

# Online structured education for people with type 1 diabetes

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Structured education for people with type 1 diabetes has shown improved outcomes and is now an integral part of clinical care (Department of Health, 2001; 2003; NICE, 2004). However, there are major time and resource implications for hospital and community trusts. The course available at the Imperial College Healthcare NHS Trust is based on Broomfield's Education Resources for Training in Insulin and Eating (BERTIE; Everett et al, 2003). In 2007, the BERTIE syllabus was provided free online (BDEC, 2007), endorsed and supported by Diabetes UK. The aim of this study was to evaluate the clinical effectiveness of a new shorter model of type 1 diabetes education, using group tutorials and an online carbohydrate-counting programme.

## Method

In all 304 people with type 1 diabetes using multiple daily injections were invited to attend the course. The course was delivered over 2 weeks and supported by a dietitian and DSN, using two group tutorials, individual e-mails and telephone contact. It was run alongside the syllabus provided by BDEC online, which covers flexible intensive insulin therapy, carbohydrate counting and insulin adjustment. Primary outcomes were HbA<sub>1c</sub> and quality of life, measured by the Problem Areas in Diabetes (PAID) questionnaire, at 3 and 6 months. Secondary outcomes were weight, BMI, severe hypoglycaemia, minimum and maximum insulin bolus, and frequency of blood glucose monitoring.

## Results

A total of 48 individuals responded and 40 attended the course (see Table 1 for overview of results). HbA<sub>1c</sub> levels fell significantly to a mean of 8.0% at 3 months ( $P=0.001$ ). The PAID score significantly reduced at 6 months ( $P=0.01$ ) but was not changed at 3 months. In the year prior to the course, 11 out of 48 participants reported 17 episodes of severe hypoglycaemia. At 3 months after the course, two participants out of 27 had five episodes of severe hypoglycaemia, and at 6 months, two out of 23 had three episodes of hypoglycaemia. The maximal prandial insulin bolus dose fell significantly at 3 and 6 months ( $P=0.018$ ;  $P=0.021$ ) compared with baseline. Both weight and BMI significantly increased at 3 months ( $P=0.044$ ;  $P=0.037$ ) but returned to baseline at 6 months. The course was met with positive feedback, including one comment on:

*"... the personal 'hands-on' approach – time to discover or learn more about controlling blood glucose levels, and sharing ideas."*

## Conclusion

Structured education on type 1 diabetes delivered online with supplemental tutorial time increases the accessibility for young people and has a significant positive impact on HbA<sub>1c</sub> at 3 months, as well as quality of life and prandial insulin bolus dose at both 3 and 6 months. ■

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NICE (2004) *Diagnosis and management of type 1 diabetes in children, young people and adults*. NICE, London. Available at: <http://www.nice.org.uk/CG15> (accessed 08.10.12)

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Table 1. Baseline characteristics and interval changes at 3 and 6 months.

	Baseline (n=48)	3 months (n=27)	6 months (n=23)
Weight (kg)	71.8 (14.9)	72.7 (14.5)	71.9 (15.7)
BMI (kg/m <sup>2</sup> )	24.6 (3.6)	24.9 (3.5)*	24.6 (3.9)
HbA <sub>1c</sub> (%)/(mmol/mol)	8.4 (1.5)/68	8.0 (1.3)/64*	8.4 (1.2)/68
Min insulin bolus (units)	7.1 (4.4)	5.4 (4.2)	5.7 (4.5)
Max insulin bolus (units)	11.8 (7.1)	10.2 (7.1)*	9.9 (4.9)*
Basal insulin (units)	22.2 (11.4)	23.1 (13.5)	23.7 (14.0)
Number of CBG tests per day	3.0 (1.8)	3.6 (2.0)	4.0 (1.9)
PAID (score out of 100)	19.1 (15.5)	14.9 (13.2)	10.9 (9.3)*

\*Significant change ( $P<0.05$ ). CBG=capillary blood glucose; PAID=problem areas in diabetes. Values in parentheses are standard deviations

## The IMPROVE™ Control Campaign

The Global Task Force on Glycaemic Control is a group of physicians and specialists in the field of diabetes from around the world that is working in collaboration with Novo Nordisk with the ultimate aim of identifying and developing practical solutions to the global problem of poor glycaemic control in people with diabetes. Since early 2008, the *Journal of Diabetes Nursing* has featured articles and submissions under the banner of IMPROVE™ Control – a global public awareness campaign focused on the need for improved control, as part of the Task Force's work. Throughout 2012, the journal will continue to bring you articles on the barriers to good glycaemic control, and submissions from you, our readers, outlining the strategies you have used to help people with diabetes improve their control.

For example, perhaps you have implemented a new educational session in your area that has helped break down barriers to control, or maybe you have set up a new referral pathway that has helped improve HbA<sub>1c</sub> levels. The *Journal of Diabetes Nursing* would like to help you share your practical solutions for improving control, no matter how big or small, with other nurses working in diabetes. We encourage you to take part in this global initiative by calling 020 7627 1510, or emailing [jd@sbcommunicationsgroup.com](mailto:jd@sbcommunicationsgroup.com).

