

## **An evaluation of a Diabetes Specialist Nurse Prescriber on in-patient services**

### **Background**

Concerns have been raised about the quality of care (HCC 2007), and healthcare costs associated with the management of in-patients with diabetes (DH 2008). In-patients with diabetes have reported a number of concerns about their care including a lack of information, insufficient access to diabetes health professionals, doctors and nurses lack of knowledge about diabetes, unnecessary side-effects from medicines, a lack of control over self-management during admission, delayed hospital discharge and prolonged admission as a result of insulin and oral hypoglycaemic (OHA) medication errors (HCC 2007, NPSA 2007).

Nurse prescribing creates an opportunity to improve care for these patients (DH 2006). Whilst it has been reported that nurse prescribing can enhance patient services (Ball 2009), little is known about its effects on diabetes in-patient care. This is important given that increasing numbers of Diabetes Specialist Nurses (DSNs) are qualifying as prescribers (James *et al.* 2009), and the need to improve the diabetes in-patient service.

In order to improve the care in-patients with diabetes received a medicines management intervention (MMI) was developed. The MMI combined key components from the established role of the DSN (i.e. medicines management, education, support and promotion of self-care) (xxxxx & xxxxxxxx 2007), with the relatively new role as a prescriber as it was anticipated that this would improve the process by which in-patients with diabetes received their insulin and OHA medication.

### **Aim**

The aim was to compare in-patients with diabetes who received standard care and an intervention group who had their medicines managed by a DSN prescriber.

## **Methods**

A quasi-experiment was conducted using six wards in a single hospital trust. In-patient care of a convenience sample of patients was evaluated before (n=187) and after (n=265) a DSN prescriber provided a MMI. Prospective data were collected to measure insulin and OHA medication errors and length of stay (LOS). Using a smaller sub-sample of participants, sample 2 (n=56), additional data were collected to evaluate the intervention on self-efficacy, patients information needs, and to determine the types of medicines information important to patients. Data collection methods included documentary evidence, modified retrospective case-record review and questionnaires. SPSS was used for data entry and analysis. A general linear modelling procedure was used to explore which, if any factors, including admission category, age and sex, contributed significantly to explaining the variation in errors and length of stay.

## **Results**

Errors were significantly reduced by more than 50% in the intervention group ( $p < 0.05$ ). The median length of stay was reduced by two days. The total number of errors and LOS were affected by admission category ( $p < 0.001$ ). In the intervention group of sample 2, self-efficacy scores were increased, but the extent to which patient's information needs were met was inconclusive. Participants rated similar categories of medicines information as important.

## **Discussion**

Central to the success of the study was the opportunity the prescribing role created for the DSN to work differently to overcome shortfalls in the diabetes in-patient service. Using new knowledge gained through prescribing, with the ability to work

independently, the DSN was able to make more effective use of existing specialist knowledge and skills to support this new model of care.

Adopting the MMI ensured a consistent approach to care. The DSN prescriber was able to increase patient contact, work with patients on an individual basis, review their medication regime and information needs and encourage patients to self-care. The findings suggest that the DSN prescriber was able to provide care that was less fragmented and more equitable and this resulted in reduced errors, reduced LOS and increased self-efficacy.

Based on the study findings i.e. a median reduction in LOS of two days per patient and a cost per day of £250 (DH 2010), over one year the reduction in LOS is a potential cost saving of £500,000. Significantly, the findings demonstrate that compared to traditional doctor-led models of care, a nurse prescriber can generate similar outcomes with respect to reducing medication errors (Ioannidis & Lau 2001), length of stay (Sampson *et al.* 2006) and increasing self-efficacy (Corbett 2003).

This is the first time the information needs of hospital in-patients with diabetes have been explored. In addition to highlighting the complexity of meeting the information needs of this group of patients, the findings indicate that the types of information patients are interested in does change during the course of a disease.

## **Conclusion**

DSNs have an integral role to play in improving the services in-patients with diabetes receive and prescribing is an increasingly important part of the care they provide. A MMI provided by a DSN prescriber can have a positive effect on patient safety and quality of care in-patients with diabetes receive. This model of care has important implications in terms of maximising resource use and providing a more flexible and

accessible model of service delivery. In order that the contribution of nurse prescribing can be fully realised further evaluation of the intervention is required.

### **Contribution to the field**

Empirical evidence that explores the effects of nurse prescribing on outcome measures and quality of care is lacking. The objective data generated in this study is the first to confirm previous qualitative study reports that nurse prescribing can improve quality of care and patient safety (Courtenay *et al.* 2009, Drennan *et al.* 2009). The findings also support government policy on improving patient safety (NPSA 2007) and the quality of diabetes in-patient care (DH 2003).

The study demonstrated that a MMI provided by a DSN prescriber can produce as high quality care as traditional models of care and achieve similar outcomes. This may help alleviate concerns about nurse prescribers' levels of competence expressed by other healthcare professionals (xxxxx *et al.* 2009, Rana *et al.* 2009 ).

The significant cost savings demonstrated in the study adds to our knowledge and understanding about the benefits of the prescribing role. They also illustrate that a DSN prescriber delivering this intervention provides good value for money. Furthermore, they contribute to the emergent body of evidence exploring the feasibility and effectiveness of service models for this group of patients.

(998 words)

### **References**

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