

EXAMPLE - Short Business Case Paper

Intraoperative mapping via an awake craniotomy

This document is an anonymised example of a successful business case submitted to fund an SLT role within awake craniotomy. It can be used as a starting point in services developing their own specific business case.

Adequate funding for SLT roles in awake craniotomy is essential. This anonymised business case sets out the rational for a dedicated SLT for awake craniotomy. It can be used as a starting point for members to develop their own business cases.

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1. Purpose

To obtain investment to provide Speech and Language Therapy (SLT) services to patients who have a brain tumour including, but not confined to, support during awake surgery.

2. Context

- A recent meta-analysis of over 41,000 patients with aggressive brain cancer concluded that removing all of the visible disease is associated with improved and sustained survival (Brown et al, 2016).
- However, clinical outcomes are adversely affected if new deficits in movement and/or communication are caused during the operation (McGirt et al, 2009).
- Accordingly, NICE guidance NG99 states “Involve other specialists as appropriate, such as neuropsychologists and **speech and language therapists**, before, during and after awake craniotomy.” (NICE, 2021, 1.2.42)
- SLT input is required before, during and after surgery and SLT support during surgery must be part of a specialist surgeon-led service that incorporates advance intra-operative monitoring, neuro-navigation and surgical techniques.
- This trust has made substantial long-term investment in neurosurgical technology that allows more tumour to be removed more safely.
- However, investment in SLT lags behind, which means that protecting and preserving a patient’s ability to communicate is compromised. Importantly, the ability of this hospital to provide high quality rehabilitation after treatment is also compromised.
- Communication difficulties impact on a patient’s quality of life and their ability to return to their premorbid activities which may include work. They require an increased amount of rehabilitation and ongoing care in the community which has a long-term effect on both health and social care resources.
- The SLT has a unique role in the assessment, and management of brain cancer patients because they are able to identify (if the patient is assessed before surgery) subtle changes intraoperatively that are the first warning signs of possible damage to the patient’s language function.
- SLT is part of a wider group of allied health professionals that can provide substantial support for brain cancer patients before, during and after their treatment. These include Occupational Therapy, Physiotherapy and

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Neuropsychology. Therefore, investment in SLT should be regarded as a first step in developing a more holistic programme of support for patients and carers.

3. Current hospital position

In the period February 2018 – October 2019, this hospital carried out a total of 74 neurosurgical cases involved neuromonitoring, with 14 cases being performed in 2018 & 60 cases in 2019. This rapid increase likely represents accommodation of previously unmet need. Of these cases 33% involved awake surgery on the left brain (dominant for speech) with or without SLT support (Sources: digital records & internal SLT audit). SLT support was accessed on a case-by-case basis by the neurosurgical team and subsequently reimbursed, no formalised or substantive funding streams for SLT were created as the surgical intervention grew exponentially.

The data above is similar to other UK neurosurgical centres including Addenbrookes Hospital Cambridge, Leeds Royal Infirmary, St George's Hospital, King's College Hospital and Queen Elizabeth Hospital in Glasgow. For example, St. George's are carrying out the procedure on 52 patients a year with SLT support.

In September 2018, this trust transitioned from an emergency-based clinical pathway for brain cancer patients to an urgent outpatient-based service. This has streamlined workflow through the neuro-oncology MDT into a dedicated specialist multidisciplinary clinic where patients can be assessed and treatment planned. The impact of this pathway change has been to reduce time to surgery, increase day-of-surgery admissions and reduce post-operative length of stay (currently an average of 4.5 days).

There is currently no SLT service for patients who undergo awake craniotomies. Within the neurosurgical speciality Speech and Language therapists within this trust are funded to provide communication, eating, drinking and swallowing assessments and rehabilitation to inpatients who present with neuro-trauma or undergo surgical or oncological treatments only. This does not include awake procedures. If patients remain under the care of a consultant in this trust and live within this area, the SLT service can provide outpatient rehabilitation on a non-urgent, non-intensive basis when patients leave the hospital. The inpatient funding equates to two band six WTE speech and language therapists. There are no funding or personnel available to provide pre, intra or post operative eating,

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drinking, swallowing or communication interventions for the new cohort of patients who undergo awake procedures.

Where substantive and ring-fenced funding streams exist in other clinical specialisms, such as head and neck cancer services, SLTs provide interventions pre and post operatively for patients, within established infrastructure such as clinics, MDT meetings and pre/post operative ward-based therapy. This model has a positive impact on clinical outcomes (NICE, 2004). The availability of the SLT to support decision making and patient selection, to improve pre and post operative function, and to support patients to eat, drink and communicate into the palliative phase of disease is well recognised (NICE 2004), and this model has helped create a collaborative research active clinical specialism in head and neck cancer in this trust.

There is currently no funded SLT service to inpatients who have a craniotomy includes

4. Proposed Service Model

The figures for the current business case describes the resources as 37.5 hours of band 7 SLT per patient with activity to include:

- Attendance at the neurosurgery MDT oncology meeting – 3.75 hrs (1 session) per week
- Preoperative assessment time – 7.5 hours (2 sessions) per week
- Intra-operative assessment time – 7.5 hrs (2 sessions) per week
- Post-operative therapy provision on ward – 7.5 hrs (2 sessions) per week
- Administration – 3.75 hrs (1 session) per week
- Parallel outpatient clinic working alongside neurosurgeons for new patients and to review patients post discharge – 7.5 hrs (2 sessions) per week.

Table 1 describes the current and proposed service in the knowledge that the intraoperative overall time spent remains comparable for both an awake or asleep procedure.

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Table 1: Comparison of current and proposed service models

Service	Descriptor	Resources
Current Service	• Post-operative assessment after asleep craniotomy, by SLT for people identified as having dysphasia (under representative of the actual group). • Patient and family are supported with the initial impact of the symptoms. Limited rehabilitation provided. • Transfer information to local secondary and primary care teams to support the significant dysphasia symptoms that need to be managed post-discharge.	• 3 hours band 6 time per patient • 18 patients per year equates to 54 hrs band 6 time
Proposed Service	• 42 weeks per year service • Proactive service • Pre assessment of patient to establish preoperative language level • Intraoperative assessment to enable tumour mapping prior to excision • Establish language skills post-surgery, provide rehab, and liaison with primary and secondary care to support identified language symptoms • Attendance at neurosurgery MDT meeting • Parallel outpatient clinics • Admin i.e. manage/clean technical equipment hardware/software and assessment preparation for each patient at operation and post procedure.	• 1 x FTW band 7 SLT

*Note these figures are believed to meet the expected demand in the first year and do not account for any developments of ambulatory care day case patients.

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Or the requirement to research the data gathered to inform further developments of the care of this patient group.

Table 2: Benefits and Risk of substantive Investment

Benefit of Implementing the Proposal

- Enhanced patient and carer experience
- Improved clinical outcomes as a result of preventative and timely speech and language assessment and collaboration before, during and after surgery.
- Reduced frequency of iatrogenic complications during surgery
- Accelerated oncology treatment without the risk of delay for essential rehabilitation of complex functional deficits.
- Enhanced revenue streams through improved patient flow, reduced length of stay and increased efficiency.
- Reduced complexity of care packages because of reduced surgical morbidity
- Improved rehabilitation will reduce anxiety and distress for patients thereby accelerating discharge and reducing unnecessary readmissions
- The responsiveness and safety of the service will be achieved by providing comprehensive communication assessment and treatment.
- Patients in this trust will receive the recommended level of technical expertise in line with NICE guidelines.
- Research and audit will be carried out to evaluate, develop and improve the current surgical and therapeutic service provided to people with brain tumours referred to the neurosurgery unit.
- Other patient groups with different tumour sites within the brain could be supported e.g. cognitive and memory impairment or physical movements.

Risks of not implementing proposal

- Non-compliance with NICE guidelines
- Unnecessary and avoidable risk to this Trust's patients
- Avoidable harm to patients resulting from subtotal tumour removal (impact on survival)
- Avoidable increase in length of stay, leading to increased costs
- Avoidable negative impact on quality of life and patient reported outcomes
- Delayed return to work

5. Financial Evaluation

Calculations are based on an average of 50 patients per year with one per week. Proposed service consists of three hours pre-operative, eight hour intra-operative, and four hours post-operative input per patient. In addition to this, we propose one session of band 7 SLT time per week for neurosurgical MDT and two sessions per week for neuro oncology clinics over 42 weeks of the year. Please note the funding calculations do not cover non-SLT service staffing costs.

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Table 3:

Financial Analysis – expenditure and income associated with awake craniotomy patients

Expenditure	Current position	Proposed service additional cost/income
Direct pay speech and language therapy	Total for 18 patients £1290.00	0.84 band 7 WTE a year £45956
Direct pay SLT assistant support of therapy materials for pre- intra and post-operative assessment	Not in current service	0.1 WTE band 4 £3016 a year.
Typical length of stay for patients having craniotomy. Cost of neurosurgical bed +/- ICU stay	For asleep craniotomies length of stay averages 22 days £376* per level 1 high neuro high observation bed per day. £376 x 22 x 18 = £148,896	For awake craniotomies length of stay averages as 7 days £376* per level 1 high neuro high observation bed per day. £376 x 7 x 50 = £131,600
Total Expenditure	£150,186 per annum	£180572 per annum
Income	£4745 x 18 patients = £85,410	£4745 x 50 patients = £237,250
Tariff Income for each patient NB Tariff taken as an average across those with CC score of 0-11+ (NHSPS, 2025/26)		
Total net surplus	-£64,776	£56,678
Net Surplus contribution i.e. % to CIP that could be offered		

*Figures based on Crispi et al, 2023

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6. Risk Analysis

The risks of not supporting this business case include:

- Patients will have inadequate treatment resulting in reduced survival and increased avoidable harm

OR

- Patients are transferred to another unit for their surgical care
- The patient experience is compromised
- Avoidable increased length of stay with increased risk of avoidable morbidity during the stay.
- Delayed access to radiotherapy and chemotherapy
- Reduced patient quality of life
- Complex and expensive packages of care because of damage neurological and language function

Sustainability Strategy

Clinical activity will be through the funding of the new substantive post upon business case approval.

Disinvestment strategy

It would be possible, through staff turnover to absorb the sessions of 0.8 wte band 7 over a 12-month period if the business case was not able to demonstrate the described benefits. However, this would have a negative impact on other services in an already overstretched service.

7. Conclusion

The Trust is currently non-compliant with NICE guidance. Patients who require neurosurgery for brain tumours identified within the language area of their brain are likely to have their language affected when they have neurosurgery. The patients require targeted and specific collaborative interventions to reduce the risks associated with their brain tumours. This business case is supported strongly by the department of neurosurgery and oncology.

The investment will help the flow of elective patients; improve the patient experience and reduce the demand on services within the primary care setting, because the patient's quality of life and functional outcomes are optimised

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through the collaborative use of expertise from within the unit.

8. Recommendation

Permanent funding of one .84 WTE band 7 SLT and .1 WTE band 4 SLT support worker for patients identified as being suitable for an awake craniotomy procedure.

9. References

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