

D14/S/a

**NHS STANDARD CONTRACT
FOR COMPLEX SPINAL SURGERY (ALL AGES)**

SCHEDULE 2 – THE SERVICES – A. SERVICE SPECIFICATIONS

Service Specification No.	D14/S/a
Service	Complex Spinal Surgery (All Ages)
Commissioner Lead	
Provider Lead	
Period	12 months
Date of Review	

1. Population Needs

1.1 National/local context and evidence base

There are no pre-existing, nationally defined service standards or specifications for spinal services produced by recognised bodies, including specialist colleges and evidence based medicine sources. The following guidance (shown in date order) is relevant to the current development of this spinal service specification:

- Department of Health: National Service Framework for Children, Young People and Maternity Services 2004
- Department of Health: National Service Framework for Long Term Conditions 2005
- Department of Health: Commissioning safe and sustainable specialised paediatric services: a framework of critical inter-dependencies 2008
- British Scoliosis Society: Standards of Care for Patients with Spinal Deformity 2008
- National Institute for Health and Clinical Excellence (NICE) Guidance: Clinical Guideline (CG)75. Metastatic Spinal Cord Compression 2008
- Report of the Welsh Neuroscience External Expert Review Group 2008
- NICE Guidance: CG88. Low Back Pain 2009
- British Society of Rehabilitation Medicine (BSRM): BSRM Standards for Rehabilitation Services, Mapped on to the National Service Framework for Long Term Conditions 2009
- NHS Evidence: Annual Evidence Update on Spinal Diseases 2009

- Specialised Services National Definition Set (SSNDS) Definition No. 6 Specialised Spinal Services (all ages) 3rd ed. 2010
- NHS Evidence: Annual Evidence Update on Spinal Diseases 2010
- Department of Health: Organising Quality and Effective Spinal Services for Patients, A report for local health communities by the Spinal Taskforce 2010
- British Society of Rehabilitation Medicine: Medical Rehabilitation in 2011 and beyond 2010
- National Cancer Action Team: Manual for Cancer Services: Acute Oncology - Including Metastatic Spinal Cord Compression Measures 2011 NICE Guidance
- Metastatic spinal cord compression: Diagnosis and management of adults at risk of and with metastatic spinal cord compression
- NICE guideline CG75 MSCC (November 2008) –see website (Quick Reference Guide) <http://guidance.nice.org.uk/CG75/QuickRefGuide/pdf/English>
- Improving Outcomes for People with Sarcoma (2006).
- Diagnosis and management of metastatic malignant disease of unknown primary origin (2010).
- Percutaneous cementoplasty for palliative treatment of bony malignancies (2006).
- Improving supportive and palliative care for adults with cancer (2004)
- Improving Outcomes for Children and young people with cancer (2005)
- Acute Oncology measures (March 2011)
http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_125889.pdf

The National Review of Spinal Surgery provision is currently in progress, and the features and recommendations of the review have supported the development of future development and changes of this service specification should be closely aligned to the work of the national taskforce spinal review and its recommendations when published later in 2012.

A framework for Commissioning Spinal Services and Classification of Interventions and Procedures (OPCS) procedures deemed specialised (redefined by the National Spinal Taskforce review) have been appended (see Appendix 1,2 and 3) to this specification to provide an up to date reference for commissioning these services and the clarity of coding commissioned. Four defined subgroups of clinical activity are described for:

- Spinal Pain – Late management of persistent non-specific spinal pain
- Spinal Deformity Surgery
- Spinal Reconstruction Surgery (trauma, metastatic tumour and infection), including Thoracic and Anterior Lumbar Surgery
- Curative or Potentially Curative Spinal Oncology Service

n.b. Revision Surgery for patients is often deemed specialised due to prior alteration of anatomy, scarring and adhesions, which increase the risk of damage to neurological structures. This has been incorporated within the relevant subgroups.

Spinal Pain – Late management of persistent non-specific spinal pain

To qualify this specific area of specialised services relates to the late management of persistent spinal pain where the severity of pain has exhausted the NICE back pain guidelines. Nationally around 80% of the population will seek healthcare for spinal pain at some point in their lives. For most it is a recurrent problem which improves with natural history and can be managed in primary care. The numbers seeking healthcare are predicted to rise given the aging population, increase in obesity and reduction in activity. 5% develop persisting long-term spinal pain, which substantially limits activity and quality of life. It is this group who account for the majority of the health and social costs associated with low back pain. Despite primary care management a smaller percentage of these require specialist secondary care management for severe spinal pain.

In 2010/11 in England, there were 66,947 facet joint injections (with significant geographical variation) and 3,559 primary lumbar fusions/disc replacements.

Hospital Episode Statistics (HES) data (2020/11) shows 6,087 cervical spine procedures recorded for degenerative conditions. The extent of long-term opioid use for severe spinal pain is not known, but is of concern due to the significant rate of adverse effects.

Evidence based: The NICE (CG 88) Low Back Pain guideline (2009) covers the early management of persistent or recurrent non-specific low back pain that has lasted for more than 6 weeks, but for less than 12 months (<http://www.nice.org.uk/CG88>). There are no UK guidelines which address the management of severe disabling spinal pain that has lasted longer than 12 months. However, the American Pain Society Guidelines apply to this subgroup (http://www.ampainsoc.org/library/cp_guidelines.htm). The Department of Health Spinal Taskforce have published their document "Commissioning Spinal Services – getting the service back on track" (<http://www.ukssb.com/pages/News-and-Information.html>).

The majority of spinal procedures performed for non-specific degenerative disease have been defined as non-specialised including primary and revision anterior cervical discectomy +/- fusion and posterior cervical laminectomy.

In persistent non-specific spinal pain the decision to proceed to surgical management is specialist. It is important that services undertaking surgery for persistent non-specific spinal pain have access to the range of services outlined in the pathway to prevent conversion to surgery before appropriate rehabilitation has been undertaken.

Spinal Deformity Surgery

Spinal Deformity must be considered separately in adult and paediatric populations due to different service requirements and existing providers

Paediatric Spinal Deformity: The prevalence of adolescent idiopathic scoliosis

(AIS) in the 10-18 year old age range (the most common condition) is 2-3% and 0.1% for those requiring surgery. There are many other causes of paediatric spinal deformity in both ambulant and non-ambulant patients but a treatment function code for spinal surgery has only just been approved so the number of outpatients seen is currently unknown. HES data in 2010/11 shows 1228 instrumented spinal deformity corrections in England with almost all activity occurring in 19 Centres. Twenty one of the 152 Primary Care Trusts (PCTs) had low levels of age standardised activity.

Adult Spinal Deformity: Adult spinal deformity generally falls into two types: childhood deformity that progresses and causes problems during adult life and de-novo degenerative spinal deformity affecting the lumbar spine. The prevalence of adult scoliosis is between 1.4% and 20% and although outpatient activity cannot be evaluated, HES data in 2010/11 show 8,935 patients admitted with a primary diagnosis suggesting adult spinal deformity. Of these, 725 had open spinal surgery with 421 having instrumented spinal deformity correction

These cases are largely but not exclusively performed in the Centres performing paediatric spinal deformity surgery. Adult spinal deformity and particularly de-novo degenerative spinal deformity is increasing with an aging population and increasing expectations have increased the demand for this surgery in the US.

Evidence Base

Paediatric Spinal Deformity: Some causes of paediatric spinal deformity can cause significant long-term cardiorespiratory morbidity and mortality or late neurological problems. Surgery for Adolescent Idiopathic Scoliosis (AIS) (the most common cause) may reduce the incidence and severity of back pain but the evidence for this is weak. Large curves can cause cardiorespiratory morbidity. There are psychosocial consequences of large rib humps. There is no NICE guidance related to this condition. A review has suggested that school screening for AIS should not be re-introduced (Dickinson R. Weinstein S. Review Article: Bracing (and screening) – yes or no? J Bone Jt Surg. 1999-81-B:193-8). Bracing is of no proven value but is performed in some Centres. Exercise treatment is currently the subject of an HTA trial <http://www.hta.ac.uk/project/2619.asp>

Guidance on the management and standards of care for patients with paediatric spinal deformity has been produced in 2003 and 2008. Surgery is demanding, technically difficult and expensive with major complications being thankfully rare but often with massive implications to the patient and their family.

Adult Spinal Deformity: These patients present with pain and/or deformity and the incidence is on the increase. Pain is usually associated with loss of sagittal balance, where the patient cannot stand upright without flexing hips and knees. This can cause severe disability. The pain can be in the back which is difficult to treat or in the leg due to nerve compression in the lumbar spine which is sometimes easier to treat and probably more successful than treating back pain.

There is no NICE guidance and the British Scoliosis Society is currently in the early stages of producing a document on the management of adult spinal deformity.

Surgery can be as basic as a nerve root decompression (non Specialised surgery) or as complex as a multi-level anterior and posterior instrumented scoliosis correction with osteotomies. This range of interventions adds to the complexity of rationalising treatment for these conditions. The main issues are what surgery to perform in which patients and when. Surgery can carry high risk. A recent large American study showing complication rates of 13.4% and mortality of 0.3%.

Spinal Reconstruction Surgery (Trauma, Metastatic Tumour and Infection)

This group of patients include those with spinal trauma, serious infections including TB and the larger group of patients with either primary or secondary vertebral column tumour. HES data indicates that about 5,600 surgical interventions were undertaken in these groups in 2010/2011

Reconstructive surgery is extensive and may be required from both the front and back of the spine. It will be complimented by antibiotic therapy for those with infection and adjuvant chemotherapy and /or radiotherapy in those with tumours. The national spinal review undertaken by the Spinal Taskforce has recommended that a NICE quality standard be created and audit of the outcomes of treatment for spinal infection be undertaken on a regional basis given the poor quality of care currently seen and the high litigation costs incurred by the NHS Litigation Authority (NHSLA) for those suffering as a result of missed spinal infection.

The most common malignant tumours to metastasise, to the spine causing painful instability and neurological compromise are breast, kidney, prostate, lung, spinal myeloma and lymphoma.

Cervical, Thoracic And Anterior Lumbar Reconstructive Surgery

This group of patients will have degenerative/other disease affecting the spine such as Achondroplasia, and there is a large range of diversity and complexity of surgical procedures.

Cervical: Less than 600 specialised cervical spine procedures are performed each year for degenerative conditions. Some conditions such as those affecting the upper cervical spine in conditions such as rheumatoid arthritis are rare but require considerable expertise. There is also a paediatric group where posterior upper cervical spine instrumentation +/- decompression is required in certain syndromes eg Arnold-Chiari, Osteogenesis Imperfecta, Spondylo-Epiphyseal Dysplasia, mucopolysaccharidosis, and Downs syndrome.

Lumbar: Most posterior surgery in the lumbar spine is considered non-specialised i.e. decompressions or when 1- and 2-level instrumented fusion is performed (including revision). Where three or more level posterior fusions may be necessary (usually in deformity) this defined as specialised. Anterior lumbar spine surgery is specialised and is done more commonly for infection, tumour and deformity but less often for degenerative conditions. This type of surgery carries risks of vascular injury. The commonest type of surgery would be an anterior lumbar spine fusion or disc replacement with HES data (2010/11) showing 495 cases in total including 100 disc replacements.

Thoracic: Surgery in the thoracic spine is most commonly performed for trauma, infection, tumour and deformity other indications for surgery are rare. The commonest indication is for removal of a thoracic disc protrusion causing spinal cord compression. This surgery is technically demanding and often uses significant resources.

All these cases would be performed in the 'hub' unit or a fully networked and supported 'spoke/satellite' unit.

Curative Or Potentially Curative Spinal Oncology Service

Primary spinal tumours threaten spinal cord function and the stability of the spine and are very rare. They may arise from either the skeletal (osseo- ligamentous) components or nerve components of the spine. Those of osseo- ligamentous origin account for approximately 100 cases per annum (p.a.) of which 40% are malignant; and of neurological origin approximately 600 cases p.a. of which 10% are malignant. Each group requires different preoperative assessment, biopsy, histological assessment, MDT decision making, surgical training and technique, adjuvant chemotherapy and radiotherapy. This is reflected in the different NICE guidance pertaining to both these generic pathologies.

Comments specific to primary tumours of osseo-ligamentous origin

Benign: Between 20-40% of primary bone tumours are benign insofar as they do not usually metastasise but can be variable in behaviour. At the aggressive end of the spectrum they may require multiple procedures if assessed or managed inappropriately, and /or be fatal due to either peroperative haemorrhage or serial recurrence. Anticipating their behaviour and planning appropriate treatment requires specialist combined radiological and histological advice to the treating team. Interventional radiology for embolisation may diminish morbidity, and radiofrequency ablation avoids open surgery in some instances. Surgical management may also be as challenging as for malignant tumours.

Malignant: These account for 10% of all primary bone tumours and are forty times less common than spinal metastases. Because of their propensity to seed easily biopsy tracks should be planned to be excisable. All aspects of their management require MDT input and surgery is usually technically challenging if enbloc resection is to be achieved. Neo-adjuvant chemotherapy may be required to shrink the tumour preoperatively to optimise the possibility of resection. The place of IMRT (intensity modulated radiotherapy and Proton therapy) continues to be defined and requires permissive surgical techniques with nonstandard constructs.

At present, for tumours of osseoligamentous origin, 35 hospitals provide treatment for these, however only one hospital treats more than 10 cases p.a. of those only 6 are malignant out of a total of 19 tumours treated.

Comments specific to primary tumours of neurological origin

Intradural tumours comprise a very small proportion of the total oncological

workload but have a great capacity for causing serious neurological deficit due to their proximity to the spinal cord. They often present late when there is already an established deficit. It is well recognised in the adult literature that outcome in terms of neurological deficit is directly related to the extent of pre-existing neurological deficit, and outcomes from surgical treatment are better if the patient has less neurological disability at the time of surgery. Surgery is a high user of resource, both in the actual treatment and the subsequent requirement for rehabilitation. The majority of these tumours are benign, or at the low-grade end of the malignancy spectrum, so that life expectancy is only rarely affected by the tumour alone. The complications of the condition and its treatment will affect life expectancy.

A large proportion of these lesions follow a benign course and surgical excision is the primary treatment modality. This surgery can only be performed in neuroscience centres both for adults and children. It is highly specialised and is in the intradural pathology group of the specialised definition set.

For tumours of neurological origin whilst 34 hospitals have provided treatment for these and although 22 hospitals treat more than 10 cases p.a. none treat more than 6 malignant cases pa and only 3 treat that many. Again this distinction between benign and malignant is somewhat artificial and many “benign” tumours have similar potential to result in significant neurological deficit.

Isolated metastasis: although most spinal tumours are metastatic and treatment is usually with palliative intent (the treatment of this group of patients is covered within the section on spinal reconstruction for tumour, trauma and infection) there is an identifiable small group who have an apparently isolated metastasis for whom definitive treatment (usually in the form of surgery) may be curative. Accurate numbers for this group are difficult to obtain owing to the fact that they are not being coded separately. In addition given improved oncological control of the primary cancer many are now living for years with their disease in consequence of which attempted curative resection may become a more justifiable treatment option.

Surgery for isolated metastatic disease both in terms of assessment and treatment mirrors closely the pathway for osseoligamentous primary disease.

2. Scope

2.1 Aims and objectives of service

General Overview

Specialised Spinal Services provide conservative and invasive management strategies for a diverse and complex range of conditions, ranging from the conservative management of disabling spinal pain, the correction of congenital spinal deformations to metastatic cord compression. They share close linkages with the management of spinal cord injury, both due to trauma and other conditions (see specification D13 Spinal Cord Injuries).

Delivery of these services must recognise the shared involvement of both orthopaedic and neurosurgical specialties, and a scope of activity that ranges from high volume interventions to highly specialised procedures delivered in single specialised centres.

Specialised spinal services aim to decrease mortality, minimise morbidity, alleviate symptoms, improve quality of life and promote recovery and rehabilitation.

These Spinal Services cover a challenging and complex range of conditions. The broad classifications of spinal cord injury and complex spinal surgery each represents a distinct subset of patients who are at risk of long term dependency, morbidity and mortality if care is not delivered to a high standard. Spinal pathology is further complicated by the very common occurrence of symptoms such as low back pain within the general population, and services must effectively discriminate those in need of specialised complex surgery from those requiring reassurance, advice and conservative management. There is a continuum of specialist involvement, from single centre work, through non-specialised spinal surgery, to community interventions that do not require surgical consultation

The delivery of specialised spinal services requires the involvement of the full multidisciplinary team, with surgical responsibility often shared between neurosurgeons and orthopaedic surgeons, acting with the support of many other disciplines and allied health care professionals. There are particular challenges around the delivery of care to children with spinal deformities, both due to the long term consequences of complications, and the increased frequency of other advanced co-morbidities.

Clinical Workforce Planning, Training and Education

Consideration needs to be given to how best clinicians can best share training and education, audit and governance between primary and secondary care across the pathway and across organisations. Issues that require resolution include:

- The time available for shared Multidisciplinary Team (MDT) clinical training and audit

- The MDT must be attended by all the relevant clinicians including radiologists, pathologists, physiotherapists, and the supporting service staff. Attendance should be recorded and the meeting minuted.
- The assessment of spinal surgeons as defined by competence (rather than numbers of procedures undertaken alone)
- Arrangements for pre and post- Certificate of Completion of Training (CCT) (for example spinal fellowships and overseas postings). One – two years fellowship training at post-CCT level is recommended by spinal societies and are increasingly required before a trainee achieves consultant status.
- The costs associated with speciality spinal training pre and post CCT (for example courses on fresh cadaveric material are extremely expensive)
- Mentorship of newly appointed consultants and provision of support from senior colleagues when first undertaking more complex procedures.

Clinical Networks

Spinal Surgery currently sits, and will continue to sit, across this divide between specialised and non-specialised activity and therefore will continue to have multiple commissioners of the pathway. It also has to work within the trauma service and network and this has significant implications in terms of geography and on-call commitments. Spinal networks must be executive networks and not merely advisory.

One of the challenges of having multiple commissioners is that unless there is close collaboration between and across them, then those commissioning downstream interventions may inadvertently affect the commissioning of upstream interventions. These interdependencies mean that a spinal commissioning network should be established so that all providers, specialities and commissioners can come together to strategically develop these complex multiple pathways to tackle the significant capacity planning issues that exists, but also to drive through a qualitative improvement in patients outcomes and the patient experience.

The further development of Networks remains a key component for the effective and efficient delivery and future planning of the service. The provision of spinal services will therefore have in place a comprehensive spinal network to facilitate integrated care pathways. Clinical Commissioning Groups (CCGs) and NHS England must interface along these pathways. The networks for general spinal work (including primary care) must be co-ordinated with individual and sometimes differing networks for trauma and cancer. All providers of spinal services (including the private/third sector) irrespective of whether commissioned at CCG or specialised commissioning level should be subject to the same clinical governance arrangements.

Service Objectives

That patients of all ages:

- have fair and timely access to safe specialised spinal services, delivered in a location that delivers high quality standards of care, within the context of best practice guidance

- gain the best possible outcomes, both in terms of immediate recovery and long term functioning
- have access to information that allows them to make informed decisions about their own care
- signposting to the relevant non-NHS organisations for ongoing information and support-before, during and after treatment within the specialised spinal services
- are assessed promptly and appropriately if they present with potentially serious pathology
- are treated by surgeons and other health care professional who participate in functional multidisciplinary teams and relevant professional networks
- can access relevant professionals to support their immediate and long term management
- are protected from unnecessary interventions and/or radiation exposure by services committed to evidence based practice, research and audit
- have appropriate access to family support services
- have appropriate access to psychological support services

Care should be delivered within the context of a holistic spinal service that recognises the needs of the total population, including prevention, community management and the need to deliver clinically and cost effective healthcare.

2.2 Service description/care pathway

It should be noted that current spinal care pathway models vary across the country and local spinal care pathway arrangements will be reviewed and developed within network arrangements. In particular improvements to the interface between primary and secondary care, both before and after referral, extending into the treatment phase. Development of a standard Model Care Pathway for spinal patients will be developed to help support implementation of locally adapted circumstances

Elements of the treatment pathway which need to be addressed include:

- Redirecting of GP referrals in some cases through improved referral guidance;
- More frequent use of conservative clinical management options in primary care prior to referral to hospital where appropriate and evidence based;
- Increased differentiation in the triage process for referrals to secondary care so that the appropriate patients are seen by the correct specialty;
- Protocols for the identification and referral of patients in emergency cases;
- Streamlining of care pathways through the use of direct access to diagnostic procedures such as MRI, for example, using agreed criteria.
- Reflects patient choice where more than one treatment option could be offered.

Complex spinal services has been categorised into four subgroups of clinical activity and are defined as:

- Spinal Pain – Late management of persistent non-specific spinal pain
- Spinal Deformity Surgery
- Spinal Reconstruction Surgery (trauma, tumour, infection), including
- Primary Cervical, Primary Thoracic and Primary Anterior Lumbar Surgery

- Curative or Potentially Curative Spinal Oncology Service
n.b. Revision Surgery for patients is often deemed specialised due to prior alteration of anatomy, scarring and adhesions, which increase the risk of damage to neurological structures. This has been incorporated within the relevant subgroups.

Care in these areas is led by spinal surgeons from both orthopaedic and neurosurgical disciplines, requiring close collaboration between the specialities in many circumstances. Services in these areas will be delivered across collaborative networks or specialised nominated centres.

These networks must demonstrate that:

- All organisations providing spinal surgery have links with the lead centre(s) with clear clinical governance links across providers. Single handed spinal surgeons shall not be working in isolation and will work in teams within organisations, ideally with more than one surgeon in each site. They will be working as part of a clinical network and the network will have responsibility for governance arrangements to support these practitioners (both clinically and operationally) and for succession planning. The network will promote:
 - Common network-wide audited standards of provision of medical, nursing, imaging and operative facilities
 - The development of in-house medical and nursing expertise for all hospitals in the area with an emergency department in the assessment and management of the unstable spine and the neurologically threatened or compromised patient
 - Provide effective triage to deliver pathways of care for elective spinal conditions efficiently and expeditiously, allowing early screening for serious pathology and fast tracking of patients to appropriate treatments. In order to deliver effective triage, the network should consider developing the role of local “triage and treat practitioners” who are highly trained in triage and assessment and also trained in indications for Magnetic resonance imaging (MRI) and interpretation, together with skills to deliver educational material effectively. The relationship of these practitioners with other specialists is crucial and close working will allow fast track appointments with surgeons, pain specialists, rheumatologists and others. Joint audit and governance arrangements must be in place to monitor practice across the specialist teams
 - Participate in review of guidelines and recommendations and implement them as appropriate. Specifically, as part of a network, demonstrating a cohesive set of spinal services that triage patients at the point of referral and that those with spinal pain are seen by appropriate practitioners, freeing spinal surgeons to treat those patients requiring specialised surgery. The network will have close integration with community pathways, where the majority of patients with low back pain who do not require specialised care or surgical intervention can be positively managed through conservative routes.
 - That all hospitals receiving trauma have on site expertise in the assessment and management of acute spinal conditions both in the emergency

department and on the inpatient ward. This should include 24/7 access to computerised tomography (CT) scanning, seven day per week access to MRI together with a defined written protocol to access 24/7 MRI scanning and have an established tele-radiology connection to a spinal centre.

Expertise available to manage patients with acute spinal conditions either who are not fit for transfer or who have conditions appropriate for treatment in a non specialist centre (see specification D13 Spinal Cord Injuries)

- Participate with relevant organisations in ongoing needs assessment for the population, including mapping of resources and utilisation by people with spinal conditions.
- That effective training and education, maximising the ability of clinicians to share and benefit from training, education, audit and governance, across primary and secondary care, throughout the pathway, and across organisations is in place and reviewed at regular intervals.
- There are specific requirements for the delivery of specialised spinal services to children. These include:
 - Recognition of other important paediatric services i.e. neurology, respiratory function, cardiology, oncology, rehabilitation, and physiotherapy. These specialities along with paediatric anaesthetists are involved in decision making prior to during and after surgical intervention.
 - Growth and development has a major impact on spinal deformity, which means that some patients are managed by long term clinical follow-up and specialist imaging. Others need rapid access to spinal surgery. Others require serial operations.
 - Surgical intervention requires the co-location of an ENT airway service, Specialised paediatric surgery, paediatric critical care specialised paediatric anaesthesia, respiratory and cardiological services. Spinal cord monitoring is essential for the majority of cases.
 - Ensuring that the physical, emotional and psychological needs of the child and their family are met during the child's treatment

Referral processes and sources

Patients will access the service from several routes:

- A Primary Care Referral, following identification of a traumatic injury, potentially serious pathology, or a deterioration of previously known pathology
- Other Medical Speciality Referral, following identification of a traumatic injury, potentially serious pathology, or a deterioration of previously known pathology
- Via Emergency Departments, following presentation with a traumatic injury, potentially serious pathology, or a deterioration of previously known pathology

There will be specific recognition of key pathways for care, including:

- A clear pathway for the management of severe persisting spinal pain related disability
- A clear care pathway for the diagnosis, treatment, rehabilitation and ongoing care of patients with metastatic spinal cord compression (MSCC), with an appointed lead responsible for developing and monitoring the pathway
- The need for integrated discussion with rehabilitation specialists in the planning of spinal surgery, particularly in the context of cord injury and long term or specialist

rehabilitation requirements.

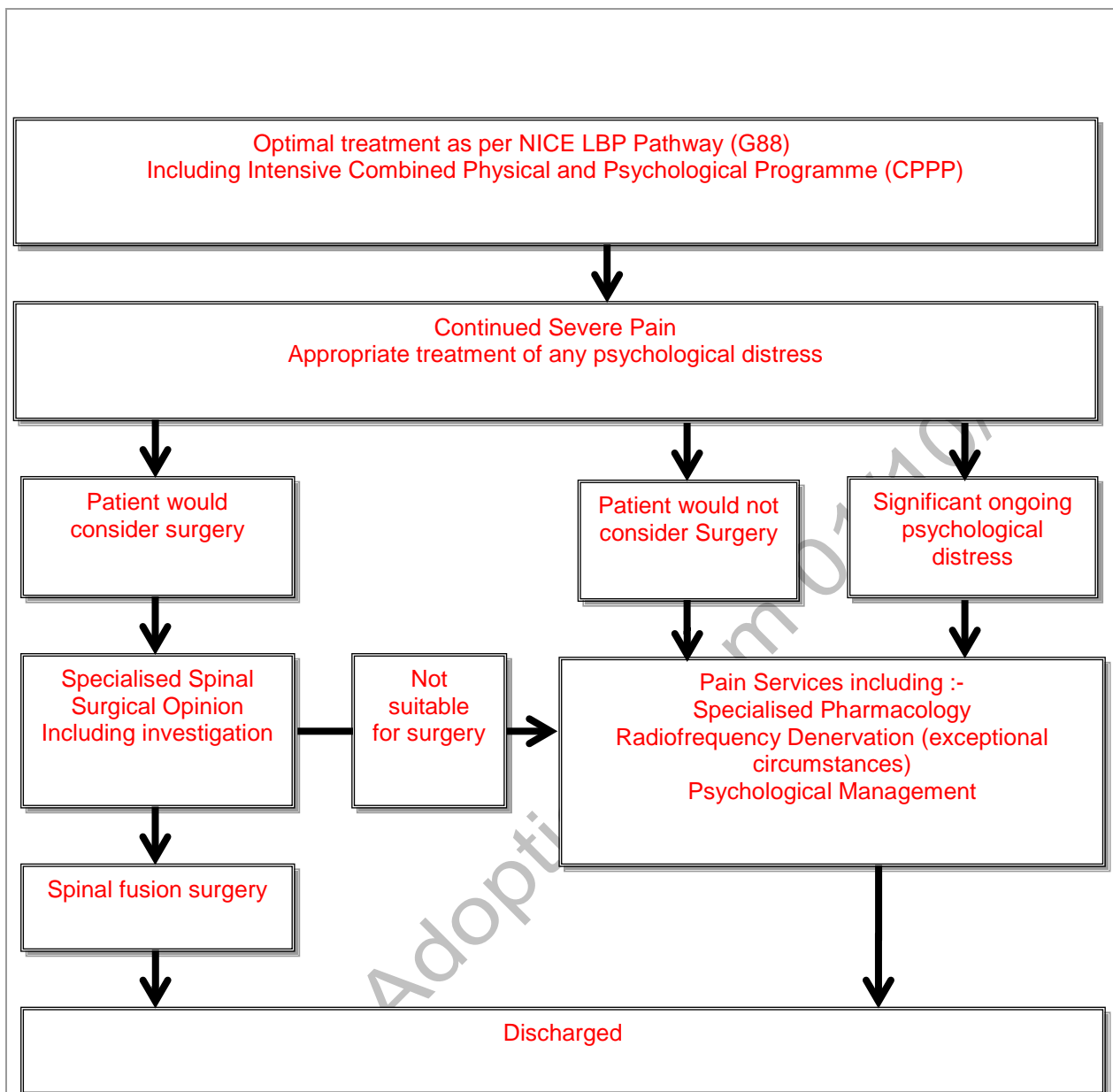
Interventions for the late management of persistent non-specific spinal pain

Most patients with low back pain, particularly non-specific pain, will not be managed by a specialised service. However, certain complex procedures may be deemed specialised, and networks will provide support to patients not requiring specialised services, acknowledging that this is where the large burden of morbidity from spinal problems falls on the population.

The service description/care pathway for the late management of persistent non-specific spinal pain includes:

- The provision of outpatient bio-psychosocial assessment
- The provision of comprehensive patient information to empower informed choice.
- The provision of a range of diagnostics: MRI, CT and injections.
- The provision of a highly specialist Combined Physical and Psychological Programme (CPP)
- The provision of primary spinal fusion
- The provision of revision spinal fusion.
- The provision of a highly specialist pharmacological service
- The provision of radiofrequency denervation (considered on an individual exceptional circumstances)

The care pathway as outlined in NICE CG88 shall be employed in the early stages (<http://www.nice.org.uk/nicemedia/live/11887/44345/44345.pdf>) The persistent non-specific spinal pain pathway applies to the small numbers who continue to have severe disabling back pain following this.



Local delivery models should be described separately as appropriate, and not contradict or disregard key elements of the generic model will be;

- To support patients to make informed choices regarding treatment options, using shared decision-making principles which highlight the risks and benefits.
- To reduce the impact of severe back pain on the individual, society and healthcare resources.
- To make cost-efficient use of NHS resources
- To reduce variation in the treatment offered to patients.
- To enable access to clinical trials
- To have clear pathways/managed clinical networks arrangements in place, publicised and implemented in respect of referral, follow up and ongoing primary care
- To conduct a comprehensive assessment which encompasses the biological, psychological and social dimensions of back pain.

- To arrange diagnostic tests, which will add value to treatment planning and thereby improve the patient's outcome
- To provide "results based" interventions demonstrating clinically significant improvement on patients pain, disability and psychological distress.
- Supporting patients with their residual chronic pain and secondary care e.g. spinal stimulator management and maintenance
- All spinal surgery cases must be entered into a spine register either the British Association of Spinal Surgeons (BASS) British Spine Register or the European Spine Tango register

Spinal Deformity

These conditions predominantly young children and adolescents, although increasingly also adults. A specialised service would generally be indicated as all procedures affecting two or more levels of the spine being deemed specialised, although there are exceptional circumstances where a single level procedure would be regarded as specialised.

There are a number of complex conditions in which a spinal deformity is only part of an overall pathology which itself may also be specialised, for example cerebral palsy.

Paediatric Spinal Deformity service is for all patients with spinal deformity aged 18 years or less (with those aged 16-18 years having the choice of an adult or a paediatric service). This includes all causes for spinal deformity: unknown cause (idiopathic), congenital, neuromuscular, syndromic etc and will include:

- The diagnosis and management of spinal deformity in this population. This mainly involves monitoring for curve progression and determining the optimal timing of any surgical interventions recognising the influence of any co-morbidities.
- To perform safe and appropriate spinal surgery to improve long-term quality of life.
- To minimise complications from surgery
- To recognise and treat any complications in a timely manner
- To co-ordinate a multi-disciplinary team to optimise the service, including multi-disciplinary clinics where this is required to improve patient care.
- To provide a service which minimises patient transport, respects existing Spinal Centres with appropriate facilities and allows delivery of care in a time-frame consistent with national requirements.
- To provide patients and their carers with high quality and appropriate information about their condition and management. This should include working with local and national patient support groups (Scoliosis Association UK).
- To provide a service that is cost-effective.
- To provide commissioners with data on diagnosis, treatment, complications and patient reported outcome measures (PROMS). A National database such as the British Spine Registry should be used.
- That new techniques and surgical implants are introduced in a controlled way. They should be identified to and supported by the British Scoliosis Society. All patients should be prospectively followed with service evaluation as described

above or should be part of a NIHR Portfolio based research study.

- Facilitate effective transfer to adult services where appropriate

It is proposed that paediatric spinal deformity surgery be considered as two types:

- **Type I:** Instrumented spinal deformity correction in ambulant, otherwise healthy children aged 9-18 years.
- **Type II:** All other spinal deformity surgery including surgery on non-ambulant children, those with associated medical problems and younger children with congenital deformity.

This distinction has the advantage of allowing existing Spinal Centres operating on paediatric spinal deformity who currently refer more complex cases to larger units to continue offering the service. This will reduce travel times for patients and provide a valuable outpatient service for more complex cases which will be referred to Type II Centres if surgery is required.

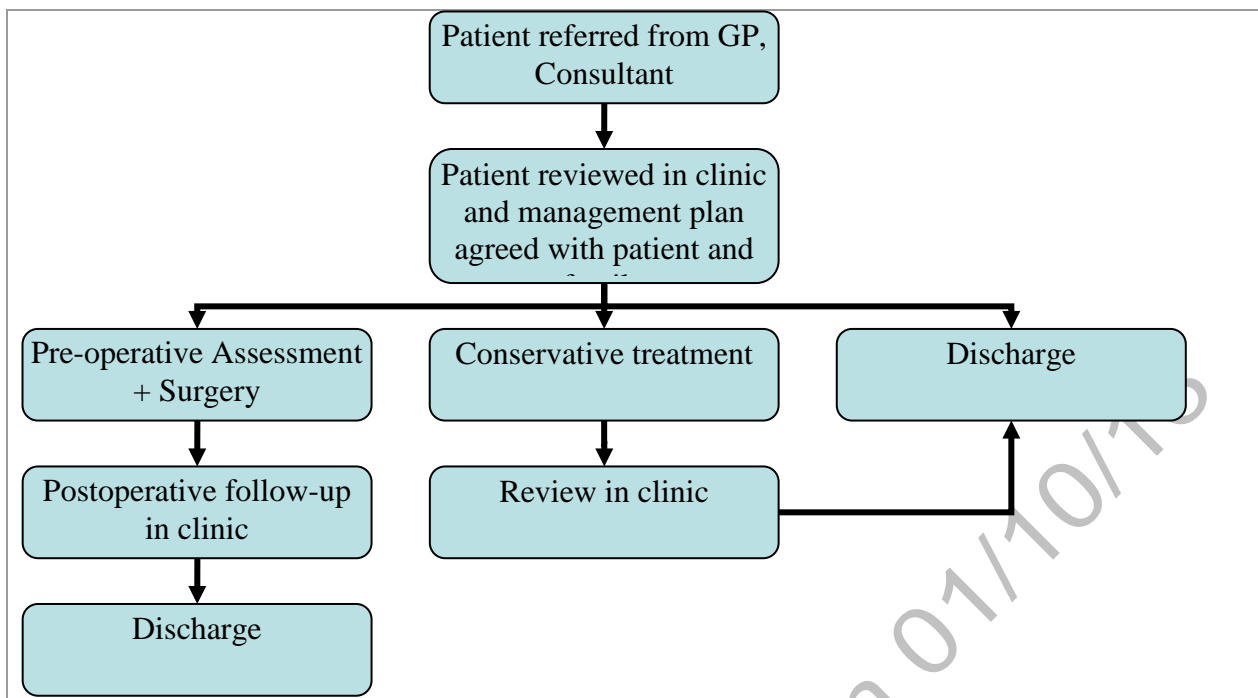
Type II Paediatric Spinal Deformity Centres require the following facilities:

- More than 1 surgeon trained in paediatric spinal deformity surgery to allow adequate case discussion and joint operating where necessary.
- A mentoring system should be in place for newly appointed Consultants including joint operating and case monitoring until it is felt to be no longer required by both sides
- At least one surgeon should be available at all times (regardless of leave or other commitments) when there are inpatients that have had spinal deformity surgery.
- Staffing of the unit should enable 2 Spinal Surgeons to work together if it is felt to be in the patient's interests.
- Regular Spinal unit meeting attended by all spinal surgeons and anaesthetists to discuss operative cases, other relevant specialists (Radiologists, Paediatric Respiratory Physicians, Paediatric Cardiologists, Paediatric Neurologists) should attend to discuss cases where their expertise is required.
- Surgery should be performed in the Spinal Centre on a regular basis to maintain skills and familiarity for the whole team.
- Paediatric Intensive Care and High Dependency facilities must be available on-site including the ability for prolonged post-operative ventilation.
- Spinal cord monitoring supported by Neurophysiology or Medical Physics. Currently Somato-Sensory Evoked Potential monitoring is considered adequate for all cases. Motor Evoked Potential monitoring or combined monitoring may detect changes in spinal cord function more quickly and therefore may become the "Standard of Care".
- Collection of diagnosis, surgical procedure, complications and (Patient Reported Outcome Measures) PROMS. The British Spine Registry and Spine Tango allow this process. It is only by taking part in multi-centre audit of outcome for surgery can a consistently high level of service provision be ensured, maximising patient satisfaction and facilitating service development
- A Clinical Specialist Nurse/Physiotherapist is recommended to improve communication with patients and their families, provide information, co-ordinate pre-operative assessment and help reduce avoidable surgical cancellations and facilitate outcome data collection.

- Specialist paediatric anaesthetist familiar with the problems associated with this surgery.
- Adequate and timely access to blood products including cell salvage
- On-site 24 hour access to sterile spinal implants including removal instruments for all recently implanted implants
- On-site 24 hour access to MR scanning or CT myelography with Radiologists to perform and interpret these images.
- On-site 24 hour access to Paediatric medical care.
- Paediatric pain management service
- Access to Paediatric Neurosurgeon, Paediatric Neurologist, Paediatric Cardiologist, Paediatric Respiratory Physician and Paediatric Surgeon. These do not need to be on-site but should be available for urgent opinions and possible patient transfer if required. For patients with associated medical co-morbidities where it is felt that the Paediatric Physician/Surgeon for that condition is required to be on-site then the patient should be transferred to a Spinal Centre where that can be obtained.
- Ability to take high quality long cassette radiographs in standing and sitting positions and appropriate flexibility radiographs. Access to picture archiving and communication system (PACS) for pre-operative planning and in the outpatient clinic and theatre. Measurement tools for measuring angles and distances should be integrated into the PACS. All imaging must be stored long-term for these patients as surgery in adult life may be required.
- Pre-operative assessment facilities including respiratory function, paediatric echocardiography, bone mineral density measurement, physiotherapy and occupational therapy support
- Policies for venous thromboembolism prophylaxis, pregnancy testing, transition of care to adult services.
- Appropriate paediatric environment for both inpatient and outpatient facilities including teachers and play-specialists whilst inpatients.
- Orthotic services as required by the local Spinal Service.
- To maintain high quality decision making each patient should ideally be reviewed by the Consultant Paediatric Spinal Deformity Surgeon on a minimum of alternate clinic visits.
- Access to a local wheelchair service and good communication links with service providers in the geographical catchment area for those patients requiring seating adjustments or post-operative assessments.

Type I Paediatric Spinal Deformity Centres require all the facilities above except on-site Paediatric Intensive Care and the ability for short-term post-operative ventilation.

Generally the care pathway will be described in the following example:



Adult Spinal Deformity: The aims and objectives of the adult spinal deformity service is the same as for paediatric centres but should also include the need for Regional Centres (Hubs – any region may consist of one or more which are centres specialising in the more complex end of this work) which are networked with other Hospitals with a Spinal Service regarding appropriate management of patients possibly requiring non-specialised spinal surgery who have an adult spinal deformity. An example of this would be a patient with degenerative scoliosis possibly requiring an isolated nerve root decompression. Pathways may not be consistent across the geographical areas and networks should define appropriate and clinically effective and are appropriate for local arrangements.

Adult Spinal Deformity due to the different presentations, overlap with other aspects of degenerative disease of the spine and widely differing surgery in terms of complexity, defining networks and guiding commissioning is very difficult.

Patients with minor Degenerative Scoliosis are usually referred with symptoms of back pain and/or leg pain and it is the spinal surgeon who makes the diagnosis of adult spinal deformity. At the other end of the spectrum a small group of patients with severe degenerative scoliosis may present with major deformity and loss of sagittal balance, which makes it difficult for them to stand without rapid onset of back pain, relieved in part by sitting or lying down.

There are a number of types of deformity which present in Adults these include:

- Neuromuscular problems which involves both dealing with the longstanding deformities which developed in childhood in patients with neuromuscular problems when they reach their adult years and a small group of patients who develop spinal deformities in association with conditions which produce paraspinal muscle weakness
- Degenerative Scoliosis (commonest cause) which we will consider in two parts:

- Secondary degenerative change developing in patients who have the spinal deformity that has been present since childhood but was either not diagnosed, managed without surgery or treated surgically and having further problems (adult scoliosis).
- De-novo degenerative spinal deformity, which starts in the lumbar spine and usually presents over the age of 50 years.

For patients with neuromuscular problems or secondary degenerative change (adult scoliosis), the same facilities are required as for paediatric spinal deformity surgery where the surgery is to correct the deformity. These patients will typically have a deformity diagnosis (International classification of Disease ICD-10 code) and Classification of Interventions and Procedures (OPCS) codes of V41 (instrumented deformity correction) and V553 (more than 2 levels of the spine).

For patients with de-novo degenerative scoliosis, the following possibilities exist:

- If the surgeon is planning decompression of a single level of the spine (a non-specialised procedure) then they can proceed if they feel this is the appropriate management given the deformity. If they are unsure, there should be the facility to refer to the regional adult spinal deformity hub (there may be more than one in any region), for discussion at an MDT meeting and advice.
- If the surgeon is planning a larger procedure involving spinal instrumentation, the case should be discussed at the regional adult spinal deformity MDT meeting and a decision taken as to how to manage the patient. It would be expected that if non-specialised spinal surgery is recommended this can be performed in the referring unit if the referring surgeon is in agreement.
- Multi-level instrumented deformity corrections or stabilisations which are defined as specialised procedures as they are more than 2 levels (see definition above) should be performed in Spinal Units with similar facilities as for paediatric deformity (with paediatric facilities being replaced by adult ones) with the exception of spinal cord monitoring which may not be required for all cases
- Spinal Units may perform both adult and paediatric spinal deformity surgery and may do one and not the other.

Spinal Reconstruction

Patients with tumours, infection or spinal fracture requiring a multidisciplinary approach, and potentially several procedures to restore or maintain spinal cord function. Patients in this group often require close involvement of several disciplines, such as microbiology (in the treatment of infection) and oncologists (in the treatment of malignancy).

People with infection, trauma or metastatic tumour of the spine (or primary for palliation) may need major reconstruction of their spine in order to prevent or correct deformity and protect the spinal cord and associated nerves. It is important that these patients are promptly referred to a service able to provide full spinal reconstruction, in a setting with critical care facilities adequate to manage the problems of this group of patients. This is technically demanding surgery that requires significant use of a wide range of resources, and significant input from other clinical and support services

The aim is to deliver high quality specialist care to patients of all ages who require reconstruction of the spinal column. This requires a defined pathway (e.g. MSCC or SCI pathway) so that patients are promptly diagnosed and treated appropriately. The provision of rehabilitation is an important part of the package.

There are established pathways for the management of Malignant Spinal Cord Compression (guidance.nice.org.uk/CG75) and Spinal Cord Injury (www.excellance.eastmidlands.nhs.uk Major Trauma Report Final, Management of People with Spinal Cord Injury). For patients with infection there are no existing pathways. The diagnosis may be made late when deformity and neurological disability are already established.

Apart from the exceptions above there are no specialised pathways of care for this group of patients. The first point of contact for each group is different and the elements for each are described below.

Trauma: The first point of contact for this group requiring reconstruction is often the ambulance service but they may present themselves in the Emergency Department. There are agreed protocols for recognition and transfer of this group to the Major Trauma Centre. These are all defined in the Major Trauma Report Final (excellance.eastmidlands.nhs.uk). All patients must be assessed by a spinal surgeon for consideration of reconstruction, which may need to be immediate if needed to prevent progression of neurological disability.

Tumour: The likely first point of contact for this group will be the general practitioner, although the MSCC group may make contact with the oncological services in the first instance. There are existing guidelines for patients presenting with spinal disorders (eg Red Flags, MSCC guidelines) to try and ensure those with serious pathology are identified and managed promptly. Hospitals providing this service must have 24/7 availability of:

- Spinal Surgeons
- High Dependency Unit
- 24/7 specialist theatre and anaesthetic services
- 24/7 MRI with “hot reporting”
- Specialist nurses and dedicated physiotherapy.

Infection: This group of patients can present to a wide spectrum of specialists from the Ambulance Service, to General Practice, Emergency Medicine, orthopaedics and all those likely to be dealing with patients with infection. This is a particular problem in the immunocompromised, Intravenous Drug Use (IVDU's) and Human immunodeficiency virus (HIV) positive patients.

There are currently no pathways for these patients and there is a problem of late recognition resulting in structural and neurological morbidity. Prompt early treatment may mean that these patients do not require the services of the specialist reconstruction team. This is an area where increased awareness and pathway development may have a role in reducing unnecessary patient morbidity. Specialised spinal reconstruction services will be centred on those providers accredited as

specialised centres. This is how it effectively works currently. There will need to be oversight of the networks for timely referral into the centre. Patients referred in this group will come from a variety of sources with each pathological diagnosis having different sets of criteria. However, the pathway for SCI provides a potential template for onward referral.

Cervical, Thoracic, Anterior Lumbar Surgery

The scope relates to those patients with a diagnosis listed in the specialised definitions as:

Spinal Region	Pathology	Procedure
Cervical/Thoracic/ Lumbar degenerative	Degenerative / Other	Any cervical spine procedure involving implants except those for anterior cervical discectomy and fusion
Cervical/Thoracic/ Lumbar degenerative	Degenerative / Other	All thoracic spinal surgery
Cervical/Thoracic/ Lumbar degenerative	Degenerative / Other	All anterior lumbar spine surgery
Cervical/Thoracic/ Lumbar degenerative	Degenerative / Other	Posterior instrumented spinal fusion / stabilisation more than 2 levels

These patients require complex surgery due to potential hazards to the spinal cord, difficulties in approach, complexity of instrumentation and its implantation and the use of spinal cord monitoring or awake anaesthesia. The likely first point of contact for this group of patients is in primary care either directly from General Practice or via a CCG managed Musculoskeletal (MSK) service, supported by the spinal network.

The complex nature of all this surgery requires delivery within the setting of a multi-disciplinary team. Additional services and facilities will often be required. Most patients requiring these services will have degenerative disease but some will have syndromes especially those requiring surgery in the upper cervical spine and some of these will be paediatric patients. The aims of the service are essentially the same as for spinal deformity surgery.

Cervical spine: The conditions requiring specialised spinal surgery are varied and their initial presentation will be to spinal surgeons performing this surgery or spinal surgeons / general orthopaedic or neurosurgeons who do not perform these surgeries but are familiar with patient assessment and recognising the indications for them. Patients may present with symptoms and signs of spinal cord compression and/or neck pain. It is only after imaging, usually MRI scan and possibly other investigations, and usually an MDT discussion that a decision can be made regarding the best surgical procedure and this may be specialised or non-specialised. If the surgical procedure is a specialised one then the patient will be referred to a Hospital commissioned to perform this surgery (if they are not already there). Specific requirements include:

- On-site 24 hour MRI availability with Radiologists to perform and interpret these images.
- Regular spinal MDT meetings
- Surgery shall be performed in the Spinal Centre on a regular basis to maintain skills and familiarity for the whole team.
- Collection of diagnosis, surgical procedure, complications and PROMS (patient reported outcome measures). The British Spine Registry and Spine Tango allow this process
- Specialist anaesthetist with ability to perform fibre-optic intubation
- On-site 24 hour access to sterile spinal implants including removal instruments for all recently implanted implants
- Rehabilitation services
- Pain services
- On-site Paediatric medical care for paediatric patients.

Lumbar spine: The specific requirements are the same as for cervical spine surgery above but without the need for spinal cord monitoring and fibre-optic intubation. Daytime MRI scanning and interpretation facilities are adequate. Patients undergoing spinal fusion for degenerative disease shall follow an agreed pathway of care including conservative management before surgery is considered. This surgery is not performed in paediatric patients. For primary anterior lumbar surgery, the requirement for a vascular surgeon to be present or within the hospital is controversial and will depend on surgeon experience. For revision anterior lumbar spine surgery, a vascular surgeon will be present.

Thoracic spine: These patients will usually present with myelopathy (symptoms and signs of compression of the spinal cord). The specific requirements are the same as for cervical spine surgery above and skills for one lung anaesthesia which may occasionally be indicated. Spinal cord monitoring may be required but use for this indication is controversial. Ideally, a thoracic surgeon will be available or present when thoracotomy is performed but this depends on the training and experience of the spinal surgeon. All complications will be reported.

Curative Or Potentially Curative Spinal Oncology Service

Access to the service: Patients will be referred to the service at the time that it is recognised that they may fall into the above diagnostic groups (this is because the route and technique of biopsy requires to be considered relative to the potential access and techniques for definitive treatment).

Clinical management including service delivery where appropriate will include:

- Identification of patients at risk
- Diagnosis – clinical and radiological
- Treatment:
 - radiotherapy
 - surgery
 - interventional radiology
 - medical therapy (chemo, immuno and hormone therapy)
- Rehabilitation and supportive care

- Specific elements of palliative care that meet the particular needs of patients with metastatic spinal cord compression and of their families and carers
- Communication and information resources for patients, carers, family members and healthcare professionals
- Follow up.

The delivery of this is to provide Cancer Care for those with curable or potentially curable spinal oncology including:

- An advisory service for referring (secondary and tertiary) centres about the clinical assessment and the subsequent timeframe and appropriate type of imaging and other investigation.
- When requested (or required by commissioning arrangements) to take over all further aspects of assessment and initial definitive care.
- Invasive investigation including biopsy
- Primary treatment (whether surgical or other), and arrangements for (the timing and type) of adjuvant treatment.
- Appropriate and timely liaison with referring units to enable/ facilitate their arrangement of local suitable post treatment destination (discharge , rehabilitation, palliative care)
- Subsequent appropriate follow-up and documentation to provide outcomes in the form of an annual report to enable the objectives of
 - The Cancer Registry, National Cancer Action Team (NCAT) and National Cancer Intelligence Network (NCIN)
 - short term – improved surgical (and/or other treatment techniques) outcomes
 - long term - improved oncological and performance outcomes

In the event of disease progression or recurrence to advise on the potential for further curative intervention or if not feasible to advise on suitable local alternative strategies.

This service is to be provided separately for those with primary tumours of osseoligamentous origin (to include surgery for apparently isolated spinal metastases) and for those with tumours of neurological origin (given the different requirements and clinical linkages). There is however no reason why both services could not be provided on the same site, albeit requiring some different MDT contributors.

There will be a nationally identified integrated service for the treatment and care of patients with curable or potentially curable spinal oncological conditions.

- This should recognise and take into account the significant differences and requirements for the two different generic tumour groups identified. (Osseoligamentous (including isolated metastasis) tumours and tumours of neurological origin).
- There will be a national clinical group for each of these generic tumour types with representation from each participating centre.
- The service will offer co-ordinated emergency, urgent and routine referral pathways.
- Timeliness of access Referral - Referrals will normally be seen in keeping within the national cancer targets of two-week or sooner if there are symptoms or signs

of neurological compromise.

It is recognised that in some circumstances it will not be clear whether the condition in question is a primary tumour and that the immediate priority given significant and deteriorating neurological compromise may be perceived to be decompression in the hope of maintaining some neurological function.

Method of referral - This will be defined nationally with a common data requirement (to meet Cancer and Spinal Registry, NCAT and NCIN standards) and available electronically with appropriate security.

Multi-disciplinary Team (MDT) Meetings - Guidelines for this will include:

- Definition of the membership and required frequency of attendance
- A regular schedule of meetings (preferably weekly) Definition of the cases to be discussed
- The information required and timelines for this to be available to allow decision making
- Guidelines for decision making, documentation and communication

Clinical Care - Guidelines for this include :

- Frequency and availability of specific Spinal oncology clinics and the facilities to be available
- Diagnostics – pathology and imaging
- Pathology – arrangements for appropriate reporting of specimens with linkages to national and international case review and with defined peer review should be in place
- Imaging – imaging guidelines for patients with suspected or proven Sarcoma are defined in the Imaging Guidelines for Sarcoma, as agreed by the Sarcoma SSG. These should assist referring clinicians to choose the most appropriate imaging for patients and to provide a uniform approach to imaging techniques and reporting

In Patient care – There will be a defined care pathway with electronic recording of process and outcome available

Surgical Provision – All surgical treatments for spinal tumours, primary bone tumours and spinal metastases require to be available and the relevant information recorded in a standardised format

Adjuvant (and Neo-adjuvant) treatments – There will be defined links to medical and radiation oncology in all its forms

After Care & Rehabilitation – This requires acceptance in principle of early repatriation to referring units for both aftercare and rehabilitation or other suitable modes of care

Follow-up – There will be a condition dependent protocol for the duration, frequency and appropriate investigations for follow up.

Patient Information – Given the rarity of these conditions appropriate information needs to be made available at all stages in investigation and treatment to both patients and relevant parent clinicians and paramedical staff

Data collection, Audit and Research – There will be leadership/participation in audit of both process and outcome and in developmental research

SSG Links – There will be appropriate links through local SSGs to local hospitals, other Cancer Networks and NCAT

The **Components of Curative/Potentially Curative Oncology** service delivery will include for the following:

- Spinal Oncology Co-ordinator
- Administrator
- Investigational and Therapeutic Interventional Radiology
- Surgical Services
- Oncological services
- After care
- Local Support Teams
- Children and Young Persons Support
- Rehabilitation services including Spinal Injury centre support
- Supportive and Palliative Care
- Data collection, Audit and Research
- Cancer Registry
- Pathology
- Cancer waiting times monitoring
- Audit
- Clinical trials
- Site Specific Group Links

Pathways and Key Interventions

Optimal delivery of a potentially curative spinal oncological service is dependent on a close working relationship between those providing:

- Assessment of the condition including:
 - Clinical Assessment - Spinal Surgeon and/or Oncologist
 - Diagnostic radiology – for imaging of the lesion and appropriate staging investigations
 - Interventional radiology - for biopsy
 - Pathology - for interpretation of histology and definition of resection margins
 - Oncology - for advice as to nonsurgical treatment options including neo-adjuvant chemotherapy
 - Primary spinal tumours of osseoligamentous origin
 - Primary spinal tumours of neurological origin (to include all isolated metastasis potentially treatable with curative intent)

Primary tumours of either osseoligamentous or neurological origin will commonly present with either pain and/or or neurological symptoms and signs prompting imaging

which initially should be in the form of an MRI scan. Sometimes they are a serendipitous asymptomatic finding on imaging performed for other purposes.

Appearances are often diagnostic or sufficiently suggestive to indicate referral to the appropriate (osseoligamentous or neurological) designated specialist tertiary unit for advice about further imaging and the need for, and type and method of biopsy and subsequent treatment. If doubt exists it is preferable to refer prior to biopsy rather than avoidably contaminating the potential definitive surgical field.

Key interventions include:

- **Image guided biopsy** - This is often performed by the interventional radiologist under CT guidance but sometimes in theatre by the radiologist or surgeon with image intensifier control
- **Neoadjuvant chemotherapy** - sometimes some tumours are too large or too close to vital structures to be amenable to surgery initially. It is possible to shrink some of these (typically Ewings sarcoma and osteosarcoma) with chemotherapy such that become surgically removable
- **Excision** - this may be :
 - Extralesional - removal of the tumour with an intact cuff of normal tissue . This is the ideal when attempting a curative resection. Adjuvant local therapy (Beam therapies(Radiotherapy, Intensity modulated radiotherapy (IMRT) or Intensity modulated proton therapy (IMPT)) is probably not necessary.
 - Marginal - removal of the tumour with possible but no definite breach of the tumour margin (often possible when attempting to preserve spinal cord function but removing the tumour up to the dural sleeve) Adjuvant local therapy should be considered .
 - Intralesional - the tumour has been breached in the course of surgery with a much higher probability of local recurrence . Adjuvant local therapy probably advisable if the tumour is likely to be sensitive.

For **Spinal Reconstruction** the tumour itself or the amount of tissue it is necessary to remove for tumour clearance may render the spine unstable and painful . There are different routes and techniques to stabilise the spine. These may be used in varying combinations. These include:

- Vertebroplasty– Image guided injection of cement from the back of the spine into the vertebral body to provide internal reinforcement. This may be preceded by balloon correction of deformity (kyphoplasty)
- Pedicle screw stabilisation - Screws are inserted from the back of the spine into the anterior column (vertebral bodies) and connected by rods to provide posterior scaffolding support
- Anterior spinal reconstruction - the destroyed or weakened vertebral body is removed and replaced with cement or purpose designed cages of differing materials depending on the subsequent treatment likely to be required
- Spinal Fusion - all spinal stabilisation techniques are liable to failure unless accompanied by bony healing which is achieved using bone grafts or substitutes to get the bones to join together over the involved levels.

Spinal Oncology Co-ordinator

Referrals will be discussed and triaged by the designated spinal tumour co-ordinator (who in practice is likely to also cover other acute spinal conditions including MSCC) to avoid unnecessary delay and to have the required information is available and collated so that the senior clinical advisors can decide on the most appropriate management for the patient.

Diagnostics including Radiology

The range of diagnostic Radiology will include the following;

- 24/7 MRI
- Myelography for those for whom MRI is not feasible (pacemakers, stents etc.)

Biopsy (with potential for CT guidance as required) - prior to biopsy the technique and route of access will be discussed and agreed with the centre potentially accepting the patient for definitive treatment.

- CT
- Ultrasound
- Isotope imaging
- Positron emission tomography (PET) imaging
- Nerve conduction studies
- Image Exchange Portal system for timely inter-hospital transfer of images between hospitals

Therapeutic Interventional Radiology

Both the spinal surgeon and interventional radiologist will discuss and agree the suitability and feasibility of these forms of treatment at the spinal oncology MDT:

- Preoperative embolisation – shall be accessible
- Percutaneous vertebroplasty
- Radio frequency ablation (RFA)
- Stereotactic radio-surgery

Surgical Services

All surgical treatments for spinal tumours, primary bone tumours and spinal metastases require to be available. This includes:

- For Osseoligamentous (including isolated metastasis) tumours - anterior and posterior reconstructive techniques and instrumentation are likely to be required.
- For tumours of neurological origin reconstructive techniques and instrumentation are unlikely (but may be) to be required.

For both groups the intention of surgery will be defined prior to operation with regard to:

- Oncological purpose - (curative or palliative)
- Oncological technique (extralesional, marginal and intralesional resection)

Oncological Services

All relevant oncology assessment and treatments require to be available. This includes:

- Comprehensive radiotherapy service, including conformal radiotherapy and intensity modulated radiotherapy (IMRT).
- Comprehensive chemotherapy service for inpatient and day case therapy. This should recognise that for some tumours neo-adjuvant chemotherapy may be a necessary prelude to considering the feasibility of definitive surgical resection.

Patients for consideration of Proton therapy will be referred to the national Panel.

Histological definition of completeness of resection will be reviewed at MDT postoperatively to consider the type and timing of adjuvant therapies. Patients outside the catchment area will receive their treatments locally.

After Care for Palliative/Potentially Curative Oncology

Local Support Teams

It is recognised that patients with spinal tumours who are treated with either curative (initially) or subsequently later palliative intent may require considerable ongoing support during and after any treatment. The local support team is the team, other than the Spinal MDT, which manages the aftercare and rehabilitation

Rehabilitation services including Spinal Injury Centre Support

Access to Spinal Cord injury specialists for those with significant neurological compromise with good oncological prognosis to optimise function and return to work (new but limited funding required).

Supportive and Palliative Care

This is provided as locally as possible to the patient's home under the direction of the local CCGs and specialised palliative care teams. This may require:

- Local Allied Health Professionals receiving further training to manage those with limited prognosis who are able to return home (no funding required).
- Palliative care for those with more limited prognosis unable to return home (funding may be required).

Follow-Up

Follow-up (FU) will be as outlined in the clinical guidelines for the management of Sarcoma (Local) agreed by the MDT and ratified at the cancer services board. Patients will usually be reviewed at 6-8 weeks post-operatively and the subsequent follow up plan will be dependent on the type of spinal surgery.

All sarcoma patients will receive FU by members of the Sarcoma MDT in clinic. Ongoing FU guidelines are as indicated below:

First 2 years 3 monthly

Year 2-5	6 monthly
Year 5-10	Annually

Some patients will be shared follow up care with their local oncologist and these appointments will alternate accordingly. Ongoing follow up is tailored to individual needs, taking into account patient choice, but at the discretion of the MDT.

Data Collection, Audit and Research

Cancer Registry

All patients will have data uploaded to the Spinal Oncology database by the MDT co-ordinator. Those with a primary bone sarcoma or neurological tumour will be recorded on the relevant database.

The minimum dataset will be used for all patients but with the aim that all data submitted will be complete.

Cancer waiting times monitoring

The MDT will facilitate the monitoring of Cancer Waiting Times through the Advanced Nurse Practitioner (ANP) or MDT Coordinator, and will include the cumulative waiting time for patients in the discussion and planning of their pathway.

This data will be uploaded into the national cancer database Open Exeter. Data is submitted monthly one month in arrears directly onto the cancer waiting times pages. Each month all urgent GP referrals and all patients receiving surgical treatment for a malignancy either primary or secondary will be uploaded. Reports for all targets to be downloaded to be included in the Trust's corporate performance.

Audit

The MDTs will have a proactive multidisciplinary audit programme including:

- Process audits: Communication with GPs, 2 Week Wait standards etc.
- Outcome: Production of Kaplan-Meier survival curves, complication rates etc.
- Experience: Patient surveys of diagnosis, radiotherapy experience etc.

The MDTs will undertake to participate in Network audit projects agreed with the Site Specific Group.

Clinical Trials

The MDTs will be committed to participation in high quality research studies and clinical trials. Whenever possible patients shall be considered for inclusion in local and national research studies and clinical trials.

Site Specific Groups (SSG) Links

The spinal oncology MDT will have membership of the relevant National and local

MDT for :

- primary tumours of Osseoligamentous origin (to include isolated metastasis)
- primary tumours of Neurological origin

General Paediatric care

When treating children, the Service will additionally follow the standards and criteria outlined in the Specification for Children's Services (attached as Annex 1 to this Specification)

2.3 Population covered

Equity and access to the range of spinal services is diverse and access to the service shall be according to common routes, policies and criteria that do not disadvantage any relevant patient group will be developed. The means by which this is achieved will be made clear e.g. common admission policy, etc.

For the **management of persistent non-specific pain** this specification relates to populations for:

- Adults with persisting severe non-specific back pain, who have had an optimal package of care (NICE: Clinical Guideline (CG) 88), including completion of a Combined Physical and Psychological treatment programme.
- Adults who have previously had a lumbar fusion but present to healthcare with severe spinal pain. The patients typically will have severe spinal pain and disability. They may or may not have associated psychological distress, but this shall have been identified and addressed prior to referral.

For **Spinal Deformity** access is usually by referral from the General Practitioner, Paediatrician, Physiotherapist, or Paediatric Orthopaedic Surgeon. Equality of access should be considered in terms of geography with areas furthest from the recognised scoliosis centres possibly having less access.

Looking at the HES data (2010/11), this is not the case with the 21 PCTs with lower than average activity being within easy geographical reach of a hospital where spinal deformity surgery is performed. These data should be evaluated on an annual basis to evaluate equality of access. This supports using all the currently available units meeting the above criteria continuing to do spinal deformity surgery.

It may be necessary to observe or treat some patients non-operatively during growth. Follow-up may occur for at least two years following surgery. Intervals vary depending on clinical and growth and development issues.

Non-operative care includes plaster jackets and orthoses. These require changing frequently in small children because of rapid growth. They are monitored by serial X-rays or surface topography (e.g. ISIS or Formetric scan).

Patient choice is still appropriate although may involve patients travelling long distances if they do not wish to attend their closest Spinal Deformity Centre.

With the new Spinal Treatment Function Code, spinal outpatient attendances can receive a separate tariff from Trauma and Orthopaedics to reflect the complex nature of this work, multidisciplinary clinics, long consultations and increased use of more

time-consuming plain radiographs and other imaging investigations (CT and MRI).

Spinal orthoses are also sometimes used in both paediatric and adult spinal deformity and this outpatient activity needs to be commissioned.

Some spinal surgeons who do not practice spinal deformity surgery are happy to provide outpatient monitoring, diagnosis and investigations. This allows patients to be followed-up closer to home but does require adequate skills and radiography. This practice should not be discouraged and is non-specialised.

For **Reconstruction for Trauma, Metastatic Tumour and Infection** the specialised service will provide advice and agree to transfer if needed for this group of patients. Not all patients will need to be transferred and this will require consultation between the specialised service and the referring centre. The provision of these services must be organized and commissioned as part of Regional Spinal Networks. The principles of such a network are already defined for MSCC and also for major spine injury based on Major Trauma Centres.

However, regions vary greatly and account will need to be taken of the different hospital facilities, skill sets and geography. Specific patterns of provision within the network will be defined so that children are appropriately located. Group of patients that will be covered include Palliative surgery for metastatic or primary tumour specifically:

- Adults (and unusually children) with metastatic spinal disease at risk of developing metastatic spinal cord compression
- Adults (and unusually children) with suspected and diagnosed spinal cord and nerve root compression due to metastatic malignant disease
- Adults (and unusually children) with primary malignant tumours (for example lung cancer, mesothelioma or plasmacytoma) and direct infiltration that threatens spinal cord function

For **Cervical, Thoracic, Anterior Lumbar Surgery** a number of patient groups have a higher chance of requiring these services, particularly specialised cervical spine surgery. These include patients with:

- Rheumatoid arthritis
- Ankylosing spondylitis
- Down's syndrome
- Osteogenesis Imperfecta
- Spondylo-Epiphyseal Dysplasia Congenita
- Mucopolysaccharidosis

It should be emphasised that some Specialised Hospitals may provide all these services whilst others may provide cervical and thoracic surgery or thoracic and lumbar surgery. Paediatric spinal surgery may be provided alongside adult surgery in some units but may be a separate service

For Curative/**Potentially Curative Oncology** the specialised service will cover:

- Adults and children with primary benign and malignant spinal tumours of osseoligamentous origin

- Adults and children and with isolated metastatic spinal disease that is potentially resectable with curative intent
- Adults and children with primary benign and malignant tumours of the spinal cord, nerve roots and meninges.

Not all patients will need to be transferred and this will require consultation between the specialist service and the referring centre

2.4 Any acceptance and exclusion criteria

Spinal Cord Injuries of traumatic and non-progressive non-traumatic origin are covered in a separate specification. The co-dependencies identified shall recognise the design of the complex spinal surgery specification. (See D13 *Spinal Cord Injury Specification*)

For **persistent non-specific spinal pain** this specific service specification does not cover paediatrics, severe acute low back pain, specific spinal pathologies (such as inflammatory disease, neoplastic disease, osteoporosis, fracture) radicular pain or spinal deformity (scoliosis, spondylolisthesis). It also does not cover people with persisting severe low back pain who have not completed the core therapies recommended in the NICE low Back Pain Guideline CG88.

For **Spinal Deformity** there are no specific exclusion criteria for this service. In adults, patients with spondylolisthesis should not be defined as having a spinal deformity. High grade spondylolisthesis (Grade III and IV) usually presents in adolescents, and may require surgery beyond the capability of some spinal units and should be referred as they are currently.

For **Reconstruction for Trauma, Metastatic Tumour and Infection** this specification relates to any patient with a requirement for reconstruction of the spine shall be considered for treatment, but factors such as severe co-morbidity may exclude the treatment of some. These decisions will frequently require input from other specialists. Groups that will not be covered will be for curative or potentially curative oncological surgery (see section on primary spinal oncology services) specifically:

- Adults and children with primary benign and malignant spinal tumours of osseoligamentous origin
- Adults and children and with isolated metastatic spinal disease that is potentially resectable with curative intent
- Adults and children with primary benign and malignant tumours of the spinal cord, nerve roots and meninges.

For **Cervical, Thoracic, Anterior Lumbar Surgery**: This group is defined by the OPCS codes as defined as specialised. There are no exclusions for either adult or paediatric patients.

For **Curative/Potentially Curative Oncology**, groups that will not be covered

- Adults and children with metastatic spinal disease at risk of developing metastatic spinal cord compression that is not potentially curable
- Adults and children with suspected and diagnosed spinal cord and nerve root

compression due to metastatic malignant disease that is not potentially curable.

- Adults with primary malignant tumours (for example lung cancer, mesothelioma or plasmacytoma) and direct infiltration that threatens spinal cord function.
- Adults with spinal cord compression due to non-malignant causes.
- Patients with co-morbidities effectively excluding the necessary spinal surgical procedure

Recombinant Bone Morphogenetic Protein (BMP)

BMP is a genetically engineered protein which both recruits bone forming cells to the surgical area and “turns on” local cells to the bone-making process. BMP is used for conditions requiring spinal fusion and stimulation of bone growth.

There is no evidence that BMP is better at producing fusion than autograph (the patient’s own bone) and there is on-going concern regarding possible complications.

This product is currently a drug exclusion on Payment by Results and should be only be used under the following circumstances;

- Revision surgery where sufficient iliac crest bone graft is not obtainable from the patient due to previous surgery.
- Other indications where sufficient iliac crest bone graft cannot be harvested
- Where obtaining iliac crest bone graft is contra-indicated BMP is contraindicated by the manufacturers in children and should not be used BMP should not be used anteriorly in the cervical spine Currently BMP is not routinely funded and should be subject to an evidence review and policy development.

2.5 Interdependencies with other services

Good linkage is required from spinal surgery with the following clinical services:

- Anaesthesia and Intensive Care Medicine
- Accident and Emergency Medicine
- Paediatrics
- Respiratory Medicine
- Rehabilitation Medicine
- Neurosciences
- Oncology & Palliative Care
- Radiology
- Trauma and Orthopaedics Surgery
- Local Cancer Networks, or equivalent replacement organisations

Given the long term care needs of many specialised spinal services patients, there must be established and functional pathways with social care to support rehabilitation and long term reintegration.

For persistent **non-specific spinal pain** many people with severe low back/neck pain also have other medical conditions, particularly widespread musculoskeletal pain, diabetes, psychological distress and obesity. It is therefore essential that strong

clinical linkages are made to other service areas. Prior to referral smoking, obesity (BMI >40), respiratory, cardiac and vascular conditions shall be addressed

For **Spinal Deformity** the links with other clinical services and facilities required are defined above. Clinical networks are vital for the success of both paediatric and adult spinal deformity services. England should be divided into Regions for the purposes of paediatric and adult spinal deformity services. This will then allow the regional clinical networks to be defined. This process needs to identify any hospital providing spinal care for any of these patients and the level of surgery being performed. This will allow regions to generate a system of 'Hub' hospitals which will be defined as those providing specialised spinal deformity surgery and 'Spoke' Hospitals defined as those offering non-specialised surgery only or no surgery but still looking after this patient group in outpatients. This will allow pathways of referral to be developed at a regional level to support local needs based on available facilities. The Hub and Spoke model will vary by Region and may be the same for both paediatric and adult spinal deformity or may be different. The Spinal Taskforce has recommended that there be both local and regional networks which are geographically interlinked

For Reconstruction **for Trauma, Metastatic Tumour and Infection** the decision making process and care for this group of patients is very complex and requires the input of a number of specialities. In the trauma and cancer group the service description is partially available. The treatment of infection is much more difficult. The key services required include:

- Ambulance services
- General Practice
- Emergency Medicine
- Microbiology
- Infectious Diseases
- Spinal surgery (Orthopaedic and Neurosurgical) Oncology
- Radiology – must be specialist in spinal imaging
- Spinal cord injury services
- Rehabilitation
- Critical care and specialist anaesthesia
- Theatres

For **Cervical, Thoracic, Anterior Lumbar Surgery** patients with low back pain, a CCG MSK service and Combined Physical and Psychological Programme (NICE: CG88) is essential.

The links with other clinical services and facilities required are defined above. Rheumatology services are often required and shall be available for discussion and advice. Regional clinical networks must be defined. This process needs to identify hospitals providing spinal care for any of these patients and the surgery being performed. This will allow pathways of referral to be developed at a regional level to support local needs based on available facilities. The Hub and Spoke model may vary by region.

Paediatric cervical spine cases will be supported by appropriate Paediatric medical input depending on the underlying diagnosis and there may be a requirement for

combined Orthopaedic and Neurosurgery operating and post-operative paediatric intensive care facilities.

For **Curative/Potentially Curative Oncology** the decision making process and care for this group of patients is very complex and requires the input of a number of specialities. The key services required include:

- Ambulance services
- General Practice
- Spinal surgery (Orthopaedic and Neurosurgical)
- HDU (and rarely and preferably, avoidably Intensive Care Unit (ICU))
- Specialist anaesthesia
- Oncology
- Pathology
- Radiology –Diagnostic and therapeutic - to include access to IMRT and IMPT
- Spinal cord injury service
- Rehabilitation
- Palliative care
- Paediatrics (very unusual in the preadolescent group - more common in transitional years)
- Pain management
- Urology
- Continence service
- Plastic and maxillo-facial surgery
- Fertility
- Erectile dysfunction

Imaging/Diagnostics

Imaging, and in particular MRI, is key in the investigation of patients with spinal problems. Treatable conditions including incipient Cauda Equina compression may be missed or the diagnosis delayed because MRI scanning remains a scarce resource.

MRI scanning is the gold standard for determining whether a patient has nerve root compression. Surgery for these patients is proven to be highly effective and there is a strong case for a low threshold for timely MRI investigation of patients with nerve root leg pain.

In emergency situations, rapid imaging is essential to inform decision-making. Tertiary centres offering emergency spinal surgery for trauma, malignant cord/Cauda Equina compression or similar conditions, require 24-hour access to both MRI and CT imaging. Other centres must ensure that they can image malignant spinal disease within a suitable time period, as indicated by the NICE recommendations, and if providing a trauma service, that 24 hour CT imaging is available with inter-hospital image transfer (IEP).

3. Applicable Service Standards

3.1 Applicable national standards e.g. NICE, Royal College

For **persistent non-specific spinal pain** there is no patient information or national standards specific to the late management of this patient group. There is therefore a need for national patient information, which clearly outlines the recommended pathway and risks and benefits of each of the treatment options (conservative and invasive). It is important that patients understand treatments help pain and improve quality of life but are not a cure. A Combined Physical and Psychological Programme (NICE: CG88) is an essential element in rehabilitating this group of significantly disabled individuals.

The outcomes of both conservative and surgical interventions must be entered into the Commissioner approved Spinal Registry. Important outcomes for this patient group include quality of life, return to work, healthcare utilisation and medication usage. The findings of the registry can then be used to inform future patient choice.

For **Spinal Deformity** facilities and equipment are described above. In this area of large spinal surgical procedures, there is a need for developing consistent patient information in England (and the UK). This information shall cover general information and information on specific surgical procedures including risks and potential benefits. This process should perhaps be a joint venture between the British Scoliosis Society and the patient body, Scoliosis Association UK (SAUK).

Every patient having a surgical procedure must be entered into an accepted Spinal Registry such as the British Spine Registry or European Spine Tango. This will include details of diagnosis, surgical procedure, complications and patient reported outcome measures (PROMS) e.g. SRS-22. Critical events shall be collected and if necessary, a root cause analysis should be performed within 45 days of occurrence. These shall be submitted and combined into an annual report so that all Spinal Deformity Surgeons can learn from events in other units. Patient and parent satisfaction with care will be recorded for both surgical and outpatient care.

For **Reconstruction for Trauma, Metastatic Tumour and Infection** the following national standards apply:

- Metastatic spinal cord compression: Diagnosis and management of adults at risk of and with metastatic spinal cord compression NICE guideline CG75 MSCC (November 2008) – see website (Quick Reference Guide)
<http://guidance.nice.org.uk/CG75/QuickRefGuide/pdf/English>
- Diagnosis and management of metastatic malignant disease of unknown primary origin (2010).
- Percutaneous cementoplasty for palliative treatment of bony malignancies (2006)
- Improving supportive and palliative care for adults with cancer (2004)
- Acute Oncology measures (March 2011)
http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_125889.pdf
- For Infection no national standards exist

For **Cervical, Thoracic, Anterior Lumbar Surgery** every patient having a surgical procedure must be entered into an accepted Spinal Registry such as the British Spine Registry or European Spine Tango. This will include details of diagnosis, surgical procedure, complications and patient reported outcome measures (PROMS). Critical events will be collected and if necessary, a root cause analysis should be performed within 45 days of occurrence. These will be submitted and combined into an annual report so that all Spinal Surgeons can learn from events in other units. Patient satisfaction with care will be recorded for both surgical and outpatient care.

For **Curative/Potentially Curative Oncology** the following national standards e.g.: NICE, Royal College apply:

- Metastatic spinal cord compression: Diagnosis and management of adults at risk of and with metastatic spinal cord compression NICE guideline CG75 MSCC (November 2008) – see website (Quick Reference Guide) <http://guidance.nice.org.uk/CG75/QuickRefGuide/pdf/English>
- Improving Outcomes for People with Sarcoma (2006).
- Diagnosis and management of metastatic malignant disease of unknown primary origin (2010).
- Percutaneous cementoplasty for palliative treatment of bony malignancies (2006)
- Improving supportive and palliative care for adults with cancer(2004).
- Improving Outcomes for Children and young people with cancer (2005).
- Acute Oncology measures (March 2011) http://www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/documents/digitalasset/dh_125889.pdf

Specific Equipment and Facilities to include:

- Full range of instrumentation - this is different for each region of the spine (cervical, thoracic, lumbar and sacral) and also differs for anterior and posterior approaches
- Operating Microscopes operation-field magnification and illumination.
- CUSA (ultrasonic aspirators)
- Specialist pathology – frozen section facility
- Spinal cord monitoring will be available when regarded as clinically indicated
- Stereotactic Radiosurgery (Tumours of neurological origin)
- Operating Room Staffing - The range of anatomical approaches and the highly specialised nature and range of much of spinal surgery is often not given adequate recognition. The theatre and scrub teams need to have a high level of training and broad familiarity with a greater range of approaches and techniques than in most other areas of surgery. In the absence of this level of support the potential for adverse event or unnecessarily prolonged surgery is increased with predictable consequence. Hospital and theatre management should make allowance for additional training time for spinal theatre staff who undertake reconstructive and other more complex levels of spinal surgery To attract and retain theatre staff of adequate standard higher levels of pay banding should be considered.

Service Infrastructure

Networks of care must be established at local and regional level to avoid geographical gaps in the provision of a service and the need for patients to travel long distances for care. Local providers will establish an integrated service with a single point of entry and triage of patients. The service should be led by a consultant spinal surgeon. Local providers of spinal services will have clear links with the providers of specialised services including spinal cord injury. Networks may be provided on a hub and spoke principle. All third /private sector providers will be covered by the same governance as the hub/local provider:

- National - There will be an annual report and the necessary infrastructure to prepare this will be agreed. There should be nationally recognised record keeping charts and consenting processes.
- Local - Each service should have adequate (probably Band 4 clerical/secretarial support) for the necessary sessions for MDT attendance, minute keeping, Patient records, data entry, and patient communication for follow-up data.

Patient information requirement

Communication with Patients

New patients that are diagnosed with spinal tumours will be asked how they wish to receive their results, either by returning to clinic, letter, phone call or via their GP. This information will be co-ordinated by the Key worker. Where different treatment options exist, the patients will be referred to their local cancer centre. The patient will be supported in making a treatment decision with the clinical team either at that appointment or on a subsequent visit if appropriate. Each patient will be offered the opportunity of a permanent record or summary of a consultation at which the discussion of treatment options

Patient Information

Each patient will have an holistic needs assessment and be issued with an Information Prescription. The spinal oncology MDT will have developed patient information for patients with primary bone tumours in accordance to the pathway identified in the Sarcoma NICE Guidance (2006). Clear and comprehensive written information will be available.

Information provided for patients with bone metastases:

- Pan Birmingham Cancer Network (PBCN) Information on early recognition of MSCC as agreed by the PBCN.
- Macmillan Cancer Support information on cancers that commonly metastasise to bone is available

Diagnostic Procedures

- The disease and treatment options.
- Treatment specific information leaflets, including information on outcomes and post treatment symptoms.
- Members and contact details of the multi-disciplinary team.
- Key worker name and contact details

- Support group and local services information and contact details.
- Psychological and spiritual guidance, information and contact details

4. Key Service Outcomes

For persistent non-specific spinal pain services providing interventions must submit data including PROMS to a recognised Spinal Registry such as European Spine Tango or the British Spine Registry, including PROMS. The data from this will be essential in bench-marking across service providers and providing evidence of clinical effectiveness and complications

For Spinal Deformity the key service outcome measures suggested

The Spinal Unit:

- Number of hours of Spinal Specialist Nurse/Physiotherapy per week
- Number of surgeons including names and number of years performing spinal deformity surgery as a Consultant
- Additional facilities i.e. Body surface scanner and Clinical photography, bracing provision

Outpatients:

It would be difficult to identify outpatient activity but Hospitals performing Specialised Spinal Surgery will aim to provide information regarding how many new patients are seen per year (separate for paediatric and adult spinal deformity)

Non-operative treatments:

Hospitals performing Specialised Spinal Surgery will provide the

- Number of patients having brace treatment for paediatric spinal deformity on 1 October and 1 April each year.
- Number of patients in brace split by brace type
- Number of patients in plaster jackets or other jackets applied in theatre

Surgery:

For instrumented spinal deformity corrections:

- Total number of cases
- Diagnosis for each patient
- Surgical procedure for each patient
- Intraoperative and post-operative complications but specifically:
 - 30 day mortality
 - Spinal cord injury including American Spinal Injury Association (ASIA) grade and change during follow-up
 - Other neurological deficits including change during follow-up
 - Infection requiring non-operative treatment
 - Infection requiring return to theatre
 - Repeat surgery (total number in the year where original surgery was within 10 years including length of time from previous instrumented deformity)

correction)

- Patient Reported Outcome Measures: PROMs
- SRS-22
- Patient / Parent satisfaction

Number of cases cancelled on the day of surgery including the reason, especially if no critical care bed or no spinal cord monitoring available. Surgical data must be collected on the British Spine Registry or European Spine Tango

Critical Events: Annual report of all critical events and the result of any root cause analysis / risk management process. This can be for outpatient or inpatient care relating to patients with spinal deformity

For **Reconstruction for Trauma, Metastatic Tumour and Infection** key outcome measures suggested:

- Outcome Measures for Reconstruction for Trauma, Metastatic Tumour and Infection are very different conditions with different Natural History, morbidity and mortality, though reconstructive surgery is common to all as a possible intervention within their overall management. Thus generic spinal outcome scores will not apply. However Reconstructive Surgery activity for these three conditions should be submitted to a National Registry. The surgery must also be audited and subject to peer review for each condition e.g. the current recommendations for Regional Audit of MSCC.
- Performance dash boards/Quality standard Key Performance Indicators (KPIs) will be developed.

For **Cervical, Thoracic, Anterior Lumbar Surgery** key outcome measures suggested:

The Spinal Unit:

- Number of surgeons including names and number of years performing spinal complex spinal surgery as a Consultant
- List of Facilities including associated service e.g. Rheumatology, Paediatrics

Outpatients:

It would be difficult to identify outpatient activity but Hospitals performing Specialised Spinal Surgery will aim to provide information regarding how many new patients are seen per year.

Surgery:

Specialised Cervical, Thoracic, Posterior lumbar, Anterior lumbar spinal surgery:

- Number of cases for each
- Diagnosis for each patient
- Surgical procedure for each patient
- Intraoperative and post-operative complications but specifically:
 - 30 day mortality
 - Spinal cord injury including American Spinal Injury Association (ASIA)

- grade and change during follow- up
- Other neurological deficits including change during follow-up
- Infection requiring non-operative treatment
- Infection requiring return to theatre
- Instrumentation failure
- PROMS – to include Core Outcome Measures Index (COMI), patient satisfaction and a global outcome measure e.g. EQ5D
- Number of cases cancelled on the day of surgery including the reason. Especially for no critical care bed or no spinal cord monitoring available.

Surgical data must be collected using the British Spine Registry or European Spine Tango .

Critical Events: Annual report of all critical events and the result of any root cause analysis / risk management process. This can be for outpatient or inpatient care

Performance dash boards/Quality standard KPIs will be developed.

For **Curative/Potentially Curative Oncology**

Process and Outcome Measures

The following process and outcome measures are suggested for further development.

Process Measures

EITHER

Time from receipt complete referral (letter and imaging, to include histology if prior biopsy) to appointment Target Two weeks - % compliance

OR

Time from referral to complete investigation and biopsy if not done prior to referral

Time from completion of investigation to:

- Definitive treatment plan (Target Two weeks - % compliance)
- Treatment (variable and condition dependent therefore time should not be specified)
- Record and definition of delay with reasons (dropdown menu)
- Treatment related complications
- Unplanned neurological deficit (Y/N)
- Unplanned tumour contamination (of operative field)(Y/N)
- General (drop down menu to include Return to theatre Y/N
 - If Y Specify - Wound breakdown (w), Infection (I), Technical (T), Haemorrhage (H) Neurological compromise (C), Other (O))
- Delay in discharge (reasons - drop down menu)
- Delivery of adjuvant therapies within intended timeframe (to be specified)
- Chemotherapy
- Beam therapies (Photon or Proton)

Patient cohort subdivided by (Qualifying variables):

- Age, sex, ethnicity, post-code (For deprivation analysis)
- Primary tumour type:
 - Osseoligamentous – Individual tumour type (drop down menu to include Enneking, Borenstein, Boriani classification)
 - Neurological
 - Intradural or extradural
 - Intradural -intra or extra medullary
 - Extradural - schwannoma, meningioma, neurofibroma, paraganglioma,metastasis
 - Intramedullary - astrocytoma (grade), ependymoma, haemangioblastoma, cavernoma, dermoid, neurenteric cyst
- Histological type of tumour
- Clinical presentation (Type of - Asymptomatic(A)/ Pain only (P)/ Neurological Symptoms or signs (N) /Both (B) and Frankel grade, Contenance)
- Anatomical level of spinal (neurological level or mechanical failure) compromise
- Oncologists prognosis of life expectancy
- Treatment type(s) (Vertebroplasty, Surgery Radiotherapy, Embolisation combination)
- Post Surgery Adjuvant Radiotherapy

Outcomes and timing of recording

- Histological margins relative to surgical intention (clear / not clear)
- 30 Day Mortality (Number and Percentage)
- Disease free survival (Time to recurrence – weeks)
- Need for late revision surgery and interval to this
- Time to Death

PROMs

Traditionally patients with spinal tumours have been a group in which quality of life and functional outcomes have been poorly assessed and recorded beyond definitive treatment. It will be vital to develop new and innovative ways of reaching the widest number of patients at all stages, from referral through to diagnosis to treatment and beyond. The method of audit would use telephone interviews and questionnaires to maximise the collection of PROMs without being overly burdensome. Patient reported functional outcomes would include for all patients:

Benign tumours of osseoligamentous origin

Tumour Name	Behaviour	Special requirements	Surgical Technique	Adjuvant Treatment / monitoring
Osteochondroma	Latent Some active	Nil	Excision if symptomatic	No Short term monitoring

Haemangiomas	Latent Some active	Embolisation	Excision if symptomatic	No Short term monitoring
Osteoid Osteoma	Active		CT guided radiofrequency ablation or excision	No Short term monitoring
Eosinophilic Granuloma	Active			No Short term monitoring
Aneurysmal Bone cysts		Embolisation	Intralesional excision	No Short term monitoring
Osteblastoma	Aggressive		Extralesional excision if possible	Not radiosensitive Long term monitoring .
Giant cell tumour	Aggressive	Embolisation	Extralesional excision if possible	Radiosensitive Long term monitoring

Malignant tumours of osseoligamentous origin

Tumour type	Behaviour	Special requirements	Surgical Treatment	Adjuvant Treatment
Chordoma	Slow to metastasise		En bloc excision	Proton therapy
Chondrosarcoma	Slow to metastasise		En bloc excision	Proton therapy
Osteosarcoma	May metastasise early	Neo adjuvant Chemotherapy	En bloc excision	IMRT
Ewings Sarcoma	May metastasise early	Neo adjuvant Chemotherapy	En bloc excision	IMRT

ANNEX 1 TO SERVICE SPECIFICATION:

PROVISION OF SERVICES TO CHILDREN

Aims and objectives of service

This specification annex applies to all children's services and outlines generic standards and outcomes that would be fundamental to all services.

The generic aspects of care:

- The Care of Children in Hospital (HSC 1998/238) requires that:
 - Children are admitted to hospital only if the care they require cannot be as well provided at home, in a day clinic or on a day basis in hospital.
 - Children requiring admission to hospital are provided with a high standard of medical, nursing and therapeutic care to facilitate speedy recovery and minimize complications and mortality.
 - Families with children have easy access to hospital facilities for children without needing to travel significantly further than to other similar amenities.
 - Children are discharged from hospital as soon as socially and clinically appropriate and full support provided for subsequent home or day care.
 - Good child health care is shared with parents/carers and they are closely involved in the care of their children at all times unless, exceptionally, this is not in the best interest of the child; Accommodation is provided for them to remain with their children overnight if they so wish.

Service description/care pathway

All paediatric specialised services have a component of primary, secondary, tertiary and even quaternary elements.

The efficient and effective delivery of services requires children to receive their care as close to home as possible dependent on the phase of their disease.

Services should therefore be organised and delivered through "integrated pathways of care" (*National Service Framework for children, young people and maternity services* (Department of Health & Department for Education and Skills, London 2004))

Interdependencies with other services

All services will comply with *Commissioning Safe and Sustainable Specialised Paediatric Services: A Framework of Critical Inter-Dependencies* – Department of Health.

Imaging

All services will be supported by a 3 tier imaging network (“Delivering quality imaging services for children” Department of Health 13732 March 2010). Within the network:

- It will be clearly defined which imaging test or interventional procedure can be performed and reported at each site
- Robust procedures will be in place for image transfer for review by a specialist radiologist, these will be supported by appropriate contractual and information governance arrangements
- Robust arrangements will be in place for patient transfer if more complex imaging or intervention is required
- Common standards, protocols and governance procedures will exist throughout the network.
- All radiologists, and radiographers will have appropriate training, supervision and access to CPD

All equipment will be optimised for paediatric use and use specific paediatric software

Specialist Paediatric Anaesthesia

Wherever and whenever children undergo anaesthesia and surgery, their particular needs must be recognised and they should be managed in separate facilities, and looked after by staff with appropriate experience and training.¹ All UK anaesthetists undergo training which provides them with the competencies to care for older babies and children with relatively straightforward surgical conditions and without major co-morbidity. However those working in specialist centres must have undergone additional (specialist) training² and should maintain the competencies so acquired³ *. These competencies include the care of very young/premature babies, the care of babies and children undergoing complex surgery and/or those with major/complex co-morbidity (including those already requiring intensive care support).

As well as providing an essential co-dependent service for surgery, specialist anaesthesia and sedation services may be required to facilitate radiological procedures and interventions (for example MRI scans and percutaneous nephrostomy) and medical interventions (for example joint injection and intrathecal chemotherapy), and for assistance with vascular access in babies and children with complex needs such as intravenous feeding.

Specialist acute pain services for babies and children are organised within existing departments of paediatric anaesthesia and include the provision of agreed (hospital wide) guidance for acute pain, the safe administration of complex analgesia regimes including epidural analgesia, and the daily input of specialist anaesthetists and acute pain nurses with expertise in paediatrics.

*The Safe and Sustainable reviews of paediatric cardiac and neuro- sciences in England have noted the need for additional training and maintenance of competencies by specialist anaesthetists in both fields of practice.

References

1. Guidelines for the Provision of Anaesthetic Services (GPAS) Paediatric anaesthetic services. Royal College of Anaesthetists (RCoA) 2010 www.rcoa.ac.uk
2. Certificate of Completion of Training (CCT) in Anaesthesia 2010

3. CPD matrix level 3

Specialised Child and Adolescent Mental Health Services (CAMHS)

The age profile of children and young people admitted to specialised CAMHS day/in-patient settings is different to the age profile for paediatric units in that it is predominantly adolescents who are admitted to specialised CAMHS in-patient settings, including over-16s. The average length of stay is longer for admissions to mental health units. Children and young people in specialised CAMHS day/in-patient settings generally participate in a structured programme of education and therapeutic activities during their admission.

Taking account of the differences in patient profiles the principles and standards set out in this specification apply with modifications to the recommendations regarding the following:

- Facilities and environment – essential Quality Network for In-patient CAMHS (QNIC) standards should apply (<http://www.rcpsych.ac.uk/quality/quality,accreditationaudit/qnic1.aspx>)
- Staffing profiles and training - essential QNIC standards should apply.
- The child/ young person's family are allowed to visit at any time of day taking account of the child / young person's need to participate in therapeutic activities and education as well as any safeguarding concerns.
- Children and young people are offered appropriate education from the point of admission.
- Parents/carers are involved in the child/young person's care except where this is not in the best interests of the child / young person and in the case of young people who have the capacity to make their own decisions is subject to their consent.
- Parents/carers who wish to stay overnight are provided with accessible accommodation unless there are safeguarding concerns or this is not in the best interests of the child/ young person.

Applicable national standards e.g. NICE, Royal College

Children and young people must receive care, treatment and support by staff registered by the Nursing and Midwifery Council on the parts of their register that permit a nurse to work with children (Outcome 14h *Essential Standards of Quality and Safety*, Care Quality Commission, London 2010)

- There must be at least two Registered Children's Nurses (RCNs) on duty 24 hours a day in all hospital children's departments and wards.
- There must be an Registered Children's Nurse available 24 hours a day to advise on the nursing of children in other departments (this post is included in the staff establishment of 2RCNs in total).

Accommodation, facilities and staffing must be appropriate to the needs of children and separate from those provided for adults. All facilities for children and young people must comply with the Hospital Build Notes HBN 23 Hospital Accommodation for Children and Young People NHS Estates, The Stationary Office 2004.

All staff who work with children and young people must be appropriately trained to provide care, treatment and support for children, including Children's Workforce Development

Council Induction standards (Outcome 14b *Essential Standards of Quality and Safety*, Care Quality Commission, London 2010).

Each hospital who admits inpatients must have appropriate medical cover at all times taking account of guidance from relevant expert or professional bodies (National Minimum Standards for Providers of Independent Healthcare, Department of Health, London 2002). "Facing the Future" Standards, Royal College of Paediatrics and Child Health.

Staff must carry out sufficient levels of activity to maintain their competence in caring for children and young people, including in relation to specific anaesthetic and surgical procedures for children, taking account of guidance from relevant expert or professional bodies (Outcome 14g *Essential Standards of Quality and Safety*, Care Quality Commission, London 2010).

Providers must have systems in place to gain and review consent from people who use services, and act on them (Outcome 2a *Essential Standards of Quality and Safety*, Care Quality Commission, London 2010). These must include specific arrangements for seeking valid consent from children while respecting their human rights and confidentiality and ensure that where the person using the service lacks capacity, best interest meetings are held with people who know and understand the person using the service. Staff should be able to show that they know how to take appropriate consent from children, young people and those with learning disabilities (Outcome 2b) (Seeking Consent: working with children Department of Health, London 2001).

Children and young people must only receive a service from a provider who takes steps to prevent abuse and does not tolerate any abusive practice should it occur (Outcome 7 *Essential Standards of Quality and Safety*, Care Quality Commission, London 2010 defines the standards and evidence required from providers in this regard). Providers minimise the risk and likelihood of abuse occurring by:

- Ensuring that staff and people who use services understand the aspects of the safeguarding processes that are relevant to them
- Ensuring that staff understand the signs of abuse and raise this with the right person when those signs are noticed.
- Ensuring that people who use services are aware of how to raise concerns of abuse.
- Having effective means to monitor and review incidents, concerns and complaints that have the potential to become an abuse or safeguarding concern.
- Having effective means of receiving and acting upon feedback from people who use services and any other person.
- Taking action immediately to ensure that any abuse identified is stopped and suspected abuse is addressed by:
 - having clear procedures followed in practice, monitored and reviewed that take account of relevant legislation and guidance for the management of alleged abuse
 - separating the alleged abuser from the person who uses services and others who may be at risk or managing the risk by removing the opportunity for abuse to occur, where this is within the control of the provider
 - reporting the alleged abuse to the appropriate authority
 - reviewing the person's plan of care to ensure that they are properly
 - supported following the alleged abuse incident.

- Using information from safeguarding concerns to identify non-compliance, or any risk of non-compliance, with the regulations and to decide what will be done to return to compliance.
- Working collaboratively with other services, teams, individuals and agencies in relation to all safeguarding matters and has safeguarding policies that link with local authority policies.
- Participates in local safeguarding children boards where required and understand their responsibilities and the responsibilities of others in line with the Children Act 2004.
- Having clear procedures followed in practice, monitored and reviewed in place about the use of restraint and safeguarding.
- Taking into account relevant guidance set out in the Care Quality Commission's Schedule of Applicable Publications
- Ensuring that those working with children must wait for a full CRB disclosure before starting work.
- Training and supervising staff in safeguarding to ensure they can demonstrate the competences listed in Outcome 7E of the Essential Standards of Quality and Safety, Care Quality Commission, London 2010

All children and young people who use services must be

- Fully informed of their care, treatment and support.
- Able to take part in decision making to the fullest extent that is possible.
- Asked if they agree for their parents or guardians to be involved in decisions they need to make.

(Outcome 4I *Essential Standards of Quality and Safety*, Care Quality Commission, London 2010)

Key Service Outcomes

Evidence is increasing that implementation of the national *Quality Criteria for Young People Friendly Services* (Department of Health, London 2011) have the potential to greatly improve patient experience, leading to better health outcomes for young people and increasing socially responsible life-long use of the NHS. Implementation is also expected to contribute to improvements in health inequalities and public health outcomes e.g. reduced teenage pregnancy and Sexually Transmitted Infections (STIs), and increased smoking cessation. All providers delivering services to young people should be implementing the good practice guidance which delivers compliance with the quality criteria.

Poorly planned transition from young people's to adult-oriented health services can be associated with increased risk of non adherence to treatment and loss to follow-up, which can have serious consequences. There are measurable adverse consequences in terms of morbidity and mortality as well as in social and educational outcomes. When children and young people who use paediatric services are moving to access adult services (for example, during transition for those with long term conditions), these should be organised so that:

- All those involved in the care, treatment and support cooperate with the planning and provision to ensure that the services provided continue to be appropriate to the age and needs of the person who uses services.

The National Minimum Standards for Providers of Independent Healthcare, (Department of Health, London 2002) require the following standards:

- **A16.1** Children are seen in a separate out-patient area, or where the hospital does not have a separate outpatient area for children, they are seen promptly.
- **A16.3** Toys and/or books suitable to the child's age are provided.
- **A16.8** There are segregated areas for the reception of children and adolescents into theatre and for recovery, to screen the children and adolescents from adult Patients; the segregated areas contain all necessary equipment for the care of children.
- **A16.9** A parent is to be actively encouraged to stay at all times, with accommodation made available for the adult in the child's room or close by:
- **A16.10** The child's family is allowed to visit him/her at any time of the day, except where safeguarding procedures do not allow this
- **A16.13** When a child is in hospital for more than five days, play is managed and supervised by a qualified Hospital Play Specialist.
- **A16.14** Children are required to receive education when in hospital for more than five days; the Local Education Authority has an obligation to meet this need and are contacted if necessary.
- **A18.10** There are written procedures for the assessment of pain in children and the provision of appropriate control.

All hospital settings should meet the *Standards for the Care of Critically Ill Children* (Paediatric Intensive Care Society, London 2010).

There should be age specific arrangements for meeting Regulation 14 of the Health and Social Care Act 2008 (Regulated Activities) Regulations 2010. These require:

- A choice of suitable and nutritious food and hydration, in sufficient quantities to meet service users' needs;
- Food and hydration that meet any reasonable requirements arising from a service users' religious or cultural background
- Support, where necessary, for the purposes of enabling service users to eat and drink sufficient amounts for their needs.
- For the purposes of this regulation, "food and hydration" includes, where applicable, parenteral nutrition and the administration of dietary supplements where prescribed.
- Providers must have access to facilities for infant feeding, including facilities to support breastfeeding (Outcome 5E, of the Essential Standards of Quality and Safety, Care Quality Commission, London 2010)

All paediatric patients should have access to appropriately trained paediatric trained dietitians, physiotherapists, occupational therapists, speech and language therapy, psychology, social work and CAMHS services within nationally defined access standards.

All children and young people should have access to a professional who can undertake an assessment using the Common Assessment Framework and access support from social care, housing, education and other agencies as appropriate

All registered providers must ensure safe use and management of medicines, by means of the making of appropriate arrangements for the obtaining, recording, handling, using, safe keeping, dispensing, safe administration and disposal of medicines (Outcome 9

Essential Standards of Quality and Safety, Care Quality Commission, London 2010). For children, these should include specific arrangements that:

- Ensures the medicines given are appropriate and person-centred by taking account of their age, weight and any learning disability
- Ensures that staff handling medicines have the competency and skills needed for children and young people's medicines management
- Ensures that wherever possible, age specific information is available for people about the medicines they are taking, including the risks, including information about the use of unlicensed medicine in paediatrics.

Many children with long term illnesses have a learning or physical disability.

Providers should ensure that:

- They are supported to have a health action plan
- Facilities meet the appropriate requirements of the Disability Discrimination Act 1995
- They meet the standards set out in *Transition: getting it right for young people. Improving the transition of young people with long-term conditions from children's to adult health services*. Department of Health Publications, 2006, London

APPENDIX 1

Spinal Commissioning

Defining Hospitals

For practical commissioning purposes it is necessary to recognise the varying provision of spinal services in different hospitals. These may be classified as below:

- **Non-spinal Hospital:** A local hospital that has an Emergency department, orthopaedic and trauma services which are capable of basic assessment of acute spinal conditions, but does not perform spinal surgery. It must include including 24hr CT scanning, MRI scanning during normal weekday service hours and on Saturday and Sunday mornings. It is acknowledged that many hospitals will not be able to staff MRI facilities for 24/7 but a limited weekend morning service will allow clinicians to be capable of assessing patients with an acute spinal emergency, scanning those presenting during MRI service hrs. Those hospitals must have the ability to arrange inter-hospital image transfer. Those patients presenting out of MRI service hours should be assessed and referred onto their regional tertiary centre for further investigation and treatment.
- **Spinal 'spoke' Hospital:** A hospital that has spinal surgeons but does not have a spinal on-call service. They will probably do mainly non-specialised work but may do specialised procedures. They may also do emergency spinal procedures within their commissioning guidelines e.g. cauda equina syndrome. If these hospitals are doing a large amount of specialised spinal work then there should be an explanation as to why they are not a 'hub'.
- **Spinal 'hub' Hospital:** A hospital that has spinal surgeons and offers on-call spinal services. It must have 24/7 CT and MRI imaging services, and provide a specialist interdisciplinary combined physical and psychological programme. In any region, there may be one or more spinal 'hub' hospitals.

Patient Presentation and route to secondary services and beyond

Patients with spinal conditions may present electively, urgently or as emergencies to either their GP, the Emergency Department or another hospital speciality. It is only after assessment often including imaging that a diagnosis is made. A decision can then be taken whether spinal surgery is required and whether this needs to be specialised or not. Areas will develop robust pathways routing these patients to the appropriate hospital for their surgery relative to their varying presentations. These pathways shall be optimised by collaboration at CCG and regional network level to improve access and equality of access whilst maintaining a cost-efficient service.

Commissioning

The CCGs will commission:

- A spinal triage service.
- Initial assessments at any of the 3 types of hospitals.
- Patients admitted with a spinal condition having no procedure.
- Patients having non-specialised spinal surgery at spinal 'spoke' or 'hub' hospitals (together with the necessary associated support services).

NHS England will commission:

- Specialised spinal surgery performed in spinal 'spoke' or 'hub' hospitals (together with the necessary associated support services).
- Specialist interdisciplinary combined physical and psychological programme which is closely linked with the specialist spinal surgical service.

The CCGs and NHS England have a responsibility to commission sufficient non-specialised and specialised spinal work within the spinal 'hub' hospitals so that sufficient elective work to allow the 'hub' hospital to employ enough spinal surgeons to fully staff rotas to meet on-call requirements. Only when spinal 'hub' hospitals have sufficient elective work to support the on-call service will additional work be commissioned with spinal 'spoke' hospitals and other providers.

The proposed commissioning scope is a mixture of surgical procedures (OPCS codes) and diagnostic groups. The advantage of the OPCS approach means that it is easy to define specialised spinal procedures. The disadvantage comes when considering service specifications. For example, a 2-level instrumented spinal fusion +/- decompression may be done for degenerative disease, tumour, trauma or infection and whilst the technical skills may be similar, the pathways of care and service requirements are very different. Therefore in certain circumstances it is important to consider diagnosis above procedure.

The Table below contains an example in the way all spinal service shall be commissioned and demonstrates the 4 categories within the service specification for specialised commissioning

Commissioned by:	Service Specification	Diagnosis	Procedure
CCG			
		Degenerative	Anterior cervical discectomy +/- fusion (inc revision surgery)

		Degenerative	Posterior cervical decompressions (inc revision surgery)
		Degenerative	Posterior instrumented fusion / stabilisation and/or (1 or 2 level)Posterior lumbar decompression / discectomy (inc revision surgery)
		All	Biopsy or Radiofrequency or vertebral cement augmentation procedures (whole spine)
NHS ENGLAND			
	Cervical/Thoracic/Lumbar degenerative	Degenerative	Any cervical spine procedure involving implants except those for anterior cervical discectomy and fusion
	Cervical/Thoracic/Lumbar degenerative	Degenerative	All thoracic spinal surgery
	Cervical/Thoracic/Lumbar degenerative	Degenerative	All anterior lumbar spine surgery
	Cervical/Thoracic/Lumbar degenerative	Degenerative	Posterior instrumented spinal fusion / stabilisation more than 2 levels
	Deformity	Deformity	All surgery for spinal deformity
	Spinal Infection / palliative metastatic tumour / trauma	Spinal Infection / palliative metastatic tumour / trauma	All surgical procedures except biopsy
	Potentially curative spinal oncology	Potentially curative spinal oncology including biopsy	All spinal surgery for potentially curative spinal tumour including biopsy

This provides the best mix between diagnosis and procedure. Using the defined OPCS codes in the service scope will flag those specialised and non-specialised spinal procedures EXCEPT procedures defined as non-specialised but done for spinal infection, trauma and palliative metastatic tumour.

It is necessary to understand the type of patients who are receiving treatment for spinal conditions and where and how they are accessing this treatment. It has also been considered helpful to cluster types of treatment into a number of broad categories, which indicate which area of specialist care can provide the service. These are:

Patient Group	HES Procedure Code Group	Clinicians with principal responsibility
Non-specific spinal pain	Non specialist non-surgical (NS-NS) & Non specialist surgical (NS-S)	GPs, Nurse Practitioners, Physiotherapists, Pain management services, Psychologists, Rheumatologists, Appropriately trained Spinal Surgeons can treat these patients.*
Radicular pain (cervical and lumbar)	Non specialist- non-surgical (NS-NS) & Non specialist- surgical (NS-S)	GPs Nurse Practitioners, Physiotherapists, Pain management services and Rheumatologists can treat these patients but they may also require referral for a spinal surgical opinion. Musculoskeletal and Neuroradiologists may undertake interventional

		procedures.
Potentially serious pathology	Specialist surgical - Intradural (SS-ID) & Specialist surgical – Extradural (SS-ED) & Non specialist -surgical (NS-S)	Appropriately trained spinal surgeons can treat these patients*.
Spinal deformity	Specialist surgical – Extradural (SS-ED)	Appropriately trained spinal Orthopaedic surgeons can manage these patients.
Spinal trauma & with/without spinal cord injury	Specialist surgical - Intradural (SS-ID) & Specialist surgical – Extradural (SS-ED) & Non specialist-surgical (NS-S)	These patients can be seen by appropriately trained spinal surgeons;* Spinal cord injury patients being referred/admitted to a spinal cord injury treatment centre within 24hrs unless there are other serious injuries.
Other spinal pathologies	Specialist surgical – Extradural (SS-ED) Non specialist- Non- surgical (NS-NS)	These patients may be seen by appropriately trained spinal surgeons but some may need to be seen by Rheumatologists and metabolic physicians.
	Pain -Neuro modulation (P-NM)	Neurosurgeons and specialist pain management services

All commissioners of spinal services should ensure that comprehensive spinal networks are established to facilitate integrated care pathways. Clinical commissioning groups and specialised commissioning must interface along these pathways. The networks for general spinal work (including primary care) must be co-ordinated with the individual and sometimes differing networks for trauma and cancer.

Appendix 2

OPCS Data Coding Activity Classifications

Data on the quantum of OPCS activity indicates that almost 90% of the activity is non-specialised. The procedures carried out within each of these sub groups has been reviewed to identify whether they would meet the criteria for a specialised or non specialised service. The detailed procedure coding related to each of these has also been reviewed in order to ensure that the split of activity can be allocated to the responsible commissioner and the results are attached as an annex to this scope.

Spinal Deformity surgery: All spinal deformity surgery is classed as specialised for both adults and children.

Spinal reconstruction surgery (trauma, metastatic tumour and infection): All spinal reconstruction surgery in these categories (TTI) is specialised for both adults and children

Curative or potentially curative spinal oncology surgery: All palliative or curative oncology surgery, including all intradural surgery is classed as specialised for both adults and children.

Revision surgery: Revision cervical and lumbar decompressions are non-specialised i.e. any procedure for which the primary surgery is non-specialised, the revision is non-specialised. Therefore revision surgery with instrumentation for lumbar fusion for 2 levels or under is classed as non- specialised. However this surgery conducted for over 2 levels is classed as specialised. All other revision surgery is specialised.

Cervical, Thoracic and Anterior Lumbar surgery: All thoracic and anterior lumbar surgery is specialised. Cervical surgery includes some procedures which are specialised and some which are not and can be summarised as follows:

- Posterior cervical decompression surgery using instrumentation is specialised
- Cervical corpectomy is specialised.
- Posterior cervical decompression surgery without instrumentation is non specialised
- Anterior cervical decompression surgery (discectomy or fusion) is non specialised.

Interventions for persistent non-specific spinal pain:

The following procedures are non specialised

- All spinal injections
- Primary lumbar decompression/ discectomy
- Posterior lumbar uninstrumented fusions
- Lumbar instrumented fusion for 2 levels or less
- Revision, instrumented lumbar fusion for 2 levels or less

Revision, instrumented lumbar fusions for over 2 levels are specialised (as noted above)

There is a requirement for a national register of audited activity of spinal surgery. There is also a requirement to have unified training and education programmes. There are a number of published guidance papers relevant to the development of spinal services

including **Nice Guidance CG88 on Low Back Pain**, and **CG75 Metastatic Cord Compression** and the **National Cancer Action Team : Acute Oncology including Metastatic Cord Compression measures**. Some specific guidelines have been produced by recognised bodies, including specialist organisations.

The scope is based on factors that can be objectively measured. These measures include:

The Service Scope for Specialised Spinal Services reviewed the OPCS code classifications. The following components of the service were considered into the following groupings:

- Cervical, thoracic and anterior lumbar surgery
- Revision surgery
- Spinal deformity surgery
- Spinal reconstruction surgery (trauma, metastatic tumour and infection)
- Palliative or potentially curative oncological surgery
- Spinal Pain: Late management of persistent non-specific spinal pain

In reviewing the following, a number of OPCS codes were found to be unnecessary duplications and obsolete procedures. ICD-10 codes were considered but in spinal surgery, they do not reflect specialised work in isolation.

Spinal Deformity Surgery

All spinal deformity surgery is considered specialised in adults and children.

OPCS Codes	Definition	specialised = y
V411	Posterior attachment of correctional instrument to spine	y
V412	Anterior attachment of correctional instrument to spine	y
V413	Removal of correctional instrument from spine	y
V414	Anterior and posterior attachment of correctional instrument to spine	y
V418	Other specified instrumental correction of deformity of spine	y
V419	Unspecified instrumental correction of deformity of spine	y
V421	Excision of rib hump	y
V422	Epiphysiodesis of spinal apophyseal joint for correction of deformity	y
V423	Anterolateral release of spine for correction of deformity and graft HFQ	y
V424	Anterior and posterior epiphysiodesis of spine for correction of deformity	y
V425	Anterior epiphysiodesis of spine for correction of deformity NEC	y
V426	Posterior epiphysiodesis of spine for correction of deformity NEC	y
V428	Other specified other correction of deformity of spine	y
V429	Unspecified other correction of deformity of spine	y

Paediatric Spinal Surgery

Specific reference is made to paediatric spinal surgery relating to spinal deformity surgery (see above). Otherwise, the surgical procedures should be considered specialised or non-specialised as for their adult spinal surgery.

Spinal reconstruction surgery (trauma, metastatic tumour and infection)

The spinal management of these conditions is specialised with only biopsy procedures and closed manipulation of fractures considered non-specialised. However, before these non-specialised procedures are performed discussion with one of the network specialised spinal centres should occur. The only procedures performed in these conditions which are considered non-specialised in degenerative spinal surgery but should be considered specialised in tumour, trauma and infection are anterior and posterior cervical decompression/discectomy and posterior instrumented lumbar fusion. All other procedures are as given in the Tables above. The complexity of this work is reflected in the combination of infection and tumour ICD-10 codes with decompression and stabilisation OPCS codes mapping to HR02 (HRGs).

Curative or potentially curative oncological surgery

This is highly specialised work which shall be located in only a small number of centres in England.

cervical, thoracic and anterior (and posterior) lumbar surgery

Considering primary cervical, primary thoracic and primary anterior (and posterior) lumbar surgery and revision surgery, the following were defined as 'specialised' and 'non-specialised'. All OPCS codes and their designation are given in order in Appendix 2.

Cervical:

The principles adopted were that anterior cervical discectomies and uninstrumented posterior decompressions were not considered specialised

OPCS Codes	Definition	Specialised = y
V221	Primary anterior decompression of cervical spinal cord and fusion of joint of cervical spine	n
V222	Primary anterior decompression of cervical spinal cord NEC	n
V223	Primary foraminotomy of cervical spine	n
V224	Primary anterior corpectomy of cervical spine with reconstruction HFQ	y
V225	Primary decompression of posterior fossa and upper cervical spinal cord and instrumentation	y
V226	Primary decompression of posterior fossa and upper cervical spinal cord NEC	y
V227	Primary laminoplasty of cervical spine	y
V228	Other specified primary decompression operations on cervical spine	n
V229	Unspecified primary decompression operations on cervical spine	n
V231	Revisonal anterior decompression of cervical spinal cord and fusion of joint of	n

	cervical spine	
V232	Revisional anterior decompression of cervical spinal cord NEC	n
V233	Revisional foraminotomy of cervical spine	n
V234	Revisional anterior corpectomy of cervical spine with reconstruction HFQ	y
V235	Revisional decompression of posterior fossa and upper cervical spinal cord and instrumentation	y
V236	Revisional decompression of posterior fossa and upper cervical spinal cord NEC	y
V237	Revisional laminoplasty of cervical spine	y
V238	Other specified revisional decompression operations on cervical spine	n
V239	Unspecified revisional decompression operations on cervical spine	n
V291	Primary laminectomy excision of cervical intervertebral disc	n
V292	Primary hemilaminectomy excision of cervical intervertebral disc	n
V293	Primary fenestration excision of cervical intervertebral disc	n
V294	Primary anterior excision of cervical intervertebral disc and interbody fusion of joint of cervical spine	n
V295	Primary anterior excision of cervical intervertebral disc NEC	n
V296	Primary microdiscectomy of cervical intervertebral disc	n
V298	Other specified primary excision of cervical intervertebral disc	n
V299	Unspecified primary excision of cervical intervertebral disc	n
V301	Revisional laminectomy excision of cervical intervertebral disc	n
V302	Revisional hemilaminectomy excision of cervical intervertebral disc	n
V303	Revisional fenestration excision of cervical intervertebral disc	n
V304	Revisional anterior excision of cervical intervertebral disc and interbody fusion of joint of cervical spine	n
V305	Revisional anterior excision of cervical intervertebral disc NEC	n
V306	Revisional microdiscectomy of cervical intervertebral disc	n
V308	Other specified revisional excision of cervical intervertebral disc	n
V309	Unspecified revisional excision of cervical intervertebral disc	n
V361	Prosthetic replacement of cervical intervertebral disc	y
V371	Posterior fusion of atlantoaxial joint NEC	y
V372	Posterior fusion of joint of cervical spine NEC	y
V373	Transoral fusion of atlantoaxial joint	y
V374	Fusion of atlanto-occipital joint	y
V375	Posterior fusion of atlantoaxial joint using transarticular screw	y
V376	Posterior fusion of atlantoaxial joint using pedicle screw	y
V377	Fusion of occipitocervical junction NEC	y
V378	Other specified primary fusion of joint of cervical spine	y
V379	Unspecified primary fusion of joint of cervical spine	y
V391	Revisional fusion of joint of cervical spine NEC	y
V402	Posterior instrumented fusion of cervical spine NEC	y
V431	Excision of lesion of cervical vertebra	y
V471	Biopsy of cervical vertebra	n
V481	Radiofrequency controlled thermal denervation of spinal facet joint of cervical vertebra	n
V482	Denervation of spinal facet joint of cervical vertebra NEC	n
V491	Exploratory cervical laminectomy	n

V492	Exploratory thoracic laminectomy	y
V493	Exploratory lumbar laminectomy	n
V541	Transoral excision of odontoid process of axis	y
V561	Primary laser foraminoplasty of cervical spine	y
V571	Revisional laser foraminoplasty of cervical spine	y
V581	Primary automated percutaneous mechanical excision of cervical intervertebral disc	y
V591	Revisional automated percutaneous mechanical excision of cervical intervertebral disc	y
V601	Primary percutaneous decompression using coblation to cervical intervertebral disc	y
V611	Revisional percutaneous decompression using coblation to cervical intervertebral disc	y
V621	Primary percutaneous intradiscal radiofrequency thermocoagulation to cervical intervertebral disc	y
V631	Revisional percutaneous intradiscal radiofrequency thermocoagulation to cervical intervertebral disc	y
V661	Revisional fusion of occipitocervical junction	y
V662	Revisional posterior fusion of atlantoaxial joint using transarticular screw	y
V663	Revisional posterior fusion of atlantoaxial joint using pedicle screw	y
V664	Revisional posterior fusion of atlantoaxial joint NEC	y

Thoracic

The principles were that all thoracic spinal surgery was considered specialised except percutaneous needle procedures.

OPCS Codes	Definition	Specialised = y
V241	Primary decompression of thoracic spinal cord and fusion of joint of thoracic spine	y
V242	Primary decompression of thoracic spinal cord NEC	y
V243	Revisional decompression of thoracic spinal cord NEC	y
V244	Primary anterior corpectomy of thoracic spine and reconstruction HFQ	y
V245	Revisional anterior corpectomy of thoracic spine and reconstruction HFQ	y
V248	Other specified decompression operations on thoracic spine	y
V249	Unspecified decompression operations on thoracic spine	y
V311	Primary anterolateral excision of thoracic intervertebral disc and graft HFQ	y
V312	Primary anterolateral excision of thoracic intervertebral disc NEC	y
V313	Primary costotransversectomy of thoracic intervertebral disc	y
V314	Primary percutaneous endoscopic excision of thoracic intervertebral disc	y
V318	Other specified primary excision of thoracic intervertebral disc	y
V319	Unspecified primary excision of thoracic intervertebral disc	y
V321	Revisional anterolateral excision of thoracic intervertebral disc and graft HFQ	y
V322	Revisional anterolateral excision of thoracic intervertebral disc NEC	y
V323	Revisional costotransversectomy of thoracic intervertebral disc	y
V324	Revisional percutaneous endoscopic excision of thoracic intervertebral disc	y
V328	Other specified revisional excision of thoracic intervertebral disc	y
V329	Unspecified revisional excision of thoracic intervertebral disc	y

V362	Prosthetic replacement of thoracic intervertebral disc	y
V381	Primary fusion of joint of thoracic spine	y
V392	Revisional fusion of joint of thoracic spine	y
V403	Posterior instrumented fusion of thoracic spine NEC	y
V432	Excision of lesion of thoracic vertebra	y
V472	Biopsy of thoracic vertebra	n
V483	Radiofrequency controlled thermal denervation of spinal facet joint of thoracic vertebra	n
V484	Denervation of spinal facet joint of thoracic vertebra NEC	n
V495	Transthoracic exploration of spine	y
V562	Primary laser foraminoplasty of thoracic spine	y
V572	Revisional laser foraminoplasty of thoracic spine	y
V582	Primary automated percutaneous mechanical excision of thoracic intervertebral disc	y
V592	Revisional automated percutaneous mechanical excision of thoracic intervertebral disc	y
V602	Primary percutaneous decompression using coblation to thoracic intervertebral disc	y
V612	Revisional percutaneous decompression using coblation to thoracic intervertebral disc	y
V622	Primary percutaneous intradiscal radiofrequency thermocoagulation to thoracic intervertebral disc	y
V632	Revisional percutaneous intradiscal radiofrequency thermocoagulation to thoracic intervertebral disc	y

Lumbar

Posterior lumbar decompressions and discectomies and single or two level posterior instrumented fusions are considered non-specialised.

OPCS Codes	Definition	Specialised = y
V251	Primary extended decompression of lumbar spine and intertransverse fusion of joint of lumbar spine	n
V252	Primary extended decompression of lumbar spine NEC	n
V253	Primary posterior decompression of lumbar spine and intertransverse fusion of joint of lumbar spine	n
V254	Primary posterior laminectomy decompression of lumbar spine	n
V255	Primary posterior decompression of lumbar spine NEC	n
V256	Primary lateral foraminotomy of lumbar spine	n
V257	Primary anterior corpectomy of lumbar spine and reconstruction HFQ	y
V258	Other specified primary decompression operations on lumbar spine	n
V259	Unspecified primary decompression operations on lumbar spine	n
V261	Revisional extended decompression of lumbar spine and intertransverse fusion of joint of lumbar spine	n
V262	Revisional extended decompression of lumbar spine NEC	n
V263	Revisional posterior decompression of lumbar spine and intertransverse fusion of joint of lumbar spine	n
V264	Revisional posterior laminectomy decompression of lumbar spine	n
V265	Revisional posterior decompression of lumbar spine NEC	n
V266	Revisional lateral foraminotomy of lumbar spine	n

V267	Revisional anterior corpectomy of lumbar spine and reconstruction HFQ	y
V268	Other specified revisional decompression operations on lumbar spine	n
V269	Unspecified revisional decompression operations on lumbar spine	n
V281	Primary insertion of lumbar interspinous process spacer	n
V282	Revisional insertion of lumbar interspinous process spacer	n
V288	Other specified insertion of lumbar interspinous process spacer	n
V289	Unspecified insertion of lumbar interspinous process spacer	n
V331	Primary laminectomy excision of lumbar intervertebral disc	n
V332	Primary fenestration excision of lumbar intervertebral disc	n
V333	Primary anterior excision of lumbar intervertebral disc and interbody fusion of joint of lumbar spine	y
V334	Primary anterior excision of lumbar intervertebral disc NEC	y
V335	Primary anterior excision of lumbar intervertebral disc and posterior graft fusion of joint of lumbar spine	y
V336	Primary anterior excision of lumbar intervertebral disc and posterior instrumentation of lumbar spine	y
V337	Primary microdiscectomy of lumbar intervertebral disc	n
V338	Other specified primary excision of lumbar intervertebral disc	n
V339	Unspecified primary excision of lumbar intervertebral disc	n
V341	Revisional laminectomy excision of lumbar intervertebral disc	n
V342	Revisional fenestration excision of lumbar intervertebral disc	n
V343	Revisional anterior excision of lumbar intervertebral disc and interbody fusion of joint of lumbar spine	y
V344	Revisional anterior excision of lumbar intervertebral disc NEC	y
V345	Revisional anterior excision of lumbar intervertebral disc and posterior graft fusion of joint of lumbar spine	y
V346	Revisional anterior excision of lumbar intervertebral disc and posterior instrumentation of lumbar spine	y
V347	Revisional microdiscectomy of lumbar intervertebral disc	n
V348	Other specified revisional excision of lumbar intervertebral disc	n
V349	Unspecified revisional excision of lumbar intervertebral disc	n
V363	Prosthetic replacement of lumbar intervertebral disc	y
V382	Primary posterior interlaminar fusion of joint of lumbar spine	n
V383	Primary posterior fusion of joint of lumbar spine NEC	n
V384	Primary intertransverse fusion of joint of lumbar spine NEC	n
V385	Primary posterior interbody fusion of joint of lumbar spine	y - if + V553, else no
V386	Primary transforaminal interbody fusion of joint of lumbar spine	y - if + V553, else no
V393	Revisional posterior interlaminar fusion of joint of lumbar spine	n
V394	Revisional posterior fusion of joint of lumbar spine NEC	n
V395	Revisional intertransverse fusion of joint of lumbar spine NEC	n
V396	Revisional posterior interbody fusion of joint of lumbar spine	y - if + V553, else no
V397	Revisional transforaminal interbody fusion of joint of lumbar spine	y - if + V553, else no

V401	Non-rigid stabilisation of spine	y - if + V553, else no
V404	Posterior instrumented fusion of lumbar spine NEC	y - if + V553, else no
V433	Excision of lesion of lumbar vertebra	Y
V473	Biopsy of lumbar vertebra	n
V485	Radiofrequency controlled thermal denervation of spinal facet joint of lumbar vertebra	n
V486	Denervation of spinal facet joint of lumbar vertebra NEC	n
V496	Transperitoneal exploration of spine	Y
V563	Primary laser foraminoplasty of lumbar spine	n
V573	Revisional laser foraminoplasty of lumbar spine	n
V583	Primary automated percutaneous mechanical excision of lumbar intervertebral disc	n
V593	Revisional automated percutaneous mechanical excision of lumbar intervertebral disc	n
V603	Primary percutaneous decompression using coblation to lumbar intervertebral disc	n
V613	Revisional percutaneous decompression using coblation to lumbar intervertebral disc	n
V623	Primary percutaneous intradiscal radiofrequency thermocoagulation to lumbar intervertebral disc	n
V633	Revisional percutaneous intradiscal radiofrequency thermocoagulation to lumbar intervertebral disc	n
V671	Primary posterior lumbar medial facetectomy	n
V672	Primary hemilaminectomy decompression of lumbar spine	n
V678	Other specified other primary decompression operations on lumbar spine	n
V679	Unspecified other primary decompression operations on lumbar spine	n
V681	Revisional posterior lumbar medial facetectomy	n
V682	Revisional hemilaminectomy decompression of lumbar spine	n
V688	Other specified other revisional decompression operations on lumbar spine	n
V689	Unspecified other revisional decompression operations on lumbar spine	n
W066	Total excision of coccyx	n

Level unspecified

Where the level of the spine was unspecified it was felt that this activity should be considered specialised were it was more likely to be specialised and non-specialised if it was more likely to be done in an area of the spine considered non-specialised

OPCS Codes	Definition	Specialised = y
V271	Primary decompression of spinal cord and fusion of joint of spine NEC	y
V272	Primary decompression of spinal cord NEC	y
V273	Revisional decompression of spinal cord NEC	y
V278	Other specified decompression operations on unspecified spine	y
V279	Unspecified decompression operations on unspecified spine	y
V351	Primary excision of intervertebral disc NEC	n

V352	Revisional excision of intervertebral disc NEC	n
V358	Other specified excision of unspecified intervertebral disc	n
V359	Unspecified excision of unspecified intervertebral disc	n
V368	Other specified prosthetic replacement of intervertebral disc	y
V369	Unspecified prosthetic replacement of intervertebral disc	y
V388	Other specified primary fusion of other joint of spine	y
V389	Unspecified primary fusion of other joint of spine	y
V398	Other specified revisional fusion of joint of spine	y
V399	Unspecified revisional fusion of joint of spine	y
V405	Removal of instrumentation from spine	n
V408	Other specified stabilisation of spine	y
V409	Unspecified stabilisation of spine	y
V438	Other specified extirpation of lesion of spine	y
V439	Unspecified extirpation of lesion of spine	y
V441	Complex decompression of fracture of spine	y
V442	Anterior decompression of fracture of spine	y
V443	Posterior decompression of fracture of spine NEC	y
V444	Vertebroplasty of fracture of spine	n
V445	Balloon kyphoplasty of fracture of spine	n
V448	Other specified decompression of fracture of spine	y
V449	Unspecified decompression of fracture of spine	y
V451	Open reduction of fracture of spine and excision of facet of spine	y
V452	Open reduction of fracture of spine NEC	y
V453	Manipulative reduction of fracture of spine	n
V458	Other specified other reduction of fracture of spine	y
V459	Unspecified other reduction of fracture of spine	y
V461	Fixation of fracture of spine using plate	y
V462	Fixation of fracture of spine using Harrington rod	y
V463	Fixation of fracture of spine using wire	y
V464	Fixation of fracture of spine and skull traction HFQ	y
V465	Removal of fixation device from spine	n
V468	Other specified fixation of fracture of spine	y
V469	Unspecified fixation of fracture of spine	y
V478	Other specified biopsy of spine	n
V479	Unspecified biopsy of spine	n
V487	Radiofrequency controlled thermal denervation of spinal facet joint of vertebra NEC	n
V488	Other specified denervation of spinal facet joint of vertebra	n
V489	Unspecified denervation of spinal facet joint of vertebra	n
V494	Exploratory laminectomy NEC	y
V498	Other specified exploration of spine	y
V499	Unspecified exploration of spine	y
V501	Manipulation of spine using traction	n
V508	Other specified manipulation of spine	n
V509	Unspecified manipulation of spine	n

V521	Enzyme destruction of intervertebral disc	n
V522	Destruction of intervertebral disc NEC	n
V523	Discography of intervertebral disc	n
V524	Biopsy of lesion of intervertebral disc NEC	n
V525	Aspiration of intervertebral disc NEC	n
V528	Other specified other operations on intervertebral disc	n
V529	Unspecified other operations on intervertebral disc	n
V542	Graft of bone to spine NEC	y
V543	Osteotomy of spine NEC	y
V544	Injection around spinal facet of spine	n
V548	Other specified other operations on spine	y
V549	Unspecified other operations on spine	y
V564	Primary laser foraminoplasty of spine NEC	y
V568	Other specified primary foraminoplasty of spine	y
V569	Unspecified primary foraminoplasty of spine	y
V574	Revisional laser foraminoplasty of spine NEC	y
V578	Other specified revisional formaminoplasty of spine	y
V579	Unspecified revisional formaminoplasty of spine	y
V588	Other specified primary automated percutaneous mechanical excision of intervertebral disc	y
V589	Unspecified primary automated percutaneous mechanical excision of intervertebral disc	y
V598	Other specified revisional automated percutaneous mechanical excision of intervertebral disc	y
V599	Unspecified revisional automated percutaneous mechanical excision of intervertebral disc	y
V608	Other specified primary percutaneous decompression using coblation to intervertebral disc	y
V609	Unspecified primary percutaneous decompression using coblation to intervertebral disc	y
V618	Other specified revisional percutaneous decompression using coblation to intervertebral disc	y
V619	Unspecified revisional percutaneous decompression using coblation to intervertebral disc	y
V628	Other specified primary percutaneous intradiscal radiofrequency thermocoagulation to intervertebral disc	y
V629	Unspecified primary percutaneous intradiscal radiofrequency thermocoagulation to intervertebral disc	y
V638	Other specified revisional percutaneous intradiscal radiofrequency thermocoagulation to intervertebral disc	y
V639	Unspecified revisional percutaneous intradiscal radiofrequency thermocoagulation to intervertebral disc	y
V668	Other specified other revisional fusion of joint of spine	y
V669	Unspecified other revisional fusion of joint of spine	y

Interventions for persistent non-specific spinal pain and intradural spinal procedures

It is recognised that complex procedures for the management of chronic spinal pain are usually performed by experts in pain management and these have been omitted for this scope.

There are a number of adult and paediatric 'neurosurgical' spinal procedures many of which are intradural with OPCS codes prefix with 'A'. There needs to be further discussion as to whether these are considered in the Specialised Spinal Surgery Scope or considered in the Specialised Paediatric Neurosciences and Neurosciences Scopes.

Interim for Adoption from 01/10/13