GIG CYMRU NHS WALES

Pwyllgor Gwasanaethau Iechyd Arbenigol Cymru (PGIAC)

Welsh Health Specialised Services Committee (WHSSC)

Specialised Services Commissioning Policy: CP22

Stereotactic Radiosurgery for Adults, Teenagers and Young Adults (TYA)

June 2023

Version 7.0

PARCH - RESPECT

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GWELLA AC ARLOESI - IMPROVEMENT & INNOVATION

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Description	NHS Wales will routinely commission this specialised service in accordance with the criteria described in this policy
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Contents

Policy Statement

Welsh Health Specialised Services Committee (WHSSC) will commission Stereotactic Radiosurgery (SRS) for Adults, Teenagers and Young Adults (TYA) resident in Wales with vascular abnormalities and tumours in accordance with the revised criteria outlined in this document.

In creating this document WHSSC has reviewed this clinical condition and the options for its treatment. It has considered the place of this treatment in current clinical practice, whether scientific research has shown the treatment to be of benefit to patients, (including how any benefit is balanced against possible risks) and whether its use represents the best use of NHS resources.

Disclaimer

WHSSC assumes that healthcare professionals will use their clinical judgment, knowledge and expertise when deciding whether it is appropriate to apply this policy.

This policy may not be clinically appropriate for use in all situations and does not override the responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or their carer or guardian.

WHSSC disclaims any responsibility for damages arising out of the use or non-use of this policy.

1. Introduction

This updated policy has been developed for the planning and delivery of Stereotactic Radiosurgery (SRS) for Adults and Teenagers and Young Adults (TYA) resident in Wales. This service will only be commissioned by the Welsh Specialised Services Committee (WHSSC) and applies to residents of all seven Health Boards in Wales.

1.1 Plain Language Summary

Stereotactic Radiosurgery (SRS) is used to define a form of radiation therapy that allows the treatment of small lesions with pinpoint accuracy using three-dimensional 'stereotactic' imaging and the delivery of multiple thin radiation beams through an arc or sphere with the target lesion as the focal point.

SRS aims to destroy cells or to alter cell function whilst minimising the risk to adjacent normal tissue. It can be used to treat a range of conditions, including various types of tumour and vascular anomalies.

Stereotactic Radiotherapy (SRT) is a highly conformal fractionated radiotherapy treatment to a precisely delineated target volume, delivered using stereotactic localisation techniques. For the purposes of this policy SRT is delivered in 2 to 5 fractions. SRT delivered in greater than 5 fractions is covered by a separate policy[1]. A multidisciplinary team of neurosurgeons, neuro-oncologists and neuroradiologists will be involved in SRT case selection, treatment planning and delivery.

SRS and SRT can be provided using one of several technologies. This policy covers SRS/SRT whether delivered by Gamma Knife, Cyberknife or any other linear accelerator-based technology. Departments wishing to provide such service will have access to technologies with up-to-date dose planning. Cyberknife is commissioned in NHS England and is used in Birmingham. Velindre Hospital in Cardiff are looking at options to commission Cyberknife.

1.2 Aims and Objectives

This policy aims to define the commissioning position of WHSSC on the use of Stereotactic Radiosurgery (SRS) for people with vascular abnormalities and tumours.

The objectives of this policy are to:

- ensure commissioning for the use of SRS is evidence based
- ensure equitable access to SRS
- define criteria for people with vascular abnormalities and tumours to access treatment

[1] https://www.england.nhs.uk/wp-content/uploads/2013/06/d05-stere-radiosurg-stere-radiother.pdf

- improve outcomes for people with vascular abnormalities and tumours.

1.3 Epidemiology

There is evidence[2] to support the use of SRS for a wide range of cranial indications including arteriovenous malformations, acoustic neuroma, meningioma, pituitary adenoma, ocular melanoma, trigeminal neuralgia and selected sub-groups of patients with cerebral metastases.

The prevalence of these conditions varies in the UK from less than one per 100,000 population to up to 30 per 100,000 though not all cases will be suitable for treatment with SRS. For example, it is estimated that the prevalence of patients with cerebral metastases suitable for treatment with SRS is between 3 and 4 per 100,000[3].

Cerebral Arteriovenous Malformations (AVM)

This particular condition uses evidence from autopsy findings to establish prevalence rates within the population. Based on a prevalence of between 0.06% and 0.11% and the incidence based on 1 and 10 per 100,000 people per year. With a population in Wales of 3 million, the number of people diagnosed with an AVM is likely to be in the region of 1,800 to 3,300[2].

Cavernous Venous Malformations (CVM)

Based on the population of Wales of 3.125 million, it is expected that nine patients will be diagnosed with symptomatic cavernoma each year in Wales. Three patients would be expected to have lesions on the brainstem, thalamus and other surgical inaccessible sites and would be considered for SRS.[4]

Vestibular Schwannoma (acoustic neuroma)

The incidence rate of acoustic neuroma is 1.1 per 100,000 population. Based on a population for Wales of 3.125 million, this would indicate that there would be 33 people diagnosed with acoustic neuroma each year[5,6].

Meningioma

Data from eight population regional registries in England would indicate that the prevalence of Meningioma in adults aged 25-84 year is 2.4 per

[2] https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/09/mstr-specification-srs-srt-11-4-16.pdf
[3] https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/09/mstr-specification-srs-srt-11-4-16.pdf
[4] https://www.england.nhs.uk/wp-content/uploads/2013/09/d05-pg1.pdf
[5]https://www.engage.england.nhs.uk/consultation/ssc-area-d/supporting_documents/d52policy.pdf
[6] https://www.nhs.uk/conditions/acoustic-neuroma/

100,000 person years. The incidence in children is considerably less than this.[7]

Pituitary Adenoma

Autopsy studies suggest that pituitary tumours are found in almost 10% of the population. Non-functioning pituitary adenoma have a prevalence rate of 22.5 per 100,000 population.[8]

For functioning and non-functioning pituitary adenoma, approximately 25 Welsh patients per year may be suitable for SRS (population size used in the calculation for Wales - 3.125 million)[9].

Cushing Disease and Acromegaly (Growth Hormone secreting pituitary adenoma) are rarer conditions and have higher morbidity and mortality rates.

Cerebral Metastases

NHS England have estimated that there are 15,000 patients each year that are diagnosed with cerebral metastases based on a population of 50 million.[10]

1.4 Current Treatment

A four tier clinical model (see Table 1) has been developed by NHS England and is based on established patient pathways and the complexity and rarity of the clinical indications that can be treated with Stereotactic Radiosurgery (SRS)/Stereotactic Radiotherapy (SRT). The clinical model has not been fully adopted in Wales and the service currently only manages patients identified in Tier 1 to Tier 3.

Services which deliver Tier 1 and Tier 2 activity for Adults, Teenage and Young Adults (TYA) are based on existing neurosciences networks. The networks should have a population footprint of at least 2 million in order to deliver a minimum of 100 SRS/SRT cases per year, per delivery site and treatment platform[11].

[7] http://ctuhb-intranet.cymru.nhs.uk/Pages/Default.aspx
[8] https://www.england.nhs.uk/wp-content/uploads/2018/04/stereotactic-radiosurgery-and-radiotherapy-for-pituitary-adenomas.pdf
[9] Welsh Government | Mid year estimates of the population
[10] https://www.england.nhs.uk/wp-content/uploads/2013/04/d05-p-d.pdf
[11] https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/09/mstr-specification-srs-srt-11-4-16.pdf

Table 1: A four tier clinical model

Tier 1 activity (neuro-oncology)	Deemed to be of lower complexity and able to be carried out in most, larger co-located (same city or as part of a broader strategic alliance) neurosurgery & (neuro) clinical oncology units to ensure integrated working between the full team. This includes cerebral metastases and non-skull base meningiomas and follows the patient pathway for patients via a regional adult neuroscience (neuro-oncology) MDT and in conjunction with TYA MDTs and pathways.
Tier 2 activity (skull-base & pituitary)	Includes tumours such as Vestibular Schwannoma, meningioma, etc. requiring co-location with a full skull-base team and following the patient pathway via a regional (adult) skull-base MDT in a neurosurgical centre. Pituitary (adult) indications require full pituitary MDT. Together with tier one this should allow >100 procedures per year, per delivery site and treatment platform.
Tier 3 activity (Vascular)	Includes cases such as Cerebral Arteriovenous Malformations and cavernomas. Requiring co-location with a full vascular MDT and full imaging support services such as Digital Subtraction Angiography.
Tier 4 activity (other non-tumour indications)	Includes trigeminal neuralgia. Lower volume; best carried out in fewer centres, enabling appropriate staffing skill-mix, MDT support, co-located services and appropriate equipment. Requires co-location of relevant MDTs – functional, epilepsy, pain services.

The conditions for which patients are typically considered for SRS include:

- Vascular anomalies
- Vestibular Schwannoma[12] (Acoustic neuromas)
- Meningiomas

More recent indications include:

- Cerebral metastases
- Trigeminal neuralgia[13] (a nerve disorder in the face[14])

Patients with vascular anomalies may be treated either by neurosurgery or by neuroradiological intervention. For deeper inaccessible anomalies that must be treated to prevent stroke, SRS is essential. Acoustic neuromas and

[12] Acoustic neuroma (vestibular schwannoma) - NHS
[13] Stereotactic radiosurgery for trigeminal neuralgia using the gamma knife | Guidance and guidelines | NICE
[14] Stereotactic Radiosurgery (SRS) | Stereotactic Body Radiotherapy (SBRT)

meningiomas cannot be left untreated. The choice of treatment modality depends on tumour size, contact with adjacent brain structures and judgements on the relative requirements for surgery, standard radiotherapy or SRS.

Patients with Trigeminal Neuralgia who has failed all other treatment locally may be treated specialist at the Sheffield Radiosurgery clinic.

The Skull Base multidisciplinary team (MDT) is made up of the following group of experts that are involved in SRS case selection, treatment planning and delivery[15].

Skull Base MDT:

- ENT Consultant
- Neurosurgery Consultant
- Ophthalmic Consultant
- Maxillofacial Surgeon
- Clinical Oncology Consultant
- Radiology Consultant
- Audiovestibular Medicine Consultant
- Skull Base Coordinator

There are several types of SRS:

Type of Stereotactic Radiosurgery	WHSSC Commissioning Position
Gamma Knife	Commissioned
Any other linear accelerator-based technology (LINAC)	Commissioned
Cyber knife	Not Commissioned

Centres providing these services should have access to up to date technologies with a dose planning facility.

The decision to use single or multiple treatments using LINAC-based SRS is based on the type and location of the lesion being treated.

1.5 What NHS Wales has decided

WHSSC has carefully reviewed the evidence of Stereotactic Radiosurgery for vascular abnormalities and tumours. We have concluded that there is enough evidence to fund Stereotactic Radiosurgery (SRS/SRT) within the

[15] https://www.england.nhs.uk/wp-content/uploads/2013/04/d05-p-d.pdf

criteria set out in section 2. This policy commissions the SRS service for Adults, Teenagers and Young Adults (TYA).

1.6 Relationship with other documents

This document should be read in conjunction with the following documents:

- **NHS Wales**
  - All Wales Policy: Making Decisions in Individual Patient Funding requests (IPFR).

- **National Institute of Health and Care Excellence (NICE) guidance**
  - Stereotactic radiosurgery for trigeminal neuralgia using the gamma knife. Interventional Procedures Guidance (IPG85), August 2004.
  - Improving outcomes for people with brain and other central nervous system tumours, NICE Cancer service guideline [CSG10], August 2006.
  - Brain tumours (primary) and brain metastases in adults, NICE Guideline, (NG99), July 2018.

- **Relevant NHS England policies**
  - Stereotactic Radiosurgery and Radiotherapy Services – needs assessment and service review. Consultation Guide 02469, November 2014
  - NHS England D05 Stereotactic Radiosurgery, NHS England » D05. Stereotactic Radiosurgery
  - Clinical Commissioning Policy: Stereotactic Radiosurgery/ Stereotactic Radiotherapy for Arteriovenous Malformations (AVM), April 2013,NHSSCB/D05/P/c
  - Clinical Commissioning Policy: Stereotactic Radiosurgery/ Stereotactic Radiotherapy for Cavernous Venous Malformations
  - (CVM), September 2013, NHS EnglandD05/P/g
  - Clinical Commissioning Policy: Stereotactic Radiosurgery/ Stereotactic Radiotherapy for Meningioma, September 2013, NHS EnglandD05/P/g
  - Clinical Commissioning Policy: Stereotactic radiosurgery/ radiotherapy for the treatment of pituitary adenomas (all ages) First published: April 2018

- Clinical Commissioning Policy: Stereotactic Radiosurgery/ Stereotactic Radiotherapy for Glomus Tumours (skull base paragangliomas, glomus jugulare tumours, September 2013, NHS EnglandD05/P/f

- Clinical Commissioning Policy: Stereotactic Radiosurgery/ Stereotactic Radiotherapy for Cerebral Metastases , April 2013, NHS SCB/D05/P/d

- Clinical Commissioning Policy: Stereotactic Radiosurgery/ Stereotactic Radiotherapy for Trigeminal Neuralgia , April 2013, NHS SCB/D05/P/b

2. Criteria for Commissioning

The Welsh Health Specialised Services Committee approve funding of Stereotactic Radiosurgery for Adults and Teenagers and Young Adults (TYA) with vascular abnormalities and tumours in-line with the revised criteria identified in the policy.

WHSSC will not consider referrals for SRS:

- unless surgery, fractionated stereotactic radiotherapy, and interventional neuroradiology have been excluded on clinical grounds by a multidisciplinary team.
- where the decision on treatment modality has been based solely on patient preference.

2.1 Inclusion Criteria

For routine funding of SRS/SRT **all** of the following criteria need to be met:

- All patients should have undergone prior assessment by the local multidisciplinary team (MDT). The selection of patients for SRS/SRT should be made by an MDT with an understanding of the systemic and neurological disease processes and must include consideration of surgical treatment if appropriate.

- Patients with Trigeminal Neuralgia who has failed all other treatment locally may be treated by a specialist at the Sheffield Radiosurgery clinic.

- In centres where SRS/SRT is delivered, referral may be made directly to the SRS MDT. In centres where there is no local SRS service, referral should be initially to the local neuro-science MDT, who can decide on the appropriateness of onward referral to an agreed SRS centre.

- All patients being considered for SRS /SRT should be discussed by the specialist MDT at the stereotactic treatment centre and must have both specialist neurosurgery and specialist oncology input. SRS/SRT should not be recommended without the collective agreement of the MDT to ensure that the criteria regarding systemic disease and prognosis are fulfilled and that there is clarity about the place of SRS/SRT in the patient's overall management plan.

WHSSC commissions SRS for the following conditions and specified criteria:

- **Arteriovenous Malformations (AVM)[16]**

There are number of different grading systems for the selection of patients with AVM's. This policy has included the Spetzler Martin (SM) assessment tool (Appendix 1). Table 1, grades AVM's into five categories but there is an option to use Table 2 which reduces the classification grades from five to three.

  - Patients to receive prior assessment by the Neurovascular Multi-disciplinary team (MDT)
  - Compact nidus
  - Stereotactic radiotherapy may be most appropriate for AVMs >4cm diameter or volume of >10cm^3 **or** where the radiation dose to eloquent brain tissue is above levels of tolerance

- **Cavernous Venous Malformations (CVM)[17]**
  - Patients to receive prior assessment by the Neurovascular Multi-disciplinary team (MDT)
  - less than 2.5cm diameter

  and
  - Located in surgically high-risk territory – brain stem, midbrain, thalamus, basal ganglia.
  - Risk of functional disability will be increased with surgery.

  or
  - The patient is medically unfit for surgery.

- **Vestibular Schwannoma (Acoustic Neuromas)**
  - Newly diagnosed.
  - Residual after microsurgery.
  - Recurrent.
  - Less than 3.5cm extra canalicular diameter with no clinical brainstem compression.
  - Stereotactic radiotherapy could be considered where the tumour is larger than 2.5cm in extracanilicular diameter and no clinical signs of brainstem compression.

- **Meningioma[18]**
  - Patients to receive prior assessment in the Neuro oncology Multi-disciplinary team (MDT) or skull-based MDT.
  - It is appropriate for clinicians to consider SRS for a small subset of patients with meningioma that are in a difficult and

[16] https://www.england.nhs.uk/wp-content/uploads/2013/10/d05-p-c.pdf
[17] https://www.england.nhs.uk/wp-content/uploads/2013/09/d05-pg1.pdf
[18] https://www.england.nhs.uk/wp-content/uploads/2013/09/d05-pe1.pdf

unacceptable high-risk anatomical situation where there is evidence of effectiveness for SRS, and where conventional surgery is contra-indicated or the risk of functional disability would be increased through surgery.

- High-risk site – invasion of cavernous sinus.
- Other venous sinuses and intraventricular site.
- Less than 4cm diameter (less than 3.5cm in the posterior fossa).
- Suitable shape.
- Risk of functional disability will be increased with surgery.

- **Pituitary Adenomas**[19] (a single fraction of stereotactic treatment)
  - Patients with residual or recurrent non-functioning pituitary adenomas that continue to grow following surgical treatment and require further intervention.
  - Patients with functioning pituitary adenomas with raised hormone levels that have not adequately responded to medical and/or surgical treatment and where further treatment is indicated.
  - Patients with residual pituitary adenomas who are unsuitable for further surgery who have only a small gap to the optic apparatus where future growth would preclude use of SRS.
  - Patients with non-functioning pituitary adenomas or functioning pituitary adenomas who are medically unable to undergo surgery and where medical treatment is not sufficiently effective and further treatment is indicated.
  - Patients to receive prior assessment in the Pituitary MDT Multi-disciplinary team (MDT) The selection of patients for SRS/SRT must be made by an MDT with an understanding of the systemic and neurological disease processes and must include consideration of surgical treatment if appropriate.

- **Other Intracranial Tumours**
  - Single well circumscribed high or low grade.
  - Tumour, recurrent or residual after surgery.
  - Maximum diameter of mass less than 3.5cm.
  - Karnofsky Performance Status equal to or greater than 70%.

- **Cerebral Metastases**[20]
  - Size of the metastases.

[19] https://www.england.nhs.uk/wp-content/uploads/2018/04/stereotactic-radiosurgery-and-radiotherapy-for-pituitary-adenomas.pdf
[20] https://www.england.nhs.uk/wp-content/uploads/2013/04/d05-p-d.pdf

- Position of the metastases.
- Number of Cerebral metastases.
- Karnofsky Performance Status (KPS) ≥ 70.
- A diagnosis of cancer has been established and there must be absent or controllable primary disease.
- No individual tumour has a diameter in excess of 3cm.
- Pre-treatment scans must not show a tumour volume of 20cc. In the case of multiple metastases the total tumour volume must not exceed 20cc. This will usually mean that no individual tumour has a diameter in excess of 3cm.
- Prognosis and patients life expectancy is greater than 6 months.
- Pressure symptoms which would be best relieved by surgery are excluded.
- The MDT has confirmed that the patient's life expectancy from extracranial disease is expected to be greater than 6 months

- **Repeat treatment of new lesions**[21]

  Where SRS has been effective and has been used previously, patients with new lesions can be treated again providing they meet the following criteria:
  - A period of three months has elapsed since the last SRS treatment and all of the criteria above has been met
  - The disease specific cancer MDT has reviewed the patient and confirmed the appropriateness of further SRS

- **Repeat treatment of lesions previously treated**
  - A period of six months has elapsed since the last SRS treatment and all of the criteria above has been met.
  - The disease specific cancer MDT has reviewed the patient and confirmed the appropriateness of further SRS.

- **Trigeminal Neuralgia**
  - Patients with Trigeminal Neuralgia who has failed all other treatment locally may be treated by a specialist at the Sheffield Radiosurgery clinic.

2.2 Exclusion Criteria

Referral under this policy does not cover patients with the following diagnoses:

[21] https://www.england.nhs.uk/wp-content/uploads/2013/04/d05-p-d.pdf

- Cerebral Metastases[22]
  - Karnofsky Performance Status (KPS) <70 **or**
  - Estimated survival less than 6 months.
  - Pressure symptoms which could be relieved by surgery should be excluded.

- Pituitary Adenomas

  With the following criteria:
  - Non-functioning pituitary adenomas which have shown no growth on serial imaging.
  - Larger or diffuse lesions which could be treated with conventional fractionated external beam radiotherapy.
  - Lesions which are too close to the optic apparatus or brainstem to allow organ at risk preservation doses using SRS or SRT treatment.

- Ependymoma, haemangioblastoma, pilocytic astrocytoma and trigeminal schwannoma

- Adults with Parkinsons tremor and familial essential tremor

WHSSC will not consider referrals for SRS unless surgery, fractionated stereotactic radiotherapy, and interventional neuroradiology have been excluded on clinical grounds by a multidisciplinary team.

WHSSC will not consider referrals for SRS where the decision on treatment modality has been based solely on patient preference.

In exceptional circumstances, where the referring clinicians believe a patient represents a special case, an application may be made for consideration of individual patient funding in accordance with the All Wales Policy for Making Decisions on Individual Patient Funding Requests.

2.3 Continuation of Treatment

Healthcare professionals are expected to review a patient's health at regular intervals to ensure they are demonstrating an improvement to their health due to the treatment being given.

If no improvement to a patient's health has been recorded then clinical judgement on the continuation of treatment must be made by the treating healthcare professional.

[22] https://www.england.nhs.uk/wp-content/uploads/2013/04/d05-p-d.pdf

2.4 Acceptance Criteria

The service outlined in this specification is for patients ordinarily resident in Wales, or otherwise the commissioning responsibility of the NHS in Wales. This excludes patients who whilst resident in Wales, are registered with a GP practice in England, but includes patients resident in England who are registered with a GP Practice in Wales.

2.5 Patient Pathway (Annex i)

For patients with brain metastases, the decision to refer to a Neurosciences Brain and Central Nervous System (CNS) MDT will be made by their disease-specialist MDT. This team will consider the role of aggressive management of brain metastases with SRS/SRT, or surgery, within the patient's overall oncological management. In cases where patients are being referred for indications others than brain metastases, the decision to offer SRS/SRT is made by the appropriate sub-specialist MDT e.g. the base of the skull MDT or the neurovascular MDT.

Patients that have either a neurosciences functional condition, or intracranial tumour, are then referred to a tertiary centre, to a neurosciences MDT. The neurosciences MDT will consider whether conservative management, surgery, or SRS/SRT is the optimum treatment option for the patient at that stage of their condition, whether that be for functional conditions or for benign and malignant tumours.

The aim of MDT assessments is:

- to ensure that all forms of treatment are considered, and to advise of the next steps in a patient's treatment plan, which may include:
    - SRS/SRT
    - Surgery
    - Chemotherapy
    - Conservative management **or** palliative care
- to ensure that SRS/SRT, if recommended, is the correct choice for the individual patient at the current stage of their condition
- to facilitate referral to the SRS/SRT MDT, to ensure that SRS/SRT can be delivered safely[23].

2.6 Designated Centre

South, Mid and West Wales - Gatekeeper
Cardiff & Vale University Health Board
University Hospital of Wales
Heath Park
Cardiff
CF14 4XW

[23] https://www.england.nhs.uk/wp-content/uploads/2014/11/srs-srt-nds-assess-serv-rev.pdf

Velindre Cancer Centre University Health Board
Velindre Road
Cardiff
CF14 2TL

North Wales
Walton Centre NHS Foundation Trust
Lower Land
Fazakerley
Liverpool
L9 7LJ

North and South Wales (Complex Arteriovenous Malformations - AVM cases)
Sheffield Teaching Hospitals Foundation Trust
National Centre for Stereotactic Radiosurgery
Royal Hallamshire Hospital
Glossop Road
Sheffield
S10 2JF

2.7 Exceptions

If the patient does not meet the criteria for treatment as outlined in this policy, an Individual Patient Funding Request (IPFR) can be submitted for consideration in line with the All Wales Policy: Making Decisions on Individual Patient Funding Requests. The request will then be considered by the All Wales IPFR Panel.

If the patient wishes to be referred to a provider outside of the agreed pathway, and IPFR should be submitted.

Further information on making IPFR requests can be found at: Welsh Health Specialised Services Committee (WHSSC) | Individual Patient Funding Requests

2.8 Clinical Outcome and Quality Measures

The Provider must work to written quality standards and provide monitoring information to the lead commissioner and to the British Skull Base Society. Refer to the national standards outlined in the NHS England document, page 8 – Stereotactic Radiosurgery and Stereotactic Radiotherapy[24,25].

Arteriovenous Malformations (AVM)

The following data identified within the NHS England Commissioning Policy is required for each patient, as part of the clinical outcomes and quality measures for this condition:

- Patient age
- Location – supratentorial – superficial/deep; posterior fossa – cerebellum/brainstem
- SM factors – size (diameter/volume), venous drainage (deep/superficial); eloquent brain (yes/no)
- Obliteration rate – angio/MR/CT angio confirmed and time of imaging
- Encompassing isodose.
- Post-treatment neurological complications.

Cavernous Venous Malformations (CVM)

- Treatment factors
- History of previous haemorrhages
- Post Radiosurgery complications (Haemorrhage events)

[24] NHS England » D05. Stereotactic Radiosurgery
[25] Improving outcomes for people with brain and other central nervous system tumours | Guidance and guidelines | NICE

Vestibular Schwannoma (acoustic neuroma)

The audit requirements for each patient are as follows:

- Size of the tumour
- Presence of brain stem compression
- Pre and post hearing levels
- Treatment complications facial/trigeminal)
- Hydrocephalus Changes.

Meningioma

- Treatment factors
- Post Radiosurgery complications
- Post treatment volumetric assessment of tumour (e.g. 6 months, annually for 5 years and thereafter every 2 years).

Cerebral Metastases

The audit requirements for each patient are as follow:

- Size of largest tumour
- Number of tumours
- Estimated total tumour volume
- Karnofsky Performance status
- Dose
- Fractionation
- Treatment outcome.

The centre must enable the patient's, carer's and advocate's informed participation and to be able to demonstrate this. Provision should be made for patients with communication difficulties and for teenage and young adults.

2.9 Responsibilities

Clinicians wishing to refer patients for SRS should refer through the tertiary referral management arrangements at the designated neurosurgery centres.

Referrers should:

- Inform the patient that this treatment is not routinely funded outside the criteria in this policy, **and**
- Refer via the agreed pathway.

Clinician considering treatment should:

- Discuss all the alternative treatment with the patient
- Advise the patient of any side effect and risks of the potential treatment

- Inform the patient that treatment is not routinely funded outside of the criteria in the policy, and
- Confirm that there is contractual agreement with WHSSC for the treatment.

In all other circumstances submit an IPFR request.

For North Wales, all referrals should be submitted to the neurosurgical service at the Walton Centre Foundation NHS Trust.

For South Wales, all referrals should be submitted to the neurosurgical service at Cardiff and Vale University Health Board.

3. Evidence

WHSSC is committed to regularly reviewing and updating all of its commissioning policies based upon the best available evidence of both clinical and cost effectiveness.

3.1 References

The evidence to support the recommendations within the policy are derived from the documents listed in 1.6.

3.2 Date of Review

This document is scheduled for review in 2023 where we will check if any new evidence is available. If no new evidence or intervention is available the review date will be progressed.

If an update is carried out the policy will remain extant until the revised policy is published.

4. Equality Impact and Assessment

The Equality Impact Assessment (EQIA) process has been developed to help promote fair and equal treatment in the delivery of health services. It aims to enable Welsh Health Specialised Services Committee to identify and eliminate detrimental treatment caused by the adverse impact of health service policies upon groups and individuals for reasons of race, gender re-assignment, disability, sex, sexual orientation, age, religion and belief, marriage and civil partnership, pregnancy and maternity and language (Welsh).

The Assessment demonstrates the policy is robust and there is no potential for discrimination or adverse impact. All opportunities to promote equality have been taken.

5. Putting Things Right

5.1 Raising a Concern

Whilst every effort has been made to ensure that decisions made under this policy are robust and appropriate for the patient group, it is acknowledged that there may be occasions when the patient or their representative are not happy with decisions made or the treatment provided.

The patient or their representative should be guided by the clinician, or the member of NHS staff with whom the concern is raised, to the appropriate arrangements for management of their concern.

If a patient or their representative is unhappy with the care provided during the treatment or the clinical decision to withdraw treatment provided under this policy, the patient and/or their representative should be guided to the LHB for NHS Putting Things Right. For services provided outside NHS Wales the patient or their representative should be guided to the NHS Trust Concerns Procedure, with a copy of the concern being sent to WHSSC.

5.2 Individual Patient Funding Request (IPFR)

If the patient does not meet the criteria for treatment as outlined in this policy, an Individual Patient Funding Request (IPFR) can be submitted for consideration in line with the All Wales Policy: Making Decisions on Individual Patient Funding Requests. The request will then be considered by the All Wales IPFR Panel.

If an IPFR is declined by the Panel, a patient and/or their NHS clinician has the right to request information about how the decision was reached. If the patient and their NHS clinician feel the process has not been followed in accordance with this policy, arrangements can be made for an independent review of the process to be undertaken by the patient's Local Health Board. The ground for the review, which are detailed in the All Wales Policy: Making Decisions on Individual Patient Funding Requests (IPFR), must be clearly stated

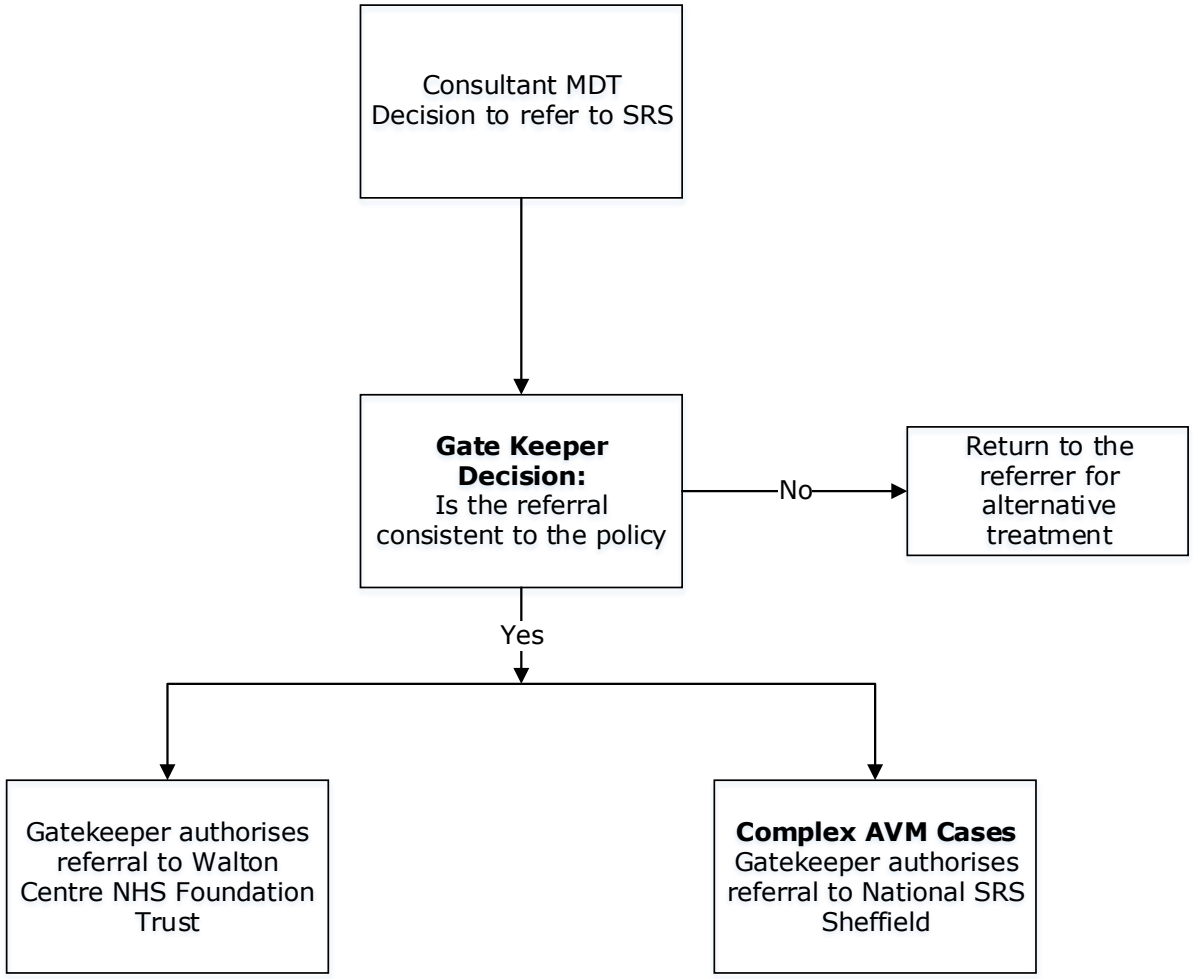
If the patient wishes to be referred to a provider outside of the agreed pathway, and IPFR should be submitted.

Further information on making IPFR requests can be found at: Welsh Health Specialised Services Committee (WHSSC) | Individual Patient Funding Requests

Annex i: Patient Pathway

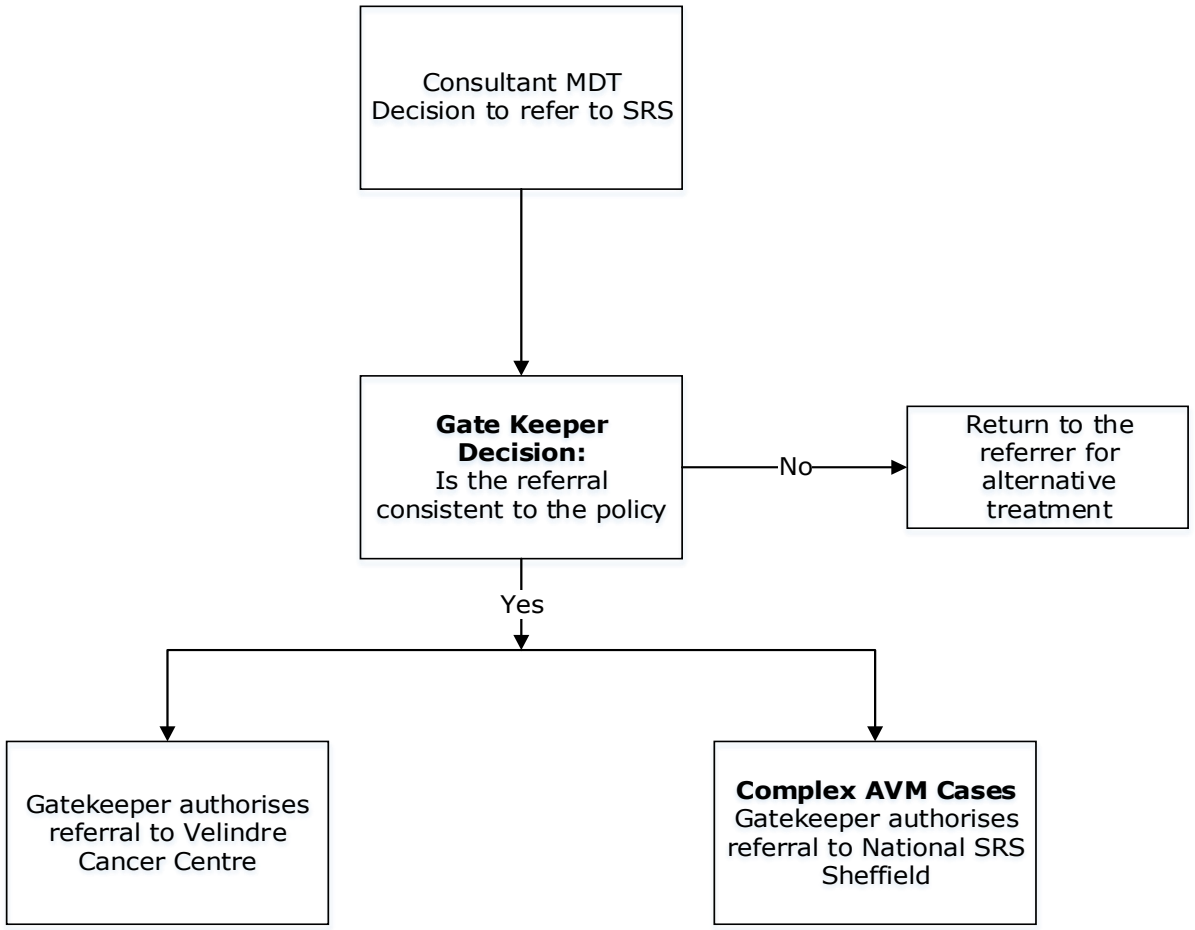
Adult Stereotactic Radiosurgery (SRS)

North Wales



Adult Stereotactic Radiosurgery (SRS)

South Wales



Annex ii Checklist

Specialised Services Commissioning Policy: CP22 - Stereotactic Radiosurgery

The following checklist should be completed for every patient to whom the policy applies:

- Where the patient meet the criteria **and** the procedure is included in the contract **and** the referral is received by an agreed centre, the form should be completed and retained by the receiving centre for audit purposes.
- The patient meets the criteria **and** is received at an agreed centre, but the procedure is not included in the contract. The checklist must be completed and submitted to WHSSC for prior approval to treatment.
- The patient meets the criteria but wishes to be referred to a non contracted provider. An Individual Patient Funding Request (IPFR) Form must be completed and submitted to WHSSC for consideration.
- If the patient does not meet the criteria for treatment as outlined in this policy, an Individual Patient Funding Request (IPFR) can be submitted for consideration in line with the All Wales Policy: Making Decisions on Individual Patient Funding Requests. The request will then be considered by the All Wales IPFR Panel.

Annex iii Codes

Code Category	Code	Description
OPCS 4	A03	Stereotactic ablation of tissue of brain
HRG	AA70Z	Stereotactic Intracranial Radiosurgery for Arteriovenous Malformations
	AA71A	Stereotactic Intracranial Radiosurgery, for Neoplasms or Other Neurological Conditions, with CC Score 4+
	AA71B	Stereotactic Intracranial Radiosurgery, for Neoplasms or Other Neurological Conditions, with CC Score 0-3

Annex iv Abbreviations and Glossary

Abbreviations

IPFR Individual Patient Funding Request

WHSSC Welsh Health Specialised Services

SRS Stereotactic Radiosurgery

SRT Stereotactic Radiotherapy

MDT Multi disciplinary Team

NICE National Institute for Health and Clinical Excellence

KPS Karnofsky Performance Status

TYA Teenage and Young Adults

RPA Recursive partitioning analysis

Glossary

Individual Patient Funding Request (IPFR)
An IPFR is a request to Welsh Health Specialised Services Committee (WHSSC) to fund an intervention, device or treatment for patients that fall outside the range of services and treatments routinely provided across Wales.

Welsh Health Specialised Services Committee (WHSSC)
WHSSC is a joint committee of the seven local health boards in Wales. The purpose of WHSSC is to ensure that the population of Wales has fair and equitable access to the full range of Specialised Services and Tertiary Services. WHSSC ensures that specialised services are commissioned from providers that have the appropriate experience and expertise. They ensure that these providers are able to provide a robust, high quality and sustainable services, which are safe for patients and are cost effective for NHS Wales.

Karnofsky Performance Status (KPS) Scale
The Karnofsky Performance Status (KPS) scale was developed to evaluate the usefulness of chemotherapeutic agents for cancer. It represents a patients' functional ability to do normal activities, their ability to do active work and their need for assistance. The KPS score has been used to inform clinical decisions, as a criterion for inclusion or stratification in randomised trials and as a measure of response to treatment. It may also be considered to be a measure of a patient's quality of life. The scale for assessment of KPS is given in Appendix 2.

Gamma Knife Treatment - Commissioned
The Gamma Knife consists of 201 sources of radioactive cobalt, which are channelled into the centre of a helmet in which the patient's head is placed. Gamma knife treatment requires only one treatment.

LINAC - Commissioned
LINAC uses high-energy, narrowly focused beams of x-rays that are emitted by a single source, which rotates slowly around the patient's head. LINAC based SRS may be delivered either as a single treatment or through multiple treatments (multifractionated) to increase safety and effectiveness.

Cyber knife Treatment – Not Commissioned
A Robotic Radiosurgery System that is non-invasive option for the treatment of cancerous and non-cancerous tumors anywhere in the body. The treatment delivers beams of high dose radiation to tumors with extreme accuracy.[26]

Arteriovenous Malformations (AVM)
Cerebral AVM's are a network of arteries and veins which are generally present at birth and occur mainly in the brain. These arteries and veins are not properly connected by capillaries and when high blood pressure flows through the arteries and into the veins, there is a risk of haemorrhage and subsequent related morbidity with the possibility in some cases, mortality.

Cavernous Venous Malformations (CVM)
These are blood filled clusters of abnormal vessels in the brain and spinal cord. They can also be described as cavernous angiomas, cavernous hemangiomas and cavernomas.

Vestibular Schwannoma (acoustic neuroma)
An acoustic neuroma is a non-cancerous (benign) brain tumour. It is a slow growing tumour which grows on the nerve associated with hearing and balance and does not spread to other parts of the body.

Meningioma
A meningioma is a tumour of the meninges (thin layers of tissue that cover and protect the brain and spinal cord). They usually occur in adults and the most common site is the cerebral hemispheres of the brain.

[26] Definition of Cyber knife | New Word Suggestion | Collins Dictionary

Pituitary Adenoma

Functioning Adenoma[27]

This is a pituitary tumour which secretes a hormone in excess which causes a clinical condition called Cushing's Disease and Acromegaly.

Non Functioning Adenoma

This is a pituitary tumour that does not secrete hormone. The growth of these tumours causes pressure on other structures within the brain e.g. optic nerve and the pituitary gland.

Cerebral Metastases

Cerebral metastases are cancerous tumours in the brain that have spread from the primary cancer site located outside of the brain for example lung, breast, kidney and colon.

[27] https://www.england.nhs.uk/wp-content/uploads/2018/04/stereotactic-radiosurgery-and-radiotherapy-for-pituitary-adenomas.pdf

Appendix 1: Spetzler-Martin grading system

Table 1: Spetzler-Martin Grading System[28]

Characteristic	Narrative	No. points assigned
Size:		
	Small (maximum diameter <3cm)	1
	Medium (maximum diameter 3-6cm)	2
	Large (maximum diameter >6cm)	3
Location:		
	Non-eloquent site	0
	Sensorimotor, language or visual cortex; hypothalamus or 1 thalamus; internal capsule; brain stem; cerebellar peduncles; cerebellar nuclei	1
Pattern of venous drainage:		
	Superficial only	0
	Deep	1

The Spetzler-Martin scale is commonly used and grades AVMs according to their size, location and type of venous drainage and the weighting for the assignment of grades is shown above. Points are allocated depending on the size, location and pattern of venous drainage and the number of points determines the grade (1 point = grade I, 2 points = grade II etc.).

These grades are used to inform treatment decisions, with patients of lower grade being the best candidates for surgical intervention.

Table 2: Three-tier classification of cerebral arteriovenous malformations

Class	Spetzler-Martin grade	Management
A	I, II	Surgical resection
B	III	Multimodality treatment
C	IV,V *	No treatment

**Exceptions for treatment of Class C AVMs include recurrent haemorrhages, progressive neurological deficits, steal-related symptoms, and AVM-related aneurysms*.

[28] https://www.england.nhs.uk/wp-content/uploads/2013/10/d05-p-c.pdf

Appendix 2: Karnofsky Performance Status Scale

Condition Performance	Status %	Comments
A). Able to carry on normal activity and to work. No special care is needed.	100	Normal. No complaints. No evidence of disease.
	90	Able to carry on normal activity. Minor signs or symptoms of disease.
	80	Normal activity with effort. Some signs or symptoms of disease.
B). Unable to work. Able to live at home, care for most personal needs. A varying degree of assistance is needed.	70	Care of self. Unable to carry on normal activity or to do active work.
	60	Requires occasional assistance, but is able to care for most needs.
	50	Requires considerable assistance and frequent medical care.
C). Unable to care for self. Requires equivalent of institutional or hospital care. Disease may be progressing rapidly.	40	Disabled. Requires special care and assistance.
	30	Severely disabled. Hospitalization is indicated although death not imminent.
	20	Hospitalization necessary, very sick active supportive treatment necessary.
	10	Moribund. Fatal processes progressing rapidly.
	0	Dead.