Medical cost containment: analysis of dual orthopedic/radiology interpretation of X-rays in the trauma patient
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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
Dual orthopedic and radiology evaluation of orthopedic trauma roentgenograms.

Type of intervention
Diagnosis

Economic study type
Cost-effectiveness analysis.

Study population
Patients admitted to a trauma centre with the diagnosis of femoral fractures.

Setting
Hospital. The economic study was conducted in Baltimore (USA).

Dates to which data relate
Effectiveness data were collected in 1991 and 1993. Resources and costs related to the same years.

Source of effectiveness data
Single study.

Link between effectiveness and cost data
Costing was undertaken retrospectively on the same patient sample as that used in the effectiveness study.

Study sample
50 trauma patients were included in the sample, out of which 25 were selected randomly from 166 admissions in 1991, and the other 25 were consecutive patients admitted to the trauma centre on or after March 1, 1993. No power calculations were reported.

Study design
Case series (prospective and retrospective), single centre study. The effects of additional radiologist reading was assessed for each patient. Outpatient follow-up for the 1991 patients averaged 160 days.
Analysis of effectiveness
The analysis of the effectiveness was based on treatment completers only. The primary health outcome used in the analysis was the accuracy rate of the roentgenographic interpretation. This was determined by comparing the initial roentgenographic interpretation to the final discharge diagnosis and follow-up roentgenographic interpretation. Impact on patient care was also assessed, but details are not given.

Effectiveness results
The orthopedist readings were immediate, 100% accurate, had significant impact on patients' care. The accuracy rate for radiologist readings varied between 94 and 96%, the time to reading averaged between 4.6 and 7 days and these additional readings had no impact on patient care.

Clinical conclusions
Routine radiology consultation of musculoskeletal films previously read by the orthopedic surgeon is not required for the care of trauma patient.

Measure of benefits used in the economic analysis
Accuracy rate of the roentgenographic interpretation determined by comparing the initial roentgenographic interpretation to the final discharge diagnosis and follow-up roentgenographic interpretation. Impact on patient care was also considered.

Direct costs
Some costs and quantities were reported separately. A third-party payer perspective was adopted. Direct health service costs were considered such as total cost of roentgenographic interpretation by radiologists. Costs were based on the hospital billing records. Professional charges were estimated on the basis of insurance reimbursements in 1991 and 1993.

Currency
US dollars ($).

Sensitivity analysis
Not performed.

Estimated benefits used in the economic analysis
The orthopedist readings were immediate, 100% accurate, had significant impact on patients' care. The accuracy rate for radiologist readings varied between 94 and 96%, the time to reading averaged between 4.6 and 7 days and these additional readings had no impact on patient care.

Cost results
The cost/patient for roentgenographic interpretation by radiologists was estimated to be $393 in 1991 and $200 in 1993.

Synthesis of costs and benefits
While radiologist readings had no impact on patient care with respect to the evaluation performed by an orthopaedic surgeon, the additional cost/patient for this procedure varied between $393 and $200 (1991 and 1993 prices).

Authors' conclusions
The authors concluded that the routine reading of musculoskeletal films in trauma patients under the care of the orthopaedic surgeon seems to offer minimal benefit to the patients at an increasing cost to the health care system.

**CRD Commentary**
This study can be considered a preliminary analysis of the investigation of cost-effectiveness of dual evaluation for musculoskeletal films, since the sample size is questionable for drawing any definite conclusions. Overall, the clinical analysis could have been conducted more rigorously, in particular for the choice of the study design.

**Implications of the study**
A more accurate study is required.

**Bibliographic details**

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