

# Stereotactic radiosurgery for trigeminal neuralgia

Interventional procedures guidance

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[www.nice.org.uk/guidance/ipg715](https://www.nice.org.uk/guidance/ipg715)

## Your responsibility

This guidance represents the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, healthcare professionals are expected to take this guidance fully into account, and specifically any special arrangements relating to the introduction of new interventional procedures. The guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer.

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](#).

Commissioners and/or providers have a responsibility to implement the guidance, in their local context, in light of their duties to have due regard to the need to eliminate unlawful discrimination, advance equality of opportunity, and foster good relations. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with

those duties. Providers should ensure that governance structures are in place to review, authorise and monitor the introduction of new devices and procedures.

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.

This guidance replaces IPG85.

# 1 Recommendations

- 1.1 Evidence on the safety and efficacy of stereotactic radiosurgery for trigeminal neuralgia is adequate to support using this procedure provided that standard arrangements are in place for clinical governance, consent and audit. Find out what standard arrangements mean on the NICE interventional procedures guidance page.
- 1.2 For auditing the outcomes of this procedure, the main efficacy and safety outcomes identified in this guidance can be entered into NICE's interventional procedures outcomes audit tool (for use at local discretion).
- 1.3 Patient selection should be done by a multidisciplinary team experienced in managing trigeminal neuralgia.
- 1.4 The procedure should only be done in specialist centres.

## 2 The condition, current treatments and procedure

### The condition

- 2.1 Trigeminal neuralgia is a chronic pain condition that affects the trigeminal (fifth)

cranial nerve, one of the most widely distributed nerves in the head. The pain occurs in areas supplied by the trigeminal nerve: the cheeks, jaw, teeth, gums, lips and around the eye or forehead. The typical form, type 1, causes sudden and severe facial pain, usually affecting 1 side of the face and lasting for a few seconds or minutes. It may be triggered by touch, talking, eating or brushing teeth. Atypical trigeminal neuralgia (type 2) is characterised by constant aching, burning, or stabbing pain of lower intensity than type 1. Some people have both types.

- 2.2 Trigeminal neuralgia can be idiopathic or may be caused by pressure on the trigeminal nerve from an artery or a vein (primary trigeminal neuralgia). It can also result from a medical condition such as a tumour, multiple sclerosis or injury (secondary trigeminal neuralgia).

## Current treatments

- 2.3 Medication is the first-line treatment for trigeminal neuralgia. Other treatment options are considered for people who experience severe pain despite medication, or who have side effects from medication.
- 2.4 Percutaneous treatments include glycerol injection, radiofrequency lesioning (applying short bursts of radiofrequency to the nerve through a needle), and balloon microcompression (inflating a balloon near the nerve). The aim is to damage the trigeminal nerve and stop the transmission of pain signals. Recurrence rates of trigeminal neuralgia after these procedures are typically high.
- 2.5 Microvascular decompression is a more invasive procedure involving opening the skull to relieve the pressure on the trigeminal nerve. This can provide longer lasting relief but carries a risk of potentially serious complications such as facial numbness, hearing loss, stroke and death.

## The procedure

- 2.6 Stereotactic radiosurgery for trigeminal neuralgia uses precisely focused multiple

beams of ionising radiation aimed at the trigeminal nerve where it enters the brainstem, to deliver a high dose in a single treatment session. It does not require open surgery, needle insertion or general anaesthesia. The aim is to damage the trigeminal nerve and stop the transmission of pain signals as with other percutaneous techniques.

- 2.7 There are different systems available for stereotactic radiosurgery and details of the techniques vary. Imaging is used to accurately locate the target area for treatment. A variety of approaches such as an external frame or a thermoplastic mask can be used to hold the head in a fixed position while the treatment is delivered.
- 2.8 It can take a few weeks or months for the patient to notice any change after stereotactic radiosurgery.

## 3 Committee considerations

### The evidence

- 3.1 NICE did a rapid review of the published literature on the efficacy and safety of this procedure. This comprised a comprehensive literature search and detailed review of the evidence from 19 sources, which was discussed by the committee. The evidence included 4 systematic reviews, 1 randomised controlled trial, 2 case series, 1 cohort study and 11 case reports. It is presented in the [summary of key evidence section in the interventional procedures overview](#). Other relevant literature is in the appendix of the overview.
- 3.2 The professional experts and the committee considered the key efficacy outcomes to be: pain relief, improved quality of life, and need for retreatment.
- 3.3 The professional experts and the committee considered the key safety outcomes to be: dysaesthesia, damage to nerves and other surrounding structures, and radiation-induced malignancy.
- 3.4 NICE received 1 submission from a patient organisation.

## Committee comments

- 3.5 The committee was pleased to receive a detailed submission from a patient organisation, which outlined how trigeminal neuralgia can adversely affect the lives of people with multiple sclerosis. It noted the positive benefit that some people with trigeminal neuralgia secondary to multiple sclerosis have had from this procedure.
- 3.6 The committee noted that trigeminal neuralgia is a very painful condition that can negatively affect a person's quality of life.
- 3.7 The committee noted that some people experience relapse, but retreatment is possible.
- 3.8 There are different devices available for the procedure, which use different targeting techniques.
- 3.9 None of the evidence considered by the committee used proton beam therapy.

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## Endorsing organisation

This guidance has been endorsed by [Healthcare Improvement Scotland](#).