Clinical and economic impact of a specialty care management program among patients with multiple sclerosis: a cohort study

Tan H, Yu J, Tabby D, Devries A, Singer J

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.

CRD summary
This study evaluated the clinical and economic impact of a programme of specialty care for adult patients with multiple sclerosis (MS). The authors concluded that the programme improved medication adherence and persistence, and reduced hospitalisations, which reduced non-medication costs, but increased the overall costs. In general, the study was well reported, but the time horizon was insufficient, and the intermediate effectiveness outcomes did not adequately assess the patients' health. The authors' conclusion should be used with caution.

Type of economic evaluation
Cost-effectiveness analysis

Study objective
This study evaluated the clinical and economic impact of a programme of specialty care for adult patients with multiple sclerosis (MS).

Interventions
The programme was compared with no programme. In the programme, patients were sent medication and disease-specific education materials, by post. Nurses made assessment calls at the start; at three, six, and twelve months; and every 12 months after that. These calls aimed to increase adherence and build a rapport with patients, to counter the frequent side-effects of medication. Refill reminder calls were also made.

No programme consisted of patients who chose to obtain their medications from other sources; those who resided in locations where the programme was not implemented; and those who participated in other care management programmes, which could not be identified.

Location/setting
USA/secondary care.

Methods
Analytical approach:
The economic evaluation was based on a retrospective cohort study of 3,993 patients, who were receiving care for MS, between January 2004 and April 2008. Patients were followed-up for 12 months. The authors did not state the perspective of the study.

Effectiveness data:
The primary outcomes were medication adherence, medication persistence, and MS-related hospitalisations. These were from administrative claims data, from the HealthCore Integrated Research Database, containing 13 geographically dispersed commercial health plans, for 24.2 million patients. Patients were included if they had at least two medical claims for MS, and at least one prescription for medication for MS. Of these, 78.3% (3,125) received specialty care management, and 21.7% (868) did not. Medication adherence was measured using the medication possession ratio (MPR), which was the ratio of the total days supply of medication, to the total number of days, in the 12-month follow-up. Medication persistence was the time from initiation to discontinuation of therapy, which was defined as failure to obtain any MS medication within 60 days of the end of the previous supply. Hospitalisation was measured from medical claims with an MS-related hospitalisation code. Statistical analyses were used to compare initial differences, and to
measure differences in outcomes over 12 months. Regression was used to control for any confounding variables.

**Monetary benefit and utility valuations:**
Not relevant.

**Measure of benefit:**
The primary measures of benefit were the clinical outcomes: medication adherence, medication persistence, and hospitalisations for MS.

**Cost data:**
The total cost of care for MS was calculated. This was the total allowable amount reimbursed by the health plans for both medical and pharmaceutical care. The cost categories included in-patient visits, accident and emergency admissions, out-patient visits, and drugs. These costs were from the claims data from the HealthCore Integrated Research Database. They were reported in US $.

**Analysis of uncertainty:**
Differences between groups were tested for statistical significance. Several sensitivity analyses were performed, including: using all-cause hospitalisation instead of MS-related hospitalisation; using all-cause costs instead of MS-related costs; excluding patients over 65 years old; and excluding patients on mitoxantrone and natalizumab.

**Results**
Over 12 months, the unadjusted medication adherence was higher with the programme (mean MPR 0.86) than without (mean MPR 0.64; p<0.001). When confounders were controlled for, using multivariate regression, the mean MPR was 0.18 (95% CI 0.16 to 0.19) higher with the programme than without it.

Medication persistence was higher, with a mean time to discontinuation of 306.1 with the programme, compared with 246.9 days without it (p<0.001); this gap widened over time. Multivariate regression showed that the mean medication persistence was 50.6 days (95% CI 43.1 to 58.2) longer with the programme.

Hospitalisation rates were similar at baseline (p=0.64), but after 12 months they became significantly lower with the programme (7.1%) than without it (12.0%; p<0.001). Regression confirmed that those in the programme were significantly less likely to have an MS-related hospitalisation, with an odds ratio of 0.51 (95% CI 0.39 to 0.67).

Over 12 months, non-pharmaceutical medical costs decreased by $264 with the programme, and increased by $1,536 without it. Pharmaceutical costs increased for both groups, more so with the programme ($4,735) than without it ($2,551). Overall, MS costs over 12 months were $4,471 with the programme, and $4,087 without it (p<0.001). When adjusted using regression, the costs were a mean of 21% higher (95% CI 17 to 26) with the programme than without it.

The sensitivity analyses did not alter the overall conclusions.

**Authors’ conclusions**
The authors concluded that the programme improved medication adherence and persistence, and reduced hospitalisations, which reduced non-medication costs, but increased the overall costs.

**CRD commentary**

**Interventions:**
The specialty care intervention was clearly explained, but usual care was not described. The authors indicated that these patients may have been involved in other care management programmes, but no data on these were available. This makes it difficult to generalise the results to other settings. It was not clear if the implementation of the intervention varied across the broad coverage of the HealthCore database.

**Effectiveness/benefits:**
The effectiveness outcomes were clearly defined and reported. The authors highlighted some limitations with these data: it was not clear if participants partially enrolled or dropped out after enrolment in the programme; there was no control for type of MS or disability status; and there may have been other differences between groups, such as self-
motivation. Intermediate health outcomes were reported; the outcome of interest was the impact of the programme on the patients' long-term health, rather than medication adherence and persistence. The authors acknowledged that, the effectiveness outcomes did not include patient capabilities, quality of life, or disease progression. The 12-month follow-up was too short to capture relevant differences in these outcomes, over a lifetime of illness.

Costs:
From the costs included, it appears that a health care provider perspective was adopted. It was not clear whether the unit costs, the resource use, or both, were from the HealthCore database, but the cost categories seem relevant and were well reported. The price year was not stated, which inhibits comparison with other work. As acknowledged by the authors, the intervention may have had effects on the costs that were relevant for other perspectives. Decreased hospitalisation, and better health, may lead to better workforce participation and a reduction of informal care, which could be measured for a societal perspective.

Analysis and results:
The analytic methods and results were generally clearly reported, and appear to have been appropriate. As the patients were not randomised to the programme or not, there is an increased risk of selection bias. The authors tried to control for confounding variables, but some important variables could not be controlled for. They indicated that several sensitivity analyses were conducted, but the results and methods of these analyses were not reported. They acknowledged that the short time frame of the analysis and the effectiveness outcomes did not allow the comparison of all relevant outcomes. They suggested that studies were needed to analyse the long-term health outcomes.

Concluding remarks:
In general, the study was well reported, but the time horizon was insufficient, and the intermediate effectiveness outcomes did not adequately assess the patients' health. The authors' conclusion should be used with caution.

Funding
Funded by WellPoint Inc, USA, a managed health care company.

Bibliographic details

PubMedID
20595246

DOI
10.1177/1352458510373487

Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Cohort Studies; Cost-Benefit Analysis; Female; Health Care Costs; Hospitalization /economics /statistics & numerical data; Humans; Male; Managed Care Programs /economics; Medication Adherence /statistics & numerical data; Middle Aged; Multiple Sclerosis /drug therapy /economics; Pharmaceutical Services /economics; Retrospective Studies; Treatment Outcome; United States

AccessionNumber
22010001463

Date bibliographic record published
02/02/2011

Date abstract record published