Pressure ulcers management: an economic evaluation

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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

The objective was to assess the cost and effectiveness of advanced dressings for pressure ulcers in patients receiving integrated care at home. The authors concluded that advanced dressings could produce considerable savings in resources and improve treatment efficacy. There were some limitations to the reporting and methods, particularly in the study design and sensitivity analysis, which mean that the authors' conclusions should be treated with caution.

Type of economic evaluation

Cost-effectiveness analysis

Study objective

The objective was to assess the cost and effectiveness of advanced dressings, for pressure ulcers, in patients receiving integrated home care.

Interventions

Advanced dressings to treat pressure ulcers were compared with conventional simple dressings. As well as the main analysis of all patients, two subgroups were analysed including patients with stage 2 and stage 3 ulcers.

Location/setting

Italy/hospital and community care.

Methods

Analytical approach:

An economic evaluation, based on a multicentre observational trial, was undertaken. The impact of the advanced dressing was assessed over 30 days. The authors stated that the perspective was that of the public home care provider.

Effectiveness data:

The effectiveness data were from a multicentre observational trial that was conducted in 23 health care centres in Italy. This included 362 patients, with the inclusion criteria set independently by each centre. Each centre continued to use their usual type of dressing, with 201 patients receiving advanced dressings, and 150 receiving simple dressings; 11 patients dropped out of the trial. Observational data were collected by case report forms and using questionnaires. The main clinical effectiveness of the dressings was measured by a reduction in the lesion size. The intervention was also assessed for three dimensions: its accessibility for the family and caregivers, pain, and severe adverse events. The data were collected by semi-structured interviews and a questionnaire with yes or no responses.

Monetary benefit and utility valuations:

Not applicable.

Measure of benefit:

The benefit was measured by the reduction in ulcer lesion size.

Cost data:

Three cost components were included: medication and devices, personnel, and health care worker transport. Medication and device costs were from provider supplier records. Personnel costs were calculated for the type of professional health care worker who visited the patient. Transport costs were measured using the distance from the health care centre to the patient's home, the type of motor vehicle, and fuel consumption. The impact of the new treatment on the

organisation was measured, for various resource parameters, by questionnaire. These included the number of visits and their durations, the possibility that health workers could perform other activities, the personnel required for each visit, and their training. The costs were measured in 2008 and inflated to 2010 prices, using Italian inflation rates. They were reported in Euros (EUR).

Analysis of uncertainty:
A deterministic sensitivity analysis, in which the key cost parameters were altered, was undertaken. A bootstrapping analysis, using 100 random samples, estimated the variance in the cost per visit and cost over 30 days. A Monte Carlo simulation, of 100 different scenarios, over five years, with yearly variations for the costs of personnel, medications and devices, and transport, assessed the impact of their uncertainty on the total cost for each patient.

Results

Over 30 days, the total mean monthly cost of care was EUR 257.20 with advanced dressings and EUR 351.05 with simple dressings; a saving of EUR 93.85 (26.73%) with advanced dressings. Both groups experienced a reduction in ulcer size. Over 30 days, the advanced dressing group experienced on average a 40.34% reduction in size compared with 34.34% reduction in the simple dressing group (p=0.05).

For reducing the lesion size, the advanced dressing was dominant, producing a greater effect, at less cost, than the simple dressing.

Advanced dressings reduced the number of visits, within the 30-day period, the time required for each visit, and increased the possibility for health workers to perform other activities. They increased the personnel learning and training time, and the number of staff required for each visit.

These results were robust in the analyses of uncertainty.

Authors' conclusions

The authors concluded that advanced dressings could produce considerable savings in resources and improve treatment efficacy.

CRD commentary

Interventions:
The intervention and comparator appear to have been appropriate. The authors did not discuss any other relevant treatments. They did not discuss the differences between the advanced and simple dressings in detail, and whether the simple dressings differed between centres.

Effectiveness/benefits:
The effectiveness estimates were clearly reported. A key limitation of the analysis was the observational study design, which may have had low internal validity. Patients were not randomised to treatment, so there was an increased possibility that the results may be biased due to systematic differences between the patient groups. The use of a reduction in lesion size, as the main measure of effectiveness, was not justified and it was not clear how the reduction in lesion size was measured. Therefore, it is not clear if the benefit measure was appropriate and adequately demonstrated the benefits of the two dressings.

Costs:
The costs were appropriate for the perspective of the health care provider. The methods used to derive the costs were clearly reported, but for many of the results it was unclear if they were the mean in total or the mean per patient. The price year was not clearly stated, and it was unclear if cost adjustments were made appropriately.

Analysis and results:
The analysis and most of the results were clearly reported. The authors reported a cost-effectiveness value, but did not explain how this was calculated. For the main sensitivity analyses, only variations in the costs were explored, and the ranges of values were not reported. Some results of the sensitivity analyses were not clearly reported, making it difficult to assess if the analyses were appropriate, and make definitive conclusions on the reliability of the results. The authors stated that their results may not generalise to wider populations, with different comorbidities and wound stages, but any

differences were not be expected to be statistically significant. There may have been relevant differences between the patient groups that were not discussed, and any non-significant differences may have influenced the results. Another limitation of the analysis was its short time horizon. If the main cost and effectiveness differences extended beyond 30 days, then the time horizon was insufficient.

Concluding remarks:
There were some limitations to the reporting and methods, in particular in the study design and sensitivity analysis, which mean that the authors' conclusions should be treated with caution.

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