

The effect on inpatient care of a dedicated diabetes specialist nurse

Julia Pledger

ARTICLE POINTS

1 Inpatients with diabetes account for a substantial fraction of hospital bed occupancy and some report a poor experience of care.

2 There is evidence to support the effectiveness of a diabetes specialist nurse (DSN) dedicated to inpatients in reducing bed occupancy and improving care.

3 In the Bedford Hospital NHS Trust, a DSN was appointed with specific responsibility for inpatients and the effectiveness of the initiative was evaluated.

4 The DSN was associated with a reduced mean length of stay for inpatients with diabetes.

5 This reduction led to reduced bed occupancy rates as well as cost savings.

KEY WORDS

- Inpatients
- Length of stay
- Bed occupancy
- Cost
- Quality of care

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Introduction

Inpatients with diabetes account for a substantial fraction of hospital bed occupancy and some report a poor experience of care (Audit Commission, 2000). In this article, Julia Pledger details the evidence for having a diabetes specialist nurse (DSN) with dedicated time to advise on the care and management of inpatients with diabetes. She then goes on to describe an initiative to employ a DSN with this role in the Bedford Hospital NHS Trust and reports on the evaluation of the first 6 months of the project, in terms of mean length of stay in hospital, bed occupancy figures and cost implications.

The CODE-2 study (Baxter et al, 2000) showed that the annual cost of care in the UK for people with type 2 diabetes makes up at least 4.1% of the entire National Health Service (NHS) spending, which amounts to approximately £1.8 billion. Moreover, patients with diabetes as a co-existing condition occupy one in ten acute hospital beds (Audit Commission, 2000) and account for at least 8.1% of the NHS acute sector costs (King's Fund Policy Institute, 1996). This is a result, in part, of both the increased likelihood of admission and the greater mean length of stay (LOS), irrespective of the primary diagnosis.

Currie et al (1997) suggested that some of the excess LOS may not be due to the greater case complexity seen in diabetes, but instead may be a consequence of unfamiliarity of the non-specialist medical and nursing teams with diabetes management. In such cases, it could be uncertainty regarding the effects or timing of treatment that causes unnecessary delay in discharge.

In addition, the Audit Commission (2000) reported that patients frequently describe poor experiences of inpatient care, particularly in relation to:

- a lack of diabetes knowledge among hospital staff
- inappropriate timings of medication and food

- inadequate information
- delays in discharge resulting from diabetes, particularly when diabetes was not the original reason for admission.

Additional problems were identified by the Audit Commission, and two examples are as follows.

- Nurses were apt to take over the patients' diabetes care entirely: patients were not allowed to self-inject, to undertake their own blood glucose monitoring or to make appropriate adjustments to their treatments.
- Patients' wishes were frequently not explored; nor were they given information about the plan of management.

Service enhancement

As part of Diabetes UK's drive to promote empowerment, the document *What diabetes care to expect* (Diabetes UK, 2003) highlighted the need for better inpatient diabetes care; it stated, for instance, that all patients with diabetes should have access to the diabetes team while in hospital. Possible approaches to improving inpatient diabetes management include link nurses and dedicated inpatient diabetes specialist nurses (DSNs).

Link nurses

This approach involves educating at least one nurse per clinical area to act as a link

nurse, taking the lead in diabetes-related issues and working more closely with the diabetes specialist team. Link nurse systems have been shown to have some limited effect (Burden and Burden, 1993). However, rapid turnover of staff, the complexity of the condition and the lack of a cascade of knowledge to other team members has put into question the idea of link nurses for diabetes.

Dedicated inpatient DSNs

The role of a DSN dedicated to the care of inpatients includes advising on clinical management plans, providing education and acting as a resource to ward staff.

Evidence for a dedicated inpatient DSN

The evidence supporting the effectiveness of a DSN dedicated to inpatients is mounting. Davies et al (2001) conducted a prospective, randomised trial, comparing standard inpatient care with and without the intervention of the DSN service. They found that median LOS was significantly reduced, from 11.0 to 8.0 days ($P<0.01$). In addition, patients in the intervention group were found to be more knowledgeable about their diabetes and were more satisfied with their care.

A second study, carried out by Cavan et al (2001), examined the effect of a routine review of inpatients by a DSN. Again, the results revealed that LOS was reduced by 3 days, both on surgical and medical wards. Importantly, there was no

evidence of any adverse effect of the reduced LOS on readmission rates, use of community resources or patient perception of quality of care.

The evidence on health economics from these studies suggests that for an average district general hospital, about £250 000 per annum can be saved in terms of bed occupancy, through a higher turnover rate.

An effective ward-based DSN should therefore be able to demonstrate operational benefits in terms of both decreased LOS (and thus costs) and increased quality of care.

Preparing for change

It is evident from the standards document of the National Service Framework for diabetes (Department of Health [DoH], 2001) that acute trusts will need to review the systems in place for ensuring that when people with pre-existing diabetes are admitted to hospital, they continue to receive effective diabetes care and are enabled to continue to manage their own diabetes wherever possible. Hospitals will be expected to have in place – and to regularly update and audit – hospital-wide protocols for the management of people with diabetes in all clinical situations, including investigative and operative procedures and admissions for other illnesses (DoH, 2001).

Planned advances towards these changes can thus be seen to be of strategic advantage. With this in mind, it

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- 2 The role of a diabetes specialist nurse (DSN) dedicated to the care of inpatients includes advising on clinical management plans, providing education and acting as a resource to ward staff.
- 3 The evidence supporting the effectiveness of a DSN dedicated to inpatients is mounting.

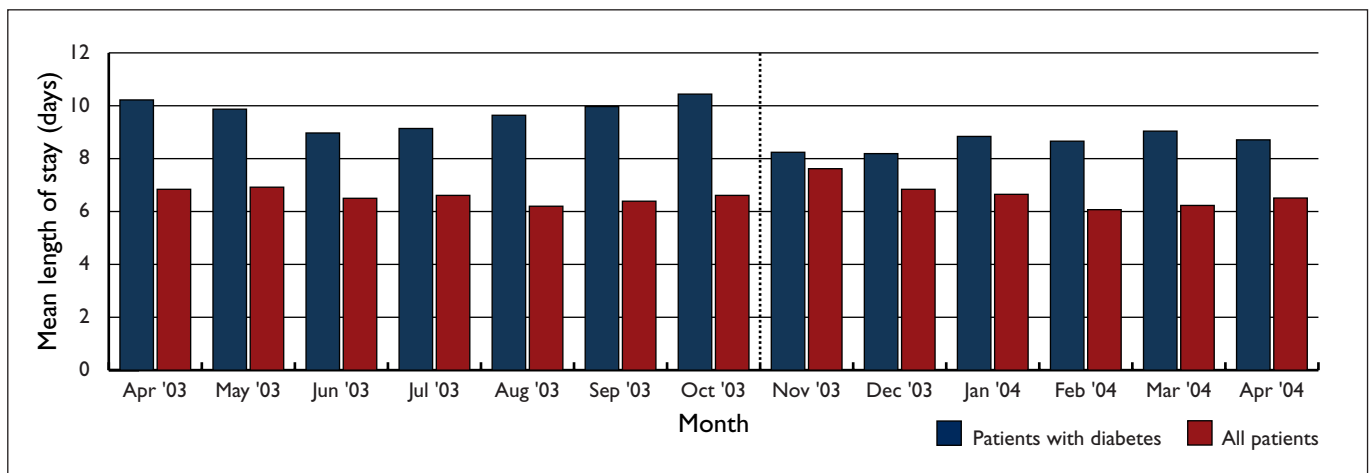


Figure 1. Mean LOS for patients with diabetes and all patients before and after the start of the DSN initiative (dotted line).

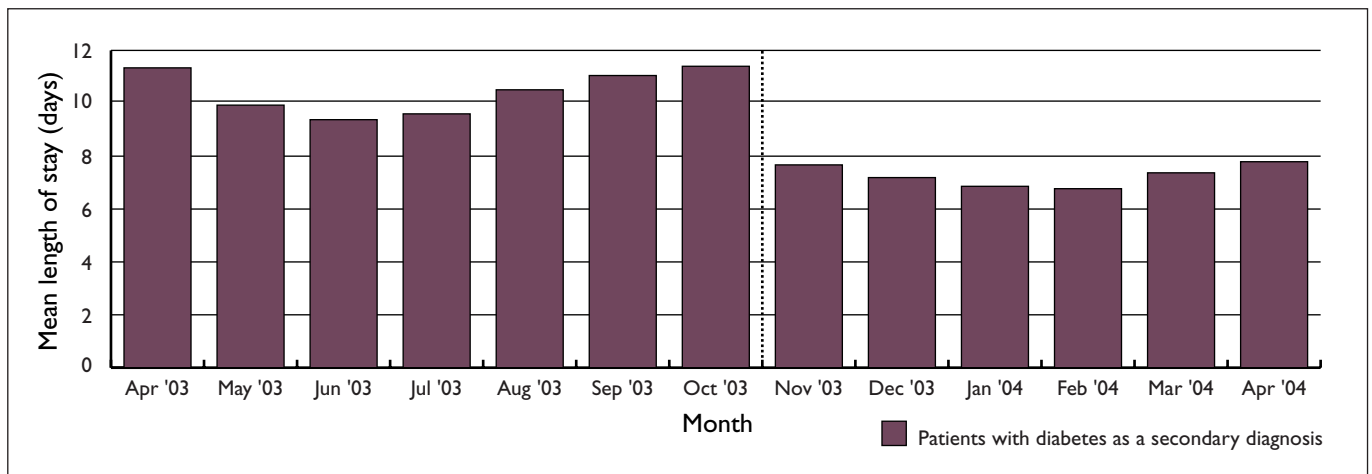


Figure 2. Mean LOS for patients with diabetes as a secondary diagnosis before and after the start of the DSN initiative (dotted line).

was proposed in the Bedford Hospital NHS Trust that a DSN be appointed with specific responsibility for inpatients. The aim was to better meet the needs of this group, making sure that the most appropriate and effective care was offered.

Ward-based DSN initiative

Service provision before the initiative

Bedford Hospital NHS Trust has a consultant-led secondary care service with support from a multidisciplinary team including nurse specialists, dietitians and chiropodists, and it has close links with the ophthalmology department. Prior to the initiative, the specialist team's involvement in the management of inpatients with diabetes was variable and not always based on need. Patients were referred by ward

and medical colleagues to either diabetes nursing or medical staff; some were referred inappropriately, while others were not referred who should have been.

Scope of the initiative

Having a DSN who is specifically ward based would create the opportunity to:

- help promote equitable, consistent and high-quality diabetes care for inpatients
- provide a resource for health professionals
- provide educational updates and training on both an informal and formal basis
- assist in the development of care pathways for people with diabetes while they are inpatients
- help in setting standards, evaluating outcomes and planning future initiatives.

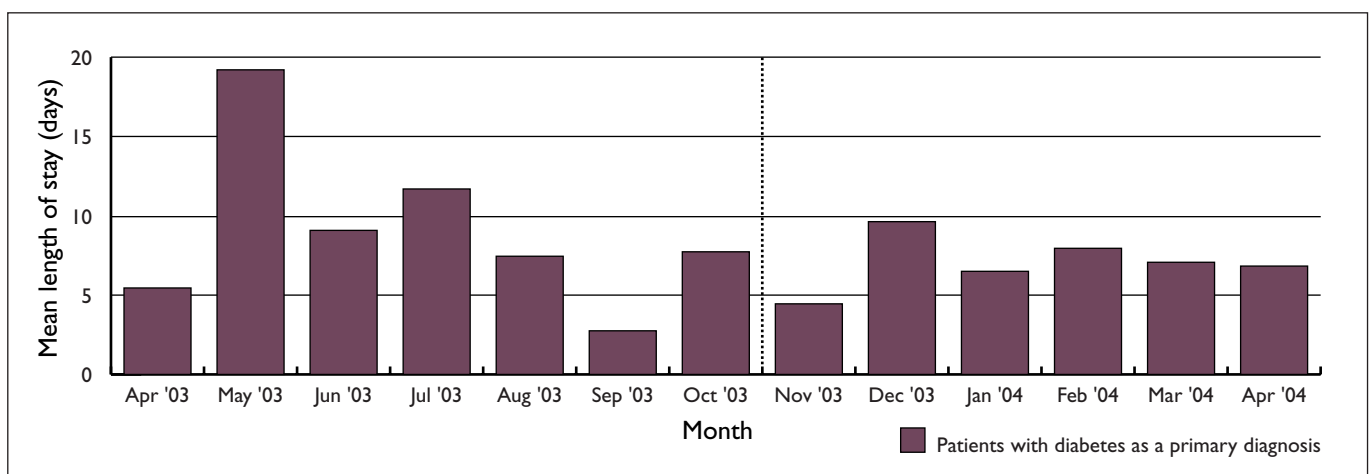


Figure 3. Mean LOS for patients with diabetes as a primary diagnosis before and after the start of the DSN initiative (dotted line).

Anticipated benefits

The ward-based DSN would help to implement best practice and reduce variations in care, offering inpatients with diabetes and health professionals a number of benefits, including:

- a more structured source of support and education for both the person with diabetes and health professionals
- the ensuring of a coordinated and consistent approach to the treatment and management of the condition from the different health professionals involved
- assistance with the promotion of treatment compliance and self-management.

The important role that the ward nurses and junior medical staff play in the care of those with diabetes was recognised within the proposal; however, the clinical expertise and support of the DSN would enhance the effectiveness of the care provided by these health professionals.

Implementation

The project has involved the provision of dedicated care and management by 0.85 whole-time equivalent (WTE) 'G' grade DSNs to people with diabetes while they were in hospital. These DSNs have endeavoured to see all inpatients with diabetes.

The DSN has also acted as a focus for training both ward nurses and junior medical staff, ensuring that appropriate care is given when patients are unable to

care for themselves, and that control is given back to the patient at the appropriate time. This has also provided an excellent opportunity for education for both health professionals and patients.

Project evaluation

The project evaluation (which is ongoing) focuses on the effect on mean LOS for people with diabetes. Mean LOS values have been calculated and a cost analysis has been performed.

Results for LOS are presented from April 2003 to October 2003, before the ward-based DSN initiative had started, and from November 2003 to April 2004, the first 6 months of the initiative.

Length of stay

The findings reveal a substantial reduction in LOS associated with the ward-based DSN for those patients who are identified as having diabetes as a primary or a secondary diagnosis. For the period from April 2003 to October 2003, the mean LOS for those with diabetes was 9.75 days, compared with 8.61 days from November 2003 to April 2004 (Figure 1). This demonstrates a reduction of 1.14 days.

The largest reduction in LOS, though, is seen in those patients who were identified as having diabetes as a secondary diagnosis (Figure 2), which supports previous findings (Currie et al, 1997). The reduction in LOS from 10.4 days to 7.3 days demonstrates that the

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2 The ongoing project evaluation focuses on the effect on mean length of stay (LOS) for people with diabetes.

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4 The largest reduction in LOS is seen in those patients who were identified as having diabetes as a secondary diagnosis.

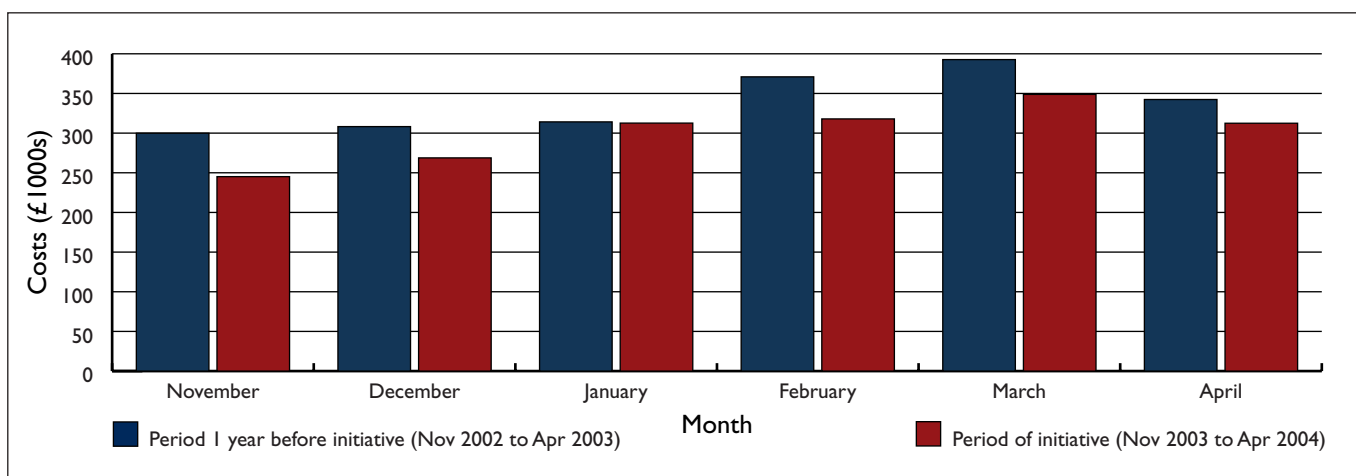


Figure 4. Total costs before and after the start of the DSN initiative.

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1 This initiative has demonstrated large cost savings, amounting to £222 530 for the first 6-month period.

2 It has been proposed that the Trust consider providing ongoing funding for a permanent 1.0 WTE 'G' grade ward-based diabetes specialist nurse.

ward-based DSN can effectively support the care provided by non-specialists. The reduction of 3.1 days is similar to results reported by Davies et al (2001) and Cavan et al (2001).

The mean LOS for those with a primary diagnosis of diabetes (Figure 3) has a greater variance than that for secondary diagnosis. This can be attributed to the relatively small number of patients (ranging from four to 20), which makes the mean more likely to be affected by extremes.

Bed occupancy

The evaluation also examined the numbers of patients with diabetes occupying beds in the acute trust and revealed that, on any given day, 16–17% of beds are occupied by a person with diabetes (70–75 of approximately 450 beds). This figure is much higher than that of the Audit Commission (2000), which estimated 10%.

Cost implications

Previous studies, as discussed above, have shown that an inpatient diabetes nursing service can result in major cost savings. Similarly, this initiative has demonstrated large cost savings (Figure 4), amounting to £222 530 for the first 6-month period (relative to that 6-month period 1 year previously). Costs have been calculated using the 2003–2004 financial year figure of £170 per patient per day.

Conclusion

The World Health Organization (1997) predicted an inexorable rise in the numbers of those with diabetes, estimating that worldwide numbers are set to reach 180 million by the year 2010. De Courten et al (1999) calculated that by 2025 the number of cases will exceed 300 million.

With the rising number of people with diabetes and the inevitable mounting costs, it is imperative that the care and management of inpatients is timely and appropriate. The ward-based DSN project has clearly demonstrated operational benefits in terms of decreased LOS, which has led to significant cost savings.

It has therefore been proposed that the Trust consider providing ongoing funding for a permanent 1.0 WTE 'G' grade ward-based DSN. The outcome is eagerly awaited. ■

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