

Neuropathic pain in adults: pharmacological management in non- specialist settings

Clinical guideline

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www.nice.org.uk/guidance/cg173

Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the [Yellow Card Scheme](#).

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should [assess and reduce the environmental impact of implementing NICE recommendations](#) wherever possible.

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This guideline replaces CG96.

This guideline should be read in conjunction with NG193.

Overview

This guideline covers managing neuropathic pain (nerve pain) with pharmacological treatments (drugs) in adults in non-specialist settings. It aims to improve quality of life for people with conditions such as neuralgia, shingles and diabetic neuropathy by reducing pain and promoting increased participation in all aspects of daily living. The guideline sets out how drug treatments for neuropathic pain differ from traditional pain management.

Anti-epileptic medicines: Follow the [Medicines and Healthcare products Regulatory Agency \(MHRA\) safety advice on the use of valproate, valproate use in people younger than 55 years, valproate use in women and girls, valproate use in men, the use of topiramate and anti-epileptic drugs in pregnancy.](#)

Who is it for?

- Healthcare professionals
- Adults with neuropathic pain, their families and carers

Introduction

Pain is an unpleasant sensory and emotional experience that can have a significant impact on a person's quality of life, general health, psychological health, and social and economic wellbeing. The International Association for the Study of Pain (IASP 2011) defines neuropathic pain as 'pain caused by a lesion or disease of the somatosensory nervous system'. Central neuropathic pain is defined as 'pain caused by a lesion or disease of the central somatosensory nervous system', and peripheral neuropathic pain is defined as 'pain caused by a lesion or disease of the peripheral somatosensory nervous system'.

Neuropathic pain is very challenging to manage because of the heterogeneity of its aetiologies, symptoms and underlying mechanisms (Beniczky et al. 2005). There is often uncertainty regarding the nature and exact location of a lesion or health condition associated with neuropathic pain, particularly in non-specialist settings. Examples of common conditions that have peripheral neuropathic pain as a symptom are painful diabetic neuropathy, post-herpetic neuralgia, trigeminal neuralgia, post-surgical chronic neuropathic pain, and neuropathic cancer pain (such as, chemotherapy-induced neuropathy, neuropathy secondary to tumour antigens, or caused by direct invasion or compression of neural structures). Examples of conditions that can cause central neuropathic pain include stroke, spinal cord injury and multiple sclerosis. Neuropathic pain can be intermittent or constant, and spontaneous or provoked. Typical descriptions of the pain include terms such as shooting, stabbing, like an electric shock, burning, tingling, tight, numb, prickling, itching and a sensation of pins and needles. People may also describe symptoms of allodynia (pain caused by a stimulus that does not normally provoke pain), hyperalgesia (an increased response to a stimulus that is normally painful), anaesthesia dolorosa (pain felt in an anaesthetic [numb] area or region), and sensory gain or loss (IASP 2011).

A review of the epidemiology of chronic pain found that there is still no accurate estimate available for the population prevalence of neuropathic pain (Smith et al. 2012). For example, the prevalence of neuropathic pain overall has been estimated to be between 6% and 8%, from postal surveys in France (Bouhassira 2008) and the UK (Torrance 2006). However, these estimates came from studies using different questionnaires. Other condition-specific studies have also mirrored the heterogeneous nature of neuropathic pain. For example, painful diabetic neuropathy is estimated to affect between 16% and 26% of people with diabetes (Jensen et al. 2006; Ziegler 2008). Prevalence estimates for post-herpetic neuralgia range from 8% to 19% of people with herpes zoster when defined

as pain at 1 month after rash onset, and 8% when defined as pain at 3 months after rash onset (Schmader 2002).

The development of chronic pain after surgery is also fairly common, with estimates of prevalence ranging from 10% to 50% after many common operations (Shipton 2008). This pain is severe in between 2% and 10% of this subgroup of patients, and many of the clinical features closely resemble those of neuropathic pain (Jung et al. 2004; Mikkelsen et al. 2004; Kehlet et al. 2006). Furthermore, a study of 362,693 computerised records in primary care from the Netherlands estimated the annual incidence of neuropathic pain in the general population to be almost 1% (Dieleman et al. 2008). This considerable variability in estimates of the prevalence and incidence of neuropathic pain and similar conditions from general population studies is likely to be because of differences in the definitions of neuropathic pain, methods of assessment and patient selection (Smith and Torrance 2010, Smith et al. 2012).

A number of pharmacological treatments can be used to manage neuropathic pain outside of specialist pain management services. However, there is considerable variation in how treatment is initiated, the dosages used and the order in which drugs are introduced, whether therapeutic doses are achieved and whether there is correct sequencing of therapeutic classes. A further issue is that a number of commonly used treatments are unlicensed for treating neuropathic pain, which may limit their use. These factors may lead to inadequate pain control, with considerable morbidity.

Commonly used pharmacological treatments include antidepressants (tricyclic antidepressants [TCAs], selective serotonin reuptake inhibitors [SSRIs] and serotonin–norepinephrine reuptake inhibitors [SNRIs]), anti-epileptic (anticonvulsant) drugs, topical treatments and opioid analgesics. In addition to their potential benefits, all of these drug classes are associated with various adverse effects.

This short clinical guideline aims to improve the care of adults with neuropathic pain by making evidence-based recommendations on the pharmacological management of neuropathic pain outside of specialist pain management services. A further aim is to ensure that people who require specialist assessment and interventions are referred appropriately and in a timely fashion to a specialist pain management service and/or other condition-specific services.

Drug recommendations

For all drugs, recommendations are based on evidence of clinical and cost effectiveness and reflect whether their use for the management of neuropathic pain is a good use of NHS resources. This guideline should be used in conjunction with clinical judgement and decision-making appropriate for the individual patient.

The guideline will assume that prescribers will use a drug's summary of product characteristics (SPC) and the British National Formulary (BNF) to inform decisions made with individual patients (this includes obtaining information on special warnings, precautions for use, contraindications and adverse effects of pharmacological treatments).

This guideline recommends some drugs for indications for which they do not have a UK marketing authorisation at the date of publication, if there is good evidence to support that use. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. The patient (or those with authority to give consent on their behalf) should provide informed consent, which should be documented. See the [General Medical Council's Good practice in prescribing and managing medicines and devices \(2013\)](#). Where recommendations have been made for the use of drugs outside their licensed indications (off-label use), these drugs are marked with a footnote in the recommendations.

Healthcare setting for this guideline

The recommendations in this clinical guideline are for the pharmacological management of neuropathic pain in non-specialist settings only. The Guideline Development Group acknowledged that there are other pharmacological and non-pharmacological treatments that will be of benefit to people with neuropathic pain, within different care pathways in different settings.

Terms used in this guideline

Condition-specific service

A condition-specific service is a specialist service that provides treatment for the underlying health condition that is causing neuropathic pain. Examples include neurology, diabetology and oncology services.

Non-specialist settings

These are primary and secondary care services that do not provide specialist pain services. Non-specialist settings include general practice, general community care and hospital care.

Participation

The World Health Organization ICF (International Classification of Functioning, Disability and Health, 2001) defines participation as 'A person's involvement in a life situation.' It includes the following domains: learning and applying knowledge, general tasks and demands, mobility, self-care, domestic life, interpersonal interactions and relationships, major life areas, community, and social and civil life.

Specialist pain services

These are those that provide comprehensive assessment and multi-modal management of all types of pain, including neuropathic pain.

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in [NICE's information on making decisions about your care](#).

[Making decisions using NICE guidelines](#) explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

The following guidance is based on the best available evidence. The [full guideline](#) gives details of the methods and the evidence used to develop the guidance.

1.1 List of all recommendations

Key principles of care

For guidance on safe prescribing and managing withdrawal of antidepressants and dependence-forming medicines, see [NICE's guideline on medicines associated with dependence or withdrawal symptoms](#).

- 1.1.1 When agreeing a treatment plan with the person, take into account their concerns and expectations, and discuss:
- the severity of the pain, and its impact on lifestyle, daily activities (including sleep disturbance) and [participation](#)
 - the underlying cause of the pain and whether this condition has deteriorated
 - why a particular pharmacological treatment is being offered
 - the benefits and possible adverse effects of pharmacological treatments, taking into account any physical or psychological problems, and concurrent medications

- the importance of dosage titration and the titration process, providing the person with individualised information and advice
- coping strategies for pain and for possible adverse effects of treatment
- non-pharmacological treatments, for example, physical and psychological therapies (which may be offered through a rehabilitation service) and surgery (which may be offered through specialist services).

For more information about involving people in decisions and supporting adherence, see the [NICE guideline on medicines adherence](#).

- 1.1.2 Consider referring the person to a [specialist pain service](#) and/or a [condition-specific service](#) at any stage, including at initial presentation and at the regular clinical reviews (see recommendation 1.1.6), if:
- they have severe pain **or**
 - their pain significantly limits their lifestyle, daily activities (including sleep disturbance) and participation **or**
 - their underlying health condition has deteriorated.
- 1.1.3 Continue existing treatments for people whose neuropathic pain is already effectively managed, taking into account the need for regular clinical reviews (see recommendation 1.1.6).
- 1.1.4 When introducing a new treatment, take into account any overlap with the old treatments to avoid deterioration in pain control.
- 1.1.5 After starting or changing a treatment, carry out an early clinical review of dosage titration, tolerability and adverse effects to assess the suitability of the chosen treatment.
- 1.1.6 Carry out regular clinical reviews to assess and monitor the effectiveness of the treatment. Each review should include an assessment of:
- pain control

- impact on lifestyle, daily activities (including sleep disturbance) and participation
- physical and psychological wellbeing
- adverse effects
- continued need for treatment.

1.1.7 When withdrawing or switching treatment, taper the withdrawal regimen to take account of dosage and any discontinuation symptoms.

Treatment

All neuropathic pain (except trigeminal neuralgia)

For guidance on safe prescribing and managing withdrawal of antidepressants and dependence-forming medicines, see [NICE's guideline on medicines associated with dependence or withdrawal symptoms](#).

For advice on treating sciatica, see the [NICE guideline on low back pain and sciatica](#) and the [September 2020 update information](#).

- 1.1.8 Offer a choice of amitriptyline, duloxetine, gabapentin or pregabalin as initial treatment for neuropathic pain (except trigeminal neuralgia). See [additional information](#) for more on duloxetine, gabapentin and pregabalin.
- 1.1.9 If the initial treatment is not effective or is not tolerated, offer 1 of the remaining 3 drugs, and consider switching again if the second and third drugs tried are also not effective or not tolerated.
- 1.1.10 Consider tramadol only if acute rescue therapy is needed (see recommendation 1.1.12 about long-term use).
- 1.1.11 Consider capsaicin cream for people with localised neuropathic pain who wish to avoid, or who cannot tolerate, oral treatments. See [additional information](#) for

more on capsaicin cream.

Treatments that should not be used

- 1.1.12 Do not start the following to treat neuropathic pain in non-specialist settings, unless advised by a specialist to do so:
- cannabis sativa extract
 - capsaicin patch
 - lacosamide
 - lamotrigine
 - levetiracetam
 - morphine
 - oxcarbazepine
 - topiramate (follow the Medicines and Healthcare products Regulatory Agency (MHRA) safety advice on the use of topiramate)
 - tramadol (this is referring to long-term use; see recommendation 1.1.10 for short-term use)
 - venlafaxine
 - valproate (follow the MHRA safety advice on valproate use in women and girls, valproate use in people younger than 55 years and valproate use in men). **[amended 2018]**

Also follow the MHRA safety advice on anti-epileptic drugs in pregnancy.

Trigeminal neuralgia

- 1.1.13 Offer carbamazepine as initial treatment for trigeminal neuralgia. Follow the MHRA safety advice on anti-epileptic drugs in pregnancy. **[amended 2021]**

- 1.1.14 If initial treatment with carbamazepine is not effective, is not tolerated or is contraindicated, consider seeking expert advice from a specialist and consider early referral to a specialist pain service or a condition-specific service.

Additional information

Recommendation 1.1.8

In November 2013, duloxetine was licensed for diabetic peripheral neuropathic pain only, and gabapentin was licensed for peripheral neuropathic pain only, so use for other conditions was off label. See [NICE's information on prescribing medicines](#).

Pregabalin and gabapentin are Class C controlled substances (under the Misuse of Drugs Act 1971) and Schedule 3 under the Misuse of Drugs Regulations 2001. Evaluate patients carefully for a history of drug abuse before prescribing and observe patients for development of signs of abuse and dependence ([Medicines and Healthcare products Regulatory Agency \[MHRA\] Drug Safety Update April 2019](#)).

Follow the [MHRA safety advice on pregabalin in pregnancy](#).

Return to [recommendation 1.1.8](#)

Recommendation 1.1.11

In November 2013), capsaicin cream (Axsain) was licensed for post-herpetic neuralgia and painful diabetic peripheral polyneuropathy only, so use for other conditions was off label. The SPC states that this should only be used for painful diabetic peripheral polyneuropathy 'under the direct supervision of a hospital consultant who has access to specialist resources'. See [NICE's information on prescribing medicines](#).

Return to [recommendation 1.1.11](#)

Recommendations for research

The Guideline Development Group has made the following recommendations for research, based on its review of evidence, to improve NICE guidance and patient care in the future.

1 Monotherapy versus combination therapy for treating neuropathic pain

What is the clinical effectiveness, cost effectiveness and tolerability of pharmacological monotherapy compared with combination therapy for treating neuropathic pain?

Why this is important

Combination therapy is commonly prescribed for neuropathic pain. It may also be a helpful option as a stepwise approach if initially used drugs are insufficient at reducing pain. Combination therapy may also result in better tolerability because smaller doses of individual drugs are often used when combined with other drugs. However, there is a lack of trial evidence comparing the clinical and cost effectiveness and tolerability of different drug combinations. Further research should be conducted as described in table 1 below.

Table 1 Monotherapy versus combination therapy for treating neuropathic pain

Criterion	Explanation
Population	Adults with a diagnosis of neuropathic pain. Neuropathic pain conditions include: • Central neuropathic pain/central pain • Complex regional pain syndromes • Compression neuropathies/nerve compression syndromes • Facial neuralgia • HIV-related neuropathy • Mixed neuropathic pain • Multiple sclerosis • Neurogenic pain • Neuropathic cancer pain/cancer pain • Neuropathic pain • Painful diabetic neuropathy/diabetic neuropathy • Peripheral nerve injury • Peripheral nervous system disease/neuropathies • Phantom limb pain • Polyneuropathies • Post-amputation pain • Post-herpetic neuralgia • Post-stroke pain • Post-treatment/post-surgery/post-operative pain • Radiculopathies/radicular pain

Criterion	Explanation
	• Spinal cord diseases • Spinal cord injury • Trigeminal neuralgia

Criterion	Explanation
Intervention(s)	Pharmacological agents as monotherapy or combination therapy. The pharmacological agents include: • Amitriptyline • Clomipramine • Dosulepin (dothiepin) • Doxepin • Imipramine • Lofepramine • Nortriptyline • Trimipramine • Citalopram • Escitalopram • Fluoxetine • Paroxetine • Sertraline • Duloxetine • Mirtazapine • Reboxetine • Trazodone • Venlafaxine • Carbamazepine • Gabapentin • Lacosamide

Criterion	Explanation
	• Lamotrigine • Levetiracetam • Oxcarbazepine • Phenytoin • Pregabalin • Valproate • Topiramate • Buprenorphine • Co-codamol • Co-dydramol • Dihydrocodeine • Fentanyl • Morphine • Oxycodone • Oxycodone with naloxone • Tapentadol • Tramadol • Cannabis sativa extract • Flecainide • 5-HT₁-receptor agonists • Topical capsaicin • Topical lidocaine

Criterion	Explanation
Comparator(s)	Any of the above listed pharmacological agents as monotherapy compared with any combinations of the above listed pharmacological agents as combination therapy.
Outcome(s)	Patient-reported global improvement (on a 7-point scale) Patient-reported improvement in daily physical and emotional functioning including sleep (on a 9-point scale) At least 30% and 50% pain reduction (on a 11-point Numerical rating scale [NRS] scale) Mean change from baseline pain scores (on a 11-NRS scale) Withdrawal due to adverse effects of the pharmacological agents Adverse effects of the pharmacological agents HRQoL (for example, EQ-5D, WHOQoL- BREF and London Handicap Scale)
Study design	Parallel triple-blinded randomised controlled trial of at least 12-weeks' study period (they should not have enriched enrolment). All participants should have a 'wash-out' period after assessment for inclusion in the study and before randomisation. Baseline pain scores between arms should be equal and clearly documented. Concomitant medications should not be allowed or should be restricted and maintained at a stable dose in the study. Difference in concomitant pain medication usage at baseline should be clearly described in each trial arm, including details of the number of patients on different drugs. Rescue pain medications should either not be allowed or, if used, their use should be accurately documented.

2 Relationship between symptoms, cause of neuropathic pain and its treatment

Is response to pharmacological treatment predicted more reliably by underlying aetiology or by symptom characteristics?

Why this is important

There is little evidence about whether certain symptoms that present in healthcare settings, or whether different neuropathic pain conditions with different aetiologies, respond differently to different treatments. Current evidence is typically focused on particular conditions and is limited to particular drugs. Further research should be conducted as described in table 2 below.

Table 2 Relationship between symptoms, cause of neuropathic pain and its treatment

Criterion	Explanation
Population	Adults with a diagnosis of neuropathic pain. Neuropathic pain conditions include: • Central neuropathic pain/central pain • Complex regional pain syndromes • Compression neuropathies/nerve compression syndromes • Facial neuralgia • HIV-related neuropathy • Mixed neuropathic pain • Multiple sclerosis • Neurogenic pain • Neuropathic cancer pain/cancer pain • Neuropathic pain • Painful diabetic neuropathy/diabetic neuropathy • Peripheral nerve injury • Peripheral nervous system disease/neuropathies • Phantom limb pain • Polyneuropathies • Post-amputation pain • Post-herpetic neuralgia • Post-stroke pain • Post-treatment/post-surgery/post-operative pain • Radiculopathies/radicular pain

Criterion	Explanation
	• Spinal cord diseases • Spinal cord injury • Trigeminal neuralgia
Intervention(s)	Any pharmacological agents as monotherapy or combination therapy (see research recommendation B1).
Comparator(s)	Same pharmacological agents chosen as the main treatments of interest but compare the treatment response across different groups of participants with different neuropathic pain conditions or underlying aetiology.
Outcome(s)	Patient-reported global improvement (on a 7-point scale) Patient-reported improvement in daily physical and emotional functioning including sleep (on a 9-point scale) At least 30% and 50% pain reduction (on a 11-NRS scale) Mean change from baseline pain scores (on a 11-NRS scale) Withdrawal due to adverse effects of the pharmacological agents Adverse effects of the pharmacological agents HRQoL (for example, EQ-5D, WHOQoL- BREF and London Handicap Scale)
Study design	Prospective cohort study All participants should have a 'wash-out' period before assessment for inclusion in the study. Baseline pain scores between arms should be equal and clearly documented. Concomitant medications should not be allowed, or should be restricted and maintained at stable dose during the study. Difference in concomitant pain medication usage at baseline should be clearly described in each trial arm, including details of the number of patients on different drugs. Rescue pain medications either not be allowed or, if used, their use should be accurately documented.

3 Carbamazepine for treating trigeminal neuralgia

What is the clinical and cost effectiveness of carbamazepine as initial treatment for trigeminal neuralgia compared with other pharmacological treatments?

Why this is important

Carbamazepine has been the standard treatment for trigeminal neuralgia since the 1960s. Despite the lack of trial evidence, it is perceived by clinicians to be efficacious. Further research should be conducted as described in table 3 below.

Table 3 Carbamazepine for treating trigeminal neuralgia

Criterion	Explanation
Population	Adults with a diagnosis of trigeminal neuralgia.
Intervention(s)	Carbamazepine as monotherapy.

Criterion	Explanation
Comparator(s)	Any of the below listed pharmacological agents as monotherapy or combinations. The pharmacological agents include: • Amitriptyline • Clomipramine • Dosulepin (dothiepin) • Doxepin • Imipramine • Lofepramine • Nortriptyline • Trimipramine • Citalopram • Escitalopram • Fluoxetine • Paroxetine • Sertraline • Duloxetine • Mirtazapine • Reboxetine • Trazodone • Venlafaxine • Carbamazepine • Gabapentin • Lacosamide

Criterion	Explanation
	• Lamotrigine • Levetiracetam • Oxcarbazepine • Phenytoin • Pregabalin • Valproate • Topiramate • Buprenorphine • Co-codamol • Co-dydramol • Dihydrocodeine • Fentanyl • Morphine • Oxycodone • Oxycodone with naloxone • Tapentadol • Tramadol • Cannabis sativa extract • Flecainide • 5-HT₁-receptor agonists • Topical capsaicin • Topical lidocaine

Criterion	Explanation
Outcome(s)	Patient-reported global improvement (on a 7-point scale) Patient-reported improvement in daily physical and emotional functioning including sleep (on a 9-point scale) At least 30% and 50% pain reduction (on a 11-NRS scale) Mean change from baseline pain scores (on a 11-NRS scale) Withdrawal due to adverse effects of the pharmacological agents Adverse effects of the pharmacological agents HRQoL (for example, EQ-5D, WHOQoL- BREF and London Handicap Scale)
Study design	Parallel triple-blinded randomised controlled trial of at least 12 weeks' study period (they should not have enriched enrolment). All participants should have a 'wash-out' period after assessment for inclusion in the study and before randomisation. Baseline pain scores between arms should be equal and clearly documented. Concomitant medications should not be allowed or should be restricted and maintained at a stable dose during the study. Difference in concomitant pain medication usage at baseline should be clearly described in each trial arm, including details of the number of patients on different drugs. Rescue pain medications either not be allowed or, if used, their use should be accurately documented.

4 Factors affecting participation and quality of life

What are the key factors, including additional care and support, that influence participation and quality of life in people with neuropathic pain?

Why this is important

There is evidence suggesting that people with neuropathic pain experience poorer physical and mental health than people with other forms of pain, even when adjusted for pain intensity. The discrepancy between pain intensity and quality of life implies that other, unrecognisable factors are important for people with neuropathic pain and that these

factors may influence their daily activities and participation. Further research should be conducted as described in table 4 below.

Table 4 Factors affecting participation and quality of life

Criterion	Explanation
Population	Adults with a diagnosis of neuropathic pain. Neuropathic pain conditions include: • Central neuropathic pain/central pain • Complex regional pain syndromes • Compression neuropathies/nerve compression syndromes • Facial neuralgia • HIV-related neuropathy • Mixed neuropathic pain • Multiple sclerosis • Neurogenic pain • Neuropathic cancer pain/cancer pain • Neuropathic pain • Painful diabetic neuropathy/diabetic neuropathy • Peripheral nerve injury • Peripheral nervous system disease/neuropathies • Phantom limb pain • Polyneuropathies • Post-amputation pain • Post-herpetic neuralgia • Post-stroke pain • Post-treatment/post-surgery/post-operative pain • Radiculopathies/radicular pain*

Criterion	Explanation
	• Spinal cord diseases • Spinal cord injury • Trigeminal neuralgia Note: radiculopathies/radicular pain is now within the NICE guideline on low back pain and sciatica.
Intervention(s)	Any important factors, including elements of additional care and support that are perceived as important by adults with neuropathic pain to improve their daily participation.
Comparator(s)	Non-applicable.
Outcome(s)	HRQoL (for example, EQ-5D, WHOQoL- BREF) Measurements of participation (for example, the London Handicap Scale) Satisfaction Patient experiences
Study design	Qualitative research or structured/semi-structured survey questionnaire.

5 Impact of drug-related adverse effects on cost effectiveness and quality of life

What is the impact of drug-related adverse effects on health economics and quality of life in neuropathic pain?

Why this is important

Pharmacological agents for neuropathic pain are associated with various adverse effects. However, there is little evidence about how this affects cost of the quality of life of patients receiving treatment. Further research should be conducted as described in table 5 below.

Table 5 Impact of drug-related adverse effects on cost effectiveness and quality of life

Criterion	Explanation
Population	Adults with a diagnosis of neuropathic pain. Neuropathic pain conditions include: • Central neuropathic pain/central pain • Complex regional pain syndromes • Compression neuropathies/nerve compression syndromes • Facial neuralgia • HIV-related neuropathy • Mixed neuropathic pain • Multiple sclerosis • Neurogenic pain • Neuropathic cancer pain/cancer pain • Neuropathic pain • Painful diabetic neuropathy/diabetic neuropathy • Peripheral nerve injury • Peripheral nervous system disease/neuropathies • Phantom limb pain • Polyneuropathies • Post-amputation pain • Post-herpetic neuralgia • Post-stroke pain • Post-treatment/post-surgery/post-operative pain • Radiculopathies/radicular pain*

Criterion	Explanation
	• Spinal cord diseases • Spinal cord injury • Trigeminal neuralgia Note: radiculopathies/radicular pain is now within the NICE guideline on low back pain and sciatica.
Intervention(s)	Any pharmacological treatment for neuropathic pain, alone or in combination (see research recommendation B1)
Comparator(s)	N/A
Outcome(s)	HRQoL (EQ-5D as well as any condition-specific instruments) in people experiencing adverse effects and people experiencing none Resource-use and costs in people experiencing adverse effects and people experiencing none
Study design	Case-control study This research should be performed in a cohort of people receiving a variety of pharmacological treatments for neuropathic pain. Those experiencing adverse effects should be matched with those experiencing none, and their HRQoL and resource-use/costs compared. Matching should be performed using as many modifiers of HRQoL as possible, including age, sex and underlying diagnosis. Analysis of single, named adverse events and also of people experiencing any serious adverse effect (those leading to discontinuation of the medication in question) would be valuable.

6 Potential for dependence associated with pharmacological drugs for neuropathic pain

Is there a potential for dependence associated with pharmacological agents for neuropathic pain?

Why this is important

There has been some suggestion that some pharmacological agents for neuropathic pain are associated with increased potential for misuse. However, there had not been enough high-quality evidence to adequately explore this issue. Further research should be conducted as described in table 6 below.

Table 6 Potential for dependence associated with pharmacological drugs for neuropathic pain

Criterion	Explanation
Population	Adults with a diagnosis of neuropathic pain. Neuropathic pain conditions include: • Central neuropathic pain/central pain • Complex regional pain syndromes • Compression neuropathies/nerve compression syndromes • Facial neuralgia • HIV-related neuropathy • Mixed neuropathic pain • Multiple sclerosis • Neurogenic pain • Neuropathic cancer pain/cancer pain • Neuropathic pain • Painful diabetic neuropathy/diabetic neuropathy • Peripheral nerve injury • Peripheral nervous system disease/neuropathies • Phantom limb pain • Polyneuropathies • Post-amputation pain • Post-herpetic neuralgia • Post-stroke pain • Post-treatment/post-surgery/post-operative pain

Criterion	Explanation
	• Radiculopathies/radicular pain • Spinal cord diseases • Spinal cord injury • Trigeminal neuralgia
Intervention(s)	Any pharmacological treatment for neuropathic pain, alone or in combination (see research recommendation B1)
Comparator(s)	Any other pharmacological treatment for neuropathic pain, alone or in combination (see research recommendation B1)
Outcome(s)	Drug dependence (including withdrawal symptoms) Drug abuse or drug misuse
Study design	Long-term follow-up from a randomised controlled trial (minimum 6 months) or community-based observational studies. For trials: • Intention to observe dependency and misuse should be made in the study protocol and monitored throughout the study period. • All participants should have a 'wash-out' period after assessment for inclusion in the study and before randomisation. • Baseline pain scores between arms should be equal and clearly documented. • Concomitant medications should not be allowed or should be restricted and maintained at a stable dose in the study. Difference in concomitant pain medication usage at baseline should be clearly described in each trial arm, including details of the number of patients on different drugs. • Rescue pain medications should either not be allowed or, if used, their use should be accurately documented.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the [NICE topic page on chronic and neuropathic pain](#).

For full details of the evidence and the guideline committee's discussions, see the [full guideline](#). You can also find information about [how the guideline was developed](#), including details of the committee.

NICE has produced [tools and resources to help you put this guideline into practice](#). For general help and advice on putting our guidelines into practice, see [resources to help you put NICE guidance into practice](#).

Update information

September 2020: As part of a surveillance review on neuropathic pain, the available evidence on treating sciatica was reviewed. As the [NICE guideline on low back pain and sciatica](#) already covered this topic area, it was agreed that the revised advice would be best placed in that guideline (see [the section on pharmacological management of sciatica](#)). Some recommendations for research that included sciatica have also been amended in the [full version of this guideline](#).

July 2019: Because of a risk of abuse and dependence, pregabalin and gabapentin are controlled under the Misuse of Drugs Act 1971 as class C substances and scheduled under the Misuse of Drugs Regulations 2001 as schedule 3 (as of 1 April 2019). Notes in this guideline have been updated to reflect this change.

April 2018: Cautions in the guideline have been added to link to the Medicines and Healthcare products Regulatory Agency (MHRA) latest advice and resources on sodium valproate.

November 2013: This guideline updated NICE guideline CG96 (published March 2010) and replaced it.

Minor changes since publication

April 2025: We added links to MHRA safety advice on topiramate, valproate use in people younger than 55 years and valproate use in men in recommendation 1.1.12.

October 2024: We added links to the [MHRA Drug Safety Update on valproate use in men and their partners](#).

July 2024: We added the latest drug safety information from the MHRA on topiramate and valproate to a panel under recommendation 1.1.12.

July 2022: We added a link to the [MHRA safety advice on pregabalin in pregnancy](#) to the additional information for recommendation 1.1.8.

April 2022: We added a link to NICE's guideline on medicines associated with dependence or withdrawal symptoms in the sections on key principles of care and treatment.

May 2021: We linked to the updated [MHRA safety advice on anti-epileptic drugs in pregnancy](#) in recommendation 1.1.13.

February 2017: We amended the additional information for [recommendation 1.1.8](#) to clarify use of generic pregabalin and off-label status.

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