

A local dietetic service at GP practices for people with, or at high risk of, type 2 diabetes

Emma Smith

In 2010, general practices in Lewes, Newick and The Havens, East Sussex, proposed a new GP practice-based diabetes dietetic service, which aimed to identify whether this was effective at improving outcomes for people with, or at risk of, type 2 diabetes (described as a BMI >30 kg/m² with a comorbidity). Over 600 individuals were seen by the project dietitian, and the value of dietetic input was examined by comparing a range of clinical variables in a two-way related sample design. This article briefly explains the results of this project and goes on to discuss the broader effectiveness of providing dietetic services.

There is wide recognition of the need to place a greater emphasis on wellness promotion, and get away from simply focussing on illness and treatment (Department of Health, 2010). Ensuring that patients are empowered to make informed choices regarding their care and that they continue to be motivated to make changes is paramount. Dietitians play a vital role in educating and motivating patients to make changes to their lifestyles aimed at improving quality of life and health outcomes (NICE, 2009; Diabetes UK, 2011).

The project

In early 2010, general practices in Lewes, Newick and The Havens, East Sussex (later to be known as the NHS High Weald Lewes Havens CCG), proposed a new GP-based diabetes dietetic service for the area, which has 10 GP practices. A proposal was put forward with the aim of identifying whether a GP practice-based diabetes dietetic service was effective at improving health and well-being outcomes, patient and staff confidence, and satisfaction for people with type 2 diabetes and those at high risk.

The idea behind the project was to enable individuals to access dietetic services in their

own GP practices following comments collected previously that patients preferred being seen at their GP practice in their locality, rather than having to travel out to a community-based location.

Funding was initially agreed for 2 years by the GP practices involved. The author began the post of project dietitian in February 2011, and the initial service outline provided one-to-one clinics in each practice, with the addition of weight management group sessions starting in July 2011 and diabetes education group sessions starting in April 2012 (see *Box 1*).

Those who were eligible to participate in the service were referred by their GP. The eligibility criteria included the presence of type 2 diabetes or being at high risk of developing type 2 diabetes (i.e. a BMI >30 kg/m² with a comorbidity). Promotion of the service occurred through informal networking, awareness campaigns, attending practice meetings and a quarterly newsletter to practices. The newsletter was cascaded to all clinical referrers in the localities to raise awareness of the service and to inform them of the project's progress, such as information on waiting-list times to ensure that spare appointment slots were kept to a minimum.

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Article points

1. In early 2010, general practices in Lewes, Newick and The Havens, East Sussex, proposed a new GP-based diabetes dietetic service for the area for people with, or at risk of, type 2 diabetes. Funding for the project was agreed for 2 years.
2. In total, 648 people who were referred were seen by the project dietitian. Data on clinical and psychological measures were collected.
3. Based on the findings from the pilot study, it can be said that GP-based diabetes dietetic clinics are beneficial in patient outcomes.

Key words

- Dietitian
- Effectiveness
- Local dietetic service
- Service delivery

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Page points

1. During the project, which was in essence a pilot study, a number of service outcome measures were analysed and information on dietary intake, quality of life, participants' confidence to change and the number of patient-set goals achieved were also measured.
2. In total, 648 individuals with, or at risk of, type 2 diabetes were seen by the project dietitian during the 21-month data collection period.

Box 1. Interventions provided by the dietetic service.

- *One-to-one appointments*: up to a maximum of five contacts (90 minutes)
 - 30 minutes for an initial appointment
 - 15 minutes for any follow-up appointment
 One-to-one appointments were usually once every 1–3 months, and there was a maximum of 5 appointments for each individual.
- *Diabetes education group*: a one-off 90-minute session for up to 12 participants (equivalent of 7.5 minutes per patient)
- *Weight management group*: once-weekly sessions over an 8-week period lasting 1 hour each for up to 12 participants (equivalent of 40 minutes per patient)

Outcome measures and analysis

During the project, which was in essence a pilot study, a number of outcome measures were analysed: weight change, waist circumference, BMI, HbA_{1c}, total cholesterol, LDL-cholesterol, HDL-cholesterol, triglycerides, blood pressure and physical activity level. Information on dietary intake was collected using food frequency questionnaires. Quality of life was measured using the Global Quality Of Life scale (Hyland and Sodergren, 1996), and the confidence to change of participants and the number of patient-set goals achieved were also measured.

If a patient had been seen by another dietitian previously, only data from the commencing intervention with the project dietitian were used to maintain consistency.

To give an indicator of trends between dietetic input and health outcomes, 10 data-sets were collected for each of the three intervention strands for 6- to 12-month post-discharge data.

The collected pre- and post-intervention data were analysed in a two-way related sample design. Paired-sampled *t*-tests were used to analyse data sets. In addition, a Pearson's product moment correlation coefficient was used to examine the correlation between the percentage

of sessions attended and weight loss achieved. An alpha level of 0.05 was used.

Prior to data analysis the normality of the data was assessed to ensure that the appropriate tests were used. It was found that the data were normally distributed through use of a histogram, tests for skewness and kurtosis, tests for normality (Kolmogorov–Smirnov test and Shapiro–Wilk test) and a Q–Q normality plot. Based on these findings parametric tests were used to analyse the data.

Results

In total, 648 individuals with, or at risk of, type 2 diabetes were seen by the project dietitian during the 21-month data collection period. The gender distribution was 57% female (*n*=369) and 43% male (*n*=279). The average BMI on referral was 36.4 kg/m². The Lewes locality had the lowest overall BMI and the Peacehaven locality had the highest. In total, 562 people were seen in one-to-one clinic appointments and 47 were seen in one-off diabetes education group sessions, with the remaining 39 attending the weight management groups. Of the 562 individuals who attended one-to-one appointments, 129 returned for at least one follow-up appointment.

The age of all 648 participants ranged from 16 to 92 years of age, and the mean age was 57.4 years (SD=4.5). Some of the youngest participants were referred from Quayside Medical Practice, Newhaven, and the oldest were referred from River Lodge, Lewes. The average age of the weight management groups was 57.2 years, and the diabetes structured education sessions had a slightly higher average age of 64.4 years. The diabetes structured education sessions had slightly higher male attendance (58% men, 42% women), whereas the weight management groups were much more highly attended by women (79% women, 21% men).

There was also a large difference in the number of participants seen at each practice. In total, 28 people were seen in one-to-one appointments at The River Lodge Surgery, Lewes, and 140 people had one-to-one appointments at the Quayside Medical Practice, Newhaven.

An outline of the main results of the three interventions are presented below.

One-to-one interventions

Clinical measures

Of the participants from all three interventions who had weight loss as a goal, 95% achieved this goal ($n=80$). The average weight loss of these participants was 3.3 kg, or 3.0% body weight ($t=8.87$; $P<0.001$), with further weight loss being seen 6–12 months post-discharge. Their average BMI prior to intervention was 39.4 kg/m², and this had fallen to 38.6 kg/m² by the participant's final appointment. The time of the final appointment was patient-dependent, i.e. some wanted more support over a short period of time, while some wanted to receive support over a longer period. Typically interventions would last from 6–12 months, but could just be a one-off appointment.

In the analysis of trends between dietetic input and outcomes, given the small sample size, there were not enough data to demonstrate a significant effect; however, some tentative trends can be seen. In particular, a positive trend was seen in the reduction of HbA_{1c}, which was 5.9 mmol/mol (0.54%) 6–12 months post discharge ($t=1.48$; $P=0.173$).

Dietary intake

There were a number of positive dietary changes that occurred in the participant population following the dietetic input. For example, there was a significant increase in the frequency of participants choosing a lower-fat milk and a higher-fibre bread ($P=0.004$ and $P=0.001$, respectively), and a significant reduction in the frequency of the consumption of processed food ($P=0.012$), high-calorie snacks ($P=0.015$) and the frequency of missed meals ($P=0.006$).

Well-being data

Average quality of life demonstrated a small upwards trend from 67.9 out of 100 at baseline to 71.1 after discharge.

The overall figures for confidence to change remained moderate with a mean of 6.2 out of 10 after discharge. A total of 93% of patient-set goals were either achieved or partially achieved, indicating behaviour change. The dietetic intervention focuses on producing change, and participants were taught how to set their own

goals, thereby ensuring sustained behaviour change over the long-term, even once dietetic intervention had ceased.

The service was highly rated among participants and was scored 9.0 out of 10 on levels of satisfaction ($t=62.3$; $P<0.001$).

Weight management group intervention

The results from the weight management group intervention, in short, highlighted a significant correlation between attendance at a weight management group and weight loss achieved ($r=-0.504$; $P=0.001$). Post-discharge from the dietetic weight management groups showed that participants maintained weight lost during the sessions, and lost a further 1.2% body weight, reducing their BMI by a further 0.7 kg/m².

Structured education sessions

Owing to the structured education sessions being the last intervention strand to be commenced, there are not enough data to provide conclusive results.

The results that were collected suggest a decreasing trend in both weight and HbA_{1c} over the intervention period.

Staff feedback

Feedback received from staff both informally, during impromptu encounters in the GP practices, and formally via an interim staff satisfaction survey sent out in May 2012 and a final survey sent out in November 2012 was positive. Key recurring themes were an appreciation for the service as a whole, the local element of the service being provided in the GP practices and improvements seen in patients' health outcomes.

Overall satisfaction with the service from staff was high (9 out of 10). Those responding felt that the service had helped them to improve the diabetes management of their patients (8.5 out of 10).

Discussion

When considering the results of the pilot study, it is important to remember that the individuals seen by the project dietitian are the more complex cases referred by the GP. Many care pathways promote that individuals should be initially seen

Page points

1. Among those that attended one-to-one dietetic appointments, there was a trend towards a reduction in weight and HbA_{1c}.
2. Average quality of life demonstrated a small upwards trend from 67.9 out of 100 at baseline to 71.1 after discharge.
3. Results that were collected from the structured education group programme suggest a decreasing trend in both weight and HbA_{1c} over the intervention period.
4. In a weight management group, there is opportunity to explore the behavioural issues surrounding eating and to educate on healthy lifestyle change in an interactive way.

Page points

1. The author notes that having a control group from other patient populations would have been a great improvement to this pilot study's scientific weight.
2. In order to continue to develop and improve the dietetic service offered in the area, and to provide the most equitable and efficient service possible, it is important to continually re-evaluate current practice and to pursue the interventions that are shown to improve health and well-being outcomes in the most cost-effective way so as to offer a range of patient-led services.
3. The results from the current pilot study should be considered in light of the fact that, over the course of a year, the weight gain of an average person is 0.8 kg; therefore, to have not only prevented weight gain but to have achieved weight loss is a significant achievement.

in general practice, and, when practice staff feel that more specialist input is required, they are referred to the registered dietitian. Therefore, achieving even a small weight loss, and not a weight gain, in this patient group should be interpreted as a significant result. Readiness to change is another important factor, although this analysis did not collect data on this.

In a weight management group, there is opportunity to explore the behavioural issues surrounding eating and to educate on healthy lifestyle change in an interactive way. Additionally, the support offered, and the discussion sparked by the other group members, further helps to embed knowledge and promote sustained change. It is important to note that a one-size-fits-all approach is not appropriate (Rowe and Basi, 2010), and that offering a selection of interventions is more likely to improve patient satisfaction.

Potential changes to the service

Structured education sessions for people with diabetes are a time-efficient and effective part of the GP-based diabetes dietetic service. An improvement to the structured education sessions would be to involve other health professionals to form a multidisciplinary team, such as the addition of a community diabetes specialist nurse, a post that was lacking in The Havens geographical area.

Limitations of the study

A major element that would have provided a more robust methodology is the addition of a control group with which to compare the dietetic intervention; however, this would not have been an ethical design. Instead, the results from the pilot study could have been compared with the 6–12 months prior to dietetic intervention within the established diabetes population and those patients being seen for weight management. However, this approach could not have accounted for individuals newly diagnosed with type 2 diabetes within the bounds of ethical constraints. Nevertheless, having a control group from other patient populations would have been a great improvement to this pilot study's scientific weight.

The effect of the dietetic intervention could also have been compared with clinical results of individuals not seen by the dietitian (i.e. standard GP practice care). This could then have been costed to give a better representation of the effect that dietetic intervention has on outcome measures and whether it is cost-effective. Further investigation into this point is needed before being able to draw any solid conclusions.

On discussion with participants and reading of their discharge questionnaire, figures for well-being appeared smaller than expected. It may be that the snap-shot questionnaire used was not the most appropriate, and were the study to be repeated, a diabetes-specific quality of life score may be more appropriate, such as the PAID (Problem Areas in Diabetes) score.

Role of the dietitian

Evidence-based research strongly suggests that interventions provided by a registered dietitian who is experienced in the management of diabetes is clinically effective (Franz et al, 2002). In order to continue to develop and improve the dietetic service offered in the area, and to provide the most equitable and efficient service possible, it is important to continually re-evaluate current practice and to pursue the interventions that are shown to improve health and well-being outcomes in the most cost-effective way so as to offer a range of patient-led services.

Service evaluation is a theme that has continued throughout the project's duration and has been used to develop and improve the service to optimise efficiency based on locally identified need. To ensure consistent nutritional care in diabetes across the localities, training of practice staff is paramount. This ensures staff are empowered and supported to offer the best dietary advice possible, to manage the ongoing post-discharge care of people with, or at risk of, type 2 diabetes, and to know when and how to refer onto other services (NICE, 2009). Although practices involved in this project seemed initially keen for this service, none took up the training when offered. If the project was to be repeated, a more proactive approach in suggesting dates and sessions for lunchtime meetings may be a better

way to train GP practices, as staff members are often not able to spare time to undertake training or organise events.

Dietetic input relative to cost

To put the results of this project into context with other published research, the Finnish Diabetes Prevention Study (Lindström et al, 2003), which was able to provide a far more intensive lifestyle intervention, and, therefore, represented a more expensive intervention, produced a 4.5 kg weight loss after the first year of input. This was shown to reduce the risk of diabetes by 58% in their cohort of participants, and thus also prevent much of the associated costs of diabetes.

Donaldson and McKenna (2010) found that, when weight gain is avoided, so too are the associated costs and burdens on general practice such as increased GP appointments and prescribing costs. Also, according to The Counterweight Project Team (2005), preventing an increase of one BMI point in as little as 4% of a consortium's overweight population represents a potential annual cost saving of approximately £60 000.

The results from the current pilot study should be considered in light of the fact that, over the course of a year, the weight gain of an average person is 0.8 kg (Norman et al, 2003); therefore, to have not only prevented weight gain but to have achieved weight loss is a significant achievement.

It would have been interesting to investigate, with medicines management, the potential cost-savings surrounding the prescription of orlistat in the community, which for one month costs £31.63 (at the time of writing). Further work to find ways to reduce the prescribing of orlistat could save practices a significant amount of money in the future and would be an interesting area to focus on.

A very important added benefit of having a GP-based diabetes dietetic service is the ability to link directly with referrers and the opportunity for easy dialogue in shaping a service appropriate to the needs of local patients. A GP-based dietetic service is far more efficient with administration time and costs than a dietetic service outside the GP surgery owing to the ability to input directly into the clinical data system, thus eliminating the need to write and post letters back to referrers.

Summary

The pilot study of a GP-based diabetes dietetic service showed improvements in outcome measures, dietary intake and patient well-being within the one-to-one intervention, and similar findings were found within the weight management group intervention and the structured education session intervention. Additional funding would allow for detailed exploration of these themes, with the aim of greater improvement in health outcomes for people with diabetes. ■

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Department of Health (2010) *Healthy lives, healthy people*. The Stationery Office, London

Diabetes UK (2011) *Evidence-based nutrition guidelines for the prevention and management of diabetes*. Diabetes UK, London

Donaldson EL, McKenna A (2010) Improved quality of life in group weight management interventions. *J Hum Nutr Diet* **23**: 445

Franz M, Holzmeister L, Bantle J et al (2002) Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. *Diabetes Care* **25**: 148–55

Hyland, ME, Sodergren (1996) Development of a new type of global quality of life scale, and comparison of performance and preference for 12 global scales. *Qual Life Res* **5**: 469–80

Lindström J, Louheranta A, Mannelin M et al (2003) The Finnish Diabetes Prevention Study (DPS): Lifestyle intervention and 3-year results on diet and physical activity. *Diabetes Care* **26**: 3230–6

NICE (2009) *Type 2 diabetes: The management of type 2 diabetes (CG87)*. Available at: <https://www.nice.org.uk/guidance/cg87> (accessed 21.01.15) NICE, London

Norman JE, Bild D, Lewis CE et al (2003) The impact of weight change on cardiovascular disease risk factors in young black and white adults: the CARDIA study. *Int J Obes Relat Metab Disord* **27**: 369–76

Rowe B, Basi T (2010) *Maximising the appeal of weight management services*. ESRO Report for the Department of Health. The Stationery Office, London

The Counterweight Project Team (2005) Obesity impacts on general practice appointments. *Obesity Research* **13**: 1442–9

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