
Economic evaluation of pressure ulcer care: a cost minimization analysis of preventive strategies

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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 a mainly technical-aid approach versus a mainly human-intervention approach for the prevention of pressure ulcers in hospitalised patients. The authors concluded that the technical approach was as effective as human intervention, but was much cheaper. The economic part of the study was well carried out and was satisfactorily presented, but the clinical part was weak. The authors' conclusions need to be corroborated by other studies.

Type of economic evaluation

Cost-effectiveness analysis

Study objective

This study examined the clinical and economic impact of a mainly technical-aid approach versus a mainly human-intervention approach for the prevention of pressure ulcers in hospitalised patients.

Interventions

The technical approach included pressure-relieving mattresses, cushions, and patient posture. Human intervention consisted of turning, repositioning, and mobilisation of the patient.

Location/setting

Netherlands/hospital.

Methods

Analytical approach:

The economic analysis was carried out alongside a clinical study. The time horizon was from admittance until discharge from hospital. The authors stated that the perspective of the hospital was considered.

Effectiveness data:

The clinical data came from a prospective cohort study, namely the Purse Value study, which was carried out at two teaching hospitals in the Netherlands. These two hospitals used different approaches for the prevention and treatment of pressure ulcers. In the technical group, there were 618 patients, with a mean age of 64.8 years and 43.4% were female. In the human-intervention group, there were 822 patients, with a mean age of 66 years and 52.1% were female. The incidence of pressure ulcers was the key endpoint.

Monetary benefit and utility valuations:

Not relevant.

Measure of benefit:

There was no summary measure of benefit. The incidence of pressure ulcers was the key clinical endpoint.

Cost data:

The economic analysis included the costs of time spent by the nursing staff, use of materials, therapeutic interventions, general nutrition, and consultation with a specialised wound care nurse, dietician, or medical specialist. These were valued for four main categories: repositioning, mobilisation, wound care, and resources (special beds, mattresses,

dressings, nutritional supplements, and ointments). The resource use data were estimated using a specific standardised case report form with a subgroup of patients who differed slightly from the overall clinical study patients. For prevention there were 94 patients with technical and 55 with human intervention, and for treatment there were 26 with technical and 48 with human intervention. The unit costs were reported and they were based on hospital purchase prices and Dutch national health system purchases. All costs were in Euros (EUR).

Analysis of uncertainty:

Alternative analyses considered variations in the cost of nursing time, the cost of materials, and the number of patients at risk of pressure ulcers.

Results

The incidence of pressure ulcers was 5.5% with the technical approach and 4.9% with human intervention. This difference did not reach statistical significance.

The mean cost of prevention per day was EUR 13 (range 0.54 to 103; 95% CI eight to 18) for the technical approach and EUR 24 (range 0.13 to 166; 95% CI 17 to 30) for human intervention. Nursing time was 67.9% of the total cost with human intervention and 55.9% with the technical approach. The annual national cost for pressure ulcer prevention was EUR 27.5 million (95% CI 17.0 million to 38.2 million) with the technical approach and EUR 63.6 million (95% CI 45.1 million to 79.6 million) with human intervention. This difference was statistically significant ($p=0.0001$).

Variations in the cost of nursing time had a large impact on the expected costs, especially with human intervention.

Authors' conclusions

The authors concluded that the mainly technical approach was as effective as the human-intervention approach and it was much cheaper.

CRD commentary

Interventions:

The selection of the comparators was appropriate as the two possible management strategies were considered for patients at risk of developing pressure ulcers. Each strategy included some aspects of the competing strategy, which means that they were not mutually exclusive.

Effectiveness/benefits:

The clinical analysis was based on a cohort study, with two groups of patients receiving different methods of prevention and treatment of ulcers, in two hospitals. The authors noted that the two patient groups were not well matched at baseline, with important differences in the percentage of patients on surgical wards and in the length of stay. It was unclear whether any statistical tests were used to correct for potential confounding factors. The evidence was from two teaching hospitals, which might not have been comparable to other medical institutions, in terms of patient population and health care delivered. The sample size was not justified and might not have been sufficient to identify statistically significant differences in effectiveness between the two groups. In general, more details would have been useful to judge the validity of the clinical data.

Costs:

The assessment of the economic impact of the preventive strategies was the main aim of this study and the authors gave extensive details of the methods used to identify and calculate the costs. A breakdown of the cost categories and the main cost items were provided. The resource use was based on a detailed case report form, and a bottom-up approach was used to estimate most of the costs. The unit costs were reported for most items and the key patterns of resource use were given, but the price year was not reported.

Analysis and results:

The results were clearly reported and a synthesis of the costs and benefits was not required, as a cost-minimisation analysis was conducted. The issue of uncertainty was not satisfactorily investigated as the analysis focused only on a few economic inputs. The time horizon appears to have been the length of hospital stay, but this was not explicitly stated. The authors stated that the main limitation of their analysis was the use of a cohort study, with baseline differences

between the two groups of patients, which might have influenced the results. There were no data on the effectiveness of ulcer treatment, which means it was unclear whether the two approaches really were equally effective.

Concluding remarks:

The economic part of the study was well carried out and satisfactorily presented, but the clinical part was weak. The authors' conclusions need to be corroborated by other studies.

Funding

Not stated.

Bibliographic details

Schuurman JP, Schoonhoven L, Defloor T, van Engelshoven I, van Ramshorst B, Buskens E. Economic evaluation of pressure ulcer care: a cost minimization analysis of preventive strategies. *Nursing Economic\$* 2009; 27(6): 390-400, 415

PubMedID

20050490

Indexing Status

Subject indexing assigned by NLM

MeSH

Aged; Cost of Illness; Cost-Benefit Analysis; Direct Service Costs /statistics & numerical data; Female; Hospital Costs /statistics & numerical data; Hospitals, Teaching; Humans; Incidence; Length of Stay /economics; Male; Middle Aged; Netherlands /epidemiology; Nursing Administration Research; Nursing Staff, Hospital /economics; Outcome Assessment (Health Care); Pressure Ulcer /economics /epidemiology /prevention & control; Primary Prevention /economics /methods; Prospective Studies; Skin Care /economics /methods /nursing; Workload /economics

AccessionNumber

22010000453

Date bibliographic record published

04/08/2010

Date abstract record published

02/02/2011