

Nurse practitioner management of acute in-hours home visit or assessment requests: a pilot study

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ABSTRACT

Background

GPs often perceive home-visit requests as a time-consuming aspect of general practice. The new general medical services contract provides for practices to be relieved of responsibility for home-visits, although there is no model for the transfer of care. One such model could be to employ nurse practitioners to manage such requests. Nurse practitioners can effectively substitute for GPs in managing same-day in-hours emergency care in the surgery, but their role in managing all such requests, including those requiring home visits, has not been assessed.

Aim

To explore the feasibility and clinical management outcomes of nurse practitioner management of same-day care requests, including those requiring home visits, to inform a proposed randomised controlled trial.

Design of study

Non-randomised comparative trial.

Setting

One large general practice (14 600 patients) in south London.

Method

Nurse practitioner assessment and management of all same-day care requests for 2 days per week was compared with normal GP management on another 2 days, over a 6-month period. Clinical management outcome data were collected from patient records and from data-collection forms completed by a nurse practitioner and GPs. Patient and staff satisfaction was assessed by questionnaire.

Results

The nurse practitioner was more likely than GPs to assess patients in person, less likely to give advice alone, and more likely to issue a prescription. There was no significant difference between the nurse practitioner and GPs regarding any other clinical management outcomes or patient satisfaction; however, the response rate of the patient satisfaction questionnaire in this pilot study was poor.

Conclusion

Nurse practitioner management of acute in-hours care requests, including home visits, appears feasible in practice and merits further assessment.

Keywords

house calls; nurse practitioners; primary health care.

INTRODUCTION

Whatever their out-of-hours arrangements may be, GPs in Britain are generally required to manage demands for immediate advice or treatment that occur within normal working hours. For patients presenting as acute 'same-day' or emergency cases to a GP surgery, nurse practitioners appear acceptable to them as a first or only point of contact.^{1,2} Randomised controlled trials suggest that nurses who are solely responsible for the diagnosis and management of these patients achieve equivalent clinical outcomes to GPs,^{3,4} with possibly higher levels of patient satisfaction, although their consultations are longer.⁵ To date, none of these studies has examined the feasibility of nurse practitioners extending their activity to home visits of patients who are acutely ill. Substituting a nurse practitioner to assess these requests, and to perform home visits if necessary, could potentially free up a substantial amount of GP time.

The suggestion that nurse practitioners could manage home-visit requests is not new; Jiwa *et al*, in an analysis of primary care out-of-hours visits, proposed that the nurse's role could realistically be extended from telephone triage to visiting and managing patients.⁵ Few providers have employed nurse practitioners in this way, although in one study emergency care practitioners (emergency medical

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Submitted: 14 February 2008; **Editor's response:** 9 April 2008; **final acceptance:** 1 July 2008.

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This article was originally online first. Cite this article as:
Br J Gen Pract 2009; 59: 7–11. Advance online publication.
DOI: 10.3399/bjgp09X394798

How this fits in

Requests for same-day assessment, particularly at a patient's home, are perceived as a time-consuming aspect of general practice. This study suggests that it is feasible for nurse practitioners to manage such requests, including undertaking home visits, if appropriate. Nurse practitioner management differed from GP care only in terms of nurse practitioners giving a higher proportion of face-to-face contact and having a higher prescription rate.

technicians or paramedics who have undergone a further diploma course) appeared acceptable to patients as providers of out-of-hours emergency home assessment.⁶ Studies involving a wider role of nurses in managing acute illness at home in selected groups of patients, such as older people⁷ or patients recently discharged from hospital,⁸ also indicate that nurses are competent to adopt this role, and appear to value and enjoy it.⁶ However, nurse practitioner management of home-visit requests to GP practices within normal working hours (defined in the new general medical services [GMS] contract as 08:00–18:30) has not formed the subject of a study so far.

The new GMS contract provides for primary care trusts to relieve GPs of the responsibility for in-hours home visits when this is considered 'feasible and desirable'.⁹ However, there is little reported experience of such transfer of responsibility, and little information regarding potential models of care or patients' views of such a change in working. This study examined the feasibility and acceptability of substituting nurse practitioners for GPs to manage in-hours acute same-day assessment requests, including home-visit requests, to inform service development and the design of a future randomised controlled trial.

METHOD

This study was conducted in one large group practice (14 600 patients) in south London. Data collection took place over 6 months from October 2006 to March 2007. The practice's usual procedure is to allocate one GP as a duty doctor for the day, who is solely responsible for responding to patient requests for in-hours urgent or same-day advice or assessment, as well as undertaking some routine administrative tasks. The duty doctor is not allocated any routine pre-booked patients. During the operation of the study, these responsibilities were effectively adopted by a single nurse practitioner who was responsible, on 2 working days each week for 6 months, for responding to in-hours patient requests for immediate assessment, including acute home-visit requests. On the remaining 3 days of the week, such requests were managed by a duty GP, according to the practice's usual procedure. Mondays were excluded from data collection as this day generates a higher workload than

the remaining weekdays, and patients tend to have different presenting symptoms and demography.

Nurse practitioner management (on Tuesdays and Wednesdays) was compared with normal GP management (on Thursdays and Fridays). Patients who had previously been enrolled in the study remained eligible for recruitment again, provided that their new contact did not relate to the same clinical care episode. Contacts that related to a previous episode were coded as a follow-up for that episode.

Adult patients suffering acute minor illness, acute injury, chronic disease (excluding routine management), or an acute exacerbation of chronic disease were included in the study. Those who were excluded were patients under 18 years; those with a presenting complaint of mental illness involving psychosis, suicidal ideation, a risk of harm to self or others, or requiring assessment for detention under a section of the Mental Health Act 1983; those requesting confirmation of death; or those with illness or complications due to pregnancy. These patients were managed by the duty GP in the normal way. These exclusions were deemed, by the study nursing advisers and the nurse practitioner, to fall outside the usual expected competence of a nurse practitioner.

The nurse practitioner was a qualified independent prescriber with 12 years' experience of working in general practice. Upon initial contact (generally by telephone) with a patient who was eligible, the nurse practitioner's available options were to:

- offer telephone advice alone;
- request that the patient attend surgery for nurse or doctor assessment;
- visit the patient at home;
- seek advice from a GP regarding management; or
- deem the problem outside their area of clinical expertise and refer it to a GP.

The nature and outcome of each patient contact was recorded by the GP or nurse practitioner on a data-collection form and supplemented by researchers' scrutiny of the patient's computerised medical record. The nature of each contact (telephone, surgery, home) was recorded, together with the Read code classification of the presenting complaint, whether a physical examination was performed, and the clinical management of the episode.

Patients and/or their carers were asked to complete a questionnaire regarding their experience of the care they had received and were given a stamped addressed envelope for their reply. The questionnaire was either left with the patient by the GP or nurse practitioner at the time of consultation, to be completed later and posted back, or was posted to the patient within 7 days of the initial contact. It

incorporated a validated instrument to assess satisfaction with the consultation experience (the Picker Institute's *GP Questionnaire*),¹⁰ together with measures of patient enablement, continuity, and practitioner empathy (using the Consultation Quality Index).¹¹ Patients whose completed questionnaires had not been received within 2 weeks were sent a second questionnaire.

At the end of the study, practice staff (GPs, practice nurses, district nurses, and administrative staff) were asked to indicate how well they felt that the new arrangement had worked, by marking a linear scale from 'didn't work at all' to 'worked perfectly'. They were also invited to describe their experiences of working with the nurse practitioner.

SPSS statistical analysis software (version 14.0) was used to compare the nature and outcome of GP and nurse practitioner consultations (χ^2) and patient questionnaire scores (analysis of variance.) As a non-randomised pilot study with naturally occurring comparison groups, this investigation was not intended to demonstrate subtle differences between GP and nurse practitioner care, but rather to establish the feasibility and acceptability of the care model and methodology in order to inform a prospective, larger randomised controlled trial.

Patients were not asked to consent to nurse practitioner management. Lewisham ethics committee considered that such management fell within the normal range of services offered by the practice and that separate consent was unnecessary. Any patients who objected to nurse practitioner care would be offered normal care from a GP. Patients were asked to consent to scrutiny of their records by the researchers; they were told their records would be examined in-practice but that no patient-identifiable data would be extracted or retained.

RESULTS

A total of 568 contacts were analysed from 455 patients: 311 contacts were with a GP and 257 with the nurse practitioner. Twice as many contacts involved female patients as males; 22% of contacts were with patients >80 years of age.

There was no significant difference between nurse practitioner and GP consultations regarding patient age or sex. The nurse practitioner was significantly more likely than a GP to issue a prescription (56.9% versus 43.1%, $P<0.001$) and to assess patients in person (58.4% versus 42.4%, $P<0.001$); and the nurse practitioner was less likely to manage contacts by advice alone (42.9% versus 64.5%, $P<0.001$; Table 1). The nurse practitioner sought advice from a GP in 8.6% of cases and asked a GP to see her patient in 0.8% of cases. There was no significant difference between nurse practitioner and GP contacts regarding

rates of home visiting, patient admission to hospital, referral to outpatients, or requests for further investigation (blood tests, urine tests, or X-ray).

Patient questionnaire data revealed no significant difference in any of the dimensions (empathy, patient enablement, communication, or prescribing management) between GP and nurse practitioner management. However, the proportion of questionnaires returned (21.5% overall, or 122 returned of 568 questionnaires issued) was too low to enable firm conclusions to be drawn. There was a significant difference in the response rate of patients, depending on whether they had consulted with a GP or nurse practitioner; 49 (15.75%) GP questionnaires were returned compared with 73 (28.4%) nurse practitioner questionnaires ($P<0.001$). Older participants were more likely to return their questionnaires: 25% of those aged >80 years and 27% of all those aged >50 years returned theirs, compared with 15% of those aged <50 years.

Twenty-nine questionnaires were distributed to practice staff, of which only 16 questionnaires were returned and indicated a score on the linear scale. Staff who did not score the scale reported they had experienced insufficient contact with the nurse practitioner to do so. Half of the responders ($n = 8$) indicated that the arrangement had worked well, of whom five indicated that it had worked perfectly. However, the remainder responded that the arrangement had worked less well, with common concerns including insufficient integration of the nurse practitioner at the beginning of the study, inadequate

Table 1. Questionnaire results ($n = 568$).

	Nurse practitioners		OR (95% CI)	P-value
	n (%)	GPs n (%)		
Managed by telephone alone	107 (41.6)	179 (57.6)	0.77 (0.66 to 0.89)	<0.001
Managed by advice alone	109 (42.9)	202 (64.5)	0.62 (0.52 to 0.75)	<0.001
Total face-to-face contacts	150 (58.4)	132 (42.4)	1.30 (1.12 to 1.52)	0.001
Home visit performed	39 (15.2)	42 (13.5)	1.06 (0.85 to 1.32)	0.610
Seen in surgery	111 (43.2)	90 (28.9)	1.32 (1.11 to 1.57)	0.001
Prescription issued	178 (56.9)	135 (43.1)	1.36 (1.13 to 1.64)	0.001
Admission to hospital	6 (2.4)	12 (3.8)	0.74 (0.38 to 1.43)	0.320
Patient referred for opinion, therapy, or further investigation	33 (12.9)	51 (16.3)	0.89 (0.74 to 1.08)	0.260
	Mean (SD)	Mean (SD)		
CARE score, range 10–50	40 (9.62)	36.4 (9.92)	–	0.054
PEI score, range 0–12	4.0 (3.56)	3.5 (3.82)	–	0.380
Picker communication score, ¹⁰ range 0–600	549 (93.9)	520 (122.7)	–	0.145
Picker medication score, ¹⁰ range 0–400	295 (113.8)	305 (123.3)	–	0.712

CARE = Consultation and Relational Empathy.¹¹ OR = odds ratio.
PEI = Patient Enablement Instrument.¹¹

staff preparation for the initial learning curve as the practice adapted to a new way of working, and, from some GPs, residual anxiety that the nurse practitioner was insufficiently qualified to assess complex medical issues.

DISCUSSION

Summary of main findings

This pilot study suggests that nurse practitioner assessment of same-day general practice care requests, including home-visit requests and undertaking the visit where necessary, appears feasible in practice. The nurse practitioner was more likely to assess patients face-to-face, and to prescribe; no other differences were observed in clinical management outcomes. Although no significant difference was observed in patient satisfaction ratings, the questionnaire response rate was too low to permit firm conclusions in this regard. Nevertheless, no substantial barriers were observed to this method of working, and the findings will help to inform the design of a randomised controlled trial.

Strengths and limitations of the study

This is an account of one nurse practitioner working in one practice with a particular method of accommodating same-day care requests, and the findings might not be generalisable to other practices with different patient populations and ways of working. The activity of one nurse practitioner was compared with the aggregated activity of seven GPs, who are likely to show variability among their own management decisions using telephone assessment.¹² Therefore, the study findings cannot be extrapolated beyond the suggestion that no substantial obstacles to GP substitution by a nurse practitioner were demonstrated.

More patient contacts were recorded by GPs than the nurse practitioner (311 versus 257), due to the inclusion of data from days when the nurse practitioner was absent and her duties were covered by a GP. Employment of a pool of nurse practitioners, and randomisation of patients to nurse practitioner or GP care, should address this in a future larger study.

This pilot study did not examine consultation duration or relative costs of GP and nurse practitioner care. A future larger study would require sufficient resources to compare these parameters and also to allow for independent assessment of patients' clinical management and clinical outcome data.

The response rate of patient questionnaires was poor (21.5%); the reason for this is not clear and, although age and frailty may have been a factor (38% of participants were aged >70 years and 22% were >80 years), older participants actually proved to be better responders. Resources did not permit extensive follow-up of non-responders, other than sending them

a further copy of the questionnaire. A telephone reminder, or the opportunity to complete the questionnaire over the telephone, might be helpful in a future study. Younger participants were poorer responders; it might be appropriate to seek their cooperation more vigorously by using additional techniques such as sending reminders via email or SMS. A larger study might also be able to finance a small reward for completing the questionnaire.

Significantly more questionnaires were returned by patients who saw the nurse practitioner as opposed to the GP, apparently reflecting the finding that the nurse practitioner was more likely to hand questionnaires to patients in person rather than relying on posting them after the contact. Although the tendency of the nurse practitioner to hand over questionnaires in person could conceivably bias her responders towards recording a positive score, the questionnaires were completed later and posted, not completed while the nurse practitioner was present. It appears, however, that the policy of handing over questionnaires in person would be a useful technique to implement in a future trial.

Comparison with existing literature

Although the low questionnaire response rate compromises the validity of the study, there was no indication of patient dissatisfaction with nurse practitioner management. Studies of nurse practitioners seeing same-day patients in practice premises similarly suggest high patient satisfaction scores, generally in excess of those achieved by GPs.^{1,3-4}

These studies did not observe any increase in prescribing from nurse practitioners. The increased prescription rate seen in the present study might reflect the individual practitioner involved, or the fact that the clinical and demographic characteristics of the patients she was seeing in their homes differed from patients studied in a surgery.

Implications for future research

Attitudes of practice staff to the nurse practitioner's role were mixed and uncertainties largely focused on the initial few weeks while practitioners and staff adapted to new working arrangements. Careful integration of nurse practitioner personnel, together with an explanation of their role, will be an important prerequisite for a future study.

Patient questionnaire response rates would need to improve in a future study. The entire questionnaire could be routinely administered face-to-face by a researcher; this would be a more costly measure but would be likely to maximise response rates. Effective management of the response rate in a larger trial will be important if the findings are not to be compromised.

Overall, extending nurse practitioner management to include in-hours home visits potentially offers a practical and feasible means of freeing up GP time for surgery work, while simultaneously removing a source of occupational GP stress. This pilot investigation merits further study in a larger randomised controlled trial, which should also include economic and time analyses as well as clinical outcome data.

Funding body

This study was supported by a Research Priority Scheme grant (grant no. RPS0601) from Southwark Research Support Unit (now the Research and Development Centre)

Ethical approval

Ethical approval was provided by Lewisham Research Ethics Committee (06/Q0701/30)

Competing interests

The authors have stated that there are none

Acknowledgements

Thanks to Picker Institute Europe, Oxford, UK for permission to adopt the *GP Questionnaire*, and to Drs Mercer, Howie, *et al*, for the use of CQI-2. Thanks to study management group members Jeanette Garforth and Julie Dennison for helping the smooth running of this study, and to Professor Alison While for advice on study design. Thanks to Lewisham PCT for acting as sponsor to this trial and to STarNet for initial, and Lewisham Research Unit for subsequent, academic support. Many thanks to the staff and patients of the Jenner Practice for their participation in this study

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