

Use of External Neuromodulation in a Community Chronic Pain Service

Background External Neuromodulation (ENM) is a non-invasive modality that could be used for patients with localised neuropathic pain.

An external nerve mapping probe connected to an impulse generator – of the type commonly used in operating theatre for nerve blocks – is used to apply electrical stimulation to the nerves covering distribution of the painful area, or targeting the epicentre of the painful area directly. The amplitude is adjusted to achieve acceptable paraesthesia in the painful area. Three to four treatments are considered a trial.

If helpful, then onwards referral for percutaneous or implanted stimulation could be considered. Those with medium term relief may choose to have repeated treatments instead.

Self-treatment is an option but few patients can afford the cost of the machines.

Repeated treatment sessions cost clinician time and running self-treatment clinics in-house is a logistical burden for a multisite service. Neither option leads to long term self-management or discharge.

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Aims

To assess whether ENM offers demonstrable and unique benefit for patients with difficult to treat neurological conditions, in order to inform the decision whether to continue offering the modality to such patients.

Method

Retrospective data interrogation was used. With the help of the KCHFT's IT Team, the last 50 patients who received the treatment prior to July 2018 were identified in the electronic data system. A clinician then reviewed each patient's notes. Data extracted included all treatment specifics and outcomes recorded on the service's ENM treatment template, whether patients had TENS and/or acupuncture for the same problem, and whether medication was reduced following treatment. Contemporaneous clinic notes, discharge letters and discharge coding were reviewed too.

Diagnosis treated	Number of patients	
Abdominopelvic pain	7 (4 x surgery)	14%
Cervical radiculopathy	1	
CRPS	3	
Diabetic peripheral neuropathy	2	
Foot pain (unexplained)	1	
Lumbosacral radiculopathy	9 (2 x FBSS)	18%
Meralgia parasthetica	1	
Multiple Sclerosis	4	
Peripheral neuropathy (hereditary)	2	
Plantar fasciitis	1	
Post herpetic neuralgia	3	
Post-surgical joint pain	6	12%
Post traumatic joint pain	5	10%
Sacro-ileac joint dysfunction	1	
Thoracic chest pain: post vertebral fracture	1	
post chest drain	1	
Post mastectomy	1	
Trigeminal neuralgia	1	
Total	50	

Results

A wide variety of causes for neuropathic symptoms were represented, with the largest group being lumbosacral radiculopathy (18%).

Just under half (48%) of patients had some response. Of those, 42% had 100% pain relief following a treatment, 75% had more than 50% pain relief. Pain relief lasted from 12-24 hours, to more than a week. 42% of the responders could reduce their pain medication. Seven of the responders continued to self-treatment, of which three patients bought the machines and four others could maintain the effect with another electronic device. Three patients were referred for spinal cord stimulation.

24% had four treatments and 44% had more than four by a clinician, averaging 7.6 treatments.

Acupuncture and TENS had similar response rates where trialled but the three groups of responders were not similar.

Two thirds of patients were discharged with completed pathways following ENM.

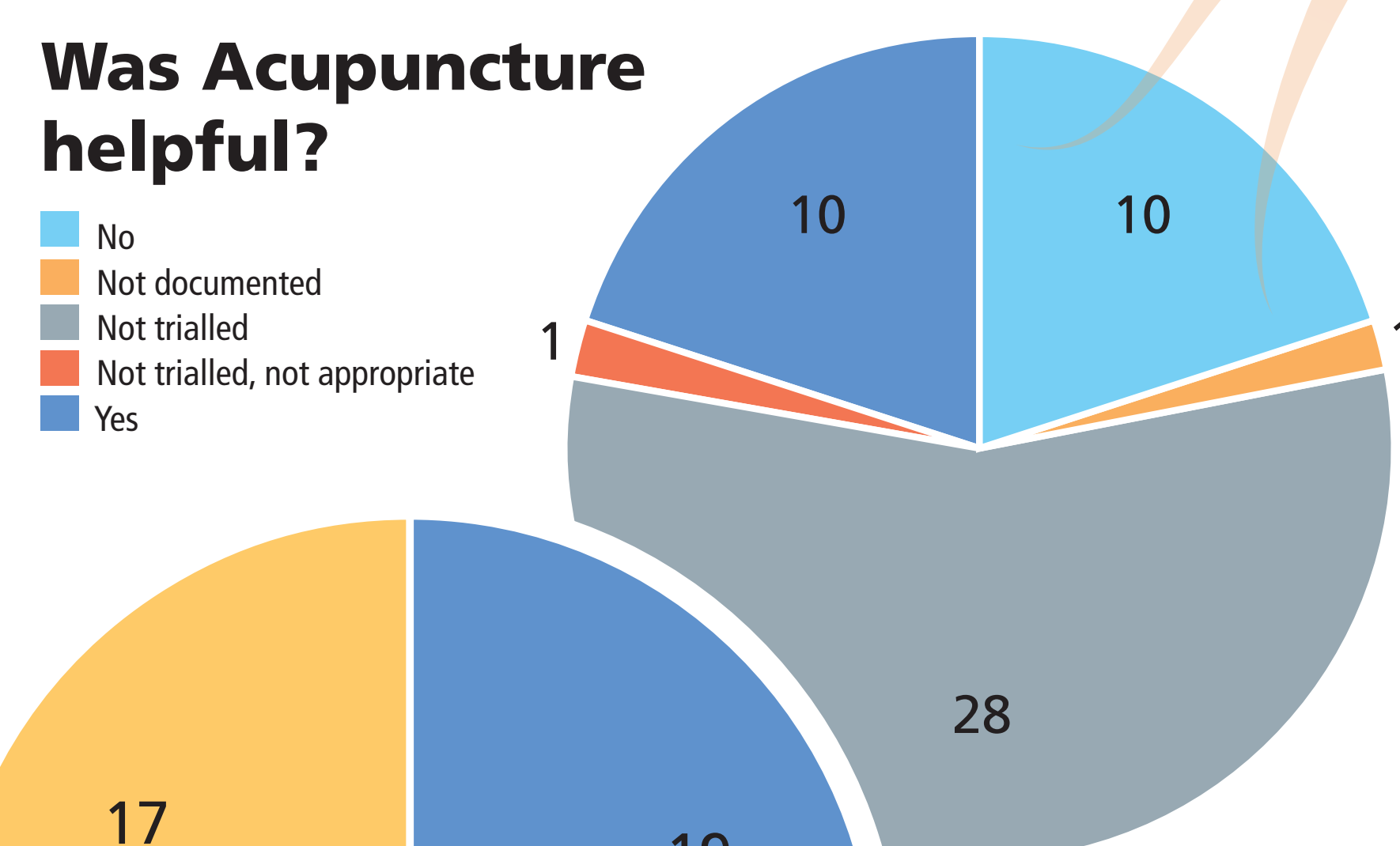
Conclusion

- When offered, ENM had the potential to help approximately one in two patients with an area of neuropathic pain.
- It could enable responders to reduce their medication burden.
- The effect seemed different from TENS or acupuncture.
- The numbers of clinician performed treatments were acceptable.
- It aided general self-management and discharge in the majority.
- Problems were the cost of the machines prohibiting self-treatment.

Team discussion considered an overall independently beneficial modality. The service would continue providing ENM in a protocol similar to acupuncture (goal-orientated and a fixed maximum number). Alternative lower cost stimulators would also be explored.

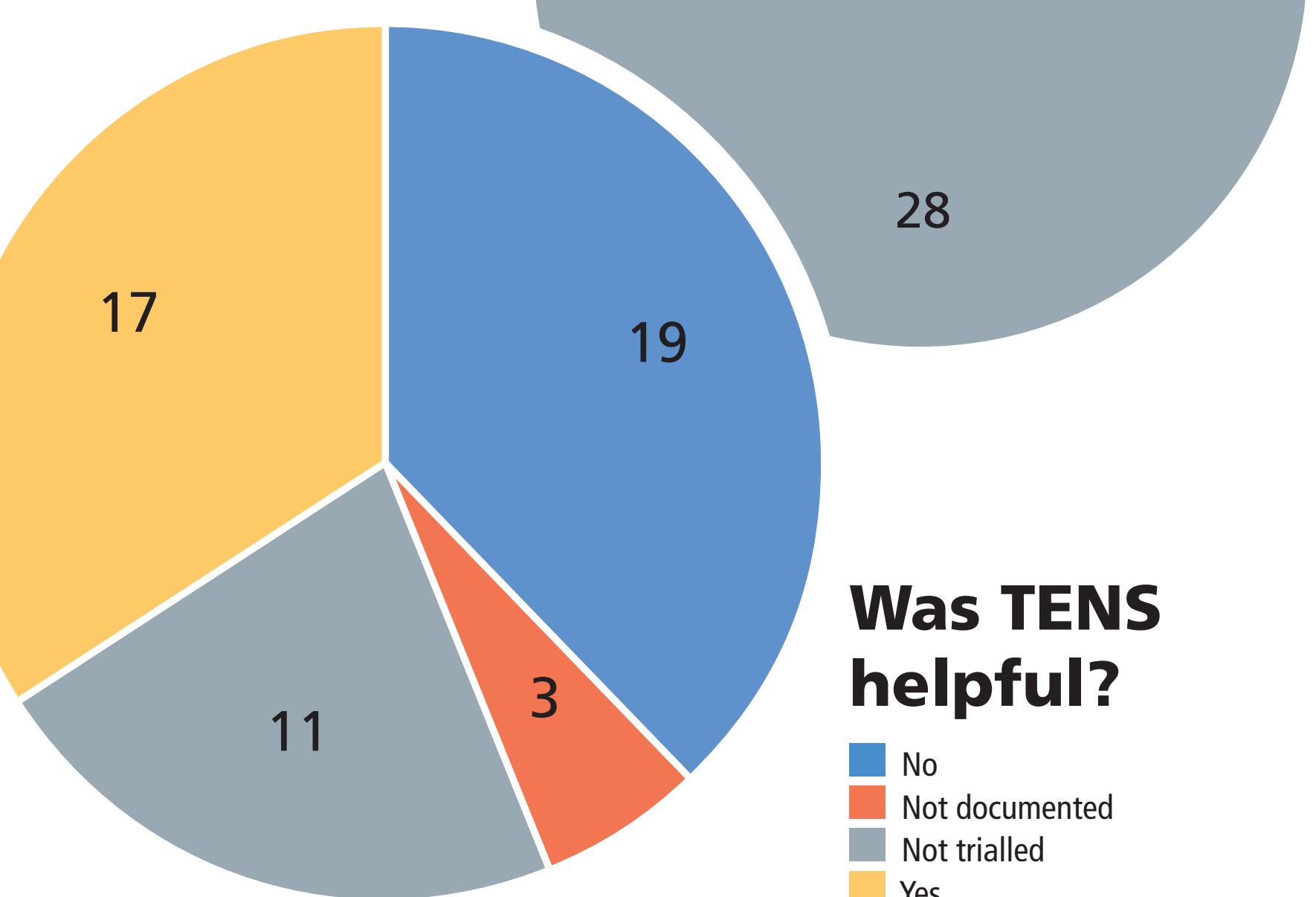
Was Acupuncture helpful?

■ No
■ Not documented
■ Not trialled
■ Not trialled, not appropriate
■ Yes



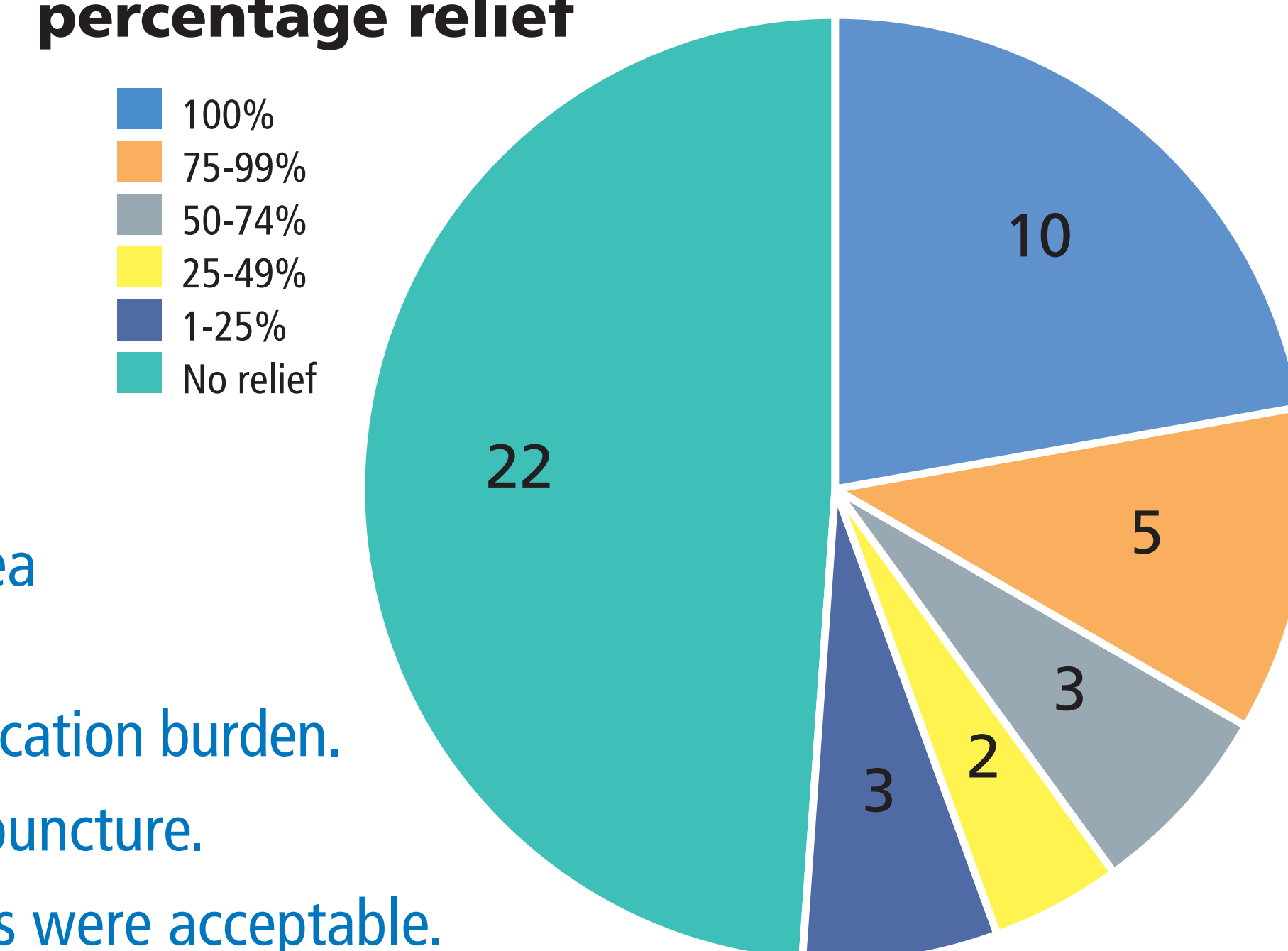
Was TENS helpful?

■ No
■ Not documented
■ Not trialled
■ Yes



ENM Outcome Tool Q1, percentage relief

■ 100%
■ 75-99%
■ 50-74%
■ 25-49%
■ 1-25%
■ No relief



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Reference: Goroszeniuk T & Kothari S (2004) Targeted External Area Stimulation. Regional Anaesthesia and Pain Medicine. 29(5) Supp 4: 98.