

Should inpatient DSN numbers be reduced given the NHS cash crisis?

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Article points

1. DSN posts in the NHS are under threat due to the current financial crisis.
2. Reducing length of stay and re-admission rates are a key target in the effort to reduce the financial burden on NHS trusts.
3. DSNs were found to significantly reduce patient length of stay and minimise re-admission of people with diabetes.
4. Ward staff and link nurses cannot provide the same service as DSNs.

Key words

- Length of stay
- Re-admission rates
- DSNs
- Financial crisis

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The overall NHS budget deficit for 2005/2006 was £623 million – almost three times that of the previous year (British Medical Association, 2006). As a consequence, many trusts are implementing radical cost-saving measures to balance their budgets. There has been a strong emphasis on reducing length of stay for inpatients and avoiding unnecessary admissions. Unfortunately these financial pressures also threaten the careers of many healthcare professionals, including DSNs. The authors present three studies that illustrate why keeping the role of the DSN has financial benefits.

Diabetes is a chronic disorder affecting approximately 3% of the UK population and accounts for around 9% of hospital costs (Audit Commission, 2000). Inpatients with diabetes have a longer mean length of stay (LOS), suffer more complications and are more likely to be re-admitted to hospital than those without co-existent diabetes – irrespective of the primary diagnosis (Pickup and Williams, 1991). It is widely believed that suboptimal management of diabetes on general wards may be a contributing factor to these findings (Driskill, 1996).

The authors set out to determine the effect of DSNs on LOS and re-admission rates. Three small studies were carried out in a district general hospital in London; two were designed to assess the effect of input from the DSNs on the LOS of inpatients with co-existent diabetes. The third study evaluated the impact of DSN input on reducing avoidable diabetes-related

emergency admissions. All three are presented in this article.

Study 1: The effect of time to seeing a DSN on LOS

Aim

To evaluate the effect of the time taken to see a DSN on the overall LOS of inpatients with co-existent diabetes.

Method

The diabetes records of people with co-existent diabetes admitted to a ward of any specialty in a 2-month period were reviewed for the dates of admission, review by the DSN and patient discharge.

Results

Twenty-five cases were reviewed. The mean LOS and time to see a DSN were 4 days (range: 1–21 days) and 2 days (range: 0–11 days), respectively.

Page points

1. In some inpatients the delay in seeing a DSN was not preventable.
2. Diabetes control was sometimes overlooked by ward staff.
3. DSN-led daily optimisation of diabetes control of inpatients with co-existent diabetes reduced the LOS by a mean of 5 days.

There was a significant correlation between the time to see a DSN and the LOS ($P < 0.001$; *Figure 1*). There was also a significant correlation between the time to see a DSN and the number of days taken to discharge thereafter ($P = 0.008$).

Conclusions

These data suggest that the sooner an inpatient with co-existent diabetes is reviewed by a DSN the shorter the LOS and the shorter the time taken to discharge will be.

In some inpatients the delay in seeing a DSN was not preventable. The individual may have been too unwell or unstable to be reviewed by a DSN, with acute medical treatment and investigations taking priority. However, in most cases it appeared that not enough attention was placed on the management of their diabetes, especially when admitted to hospital for unrelated causes. As a result, their diabetes control was sometimes overlooked by ward staff, and often only noted just before discharge.

Study 2: Effect of daily input by the DSN on LOS

Aim

To determine whether daily DSN input to optimise diabetes control in inpatients with co-

existent diabetes reduced LOS and re-admission rates.

Method

During a 1-month period randomly selected inpatients with co-existent diabetes on a medical ward were reviewed daily by a DSN to optimise diabetes control while they remained inpatients (group 1). Patients admitted with diabetes-related emergencies were excluded from the study. The LOS and rate of re-admission during the subsequent 6 months were compared with a control group (group 2). The control group was formed of inpatients with co-existent diabetes on the same ward during the same time period who received input from a DSN only at the request of ward staff or physicians who were not randomly selected. The two groups were matched for age. In order to provide the DSNs for the duration of the study outpatient services were kept to a minimum and education programmes were cancelled.

Results

Eleven inpatients with co-existent diabetes were reviewed daily by a DSN to optimise diabetes control throughout their admission. The characteristics of these inpatients and those from the control group ($n = 21$) are detailed in *Table 1*. The mean LOS of inpatients with co-existent diabetes who received daily DSN input versus those that did not were 30 days versus 35 days ($P = 0.649$). The readmission rates were 0% ($n = 0$) versus 5% ($n = 1$). Significance testing on the re-admission data was not possible because of the small numbers.

Conclusions

This study demonstrated that DSN-led daily optimisation of diabetes control of inpatients with co-existent diabetes reduced the LOS, on average, by 5 days. Fifty-five days of inpatient stay were, therefore, saved by DSN input for 11 inpatients which saved the trust approximately £19250 (average inpatient cost [£350] x 11 [patients] x 5 [days saved]). Such input also reduced the rate of re-admission in the following 6 months. The provision of such care, and thus an impact on LOS and re-admission

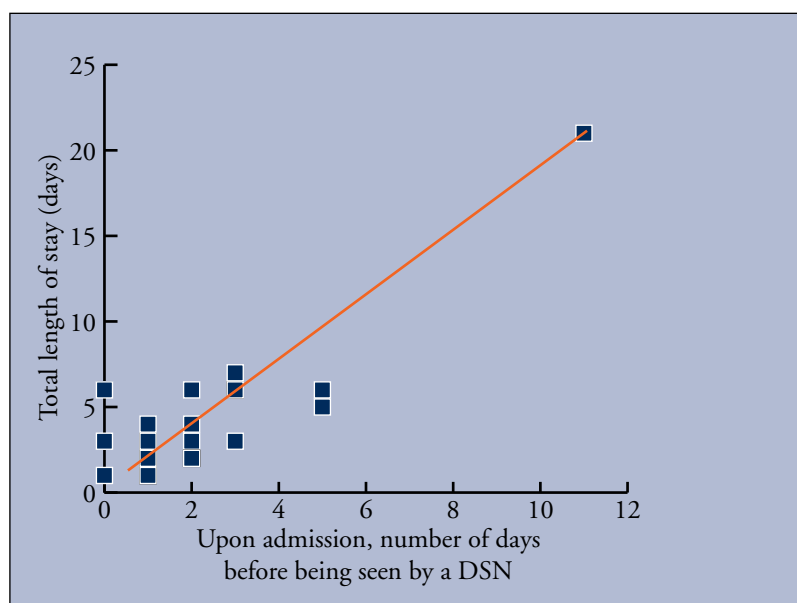


Figure 1. Correlation between delay in seeing a DSN as an inpatient and the overall length of stay.

rates, is threatened by a reduction in DSN numbers. Although the results on LOS were not statistically significant our argument is supported by larger studies that have demonstrated similar, but significant changes (Cavan et al, 2001).

Due to differing focuses in their roles, ward staff and diabetes link nurses do not have the necessary in-depth knowledge of diabetes needed to deliver effective evidence-based care and current best practice. The role of a DSN is far more complex than merely adjustment of diabetes medication. By offering daily advice and adjustment of treatment they were able to prevent undesirable short-term effects of hypo- and hyperglycaemia. It is well documented that tight glycaemic control helps reduce morbidity and mortality in inpatients (Driskill, 1996; Van den Berghe et al, 2006; Wade and Cordingley, 2006) aiding recovery and potentially reducing LOS. One person in the study was re-admitted due to a chest infection.

DSNs also take the opportunity to educate patients regarding diet, insulin injection technique, glucometer checking and foot care. In the authors' experience this is often not performed by ward staff due to the constraints on their time or inadequate training.

Unfortunately, due to the current resource demands on the diabetes centre to provide an outpatient service, inpatients frequently become a second priority. It is not possible for a DSN to review all inpatients with co-existent diabetes daily nor is it current practice, but with additional DSNs this service could be expanded.

Study 3: Effect of DSN support in reducing admissions

Aims

To evaluate the impact of DSN support on preventing unnecessary admissions through the medical assessment unit and the accident and emergency department.

Methods

For a 2-week period DSNs provided a rapid-access support service for the on-call medical team in the medical assessment unit and for staff in the accident and emergency department from 9am–5pm, Monday to Friday. Inpatients who were fit to go home, but would have otherwise been referred to the on-call medical team for control of diabetes, were instead referred to the DSN.

Results

Admission was avoided in four people: one was referred from the accident and emergency department, the rest were seen by the medical assessment unit. Three of the four people required follow-up in an outpatient clinic, the fourth was referred back to his GP. One of the admissions was avoided on a Friday and thus at least three inpatient days were saved with a single intervention.

Conclusions

By adjusting diabetes medications as well as reassuring and offering early follow up, we have shown that at least four admissions were avoided in a 2-week period due to DSN support. This equates to an annual avoidance of 104 admissions which could save around £72 800 (based upon an average of 2 inpatient days saved per admission). The figure for admissions avoided is an underestimate since the service was only available on weekdays and was not available 24 hours a day, hence further financial benefits could be accrued by implementing and expanding this service. There are also additional indirect benefits from this service, for example by seeing these referrals, DSNs allow the on-call medical team to deal more promptly with other admissions.

Discussion

A demand to reduce LOS and avoid unnecessary hospital admissions accompanies any financial crises in

Table 1. Characteristics, length of stay (LOS) and re-admissions in study 2. Group 1 received daily input from a DSN, group 2 did not.

Group	Mean age (range)	Number of males	Mean LOS (range)	Re-admissions
1. Patients with co-existent diabetes that received daily DSN input (n=11)	68 years (58–85 years)	4	30 days (11–52 days)	0
2. Patients with co-existent diabetes that did not receive daily DSN input (n=21)	68 years (50–87 years)	13	35 days (10–80 days)	1

the NHS. As demonstrated in these small studies, early and daily input from DSNs can remarkably reduce LOS for inpatients with co-existent diabetes. DSNs played a pivotal role in reducing avoidable emergency admissions. We estimate that for a hospital with 700 beds, the employment of 2 additional DSNs, to focus on the issues discussed in this paper would result in a net saving of £1 066 385. Our studies, together with many others, demonstrate the cost savings achieved by effective use of DSNs and thus provides strong evidence against a reduction in DSN numbers as a means of achieving financial gains. Our studies, however, are limited by small sample sizes as well as short duration of data collection. Further studies are necessary to more accurately assess the impact of DSNs.

The role of the DSN has evolved over the years. They provide education and support for both people with diabetes and junior medical staff. More recently they have also been able to prescribe.

In 1999 the British Diabetic Association changed its minimum recommendation for DSNs from two per 100 000 to four per 250 000 people (British Diabetic Association, 1999) and this target was not being met by the majority of districts at the last audit (Audit Commission, 2000). As a result of current understaffing, many DSNs feel overwhelmed with their workload. A service that remains uncompromised as a consequence of DSN annual or study leave is a rarity in the NHS.

As a result of the current demand for diabetes centres to provide outpatient services, inpatients frequently become a second priority. While they do provide benefits, educating ward staff

nurses alone is not the solution, particularly as there is a continuous turnover of nurses between wards and hospitals. It is impossible to provide education for every member of staff that needs it and it would probably be at the expense of the time spent with individuals with diabetes.

Our small studies support many others (Koproski et al, 1997; Cavan et al, 2001; Davies et al, 2001) and suggest that, despite current financial pressures, NHS trusts should consider expanding or, at the very least, maintaining the DSN workforce with a diversification of roles. This has the potential to result in additional financial savings which are so desperately being sought in the current NHS climate. ■

Page points

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