

# The Wessex Starting Insulin Study: methodology and decision making

Jill Rodgers

## Introduction

During a meeting of diabetes specialist nurses (DSNs) working in the Wessex region in Spring 1996, it became apparent that the methods used to start people with diabetes on insulin varied enormously. The reason for this variation was unclear. However, each individual within the group had confidence in their practice. This three-part series presents a questionnaire study that was conducted to describe the variation in practice between DSNs initiating insulin therapy. Part one outlines the study's aims and design, and presents the results of questions designed to identify the decision makers around initiation of insulin therapy. Part two will examine the practicalities of insulin therapy, and part three the variation in patient follow-up, which emerged from the study.

Studies on insulin therapy have focused on a variety of issues. Comparisons of different insulin regimens, particularly in the treatment of type 2 diabetes, and with the addition of oral hypoglycaemic agents, has been a common theme (Yki-Järvinen et al, 1992; Chow et al, 1995; Clauson et al, 1996; Wolffenbuttel et al, 1996). Some studies have examined the use of pen systems for the delivery of insulin (Dunbar et al, 1994; Chlup et al, 1995), while others have looked at the approach to patient education (Fox, 1995; Pieber et al, 1995).

Diabetes specialist nurse (DSN) involvement in initiation of insulin therapy is often put forward as cost-effective compared with hospital admission for commencement of insulin therapy. However, no published research has yet described the specifics of DSN practice when starting patients on insulin therapy. A study was therefore undertaken to investigate DSN practice in this area of insulin therapy.

### Aim of the study

The aim of the study was to describe in detail:

- Who made the decisions at various stages of initiation of insulin therapy: whether the patient required insulin; when and where insulin therapy was commenced;

and the starting dose and regimen.

- The practical aspects of commencing insulin: the venue for initiation of insulin therapy and why it was chosen; the method of administration and the reason for selecting it; the regimen selected; the type of insulin; and whether oral hypoglycaemic agents were also used in patients with type 2 diabetes.
- Whether patients were given a choice about various aspects of their therapy, and the factors that limited choice.
- Involvement of other health professionals (district and practice nurses)
- The amount of time spent on both face-to-face and telephone follow-up in the first month of insulin therapy.

### Study design

This study prospectively examined the practice of DSNs working in the Wessex region. Information from the Wessex DSN meeting in Spring 1996 was used to develop the pilot questionnaire.

The pilot questionnaire asked about actual rather than perceived practice in starting patients on insulin, and was piloted to 20 DSNs working outside Wessex. The results from the pilot study were then presented at the next Wessex DSN meeting, and areas of ambiguity and those questions not providing

## ARTICLE POINTS

1 DSNs have variable roles in decision making when initiating insulin therapy.

2 Whether a patient requires insulin is a decision that continues to be made by doctors.

3 Decisions about starting doses, regimen and where patients are seen are generally made by DSNs, with some patient involvement.

4 Medical decision making is more marked in paediatric care than in other patient groups.

5 The developing role of the DSN in initiation of insulin therapy requires greater national recognition.

## KEY WORDS

- Insulin therapy
- Starting treatment
- Decision making
- DSN practice

Jill Rodgers is Diabetes Specialist Nurse, Primary Care, at Queen Alexandra Hospital, Portsmouth

**PAGE POINTS**

**1** The questionnaire was sent to 22 DSN bases.

**2** DSNs were asked to complete the questionnaire for the next 10 patients started on insulin at their base.

**3** Completed questionnaires were received for 111 patients, giving an overall response rate of 51%.

**4** The response rate varied considerably between bases.

**5** The response rate from individual bases did not appear to be related to the number of DSNs working at the base.

useful information were amended. Also, the format was changed to provide a single questionnaire for each patient, to allow the questionnaires to be kept with individual patient's notes.

A selection of answers was provided with each question, based on the responses from the pilot study. These included the option of adding other answers if the choice provided was inadequate. For example, potential answers to the question 'Who made the recommendation to start the patient on insulin?' were:

- Consultant
- GP
- Outpatient doctor
- Doctor on ward
- DSN
- Other (please state).

A summary of the questionnaire content is shown in *Table 1*. The questionnaire was sent to each DSN base within Wessex, with a letter asking DSNs to photocopy the questionnaire and complete it for the next 10 patients started on insulin by DSNs at their base. The questionnaire was sent to 22 addresses, giving a potential 220 replies. A total of 111 completed questionnaires were returned, giving a response rate of 50.5%.

A full 10 replies were returned from only four addresses; between one and nine questionnaires were returned from nine

addresses; and no replies were received from the remaining nine addresses.

Some of the addresses related to a single DSN, whereas others related to diabetes centres where as many as five DSNs were based, but there did not appear to be any correlation between the number of potential DSN respondents and the number of replies received. It was unclear whether those replying had been involved in the initial informal discussions.

**Decision-making results**

Seventy-five per cent of DSNs completing the questionnaire had been in post for more than 2 years.

The categories of patients studied were as follows:

- 27 children with diabetes
- 13 adults with type 1 diabetes
- 67 adults with type 2 diabetes converting to insulin
- 3 people with gestational diabetes
- 1 person with steroid-induced diabetes.

As there was a large variation in the numbers in each group, and potentially different practice with different groups of patients, the results were analysed according to the three main groups: children; adults with type 1 diabetes; and people with type 2 diabetes. The number of people in the groups with gestational and steroid-induced diabetes were

**Table 1. Summary of the content of the questionnaire**

Questions 1–2	Years that the DSN had been in post, and diabetes classification of patient
Questions 3–7 and	Decision makers: whether insulin was required, when to start, starting dose, regimen, where patient was seen
Questions 8–18 was insulin and starting continued in	Practical aspects: administration of first injection, method of administration and why it chosen, regimen chosen, whether mixing of insulins was required, type of dose, whether dose was changed in the first 2 weeks, and whether tablets were con-patients with type 2 diabetes
Questions 19–20	Patient choice, and factors governing this
Questions 21–23	Involvement of district and practice nurses in patient follow-up
Questions 24–29 therapy	Number of contacts: time spent with patients in the first week and month of insulin
Question 30	Any specific comments/variation from usual practice

too small to produce any potentially generalisable results.

This article reports the results of the first section of the questionnaire, i.e. who are the decision makers when initiating insulin therapy. The main results of the questions about decision making are summarised in Table 2.

The results show that, in paediatric care, most of the decisions were either made by doctors or dictated by protocols. It is likely that the protocols referred to by respondents had input from the local medical staff, implying that doctors were the major decision makers in almost all aspects of initiation of insulin therapy in children. It is only when the insulin dose is altered that the DSN, and also the parent, became involved in the decision making.

For adults with type 1 diabetes, the doctor was the major decision maker in two areas: whether the patient needed insulin, and the starting dose. DSN involvement in these cases was much greater at an early stage of insulin therapy: the DSN was involved in the decision about when insulin should be started in 61% of all cases, some of which also involved the patient. Similar figures were seen for the decision as to which insulin regimen to use, and the DSNs were major decision makers regarding the location used for the first injection.

In adults with type 2 diabetes, doctors were again heavily involved in the initial decision as to whether insulin was required, but had much less involvement with this group than with any other

**PAGE POINTS**

**1** In paediatric care, most of the decisions were made by doctors or by protocols.

**2** The DSN, and the parent, only became involved when the insulin dose was altered.

**3** In contrast, in adults with type 2 diabetes, DSNs, either alone or with the patient, were involved in over half of almost all decisions.

**Table 2. Who made the decisions regarding insulin therapy?**

	<b>Children with diabetes (n = 27)</b>	<b>Adults with type 1 diabetes (n = 13)</b>	<b>Adults with type 2 diabetes (n = 67)</b>
<b>Whether patient needed insulin</b>	Dr 27 (100%)	Dr 10 (77%) DSN 2 (15%)	Dr 49 (73%) DSN 10 (15%) Dr/DSN 6 (9%)
<b>When insulin should be started</b>	Dr 27 (100%)	Dr 3 (23%) DSN 5 (38%) DSN/patient 3 (23%) Patient 1 (7.5%)	Dr 11 (16%) DSN 30 (45%) DSN/patient 18 (27%)
<b>Starting dose</b>	Dr 16 (60%) Protocol 11 (40%)	Dr 7 (54%) DSN 4 (31%) Dr/DSN 2 (15%)	Dr 19 (28%) DSN 42 (63%) Dr/DSN 5 (7.5%) DSN/patient 1 (1.5%)
<b>Regimen to be used</b>	Dr 10 (37%) Protocol 17 (63%)	Dr 4 (31%) DSN 5 (38%) DSN/patient 3 (23%) Patient 1 (7.5%)	Dr 13 (20%) DSN 21 (31%) DSN/patient 11 (16%) Patient 7 (11%)
<b>Location for the first injection</b>	Dr 27 (100%)	Dr 4 (33%) DSN 6 (46%) DSN/patient 1 (7.5%) Patient 1 (7.5%)	Dr 2 (3%) DSN 43 (65%) DSN/patient 12 (18%) Patient 7 (11%)
<b>Alteration of dose</b>	Dr 7 (27%) DSN 6 (23%) DSN/Cons 2 (7.5%) DSN/parent 8 (31%)	Dr 0 (0%) DSN 7 (54%) DSN/patient 3 (23%) Patient 2 (15%)	Dr 2 (3%) DSN 47 (72%) DSN/patient 5 (7.5%) Patient 7 (11%)

**PAGE POINTS**

- 1** Limitations of the study mean that the results cannot be extrapolated to all DSN practice.
- 2** As 75% of respondents had been in post for more than 2 years, results probably reflect the common practice of experienced DSNs.
- 3** Results suggest that there are clear roles for both doctors and DSNs in initiation of insulin therapy.
- 4** DSNs need to ensure that their practice does not put patients at risk and that it meets legal requirements.
- 5** Prescribing under group protocols seems the most logical way forward at present.

group, regarding the remaining decisions. DSNs, either alone or with the patient, were involved in over 50% of almost all decisions.

**Discussion**

This study had a number of limitations:

- Although the overall response rate was 50%, the variation in response rate between centres means that the results cannot be seen as truly representative of practice within Wessex.
- It may be inappropriate to group doctors under a single heading, as there are different areas of decision making where either consultants or GPs may be involved, and more detailed categorisation may yield more useful information.
- The questionnaires were completed by DSNs, and thus no account was taken of patients in whom insulin was initiated by community nurses.
- The number of patients in each category was too small (e.g. the category 'adults with type 1 diabetes' had only 13 patients) for the results to be extrapolated to all DSN practice.

Despite these limitations, however, some conclusions can be reached.

**Conclusions**

As 75% of the questionnaires were completed by DSNs who had been in post for more than 2 years, it is likely that the results reflect the common practice of experienced DSNs.

The results suggest that there are clear roles for both doctors and DSNs in initiating insulin therapy, and that decisions are made by one or the other (or both) as appropriate.

The legalities of prescribing, which are currently under review, need to reflect common practice in insulin therapy, and DSNs need to ensure not only that their

practice does not put their patients at risk, but also that it meets legal requirements as far as possible.

Prescribing under group protocols, as recommended by the recent Crown Report (Department of Health, 1998), which hopefully will be acted upon, seems the most logical way forward until radical legal changes recognise the vital role that professionals such as DSNs play in prescribing for people with diabetes.

Two other major areas of this study, i.e. the practicalities of insulin therapy (which insulin, regimen, dose etc. was used and why) and the follow-up that patients received, will be examined in parts two and three of this series respectively. ■

Chlup R, Janu K, Venháčová J, Bartek J (1995) Six models of a new insulin pen (MADI): description and first clinical trial. *Practical Diabetes International* **12**: 32-5

Chow C-C, Tsang LWW, Sorensen JP, Cockram CS (1995) Comparison of insulin with or without continuation of oral hypoglycaemic agents in the treatment of secondary failure in NIDDM patients. *Diabetes Care* **18**: 307-14

Clauson P, Karlander S, Steen L, Efendic S (1996) Daytime glibenclamide and bedtime NPH insulin compared to intensive insulin treatment in secondary sulphonylurea failure: a 1-year follow-up. *Diabetic Medicine* **13**: 471-7

Department of Health (1998) *Review of Prescribing, Supply and Administration of Medicines: A Report on the Supply and Administration of Medicines under Group Protocols*. Department of Health, London

Dunbar JM, Madden PM, Gleeson DT, Fiad TM, McKenna TJ (1994) Premixed insulin preparations in pen syringes maintain glycaemic control and are preferred by patients. *Diabetes Care* **17**: 874-8

Fox C (1995) The insulin-dependent patient: perceptions and preferences. *Diabetic Medicine* **12**: 344-8

Pieber TR, Brunner GA, Schnedl WJ, Schattenberg S, Kaufmann P, Krejs GJ (1995) Evaluation of a structured outpatient group education program for intensive insulin therapy. *Diabetes Care* **18**: 625-30

Wolffenbittel BHR, Sels J-P, Rondas-Colbers G, Menheere P, Kruseman ACN (1996) Comparison of different insulin regimens in elderly patients with NIDDM. *Diabetes Care* **19**: 1326-32

Yki-Järvinen H, Kauppila M, Kujansuu E et al (1992) Comparison of insulin regimens in patients with non-insulin-dependent diabetes mellitus. *New England Journal of Medicine* **327**: 1426-33

**The Wessex Starting Insulin Study:  
Parts 2 and 3**

**Part 2** in the next issue of the journal will examine the practicalities of insulin therapy.

**Part 3** in the issue after will look at the variation in patient follow-up which emerged from the study