

Guidance on Competencies for Spinal Cord Stimulation



Spinal cord stimulation (SCS) has been used for more than 40 years for a variety of conditions including pain and cardiovascular problems. SCS has been supported by NICE for treatment of neuropathic pain; however experience in using the therapy for other indications is increasing and techniques of stimulus delivery are still evolving. Outcomes are dependent on a variety of factors that may include physician/team expertise in selection, implantation and follow up. The way that different teams deliver SCS may vary; however each team must have a physician with competencies in selection of patients for therapy, SCS implantation/ management, a robust on call system for detecting and managing complications, a caseload that is sufficient to maintain team competencies, a programme of continuous professional development appropriate to SCS therapies and regular assessment/peer review of outcome data.

SCS is delivered by a variety of different medical and surgical specialists and teams. The Faculty of Pain Medicine (FPM) of the Royal College of Anaesthetists is concerned with the professional standards of pain medicine specialists, so this document is focussed on the pain medicine specialist's contribution to SCS service provision.

This document describes two levels of involvement in the practice of SCS:

Section A and Appendix A

The first level outlines the core knowledge, skills and attitudes for all anaesthetists specialising in pain medicine who may need to be involved with this therapy e.g. as emergency management of a patient with a SCS. Whilst it is recognised that not all pain medicine specialists will be directly involved in providing an SCS service, all need to have an understanding of this therapy for eventualities such as the above.

Section B and Appendix B

The second level outlines the advanced knowledge, skills and attitudes required of pain medicine specialists who work in teams providing an SCS service. These competencies reflect those of the SCS module which is an option at Advanced level of Pain Medicine training of the Royal College of Anaesthetists CCT Curriculum, which sets out competencies for trainees who elect to take a deeper interest in this area of pain medicine practice.

SCS is a multidisciplinary undertaking that requires both surgical and non-surgical skills. Pain medicine specialists will need a range of surgical skills depending on how members of the team in which they are working organise the assessment, implantation and post-operative surveillance of therapy. This creates a particular problem for anaesthetists in obtaining appropriate training because a basic standard of surgical expertise is mandatory for SCS to be carried out safely and for complications to be managed. More advanced skills are required if the pain physician performs the definitive implant procedure. Any physician involved in implanting SCS must have skills in patient selection, implantation, follow up and detection/ management of complications e.g. infection and neural compromise.

After care: Emergency full spine MRI scanning must be available. Arrangements must be in place for urgent referral for neurosurgical or spinal surgical opinion.

ENDORSED BY:

THE SOCIETY OF BRITISH NEUROLOGICAL SURGEONS

THE NEUROMODULATION SOCIETY OF THE UNITED KINGDOM AND IRELAND

GUIDELINES

Section A: Core competencies for all practitioners in Pain Medicine

Knowledge

- Knowledge of the science related to SCS;
- Knowledge of evidence-base for SCS in different pain conditions including indications and contraindications;
- Understanding of practical aspects of using SCS devices and interactions with other devices/equipment;
- Understanding bio-psychosocial aspects of pain that may interact with the use of SCS;
- Knowledge of local referral pathways for patients being considered for SCS therapy.

Attitudes and behaviours

- Effective communication with patients and families/carers;
- Effective communication with other healthcare professionals in primary and secondary care e.g. surgical specialties for assessment and treatment of urgent complications and communication with specialist teams offering SCS therapy;
- Appreciation of appropriate skills mix for multidisciplinary pain management in neuromodulation.

Skills

- Accurate assessment of pain in the context of neuromodulation;
- Ability to work in a multidisciplinary team;
- Ability to recognise complications and refer to other appropriate teams/specialists when needed.

Appendix A Curriculum

1. Basic sciences related to SCS including
 - a. neurophysiology/potential mechanisms of action of SCS
 - b. spinal cord anatomy/physiology
 - c. general principles of neural stimulation
 - d. infection control

2. Indications and contraindications for SCS and their evidence base
 - a. in adults
 - b. in children

3. Patient selection, screening and preparation for therapy
 - a. physical
 - b. psychological
 - c. social aspects
 - d. balanced assessment of benefits/risks
 - e. comprehensive understanding of alternatives to SCS therapy
 - f. management of patient expectations
 - g. provision of rehabilitative support following SCS insertion

4. Interactions of SCS systems with
 - a. medical/electrical/magnetic equipment e.g. diathermy, physiotherapy equipment
 - b. MRI scanners
 - c. other implanted devices e.g. cardiac pacemakers

5. Follow up care to
 - a. recognise and manage symptoms including increased pain that may indicate the requirement for reprogramming or revision
 - b. recognise when further investigation may be needed either in relation to new symptoms, exacerbation of old symptoms or SCS device problems
 - c. recognise pulse generator end-of-life

6. Recognition of complications
 - a. related to the patient
 - b. related to the SCS device

Section B: Competencies for practitioners in pain medicine who are providers in an SCS service

Knowledge

- Knowledge of the science related to SCS;
- Knowledge of evidence-base for SCS in different pain conditions including indications and contraindications;
- Knowledge of contextual/practical considerations in assessment of patients with chronic pain for SCS;
- Knowledge of range of spinal cord stimulator systems available including percutaneous and paddle leads;
- Knowledge of contextual/practical considerations in provision of SCS and aftercare of patients with SCS;
- Understanding of practical aspects of using SCS devices and interactions with other devices/equipment;
- Understanding bio-psychosocial aspects of pain that may interact with the use of SCS;
- Understanding the need for effective multidisciplinary working in neuromodulation;
- Understanding of organisational aspects of provision of an SCS service;
- Understanding of funding arrangements for SCS therapy including funding of revision surgery.

Attitudes and behaviours

- Effective communication with patients and families/carers;
- Effective communication with other healthcare professionals in primary and secondary care e.g. spinal and neurosurgeons;
- Effective communication and liaison with support services e.g. radiology, microbiology;
- Appreciation of appropriate skills mix for multidisciplinary pain management in neuromodulation;
- Ability to take effective leadership/liaison role in provision of SCS services;
- Ability and motivation to regularly monitor developments in SCS that is an evolving technique and the ability to respond to new information/changing recommendations for good practice;
- Commitment to audit the use of SCS (National Neuromodulation Registry) and modify clinical practice in the light of research/audit data.

Skills

- Accurate assessment of pain in the context of neuromodulation;
- Ability to work in a multidisciplinary team;
- Ability to perform necessary practical procedures for safe, effective evidence-based practice including the surgical skills appropriate to SCS;
- Ability to assess the efficacy of SCS trials and select appropriate implantation devices and techniques;
- Ability to recognise and manage complications and refer to other appropriate teams/specialists when needed.

Appendix B Curriculum

- 1 Basic sciences related to SCS (including percutaneous and paddle leads)
 - a. neurophysiology/potential mechanisms of action of SCS
 - b. physics relevant to SCS including electrical safety
 - c. radiation use and safety
 - d. spinal anatomy and fluoroscopic appearance
 - e. spinal cord anatomy/physiology
 - f. general principles of neural stimulation
 - g. infection control
- 2 Indications and contraindications for SCS and their evidence base
 - a. in adults
 - b. in children
- 3 Patient selection, screening and preparation for therapy
 - a. physical
 - b. psychological
 - c. social aspects
 - d. balanced assessment of benefits/risks
 - e. comprehensive understanding of alternatives to SCS therapy including surgical leads
 - f. management of patient expectations
 - g. delivering SCS as part of wider rehabilitative intervention
- 4 Interactions of SCS systems with
 - a. medical/electrical/magnetic equipment e.g. diathermy, physiotherapy equipment
 - b. MRI scanners
 - c. other implanted devices e.g. cardiac pacemakers
- 5 Indications for trial of SCS and evaluation of trial outcome
- 6 Indications for percutaneous/surgical electrodes and choice of pulse generator
- 7 Basic skills in
 - a. patient positioning
 - b. asepsis and infection control (hand hygiene, MRSA screening, antibiotic prophylaxis, surgical asepsis)
 - c. familiarity with implanted SCS components
 - d. techniques of access to epidural space
 - e. fluoroscopic placement of single/multiple electrodes

- f. primary surgical techniques including securing electrodes, tunnelling, pocket formation and wound closure
 - g. assessment of healing of wounds
 - h. surgical skills needed for electrode and pulse generator revision surgery
- 8 Intra-operative programming and assessment
- 9 Follow up care including
- a. understanding of SCS programming and diagnostics
 - b. ability to demonstrate skills in these areas
 - c. recognition and management of symptoms including increased pain that may indicate the requirement for reprogramming or revision
 - d. recognition of when further investigation is needed either in relation to new symptoms, exacerbation of old symptoms or SCS device problems
 - e. recognition and management of pulse generator end-of-life
- 10 Recognition and management of complications
- a. related to the patient
 - b. related to the SCS device
- 11 Understanding of when to refer patients to other teams or specialists
- a. related to failure of SCS to provide adequate analgesia
 - b. in the case of complications following SCS
 - c. if new pain problems occurring after SCS
- 12 National Neuromodulation Registry Audit should be supported by pain medicine specialists so that
- a. clinicians delivering SCS can collect data regarding indications for therapy, details of devices used, effectiveness of therapy and adverse events
 - b. patients can be given unit specific outcome and complication data to inform the decision about whether to proceed with SCS treatment
- 13 Pain medicine specialists delivering SCS therapy should be involved in
- a. defining appropriate protocols for continued surveillance and reprogramming of systems within their own service
 - b. arranging formal collaboration with appropriate other local services e.g. surgeons, radiologists and microbiologists so that a seamless on call system is in place to deal with complications
 - c. development of local/regional recommendations for good clinical practice in SCS based on best available evidence

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