Relative costs and effectiveness of specialist and general internist ambulatory care for patients with 2 chronic musculoskeletal conditions

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
The provision of ambulatory care by specialists, nonspecialists (general internists), or both specialists and nonspecialists (co-care), to patients with chronic musculoskeletal conditions was examined.

Type of intervention
Other: outpatient or ambulatory care.

Economic study type
Cost-effectiveness analysis.

Study population
The study population comprised patients with knee osteoarthritis (OA) and/or low back pain (LBP), who were enrolled in the Veterans Health Study (VHS) prior to July 1995 (Kazis et al., see Other Publications of Related Interest).

Setting
The setting was outpatient clinics. The economic analysis was conducted in Boston, USA.

Dates to which data relate
The effectiveness and resource data were gathered between August 1993 and December 1995. The price year was 1995.

Source of effectiveness data
The effectiveness data were derived from a single study.

Link between effectiveness and cost data
The costing was carried out retrospectively on the same sample of patients used in the effectiveness study.

Study sample
Power calculations to determine the sample size were not reported. Eligible patients were identified from the VHS. The patients were a random sample who came to one of four VHA sites between August 1993 and December 1995. The inclusion criteria for the study specified a VHS baseline interview with administration of the SF-36 between August 1993 and June 1995, and at least one subsequent OA- or LBP-related visit to a VHA internist, rheumatologist, orthopaedic surgeon or neurologist. In addition, a subsequent quarterly SF-36 had to be administered as part of the VHS with follow-up time of at least 6 months between the baseline interview and December 1995. A total of 398 patients (65% of the 614 patients with OA and/or LBP included in the VHS prior to July 1995) met these criteria. Of these, 155 (39%) were managed by nonspecialists, 49 (12%) visited specialists only, and the remaining 194 (49%) received co-
Study design
This was a retrospective cohort study that was conducted in several VHA outpatient clinics. The patients themselves could choose to have specialty care. No loss to follow-up was reported. The follow-up period was at least 6 months (on average 14 months).

Analysis of effectiveness
It appears that the analysis of the clinical study was conducted on the basis of treatment completers only. The health outcomes used were functional status and health status. Functional status was assessed using the Physical Component Summary (PCS) of the SF-36 (Ware et al., see Other Publications of Related Interest). Health status was assessed using both the PCS and the Mental Component Summary (MCS). The PCS and MCS were obtained from the VHS baseline questionnaire and at the subsequent scheduled VHS quarterly assessment date closest to 31 December 1995.

The three care groups differed in age, education and disease characteristics at baseline. The patients in the specialty care group were younger (59.3 years) than those in the nonspecialty group (66.1 years) and co-care group (62.3 years), (p=0.001). They were also better educated, 13.3 years (specialty group) versus 12.2 years (nonspecialty group) and 12.5 years (co-care group), (p=0.24). There were significant differences between the groups in disease characteristics, pain score and the disease burden index.

Effectiveness results
The patients in the nonspecialty and specialty care groups experienced some improvement in PCS per year of follow-up (1.7 and 3.6 units), while those in the co-care group had less improvement (0.4 units), (p=0.043).

After adjusting for age, disease characteristics and baseline health status, the PCS improvements per year were 1.66 units in the nonspecialty group, 3.48 units in the specialty group and 0.65 units in the co-care group, (p=0.072).

Clinical conclusions
Specialty-only ambulatory care for OA and LBP was associated with better improvement in functional status compared with nonspecialty ambulatory care. Co-care was associated with little improvement in functional status.

Measure of benefits used in the economic analysis
The summary measure of benefit was the units of improvement in PCS.

Direct costs
The cost/resource boundary of the study was that of the health care payer. The direct costs in the economic evaluation were for MD visits, physicians and outpatient visits, nutrition and electromyogram visits, laboratory tests, medications and radiology procedures. The relevant nonvisit utilisation from 2 weeks before baseline interview until the outcome assessment date was also included. VHA utilisation data for each patient were obtained from the Decentralised Hospital Computer program (DHCP). Resource use specific to OA and LBP was identified from the full VA lists of radiology and laboratory procedures. Two rheumatologists identified the medication. The resource use data were estimated from actual data. The unit costs were derived from the Boston University Medical Centre 1995 costs, except for medication costs which were based on average wholesale costs from the 15 Drug Topics Red Book. Discounting was carried out because the costs were incurred during more than one year. A discount rate of 3% was used. The unit costs were presented separately from the quantities of resources used.

Statistical analysis of costs
Standard statistical tests were carried out to test the statistical significance of differences in the cost estimates across the
three groups (analysis of variance). The costs were presented as the mean value per year of follow-up and were adjusted for age and baseline disease, pain and health status measures.

**Indirect Costs**
The indirect costs were not included.

**Currency**
US dollars ($).

**Sensitivity analysis**
Sensitivity analyses were performed. The stability of each incremental cost-effectiveness ratio (ICER) was assessed by bootstrap sampling.

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

**Cost results**
The mean adjusted cost was $1,099 (standard deviation, SD=1,681) per year for nonspecialty care, $1,376 (SD=1,503) for specialty care and $2,517 (SD=1,644) for co-care, (p=0.001).

**Synthesis of costs and benefits**
Compared with nonspecialty care, the adjusted ICER of specialty care was $152 per additional unit of improvement of PCS.

Using bootstrap sampling, nonspecialty care dominated for a small portion (7.9%) of the values (median ICER $188).

**Authors' conclusions**
Specialty-only ambulatory care for osteoarthritis (OA) and low back pain (LBP) was associated with better improvement in functional status, at slightly higher costs, compared with nonspecialty ambulatory care. Co-care, however, was substantially more costly and was associated with little improvement in functional status.

**CRD COMMENTARY - Selection of comparators**
A justification was given for the comparators used, which represented common practice in the authors' setting. You should consider whether these are widely used practices in your own setting.

**Validity of estimate of measure of effectiveness**
The authors acknowledged that the study design (retrospective study) was not appropriate for the study question. A randomised controlled trial would have been more appropriate. As a consequence of the study design, the patient groups were not comparable at baseline. The authors adjusted for the disparities, but they acknowledged that the process used might not have fully accounted for bias. Functional status was an intermediate outcome. The impact on patient satisfaction would also have been appropriate for assessing the effectiveness. Appropriate statistical analyses were performed to ensure accuracy of the comparison.

**Validity of estimate of measure of benefit**
The authors used units of improvement in PCS as a summary measure of benefit in the economic analysis. You should
consider if this is an adequate summary measure of benefit.

Validity of estimate of costs
The perspective adopted in the study was that of the health care payer. Inpatient costs were not included in the analysis even though 17 of the 398 patients were subject to hospitalisation. However, after evaluation, the authors reported that the inpatient costs would not have changed the direction of the results. These facts would hinder the replication of the study in other settings and also question the validity of the study. In a more positive note, the resource quantities and the unit costs were reported separately, an appropriate statistical analysis was performed on the adjusted costs, and appropriate discounting was carried out.

Other issues
The generalisability of the results was not discussed in any detail. However, the authors made appropriate comparisons of their findings with those from other studies. The study enrolled patients with knee OA and/or LBP and this was reflected in the authors’ conclusions. The authors did not present their results selectively and reported further limitations of their study.

Implications of the study
In the context in which duplication of services by internists and specialists can be avoided, specialists can provide cost-effective ongoing care for patients with knee OA and/or chronic LBP.

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Bibliographic details

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Other publications of related interest


Indexing Status
Subject indexing assigned by NLM

MeSH
Adult; Aged; Ambulatory Care Facilities /economics; Boston; Chronic Disease; Cost-Benefit Analysis; Family Practice /economics /standards; Follow-Up Studies; Health Care Costs; Health Care Surveys; Humans; Low Back Pain /diagnosis /economics /therapy; Male; Middle Aged; Osteoarthritis, Knee /diagnosis /economics /therapy; Patient Satisfaction; Practice Patterns, Physicians'; Probability; Quality of Health Care; Rheumatology /economics /standards; Specialization /economics /standards; Treatment Outcome; United States; United States Department of Veterans Affairs; Veterans

AccessionNumber