Implementation of a supervised exercise therapy programme

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ABSTRACT

INTRODUCTION Guidelines for peripheral vascular disease state that supervised exercise therapy (SET) programmes improve walking distance and quality of life in patients with intermittent claudication. This paper outlines the steps needed to implement a successful SET programme and discusses some of the challenges.

METHODS Edinburgh Leisure was approached to coordinate an exercise programme aimed at rehabilitation, run by level 4 members of the Register of Exercise Professionals. It is estimated to be cost effective at 500 referrals compared with physiotherapy referral. Success is measured by walking distance, reduction of symptoms and weight loss. Edinburgh Leisure also measures success with feedback and membership numbers at its health centres.

RESULTS Between 4 March 2014 and 25 January 2016, 155 patients were referred to the SET programme with a median age of 68 years (range: 39–95 years) and a male-to-female ratio of 1.2:1. Of these, 117 patients attended and 29 have completed the programme. The mean walking distance increased from 298.5m (range: 150–385m) to 360m (range: 195–482m), an improvement of 20%. Increasing class numbers and venues, and introducing evening classes to make the programme accessible to more patients has addressed initial patient engagement issues.

CONCLUSIONS Collaboration with motivated local authorities can help implement a successful healthcare intervention. Early analysis is necessary to improve the system and engage as many patients as possible. The SET programme discussed has shown similar results to those of previous studies but is available at no personal cost to regional patients with intermittent claudication.

KEYWORDS

Health plan implementation – Regional health planning – Peripheral arterial disease – Exercise

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A Cochrane review in 2015 found 14 trials looking at supervised exercise therapy (SET) versus non-supervised exercise and showed that SET resulted in a statistically significant improvement in walking distance compared with non-supervised exercise programmes.¹ The conclusion was that SET should be available for all patients with intermittent claudication.

National Institute for Health and Care Excellence (NICE) guidelines recommend that SET is held at community buildings, and that it is performed by healthcare professionals with a ratio of one instructor to five participants.² A programme may consist of approximately two hours of classes per week for up to three months, during which people are encouraged to exercise to the point of maximal pain.

Setting up a programme

Translating evidence into practice can prove difficult and results from specialist centres may not be reproducible or

generalisable because of logistic pitfalls that are not always apparent in published trials.³ These interventions often require a change in attitude and behaviour, both for individuals and organisations.^{4,5} As a result, the process by which an intervention is introduced can influence whether this intervention will produce the same results as the trials.

A successful intervention may have negative results when implemented in another region (despite a similar population base). This could be due to many factors such as local transport links, weather and cultural beliefs.⁶ Using the same implementation approach as well as the same intervention may increase the reproducibility of effect.

There are likely to be programmes of variable success running across an area organised by individuals with a passion for exercise as a healthcare intervention. These may be partially funded and open haphazardly to patients (depending on diagnosis, postcode and healthcare providers). When implementing coordinated interventions for healthcare,

competing rehabilitation alternatives have been shown to be a barrier to success.⁴

We believe that we have successfully set up a SET programme and our early results show that it is benefiting patients. This paper presents our experience of setting up a programme that is sustainable, cost effective and improves patients' outcomes.

The Fit For Health (FFH) programme coordinates a number of healthcare intervention programmes, and includes patients referred for pulmonary rehabilitation, diabetes, cardiac rehabilitation and intermittent claudication. The programme itself involves circuit training classes (which includes walking exercises) but as shown by Tew *et al*, arm crank exercise can increase walking distance in claudicants and may be better tolerated because walking causes more discomfort for patients than circuit training type exercise.⁷

Methods

The key to a successful SET programme is a coordinated system that channels efforts into one centrally funded programme, which creates equality of access across the referral area. The local council was approached two years ago and an initial meeting was held with local healthcare providers as well as tertiary care providers who see patients who might benefit from a SET programme. The programme initially consolidated a number of smaller programmes that were available for diabetic patients. This maximised the benefit of the available funding and increased the eligible population base. The programme was then expanded to pulmonary and cardiac rehabilitation (mostly from secondary healthcare referrals), and finally opened up to the vascular unit for intermittent claudication referrals.

The local council had funding available in line with government programmes for improving health and fitness in the general population. It benefited further from continuing memberships of some patients after they completed the programme. The positive publicity of 'giving back to the community' also motivates the programme. It has funding and education links to the community hospital, which provides long-term rehabilitation for chronic conditions including amputation. Specifically, the funders for FFH are based at the hospital, and sit within the Edinburgh Health and Social Care Partnership. FFH also receives referrals from the Edinburgh cardiac rehabilitation team based at the hospital.

The programme has been calculated by the FFH team to be cost effective at 500 referrals compared with referral to physiotherapy. The cost saving to the National Health Service (NHS) has not been calculated because of the complexities of estimating operative, inpatient and emergency care costs.

Patients with intermittent claudication referred to the vascular department from primary healthcare practices are assessed in the outpatient clinic. If there are no indications for immediate surgery (such as tissue loss or rest pain), then best medical management is implemented.^{8,9} This

includes medical therapy (aspirin and statin) and lifestyle advice (smoking cessation), and the SET programme is introduced. Patients receive verbal and written information on the benefits of exercise, and in particular, the additional benefits of supervised group exercise.

There are seven consultants in the vascular department as well as a vascular nurse specialist. The consultants were aware of the NICE guidelines for SET² and the programme being available locally was introduced at the weekly educational meeting. The vascular nurse specialist also received education about referral to the SET programme. A standardised referral form was emailed to all of the consultants and written advice leaflets were placed in each outpatient clinic room. Trainees are introduced to the programme by the lead consultant during their induction to the department or at the first outpatient clinic attended. Trainees refer patients under the responsible consultant's details.

The referral is sent as a standardised electronic form to a central email address. Edinburgh Leisure then contacts the patient via a welcome letter and telephone call to recruit him or her to the programme. Patients undergo an assessment prior to commencing the SET. This includes a telephone consultation and an initial one-to-one meeting, at which they fill in a questionnaire to assess their status (Appendix 1 – available online). They also undertake a six-minute treadmill or shuttle walk test. The patients are given details of classes and encouraged to attend 3 times per week for 12 weeks. Our SET programme is held at various local council gyms across Edinburgh (Table 1) and classes are supervised by level 4 members of the Register of Exercise Professionals.

At the end of the 12 weeks, patients undergo another six-minute treadmill or shuttle walk test and a further questionnaire is filled in by patients (Appendix 2 – available online). Currently, the questionnaire does not ask about smoking but Edinburgh Leisure plans to include this following update meetings with referring clinicians. The results are returned to the referring clinician via email. The referral pathway is summarised in Figure 1.

Results

Between 4 March 2014 and 25 January 2016, 155 patients were referred to the SET programme. The median age was 68 years (range: 39–95 years), and there was a male-to-female ratio of 1.2:1. Among the 155 referrals, 117 patients attended the programme and 29 have completed it so far. The mean walking distance on testing increased from 299m (range: 150–385m) to 360m (range: 195–482m), an improvement of 20% (Table 2).

A breakdown of the referral source for the 155 patients is given in Table 3. Approximately half of all referrals came from trainees acting on behalf of their consultant, with results spanning a changeover period in registrars. This suggests that the programme is being introduced effectively.

This programme is still relatively new. Initially, there were limited classes, which restricted the number of

Table 1 Locations and times of exercise classes

Venue	Day	Time
Ainslie Park Leisure Centre	Mon, Wed	11.15am–12.15pm, 3.15–4.15pm
Craiglockhart Leisure Centre	Mon, Thu	1.30–2.30pm, 8–9pm
Drumbrae Leisure Centre	Thu	3.30–4.30pm
Gracemount Leisure Centre	Wed	2–3pm
Jack Kane Sports Centre	Wed	1–2pm
Leith Victoria Swim Centre	Mon	1.30–2.30pm
Royal Commonwealth Pool	Wed	12–1pm

patients who were able to engage. This has been addressed by increasing class numbers, increasing venues where classes are held and introducing evening classes for patients working full time.

Discussion

Evidence-based practice is nowadays widely accepted as the normal approach in medicine but the challenges of turning evidence into clinical practice and translating the results of trials into real world scenarios cannot be underestimated. The diffusion of innovations theory proposed by Rogers describes the characteristics required of an intervention to determine the likelihood of its success: relative advantage, compatibility, complexity, trialability and observability.^{10,11}

Relative advantage is the perception that an intervention is more advantageous than suitable alternatives. For SET, this can be promulgated as the lack of risk compared with vascular or endovascular intervention. To an individual patient and indeed individual vascular specialists, intervention such as angioplasty, stenting or bypass may appear to an ‘instant fix’, and so these interventions can be viewed as an easier option than ongoing exercise. However, the repeated positive results of SET in the literature make it more compatible with the modern healthcare system’s values of maximal medical therapy prior to surgical intervention.

Trialability and observability are the issues that affect SET the most. Trials have been carried out (and their results reported) but to trial a system in an area is a potentially costly exercise should it fail, and this is where the benefits of following successful implementation and learning from others come in. Observability comprises two elements. Reporting results is one method but patients also have to observe a benefit; otherwise, the demand for surgical assessment and intervention will not decrease. Quality of life studies are therefore the next step for SET research and audit.

Complex changes in practice and in collaboration between disciplines are the most difficult to implement, and may obstruct research becoming practice.⁵ Changes in the organisation of care are also difficult to implement and

sustain. A SET programme can fall into all three categories. Arguably, introducing such a programme is not a complex change in practice once established (as only a single referral is needed) but it does require significant collaboration and a new organisational structure initially.

Compliance with change is better when the condition affected is acute. This is likely to be due to the immediate feedback from such a change. Chronic care guidelines are harder to implement, partly because of ‘the delayed rewards from adoption’.¹¹ In order to introduce a chronic care intervention effectively, one must understand the potential barriers to commitment.

The barriers to healthcare intervention implementation can be seen at five levels: the patient, the healthcare provider, the healthcare team, the organisation and the wider environment.⁵ For patients to engage in SET, they need to understand the benefits. Even then, many will still not engage and this was observed in our practice. The programme is designed to overcome the most common reasons for non-engagement, including making classes available at a wide range of venues, offering evening classes, patient education at point of referral (including written information) and follow-up phone calls to engage those referred. Positive reinforcement comes when the patient sees the benefit of the programme either from the increase in walking distance or social interaction with similarly affected people. More work is required to assess the quality of life outcomes from such a programme.

Individual healthcare providers can be a barrier if they do not know the programme exists or find the referral process complicated. This can be addressed with education. Auditing the results from a department can improve individual health professionals’ engagement, simplifying the referral process. For example, Williams *et al* found that although individual healthcare practitioners understood that intervention was relevant and important, they did not engage with the process as they felt they had no training and lacked understanding of the goals, believing that referral to specialty treatment was the only viable option.¹² This can be similar with SET. If key referrers do not believe the intervention works or believe that patients will not engage, they will be unwilling to refer to the programme.

Figure 1 Referral pathway

Martin *et al* also showed lack of managerial support as a main barrier.⁴ Their conclusion was that user involvement in the design and development phase would improve implementation, as was the case in our experience.

Change management has been defined as ‘the process of continually renewing an organization’s direction, structure, and capabilities to serve the ever-changing needs of external and internal customers’.¹⁵ This is particularly true in medicine as we are continually moving forwards owing to research and the need to remain up to date is constant. The changes that face medicine in the future are often unpredictable and the leadership of change is frequently reactive, provoked by a ‘crisis’.¹⁵ For the NHS, this generally comes in the form of financial or capacity pressure. Programmes to prevent the need for acute care are fundamental to avoiding future crises.

Rogers explains that despite mass media reporting and evidence, interpersonal channels are still the most effective

means of influencing the innovation-decision process.¹¹ Key referrers will follow a natural pattern: first come the innovators (those who take on the idea early and try it), followed by the early adopters, late adopters and laggards. This was observed in the differential referral patterns in our study. The interpersonal route is most important between the early and late adopters stage. Adoption of change is encouraged by early audit, with initial results being fed back to key referrers in order to allow a positive attitude to form towards the idea (in this case, referral to SET and encouraging patients to engage with exercise via education). Change management theories are often contradictory but one theory proposed by Lewin is that before change and new behaviour can be successfully adopted, the old behaviour has to be discarded.¹⁵

The healthcare team as a whole should be engaged with the process. As these referrals come from individual practitioners in clinic, participation of other members of the

Table 2 Results of patients completing the 12-week programme

Patient number	Distance walked in 6 minutes		Difference	% of initial distance
	Before programme	After programme		
1	385m	385m	0m	100%
2	313m	360m	47m	115%
3	314m	297m	-17m	95%
4	300m	480m	180m	160%
5	295m	465m	170m	158%
6	350m	375m	25m	107%
7	330m	381m	51m	115%
8	200m	200m	0m	100%
9	328m	380m	52m	116%
10	150m	195m	45m	130%
11	224m	280m	56m	125%
12	300m	380m	80m	127%
13	320m	420m	100m	131%
14	330m	300m	-30m	91%
15	340m	360m	20m	106%
16	340m	360m	20m	106%
17	280m	360m	80m	129%
18	330m	420m	90m	127%
19	170m	259m	70m	152%
20	330m	400m	70m	121%
21	312m	381m	69m	122%
22	290m	292m	2m	101%
23	180m	360m	180m	200%
24	340m	460m	120m	135%
25	320m	340m	20m	106%
26	316m	310m	-6m	98%
27	310m	385m	75m	124%
28	375m	375m	0m	100%
29	285m	482m	197m	169%

team is minimal in these cases but whole team engagement can be achieved if referral to SET is documented as a decision taken at the MDT meeting (eg surgery vs angioplasty vs conservative management including SET). This would encourage referral as these decisions are generally acted on.

The wider environment for SET can be considered to be the local council and funding sources. The benefit of these programmes needs to be advertised and promoted as well as audited to ensure ongoing funding and provision.

In order to change practice, there has to be motivation at a number of stages. Relevant agencies should be involved early and motivated by the feasibility of such a

change. There should be a number of ways of promoting the change across all barriers (patient education, health provider education, organisational gain and collaboration).

Cost effectiveness

The financial cost has shown our SET programme to be cost effective at 500 referrals. This has been calculated by the local council as part of the proposal for continued funding. Cost analysis for purchasing healthcare intervention is complex. Maynard has noted that many studies use prices or charges but ignore the saved cost of the intervention not chosen even though this should be taken into account.¹⁴ For instance, if SET improves walking distance and

Table 3 Source of referrals	
Source	Referrals
Consultant 1	63
Consultant 2	2
Consultant 3	43
Consultant 4	0
Consultant 5	15
Consultant 6	0
Consultant 7	8
Vascular nurse specialist	21
Other*	3

therefore delays or reduces referral to angioplasty or surgery, the calculation of the cost effectiveness of such a programme should include the savings to the NHS but this is difficult to determine accurately. Furthermore, as it affects different budgets, it is almost impossible to use as a financial incentive for funders.

Ståhl *et al* found that even when financial subsidies were offered for interventions (with the most substantial subsidies being for coordinated intervention), uptake was only modest.¹⁵ Change needs to be perceived as purposeful, manageable and cost effective in order for change to be implemented. Even when government grants are available to start up programmes, the long-term success relies on belief of the intervention and ongoing proof that it is beneficial.

Is it possible to put a value on quality of life? This leads to the argument of population benefit versus individual benefit. The mean improvement in walking distance is positive but our patient cohort also included some individuals who deteriorated during the programme as well as those who improved far beyond the average. This could be either a patient selection issue or an engagement issue. One example of this is a diabetic patient who developed an ulcer and was not referred back once his ulcer had healed. His walking distance at the last session he attended before dropping out of the programme was recorded as being shorter than before starting the programme although he would have arguably managed to benefit from the SET had he been re-referred and completed the programme.

By the time patients have sought medical advice, been referred to tertiary care and waited for an appointment, their symptoms are usually affecting quality of life. Improving GP access and knowledge of SET may increase the benefit to patients who are early claudicants. SET should be part of the initial management. ‘Stop smoking and start walking’¹⁶ is catchy and covers the fundamental points of managing intermittent claudication, and any exercise is obviously better than no exercise. However, SET coupled with risk factor modification (antiplatelets, statins, antihypertensives [where indicated], diabetic control and smoking cessation) will often lead to an improvement or

stabilisation of symptoms to the extent that no other intervention is required.^{8,9}

Quality of life

The Cochrane review from 2013 concluded that further studies were required to assess quality of life prior to and following SET.¹ A 25-question disease specific quality of life questionnaire for lower limb ischaemia (VasculQoL) can be employed to show within-subject change following an intervention such as angioplasty or SET.¹⁷ A modified six-question version has also been designed although this has not yet been validated.¹⁸ The latter has now been introduced to our SET programme, and the intention is to compare quality of life data from before and after completing the SET programme.

Conclusions

It is possible to translate evidence into practice and successfully implement a new SET programme but knowledge of the barriers to success and early engagement of the key users in the design process are essential. With chronic care guidelines, it is necessary to audit early and repeatedly to identify initial issues and push the initial drive past the point where enthusiasm begins to lag. The delayed rewards of these interventions will only be recognised fully if the programme continues, with endorsement from the healthcare team.

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