

An educator project to improve ward nurses' knowledge of diabetes

Dionne Wamae and Sara Da Costa

Introduction

Concern that inpatients with diabetes were receiving less than optimal care because of lack of knowledge of insulin usage among medical and nursing staff outside the diabetes team led to the creation of the post of diabetes educator at Worthing and Southlands Hospitals NHS Trust. This article describes the development of the post, and a pilot study which demonstrated that a short diabetes educational programme delivered to ward nurses by the diabetes educator was effective in improving their knowledge of insulin treatment and led to positive changes in practice which benefited patients.

An innovative post of diabetes-educator was created at Worthing and Southlands NHS Trust following recognition that lack of knowledge of insulin regimens, types, dosage adjustment and insulin pens among ward nurses was having a negative effect on inpatient diabetes care. In an attempt to resolve the situation a small pilot study (four wards) was undertaken in which a short diabetes education programme was delivered to ward nurses by the diabetes educator.

The structure and process of this programme are discussed, and the outcomes of the pilot study are evaluated.

Background to the project

Worthing and Southlands NHS Trust, a 470-bed general hospital, is situated on the south coast in West Sussex. It has a population of 280 000, of whom approximately 6000 have diabetes.

Our insulin usage is rising yearly, mainly because of our commitment to transfer clients, regardless of age, onto a suitable insulin regimen. Concern that this may lead to an increased frequency of hypoglycaemic episodes in older clients (Barnett, 1995) has not been our experience. This was discussed in a local audit regarding insulin transfer of the older type 2 client (Da Costa, 1997), and is mainly because clients are started on low insulin doses which are then increased slowly in response to patients' individual blood glucose trends (Holman and Turner, 1995).

Although members of the diabetes team have expertise in terms of insulin types, regimens and devices, our hospital and community medical and nursing colleagues understandably vary in their knowledge. Previous research by Drass et al (1989) and Kerr et al (1995) has identified a similar lack of knowledge, while Dolan et al (1987) expressed concern that this knowledge is insufficient for the care of their diabetic clients.

Colleagues have commented on the confusion that arises from too many insulin pens being available, while GPs have pointed out the cost of insulin pens and asked whether that influences our prescribing. Drugs and therapeutics bulletins advocate a simplification of insulin prescribing to enable better understanding and more appropriate usage of insulins.

Although these deficits were acknowledged, two key factors prevented their resolution:

- The DSN team did not have the time to provide the insulin education required
- Waiting lists for insulin transfer were lengthening.

An additional DSN post was required to resolve these issues. While recognising that both medical and nursing staff needed education in this area of practice, a pilot study for ward nurses was agreed, with the understanding that if it was successful the process could be extended to other wards and other community and medical colleagues.

ARTICLE POINTS

1 Ward nurses' lack of knowledge of insulin usage was identified as having a negative effect on inpatient diabetes care.

2 To overcome this, an innovative nurse educator post was created.

3 A short diabetes education programme for ward nurses was devised and evaluated in a small pilot study.

4 Attendance on the education programme was found to correlate with positive changes in practice.

5 The programme is to be extended to community nurses, nurses on other wards and junior medical staff.

KEY WORDS

- Insulin usage
- Education
- Diabetes educator
- Evaluation

Dionne Wamae is Diabetes Educator and Sara Da Costa is Diabetes Nurse Specialist/Project Manager at Worthing and Southlands Hospitals NHS Trust, Worthing.

PAGE POINTS

1 The diabetes educator underwent an induction programme involving insulin therapy, audit and project management before starting the pilot study.

2 She also attended DSN clinics to gain an appreciation of theory applied to practice.

3 The diabetes education programme consisted of three 1-hour sessions.

4 Questionnaires were administered to participants before and after the programme to assess their knowledge of insulin usage.

The full-time educator post was externally funded by a pharmaceutical company. This enabled the company to establish a pilot project in disease management and, through an education programme, improve understanding of the usage of their insulins, regimens and pens by health professionals.

This post also benefited the diabetes team, in that it provided:

- An extra DSN clinic per week, thereby reducing waiting lists
- Extra ward support through ward visits to clients and discussion of appropriate care with their nurses and doctors
- The potential for an improvement in health professional knowledge via the education programme.

As this was a new post which required specific training, an induction programme for the educator involving insulin therapy, audit and project management was developed. The aim of this programme was to enable the educator to increase her knowledge of these aspects of diabetes care, and to establish strategies for educating others.

The educator attended DSN clinics to enable an appreciation of theory applied

to practice. By the end of the seven-week induction programme, she was able to independently manage a DSN clinic. The educator also had regular meetings with other members of the diabetes team (nurses, consultant) to discuss implementation of the project and areas of mutual support and collaboration.

The induction programme lasted 7 weeks, and the pilot study commenced in January 1997.

Method

Four wards at Worthing Hospital were selected at random, as pilot wards to begin the education programme. They comprised two medical wards, one medicine for the elderly ward and a general surgical ward. The programme consisted of three 1-hour sessions. Their content is shown in *Figure 1*.

Questionnaires were administered to staff before the education programme was commenced to assess their current knowledge, and after its completion to assess nurses' development. The rationale for the use of questionnaires to obtain these data is provided by Burden and Burden (1993) who state that questionnaires help nurses to focus on the subject matter and enable the teacher to concentrate on those areas that need special attention.

Following liaison with the ward managers on each of these wards to discuss suitable times and venues for the sessions, all trained nurses on these pilot wards were encouraged to attend. A letter was sent to each nurse informing him/her of the programme content, times and venue.

Quantitative results

Of the 60 trained nurses invited to attend the training sessions, 43 attended the first session and 22 attended the first and second sessions. Only 10 completed the course by attending all three sessions.

Analysis of these attendance rates yielded the following information. Staff generally found it difficult to leave the wards owing to pressure of work and staff shortages. This was despite ward managers agreeing to their attendance, and support from the Director of Nursing. On the day of the session, other issues assumed priority. The timing of the sessions had been discussed

Session one

- Introduction to the diabetes project and rationale
- A confidential questionnaire on insulin therapy
- A brief introduction to types 1 and 2 diabetes mellitus
- The history of insulin and regimens

Session two

- Type 2 diabetes mellitus: when to begin insulin therapy
- Factors affecting insulin absorption, including sites and administration techniques
- Delivery systems

Session three

- Hypoglycaemia/hyperglycaemia: definition; signs and symptoms; action to take; causes
- Scenarios on the use of insulin and regimens
- When to refer to the diabetes nurse specialist
- Repeat confidential questionnaire
- Completion of an evaluation form
- Certificates of attendance given to all those who completed the programme

Figure 1. Content of the diabetes education programme.

during initial meetings with the ward managers, and it had been agreed that early afternoon, between 2pm and 3pm, was the best time. This was the time set for the sessions, but despite this, and because of other issues outlined above, attendance declined.

It is therefore difficult to suggest ways of overcoming these issues, which may be magnified by the small sample size. One solution could be to hold the sessions on the wards instead of in a seminar room. However, this could cause problems for the participants, who would be more easily removed and interrupted.

Declining attendance may well be an expected outcome of this method of education, and one that can only be resolved by giving staff a study day off to attend all three sessions together. However, it is unlikely that this Trust would have supported this arrangement.

Results showed an overall improvement in the nurses' insulin knowledge after completion of the diabetes education programme: before the education programme nurses scored an average of 45% (range 16–70%), whereas after the programme the average score was 78% (range 51–92%).

Examples of improvement in specific areas are given in *Table 1*.

Qualitative results

At the end of the programme, the nurses completed an evaluation form. This asked for comments and examples of how their clinical practice had changed or would change following completion of the diabetes education programme.

The following responses were received:

- Nurses were less likely to over-react to a one-off raised blood glucose level: previously they would have called a doctor and requested a stat dose of insulin. Now they looked instead at the general pattern of blood glucose levels
- DSNs were used more appropriately.
- Nurses recognised and treated hypoglycaemia and hyperglycaemia more effectively
- Nurses' glucose monitoring techniques improved in line with health and safety guidelines
- Nurses' knowledge and confidence in their management of clients with diabetes increased.

Evaluation

If data had been gathered by questionnaires alone, the results would have been limited to quantitative data (Metcalfe, 1983). However, by using evaluation forms and discussing results with staff on their wards

PAGE POINTS

1 Nurses' average score with regard to insulin knowledge improved from 45% before the education programme to 78% after the programme.

2 They were less likely to request a stat dose for a one-off raised blood glucose level.

3 Their glucose monitoring techniques improved in line with health and safety guidelines.

4 They became more confident in managing patients with diabetes.

5 Nurse referral to the DSN was more appropriate.

Table 1. Sample questions and results from the questionnaire

Question 1: Prior to eating meals, how long before should a patient inject insulin (all types excluding Lispro/Humalog)?

Before the education programme, 27% gave the correct answer (30 minutes) on the education questionnaire, whereas in the post-education questionnaire 94% answered correctly.

Question 4: If a patient is unwell (diarrhoea and vomiting) and unable to eat, should he/she still take insulin?

Before the programme 47% answered correctly (yes), whereas after the programme 78% gave the correct answer.

Question 8: Name two insulins that are cloudy in consistency.

Before the education programme 44% could name two and 37% could name one. After the education programme 83% could name two and 11% could name one.

Question 11: At what angle should insulin be injected in most people?

Before the education programme 67% answered correctly (90°), whereas after the programme 100% answered correctly.

Question 21a: How should insulin pens currently being used be stored?

Before the education programme 74% answered correctly (at room temperature); after the programme 94% answered correctly.

PAGE POINTS

1 The diabetes educator continued to visit inpatients throughout the programme to emphasize her dual role as educator and practitioner.

2 More frequent liaison between the diabetes educator and ward staff facilitated positive changes in practice.

3 Patients now receive their insulin at the correct time, as nurses appreciate the importance of timing.

4 Nurses now encourage self-care in their patients by supervising and advising, rather than taking over their care.

Publisher's note: This image is not available in the online version.

(Denzin and Lincoln, 1994), we were able to capture qualitative data which illustrated actual or potential behavioural change. Throughout the teaching programme, the diabetes educator continued to visit inpatients to emphasise her dual role as educator and clinical practitioner.

The following points emerged from observation and discussion with nurses on the wards by the diabetes educator. They demonstrate changes in nurses' behaviour that were facilitated by more frequent liaison between the diabetes educator and ward staff.

- The ward nurses showed more interest in patients with diabetes, questioning why changes were made and making pertinent suggestions
- Nurses made appropriate and prompt referrals
- Patients were receiving their insulin at the correct time as nurses could see the importance of correct timing of injections
- Fewer stat doses were given as nurses were more likely to look for a general pattern of blood glucose levels
- By supervising and advising in preference to taking over their patients' care, nurses encouraged patients to continue to be self-caring.

Conclusions

Our suspicions that there were severe deficits in knowledge of the practical aspects of insulin treatment among ward nurses were confirmed. This simple, short education package had produced

an improvement in nurses' knowledge of insulin usage which addressed everyday aspects of insulin therapy.

Although we cannot claim cause and effect, because of the methodology used, we can identify a correlation between attendance on the education programme and positive changes in practice, albeit subjective.

We have now extended the programme to community health professionals and nurses on the remaining wards, and we are currently using the same programme and process to educate junior medical staff. The outcomes of both of these projects will be evaluated in future articles. ■

Barnett A (1995) Insulin therapy. In: Finucane P, Sinclair A, eds. *Diabetes in Old Age*. John Wiley and Sons, Chichester: 203-19

Burden ML, Burden MC (1993) Education on diabetes for the hospital based nurse. *Practical Diabetes* **10**(4): 153-4

Da Costa S (1997) A co-ordinated approach to insulin transfer in the older type 2 client. *Journal of Diabetes Nursing* **1**(4): 123-6

Denzin NK, Lincoln YS (1994) *A Handbook of Qualitative Research* Sage, California: 99-105

Dolan M, Clarke H, Bulger K, Heffernan A, McKenna TJ (1987) Non-specialist nursing knowledge of diabetes management: assessment and education. *Practical Diabetes* **4**(3): 130-1

Drass J, Muir-Nash J, Boykin P, Turek J, Baker K (1989) Perceived and actual level of knowledge of diabetes mellitus among nurses. *Diabetes Care* **12**(5): 351-6

Holman RR, Turner RC (1995) Insulin therapy in type II diabetes. *Diabetes Research and Clinical Practice* **28** (Suppl): S179-84

Kerr A, White L, Beattie A, Mason C (1995) Diabetes initiatives: community education. *Nursing Standard* **9**(29): 27-8

Metcalfe C (1983) A study of change in the method of organising the delivery of care in a ward of a maternity hospital. In: Wilson-Barnet J, ed. *Nursing Research: Studies in Patient Care* John Wiley, Chichester: 119-40