A Nurse Practitioner Service for Nursing and Residential Care Homes

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Introduction

An economic component was added retrospectively to an evaluation that sought to discover whether the provision of a Nurse Practitioner service would improve the health of nursing and residential home residents (Jerram, 2001). The residents of 28 homes on the south coast were recruited; 191 residents in 14 study homes and 154 residents in control group homes who would continue to receive routine care. The combined study also aimed to examine whether the nurse practitioner service would improve residents' access to health care and reduce GPs workload, and to estimate the relative cost implications.

An important part of the research was to estimate unit costs for the Nurse Practitioner (NP). NPs have advanced skills in assessment and clinical decision-making and work with many client groups and in different service contexts (Horrocks et al., 2002). It was important therefore that a unit cost was estimated for this study that reflected the resources and working patterns put in place to support this client group. This short article outlines the service-specific estimation work following the four-stage methodology summarised in Netten and Beecham (1999).

Estimating a unit cost for the Nurse Practitioner

Describing the service

The new service comprised one full-time nurse practitioner offering regular open access clinics within the 14 study group homes. The NP discussed health concerns, provided health education, reviewed and managed chronic diseases, and provided a screening service. The NP also made emergency and follow-up visits between 9am and 5pm on weekdays.

Estimating the cost implications

The employing NHS Trust provided the following data on the costs of the NP service:

- Salary-related costs;
- Direct overhead costs such as mobile phones, office equipment, printing and stationery;
- Rent (used as an approximation of capital costs); and
- NHS Trust organisational overheads.

The first estimation task was to subtract a proportion of these costs equivalent to the NP's non-service duties. These included the costs of one day each week for research, four days on other clinical management duties and six days teaching. The total service cost for the 64-week research period was £45,200[1].

Information on the NPs working conditions was used to calculate a basic unit cost. The NP had a standard nursing contract allowing 43 days leave over the research period. In addition the NP took 14 days study leave and 4 days sick leave. Thus, over the 64-week research period, the NP service was available to residents for 185 working days.

[1] All costs have been rounded up; £1999-2000 prices.

As part of her clinical practice the NP recorded which patients were seen during each type of contact, the resident's problem, and the nursing activity. The duration of contact was recorded in 15-minute blocks, and included all patient-related activity such as writing up case notes. The unit cost for this basic activity measure is £8.20. Travel costs were then added for each home. A round trip to each of the 14 homes from the NP's base at a local GP surgery took between 10 and 34 minutes at a cost of £0.50 per minute of NP time. From the mileage costs (supplied by the Trust), a flat rate of £1.30 per trip was calculated.

Activity levels and unit cost estimation

Across all residents in the study, the NP recorded 1240 contacts during 311 clinics. The total cost per clinic contact of 15 minutes was estimated assuming that all clinic contacts recorded for the same day represented only one trip to that home. The number of clinics held at each home was multiplied by the cost of travel time and the mileage cost per trip added to arrive at the total cost of travel time for holding clinics.[2] The total number of clinic contacts (including patients not in the study, see below) was used to estimate travel costs per contact in each home.

Across the 14 homes in the study (191 patients), between 1 and 18 patients were seen during each clinic (mean = 3.3). Of course, some patients saw the NP for more than one 15-minute contact during one clinic; on average each person received eight clinic contacts over the study period.

A similar approach was taken to estimating home-specific unit costs for the emergency and follow-up visits (n=402 and 525 respectively) using the number of trips made to each home to estimate travel costs. Between 1 and 5 patients (mean = 2) were seen on each of the 452 trips. On average, residents received four emergency contacts and six follow-up visits over the study period. Most people used a combination of each type of contact and only 37 study group members had no contact with the NP.

The total costs associated with the NP contacts with study group members, calculated from the patient-level data amounted to £26,600 over the study period.

Non-patient-related costs

Some residents who originally had not wanted to take advantage of the new NP service or participate in the research did use the open access clinics so 'non-study' patients (n=123) absorbed some 'study time'. These patients received a total of 775 15-minute contacts over the study period. Using the mean unit cost for each type of contact (the home in which they lived was not always recorded) the total cost associated with these visits was calculated at £10,900.

Together NP visits to study and non-study patients cost £37,500 over the study period. Subtracting these costs from the known total service cost gives the cost of the NP service that is not related to the direct care of individual patients: £7,600. This reflects activities such as organising the NP service or administration and liaison; necessary facets of any service. The costs amount to £40 per study member and can be linked to the contact time by dividing £7,600 by the total number of patient contacts made by the NP over the 64-week period; £2.60 per 15-minute contact.

Conclusion

Estimating service-specific bottom-up costs requires a good deal of researcher time. It also requires good quality and detailed data on the both the financial implications of the service and the

[2] For example, 22 clinics *((10 minutes travel time * £0.50) + £1.30).

working practices or output. The clinical database designed for this service proved an invaluable resource for this study of the service's cost implications.

Type of NP contact	Unit cost[1]: £, 1999-2000 prices	
	Mean across all 14 homes	Min. and Max
Clinic contact	£15.36 for 15-minute contact	£12.13 to £19.94 for 15-minute contact
Emergency/follow-up contact	£18.38 for 15-minute contact	£13.52 to £29.45 for 15-minute contact
Admin' or telephone contact	£8.14 for 15-minute contact	--

Notes
1. Includes patient-related costs, and the costs of non patient-related NP activities and NHS Trust overheads.

References

Horrocks, S., Anderson, E. and Salisbury, C. (2002) Systematic review of whether nurse practitioner working in primary care can provide equivalent care to doctors, *British Medical Journal*, 324, 819-823.

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