
A coordinator program in post-fracture osteoporosis management improves outcomes and saves costs

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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.

CRD summary

This study examined the clinical and economic impact of an osteoporosis coordinator to manage patients with a fragility fracture and to coordinate their education, assessment, referral, and further treatment of the underlying osteoporosis. The authors concluded that having a coordinator in a tertiary care centre reduced the incidence of future hip fractures and saved money from the perspective of the hospital. The study appears to have been well conducted and presented. The authors' conclusions appear to be valid.

Type of economic evaluation

Cost-effectiveness analysis

Study objective

The objective was to examine the clinical and economic impact of an osteoporosis coordinator to manage patients with a fragility fracture, and to coordinate their education, assessment, referral, and further treatment of underlying osteoporosis.

Interventions

The use of a coordinator in the orthopaedic unit of a hospital was compared with no coordinator.

Location/setting

Canada/tertiary care hospital.

Methods

Analytical approach:

This economic evaluation was based on a decision tree model which simulated patient management under the two strategies, focusing on the treatment of hip fractures. The time horizon of the analysis was one year. The authors stated that the perspective of the hospital was considered.

Effectiveness data:

The clinical data came from selected relevant sources. The data on the impact of the osteoporosis coordinator in increasing treatment use and adherence came from the implementation of a coordinator-facilitated programme called the Osteoporosis Exemplary Care Program (OECF). This programme enrolled 430 patients over the first year and was conducted in December 2002 in a tertiary care, inner city, university hospital in Canada. The incidence of future fractures, risk of future fractures and the probabilities related to the comparator were derived from other published sources. Generally, these were observational studies with large sample sizes and long follow-ups. These data were supplemented by authors' assumptions.

Monetary benefit and utility valuations:

Not relevant.

Measure of benefit:

The summary benefit measure was the reduction in the incidence of future hip fractures.

Cost data:

The economic analysis was restricted to the cost of the coordinator (working part-time and including benefits) and the treatment of future hip fractures (reflecting ward stay, intensive care unit stay, peri-operative costs, ward and intensive care unit expendable costs, pharmacy, laboratory, physiotherapy and allied health costs, and overheads). The costs and quantities were derived from the OECF report. All costs were in Canadian dollars (CAD) and the price year was 2004.

Analysis of uncertainty:

The issue of uncertainty was addressed by means of both deterministic and probabilistic sensitivity analyses. In the former, plausible ranges of values were considered in one- and multi-way sensitivity analyses. In the latter, probabilistic distributions were assigned to each model input to generate cost-effectiveness acceptability curves.

Results

The cost per patient was CAD 1,466 with no coordinator and CAD 1,368 with the coordinator. The annual risk of hip fracture was 0.0672 with no coordinator and 0.0603 with the coordinator. Thus, under the base-case assumptions, the coordinator programme was dominant, which means it was less expensive and more effective than its comparator.

The deterministic sensitivity analysis showed that a coordinator led to cost-savings even under four conservative assumptions: if the cost per hip fracture was as low as CAD 8,000; if only 60% of patients initiated treatment and only 40% complied; if the treatment efficacy reduced the incidence of future hip fractures by no more than 10%; and if as few as 350 patients were seen annually.

The probabilistic analysis revealed that the use of a coordinator was dominant in several simulations and that there was a 90% likelihood that hiring a coordinator would cost less than CAD 25,000 per hip fracture avoided.

Authors' conclusions

The authors concluded that having a coordinator to manage osteoporosis patients in a tertiary care centre reduced the incidence of future hip fractures and saved money from the perspective of the hospital.

CRD commentary

Interventions:

The rationale for the selection of the comparators was in that the new programme was compared with the standard pattern of care in the authors' setting. Such strategies also appear to be relevant in other settings with similar characteristics, especially in terms of the size and type of the medical institution.

Effectiveness/benefits:

The sources of evidence were identified selectively by the authors, who attempted to include the most relevant studies. For example, data on the study intervention were appropriately derived from the actual implementation of the coordinator programme. Other data were obtained from large prospective studies. Some characteristics of the primary sources, such as the sample sizes and study designs, were reported. In general, the evidence used appears to have been adequate given the objective of the study, although the provision of more details would have allowed a more comprehensive judgement to be made on the quality of the clinical data. The benefit measure was disease-specific and will be difficult to compare with the benefits of other health care interventions.

Costs:

The analysis of costs was consistent with the study perspective. The costs were presented as two main macro-categories, which were not broken down into individual items. Thus, the unit costs and resource quantities were not reported. This was due to the fact that cost estimates were derived from a published study. Nevertheless, such an approach reduces the transparency of the economic analysis. Other features of the economic analysis such as the price year and types of probabilistic distributions were reported. The authors noted that the inclusion of other health care or patient costs could further favour the intervention, given its impact on the risk of future fractures.

Analysis and results:

The use of an incremental analysis to combine the costs and benefits of the two strategies was appropriate. The issue of uncertainty was satisfactorily addressed in the sensitivity analysis. The findings of the base-case and the sensitivity analyses were clearly presented and discussed. Overall, the analysis and the study findings were transparently reported.

The issue of generalisability was not explicitly addressed, and caution will be required if extrapolating the study findings to other settings with different characteristics. The authors pointed out that a strong aspect of the study was the use of high-quality data and conservative assumptions.

Concluding remarks:

The study appears to have been well conducted and presented. The authors' conclusions appear to be valid.

Funding

Supported by grants from Merck Frosst Canada, and the CIHR.

Bibliographic details

Sander B, Elliot-Gibson V, Beaton D E, Bogoch E R, Maetzel A. A coordinator program in post-fracture osteoporosis management improves outcomes and saves costs. *Journal of Bone and Joint Surgery. American volume* 2008; 90(6): 1197-1205

PubMedID

18519311

DOI

10.2106/JBJS.G.00980

Other publications of related interest

Bogoch ER, Elliot-Gibson V, Beaton DE, et al. Effective initiation of osteoporosis diagnosis and treatment for patients with a fragility fracture in an orthopaedic environment. *J Bone Joint Surg Am* 2006;88:25-34.

Wiktorowicz ME, Goeree R, Papaioannou A, et al. Economic implications of hip fracture: health service use, institutional care and cost in Canada. *Osteoporos Int* 2001;12:271-8.

Caro JJ, Ishak KJ, Huybrechts KF, et al. The impact of compliance with osteoporosis therapy on fracture rates in actual practice. *Osteoporos Int* 2004;15:1003-8.

Indexing Status

Subject indexing assigned by NLM

MeSH

Adult; Aged; Aged, 80 and over; Continuity of Patient Care /organization & administration; Cost Savings; Cost-Benefit Analysis; Decision Support Techniques; Female; Fractures, Spontaneous /economics /epidemiology /etiology /prevention & control; Hip Fractures /economics /epidemiology /etiology /prevention & control; Humans; Incidence; Male; Middle Aged; Osteoporosis /complications /economics /therapy; Outcome Assessment (Health Care); Patient Care Planning; Referral and Consultation; Sensitivity and Specificity

AccessionNumber

22008101078

Date bibliographic record published

03/02/2009

Date abstract record published

13/05/2009