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The Cost-Effectiveness of 5-week versus 1-week DAFNE Structured Education in Type 1 Diabetes: A Preliminary Evaluation Using the Sheffield Type 1 Diabetes Policy Model

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Background

The DAFNE structured education programme for adults with Type 1 diabetes is traditionally delivered over five consecutive days.

However, it is not always convenient for individuals to find the time to attend an intensive five-day programme due to work and other obligations.

Aim

To provide a preliminary estimate of the cost-effectiveness of Dose Adjustment For Normal Eating (DAFNE) structured education for adults with Type 1 diabetes delivered one day per week over five weeks ('5-week DAFNE') compared with standard DAFNE (five consecutive days; '1-week DAFNE').

5-week DAFNE

| Week 1 | | | | | Week 2 | | | | | Week 3 | | | | | Week 4 | | | | | Week 5 | | | | |
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1-week DAFNE

| Week 1 | | | | | Week 2 | | | | | Week 3 | | | | | Week 4 | | | | | Week 5 | | | | |
|--------|---|---|---|---|--------|---|---|---|---|--------|---|---|---|---|--------|---|---|---|---|--------|---|---|---|---|
| M | T | W | T | F | M | T | W | T | F | M | T | W | T | F | M | T | W | T | F | M | T | W | T | F |
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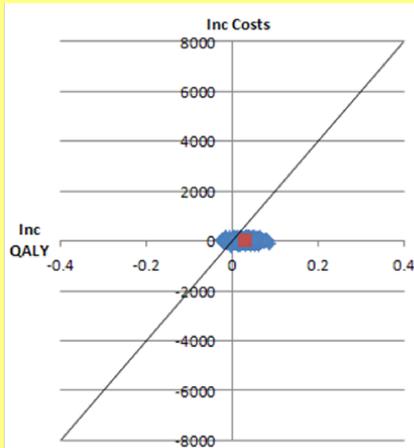
■ = DAFNE course day

Results

The costing analysis based on complete cases from the within-trial data showed that the mean cost per patient during the 12 month trial period was £17.70 higher for the 1-week DAFNE arm than the 5-week DAFNE arm.

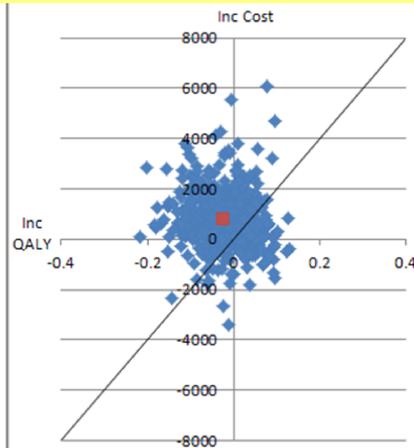
The 5-week DAFNE arm generated 0.0252 more QALYs per person over the 12 month trial period than the 1-week DAFNE arm, corresponding to 9 days of perfect health per person (based on complete cases).

a) 12 month cost-effectiveness



5-week DAFNE costs £702 per additional QALY

b) Lifetime modelled cost-effectiveness



5-week DAFNE costs more and generates slightly fewer QALYs

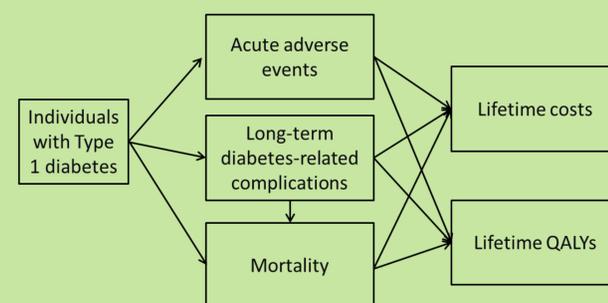
The modelled lifetime cost for the 1-week DAFNE arm was £45,481 and for the 5-week DAFNE arm was £46,262, giving a difference of £781.

The modelled lifetime QALYs for the 1-week DAFNE arm were 11.5767 and for the 5-week DAFNE arm were 11.5527, leading to a difference of -0.0240, which corresponds to 8.76 days per person in perfect health.

Methods

A within-trial cost-effectiveness analyses used patient-level data from a randomised controlled trial (RCT) of 5-week DAFNE versus 1-week DAFNE to estimate the cost-effectiveness of the new intervention over 1 year.

A patient-level simulation model of Type 1 diabetes was developed to estimate lifetime costs and quality-adjusted life years (QALYs) from an NHS perspective. The Sheffield Type 1 Diabetes Policy Model uses data from the DAFNE Research Database and published evidence to simulate the incidence of microvascular, macrovascular and acute diabetic complications:



Preliminary data from a RCT of 5-week DAFNE versus 1-week DAFNE were used to inform patient characteristics and clinical effectiveness parameters in the model.

Conclusions

Based on both the within-trial analyses and the long-term model, it has been shown that the mean QALY values between the 1-week DAFNE and 5-week DAFNE arms are very close to each other.

Given the limited differences in terms of mean per patient cost between the two arms, the results suggest that both 1-week and 5-week DAFNE methods could be used as policy tools to deliver structured education programmes to patients with Type 1 diabetes by the NHS.

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