Team approach versus ad hoc health services for young people with physical disabilities: a retrospective cohort study
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Record Status
This is a critical abstract of an economic evaluation that meets the criteria for inclusion on NHS EED. Each abstract contains a brief summary of the methods, the results and conclusions followed by a detailed critical assessment on the reliability of the study and the conclusions drawn.

Health technology
A health service for young people with physical disabilities was examined. The service used a team-based approach (young adult team, YAT), which was developed to facilitate transition from childhood to adulthood services. The service was based on a multidisciplinary specialist team, including a consultant in rehabilitation medicine, a psychologist, therapists and a social worker.

Type of intervention
Rehabilitation service.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised young people, aged 17 to 28 years, with long-term physical disability that fitted into one of four categories. The four categories were cerebral palsy, spina bifida, traumatic brain injury, and degenerative neuromuscular disease. Patients with only sensory or learning disabilities were excluded.

Setting
The setting was the community. The economic study was carried out in the areas of Leeds, Stoke on Trent, Leicester and Birmingham, in the UK.

Dates to which data relate
The effectiveness and resource use data were gathered in 1999. The price year was 1999.

Source of effectiveness data
The effectiveness evidence was derived from a single study.

Link between effectiveness and cost data
The costing was performed retrospectively on the same patient sample as that used in the effectiveness analysis.

Study sample
Power calculations to determine the sample size were not performed. Eligible patients in the four study areas were included in the analysis. Two thousand patients were identified and their case notes reviewed, of which 400 had an appropriate diagnosis. Of these, 56 individuals were not in the target group, 18 had died and 72 refused to participate. A total of 254 patients (134 men and 120 women) were actually interviewed. Their mean age was 20.4 (+/- 2.3) years, and
68% had had their physical disabilities since birth. The numbers of patients in the YAT and ad hoc service groups were not reported. A further sample of 124 college students in Leeds and Birmingham was used to assess the consistency of psychosocial scores. Consequently, a double comparison was performed. The whole sample of patients with physical disabilities (regardless of the service used) was compared with the college students, and within the group of patients with physical disabilities, those who used YAT services were compared with those who used ad hoc services.

**Study design**

This was a retrospective, case-control study, which was carried out in four areas in the UK. The patients were identified from a review of patient charts, then interviewed by one of eight interviewers who had undergone a three-day training programme. The interviewers were unaware of the service (YAT or ad hoc) followed by the patient. No follow-up was carried out. Due to the presence of different interviewers, post hoc tests were conducted to assess potential interviewer bias.

**Analysis of effectiveness**

All patients included in the final sample were considered in the analysis. The primary health outcome was participation in society. This was assessed using the London handicap scale, which determines the limitation in participation in various aspects of society, such as self-care, work and leisure. The secondary outcomes were:

- body function impairment, assessed using the Nottingham health profile on the basis of pain, energy and sleep;
- activity limitation, estimated using the Barthel index score;
- health, assessed using the Euroqol visual analogue scale; and
- psychosocial measures (self-esteem, self-efficacy, proactive attitude and stress).

The authors stated that patients in the YAT group did not differ from those in the ad hoc service group in terms of their age, health, proportion of congenital or acquired disabilities, and the ability to manage finances. The comparability between the whole sample of patients with physical disabilities and college students was not reported.

**Effectiveness results**

In the comparison between the whole sample of patients with physical disabilities and college students, the median Barthel index score was 100 (interquartile range, IQR: 96 - 100) for college students and 75.1 (IQR: 58.8 - 87.5) for patients with physical disabilities, (p=0.014).

College students had significantly higher self-esteem than patients with physical disabilities and had less stress. However, they had lower self-efficacy scores and were lonelier.

The quality of life scores were similar between the two groups.

In the comparison between the patients who used YAT services and those who used ad hoc services, the only statistically significant differences were found in terms of the London handicap scale and Barthel index score. The score on the London handicap scale was 81.5 (IQR: 66.5 - 91.5) for YAT versus 68.1 (IQR: 49.9 - 82.0) for ad hoc, (p<0.0001). The Barthel index score was 19.0 (IQR: 16.0 - 20.0) for YAT versus 17.0 (IQR: 12.5 - 20.0) for ad hoc, (p=0.013).

Logistic regression analysis showed that inclusion in the YAT service was a strong determinant of participation in society (odds ratio 3.0, 95% confidence interval: 1.45 - 7.21), while other variables, such as age and gender, had little impact on participation.

These results were confirmed in a simpler logistic regression analysis, which included only significant variables, although the impact of other variables increased.
Clinical conclusions
The authors concluded that the YAT service was more effective than the standard ad hoc service in improving participation in society among young patients with physical disabilities.

Measure of benefits used in the economic analysis
The health outcomes were left disaggregated and no summary benefit measure was used. A cost-consequences analysis was therefore performed, although the authors stated that a cost-minimisation was conducted as the outcomes from the YAT and ad hoc services were assumed to be equal.

Direct costs
Discounting was irrelevant as the time horizon of the study was 6 months. The unit costs were reported separately from the quantities of resources. The analysis of the costs included the number of contacts with family doctors, other doctors, physiotherapists, occupational therapists, social workers, speech therapists and other health-care professionals. The cost of running the multidisciplinary team was also included. The cost/resource boundary adopted was that of the NHS. The resource quantities were estimated from the effectiveness study, while the costs were estimated from Personal Social Services Research Unit data. The costs were assessed retrospectively. The costs were estimated in 1999, which was the price year.

Statistical analysis of costs
The costs were treated deterministically.

Indirect Costs
The indirect costs were not included in the analysis.

Currency
UK pounds sterling (€).

Sensitivity analysis
No sensitivity analyses were performed.

Estimated benefits used in the economic analysis
See the 'Effectiveness Results' section.

Cost results
The total costs were 76,682 in the YAT group and 107,780 in the ad hoc service group.

The average cost per contact was 35.40 in the YAT group and 35.74 in the ad hoc service group, thus similar costs were observed.

Over the 6-month period, the average cost per person in the sample was 650 in the YAT group and 798 in the ad hoc service group.

The costs of team organisation were between 28 and 57 per client in the area of Leeds, and between 44 and 88 in the area of Stoke on Trent.

Even when the costs of team organisation were added, the costs in the YAT group were less than those in the ad hoc service group.
Synthesis of costs and benefits
Not relevant as a cost-consequences analysis was performed.

Authors’ conclusions
The study showed that patients receiving the young adult team (YAT) service were more likely to participate in society than those receiving standard ad hoc services. No other differences were found in terms of the degrees of impairment, activity limitation or psychosocial status. A further finding was that there were no differences in the quality of life between young people with disabilities and non-disabled adolescents. The analysis also showed that the costs of the two services were similar.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear. Ad hoc service was selected as it represented the standard management system for young adults with physical disabilities. You should decide whether it represents a valid comparator in your own setting.

Validity of estimate of measure of effectiveness
The analysis of effectiveness used a retrospective case-control study. The authors noted that the retrospective nature of the study may have been a limitation. The sample appears to have been representative of the study population, although about 22% of the eligible patients refused to participate in the study and the reasons were not reported. The study groups were reported to have been comparable at baseline, although the data were not shown. The impact of different variables on the estimated effectiveness outcomes was assessed using logistic regression analysis. To limit assessment bias, the interviewers were unaware of which service the patient had received. However, power calculations were not performed and there was no evidence that the study sample was adequate for the study question.

Validity of estimate of measure of benefit
The health outcomes were left disaggregated and no benefit measure was reported. The analysis was therefore categorised as a cost-consequences study.

Validity of estimate of costs
The costs of contact with a wide range of health professionals, relevant to the NHS, were included in the analysis. The unit costs were reported separately from the quantities of resources. The price year was appropriately reported. The source of the cost data was given. The costs were treated deterministically and no statistical analysis was performed on the quantities or prices. The quantities of resources were assessed retrospectively using patient charts. The cost estimates were specific to the NHS.

Other issues
The authors compared their findings with those from other studies. However, the issue of the generalisability of the study results to other settings was not addressed and no sensitivity analyses were performed. Thus, the external validity of the analysis was somewhat low. The study enrolled young adults with physical disabilities and this was reflected in the conclusions that were obtained. The study results were not applicable to young people with sensory or learning disabilities. The authors noted some limitations of their analysis. These were mainly related to the lack of reliable information in hospital notes and the retrospective nature of the study.

Implications of the study
The main implication of the study is that the YAT service is an effective service for young people with physical disabilities, which costs no more to the NHS than the standard ad hoc service currently implemented in the UK.
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Other publications of related interest

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