MRI
- PET scan
- NeuroPsychological assessment

Referral to Neuro-Oncology MDT (www.bng.co.uk)

Minimal clinical symptoms
- MRI spectroscopy shows low choline / creatine ratio
- Low metabolic activity on PET

Discussion with Patient and Family about Pros and cons of:
- Surgery to remove the lesion
- Image guided biopsy
- MRI and clinical surveillance

Lesion deep seated or unacceptable surgical risks

Image guided biopsy

Advise image guided surgical excision
- Use advanced surgical techniques like awake craniotomy and cortical mapping if required

Neuro-Oncology MDT Discussion with Histology

WHO GRADE 1
- FNT under Neurosurgeon and Neurologist
- Support from Key worker (Clinical Nurse specialist)
- Speech & Language therapy and Physiotherapy support

WHO GRADE 2
- Radiological and or Clinical Progression

MR surveillance and FNT under Neurosurgeon / Oncologist.

CANCER NETWORK MDT

WHO Grades 3 and 4
- Reconsider risks / benefits of surgical excision if only biopsy has been performed
- Please see pathway for high grade tumours

REFERRAL, DIAGNOSTIC AND MANAGEMENT PATHWAY FOR LOW GRADE INTRINSIC BRAIN TUMOURS IN ADULTS

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