

# Recommendations for Good Practice in the Use of Epidural Injection for the Management of Pain of Spinal Origin in Adults

## Second Edition



**FACULTY OF  
PAIN MEDICINE**  
of the Royal College of Anaesthetists



**THE BRITISH  
PAIN SOCIETY**  
EXPERTISE WHERE IT MATTERS



**Association  
of Anaesthetists**

**March 2021**

## Key Messages

- NICE CG 59 (2016) and NHS England Trauma Programme of care (2017) recommend consideration of epidural steroid injection (nerve root block) as part of treatment pathway for those with radicular pain.
- The guidance in the General Medical Council (GMC) publication 'Consent: patients and doctors making decisions together' should be followed.
- The WHO or the FPM safety checklist for interventional pain procedures under local anaesthesia or sedation should be followed.
- Trained assistance should be available when performing epidural injection.
- Epidural injection should be performed in an environment that provides a level of asepsis that conforms to local guidelines for invasive procedures such as spinal injections.
- It is recommended that practitioners should follow the current guidelines for the use of epidural injections in patients taking anticoagulants or with pre-existing clotting abnormalities.
- It is recommended that, epidural injection for patients with pain of spinal origin should be performed under fluoroscopic guidance.
- Standards of record keeping should be audited in accordance with local clinical governance arrangements.
- After discharge, a telephone contact should be provided for patients to report any acute complications such as headache, fever, prolonged numbness/weakness or urinary retention.
- Follow up arrangements should be made for all patients after a therapeutic epidural.

## Risks of Failure to Implement These Guidelines

<b>Patient Safety</b>	Injury to patients. Increase in length of hospital stay.
<b>Quality</b>	Unsatisfactory patient experience, poor clinical outcomes, complaints, serious incidents.
<b>Infection prevention</b>	Patient injury, cross infection, hospital admissions
<b>Equipment</b>	Risk to service delivery. Potential for patient harm or substandard outcomes.
<b>Workforce</b>	Reduced quality of service, unsafe staffing levels.

## 1. Introduction

- 1.1 This document describes the Faculty of Pain Medicine (FPM) consensus regarding standards of good practice for clinicians carrying out epidural injection in adults for the management of persistent pain of spinal origin and includes the use of epidural injection for the management of acute episodes of radicular pain. The recommendations relate to 'single-shot' epidural injection at any level of the neuraxis (cervical, thoracic, lumbar or caudal routes). The document also describes the desirable facilities in which to safely carry out epidural injection.
- 1.2 NICE CG 59 (2016) and NHS England Trauma Programme of care (2017) recommend consideration of epidural steroid injection (nerve root block) as part of treatment pathway for those with acute radicular pain. There are many service models in England to manage these group of patients with initial assessment either in secondary care or community by specialised physiotherapist working closely with Pain Medicine and/or Orthopaedic/Spinal/Neuro surgery.
- 1.3 Discussions regarding the evidence base for the following are beyond the scope of this document and include: indications for the epidural steroid injection, choice of interlaminar or transforaminal route, choice of specific drugs to be administered epidurally and comment on the published evidence to inform the decision to carry out epidural injection.
- 1.4 The FPM recognises that epidural injections are performed by clinicians from a number of medical disciplines. The FPM has responsibility for the professional standards of Pain Medicine Specialists and this guidance outlines the standards of good clinical practice expected of this professional group and the setting in which the procedure should be carried out. These recommendations apply both to clinicians in training who perform epidural injections under varying levels of supervision and to established practitioners in non-training grades. The competencies expected of clinicians who perform epidural injections are defined in the Curriculum for a CCT for Anaesthetics 2010 (updated 2017).

## 2. Consent

- 2.1 Clinicians must work in partnership with patients and should discuss each patient's condition and treatment options with them in a way that they can understand. Patients should share in decision making about their care. Consent to treatment is an important part of the process of discussion and decision-making and clinicians must be satisfied that patients have given properly informed consent before providing treatment.
- 2.2 The guidance in the General Medical Council (GMC) publication 'Consent: patients and doctors making decisions together' should be followed.
- 2.3 Practitioners may need to support discussions by using written or visual material or other aids. If this is done, the material must be accurate, up to date and understandable by the patient.

- 2.4** The clinician who provides treatment has the responsibility to discuss that treatment with the patient. If this is not practical, then this responsibility can be delegated to another suitably trained clinician who has sufficient knowledge of the proposed treatment, understands the risks involved and understands and acts fully in accordance with GMC guidance.
- 2.5** The clinician obtaining consent must identify adverse outcomes that may result from the proposed treatment, including the potential outcome of taking no action. Discussion should include: side-effects, complications and technical/therapeutic failure. Patients should be advised if the treatment might result in a serious adverse outcome, even if the likelihood is very small. Patients should also be given information about less serious side-effects or complications if they occur frequently. Patients should be given unit/practitioner specific rates of complications where appropriate.
- 2.6** Written consent should be obtained for all epidural injections for pain of spinal origin. Patients should sign a separate consent form and this should be included in the patient's medical records. It should document key elements of the discussion, any specific requests by the patient, any written visual or audio information given and details of decisions that were made.
- 2.7** The Medicines and Healthcare products Regulatory Agency (MHRA) grants licences to regulate the activity of pharmaceutical companies when marketing drugs. None of the currently available corticosteroid preparations has a marketing authorisation for epidural use. This does not restrict the prescription and use of these drugs by medical practitioners. Steroids can be injected into the epidural space as 'beyond licence' therapy. The clinician has a duty to obtain informed consent that a corticosteroid is to be used in an 'off-label' manner; this should be recorded in the medical records.

### **3. Preparation and Identification of Patients**

- 3.1** Procedures for checking patient identity, site and nature of planned procedure, patient preparation, and readiness of equipment should meet the standards expected in the World Health Organization (WHO) surgical safety checklist. The FPM has also published a safety checklist for interventional pain procedures under local anaesthesia or sedation and is adapted from the WHO surgical safety checklist.
- 3.2** The patient should wear an identification bracelet and national guidance regarding patient identification must be followed.
- 3.3** Females of child bearing age must have their pregnancy status confirmed prior to epidural injection according to local and national guidelines.
- 3.4** Patients should have an intravenous cannula sited before starting an epidural injection to allow prompt resuscitation as any epidural injection may be complicated by intrathecal, subdural or intravascular injection, cardiac arrhythmias and vasovagal responses.
- 3.5** Patients should be fasted prior to epidural injections as per locally agreed guidelines.

## 4. Environment and Facilities

- 4.1 Epidural injection is usually performed as a day case procedure. It should be performed in an environment that is appropriate in terms of infection control, monitoring, imaging, availability of assistance, resuscitation and post-procedure care facilities.
- 4.2 Epidural injection should be performed in an environment that provides a level of asepsis that conforms to local guidelines for invasive procedures such as spinal injections. National and local safety standards for invasive procedures should be followed.
- 4.3 The area should be large enough to accommodate the staff and equipment necessary for safe regional anaesthesia practice. Whilst the location of performing the procedure should be nearer to a fully equipped and staffed post anaesthesia care unit (PACU), recovery need not necessarily take place in the PACU. Patients may also recover in the treatment area with appropriate support and monitoring.

## 5. Infection Control

- 5.1 Epidural injection may be complicated by infection leading to epidural abscess or bacterial meningitis. The risk of infection may be enhanced in diabetic and immunocompromised patients and as a result of systemic steroid therapy.
- 5.2 Meticulous aseptic technique is mandatory and this should include surgical scrub according to local policy, sterile gown, sterile gloves, cap, mask, skin preparation and sterile drapes around the injection site. The assistant should wear a cap and mask. The epidural pack should be opened onto a sterile field and the injectate should be drawn up with full aseptic precautions.
- 5.3 Suitable skin preparation solutions include 0.5% chlorhexidine in alcohol or 10% povidone-iodine. If local guidelines exist for surgical skin preparation then they should be followed. A wide area should be prepared and solutions should be allowed to dry thoroughly before needle insertion. Particular care is required in skin preparation for caudal injection because of the increased risk of skin contamination in this area.

## 6. Anticoagulants

- 6.1 Bleeding into the epidural space is a serious complication after an epidural injection. Particular care is needed in patients with disordered clotting either from medical problems, or medication. The benefits and risks of an epidural should be considered on an individual patient basis and after discussion with the cardiologist or GP supervising therapy. It is recommended that clinicians should follow the current guidelines for epidural injections in patients taking anticoagulants or with pre-existing clotting abnormalities.

## 7. Fluoroscopy

- 7.1** It is accepted practice to perform epidural injection without fluoroscopy to provide intra-operative and postoperative analgesia, and obstetric analgesia and anaesthesia. In these settings it is clinically apparent when the epidural has been effective. However, in patients having epidural injection for spinal pain, assessment of efficacy is not as straightforward. Further decisions about management are often determined by the outcome of an epidural injection so it is important to confirm the accurate placement of the epidural needle and the spread of the injectate.
- 7.2** It is recommended that, epidural injection for patients with pain of spinal origin should be performed under fluoroscopic guidance. Studies indicate that in a significant number of patients the needle may not be correctly sited if epidural injection is performed without fluoroscopy.
- 7.3** A non-ionic water soluble contrast medium should be injected to confirm correct needle placement and contrast spread to the target pathology site as well as excluding any inappropriate spread before injecting steroid mixture into the epidural space. The contrast medium must be licensed for spinal (including intrathecal) injection.
- 7.4** Needle and syringe connections should conform to local and national guidelines. Needles and syringes with Non-luer (NRFit) connectors should be used for neuraxial procedures.
- 7.5** It is good practice for X-ray images to be stored and available for review.

## 8. Monitoring

- 8.1** Appropriate monitoring facilities should be available to monitor patients having epidural injections. Minimum monitoring standards as recommended by the Association of Anaesthetists should be followed.

## 9. Assistance

- 9.1** Trained assistance should be available when performing epidural injection.
- 9.2** The assistant should be skilled in Immediate Life Support (ILS) (Resuscitation Council UK).

## 10. Record Keeping

**10.1** Standards of record keeping should be audited in accordance with local clinical governance arrangements.

**10.2** Records should include details of:

- Clinical indication for epidural
- Location where epidural performed
- Date/time of procedure
- Type of procedure performed
- Name of clinician performing procedure (printed and signed)
- Position of patient
- Sedation (if used), oxygen, monitoring
- Imaging
- Skin preparation
- Spinal level of epidural insertion
- Size of needle (gauge)
- Depth of epidural space
- Loss of resistance technique
- Radio-opaque contrast and dose
- Spread of injectate by spinal level
- Any difficulties encountered
- Injected drugs and doses
- Post-procedure observations
- Aftercare instructions
- Follow up arrangements
- Contact details for patient and primary care team

**10.3** The record may be sent to the patient's GP as a letter, copied to the patient, and filed in the hospital notes. It is good practice for X-ray images to be stored and available for review.

## 11. Follow up and Discharge Planning

- 11.1 On the day of procedure patients should be seen by a member of the treating team prior to discharge. Limbs should be checked for numbness and/or weakness, and the patient asked about urine retention or headache. Usual medication can be resumed on the day of the procedure. If there is significant limb weakness, sensory loss or headache, an unplanned overnight admission may be necessary, with review the next day before discharge.
- 11.2 If the procedure is complicated by inadvertent dural puncture then the patient may need a more prolonged admission and management in accordance with local guidance.
- 11.3 After discharge, a telephone contact should be provided for patients to report any acute complication such as headache, fever, prolonged numbness/weakness or urinary retention. This should be provided by day surgery units as part of the normal discharge procedure.
- 11.4 Other health care providers who may be involved in the patient's care after the epidural (e.g. the primary care team, emergency department or day care staff) should know how to contact a member of the treating team by telephone to make management decisions if necessary.
- 11.5 A standard letter, with a copy to the patient, should be sent to the patient's GP detailing the procedure and follow up arrangements.
- 11.6 Fever, severe back pain or worsening neurological and/or urinary symptoms are potentially serious and an urgent medical review is required.
- 11.7 Emergency full spine MRI scanning should be available. Arrangements should be in place for urgent referral for neurosurgical or spinal surgical opinion.
- 11.8 Follow up arrangements should be made for all patients after a therapeutic epidural. The time of review will depend on the patient and the indication for the epidural.

## Supporting Information:

### Introduction (Section 1)

- Core Standards for Pain Management Services in the UK. Faculty of Pain Medicine of the Royal College of Anaesthetists, October 2015. <https://fpm.ac.uk/standards-publications-workforce/core-standards> (Accessed on 5 August 2020)
- British Pain Society/Faculty of Pain Medicine (RCA) Consensus Statement on the use of Corticosteroids for Neuraxial Procedures in the UK. [file:///C:/Users/stopp/OneDrive/Desktop/FPM%20Board/Updated%20Good%20Practice%20Guidelines/BPS\\_FPM\\_Steroid\\_Statement\\_FINAL.pdf](file:///C:/Users/stopp/OneDrive/Desktop/FPM%20Board/Updated%20Good%20Practice%20Guidelines/BPS_FPM_Steroid_Statement_FINAL.pdf) (Accessed on 5 August 2020)
- Gupta S, Sharma M. Interventional Pain Medicine Practice in the UK and the USA: A Survey of 242 Pain Physicians. *Pain Physician* 2020; 23: 127-134
- NICE NG59 Low back pain and sciatica in over 16s: assessment and management (2016) <https://www.nice.org.uk/guidance/ng59/evidence/full-guideline-invasive-treatments-2726157998> (Accessed on 5 August 2020)
- NHS England's National Low Back and Radicular Pain Pathway 2017, accessible on line: [https://slidelegend.com/national-low-back-and-radicular-pain-pathway-2017final\\_5b0c156b8ead0e2f068b4590.html](https://slidelegend.com/national-low-back-and-radicular-pain-pathway-2017final_5b0c156b8ead0e2f068b4590.html) (Accessed in 5 August 2020)
- Faculty of Pain Medicine: Training and Careers in Pain Medicine. <https://fpm.ac.uk/training-and-careers-pain-medicine> (Accessed on 5 August 2020)
- The Royal College of Anaesthetists. CCT in Anaesthetics - Advanced Level Training Annex E. 2nd Ed, 2010 (updated 2017). Available from: <https://www.rcoa.ac.uk/sites/default/files/documents/2019-08/TRG-CCT-ANNEXE.pdf> Advanced Level Training, Pages E57 – E62 (Accessed 5 August 2020)
- Standards for the members of the Faculty of Pain Medicine (FPM) for training and administration of pain interventions by non-medical practitioners. <https://fpm.ac.uk/sites/fpm/files/documents/2019-07/Training%20and%20Administration%20of%20Pain%20interventions%20by%20non%20medical%20practitioners.pdf> (Accessed 10 August 2020)

### Consent (Section 2)

- General Medical Council. Consent: patients and doctors making decisions together. London, GMC, 2008. Available from: <https://www.gmc-uk.org/ethical-guidance/ethical-guidance-for-doctors/consent> (Accessed 5 August 2020)
- Faculty of Pain Medicine. Interventions – Patient Information Leaflets. <https://fpm.ac.uk/about-pain-medicine-patients-relatives/patient-information-leaflets> (Accessed 5 August 2020)
- Association of Anaesthetists of Great Britain and Ireland: Consent for anaesthesia 2017. <https://onlinelibrary.wiley.com/doi/full/10.1111/anae.13762>

## Preparation and Identification of Patients (Section 3)

- Faculty of Pain Medicine Safety Checklist for: Interventional Pain Procedures under local anaesthesia or sedation (adapted from the WHO surgical safety checklist). <https://fpm.ac.uk/sites/fpm/files/documents/2019-08/Safety%20checklist%20for%20interventional%20pain%20procedures.pdf> (Accessed 5 August 2020)
- Cleopas A et al. Acceptability of identification bracelets for hospital inpatients. *Quality and Safety in Health Care* 2004 October; 13(5): 344–348.
- Ranger CA and Bothwell S. Making sure that the right patient gets the right care. *Quality and Safety in Health Care* 2004; 13: 329.
- World Health Organization. Safe Surgery Saves Lives: The Second Global Patient Safety Challenge, 2009. <http://www.who.int/patientsafety/safesurgery/en/> (Accessed 5 August 2020)
- National Patient Safety Agency. Safer Practice Notice 11. Wristbands for hospital inpatients improves safety, 22 Nov 2005. Available from: [www.nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=60032&type=full&servicetype=Attachment](http://www.nrls.npsa.nhs.uk/EasySiteWeb/getresource.axd?AssetID=60032&type=full&servicetype=Attachment) (Accessed 5 August 2020)
- Mulroy MF et al. Safety steps for epidural injection of local anesthetics: review of the literature and recommendations. *Anesthesia & Analgesia* 1997; 85: 1346-56.
- Fox M et al. Crisis management during regional anaesthesia. *Quality and Safety in Health Care* 2005; 14(3): e24.
- Tircoveanu R et al. Dizziness and vasovagal syncope during epidural steroids injections. *European Journal of Anaesthesiology* 2004; 21: Issue s32. 198.

## Environment and Facilities (Section 4)

- National safety standards for invasive procedures. [https://improvement.nhs.uk/documents/5405/NatSSIPs\\_Final\\_updated\\_June\\_2019.pdf](https://improvement.nhs.uk/documents/5405/NatSSIPs_Final_updated_June_2019.pdf)

## Infection Control (Section 5)

- Kasuda H et al. Skin disinfection before epidural catheterization: comparative study of povidone-iodine versus chlorhexidine ethanol. *Dermatology* 2002; 204: 42-46.
- Sato S et al. Human skin flora as a potential source of epidural abscess. *Anesthesiology* 1996; 85 (6): 1276-1282.
- Horlocker TT and Wedel DJ. Regional anaesthesia in the immunocompromised patient. *Regional Anesthesia and Pain Medicine* 2006; 31(4): 334-345.
- Grewal S et al. Epidural abscesses. *British Journal of Anaesthesia* 2006; 96 (3): 292-302.

## Epidural Injection for the Management of Pain of Spinal Origin in Adults

- Benhamou D et al. Hospital policy for prevention of infection after neuraxial blocks in obstetrics. *International Journal of Obstetric Anesthesia* 2002; 11(4): 265-269.
  - Reynolds F. Infection as a complication of neuraxial blockade. *International Journal of Obstetric Anesthesia* 2005; 14: 183-188.
  - NICE - Prevention and control of Health care associated infection in primary and community care. Available from <http://www.nice.org.uk/guidance/cg139/resources>. Updated 2017 (Accessed 5 August 2020)
  - Skin antisepsis for central neuraxial blockade. The Association of Anaesthetists of Great Britain & Ireland, September 2014. <https://anaesthetists.org/Home/Resources-publications/Guidelines/Skin-antisepsis-for-central-neuraxial-blockade>
- Guidelines Infection prevention and control. Association of Anaesthetists, January 2020
- <https://anaesthetists.org/Home/Resources-publications/Guidelines/Infection-prevention-and-control-2020>

### Anticoagulants (Section 6)

- Narouze S, Benzon HT, Provenzano D, et al. Interventional spine and pain procedures in patients on Antiplatelet and Anticoagulation medication (second edition). *Regional Anesthesia and Pain Medicine* 2018; 43 (3): 225-262
- Horlocker TT et al. Regional anesthesia in the patient receiving antithrombotic or thrombolytic therapy. *American Society of Regional Anaesthesia and Pain Medicine Evidence- Based Guidelines (Fourth Edition)*. *Regional Anaesthesia and Pain Medicine* 2018; 43 (3): 263-309

### Fluoroscopy (Section 7)

- White AH. Injection techniques for the diagnosis and treatment of low back pain. *Orthopedic Clinics of North America* 1983; 14 (3): 553-67.
- el-Khoury GY et al. Epidural steroid injection: a procedure ideally performed with fluoroscopic control. *Radiology* 1988; 168 (2): 554-57.
- Bartynski WS et al. Incorrect needle position during lumbar epidural steroid administration: Inaccuracy of loss of air pressure resistance and requirement of fluoroscopy and epidurography during needle insertion. *American Journal of Neuroradiology* 2005; 26: 502-505.
- Renfrew DL et al. Correct placement of epidural steroid injections: fluoroscopic guidance and contrast administration. *American Journal of Neuroradiology* 1991; 12(5): 1003-7.
- Fredman B et al. Epidural steroids for treating "failed back surgery syndrome": is fluoroscopy really necessary? *Anesthesia & Analgesia* 1999; 88: 367-72.
- Liu S S et al. Prospective experience with a 20-gauge Tuohy needle for lumbar epidural steroid injections: Is confirmation with fluoroscopy necessary? *Regional Anesthesia & Pain Medicine* 2006; 31(4): 291-3.

- National Patient Safety Agency. Safer spinal (intrathecal), epidural and regional devices Parts A and B. Ref No. 0972A/NSPA/2009/PSA004/Issue date 24 November 2009/ Action date 01 April 2011/2013. <http://www.nrls.npsa.nhs.uk/resources/type/alerts/?entryid45=65259> (Accessed 5 August 2020).
- Resources to support safe transition from the Luer connector to NRFit™ for intrathecal and epidural procedures, and delivery of regional blocks. August 2017. <https://www.england.nhs.uk/2017/08/resources-support-safe-transition-luer-connector-nrfit-intrathecal-and-epidural-procedures-and-delivery-regional-blocks/>

### Monitoring (Section 8)

- Recommendations for standards of monitoring during anaesthesia and recovery. Published by The Association of Anaesthetists of Great Britain & Ireland, December 2015. <https://anaesthetists.org/Home/Resources-publications/Guidelines/Standards-of-monitoring-during-anaesthesia-and-recovery>

### Second Edition Working Group Members:

Dr Sanjeeva Gupta (Chair), Consultant in Anaesthesia and Pain Medicine, Bradford Teaching Hospitals NHS Foundation Trust, Bradford.

Dr Neil Collighan, Consultant in Pain Medicine, East Kent Hospitals University NHS Foundation Trust.

Ms Ruth Murrin, British Pain Society, Patient Liaison Committee Representative.

Dr Manohar Sharma (Faculty of Pain Medicine Representative), Consultant in Pain Medicine and Anaesthesia, The Walton Centre NHS Foundation Trust, Liverpool.

Dr G Baranidharan, Consultant in Pain Medicine and Anaesthesia, Leeds Teaching Hospitals, Leeds.

### Conflicts of Interest:

This publication received no specific grants from any funding agency in the public, commercial, or not-for-profit sectors.

Dr S Gupta has organised meetings sponsored by NeuroTherm Limited who market radiofrequency generators and disposables.

Dr S Gupta is the Founder and Chairman of the North England Pain Medicine Group (NEPG). The annual meetings of NEPG have been supported by Pfizer, Abbott and other Pharmaceutical companies and equipment manufacturing industries.

### First Edition Working Group Members:

Dr Karen Simpson (Chair), Dr Beverly Collett, Dr Sanjeeva Gupta (BPS Representative), Dr Joan Hester, Dr Roger Okell, Dr Cathy Stannard and Mrs Kate Rivett (Patient Representative).



FACULTY OF  
**PAIN MEDICINE**  
of the Royal College of Anaesthetists

Churchill House  
35 Red Lion Square  
London WC1R 4SG

tel: 020 7092 1682 or 020 7092 1746

email: [contact@fpm.ac.uk](mailto:contact@fpm.ac.uk)

[www.fpm.ac.uk](http://www.fpm.ac.uk)

[@FacultyPainMed](#)