

Transcutaneous neuromuscular electrical stimulation for oropharyngeal dysphagia in adults

Interventional procedures guidance

Published: 19 December 2018

www.nice.org.uk/guidance/ipg634

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 IPG490.

1 Recommendations

1.1 Current evidence on transcutaneous neuromuscular electrical stimulation for oropharyngeal dysphagia in adults shows there are no major safety concerns.

- For adults with dysphagia after a stroke, the evidence on efficacy suggests a potential benefit, but is limited in quality and quantity. Therefore, this procedure should only be used with special arrangements for clinical governance, consent, and audit or research. Find out what special arrangements mean on the NICE interventional procedures guidance page.
- For adults with dysphagia not caused by a stroke, there is insufficient evidence on efficacy to support the use of this procedure. Therefore, this procedure should only be used in the context of research. Find out what only in research means on the NICE interventional procedures guidance page.

1.2 Clinicians wishing to do transcutaneous neuromuscular electrical stimulation for adults with oropharyngeal dysphagia after a stroke should:

- Inform the clinical governance leads in their NHS trusts.
- Ensure that patients understand the procedure's safety and efficacy, as well as

any uncertainties about these and provide them with clear written information to support shared decision-making. In addition, the use of NICE's information for the public on transcutaneous neuromuscular electrical stimulation is recommended.

- Audit and review clinical outcomes of all patients having transcutaneous neuromuscular electrical stimulation for oropharyngeal dysphagia. NICE has identified relevant audit criteria and has developed NICE's interventional procedure outcomes audit tool (which is for use at local discretion).

1.3 Further research on transcutaneous neuromuscular electrical stimulation for oropharyngeal dysphagia in adults should address patient selection, variations in technique, the need for retreatments and long-term outcomes.

2 The condition, current treatments and procedure

The condition

2.1 Difficulty in swallowing (dysphagia) can be caused by neurological impairment affecting the muscles of the oropharynx. It can happen because of a stroke, traumatic brain injury, disorders of cerebral development, neurodegenerative conditions and major head and neck surgery (for example, to remove cancer). Dysphagia may lead to malnutrition, dehydration and aspiration pneumonia.

Current treatments

2.2 Treatment options depend on the cause and severity of the dysphagia. Conservative treatments involve swallowing therapy to help the patient relearn swallowing techniques and strengthen oropharyngeal muscles. In severe cases, nasogastric tubes or percutaneous endoscopic gastrostomy tubes may be used to provide nutritional support.

The procedure

- 2.3 Transcutaneous neuromuscular electrical stimulation (NMES) is usually used as well as traditional swallowing therapy for treating oropharyngeal dysphagia. Swallowing therapy uses exercises to improve muscle function. The aim of NMES is to increase the effectiveness of swallowing therapy by strengthening the muscles involved in swallowing. It also promotes recovery of cortical control of swallowing.
- 2.4 NMES is usually done by a speech and language therapist after appropriate diagnosis and patient selection. Therapists need appropriate training to use the procedure. The speech and language therapist places electrodes in selected positions on the patient's neck. Small electrical currents are then passed through the electrodes to stimulate the peripheral nerve supply of the pharyngeal or laryngeal muscles. Stimulus intensity may be at a low sensory level, or at a higher motor level to trigger muscle contractions. Under the supervision of the therapist, the patient exercises their swallowing muscles while having concurrent electrical stimulation. Treatment duration recommendations vary by device, but can be up to 1 hour. The mild electrical stimulation can produce feelings ranging from tingling and warmth, to a 'grabbing' sensation.
- 2.5 The position of the electrodes and levels of current used vary from patient to patient. There is a range of NMES devices that use different electrode designs, positions and stimulus intensities. At an initial assessment, videofluoroscopy or clinical observation may be used to optimise the placement of treatment electrodes and to determine an appropriate stimulus intensity.

3 Committee considerations

The evidence

- 3.1 To inform the committee, 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 11 sources, which was discussed by the committee. The evidence included 1 systematic review and meta-analysis, 7 randomised controlled trials, 1 comparative study and 2 case series, and is presented in [table 2 of the interventional procedures overview](#). Other relevant literature is in the appendix of the overview.

- 3.2 The specialist advisers and the committee considered the key efficacy outcomes to be: improvement in swallowing and oral intake, and improved quality of life.
- 3.3 The specialist advisers and the committee considered the key safety outcomes to be: skin burn and aspiration.
- 3.4 Patient commentary was sought but none was received.

Committee comments

- 3.5 There are variations in technique with different devices, electrode placement, and treatment durations. The procedure has sometimes been used when the patient is swallowing food.
- 3.6 The committee was informed that this procedure is not currently used in children.
- 3.7 The committee was pleased to receive many comments from patients during consultation. The patients reported positive outcomes after the procedure.

ISBN: 978-1-4731-3198-9

Endorsing organisation

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