

# Cost-effectiveness of treatments in neurological diseases

21 April 2021



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Professor Dyfrig Hughes and colleagues at the Center for Health Economics and Medicines Evaluation, School of Health Sciences, have recently published the results of three clinical trials of interventions in epilepsy and sciatica.

The Standard and New Antiepileptic Drugs (SANAD II) trials, led by Professor Tony Marson of the University of Liverpool, compared a range of antiepileptic drugs for how well they control seizures, their general tolerability and their cost-effectiveness, to assess whether newer drugs should be recommended as first-line treatments. This involved 1,510 participants, who were followed-up for up to six years.

The findings, published in the leading medical journal, *The Lancet*, conclude that valproate is still the best first choice for generalized [epilepsy](#), while lamotrigine remains the best first-line drug for focal epilepsy.

Dr. Catrin Plumpton and Professor Dyfrig Hughes assessed the cost-effectiveness of each treatment,

and calculated that for generalized epilepsy, valproate was more effective and less expensive overall compared to levetiracetam. For patients with focal epilepsy, lamotrigine was cost-effective compared with levetiracetam and zonisamide.

Dyfrig commented: "Our economic assessments support the clinical results in that treatments which were less effective were also not cost-effective. These findings should lead to a change in [clinical practice](#), away from levetiracetam which has been widely used as a treatment of first choice."

The NERVES clinical trial, led by Dr. Martin Wilby at the Walton Neurological Center, compared the clinical effectiveness and cost-effectiveness of surgery with a steroid injection—administered into the lower back, between the spine and spinal cord—in patients with sciatica caused by a "slipped disc." 163 patients were recruited between 2015 and 2017. The results, published in *Lancet Rheumatology*, indicated that while there was no significant differences in clinical outcomes, surgery was unlikely to be a cost-effective alternative to steroid injection. Eifiona Wood, Dr. Dan Hill-McManus and Professor Dyfrig Hughes estimated that the [cost-effectiveness](#) ratio exceeded the threshold applied by the National Institute for Health and Care Excellence (NICE) when judging the value of healthcare interventions.

Dyfrig commented: "The results of the NERVES trial are expected to influence the way in which patients with sciatica are managed in hospital settings. Surgery is not a cost-effective option for patients who are eligible for a steroid spinal injection. These results highlight the importance of considering economic outcomes in supporting decisions on the best use of health care resources."

**More information:** Anthony Marson et al. The SANAD II study of the effectiveness and cost-effectiveness of levetiracetam, zonisamide, or

lamotrigine for newly diagnosed focal epilepsy: an open-label, non-inferiority, multicentre, phase 4, randomized controlled trial, *The Lancet* (2021).  
[DOI: 10.1016/S0140-6736\(21\)00247-6](https://doi.org/10.1016/S0140-6736(21)00247-6)

Anthony Marson et al. The SANAD II study of the effectiveness and cost-effectiveness of valproate versus levetiracetam for newly diagnosed generalized and unclassifiable epilepsy: an open-label, non-inferiority, multicentre, phase 4, randomized controlled trial, *The Lancet* (2021).  
[DOI: 10.1016/S0140-6736\(21\)00246-4](https://doi.org/10.1016/S0140-6736(21)00246-4)

Provided by Bangor University

APA citation: Cost-effectiveness of treatments in neurological diseases (2021, April 21) retrieved 31 May 2022 from <https://medicalxpress.com/news/2021-04-cost-effectiveness-treatments-neurological-diseases.html>

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