PRESCRIPTION WRITING FOR PATIENTS WITH DIABETES: COMPLIANCE WITH GOOD PRACTICE

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

Karen Stenner BSc (Hons): Research Fellow, School of Health and Social Care,
University of Reading

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

Address for correspondence: School of Health and Social Care, University of Reading,
RG6 1HY. UK. email: n.j.carey@reading.ac.uk

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ABSTRACT
AIM

To explore the prescriptions issued to patients with diabetes by nurse independent and nurse supplementary prescribers working in general practice.

METHODS

19 prescriptions were collected and assessed from 4 case-study sites based in general practice between October 2007 and September 2008. Prescriptions were collected from patients with diabetes whose consultations were videoed for the purposes of research.

RESULTS

Prescriptions were consistently issued on an appropriate computer generated prescription form, written legibly in ink, used the correct terminology, generic prescribing and contained an accurate/appropriate product dose and preparation. They were less consistent in stating the number of days, quantity of medicine to be supplied, and providing clear and accurate instructions on frequency and timing of treatment.

CONCLUSION

Nurses in general practice are using computer based repeat prescribing systems to issue prescriptions to patients for the management of diabetes and its common complications, such as hypertension, hyperlipidaemia and cardiovascular disease. Whilst nurse prescribers were generally compliant with good practice in prescription writing, they need to ensure that they include ongoing information with respect to the number of days

of treatment, quantity of medicine to be supplied, and clear and accurate instructions regarding the frequency and timing of medicines.

INTRODUCTION

Diabetes Mellitus, a progressive disease known to affect at least 3% of the population, is often accompanied by long-term complicated co-morbidities, particularly cardiovascular disease, hypertension and hyperlipidaemia (Audit Commission 2000, Healthcare Commission (HCC) 2007). In order to manage this disease combination, long-term multiple medicines are commonly prescribed using repeat prescriptions (Stack et al. 2008).

Repeat prescriptions represent about 80% of the cost and two-thirds of all items prescribed in general practice (Haynes et al. 2002, Richard & Lussier 2006, NPSA 2007). However, the effectiveness of medicines prescribed in this way largely depends on individuals' adherence to the treatment regimen. Evidence suggests that 10-20% of repeat prescriptions never reach a pharmacy (Anderson et al. 2005), and less than 50% of patients are adherent to their medication regimen, which decreases further with multiple chronic conditions (Anderson et al. 2005, Hugtenburg et al. 2005, Williams et al. 2009). Reasons most frequently reported for lack of medication adherence include disagreement about the need for treatment, difficulty managing the schedule of medicines, and not wanting to take all medications (Stack et al. 2008, Williams et al. 2009), perceived effectiveness, side-effects, concern about possible side-effects and inadequate information (Hugtenburg et al. 2005).

The likelihood of medication adherence is increased however, when patients receive accurate, clearly written prescriptions, which include detailed information and instructions on how to take the medicine (Winslow et al. 1997, NPSA 2007). Every attempt should therefore be made to ensure that prescriptions include this information. Although the prescription format may vary slightly between primary and secondary care, a number of agreed core elements should be present (World Health Organization 1994, BMA 2008). This includes the prescribers details (i.e. name, address, telephone number and signature), date, age and date of birth (if <12 years of age), full drug name (preferably generic), dose and frequency, number of days of treatment, and the quantity of medicine to be supplied.

Recent legislative changes (DoH 2002, 2003, 2005, 2006) to the policy surrounding the prescription of medicines have enabled a number of healthcare professionals, including nurses, pharmacists, optometrists, podiatrists and physiotherapists, prescribing rights in the UK; this has effectively provided around 14,000 nurses virtually the same prescribing rights as doctors (NMC 2007). Evidence from a national survey in 2006 suggests that nearly a third of these nurses prescribe for patients with diabetes (Courtenay & Carey 2008b), and that they are predominantly based in general practice (Carey & Courtenay 2007). Examination of the prescribing patterns of these nurses also indicates that the majority frequently prescribe oral hypoglycaemic medication, insulin, antihypertensive and lipid regulating drugs (Carey & Courtenay 2008, Courtenay & Carey 2008c). However, there is no evidence exploring the extent to which nurse prescribers in general practice comply with good practice in prescription writing for patients with diabetes.

THE STUDY

AIM

To explore the prescriptions issued to patients with diabetes by Nurse Independent Prescribers and Nurse Supplementary Prescribers (NISPs) working in general practice.

METHODS

Prescriptions were collected from 4 case study sites based in general practice between October 2007 and September 2008. The full case study involved 9 sites, additional findings of which are reported elsewhere (Carey & Courtenay 2008, Courtenay & Carey 2008b, 2008c, Courtenay et al. 2008). Each nurse was asked to collect prescription data, where issued, from 5 consultations that they video recorded for research purposes. Prescriptions were made anonymous, photocopied, collected and independently assessed, by a community consultant diabetologist and nurse consultant, using a prescription assessment form. Each assessor rated the various aspects of the prescriptions using '1'=safe practice/accurate, '0'=unsafe practice/omitted. Inter-rater reliability was supported by pilot work and discussion between the researchers and two assessors about how to use assessment form.

PARTICIPANTS

Nurse prescribers at each case study site included nurse practitioners (n=3) (two nurses worked in one site) and practice nurses (n=2). Two nurses had between 1 and 2 years prescribing experience whilst 3 nurses had more than 4 years experience.

RELIABILITY AND VALIDITY

The prescription assessment form was developed from previous research (Britten et al. 2003, Courtenay & Carey 2008a) and the guidelines for prescription writing described in the BNF (BMA 2008). The form assessed the following areas: accuracy, legibility, the use of correct terminology, generic prescribing, preparation details (i.e. strength), dose, dose frequency, length of treatment and instructions regarding the frequency and timing of medicines.

ETHICAL APPROVAL

Study approval was granted by NHS and University of Reading research ethics committees and local Research and Development committees.

DATA ANALYSIS

Microsoft Excel and SPSS version 16 were used for data entry and analysis. Descriptive statistics were used to describe the various aspects of the prescription.

RESULTS

Prescriptions

Prescriptions issued for 19 patients with diabetes across 4 case study sites were collected and assessed. Forty seven medicines, i.e. an average of 2.5 items per prescription, were prescribed. All prescriptions were computer generated. The majority were repeat prescriptions issued for the ongoing treatment of diabetes and its common co-morbidities.

Conditions/Products prescribed

Table 1 describes the conditions/products that were prescribed. Nearly 25% (n=11) of prescribed items were for oral anti-diabetic drugs, while 14.9% (n=7) were for hypertension and 12.8% (n=6) lipid regulating drugs. Insulin, monitoring products (for blood/urine glucose, ketones and protein), and a number of other therapeutic areas (i.e. thyroid, depression, and oral contraception) each accounted for nearly 11% of items that were prescribed.

Prescribing documentation

All prescriptions were written on the appropriate documentation, computer generated, and written generically (see Table 2).

Drug Dosage and duration information

Accurate product information (i.e. strength and preparation) was included on all prescriptions (see Table 2). Ninety five percent (n=18) provided information on dose frequency and dosage number. Only 58% (n=11) provided information on the quantity of medicine to be supplied. Just over 10% (n=2) included information on the number of days that treatment was required.

Instructions for patients

Only 36.8% (n=7) provided clear and accurate instructions regarding the timing and frequency of medicines (see Table 2).

DISCUSSION

This study is the first to report on the extent to which nurse prescribers in general practice comply with good practice in prescription writing for patients with diabetes. This is a small study that examined only 19 prescriptions issued by 5 nurses working in general practice to patients with diabetes. Prescriptions were not issued on each consultation, with the result that 9 (rather than 15) prescriptions were issued for three nurses. Additionally, all of the nurses were aware that their prescriptions would be assessed, and this may have altered their behaviour. The results lack generalizability to other settings, such as secondary care, where nurses also prescribe for patients with diabetes. Further research examining the prescriptions issued by nurses working in other settings and a variety of roles, (including diabetes specialist nurses), is therefore required.

In addition to prescribing drugs for diabetes, our findings show nearly 40% of items prescribed were for common complications of diabetes including hypertension, hyperlipidaemia and cardiovascular disease. These findings are in-line with those reported by Courtenay & Carey (2008c) and Carey & Courtenay (2008). Hypertension, hyperlipidaemia and cardiovascular disease were also areas in which nurses in this 2006 national survey reported that they prescribed medicines.

Our findings indicate that the prescriptions written by nurses for patients with diabetes were consistently issued on an appropriate computer generated prescription form, written legibly in ink, used the correct terminology, generic prescribing, and contained an accurate/appropriate product, dose and preparation. There was less evidence of good

practice with regards to stating the number of days and quantity of medicine to be supplied, and providing clear and accurate instructions with respect to the frequency and timing of treatment. Only 2 prescriptions included the number of days treatment, and only 7 prescriptions provided instructions on the timing of the medication, a common omission being the instruction to take Metformin with food.

Guidance on good prescription writing practice (BMA 2008) states that the total duration of treatment or the total number of tablets issued should be written on the prescription. These factors were omitted on the majority of prescriptions. Given that the estimated cost of unwanted and unused medicines is £100 million a year (National Collaborating Centre for Chronic Conditions (NCCCC) 2009), and a lack of information known to affect medication adherence (Hugtenburg et al. 2005, NCCCC 2009), this is an important finding. A possible explanation for these omissions is that the majority of prescriptions were for ongoing medications. It could be reasonably expected that detailed instructions on how to take the medicines had been given on previous prescriptions. Another reasonable explanation is that computer based prescribing, as used by nurses in our study to issue their prescriptions, has evolved rather than been designed and is therefore, subject to local variation. In general repeat prescriptions should be for a maximum of 28 days or single original pack supply. However, in practice there is a need to provide the best balance between patient and practice convenience and the risks of diversion and wastage. Use of computer generated prescriptions allow the prescriber to print and sign prescriptions for the required repeat medication to be dispensed at set instalments, 28 or 56 days, for up to a six month period. Whilst computer generated prescriptions prompt

the prescriber to select the drug, dose, quantity, and provide instructions for use, this can be overridden. It may well be that nurses are prescribing according to local custom or practice and repeat prescribing guidance which indicates that the use of "as directed" or "no directions" may be appropriate for variable dosage regimes such as insulin (World Health Organization 1994).

The assessors commented that patients were verbally informed how to take their medicine, and or were provided with written instructions in their diabetes monitoring diary (Courtenay et al. 2008). However, it is known that patients often forget a large proportion of what has been discussed during the consultation, and frequently rely on instructions given on the label (Beckman et al. 2005). Omitting such details could also make it difficult for pharmacists to understand exactly what is to be dispensed, and for patients to understand when to take their medicine, and adhere to their medication regimen. Recent guidance recommends that this information should be provided on an ongoing basis, particularly when patients have long-term conditions with multiple medications (NCCCC 2009). It is therefore seems important, that nurse prescribers do not make assumptions about patient's ability to understand and remember information they have been given concerning treatment duration and timing of medication. Furthermore, in order to maximise the likelihood that patients will adhere to their medication regimen, it is also important that they ensure each prescription contains adequate information on treatment duration, and clear and accurate instructions about, how and when to use the medicine.

CONCLUSION

Nurses in general practice are using computer based repeat prescribing systems to issue prescriptions to patients for the management of diabetes and its common complications, such as hypertension, hyperlipidaemia and cardiovascular disease. Whilst nurse prescribers were generally compliant with good practice in prescription writing, they frequently did not provide information on the number of days, quantity of medicine to be supplied, or clear and accurate instructions regarding the frequency and timing of medicines. Given that such omissions may contribute to non-adherence of medication regimens, resulting in a lack of improvement or deterioration of health, it is important every effort is made to ensure that all prescriptions include this information.

Key Points

- Repeat prescriptions represent 80% of the cost and two thirds of all items prescribed in general practice
- Good practice in prescription writing increases the likelihood of medication adherence
- Nurses prescribing for patients with diabetes use the correct documentation, write legibly in ink, the correct terminology, generic prescribing and prescribe accurate/appropriate products dose and preparation
- It is important that nurse prescribers make every effort to ensure all prescriptions include information of the number of days, quantity of medicine to be supplied, and clear and accurate instructions about the frequency and timing of medicines

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Table 1: Conditions/products prescribed for patients with diabetes

Conditions/Products	Total items=47	
	Frequency	Percent
Oral anti-diabetic drugs	11	23.4
Hypertension	7	14.9
Lipid regulating drugs	6	12.8
Insulin	5	10.6
Monitoring (glucose, etc.)	5	10.6
Insulin pens, syringes and needles	3	6.4
Cardiovascular disease	2	4.3
Management of micro-albuminuria	1	2.1
Diabetic neuropathy (including erectile dysfunction)	1	2.1
Fungal skin infection	1	2.1
Other therapeutic areas (including thyroid, depression, oral contraception)	5	10.6

Table 2: Assessment of Prescriptions

	YES		NO	
	%	n	%	n
Number of days stated	10.5	2	89.5	17
Clear & accurate instructions re (frequency, and timing of treatment)	36.8	7	63.2	12
Quantity in brackets	57.9	11	42.1	8
Dosage number	94.7	18	5.3	1
Dose frequency in words	94.7	18	5.3	1
appropriate generic prescribing	100	19	0	0
Accurate /appropriate product, dose & preparation	100	19	0	0
correct terminology	100	19	0	0
written legibly in ink	100	19	0	0
uses appropriate prescription / form	100	19	0	0