

Radiofrequency Denervation

Scope

This policy covers the treatment of low back and neck pain with radiofrequency denervation and pulsed radiofrequency. This policy links to the [Surgery and Other Invasive Interventions for Low Back Pain Policy](#)

Policy

It is the responsibility of referring and treating clinicians to ensure compliance with this policy. Referral proforma should be attached to the patient notes to aid the clinical audit process and provide evidence of compliance with the policy. For patients not meeting the policy criteria, clinicians can apply for funding to the Exceptional Cases Panel by completing the exceptional funding section of the [referral proforma](#):

The CCG will fund treatment with radiofrequency denervation for patients with low back or neck pain (facet or sacroiliac joints) where ALL the following criteria are met:

- There is failure of one year of appropriate non-invasive therapies, that include medication and physiotherapy, and advice on self-management. **AND**
- Patient experiences moderate to severe pain (VAS or equivalent >5/10) that limits activities of daily living and/or limits sleep at night. **AND**
- Diagnostic nerve block gives ≥80% reduction in pain for the duration of local anaesthetic action (injections are only to be used for diagnosis, not for the treatment of back pain). **AND**
- Radiofrequency denervation is provided as part of a comprehensive pain management pathway. **AND**
- There is continued evidence of effectiveness with each treatment.

Note: Only one radiofrequency ablation treatment episode per 6 months is funded (may involve more than one procedure if multiple levels require treatment).

Note: Pulsed Radiofrequency of the dorsal root ganglion or other experimental techniques or targets, will not be funded without exceptional case panel approval.

Evidence and Rationale

NICE recommends considering the use of radiofrequency denervation in patients with low back pain of facet joint origin where conservative management has failed¹. There is some evidence of an overall benefit of radiofrequency denervation on lower back pain compared with placebo or no treatment when used for facet joint²⁻¹¹ and sacroiliac joint^{4,12-14} pain in the short term. However, the size of effect is small (<1 on an 11 point scale) and the longer-term (>6 months) effectiveness is uncertain. Radiofrequency denervation of the lumbar discs¹⁵⁻¹⁷ shows uncertain effectiveness. Radiofrequency denervation should therefore only be used for back pain where conservative treatments have failed and the policy criteria are met.

The effectiveness of radiofrequency denervation in patients with neck pain is currently uncertain.¹⁸ However, one trial of radiofrequency denervation of the cervical facet joints¹⁹ suggests positive effects of radiofrequency denervation (although it's applicability is uncertain as all patients in the trial had whiplash).

Radiofrequency denervation of the dorsal root ganglion has not been shown to be effective^{20,22} and is not funded.

There is also no clear evidence for the effectiveness of pulsed radiofrequency of the dorsal root ganglion. One trial²³ suggests some potential benefit but there is no statistical significance and this procedure should be used sparingly, with ongoing formal assessment of its effectiveness.

Pulsed radiofrequency of the facet joints²⁴ has not been shown to be effective and should not be used in routine practice.

References

1. National Institute for Health and Care Excellence. NG59. Low back pain and sciatica in over 16s: assessment and management. November 2016.
2. Maas E T, Ostelo R W J G, Niemisto L, Jousimaa J, Hurri H, Malmivaara A, van Tulder M W. Radiofrequency denervation for chronic low back pain. *Cochrane Database of Systematic Reviews* 2015, Issue 10. Art. No.: CD008572.
3. Gallagher J, Petriccione, P L, Wedley V J R, et al. Radiofrequency facet joint denervation in the treatment of low back pain: A prospective controlled double-blind study to assess its efficacy. *The pain clinic* 1994; 7(3):193-198.
4. Juch J N S, Maas E T, Ostelo R W J G, et al. Effect of Radiofrequency Denervation on Pain Intensity Among Patients With Chronic Low Back Pain: The Mint Randomized Clinical Trials. *JAMA*. 2017 Jul 4; 318(1): 68-81.
5. Leclaire R, Fortin L, Richard Lambert R, et al. Radiofrequency Facet Joint Denervation in the Treatment of Low Back Pain A Placebo-Controlled Clinical Trial to Assess Efficacy. *SPINE* 2001 26(13):1411-1417.
6. Moussa W M M, Khedr W. Percutaneous radiofrequency facet capsule denervation as an alternative target in lumbar facet syndrome. *Clinical Neurology and Neurosurgery* 150 (2016) 96-104.
7. Van Kleef M, Barendse G A M, Kessels A, et al. Randomized trial of radiofrequency lumbar facet denervation for chronic low back pain. *SPINE* 1999; 24(18):1937-42.
8. Van Tilburg C W J, Stronks D L, Groeneweg J G, Hugen F J P M. Randomised sham-controlled double-blind multicentre clinical trial to ascertain the effect of percutaneous radiofrequency treatment for lumbar facet joint pain. *Bone Joint J* 2016; 98-B(11):1526-1533.
9. van Wijk R M A W, Geurts J W M, Wynne H J, et al. Radiofrequency Denervation of Lumbar Facet Joints in the Treatment of Chronic Low Back Pain A Randomized, Double-Blind, Sham Lesion-Controlled Trial. *Clin J Pain* 2005;21(4):335-344.
10. Nath S, Nath C A, and Pettersson K. Percutaneous Lumbar Zygapophysial (Facet) Joint Neurotomy Using Radiofrequency Current, in the Management of Chronic Low Back Pain: A Randomized Double-Blind Trial. *SPINE* 2008; 33(12):1291-1297.
11. Tekin I, Mirzai H, Ok G, et al. A Comparison of Conventional and Pulsed Radiofrequency Denervation in the Treatment of Chronic Facet Joint Pain. *Clinical Journal of Pain* 2007; 23(6):524-529.
12. Cohen S P, Hurley R W, Buckenmaier C C, et al. Randomized Placebo-Controlled Study Evaluating Lateral Branch Radiofrequency Denervation for Sacroiliac Joint Pain. *Anesthesiology*. 2008; 109(2): 279–288. doi:10.1097/ALN.0b013e31817f4c7c.
13. Patel N, Gross A, Brown L, Gekht G. A Randomized, Placebo-Controlled Study to Assess the Efficacy of Lateral Branch Neurotomy for Chronic Sacroiliac Joint Pain. *Pain Medicine* 2012; 13: 383–398.
14. van Tilburg C W J, Schuurmans F A, Stronks D L, et al. Randomized Sham-controlled Double-Blind Multicenter Clinical Trial to Ascertain the Effect of Percutaneous Radiofrequency Treatment for Sacroiliac Joint Pain: Three-month Results. *Clin J Pain* 2016;32:921–926.
15. Barendse G A M, van den Berg S G M, Kessels A H F, et al. Randomized Controlled Trial of Percutaneous Intradiscal Radiofrequency Thermocoagulation for Chronic Discogenic Back Pain: Lack of Effect From a 90-Second 70 C Lesion. 2001; 26(3):287-292.
16. Kapural L, Vrooman B, Sarwar S, Krizanac-Bengez L, et al. A Randomized, Placebo-Controlled Trial of Transdiscal Radiofrequency, Biacuplasty for Treatment of Discogenic Lower Back Pain. *Pain Medicine* 2013; 14: 362–373.
17. van Tilburg C W J, Stronks D L, Groeneweg J G, Huygen F J P M. Randomized sham-controlled, double-blind, multicenter clinical trial on the effect of percutaneous radiofrequency at the ramus communicans for lumbar disc pain. *Eur J Pain* 21 (2017) 520—529.
18. Niemisto L, Kalso E A, Malmivaara A, et al. Radiofrequency denervation for back and neck pain. *Cochrane database of systematic reviews* 2003, Issue 1. Art No:CD004058.

19. Lord S M, Barnsley L, Wallis B J, et al. Percutaneous radiofrequency neurotomy for chronic cervical zygapophyseal joint pain. *N Engl J Med* 1996; 335:1721-6.
20. Van Kleef M, Liem L, Lousberg R, et al. Radiofrequency lesion adjacent to the dorsal root ganglion for cervicobrachial pain: a prospective double blind randomized study. *Neurosurgery* 1996; 38(6):1127-1132.
21. Slappendela R, Crulb B J P, Braakc G J J, et al. The efficacy of radiofrequency lesioning of the cervical spinal dorsal root ganglion in a double blinded randomized study: no difference between 40°C and 67°C treatments. *Pain* 73 (1997) 159–163.
22. Geurts J W M, van Wijk R M A W, Wynne H J, et al. Radiofrequency lesioning of dorsal root ganglia for chronic lumbosacral radicular pain: a randomised, double-blind, controlled trial. *Lancet* 2003; 361: 21–26.
23. Shanthanna H, Chan P, McChesney J, Thabane L, Paul J. Pulsed radiofrequency treatment of the lumbar dorsal root ganglion in patients with chronic lumbar radicular pain: a randomized, placebo-controlled pilot study. *Journal of Pain Research* 2014;7 47–55.
24. Lopez W O C, Navarro P A, Vargas M D, et al. Pulsed Radiofrequency Versus Continuous Radiofrequency for Facet Joint Low Back Pain: A Systematic Review. *World Neurosurg.* (2019) 122:390-396.

Glossary

Facet joint:	Pairs of joints between the vertebra of the spine.
Medial branch block:	Injection of anaesthetic solution near to medial nerves connected to a specific facet joint, which temporarily stops the transmission of pain signals from the facet joint. The injection is done to diagnose pain coming from a chronically irritated facet joint and/or other structures supplied by the medial branches of the dorsal rami.
Radiofrequency denervation:	Also referred to as facet rhizolysis, radiofrequency neurotomy or radiofrequency ablation. A procedure used to help treat back or neck pain that comes from the facet joints and/or other structures.
Sacroiliac joint:	Joint in the pelvis that connects the sacrum and ilium bones

Policy originated:	Policy ratified by CCG GB 7 July 2020 Policy approved by IPAC 30 June 2020 Policy approved by CPF 9 March 2020
Policy effective from	August 2020
Policy to be reviewed:	August 2022
Reference:	<i>onedrive\CPF Pols & Working Area\Surgical Threshold Pols\CCG Policies\Radiof Denvtn\Agreed\ RADIOFREQ DNVTN AUG 2020 V2</i>