‘Getting there’: the impact of structured insulin management education in a high ethnic mix population with type 1 and type 2 diabetes

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Abstract
Structured education programmes support and enable people with diabetes to develop self-management skills. Insulin management central to DAFNE is restricted to those with type 1 diabetes of at least six months’ duration and on multiple dose regimens. DESMOND is available for all with type 2 diabetes but does not include guidance on how to self-manage diabetes with insulin.

Our aims were to develop an education programme for people with type 1 or 2 diabetes already on insulin and who may be using a variety of insulin regimens, to enable effective self-management, improve confidence, reduce hypoglycaemia and enable peer group support.

An evidence-based curriculum, developed in line with NICE principles, was piloted. This consisted of three half-day sessions held during a one-month period with up to 10 participants and supporters invited to attend. Four further programmes were held; education was tailored to the individual needs of groups and verbal evaluation was undertaken. Anonymised patient satisfaction questionnaires were posted at programme completion. Audit included clinical data, demographics, patient satisfaction and health care professional assessment of content.

There were 40 participants over five courses; 20% (n=8) were type 1, 68% (n=27) were male, average age was 58 years (range 35–82 years), and 55% were South Asian (n=22). In 38 of 40 participants where a recorded pre- and three months post-intervention was available, an average HbA1c reduction of 1.18% was achieved — I.e. 9.02% reduced to 7.84% (75.1 mmol/mol reduced to 62.2 mmol/mol). Twenty-five participants (62.5%) returned the survey form: 96% (24/25) said diabetes control improved, and all felt more confident to adjust insulin; 96% (23/24) felt more confident to treat ‘hypos’ (one stated ‘hypos’ had not reduced) and 96% (24/25) felt they learned more by attending the programme.

This programme met participants’ individual needs, increased confidence in insulin management and improved glycaemic control in a high ethnic mix population. Copyright © 2014 John Wiley & Sons.

Key words
type 1 and type 2 diabetes; insulin management; group education; high ethnic mix population

Introduction
Education is considered to be a fundamental part of diabetes care.1 People with diabetes, whether they are using insulin or other means of achieving glycaemic control, have to assume responsibility for the day-to-day control of their condition.2 It is therefore critical that they understand the condition and know how to treat it, whether this is through an appreciation of the basis of insulin replacement therapy and its optimal use, or through lifestyle management, including nutrition and physical activity. The aim of education for people with diabetes is to improve their knowledge and skills, enabling them to take control of their own condition and to integrate self-management into their daily lives.

The ultimate goal of education is improvement in the following areas:
- Control of vascular risk factors, including blood glucose, blood lipids and blood pressure.
- Management of diabetes-associated complications, if and when they develop.
- Quality of life.2

Diabetes UK advocates that all people with diabetes, whether recently diagnosed or those with pre-existing diabetes should receive the structured education and support they need to enable them to manage their own diabetes.3 Education can be delivered as one-to-one interventions, or in group sessions which have been assessed as being more cost effective.3

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DAFNE (Dose Adjustment For Normal Eating) is a structured programme that provides education around insulin management for people with type 1 diabetes on a basal bolus regimen. DESMOND (Diabetes Education and Self Management for Ongoing and Newly Diagnosed) is a structured education programme for people with type 2 diabetes and as yet does not focus on insulin management. Both DAFNE and DESMOND are delivered locally across Leicestershire. Prior to 2010 there was no formal insulin management programme available nationally or locally for people with type 2 diabetes or type 1 diabetes for whom DAFNE was unsuitable. In view of this and NICE guidance, a structured education package for people with type 1 and type 2 diabetes alike was developed to meet this need.

**Aim**

The aim of the ‘Getting there’ programme was to:

- Increase existing insulin users' confidence to be able to safely adjust their own insulin doses around their lifestyle.
- Risk reduction and management of hypoglycaemia.
- Improve glycaemic control as measured by HbA1c.
- Promote the safe use of insulin.
- Enable peer group networking.
- Encourage participants to create their own individual action plan.

**Method**

**Developing the ‘Getting there’ programme**

This patient-centred programme was based on NICE recommendations for structured education and included:

- A structured written curriculum.
- An evidenced-based curriculum.
- Use of trained and competent educators.
- Quality assurance.
- Regular audit.

Experienced diabetes educators, including diabetes specialist nurses and diabetes specialist dietitians, developed the curriculum tailored to the needs of the individuals expected to access the course. All the educators had received cultural awareness training. As each course was delivered, patient comment was reviewed and the course content evaluated. Minor changes were made to meet the needs of the participants on each individual programme. HbA1c was recorded prior to acceptance on the course and three months following course completion.

The complete programme consisted of three sessions, each lasting 4 hours and these were delivered by an experienced diabetes specialist nurse and a diabetes specialist dietician. The curriculum followed adult learning principles which encourage the participants to fully engage and learn from their peers. The course content incorporated a variety of learning tools to encourage group interaction. These included practical sessions using food models (which incorporated examples from food groups traditionally used in the ethnic minority populations), problem-solving worksheets, and review of participants’ own blood glucose profiles, as well as theoretical sessions. Fictional scenarios used to help the group learn to problem solve needed to reflect the group and take into account the cultural needs of some of the participants. The case studies were chosen to reflect the group’s needs. For example, in order to meet the needs of the participants who regularly fast, a ‘fasting scenario’ would be included.

**Recruitment**

Participants were recruited to the ‘Getting there’ programme through the Intermediate Care Diabetes Service (ICDS). This is a community diabetes service run by diabetes specialist nurses. The referral inclusion criteria for the ‘Getting there’ programme included:

- People with type 1 or type 2 diabetes on any insulin therapy ± other diabetes medication.
- People on any type of insulin regimen from once-daily to pre-mixed insulin to basal bolus regimens.
- Patients using any strength of insulin (U 100 or U 500 strength insulin).
- Individuals able to speak and understand English.

Eligible participants were encouraged to attend the programme as part of their routine care. Relatives and carers were also welcomed onto the course. Courses were delivered on one hospital site with good bus routes and ample parking to increase ease of access.

**Programme evaluation**

Health care professionals delivering the programme held a separate feedback session after each session and at the end of the course to further refine the course.

A combination of patient information including demographics, clinical data and patient evaluation was collected after each completed programme. Patient evaluation was identified as being very important; to keep this process as open as possible we reviewed themes and looked at each evaluation form separately during the analysis process. Verbal patient feedback took place at the end of each session, and written feedback using a patient evaluation form was posted to each participant and evaluated at the end of the first four completed courses.

**Session content**

The course was designed to up-skill participants in insulin dose adjustment around diet and lifestyle. In particular, the programme focuses participants on six key areas:

- Understanding insulin action.
- Monitoring and interpreting blood glucose results.
- Understanding the influence of food and activity on blood glucose levels.
- Reducing the risk of hypoglycaemia and its management.
- Managing illness and travel.
- Action planning.

During each session, participants were encouraged to problem solve, initially using set examples and then moving on to their own results, with support from their peers rather than the health care professional. At the end of each session, participants formed their own individual plan. Between each session, participants were encouraged to make changes to either their lifestyle or insulin, and to review the effect of these changes. Each participant then provided feedback about their experiences to the group at the next session.

**Results**

Results from 40 participants over five courses were evaluated and audited. Twenty percent of participants were...
type 1, 68% were male, the average age was 58 years (range 35–82 years), and 55% were of South Asian origin. All were insulin treated. Two were on one type of insulin only; 38 were on more than one type of insulin, and, of these, 21 were treated with insulin and metformin, and one was treated with insulin, metformin and a sulphonylurea. In 38 of 40 participants where a recorded pre- and three months post-intervention was available, an average HbA1c reduction of 1.18% was achieved – i.e. 9.02% reduced to 7.84% (75.1 mmol/mol reduced to 62.2 mmol/mol). (Table 1 lists the results of each participant.)

Twenty-five patients (62.5%) returned the post course patient satisfaction survey form. Of these, 96% (24/25) stated their diabetes control had improved; all felt more confident to adjust insulin doses; 96% (23/24 who answered the question) felt more confident to treat a hypo, with one person stating that hypos had not reduced; and 96% (24/25) felt they had learned more as a result of attending the course.

Patients reported verbally that they valued the learning style and the approach used in the programme as this helped to build their confidence around adjusting their treatment. They also said they enjoyed the relaxed environment created by the educators which, in turn, promoted learning.

Educators reported that there were some inherent difficulties in delivering the programme in that this group was a mix of people with both type 1 and type 2 diabetes on a whole host of different insulin regimens. This posed a challenge. It was essential that educators were confident and competent in being able to deal with different types of diabetes therapies and insulin regimens. Educators would have valued additional time at the end of each session to allow more free discussion. It was acknowledged any lengthening of the course programme may impact on the potential cost effectiveness of delivering group education sessions.

**Discussion**

The ‘Getting there’ programme addressed the needs of all insulin treated patients (types 1 and 2 diabetes) on any type of insulin regimen,

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Table 1. Individual patient results from completion of the ‘Getting there’ programme. (HbA1c values were recorded pre intervention and three months post intervention)
and included those on other glucose-lowering therapies. No exclusions were made apart from non-English speakers, and participants were encouraged to complete their own individual action in a culture of empowerment and self-management. Innovative resources and tools were used, such as different food models, to reflect the cultural needs of the participants. One difficulty was encouraging the participants to make changes of their own accord without the final say-so of the health care professional who usually managed their diabetes (e.g., their practice nurse or diabetes specialist nurse).

Conclusion
This team-led intervention resulted in an improvement in glycaemic control, and increased patient satisfaction and confidence in a high ethnic mix population of insulin users. The programme could be used across different settings and with mixed population groups. Programmes developed will need to adhere to the core principles of quality structured patient education, while acknowledging that there does need to be some flexibility in the course content depending on the specific learning needs of individuals attending.

Successful implementation and delivery would require experienced and competent nurses and dietitians, as the variety of treatment regimens increases the complexity of the teaching. Two health care professionals are needed to deliver the programme.

The ‘Getting there’ programme meets the requirements set by the NICE Quality Standards and guidelines, and fills a gap in education provision for those people who do not meet the inclusion criteria for DAFNE (type 1 patients), or those who need additional training and support in insulin use and who may or may not have attended a DESMOND course.

Declaration of interests
There are no conflicts of interest declared.

References

Commentary

Teasing out the impact of a consultant seven-day working pattern on diabetes care


There is an increasing political and social pressure to expand consultant ward presence to seven days a week in an endeavour both to improve the quality and safety of patient care, and shorten hospital admissions. As a chronic condition, diabetes care is recognised to benefit from early intervention, and there is an increasingly accepted inevitability that consultant working patterns will change to accommodate this. However, little has been published regarding how this may be achieved in a real world setting, and what the implications are for hospital trusts.

In this issue, Raghavan et al describe the impact on length of stay and weekend discharges following the introduction of a consultant seven-day working pattern. Their model provides daily ward contact, three weekday ward rounds, and daily weekend ward rounds limited to new admissions, potential discharges, and specialty cover. Although this change led to a fairly modest increase of one additional weekend discharge per week, overall there was a doubling of weekend discharges over a seven-month period, and a reduction in length of stay for those admitted over weekends by an average of three days. Thirty-day readmission rates also fell significantly.

Teasing out the impact of a consultant seven-day working pattern from other potential factors influencing discharges and readmissions can be difficult, and it is important to recognise that daily consultant presence must be supported by junior doctors and multidisciplinary team members. The collective impact of the improvements described in this report was of a cost saving for the trust that more than covered the cost incurred by employment of an additional consultant. However, there are other potential benefits that more consultant presence may offer which were not expanded on here. These include: the potential to reduce hospital admissions through easier and faster access to specialist advice and the ability to filter patients into early clinic slots; the reduction of clinical incidents; greater patient satisfaction; and fewer unnecessary investigations. Furthermore, given the effects of the European Working Time Directive on junior doctor working hours, in addition to the reduction in applicants to diabetes and endocrinology specialty training, more consultant availability offers an excellent opportunity for junior doctors to benefit from a more apprenticeship style education and possibly more interest in a future career within the specialty.

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Reference