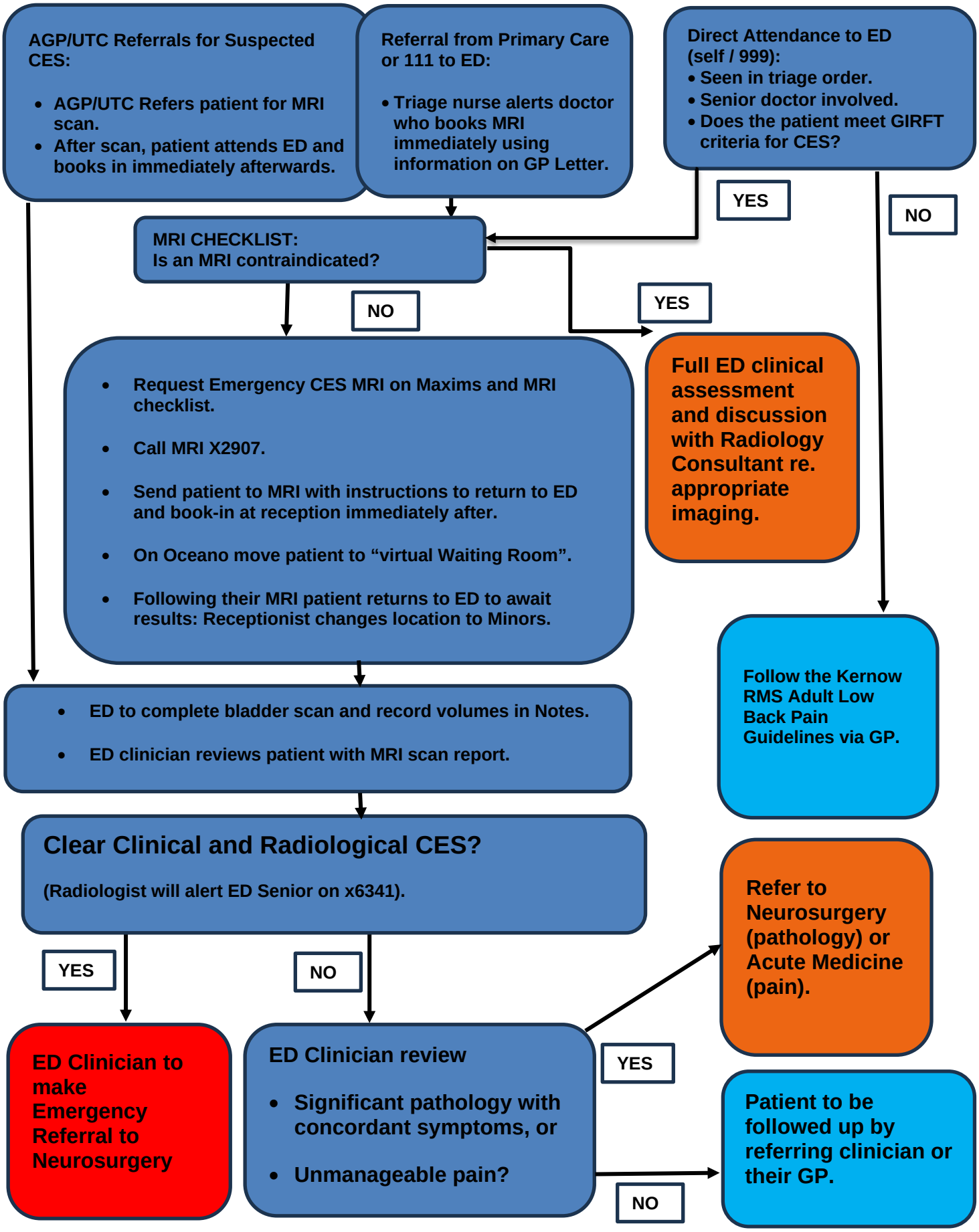
Royal Cornwall Hospitals
NHS Trust

Emergency Department Cauda Equina Syndrome Pathway Clinical Guideline

V1.0

April 2024

Summary


AGP/UTC Referrals for Suspected CES:
• AGP/UTC Refers patient for MRI scan.
• After scan, patient attends ED and books in immediately afterwards.
Referral from Primary Care or 111 to ED:
• Triage nurse alerts doctor who books MRI immediately using information on GP Letter.
Direct Attendance to ED (self / 999):
• Seen in triage order.
• Senior doctor involved.
• Does the patient meet GIRFT criteria for CES?
YES
NO
MRI CHECKLIST:
Is an MRI contraindicated?
NO
YES
• Request Emergency CES MRI on Maxims and MRI checklist.
• Call MRI X2907.
• Send patient to MRI with instructions to return to ED and book-in at reception immediately after.
• On Oceano move patient to "virtual Waiting Room".
• Following their MRI patient returns to ED to await results: Receptionist changes location to Minors.
Full ED clinical assessment and discussion with Radiology Consultant re. appropriate imaging.
Follow the Kernow RMS Adult Low Back Pain Guidelines via GP.
• ED to complete bladder scan and record volumes in Notes.
• ED clinician reviews patient with MRI scan report.
Clear Clinical and Radiological CES?
(Radiologist will alert ED Senior on x6341).
YES
NO
Refer to Neurosurgery (pathology) or Acute Medicine (pain).
ED Clinician to make Emergency Referral to Neurosurgery
ED Clinician review
• Significant pathology with concordant symptoms, or
• Unmanageable pain?
YES
NO
Patient to be followed up by referring clinician or their GP.

1. Aim/Purpose of this Guideline

1.1. To ensure that patients with suspected Cauda Equina Syndrome are seen and diagnosed quickly as per the National Clinical Framework.

Data Protection Act 2018 (UK General Data Protection Regulation – GDPR) Legislation

The Trust has a duty under the Data Protection Act 2018 and UK General Data Protection Regulations 2016/679 to ensure that there is a valid legal basis to process personal and sensitive data. The legal basis for processing must be identified and documented before the processing begins. In many cases we may need consent; this must be explicit, informed, and documented. We cannot rely on opt out, it must be opt in.

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Royal Cornwall Hospital Trust rch-tr.infogov@nhs.net

2. The Guidance

Introduction

2.1. This document outlines the clinical pathway for suspected Cauda Equina Syndrome in patients assessed in the Emergency Department in RCH. The aim is to provide a streamlined process for this patient group to access the appropriate investigation and management in a timely manner. It is aligned with the Primary Care CES guideline to ensure patients get appropriate and timely assessment wherever they access it.

In local audit, most delays occur before the MRI request therefore AGP / UTC pathway aims for patients already seen by a clinician in these services to go direct to scan from their assessment. The patient then attends the Emergency Department for the scan report to be acted upon.

The direct-to-MRI pathway excludes ambulance transfers since these all go via the emergency department. This document will guide appropriate diagnosis and referrals for these patients.

Primary Care referrals cannot be booked for direct-to-MRI due to IT issues (GPs can only request scans under their own names) and the length of time it would take a GP to book the scan. Therefore, Primary Care will continue to send patients to ED with a referral letter and the MRI will be booked directly after Triage.

Cauda Equina Syndrome (CES) is a presentation of radicular and/or back pain with a disturbance of bladder or bowel function and/or a disturbance of saddle or genital sensation.

Radicular pain (sciatica) and/or back pain are common patient presentations to healthcare professionals. Continence issues are also common. The overlap between the two is also common.

CES is a collection of patient symptoms and clinical signs (an MRI scan on its own cannot diagnose CES). No single symptom or sign is pathognomonic.

CES is rarely caused by acute or rapidly progressive compression of the nerves in the lumbar or sacral spinal canal. In the cases that are caused by acute compression, CES requires immediate assessment, investigation, and treatment. If it is unrecognised or surgical treatment is delayed, this may result in permanent loss of bladder and bowel function, loss of sexual function, and lower limb paralysis. Patients may continue to experience ongoing severe disability despite prompt treatment but, if it is treated before symptoms become severe, this can reduce the risk of permanent disability.

This pathway focuses on the commonest cause, a large lumbar disc prolapse but can be due to rarer causes such as trauma, infection, tumour, or spinal/epidural anaesthetic.

2.2. Definitions

Acronym	Terminology
ED	Emergency Department.
APP	Advanced Physiotherapy Practitioner.
CES	Cauda Equina Syndrome.
Community and Primary Care	Services within CIOS that are not based at a Secondary care facility.
GIRFT	‘Getting It Right First Time’ programme.
MACP	Musculoskeletal Association of Chartered Physiotherapists.
RCH	Royal Cornwall Hospital Treliske.
MRI	Magnetic Resonance Imaging.
MSCC	Malignant Spinal Cord Compression.
NBRPP	National Low Back and Radicular Pain Pathway.
Neurogenic/Neuropathic pain	Pain caused by a lesion or disease of the somatosensory nervous system.
Radicular pain	Burning, tingling, electric, searing, or crawling pain felt in a specific dermatome (Bogduk, 2009; Nee and Butler, 2006).
Radiculopathy	Weakness, pain, or paraesthesia felt in a specific myotome or dermatome; diminished reflexes may exist (Al Nezari et al., 2013; Bogduk, 2009).

Acronym	Terminology
RCEM	Royal College of Emergency Medicine.
SLR	Straight leg raise.
+ve / -ve	Positive / Negative.

2.3. Process Description

1. Most patients are seen in Primary care, some self-present and others are attended by Ambulance, or seen in a UTC or by the Acute GP service.

2. Primary Care refer the patient to ED who book MRI scan on the basis of the primary care assessment.

3. Acute GP and UTC doctors book emergency MRI scan directly, send patient for the scan with instructions to book into ED straight after scan.

4. Self-attenders and those arriving by Ambulance are assessed by ED staff and emergency MRI booked based on their findings.

5. MRI within 4 hours of request is the standard. Consider referral to Derriford after consultant discussion in high-risk cases if this target cannot be met overnight.

6. Patient attends ED after the scan.

7. ED performs pre- and post-void bladder scans and considers catheterisation.

8. ED senior doctor reviews patient and scan report.

9. Referral to neurosurgery.

For patients who do not meet the criteria for emergency investigation and intervention, appropriate safety netting is vital; it is imperative to educate the patient for their need to present to an Emergency Department if symptoms deteriorate. Safe practice would be to highlight Royal Cornwall Hospital as having MRI facilities from 8am to 8pm and Derriford Hospital, Plymouth as having MRI facilities 24/7.

2.4. Bass Statement and GIRFT / Best MSK Health Definition

"A patient presenting with back pain and/or sciatic pain with

- Any disturbance of their bladder or bowel function.
- And/or saddle or genital sensory disturbance.
- Or bilateral leg pain.

Should be suspected of having a threatened or actual CES" British Association of Spine Surgeons (2018).

This statement is supported by The Royal College of Emergency Medicine (RCEM), who recognise the complexity of this patient group and the need

for expert management throughout their pathway. Early access to radiological examination is vital in this patient group to ensure provision of the highest quality care (RCEM, 2020; Hutton, 2019; RCR, 2019).

As part of the GIRFT / BestMSKHealth Collaborative National Suspected CES Pathway (Hutton 2022), a 2-week timeframe for the new or worsening CES symptoms was added to this statement. Thus, patients with chronic sphincter disturbances are not automatically included within the definition.

The National Suspected CES Pathway also separated “bilateral leg pain” from the definition and dealt with this via a separate urgent pathway due to a reduced likelihood of needing emergency surgery in these patients. This CIOS pathway 2023 **does not remove** bilateral leg pain since there is as of, yet no alternative agreed urgent referral pathway for these patients.

2.5. Symptoms

According to the BASS statement, the cauda equina syndrome is considered in the presence of back pain and/or sciatic pain. Isolated bladder and/or bowel symptoms without either of these should prompt a search for an alternative diagnosis.

If the patient presents with back pain and / or sciatic pain and recent onset (within 2 weeks) of any of the points in the box below, then further information should be gained. Please see ‘warning signs’ box and Section 2.5.1 below for additional questions.

Back Pain and/or Sciatica Pain with:

1. New (within 2 weeks) difficulty initiating micturition or impaired sensation of urinary flow.

2. New (withing 2 weeks) altered Perianal, perineal, or genital sensation S2-S5 dermatomes – area may be small or as big as a horse’s saddle (subjectively reported or objectively testes).

3. Severe or progressive neurological deficit of both legs, such as major motor weakness with knee extension, ankle extension, or foot dorsiflexion.

4. New (within 2 weeks) loss of sensation of rectal fullness.

5. New (within 2 weeks) sexual dysfunction (achievement of erection or ability to ejaculate, loss of vaginal sensation).

6. Sudden Onset Bilateral Radicular Leg Pain (sciatica) or unilateral radicular leg pain that has progressed to bilateral.

    - CES does not have a set clinical pattern.

    - No single red flag or combination of flags has good diagnostic accuracy.

    - Negative physical tests do not rule out CES if positive subjective symptoms present.

2.5.1. Warning Signs for Cauda Equina Syndrome

- Loss of feeling pins and needles between your inner thighs or genitals.
- Numbness in or around your back passage or buttocks.
- Altered feeling when using toilet paper to wipe yourself.
- Increasing difficulty when you try to urinate.
- Increasing difficulty when you try to stop or control your flow of urine.
- Loss of sensation when you pass urine.
- Leaking urine or recent need to use pads.
- Not knowing when your bladder is either full or empty.
- Inability to stop a bowel movement or leaking.
- Loss of sensation when you pass a bowel motion.
- Change in ability to achieve an erection or ejaculate.
- Loss of sensation in genitals during sexual intercourse.

2.6. Bilateral Lower Limb Symptoms

Todd and Dickson (2016) defined CES-S ("CES-Suspected") as bilateral lower limb symptoms and signs in the absence of the classic CES symptoms that are associated with bladder, bowel or sexual dysfunction, or saddle anaesthesia. For the condition to be defined as CES- S we believe that clear neurogenic lower limb radicular pain and/or radiculopathy, referred to a particular dermatome/s, is needed. We would expect the pain and/or paraesthesia to be distributed throughout most of the dermatome (e.g., below the knee in L4-S2 nerve root lesions) but would almost always travel below the knee. Positive neurodynamic testing (e.g., straight leg raise) may also be present (NICE-CKS Guidance for Sciatica, 2018).

Bilateral lower limb symptoms are not uncommon in community or primary care; not all presentations will require an emergency MRI scan. Utilisation of sound clinical reasoning is vital to highlight the most appropriate patient group to refer for emergency MRI, and the ones that can safely follow the National Low Back and Radicular Pain Pathway (NBRPP) via their GP. As highlighted in 'Early Recognition of Cauda Equina Syndrome: A Framework for Assessment and Referral for Primary care / MSK interface services' (NBP-CN, 2020), sudden onset, or progressive bilateral lower limb symptoms are more concerning and may warrant an emergency MRI scan to rule out impending CES.

In the setting of isolated bilateral lower limb symptoms (with neither back pain nor sphincter/saddle sensory disturbance), if clinical uncertainty is felt by the assessing clinician it would be appropriate for them to seek a second opinion

from a clinical specialist (e.g., Neurosurgical or Neurology registrar or consultant, or specialist spinal APP). If bilateral lower limb symptoms present with any other CES features this would indicate CES-I ("CES- Incomplete") and warrant referral for emergency MRI. All patients with lower limb symptoms that do not meet the threshold described for emergency MRI need clear and documented safety netting as discussed below.

Unilateral or bilateral lower limb neurogenic symptoms are classic features of neurogenic claudication (pressure on the nerves). As discussed by Comer et al. (2020), this patient population commonly have undifferentiated bladder and bowel symptoms that are related to other origins (e.g., prostate). In this population our level of concern would be greater for bladder and bowel symptoms of sudden onset and/or recent deterioration, and this would warrant an emergency MRI. Chronic bladder and bowel changes that have not deteriorated would not warrant an emergency MRI and routine MRI would be appropriate.

2.7. Subjective Assessment

The table below suggests basic questions that should be asked. Further probing questions will be needed in the event of positive responses, this will assist in clinically reasoning the relevance of the information gained. Comprehensive guidance is available in Appendix 3.

Bladder	• **Are you aware of the urge to pass urine?** • **Can you start the flow of urine?** • **Does the effort and flow feel normal for you?** • **Do you empty your bladder?** • **Do you unknowingly wet yourself?**
Bowel	• **Do you have the sensation of a stool passing when you open your bowels?** • **Do you unknowingly soil yourself?** • **Do you experience constipation?**
Sensation	• **Do you have a normal feeling on and/or around your anus when you wipe with toilet paper?** • **Do you feel a stool passing when you open your bowels?** • **Do you have a normal sensation to your penis or testicles / vulva or vagina?**
Sexual function	• **Can you gain an erection?**

	• **Do you have normal sensation during sexual intercourse?** • **Can you reach an orgasm as normal?**

2.8. Objective Assessment

Clinical examination must include a full neurological examination to comprise:

- Muscle bulk/tone.
- Myotomes.
- Dermatomes.
- Plantar response.
- Clonus.
- Deep tendon reflexes.
- Neurodynamic testing (nerve stretch tests).
- Perianal sensation.

Anal tone has been removed from the routine assessment on the National pathway.

Please refer to the ASIA Chart available on Oceano Clinical Pathways / Major Trauma for a myotome table and dermatomal map.

2.9. Bladder Scanning

Pre- and Post-void bladder scans should be performed in ED. Do not delay MRI or referral to neurosurgery to perform them.

A post void residual volume of greater than 200ml has been shown to increase the likelihood of a CES positive MRI scan 20-fold (Venkatesan et al., 2019). However, no safe cut-off volume is accepted in the literature and 60% of patients undergoing emergency surgery in a recent UK study had a post-void bladder volume of less than 200ml (“Understanding CES Study”, unpublished).

If the patient either cannot pass urine and has >600ml in the bladder or has a post-void residual volume of >600ml, then catheterise to prevent bladder damage. Document if the patient can feel the catheterisation or feel a gentle catheter tug.

2.10. MRI

MRI is the gold standard assessment for diagnosing CES and should be completed as an emergency as soon as possible. Due to the high scan negative rates, the RCEM and GIRFT both recognise patients should be referred for MRI locally.

If MRI is contraindicated, then consultant-to-consultant liaison with radiology will be required to enable identification of a suitable alternative.

MRI is only available between 07:30 and 20:00 in Royal Cornwall Hospital, Truro and emergency patients inevitably displace elective patients. Patients will need to arrive at the scanner before 19:30 to be included that day, and this realistically means that most patients in the community will need to be referred before 18:00. A slot is held for 07:30 each day to provide an emergency scan for those presenting overnight. If a patient presents with CES-I or new-onset CES-R and cannot have an MRI within 4 hours of request, inform the ED consultant on-call: some individual cases will benefit from transfer to the regional neurosurgical centre for MRI scan overnight.

Local RCH audit suggests that the majority of the delay in ED lies before the MRI is requested. Since this may prevent a patient having the MRI the same day, it is important that patients with possible CES are evaluated early by a senior clinician who can direct the MRI request.

To ensure quality of referrals and for service development, MRI requests should identify which of Todd and Dickson's (2016) syndromes the patient fits:

Category	**Information**
Cauda Equina Syndrome Suspected (CES-S).	Bilateral radicular symptoms and signs.
Cauda Equina Syndrome Incomplete (CES-I).	Urinary difficulties of neurogenic origin, altered urinary sensation, loss of desire to void, poor urinary stream, need to strain to micturate.
Cauda Equina Syndrome Retention (CES-R).	Painless urinary retention and overflow incontinence where the bladder is no longer under executive control.
Cauda Equina Syndrome Complete (CES-C).	Loss of all cauda equina function, absent perineal sensation, patulous anus, paralysed insensate bladder and bowel.

Requests for an MRI which meet one of the above syndromes and where the patient has not had an MRI within the past month will be automatically vetted by the MRI radiographers: ED clinician telephones 01872 252907.

If the request concerns a patient with an atypical presentation or recent MRI scan then the ED clinician should discuss with the radiologist on duty 01872 255182 or via switch.

Scans are requested on MAXIMS under the "ED Consultants (Generic)" account as "Responsible Clinician".

2.11. Safety Netting

Safety netting is the process of providing the patient information regarding their actions and responsibilities in the circumstance of further deterioration; empowering them to act early. This will be relevant for all cases of back and/or radicular lower limb pain where a diagnosis of CES is not made (NBRPP, 2017; Finucane et al., 2020).

Safety netting should include:

- The likely time course of symptoms.
- Specific red flag warning the symptoms and signs of serious disease.
- Specific information about when and how to re-consult if symptoms do not resolve, [or deteriorate], in the expected time frame.
- Clear, documented safety netting instructions Greenhalgh et al. (2020).

Safety netting can potentially improve diagnostic and care pathways, and is recognised as best practice (Jones et al., 2019). The MACP has released *CES cue cards* in a wide variety of languages that can be given to patients for future reference. Also *an animation* in easily understood language.

Give patients the RCHT advice sheet:

RCHT You and your back pain watching out for Cauda Equina Syndrome (cornwall.nhs.uk)

2.12. Referral

Referral to Derriford Neurosurgery is via the ReferAPatient website.

2.13. Medicolegal

While the results of inadequately treated CES can be medically and medicolegally devastating, a clinician may decide against, or choose to delay, investigation or treatment based on their clinical or radiological assessment. Whatever the outcome of this decision, it is important that the clinician making the decision feels supported.

In one study of patients with a clinical history suggestive of CES only 19% were found to have radiologically confirmed CES (Hoeritzauer et al., 2020). A 2022 local audit at RCH found only 8% of MRI requests for suspected CES showed cauda equina compression and a further 6% required urgent neurosurgical consultation for other reasons (arachnoiditis, cord compression, pathological fracture, malignancy, spondylolisthesis). If a clinician decides to delay referral for an MRI scan, or delay decompressive surgery, they must document their clinical reasoning for this decision. As long as their reasoning is sound and the circumstances are relevant, this is defensible. In the context of delayed management, it is strongly recommended that safety netting is completed; clear documentation of this is essential, as is the provision of written information to the patient (Jones et al., 2019).

2.14. Training/Competence Requirements

Emergency Department healthcare professionals should ensure they have undertaken and remain up to date with appropriate training in the recognition and management of CES.

This may include completion of e-learning for health module: Serious pathology of the *spine* (Appendix 4).

2.15. References

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3. Monitoring compliance and effectiveness

Information Category	Detail of process and methodology for monitoring compliance
Element to be monitored	Time from ED arrival to request, Request to scan, Scan to neurosurgical referral. Rate of positive findings on MRI scan.
Lead	Emergency Department and Radiology Audit Leads.
Tool	Review of timings and outcomes audit. Excel spreadsheet likely to be used.
Frequency	Annual audit initially.
Reporting arrangements	Via ED and Radiology governance meetings.
Acting on recommendations and Lead(s)	ED and Radiology governance meetings.
Change in practice and lessons to be shared	Governance meetings will make recommendations.

4. Equality and Diversity

4.1. This document complies with the Royal Cornwall Hospitals NHS Trust service Equality and Diversity statement which can be found in the Equality Diversity And Inclusion Policy or the Equality and Diversity website.

4.2. Equality Impact Assessment

The Initial Equality Impact Assessment Screening Form is at Appendix 2.

Appendix 1. Governance Information

Information Category	Detailed Information
Document Title:	Emergency Department Cauda Equina Syndrome Pathway Clinical Guideline V1.0
This document replaces (exact title of previous version):	New Document.
Date Issued/Approved:	March 2024.
Date Valid From:	April 2024.
Date Valid To:	April 2027.
Directorate / Department responsible (author/owner):	Dr Mark Jadav, ED Consultant. Dr Tom Sulkin, Radiology Consultant. Dr Rebecca Hopkins, General Practitioner.
Contact details:	ED Secretary 01872 252452.
Brief summary of contents:	Pathway for Suspected Cauda Equina Syndrome presenting through the Emergency Department.
Suggested Keywords:	Acute GP, Primary Care, Cauda Equina Syndrome, CES, Spinal, Spine.
Target Audience:	**RCHT:** Yes **CFT:** Yes **CIOS ICB:** Yes
Executive Director responsible for Policy:	Chief Medical Officer.
Approval route for consultation and ratification:	Emergency Department and Radiology Governance Meetings, Guideline Development Group.
Manager confirming approval processes:	Rachel Pearce.
Name of Governance Lead confirming consultation and ratification:	Paul Evangelista.
Links to key external standards:	https://gettingitrightfirsttime.co.uk/wp-content/uploads/2023/02/National-Suspected-Cauda-Equina-Pathway-February-2023-FINAL-V1.html

Information Category	Detailed Information
Related Documents:	Appendix 4. Primary Care CES Guideline.
Training Need Identified?	No.
Publication Location (refer to Policy on Policies – Approvals and Ratification):	Internet and Intranet.
Document Library Folder/Sub Folder:	Clinical / Emergency Department.

Version Control Table

Date	Version Number	Summary of Changes	Changes Made by
March 2023	V1.0	Initial issue	Dr Mark Jadav
March 2024	V1.2	After negotiation with ICA leads: Removed pathway for primary care to refer direct to MRI: this is now only for UTC / AGP. Primary care will refer to ED.	Dr Mark Jadav

All or part of this document can be released under the Freedom of Information Act 2000

All Policies, Strategies and Operating Procedures, including Business Plans, are to be kept for the lifetime of the organisation plus 6 years.

This document is only valid on the day of printing.

Controlled Document

This document has been created following the Royal Cornwall Hospitals NHS Trust The Policy on Policies (Development and Management of Knowledge Procedural and Web Documents Policy). It should not be altered in any way without the express permission of the author or their Line Manager.

Appendix 2. Equality Impact Assessment

Section 1: Equality Impact Assessment (EIA) Form

The EIA process allows the Trust to identify where a policy or service may have a negative impact on an individual or particular group of people.

For guidance, please refer to the Equality Impact Assessment Policy (available from the document library) or contact the Equality, Diversity, and Inclusion Team rcht.inclusion@nhs.net

Information Category	Detailed Information
Name of the strategy / policy / proposal / service function to be assessed:	Emergency Department Cauda Equina Syndrome Pathway Clinical Guideline V1.0
Directorate and service area:	Emergency Department.
Is this a new or existing Policy?	New.
Name of individual completing EIA (Should be completed by an individual with a good understanding of the Service/Policy):	Dr Mark Jadav- Emergency Department Consultant and speciality Lead.
Contact details:	Mark.jadav@nhs.net

Information Category	Detailed Information
1. Policy Aim - Who is the Policy aimed at? (The Policy is the Strategy, Policy, Proposal or Service Change to be assessed)	Primary Care and Community clinicians seeing patients with potential Cauda Equina syndrome.
2. Policy Objectives	To provide guidance on the assessment, investigation, and onward referral of patients with potential CES.
3. Policy Intended Outcomes	To minimise delays to diagnosis, especially to appropriate MRI imaging.
4. How will you measure each outcome?	Annual audit of CES.
5. Who is intended to benefit from the policy?	Patients requiring CES investigation. Staff involved in the assessment, investigation, and onward referral of these patients.

Information Category	Detailed Information
6a. Who did you consult with? (Please select Yes or No for each category)	• Workforce: Yes • Patients/ visitors: No • Local groups/ system partners: Yes • External organisations: Yes • Other: No
6b. Please list the individuals/groups who have been consulted about this policy.	**Please record specific names of individuals/ groups:** ED Consultants, Radiology clinical lead, Primary Care MSK lead, Acute GP clinical lead, Peninsula Spine Network ODN.
6c. What was the outcome of the consultation?	Approved.
6d. Have you used any of the following to assist your assessment?	**National or local statistics, audits, activity reports, process maps, complaints, staff, or patient surveys:** **Yes-** Local audits, New National Pathway, Experience of previous complaints and medicolegal cases.

7. The Impact

Following consultation with key groups, has a negative impact been identified for any protected characteristic? Please note that a rationale is required for each one.

Where a negative impact is identified without rationale, the key groups will need to be consulted again.

Protected Characteristic	(Yes or No)	Rationale
Age	No	
Sex (male or female)	No	
Gender reassignment (Transgender, non-binary, gender fluid etc.)	No	
Race	No	
Disability (e.g. physical or cognitive impairment, mental health, long term conditions etc.)	No	
Religion or belief	No	

Protected Characteristic	(Yes or No)	Rationale
Marriage and civil partnership	No	
Pregnancy and maternity	No	
Sexual orientation (e.g. gay, straight, bisexual, lesbian etc.)	No	

A robust rationale must be in place for all protected characteristics. If a negative impact has been identified, please complete section 2. If no negative impact has been identified and if this is not a major service change, you can end the assessment here.

I am confident that section 2 of this EIA does not need completing as there are no highlighted risks of negative impact occurring because of this policy.

Name of person confirming result of initial impact assessment: Dr Mark Jadav, Emergency Medicine Consultant and Speciality Lead.

If a negative impact has been identified above OR this is a major service change, you will need to complete section 2 of the EIA form available here:
Section 2. Full Equality Analysis

Appendix 3. Symptoms of Cauda Equina Syndrome Recommended Further Questions

Subjective Symptoms • Level of Evidence	Context	Further Questions	Low Clinical Suspicion	High Clinical Suspicion
Sensory change (lower limbs) • **Low**	• History of symptoms, pattern, progression, and time scale. • Consider existing comorbidities (e.g., multiple sclerosis, diabetes).	• When did the sensation problems in your leg(s) start? • Where did they begin and how did those symptoms change as time went on? • Exactly where in your legs do you feel the symptoms? • Do you have any other medical conditions?	Normal neurology	Sensory change (lower limbs)
Motor weakness (lower limbs) • **Low**	• Time scales of perceived weakness and progression are important to establish. • Consider existing comorbidities (e.g., aortic aneurysm).	• When did the weakness problems in your leg(s) start? • Where did the weakness begin and how did those symptoms change as time went on? • Do you have any other medical conditions?	Normal neurology	Motor weakness (lower limbs)
Saddle sensory disturbance • **Low**	• Precise extent of pins and needles and/or numbness (e.g., difference between bicycle/horse saddle). • Previous history. • Trauma/surgery. • Other potential pudendal nerve compression (e.g.,	• See CES cue card. • Exactly where do you feel the numbness in your bottom, inner thighs, or genitals? • Where did it start and how has the numbness and/or pins and needles changed over time? • Do you have normal sensation when you wipe after toileting? • How long has this been present?	N/A	Saddle sensory disturbance

Subjective Symptoms • Level of Evidence	Context	Further Questions	Low Clinical Suspicion	High Clinical Suspicion
	cycling).	• What hobbies do you have? • Were any interventions used during childbirth? (where appropriate). • Have you had any previous surgery?		
Change in ability to achieve an erection or ejaculate. • **Low**	• History of symptoms, progression, and time scale comorbidities (e.g., diabetes). • Side effects from pharmacology (neuropathic medications, codeine). • Age: older people may have spinal stenosis and are less likely to have acute CES. • Functional symptoms: psychosocial presentation and health care utilization.	• See CES cue card. • When did these symptoms begin? • If it was some time ago, are these symptoms different? • Do you have any other medical conditions? • Have you started any new medication? • Were the symptoms present before you began this medication or after? • Routine questions related to psychosocial distress.	NA	Recent change in ability to achieve an erection or ejaculate

Loss of sensation in genitals during sexual intercourse	• Previous history of sexual dysfunction?
	  • Is this different?
		• See CES cue card for relevant questions that need to be asked, including the following:
		  • When did these symptoms begin?
		  • If it was some time ago, are these symptoms different?
			NA	Loss of sensation in genitals during sexual intercourse

Subjective Symptoms • **Level of Evidence**	Context	Further Questions	Low Clinical Suspicion	High Clinical Suspicion
• **Low**		• Do you have any other medical conditions? • Ask routine questions related to psychosocial distress.		
Urinary function (e.g., frequency) • **Low**	• Previous history of bladder disturbance. • Establish precise change in function, such as hesitancy, change in stream, loss of sensation passing urine, inability to feel when the bladder is full or empty, and sensation of incomplete voiding.	• See CES cue card for relevant questions that need to be asked, including the following: • When did the changes begin? • Describe the changes in urine function. • Do you have any other medical conditions? • Have you started any new medication? • Were the symptoms present before you began this medication or after?	NA	Urinary function (e.g., frequency)
Urinary retention • **Low**	• Previous history of bladder disturbance. • Most of these people will not have critical cauda equina compression. However, in the absence of reliably predictive symptoms and signs, there should be a low threshold for investigation with an emergency MRI scan. • Age: older people may	• See CES cue card for relevant questions that need to be asked, including the following: • When did the changes begin? • When did you last pass urine? • Have you started any new medication? • Were the symptoms present before you began this medication or after? • Do you have any other medical conditions? • Have you attended any other health care setting (GP, surgery, clinic, hospital, etc.)	NA	Urinary retention

Subjective Symptoms • Level of Evidence	Context	Further Questions	Low Clinical Suspicion	High Clinical Suspicion
	have spinal stenosis and are less likely to have acute CES. • Functional symptoms: psychosocial presentation and health care utilization. • Be aware of an increase in health- seeking behaviour.	because of this problem? ▪ - If so, who did you see and when?		
Urinary incontinence • **Low**	• Previous history of bladder disturbance.	• See CES cue card for relevant questions that need to be asked, including the following: • When did the changes begin? • When did you last pass urine? • Have you started any new medication? • Were the symptoms present before you began this medication or after? • Do you have any other medical conditions? • Have you attended any other health care setting (GP, surgery, clinic, hospital, etc.) because of this problem? ▪ - If so, who did you see and when?	NA	Urinary incontinence

Subjective Symptoms • **Level of Evidence**	Context	Further Questions	Low Clinical Suspicion	High Clinical Suspicion

Bowel incontinence
• **Low**
	• Previous history of bowel disturbance.	• See CES cue card for relevant questions that need to be asked, including the following:
		  • When did the changes begin?
		  • When did you last open your bowels?
		  • Have you started any new medication?
		  • Were the symptoms present before you began this medication or after?
		  • Do you have any other medical conditions?
		  • Have you attended any other health care setting (GP, surgery, clinic, hospital, etc) because of this problem?
		  ▪ If so, who did you see and when?
			NA	Bowel incontinence

Constipation
• **Low**
	• Previous history of bowel disturbance.
	• History of symptoms and time scale.
	• Side effects from pharmacology (neuropathic medications, codeine).
	• Age: older people may have spinal stenosis and are less likely to have
		• See CES cue card.
		  • When did the changes begin?
		  • When did you last pass a stool?
		  • Have you started any new medication?
		  • Were the symptoms present before you began this medication or after?
		  • Do you have any other medical conditions?
		  • Have you attended any other health care setting (GP, surgery, clinic, hospital, etc) because of this problem?
			-	Constipation

Subjective Symptoms • **Level of Evidence**	Context	Further Questions	Low Clinical Suspicion	High Clinical Suspicion
	acute CES. • Functional symptoms: psychosocial presentation and health care utilization.	▪ If so, who did you see and when?		
Unilateral/ bilateral leg pain • **Low**	• Unilateral radicular leg pain progressing to bilateral radicular leg pain is a concerning presentation. • The prevalence of bilateral leg pain in primary care is not known. • Consider other causes of leg pain: • Smoker. • Cardiovascular disease. • Lesion higher in the spine.	• When did the pain progress from 1 leg to 2? • How far down each leg does the pain go? • Do you have any conditions that affect your heart or circulation?	No CES symptoms	Unilateral/ bilateral leg pain

Subjective Symptoms • Level of Evidence	Context	Further Questions	Low Clinical Suspicion	High Clinical Suspicion

Low back pain
• **Low**
	• Presentations that increase the probability of acute threatened cauda equina.
	• Back pain with:
	  • Presence of new saddle anaesthesia, bladder, or bowel disturbance.
	  • Age, <50 Years.
	  • Unilateral onset progressing to bilateral leg pain.
	  • Alternating leg pain.
	  • Presence of new motor weakness.
	  • Obesity.
	• History of symptoms and time scale.
		• When did your back pain begin?
		• How has it progressed?
		• Do you have or have you had leg symptoms?
		  • If so, where exactly is your leg pain?
		• Consider questions on CES cue card if symptoms progress.
			See context	Low back pain

Abbreviations: CES, cauda equina syndrome; GP, general practitioner; MRI, magnetic resonance imaging; NA, not applicable				
Finucane et al. (2020) Reproduced with permission				

Appendix 4: Relevant Documents

- Patient information leaflet: Back pain - looking out for Cauda Equina Syndrome (RCHT1407)
- NHS CIOS RMS Guidelines for MRI https://rms.cornwall.nhs.uk/primary_care_clinical_referral_criteria/primary_care_clinical_referral_criteria/diagnostics_and_imaging/primary_care_clinical_referral_criteria/primary_care_clinical_referral_criteria/diagnostics_and_imaging/mri/mri_lumbar_spine.
- NHS CIOS RMS Clinical Referral Guidelines for Back Pain https://rms.cornwall.nhs.uk/primary_care_clinical_referral_criteria/primary_care_clinical_referral_criteria/orthopaedics/back_pain.
- E-Learning for Healthcare Serious pathology of the spine: https://portal.e-lfh.org.uk/myElearning/Index?HierarchyId=0_43501_43523andprogrammeId=43501.
- CES cue cards: https://www.eoemskservice.nhs.uk/advice-and-leaflets/lower- back/cauda-equina.
- Animation: https://www.macpweb.org/Resources/86f5045c-3423-4f29-b21c- 492a5f77e265.

Appendix 5. Classification Of Cauda Equina Syndrome

Todd and Dickson (2016) proposed the following classification. There is poor inter- and intra- observer reliability which limits the use in diagnostic practice, but they remain of use in audit / research.

Type	Most Common Symptoms	Prognosis
Cauda Equina Syndrome Suspected (CES-S).	Bilateral radicular symptoms and signs.	Risk of progression to CES-I or CES-R. Good prognosis with treatment.
Cauda Equina Syndrome Incomplete (CES-I).	Urinary difficulties of neurogenic origin, altered urinary sensation, loss of desire to void, poor urinary stream, need to strain to micturate.	Risk of progression to CES-R. Reasonable prognosis with early (emergency) treatment.
Cauda Equina Syndrome Retention (CES-R).	Painless urinary retention and overflow incontinence where the bladder is no longer under executive control.	Serious disability. Poor prognosis even with early treatment.
Cauda Equina Syndrome Complete (CES-C).	Loss of all cauda equina function, absent perineal sensation, patulous anus, paralysed insensate bladder and bowel.	Serious disability. Poor prognosis even with early treatment.

Todd and Dickson (2016)

Appendix 6. MRI Safety Checklist

[CHA2840: MRI Safety Checklist (cornwall.nhs.uk)]

Place patient sticker **within** this box

NHS
Royal Cornwall Hospitals
NHS Trust

MRI safety checklist

Name:		Date of birth:
Address:		
Postcode:		Telephone number:
Please answer the following questions		**Yes / No**
1	**Do you have a cardiac pacemaker/defibrillator?**	
2	**Have you ever had a cardiac pacemaker/defibrillator?** If yes, give details	
3	**Have you ever had heart surgery? (eg: Valve replacement, Bypass,)** If yes, give details	
4	**Do you have a neuro-stimulator?**	
5	**Have you ever had any type of electronic, mechanical, or magnetic Implant?** If yes, give details	
6	**Have you ever had surgery to your brain?** If yes, give details	
7	**Have you ever had an aneurysm/blood vessel repaired in your brain?**	
8	**Do you have a programmable hydrocephalus shunt?**	
9	**Have you ever had surgery to your ears?** If yes, give details	
10	**Have you ever had surgery to your eyes?** If yes, give details	
11	**Have you ever had any operations involving the use of metal implants, plates, or clips?** eg: Stents Filters Wires Rods Pins Plates Coils Clips Grafts	
12	**Have you ever had any metal fragments in your eyes?** If yes, give details	
13	**Have you ever had any metal fragments in any other part of your body?** (eg: Shrapnel) If yes, give details	
14	**Have you had any surgery in any part of your body in the past 8 weeks?** If yes, give details	

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Place patient sticker **within** this box

	MRI SAFETY CHECKLIST cont...	Yes / No
15	**Have you had any of the following tests in the last 8 weeks?** Colonoscopy Sigmoidoscopy Gastroscopy Endoscopy PillCam / Oral camera	
16	**Do you wear any health / diabetic monitoring systems?** (eg: Libre diabetic monitor) If yes, give details	
17	**Have you ever had breast implants OR tissue expanders fitted?**	
18	**Have you had any cosmetic / body modification procedures?** eg: Dermal piercings Microblading Magnetic eyelashes Hair extensions RFID implant	
19	**Do you have a gastric band?** (For weight loss or reflux)	
20	**Are you wearing any medication patches?** (eg: nicotine, HRT patch)	
21	**Do you have any wound dressings?**	
22	**Do you have a prosthetic limb, eye or other artificial device not already mentioned?** If yes, give details	
23	**Have you had a previous MRI scan?** If yes, when was the most recent?	
24	**Could you be pregnant?**	
25	**Are you currently breast-feeding?**	
26	**What is your weight?** **(Stones)** **(Kilograms)**	

I confirm that that the information I have provided is correct to the best of my knowledge.

Signature of patient: **Date:**

Signature of staff member (1): **Date:**

Signature of staff member (2): **Date:**

Please remove all loose metallic objects, including metallic body piercing, hearing aids, foil drug patches and dentures.

Question No:	Staff comments

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