Comparison of the levels of quality of inpatient care delivered by pediatrics residents and by private, community pediatricians at one hospital

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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
Inpatient care provided by paediatricians.

Type of intervention
Treatment; Health care organisation.

Economic study type
Cost-effectiveness analysis.

Study population
Patients who had discharge diagnoses of uncomplicated gastroenteritis or asthma.

Setting
Hospital setting. The study was carried out at the Valley Children's Hospital, Fresno, California, USA.

Dates to which data relate
Effectiveness and resource data were collected from May 1994 to March 1995. The price year was not stated.

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

Link between effectiveness and cost data
The costing was undertaken on the same patient sample as that used in the effectiveness study. The costing was carried out prospectively alongside the effectiveness study.

Study sample
154 paediatric patients were selected for the study using incidental sampling. The patients were divided into four groups: resident service asthma (n=32), community service asthma (n=47), resident service gastroenteritis (n=32), community service gastroenteritis (n=43). 24 residents and 18 physicians treated the study patients. There was a 12% overlap of physicians who served on both services. Given the sample size, a power of 0.8 was determined to be the likelihood of finding a moderate difference between sub-populations. 8% of the families approached chose not to participate. There was no significant difference between the participants and the non-participants in terms of age, race-ethnicity, or length of stay.
Study design
This was a prospective cohort study carried out at a single centre. Patients were followed up for one year. Nurses were blinded to the nature of the study.

Analysis of effectiveness
The analysis of the clinical study was based on the intention to treat principle. The primary health outcomes reported included the degree of adherence to follow-up care after discharge, treatment procedures, number of visits to the emergency room and the number of readmissions. The resident service groups did not differ significantly from the community service groups when compared by age, gender, or race-ethnicity.

Effectiveness results
For the asthma service groups, community physicians were more likely to employ optional care items (3.2 versus 4.8, p<0.001). The residents were more likely to record the presence of precipitating factors for asthma (94% versus 68%, p<0.01). Community physicians more frequently used IV corticosteroids (55% versus 91%, p<0.01). Residents prescribed fewer overall medications (2.23 versus 3.2, p<0.0004). A greater percentage of patients cared for by community physicians required an acute visit to a physician for asthma (27% versus 60%, p<0.001). One year after discharge, patients treated by residents had fewer visits to the emergency room for asthma (23% versus 60%, p<0.005), as well as fewer readmissions to the hospital (10% versus 40%, p<0.005). For the gastroenteritis groups, there was a significant difference between the physicians with regards to the number of standard care items used.

Clinical conclusions
The common perceptions that physicians-in-training overuse medical services and fail to provide high-quality services were not supported in this study.

Modelling
No modelling was undertaken.

Measure of benefits used in the economic analysis
The measure of benefit used was the parents’ and guardians’ satisfaction, measured by a version of the Press-Ganey Satisfaction Measure and a modified Medical History Questionnaire.

Direct costs
Costs were not discounted given the short time period of the study (<1 year). Quantities and costs were not reported separately. Direct cost estimates included hospital charges related to the laboratory, pharmacy, length of stay and treatment of respiratory problems. The quantity/cost boundary adopted was that of the hospital. The estimation of quantities and costs was based on actual data. Charge data were obtained from the hospital. The price year was not stated.

Statistical analysis of costs
Not reported.

Indirect Costs
Not included.

Currency
US dollars ($).
Sensitivity analysis
Not reported.

Estimated benefits used in the economic analysis
There was no significant difference between the two groups regarding parents' or guardians' satisfaction with the medical care received, either upon hospital discharge or at the follow-up home visit one month later. Satisfaction with the overall hospital experience did not differ by service either at discharge or at the follow-up visit.

Cost results
Total hospital charges were $4,894 for the resident service asthma, $4,586 for the community service asthma, $3,889 for the resident service gastroenteritis, and $3,855 for the community service gastroenteritis.

Synthesis of costs and benefits
Not reported.

Authors' conclusions
The data suggest that being cared for by residents, under the supervision of more recently trained attending physicians, may be advantageous to a patient's ultimate health and does not appear to be more expensive or associated with reduced patient satisfaction.

CRD COMMENTARY - Selection of comparators
The rationale for the choice of the comparator was clear.

Validity of estimate of measure of effectiveness
The authors examined all relevant clinical process measures, clinical outcome measures and consumer satisfaction. The probability of finding a significant difference between groups is reduced because of the fact that 12% of the physicians served both service groups. Satisfaction values were elicited from parents or guardians, and not from patients.

Validity of estimate of costs
The direct costs falling to the hospital were included. Charge data rather than real costs were used. Charges do not represent opportunity costs. No sensitivity analysis was conducted to test the robustness of the cost results.

Other issues
The major concern is the generalisability of the results. The results are not generalisable to other patients, diagnoses or other types of hospital settings.

Implications of the study
The results of this study need to be confirmed in other settings.

Source of funding
Funded by a grant from Valley Children's Hospital.

Bibliographic details
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Other publications of related interest
Garber A M, Fuchs V R, Silverman J F. Case-mix, cost and outcomes: differences between faculty and community

**Indexing Status**
Subject indexing assigned by NLM

**MeSH**
Adolescent; Aftercare; Analysis of Variance; Asthma /therapy; Chi-Square Distribution; Child; Child, Preschool; Consumer Behavior; Emergency Medical Services; Female; Follow-Up Studies; Gastroenteritis /therapy; Hospital Charges; Hospital Costs; Hospitalization /economics; Hospitals, Pediatric; Hospitals, Teaching; Hospitals, Voluntary; Humans; Infant; Internship and Residency; Male; Patient Discharge; Patient Readmission; Pediatrics /economics /education; Private Practice; Quality of Health Care; Recurrence

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