THE COMPLETENESS OF PRESCRIPTIONS ISSUED TO DERMATOLOGY PATIENTS BY NURSE PRESCRIBERS

Molly Courtenay, MSc, PhD, RN: Professor of Prescribing and Medicines Management, University of Reading.

Nicola Carey, MPH, BSc (Hons), RN: Senior Research Fellow, University of Reading,

Short Title: Completeness of Dermatology Prescriptions

Key words: nurse prescribers, prescriptions, dermatology

Address for correspondence: School of Health and Social Care, University of Reading, RG6 1HY. UK. Email: m.courtenay@reading.ac.uk

Acknowledgements

This study was undertaken with the help of a research grant provided by Galderma UK. We would like to thank Dr W. Iain F. Henderson, GP, Hospital Practitioner in Dermatology, Western Infirmary, Glasgow and Mari McEvoy, Lead Nurse Lanarkshire Dermatology Services, Monklands Hospital, Airdrie, for assessing the prescriptions. Finally, we would like to thank the BDNG nurse prescribing sub committee without whose help and support this work would not have been possible and to all those who participated in this research.

ABSTRACT

Aim

The findings reported in this paper explore the prescriptions issued to dermatology patients by Nurse Independent and Nurse Supplementary Prescribers.

Methods

Prescriptions were collected from 10 nurse prescribers. Each nurse formed the focus of a case study, which represented a setting within England in which nurses prescribed medicines for dermatology patients. Case studies were selected from a national survey of NIP/NSP and multiple methods of data collection were employed at each site. The nurse prescriber within each case study was asked to video-tape 5 of their consultations with dermatology patients. All prescriptions given to these patients were independently assessed. Data was collected between June 2006 and September 2007.

Results

Prescriptions were written on the correct documentation, were written legibly in ink, and provided the correct terminology. Specialist nurses were more likely than general practice nurses to provide clear and accurate instructions regarding the frequency, location, and application of topical therapies ($p=0.02$), hand write prescriptions, and prescribe by brand name. Nurses in general practice were more likely to computer generate prescriptions, prescribe generically ($p=0.02$), and provide information about the number of days treatments were required.

Conclusion

Accurate complete prescriptions increase the likelihood that the treatment a patient receives will be successful. The prescriptions issued by nurses for dermatology patients are sometimes incomplete. Omissions differ between general practice and specialist nurses. Although these omissions are minor, and are not in themselves dangerous, they could lead to problems in other aspects of the medication process which could result in patient harm. It is important that mechanisms are in place, such as access to electronic prescribing, monitoring and audit of prescribing, to ensure the quality of prescriptions written by nurses.

INTRODUCTION

Approximately 2.5 million prescriptions are written daily by doctors, 80% of which are written by General Practitioners (Department of Health (DoH) 2004). The increase in chronic diseases, new medicines, and advances in medicine generally, means that each year the volume of prescriptions in the United Kingdom (UK) continues to rise (National Patient Safety Agency (NPSA) 2007). Drug use also increases with age, and approximately 80% of people aged over 75 use prescription medicines, 40 % of whom take four or more medicines each day (Medicines Partnership 2002).

Recent National Health Service (NHS) reforms (DoH) 1999, DoH 2000), emphasize the need to provide services which are both flexible and accessible. Central to these reforms is the prescription of medicines. A number of different groups of healthcare professionals are now able to prescribe. As of 2006, appropriately qualified nurses and pharmacists have had virtually the same independent prescribing rights as doctors and are able to prescribe any licensed medicine and some controlled drugs (DoH 2006). These two groups of healthcare professionals are also able to prescribe any medicine as a supplementary prescriber i.e. in partnership with a doctor and provided that the medicine is listed on the patient's Clinical Management Plan (CMP) (DoH 2003). In 2005, legislative changes enabled the prescription of medicine by optometrists, and allied health professionals (i.e. physiotherapists, radiographers, and podiatrists) under supplementary prescribing. Further changes to legislation in 2007 (DoH 2007), provided appropriately qualified optometrists with independent prescribing rights.

Most medicines are prescribed safely however, it is suggested that the direct costs from medication errors (ME) in NHS hospitals alone are £400-750 million per year (NPSA 2007). ME are recognised as any preventable event, that may cause or lead to inappropriate medication use, or patient harm, while the medication is in the control of the health professional, patient or consumer (DoH 2004). Successful treatment is contingent upon the comprehension of the pharmacist and/or nurse and patient on the instructions and dosage information written on the prescription (Beckman *et al.* 2005). Inadequate information given by the prescriber can result in errors. An accurate drug prescription may be defined as one which tries to maximize effectiveness, minimize risks, minimize costs and respect patient choice (Barber 1995). Accurate and clearly written prescriptions increases the likelihood that the treatment a patient receives will be successful (Winslow *et al.* 1997, NPSA 2007). As 50% of medicines are not taken as intended, it is important that every attempt is made to ensure that prescriptions are written correctly (Medicines Partnership 2002). This includes the full generic title of the medicine, the dose and frequency, the number of days treatment is required, and the quantity of medicine to be supplied, (British National Formulary (BNF) 2008).

Approximately 15% of the population see their General Practitioner for a skin condition each year (DoH 2007). Of the 14,000 nurses qualified to prescribe both as independent and supplementary prescribers, the majority work in general practice and over 70% of these nurses prescribe medicines for skin disease (Courtenay *et al.* 2006a). Given the high numbers of these ‘new prescribers’ who prescribe medicines for dermatology patients, it is important that the prescriptions these nurses write are accurate and complete.

THE STUDY

Aim

The findings reported in this paper explore the prescriptions issued to dermatology patients by Nurse Independent Prescribers (NIPs) and Nurse Supplementary Prescribers (NSPs).

METHODS

Prescriptions were collected from 10 nurse prescribers. Each nurse formed the focus of a case study, which represented a setting within England in which nurses prescribed medicines for dermatology patients. Case studies were selected from a national survey of NIP/NSP.

Multiple methods of data collection were employed at each case study site and included semi-structured interviews with healthcare professionals, video-taped observations of nurse-patient consultations, and patient questionnaires. Findings from the national survey and data collected at case study sites addressed broader study objectives and are reported elsewhere (Courtenay et al 2006a, Courtenay et al 2006b, Carey et al 2007, Courtenay et al 2007). The nurse prescriber at each case study site was asked to video-tape 5 of their consultations with dermatology patients. All prescriptions given to these patients were made anonymous, photocopied, and collected and independently assessed by a dermatology medical consultant and a dermatology nurse consultant using a prescription assessment form. Each assessor rated the various aspects of the prescription using '1' = Safe practice/accurate, '0' = Unsafe practice/omitted. Inter-rater reliability was enhanced by pilot work and discussion between the researchers and the 2 assessors about how to use the tool.

Participants

Nurse prescribers at case study sites included Dermatology Specialist Nurses (DSNs) (n=4) and a Dermatology Nurse Consultant (DNC) (each of whom worked across both primary and secondary care), Practice Nurses (PNs) (n=3) (two practice nurses worked in one site) and Nurse Practitioners (NP) (n=2) (each of whom worked in primary care). Each nurse prescriber was well established in their role and had between 1-4 years experience as a prescriber.

Reliability and Validity

The prescription assessment form was developed from previous research (Britten *et al.* 2003) and the guidelines for prescription writing described in the British National Formulary (BNF) (British Medical Association (BMA) 2008). The form assessed prescriptions for accuracy, legibility, the use of correct terminology, whether medicines were prescribed generically, preparation details (i.e. strength if appropriate), dose, dose frequency, length of treatment and instructions regarding the frequency, location and application of topical treatments.

Ethical approval

The study was approved by the appropriate university and NHS research ethics and research governance committees.

Data Analysis

Microsoft Excel and SPSS version 14 were used for data entry and analysis. Descriptive statistics were used to describe the various aspects of the prescription. Chi-squared (χ^2) tests were used to investigate the relationship between the type of nurse and each aspect of the

prescription. Nurse types included specialist nurses (DSN & DNC) and general practice (GP) nurses (PN & NP).

RESULTS

Prescriptions

Prescriptions written for 35 dermatology patients across the 10 case study sites were collected and assessed. Seventy nine medicines were prescribed i.e. fifty by specialist nurses and 29 by GP nurses. All prescriptions written by specialist nurses were hand written. All prescriptions written by GP nurses (apart from 1) were computer generated. GP nurses predominantly prescribed medicines for patients with minor skin conditions (e.g. fungal infections & impetigo) requiring preparations for topical application. By contrast, specialist nurses generally prescribed medicines for patients with chronic skin conditions (e.g. eczema, psoriasis & acne) requiring both topical and systemic treatments.

Prescribing documentation and generic prescribing

All prescriptions were written on the appropriate documentation i.e. on lilac NIP/NSP prescription pads, computer generated prescription, or, hospital prescription forms. Twenty seven items (77.1%) were prescribed generically (see Table 1) and eight (22.9%), were prescribed by their brand name. There was a difference between type of nurse and whether medicines were prescribed by their brand or generic title. Just over 65% of the items prescribed by specialist nurses were prescribed by their brand name and all items by GP nurses were prescribed generically. This difference was statistically significant ($p=0.02$) (see Table 2).

Drug dosage and duration information

Information regarding drug dosage and duration is presented in Table 1. Over 77% of the items prescribed provided details of the strength of preparations and dosage. Only 34.3% provided information on dose frequency. Information on the number of days that treatments were required was evident in over 50% of the prescriptions. Just over 60% provided information on the quantity of medicine to be supplied.

Instructions for patients

Clear and accurate instructions regarding frequency, location and application of topical treatment were provided on 60% of prescriptions (see Table 1).

Chi squared was used to analyse the relationship between the type of nurse and the provision of instructions. A greater number of specialist nurses as compared to practice nurses provided this information ($p=0.02$) (see Table 2).

DISCUSSION

This is only a small study, that examined the prescriptions of specialist and GP nurses (who worked predominantly in primary care), issued to dermatology patients. However, given that the Government has committed to reducing the incidents of medication errors in prescribed drugs by 40% (DoH 2004), and very little or no research has examined the prescriptions written by nurses, our study provides some useful information.

It is evident from our findings that the prescriptions written by nurses for dermatology patients were reliably issued on an appropriate prescription form, and were written legibly in ink using the correct terminology. Nurses, however, were less consistent in other aspects of

prescription writing, a number of prescriptions being incomplete with regards to information on dose frequency, duration of treatment, and application instructions.

It is evident from the prescription data collected that the **types** of information omitted from prescriptions varied between GP nurses and specialist nurses. Specialist nurses, as compared to GP nurses, were more likely to prescribe medicines using their brand name, provide information on the dose of the medicine, strength of preparations, and instructions on the use of the preparation. However, GP nurses were more likely to prescribe generically and provide details about the quantity of medicine to be supplied.

The use of generic prescribing is encouraged. Generic titles are used in scientific publications, they indicate the class of medication (and so facilitate understanding of how medicines work), and are recognised internationally. However, some patients may develop intolerance to a particular ingredient in a generic medicine and this is a justified reason to change to a different product. Specialist nurses in this study generally prescribed longer term treatments for chronic skin conditions. Some of these long-term treatment e.g. emollients, vary with regards to their constituents, to which in some instances, patients can become sensitive. To avoid this situation, it would be necessary for the prescriber to write the brand name of the product. Additionally, some patients on long-term treatments may never be reassured that a generic medicine is equivalent to their branded alternative, and generic equivalents may vary with regards to frequency of dose or application. In these situations it is more important that a patient takes their medicine and so prescribing a treatment by its brand name is justified. It is also important that the patient receives the same preparation no matter which pharmacy they go to. This will be ensured by prescribing by the brand name. The above may explain the use of brand names on the prescriptions of specialist nurse prescribers.

Practitioners responsible for the management of long-term skin conditions have to help the patient manage their condition during a lifetime, reducing the severity of relapses, and extending the periods of remission. Information and advice represent the most important factors influencing the use of topical medication by these patients (Buchanan 2004). It is evident from our findings that specialist nurses were more likely to provide information on the dose of the medicine, strength of preparations, and instructions on the use of the preparation. This can perhaps be accounted for by the level of knowledge of the specialist nurses in our study and the nature of the chronic conditions in which they were involved in treating.

The lack of instructions provided by general practice nurses is concerning. Although it could be argued that as most of the patients who saw GP nurses did so for minor conditions, requiring one-off treatments, they may have required less detailed instructions about how to use their medicines. However, it is known that patients often forget a large proportion of what has been discussed during a consultation, and frequently rely on the instructions given on the label of the medicine (Beckman *et al.* 2005). It is therefore important that clear and accurate instructions about how to use the medicine are provided on the prescription.

The general practice nurses in our study were more likely to computer generate prescriptions. Computer generated prescriptions prompt the prescriber to select a specific formulation, its dose and quantity. This could explain why the prescriptions of general practice nurses in our study were more likely to include information on the quantity of medicine to be supplied and the generic title. As the specialist nurses in our study worked across both primary and secondary care, but were hospital based, this finding reinforces the need for greater

availability of electronic prescribing in the hospital setting (DoH 2004). This has the potential to improve the completeness of prescriptions issued by specialist nurses and so reduce the likelihood of error. Access to new technologies such as electronic prescribing will also bring additional benefits such as links to prescribing information such as the BNF, alerts to allergies, bar-coding to help reduce patient identification errors, and electronic transmission to the pharmacy to speed up the dispensing process.

Study Limitations

This is only a small study and therefore the results lack generalizability to other settings and therapeutic areas. Three nurse prescribers working in general practice, who saw dermatology patients in their minor illness clinics, found it difficult to record patient consultations and copy prescriptions as it was disruptive to their practice. Only 4 prescriptions were issued and assessed between these 3 nurses. Nurses were aware that their prescriptions would be assessed; it is therefore possible that they were more conscious of the need to ensure that their prescriptions were complete. This may have influenced the prescriptions that were submitted for assessment.

Conclusion

Accurate complete prescriptions increase the likelihood that the treatment a patient receives will be successful. The prescriptions issued by nurses for dermatology patients are sometimes incomplete. Omissions differ between GP and specialist nurses. Although these omissions are minor, and are not in themselves dangerous, they could lead to problems in other aspects of the medication process which could result in patient harm. It is important that mechanisms are in place, such as access to electronic prescribing, monitoring and audit of prescribing, to ensure the quality of prescriptions written by nurses.

Key Points

- Medication errors cost the National Health Service £400-750 million per year
- 16% of medication errors occur during the prescription of medicines
- Accurate well written prescriptions decrease medication errors and increase the likelihood that the treatment a patient receives will be successful
- Nurses prescribing for dermatology patients use the correct documentation, write legibly in ink, and use the correct terminology.
- Specialist nurses are more likely to hand write prescription, prescribe by brand name and provide clear and accurate instructions regarding the frequency, location, and application of topical therapies
- Nurses in general practice are more likely to computer generate prescriptions, prescribe generically and provide information about the number of days treatments are required.
- It is important that mechanisms are in place, such as access to electronic prescribing, monitoring and audit of prescribing practice, to ensure the quality of prescriptions written by nurses.

REFERENCES

- Barber, N. (1995) What constitutes good prescribing? *BMJ*, **310**, 923-925.
- Beckman, A. G. K., Parker, M. G., M, T. (2005) Can elderly people take their medicine? *Patient Education and Counselling*, **59**, 186-191.
- Buchanan, P (2004). 'Prescribing in practice how it works' IN Courtenay, M & Griffiths, M (2004) *Independent and Supplementary Prescribing An Essential Guide*. Cambridge: Cambridge University Press.
- British Medical Association (2008) *British National Formulary*, BMA, the Royal Pharmaceutical Society of Great Britain in association with Community Practitioners' and Health Visitors' Association and the Royal College of Nursing, London.
- Britten, N., Jenkins, L., Barber, N., Bradley, C., Stevenson, F. (2003) Developing a measure for the appropriateness of prescribing in general practice, *Quality and Safety in Health Care*, **12**, 246-250.
- Carey, N., Courtenay, M., Burke, J. (2007) A National Evaluation of Supplementary Nurse Prescribing in Dermatology, *Journal of Clinical Nursing*, **16**, 1230-1237.
- Courtenay, M., Carey, N., Burke, J. (2006a) Preparing Nurses to prescribe medicines for patients with dermatological conditions, *Journal of Advanced Nursing*, **55**, (6), 698-707.
- Courtenay, M., Carey, N., Burke, J. (2006b) Independent extended and supplementary prescribing practice in the UK: A national questionnaire survey, *International Journal of Nursing Studies*, **44** (7), 1093-1011.
- Courtenay, M., Carey, N., Burke, J. (2007) Independent Extended Nurse Prescribing for patients with skin conditions: a national questionnaire survey, *Journal of Clinical Nursing*, **16**, 1247-1255.
- DoH (1999) *Saving Lives: Our Healthier Nation*, Department of Health, London.
- DoH (2000) *The NHS Plan: A Plan for Investment, A plan for reform*, Department of Health, London.
- DoH (2003) *Supplementary Prescribing for Nurses and Pharmacists within the NHS in England*, Department of Health, London.
- DoH (2004) *Building a safer NHS for patients: improving medication safety: A report by the Chief Pharmaceutical Officer*, London, DoH
- DoH (2006) *Medicines Matters A guide to the mechanism for the prescribing, supply and administration of medicines*, DoH, London.
- DoH (2007) *Shifting Care Closer to Home*, London, DoH.
- Medicines Partnership (2002) *Room for Review: A guide to medication review: the agenda for patients, practitioners and managers*, London, Task Force on Medicines Partnership & The National Collaborative Medicines Management Services Programme
- Nursing & Midwifery Council (2006) *Standards of Proficiency for nurse and midwife prescribers*, London, NMC
- National Patient Safety Agency (2007) *Safety in doses: medication safety incident in the NHS: The fourth report from the Patient Safety Observatory*, London, NPSA
- Winslow, E. H., Nestor, V. A., Davidoff, S. K., Thompson, P. G., Borum, J. C. (1997) Legibility and completeness of physicians' handwritten medication orders, *Heart & Lung*, **26**, 158-64.

TABLE 1: Assessment of Prescriptions

	YES		NO	
	%	n	%	n
Dose frequency (in words)	34.3	12	65.7	23
Number of days treatment required	54.3	19	45.7	16
Clear & accurate instructions regarding frequency, location & application of topical treatment.	60.0	21	40.0	14
Quantity to be supplied (in brackets)	62.8	22	37.1	13
Accurate product information (i.e. strength)	77.1	27	22.9	8
Generic prescribing	77.1	27	22.9	8
Dose (in number)	82.8	29	17.2	6
Correct terminology	100	35	0	0
Written legibly in ink	100	35	0	0
Appropriate prescription documentation	100	35	0	0

TABLE 2: Assessment of Prescriptions by type of nurse

	Specialist Nurses				GP Nurses				χ^2 test
	Yes		No		Yes		No		P value
	%	n	%	n	%	n	%	n	
Generic prescribing	65.2	15	34.8	8	100	12	0	0	0.02
Dose (in numbers)	86.9	20	13.1	3	75.0	9	25.0	3	0.37
Accurate product information (i.e. strength)	82.6	19	17.4	4	75.0	9	25.0	3	0.59
Quantity to be supplied (in brackets)	52.2	12	47.8	11	83.3	10	16.7	2	0.07
Clear & accurate instructions regarding frequency, location & application of topical treatment	78.2	18	21.8	5	25.0	3	75.0	9	0.02
Number of days treatment required	52.1	12	47.8	11	58.3	7	41.7	5	0.72
Dose frequency (in words)	34.8	8	65.2	15	33.3	4	66.7	8	0.93

Specialist nurses= 'dermatology specialist nurse' and 'dermatology nurse consultant',
GP nurses = 'practice nurse' and 'nurse practitioner'