THE SOUTH GLOUCESTERSHIRE DIABETES PREVENTION PILOT PROJECT (SGDPP)

Introduction

The prevention of Type 2 Diabetes (T2D) is a public health priority:

- Five million people in England are at high risk of developing T2D.
- One in three people are predicted to be obese by 2034, and one in ten will develop T2D [1].

South Gloucestershire has a population of 260,000 with 25 GP practices. Within this population;

- Diabetes prevalence increased by 6.29% (from 10,954 to 11,690 patients) between 2014/15 and 2015/16.
- In 2015/16, 511 patients (8.5%) had a raised HbA1c identified during routine Health Checks.

NICE recommends intensive lifestyle change programmes for 'at-risk' individuals, to prevent or delay onset of T2D [2]. Despite this, there was no local provision of services for patients in South Gloucestershire diagnosed as being 'at risk' of developing T2D.

The **SGDPP** was developed in response to this need, to deliver a coordinated, tailored and effective programme to meet the needs of those at risk of T2D. The pilot project was evaluated six months post delivery to determine the impact of the intervention.

The **X-POD programme** from X-PERT Health (http://www.xperthealth.org.uk) offers group education to prevent the onset of T2D, which;

- Aims to provide an enjoyable way to learn about pre-diabetes.
- Uses visual aids and discovery learning.
- Empowers patients to make informed decisions and set goals to improve their own health.

Working with one GP surgery, **300** patients were identified as being 'at risk' of T2D following application of specific criteria. These patients were sent letters inviting them to attend a six-week education programme, delivered at their local health centre.

Results

Attendance at group education sessions and six-month follow-up maintained above **84%**. The table shows outcome evaluation findings for **91** participants who provided follow-up data. There were significant improvements across all measures, except mental health and wellbeing.

	Baseline mean (SD)	6-month mean (SD)	Mean difference (95% CI)
Weight (kg)	93.50 (16.38)	89.45 (16.28)	-4.04*** (-5.01, -3.08)
BMI (kg/m²)	33.81 (5.95)	32.38 (6.10)	-1.43*** (-1.77, -1.09)
Waist circumference (cm)	107.37 (12.22)	102.05 (12.50)	-5.32*** (-6.37, -4.27)
HbA1c (mmol/mol)	42.24 (5.26)	38.79 (3.46)	-3.45*** (-4.30, -2.60)
Proportion meeting recommended PA¥ guidelines	0.16 (0.37)	0.30 (0.46)	0.13** (0.03, 0.23)
Mean no. of minutes/week of MVPA§	189.43 (275.26)	421.66 (498.15)	232.23*** (130.57, 333.89)
Overall self-reported dietary behaviour	49.68 (7.38)	47.24 (7.46)	-2.45*** (-3.68, -1.21)
Mental wellbeing (max. score = 35)	27.59 (5.04)	27.64 (5.02)	0.04 (-0.71, 0.80)
Anxiety (max. score = 28)	10.00 (3.91)	9.74 (3.41)	-0.26 (-0.86, 0.34)
Depression (max. score = 36)	12.87 (4.93)	12.49 (4.42)	-0.37 (-1.04, 0.29)

Note: *$p<0.05$; **$p<0.01$; ***$p≤0.001$
¥ Physical activity
§ MVPA: Moderate-to-vigorous physical activity

Process evaluation findings identified the **organisation**, **clarity of goals**, and **educators' personal qualities** as crucial to the programme's success.

Start-up unit costs were similar to other pilot preventative lifestyle programmes. The **estimated cost/person = £167** for the six months set-up, delivery, administration and management of SGDPP.

HEALTH EDUCATION

X-POD 6-week education programme
Two trained Educators delivered each session

- ✓ What is pre-diabetes?
- ✓ Nutrition for health
- ✓ Carbohydrate awareness
- ✓ Physical activity
- ✓ Reducing risk
- ✓ Personal health check
- ✓ Food labels

Advice & Support
- ✓ Dietary behaviours
- ✓ Physical activity
- ✓ Lifestyle and behaviour
- ✓ Sustaining change
- A patient rep was present at each group

Awareness & Empowerment
- ✓ Signposting to other local services
- ✓ Raising patient awareness
- ✓ Patient empowerment

X-PERT Prevention of Diabetes (X-POD) Programme. X-PERT Resources (handbook, waist circumference tape measure, food label guide)

PREVENTION
- Identification of individuals 'at risk'
- Inviting 'at risk' population to an education programme
- Supporting self-empowerment and the expert patient
- Goal-setting

- Health Checks
- Opportunistic screening
- Raising staff awareness to encourage referrals
- Ongoing patient support and contact post course

HEALTH PROTECTION
- Health Checks to identify individuals 'at risk'
- HbA1c testing at course entry and six months
- BP and weight monitoring
- Access to an education programme if confirmed to be 'at risk'

Methods

Outcome evaluation
Pre-post intervention data was collected by the project team at SGC, then anonymised and exported to UWE for analysis using SPSS Statistics Version 22.0.
Changes from baseline to six months were assessed for weight, BMI, waist circumference, HbA1c, and self-reported physical activity, diet, health status and psychological wellbeing .

Process evaluation
Focus groups and interviews were conducted with participants, project staff and wider stakeholders to assess programme implementation. Audio-recorded data was transcribed and thematically-analysed using NVivo 10.

Economic evaluation
A unit cost economic evaluation of the programme was carried out using data collected from project time and cost information questionnaires completed by the project team.

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Key Recommendations

- Maintain contact with participants and collect twelve-month data to gain evidence of longer-term outcomes, and provide local insight into patterns of retention and resources involved in longer-term contact
- Utilise learning from the pilot project to support and advise the NHS DPP service providers
- Deliver programmes like the SGDPP in parallel with other community-based lifestyle initiatives and self-care programmes, to add local value and develop sustainable community services
- Local and national diabetes prevention initiatives can benefit from working in partnership with community-based volunteers, health champions and expert patients

Conclusions

Close partnership with all stakeholders was crucial to the success of this project

It provides evidence of:
- high acceptability
- reduced risk of T2D
- positive dietary and physical activity impacts
- potential cost-effectiveness of a group-based diabetes prevention education programme

Recruitment, retention and six-month outcomes exceeded initial expectations. This information enables best practice to be embedded locally, forming a robust foundation to support development and rollout of the NHS DPP

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