Management of type 1 diabetes

PEDIATRIC DIABETES

DAFNE adapted for young people

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓

1 In light of the successes of the Dose Adjustment for Normal Eating (DAFNE) course for adults using insulin for type 1 diabetes, it was decided that an equivalent course for children and young people should be developed.

2 The training course was aimed at young people aged 11–16 years and was developed using input from DSNs and school teachers as well as young people with diabetes and their families.

3 Ninety-five paediatric DSNs responded from 130 postal questionnaires sent out seeking information on current paediatric diabetes education and views on developing a new programme based on DAFNE.

4 Focus groups comprising young people with type 1 diabetes aged 11–16 years and their parents were held in Sheffield. In total, 24 young people and 29 parents were involved.

5 Living with diabetes was highlighted as an important concern, as were food and diabetes, insulin management, hyperglycaemia and parent education.

6 An age-appropriate curriculum was developed that incorporated a modular structure as well as active participation and problem solving.

7 The authors anticipate refining the education curriculum in pilot courses before evaluating it in a multicentre randomised controlled trial.

Knowles J, Waller H, Eiser C et al (2006) The development of an innovative education curriculum for 11-16 yr old children with type 1 diabetes mellitus (T1DM). *Pediatric Diabetes* **7**: 322–8

Kids today: Time for them to get DAFNE'd!

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Not so long ago I overheard a non-specialist clinic nurse berating a person with diabetes about some aspect of their lifestyle, which struck me as somewhat inappropriate, even if it had not been in front of a group of other patients waiting patiently for their appointment.

Healthcare professionals managing people with diabetes spend much of their time delivering 'education'. Although I have been fortunate enough to work with some very inspirational clinicians over the years, few of us (especially doctors) have any educational qualifications. The educational content of most consultations is minimal, imprecise ('increase your insulin a bit') or irrelevant ('increase your insulin by 2 units and see me in 6 months'). It was therefore a bit of a shock when (some 5 years ago now) I went on my first DAFNE (Dose Adjustment for Normal Eating) course and watched people with diabetes interacting with and learning from each other, skillfully guided by the nurse and dietitian facilitators. It was even more of a shock to learn that most of what I had been telling my patients was wrong and then I had to lead a group and be scored on my teaching style. I'd been DAFNE'd!

Some of the team that brought us the adult DAFNE course have now turned their attention to developing a similar course for young people aged 11–16 years (Knowles et al, 2006; summarised on left). It is a fantastic example of collaboration between educationalists, clinicians and people living with diabetes (children and their parents). The result is a comprehensive curriculum based on hard evidence delivered over 5 days. The main advantage of this type of approach is that quality control is included within the system, enabling it to be rolled out across other centres. However, only a full randomised controlled trial will demonstrate whether this method is superior to the more haphazard approach adopted by most diabetes services across the country.

Diabetes is a complex condition and one suspects that a 5-day intensive course will not be enough – but it will be a good start.

DIABETES TECHNOLOGY & THERAPEUTICS

Positive experiences of CSII as initial therapy for type 1

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓✓✓

1 In response to the increasing use of continuous subcutaneous insulin infusion (CSII), this study set out to investigate whether or not initiating CSII within 1 month of diagnosis was feasible and effective.

2 The study group comprised 28 people (23 male, 5 female; mean age: 12.1±6.2 years) placed on CSII as early as 1 day after diagnosis of type 1 diabetes.

3 Over 18 months, mean HbA_{1c} fell from 10.5% ± 2.4% to between 6.5% and 7.4%.

4 After 3 months, mean insulin requirement was 0.33 units/kg/day and after 18 months this had increased to 0.58 units/kg/day.

5 Despite the potential for normal growth and development of the young people involved in the study, weight did not change significantly from baseline (P=0.54).

6 A head-to-head investigation is needed to determine whether or not endogenous insulin secretion can be more successfully preserved where CSII is used from initial diagnosis and if there are any long-term side effects of this approach.

Ramchandani N, Ten S, Anhalt H et al (2006) Insulin pump therapy from the time of diagnosis of type 1 diabetes. *Diabetes Technology & Therapeutics* **8**: 663–70

'Exenatide has a positive effect on transplanted β-cell function.'

TRANSPLANTATION

Transplanted islet cells respond to exenatide

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓✓

1 Islet cell transplants have a finite length of survival. Exenatide has been shown in animal models to increase β-cell mass.

2 The study aim was to investigate the effect of standard dose exenatide in people who had undergone islet cell transplantation.

3 Eleven people were recruited, of whom six were male and five were female. Average BMI was 23.7±2.6 kg and all had elevated glucose levels following the last islet transfusion, which had occurred 17±6 months previously.

4 All participants reported nausea and vomiting side effects due to the drug.

5 Two participants who were not already using insulin recorded an initial blood glucose of 11.9 mM, which improved to 8.5 mM after 3 days of exenatide therapy ($P<0.01$). Of the remainder, seven had detectable blood glucose and insulin level responses to exenatide administration.

6 While taking exenatide, average daily insulin requirements fell significantly from 18 units/day to 11 units per day ($P<0.01$).

7 After cessation of exenatide therapy, average daily insulin requirements rose significantly from baseline to 19 units/day ($P<0.01$).

8 The authors concluded that exenatide has a positive effect on transplanted β-cell function.

Ghofaili KA, Fung M, Ao Z et al (2007) Effect of exenatide on beta cell function after islet transplantation in type 1 diabetes. *Transplantation* **83**: 24–8

'Although Sweet Talk did not improve glycaemic control, it may support the introduction of insulin therapy in young people.'

DIABETES TECHNOLOGY & THERAPEUTICS

Teenagers help design diabetes simulator

Readability	✓✓✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓✓

1 In order to address the risks of long-term complications in young people with type 1 diabetes, a PC-based interactive diabetes simulator was developed that allows users to simulate various treatments and their effects.

2 The prototype simulator was developed on a mathematical core and the programme piloted with four young people aged 13–17 years.

3 The simulator stimulated interest and discussion among the people with diabetes and their families.

4 Further programming is necessary, as is the recruitment of more young people with diabetes to participate in future development.

Nordfeldt S, Hanberger L, Malm F, Ludvigsson J (2007) Development of a PC-based diabetes simulator in collaboration with teenagers with type 1 diabetes. *Diabetes Technology & Therapeutics* **9**: 17–25

DIABETIC MEDICINE

MRI scans show ~50% decrease in pancreatic volume

Readability	✓✓
Applicability to practice	✓✓✓
WOW! factor	✓✓✓✓

1 Males with at least 10 years of diabetes duration (n=12; median age: 28; range 19–32 years) and controls (n=12; median age: 30; range: 22–36 years) were given two magnetic resonance imaging (MRI) scans 14 days apart.

2 The best visualisation of the pancreas was with volumetric interpolated breath-hold examination (VIBE) and T1-weighted breath hold with fat suppression (T1BHFS).

3 The pancreatic volume of those with diabetes was approximately half that of the healthy controls (52.4±17.1 ml versus 101±19.5 ml; $P<0.01$).

4 The mean difference in pancreatic volume between visits using VIBE was 1.1 ml ($P=0.61$). Using T1BHFS, it was 2.6 ml ($P=0.03$).

5 The standard deviation of the differences of volume estimates was 9.7 ml for VIBE and 7.3 ml for T1BHFS.

6 These techniques are of similar precision and demonstrate that long-term diabetes leads to a 48% reduction in pancreatic volume.

Williams AJ, Chau W, Callaway MP, Dayan CM (2007) Magnetic resonance imaging: a reliable method for measuring pancreatic volume in Type 1 diabetes. *Diabetic Medicine* **24**: 35–40

DIABETIC MEDICINE

Text messages aid adherence in the young

Readability	✓✓✓✓
Applicability to practice	✓✓✓✓
WOW! factor	✓✓✓

1 Sweet Talk is a text-messaging system designed to facilitate uptake of insulin therapy and enhance self efficacy.

2 People on conventional insulin therapy who had diabetes for over a year and were 8–18 years of age were randomised to conventional insulin (n=28), conventional insulin therapy plus Sweet Talk (n=31) or intensive insulin therapy plus Sweet Talk (n=31).

3 The only significant change in HbA_{1c} from baseline was in the intensive insulin therapy plus Sweet Talk group (baseline: 10.0%; end of study: 9.2%; $P<0.001$).

4 In the conventional therapy plus Sweet Talk group self efficacy and self-reported adherence improved ($P=0.003$ and $P=0.042$, respectively).

5 An improvement in self management was reported by 82% of individuals and 90% wished to continue receiving massages. Although Sweet Talk did not improve glycaemic control, it may support the introduction of insulin therapy in young people.

Franklin VL, Waller A, Pagliari C, Greene SA (2007) A randomized controlled trial of Sweet Talk, a text-messaging system to support young people with diabetes. *Diabetic Medicine* **23**: 1332–8