The effectiveness of specific epilepsy services
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Authors' objectives
To assess the most effective model of care for patients with epilepsy in the UK by evaluating the relative effectiveness and cost-effectiveness of:

(1) specialist epilepsy clinics compared with general neurology out-patient clinics; and

(2) specialist epilepsy nurses in in-patient, out-patient or GP care compared with 'usual care' without a specialist epilepsy nurse.

The two aspects, (1) and (2), comprise two separate systematic reviews with the same inclusion and exclusion criteria and methods, except for the interventions.

Searching
The following databases were searched from inception to September 1999: MEDLINE, EMBASE, GEARs, PsycLIT, HealthPLAN, Cancerlit, the Cochrane Library, WHO, ECRI, and NHS EED. In addition, the National Research Register and a variety of evidence-based publications were searched, experts and product manufacturers were contacted for published and unpublished studies, and reference lists were searched. The full search strategies were reported in the review.

Study selection
Study designs of evaluations included in the review
Randomised controlled trials (RCTs), controlled trials, cohort studies, case-control or matched studies, and audits were included.

Specific interventions included in the review
The interventions were: (1) treatment delivered by a specialist epilepsy clinic compared with general neurology out-patient clinics; and (2) treatment delivered by a specialist epilepsy nurse in in-patient, out-patient or GP care compared with 'usual care'.

Participants included in the review
Anyone with any diagnosis of new or recurrent epilepsy, except febrile convulsions, was eligible for inclusion. In some studies of specialist clinics the participants had a firm diagnosis of epilepsy, while in others the participants included new referrals where a diagnosis was subsequently established. In most of the studies of specialist nurse care, the participants had to be aged at least 15 years. Severe medical and psychological conditions and learning difficulties were exclusion criteria in some individual studies.

Outcomes assessed in the review
One or more of the following outcomes had to be assessed: seizure frequency, seizure severity, or quality of life (QOL). Objective outcomes were given preference over patient satisfaction outcomes. Seizure severity was most frequently measured using the Liverpool Seizure Severity Scale (LSSS). Combined seizure severity and frequency could be measured by the Cramer Scales. QOL was measured by a variety of generic and epilepsy specific global outcome scores. Epilepsy-specific inventories included the QOLIE (quality of life in epilepsy) inventory, the LQOL (Liverpool Quality of Life battery), the SHE (subjective handicap of epilepsy) scale, and the Washington Psychosocial Seizure Inventory.

How were decisions on the relevance of primary studies made?
Two reviewers independently selected the papers for inclusion. All references selected by either reviewer were obtained.
Assessment of study quality
The Jadad score was used to assess the quality of the RCTs. Other studies were evaluated according to their study design, and whether the results matched the conclusions. The authors do not state how the papers were assessed for quality, or how many of the reviewers performed the quality assessment.

Data extraction
Two reviewers independently extracted the data from the included studies. A third reviewer resolved any disagreements. The authors were contacted for information on missing or inconsistent data. The data extracted included: inclusion and extraction criteria, outcome measures and any inventory scales used, sample size, follow-up details, age and gender characteristics, setting, study design and quality assessment features, results on clinical outcomes, QOL, and costs.

Methods of synthesis
How were the studies combined?
The studies were combined using narrative methods, as it was considered that there were too few to perform meta-analyses.

How were differences between studies investigated?
Differences in the studies were investigated in relation to study design and quality factors.

Results of the review
Three studies were included that assessed care by specialist epilepsy clinics: one RCT (number of participants unclear), one matched study (n=64) and one audit (n=345). Five studies were included that assessed care by a specialist epilepsy nurse: four RCTs (n=665) and one controlled study (n=574).

Specialist clinics.
The RCT reported improved levels of frequency and severity at early follow-up for the specialist clinic patients, compared with general neurology clinic care, but these differences were not statistically significant at 12 months' follow-up. The trial was assessed as having methodological shortcomings in relation to the initial randomisation, reporting of follow-up, and to the blinding of the outcome assessment. The other two studies showed statistically-significant differences in complete remission in favour of the generalist clinic. However, there were shortcomings in these two studies in terms of small sample size and comparability at baseline (for the matched study), and selection bias (for the audit). No QOL data were found for the intervention and comparison groups separately.

Specialist nurses.
Four of the five studies reported no statistically-significant differences in outcomes relating to seizure frequency or severity. There was evidence from one study of decreased depression in the specialist nurse group, but not from two other studies. There was good evidence that patient satisfaction and the process of care was improved in the specialist nurse group. One RCT reported QOL data, which showed very little difference between the two groups on weighted health status and self-rated health status, using the EUROQOL measure.

Cost information
Specialist clinics: from the single RCT, the point estimates of total mean clinic cost per patient per year were £106.57 and £91.91 for the specialist clinic and the neurology clinic, respectively; the costs were not necessarily typical of all patients. The trial authors did not report any distribution information.

Specialist nurses: one RCT reported cost data. It found that the total mean NHS cost per patient per year was £674 in the specialist nurse group and £858 in the usual care group, derived from lower primary and lower secondary care costs,
but that the difference of £184 per patient per annum was not statistically significant.

An incremental cost-utility analysis was not carried out because there were no statistically-significant differences in clinical effectiveness between the intervention and comparison groups in either review.

**Authors' conclusions**

Specialist clinics: there was no evidence of improvement of seizure frequency or severity in comparison with generalist neurology out-patient clinics, but it cannot be concluded that there is no effect because the available evidence was sparse and of limited quality. The results could not be interpreted in two of the three studies because the case-mix of patients attending specialist and generalist clinics was different. An epilepsy clinic may be very slightly more expensive than a generalist clinic.

Specialist nurses: there was no evidence of improvement of seizure frequency or severity in comparison with usual care (GP or hospital), but there was some evidence of reduced rates of depression. No effect on generic QOL was shown. There was good evidence of improvements in patient satisfaction for the care process involving specialist nurses, but this was not reflected in the clinical outcomes. It cannot be concluded that these findings reflect a lack of clinical effectiveness, because the available evidence was of insufficient quality. A specialist epilepsy nurse appears to be slightly cheaper in the long run.

Other RCTs of specialist versus generalist services for other conditions have shown little or no benefit from specialist services.

**CRD commentary**

Overall, the review was well-conducted. The review question was clearly defined and the search was comprehensive. The quality assessment criteria were only systematically applied to RCTs, but several relevant methodological factors were well discussed in the text in relation to the small number of included studies of other designs. The review processes were generally good, and involved two reviewers in independent selection and data extraction. It was unclear whether this also applied to the quality assessment. Full details of the individual studies were reported. A narrative synthesis was appropriate, but the authors did not show clearly how their conclusions were reached, relying on reporting study results individually. Nevertheless, the conclusions appeared to follow from the results.

**Implications of the review for practice and research**

Practice: The authors did not state any implications for practice.

Research: More research needs to be carried out to determine the most clinically effective model of service provision for people with epilepsy.

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