

Training nurse practitioners for general practice

THE EROS PROJECT TEAM

SUMMARY

Background. For nurse practitioners (NPs) in general practice to substitute for general practitioners (GPs) in consultations, their educational needs require specification, and their effectiveness and acceptability to patients must be determined. There is limited evidence in the United Kingdom about training requirements or how NPs compare with GPs.

Aim. To describe the education provided to trainee NPs (TNPs), describe their work, compare their practise with GPs, and determine their acceptability to patients.

Method. Four TNPs were provided with a mainly practice-based education. After one year, TNP diagnoses and management decisions were compared with those of GPs for 586 patients. After being judged competent, TNPs conducted independent consultations. After two years, 400 independent consultations were analysed to describe TNPs' work and reasons for patients contacting the practice again. Opinions of a further 400 patients about their consultation with a TNP or GP, and willingness to consult a TNP in the future, were obtained.

Results. General practitioners and TNPs agreed on 94% of diagnoses and 96% of management decisions made. Early in training, TNPs transferred 38% of patients to the GP, of whom 34% were without a diagnosis and 40% without a management decision. In independent practice, 69% of patients consulting TNPs were female and fewer than 10% were aged over 65 years. TNPs were dealing with a wide range of diagnoses. Immediate referrals to GPs had decreased to 13%. In one-third of consultations, over-the-counter (OTC) medications were suggested and, in 63%, formulary medications were recommended, with prescriptions signed by GPs. Health education featured in 84% of consultations. After two weeks, 29% of patients had returned to the surgery, of whom 72% had been asked to return and 60% consulted about the original condition or its treatment. Eighty per cent of patients completed an opinion questionnaire. While 38% of TNP consulters would have preferred a GP consultation, they rated TNP consultations as good as or better than GPs' consultations. Patients with experience of previous TNP consultations gave the most positive ratings, were more likely to consult a TNP again, and about a wider range of conditions. TNPs' listening skills and explanations were particularly valued.

Conclusions. Early in their training, TNPs made good diagnostic and treatment decisions, while their high level of patient transfers to GPs indicated residual uncertainty. In independent practice, their GP mentors judged them to be offering an effective service, with acceptable transfer and

patient return rates. They were liked by patients and more so by patients with previous TNP experience. TNPs are a valuable substitute for GPs for patients wishing for a same-day consultation, and for younger and female patients who prefer a female TNP over a male GP. Limited authority to prescribe and refer to secondary care reduces NP efficiency.

Keywords: nurse practitioner; general practice; education; consultation skills; patient opinion.

Introduction

It is imperative that ways are found to meet increasing demands on GPs.¹⁻³ One option is for GPs to delegate work to nurses.⁴ This happened with practice nurses,^{5,6} and nurse practitioners (NPs) offer another strategy.

The number of NPs is growing in both secondary and primary care.⁷ Obstacles to their employment include legal restrictions over the tasks they can do, especially with regard to prescribing,⁸ determining their competency,⁹ accreditation,¹⁰ and funding their education.¹¹ Early studies of NPs taking on limited roles have shown them to be acceptable to patients¹²⁻¹⁵ and to practice partners.¹⁴ However, there are no published United Kingdom studies of their clinical effectiveness beyond their training period, or of their cost-effectiveness.¹⁶ This is typical of new roles being introduced when descriptive studies of pioneers are followed by studies of trainees and neophytes.¹⁷

The EROS (extended roles of staff) studies are prospective studies of coordinated training and work of trainee nurse practitioners (TNPs) in general practice. The first two of these studies are described here.

The objectives of this study were to compare TNP and GP decisions in consultations; to describe the characteristics of patients attending independent TNP consultations, activities during consultations, and reasons for repeat visits; to ascertain the acceptability of TNPs to patients; and to assess TNP consultation performance (described in a separate paper¹⁸).

Method

EROS I

Four established training practices in small Northumberland towns, each with an experienced GP willing to act as mentor, were provided with the salary for a full-time TNP and training costs. The TNPs were already working in the practices: three as practice nurses and one as a health visitor. (Fuller study details are available.¹⁹) A common training programme was developed and adapted to suit the learning needs of individual TNPs. During the first 15 months of training, the TNPs and GPs developed management protocols for common conditions; the TNP observed GP consultations, received clinical and consultation skills training, and attended a practical therapeutics course. Educational visits were made to outpatient and special clinics where history taking and examination skills were obtained. Time was available for reading. With the exception of the nurse at 'practice A', all attended a part-time BSc course for NPs.

'Mirrored' consultations began six months into training to assess and obtain feedback about performance. Patients first consulted the TNP and then independently consulted a GP. TNP work, in the main, was to augment the duty GP by seeing

S Bond, BA, MSc, PhD, RN, FRCN, professor of nursing research, Centre for Health Services Research, University of Newcastle, S Beck, RN, HV, BSc, nurse practitioner; and S Derrick, BMedSci, BMBS, DRCOG, DipTher, MRCP, general practitioner, Lintonville Medical Group, Ashington. J Sargeant, RN, BSc, nurse practitioner; and W F Cunningham, MRCP, FRCGP, general practitioner, Corbridge Health Centre, Corbridge. B Healy, RGN, BSc, nurse practitioner; and G Rawes, MBBS, DRCOG, MRCP, general practitioner, Dr Rawes Practice, Blyth Health Centre, Blyth. S Holdsworth, RN, RM, nurse practitioner; and J Lawson, MBBS, DRCOG, MRCP, general practitioner, Wellway Surgery, Morpeth.

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Table 1. Comparison of TNP and GP management (%).

Management	Practice A (n = 160)		Practice B (n = 145)		Practice C (n = 132)		Practice D (n = 149)		Total (n = 586)	
	TNP	GP	TNP	GP	TNP	GP	TNP	GP	TNP	GP
Advice	72	69	84	80	45	40	66	59	68	63
OTC medication	48	80	41	26	17	13	2	4	28	23
BNF medication	44	40	27	35	58	65	38	30	42	48
Referral	5	7	4	6	0	2	6	14	4	8

patients who had urgent or same-day appointments. Patient details, decisions, and activities during the consultation were independently recorded. In addition, the TNP recorded whether she would have transferred the patient to the GP, reasons for doing so, problems encountered, and topics in which skills, knowledge, and experience were required. GPs and TNPs compared records at the end of clinic sessions.

General practitioner/trainee nurse practitioner encounter forms for the last two months of 'mirrored' consultations ($n = 586$) were compared to provide an up-to-date assessment of performance. GP data were taken as the 'gold standard', since patients would have consulted the GP had there been no TNP available.

EROS 2

After 15 months of training, all four TNPs felt confident about conducting independent consultations. The GP mentor provided regular tutorial sessions. Towards the end of the second year of the study, for a consecutive series of 100 patients, TNPs recorded their sex, age, presenting diagnoses, activities, treatment provided, and reasons for referring to GP. The records of these 400 patients were reviewed and reasons noted for those who had contact with the practice within 14 days.

Further samples of 100 patients in each practice who were consulting the TNP or a concurrent GP surgery were asked to complete a one-page opinion questionnaire about the consultation they had just received, and whether they would consult TNPs.

Results

EROS 1

Trainee nurse practitioners' consultations were scheduled at 15-minute intervals. In all practices, more females (63.5%, range = 58.1% to 66.4%) consulted the TNP than males, and more younger patients consulted than older patients (mean age = 31.1 years), with 30% aged less than 16 years and 7.2% aged over 65 years. Patients presented with a wide range of common acute conditions or, much less frequently, acute exacerbations of chronic disorders, for contraception, and pregnancy advice.

In 10% of cases the TNP did not make a diagnosis. In a further 3% there were none to make. TNPs and GPs agreed in 94% of remaining consultations and, in a further 3%, differences were rated as unimportant. In only 3% of diagnoses were differences rated as important. These included examples of when a TNP considered the patient to have backache and GP diagnosed sciatica; TNP diagnosed an allergic reaction in the eye and GP diagnosed blepharitis. In none of the cases was the difference life threatening.

The practices differed widely in their treatment patterns (Table 1), and TNPs were similar to the practice GPs. While TNPs were more likely than GPs to record that they gave the patient some kind of advice, this ranged between less than half to over 80% of consultations. Wide differences were found in the

range of types of medication management. At practices 'B' and 'C', few patients pay for their medication prescriptions, affecting the amount of over-the-counter (OTC) medication advised. But there are also wide variations in the amount of formulary medications being prescribed.

There was also a degree of variation in referrals and tests carried out. Nurses were similar to their GP partners in their decision to do or order a test or X-ray, but GPs made twice as many referrals to secondary care. There was no agreed method for TNPs to refer to secondary care, and all referrals had to be made by GPs.

Trainee nurse practitioners transferred 17% of patients without any management plan. Of those remaining the TNP and GP agreed in 96% of cases. In the 1% of consultations in which GPs rated important differences, these were in prescriptions; for example, TNP prescribed gargle with aspirin while GP prescribed oral Cephalexin; TNP did not prescribe and GP prescribed Chloromycetin eye drops.

In 38% of consultations TNPs indicated that they were unable to decide upon the diagnosis or management and would have transferred the patient to the GP. The rate of TNPs transferring patients to GPs varied between 21% and 56%, with a mean of 38% ($\chi^2 = 49.93$; $P < 0.001$; Table 2). The main reason for two TNPs was uncertainty over diagnosis, while for the other two there was greater uncertainty over management. By law, nurses cannot issue sick notes, and 9% of patients were referred to GPs for this reason. At this time, 5% of patients were asking to be transferred to a GP. GPs rated 6% (range = 0% to 12%) of transfers inappropriate.

EROS 2

Trainee nurse practitioners' consultations remained at 15-minute duration. The patient sample was similar to that in EROS 1, with the majority of patients female (68.9%), one-third aged less than 15 years, and 5.5% aged over 65 years. There was a similarly wide range of presenting diagnoses; upper respiratory tract infections the most frequently recorded (19.3%). Not all of the diagnoses could be classified as minor ailments.

Trainee nurse practitioner reported activities and treatments show wide variations between TNPs in some (Table 3). All TNPs were examining the majority of patients but differed in the frequency of performing other activities and prescribing. Practice 'A' TNP prescribed more OTC medication than her peers and also proposed a high level of British National Formulary (BNF) medications compared with practice 'B'. They also differed in the number of patients to whom advice and health education were provided, although there is likely to be some blurring in the definition of these two categories. A significant effort in health education is reported to be taking place. The TNP for practice 'C', the only health visitor, offered more social advice and information about benefits in this relatively deprived town. A shortage of female GPs meant she was also most likely to see patients with gynaecological problems.

Table 2. Nurses' reasons for transferring patients to GPs (%).

Reasons for transfer	Practice A (n = 52)	Practice B (n = 30)	Practice C (n = 74)	Practice D (n = 69)	Total (n = 225)
Diagnosis	40	67	20	30	34
Management	29	23	51	43	40
Sick note	6	0	4	6	4
GP problem	0	0	10	1	4
Patient request	12	7	1	4	5
Other	4	3	3	13	6
No reason given	9	0	11	1	6
Total	100	100	100	100	100

Table 3. TNP reported consultation activities and treatment (%).

	Practice A (n = 100) ^a	Practice B (n = 100)	Practice C (n = 100)	Practice D (n = 100)	Total (n = 400)
Activity					
Physical examination	95	83	75	78	82.8
Blood pressure	5	9	46	19	19.8
Peak flow	9	18	10	8	11.3
Weight	3	6	17	2	7.0
Bloods	1	–	3	7	2.8
Referral for X-ray	–	–	1	4	1.3
Referral for other hospital procedure	–	–	1	2	0.8
Treatment					
OTC medication	60	28	28	14	32.5
BNF prescription	73	44	72	65	63.5
Give health advice	88	44	82	54	67.0
Health education	85	100	96	54	83.8
Smear or other test	7	2	18	8	8.8
Social advice	2	7	45	4	14.5
Information about benefits	–	4	13	–	4.3

^aTotal to more than 100 since several took place.

Trainee nurse practitioner rates of referral to others varied between 4% and 22%. In total, 15.3% of patients were referred, including 13% to GPs owing to uncertainty about diagnosis: uncertainty over treatment (6%), for a sick note (5%), and one patient who required immediate hospital admission (2%). Most of the patients referred to GPs presented with problems that were not trivial. Eight (2%) patients were referred to a hospital consultant, 4.5% were asked to come back to the practice to have or receive results of tests, for minor surgery, or to see other members of the practice team. TNPs made a point of discussing 11 patients with a GP at a later time, in part for educational purposes.

Within a two-week period, 117 of the 400 patients (29.3%) returned to the surgery. None had received a home visit. Their sex and age distribution was the same as the full sample. Sixty per cent of the return visits were about the original condition, including 10% because treatment was ineffective or causing side-effects. A further 20% consulted about a new condition or a new episode of a pre-existing condition, 10% came for tests or procedures, 4% to receive test results, 1% for a prescription, and in 5% no reason was provided.

Trainee nurse practitioners requested 9% of patients to return to see them, and there were 40 (10%) self-referring patients, of whom 28 (7%) consulted a GP. In this group, two-thirds consulted about the original condition or its treatment. In total, 25 patients, 6.2% of the original sample, returned for a self-initiated appointment about the same condition or its treatment.

Patients' views of TNP and GP consultations

An 80% response rate was obtained from patients attending

either a TNP or GP. The sample of TNPs' responders comprised more females (80% TNP versus 65% GP; $\chi^2 = 16.49$; $P < 0.001$) and were younger, with a higher proportion of the TNP sample in the age groups aged less than 16 (5% versus 2%) and less than 40 years (56% versus 38%) and more of the GP sample in those aged over 41 years (46% versus 30%) and over 65 years (14% versus 9%) ($\chi^2 = 28.05$; $P < 0.0001$). Twenty-five per cent of the TNP sample were consulting about someone else, usually a child, compared with 13% of the GP sample. Appointments were made more than a day in advance by 36.7% of the TNP sample and by 45.6% of the GP sample.

Not all patients had their preference met: 38% of those consulting a TNP would have preferred to see a GP, while none of those consulting a GP would have preferred a TNP. On no aspect of the consultation did TNPs fare less well than GPs (Table 4). These findings were confirmed in logistic regression analyses, taking account of age, sex, and other between practice differences.

We asked patients if they would be willing to consult with a TNP in the future, and compared responses (Table 5) according to whether they had had a previous consultation with a TNP. The large majority of patients (mean = 92%: 97% TNP and 83% GP) were willing to consult with a TNP. Of this number, 40% are willing to consult a TNP about any problem, while 60% would be selective about the problems that they would be prepared to take to a TNP. Patients who are currently consulting with a TNP were much more likely to be prepared to consult a TNP about any problem than patients currently consulting a GP (58% versus 18%). Those consulting a GP were more likely to be willing to consult the TNP about some problems (67% versus 41%) or not

Table 4. Patients' views of consultations with TNPs and GPs.^a

Aspect of consultation	TNP (%)	GP (%)	c ² test	P-value
Sufficient opportunity to discuss health problems	98.0	96.4	1.38	NS
Quality of advice given	81.5	71.1	10.41	<0.01
Treatment offered	75.3	62.1	12.35	<0.001
Time taken to raise general health matters	87.2	73.6	20.12	<0.001
Confidence in skills	81.0	79.5	0.24	NS
The consultation overall	81.3	73.6	5.28	<0.05

^aMost positive category in a 4-point scale.

Table 5. Patients' willingness to consult a TNP (%).

Willingness to consult	Current TNP consultation			Current GP consultation		
	Previous TNP consultation n = 149	No previous TNP consultation n = 144	Total n = 293	Previous TNP consultation n = 170	No previous TNP consultation n = 158	Total n = 328
Yes, for any problem	65.0	51.0	58.0	18.0	18.0	18.0
Yes, for some problems	35.0	48.0	41.0	69.0	66.0	67.0
No	—	1.0	1.0	13.0	16.0	15.0
Total	100	100	100	100	100	100

to consult them at all (15% versus 1%). Patients with a previous TNP consultation, and currently consulting a TNP, were more willing to consult a TNP again about any problem than only some problems or not again.

We found no differences between the TNP who was not attending the BSc course and the three who were doing so in comparison with GPs, referral rates, patient return rates, or patient satisfaction, although the TNP was more likely to conduct physical examinations and prescribe OTC medication.

Discussion

This paper describes two years of NP training and achievements. While comprising only four TNPs, all received a consistent and comprehensive practice-based training focusing on consultation skills. The similarity in TNP performance means that it is not possible to judge the value of attending the NP BSc course in addition to practice-based education.

In EROS 1, the process of patients consulting a TNP and then a GP will have influenced participants' behaviour. Nevertheless, there was no shortage of patients willing to consult a NP, and a wide range of conditions were being encountered; these were not the 'minor illness' surgeries that some NPs service.^{14,15} The high level of agreement reached between TNPs and GPs was reassuring, with no severe problems overlooked or treated harmfully. The tendency was for TNPs to prescribe and refer less than GPs. Without patient outcomes, it is not possible to say more about their effectiveness.

In EROS 2 there was increased efficiency. The transfer rate to GPs was reduced and the return rate to surgery was lower than observed among GPs elsewhere.²⁰ NP efficiency is hindered by having to have sick notes, BNF prescriptions, and hospital referrals countersigned by GPs. These matters need to be addressed if NPs are to increase efficiency.

Patient characteristics reveal that TNPs see a subgroup of those attending GPs. When there is a shortage of female GPs, female NPs provide a useful alternative to a male GP; they enhance patient choice. Providing same-day consultations was a prime objective of employing NPs, yet between one-quarter and one-third of patients consulting a TNP had made an appointment

more than two days in advance, and TNPs were asking some patients to come back for review. Half of the patients in the opinion survey who were consulting a TNP had consulted one previously. Longer term studies will show whether NPs attract particular types of patients, create demands or develop distinctive case loads, and their effects on work allocation within practices.

Although 38% of patients said they would have preferred a GP consultation to one with an NP, they were still very positive about the consultation they had just received and likelihood of consulting a NP again. The fact that those who had experienced a previous TNP consultation were most satisfied and more were willing to consult a TNP again about any problem is encouraging for future NP employment. The large number of consultations in which TNPs reported providing health advice or health education indicates that they may be offering different kinds of consultations to GPs in content¹¹ and style,²¹ with reliance on non-prescriptive approaches to treatment.²² Patients commented on, and particularly welcomed, the time they gave to listening, explaining, and putting them at ease. As one patient said, 'She's moved on from being a nurse but the caring side has stayed.' NPs are hybrids, synthesizing nursing and medical skills. It remains to be seen whether they become more like GPs.

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Address for correspondence

Professor Senga Bond, Centre for Health Services Research, 21 Claremont Place, Newcastle upon Tyne NE2 4AA.