Evaluation of GO Active, Get Healthy

The Oxfordshire Get Healthy, Get Active project


<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Executive summary</td>
<td>2</td>
</tr>
<tr>
<td>2. Introduction</td>
<td>6</td>
</tr>
<tr>
<td>3. Literature review</td>
<td>7</td>
</tr>
<tr>
<td>4. Project delivery</td>
<td>8</td>
</tr>
<tr>
<td>5. Evaluation methods</td>
<td>11</td>
</tr>
<tr>
<td>6. Results</td>
<td>18</td>
</tr>
<tr>
<td>7. Discussion</td>
<td>39</td>
</tr>
<tr>
<td>8. Key findings and recommendations</td>
<td>45</td>
</tr>
<tr>
<td>9. Conclusions</td>
<td>46</td>
</tr>
<tr>
<td>10. References</td>
<td>48</td>
</tr>
<tr>
<td>11. Appendices</td>
<td>52</td>
</tr>
</tbody>
</table>
1. Executive summary

**Background**

Let’s Get Moving (LGM) is the Department of Health’s pathway to help individuals meet recommend levels of physical activity. The commissioning guidance allows flexibility in the delivery of LGM in order to establish the best model to meet local health needs. In 2013 Sport England commissioned Oxfordshire Sport and Physical Activity to deliver ‘Go active, Get Healthy’, as part of it’s Get Healthy, Get Active’ program. ‘Go active, Get Healthy’ was a 3 year pilot program of a individuals level physical intervention for sedentary adults in Oxfordshire based on LGM.

**The program and evaluation methods**

The fundamentals of the ‘Go active, Get Healthy’ intervention was motivational interviews combined with suitable subsisted activities provided by local authority leisure providers. Recruitment was via multiple entry points for referring into the program (Health referral, non-health referral and self-referral) and included a payment-by-results-model whereby referrers received payment for referring eligible individuals who enrolled in the program.

Individuals were eligible for the program if they were 1) adult (≥16 years) and 2) scoring ‘0’ (≤ 1 session of 30 mins exercise/week). The evaluation included data from all recruited eligible individuals and aimed to follow up all participants that enrolled at program at 3, 6 and 12months. Primary outcome was the extent of change in physical activity (IPAQ-short) over this period, with secondary measures of perceived health and well-being (EQ5D-5L) and health service use.
Results

Between January 2014 and March 2016, 812 people were referred to the program (41.6% health referrals, 41% self-referrals, 17.4% non-health referrals); 548 went on to enrol and were included in the intention-to-treat analysis (analysis included all individuals irrespective of their degree of participation or whether they were lost to follow-up) was used to evaluate the effectiveness of the program. Referral pathway influenced demographic of participants. Health referrers tended to identify people who were older and more than half (53.1%) of those referred had a disability or long-term health problem compared to 13.5% to those who self-referred. Women were predominant across referral routes and 4 times more women self-referred than men. The demographic of those who enrolled in the program was similar to that referred except for those with disability or long-term health problem were significantly more likely to enrol (p<0.001).

Physical activity (MET minutes per week) significantly increase from baseline and remained higher at 12months (p<0.001, 3 month Effect Size (d)= 0.22 (95%CI: 0.10-0.34), 6month d=0.27 (95%CI: 0.15-0.39), 12 month d =0.22 (95%CI: 0.09-0.34) and an estimated 18.1%, 18.2% and 17.3% of enrolled individuals met minimum recommended UK physical activity guidelines at 3, 6 and 12months respectively. In addition PA transitioned towards more intense physical activity over the assessment period. Perceived health and well-being also significantly improved over the 12months (p<0.001, 3month: d = 0.17 (95%CI:0.05-0.28), 6month: d = 0.22 (95%CI:0.10-0.34) , 12month: d = 0.22 (95%CI:0.10-0.34) and per-protocol analysis found those who increased PA to meet UK guidelines had a significantly greater increase in Perceived health and well-being at 3months (p=0.041). Despite this a
significant increase in health service costs was found at 6months (analysis only on those with follow-up data: p=0.005, Baseline median: £104 (IRQ: £36-£271), 6 month £146 (IRQ: £63-£394)). However, modelled return on investment demonstrated potential cost-effectiveness of the program in the long-term (Life time return of each pound spent £5.26).

**Key findings and Recommendations**

- This evaluation supports the use of multiple entry points as identified in previous evaluations of LGM and that referred individuals are more likely to engage.

- The data indicates that there remains reluctance or barriers amongst potential referrers to engage with referring to community physical activity intervention, but that this can be negated by enthusiastic referrers which include those beyond the transitional focus of primary care providers.

- There is limited evidence to support payment by results for referrals. However, it may have helped initially engage referrers and have improved the likelihood of referred individuals to enrol.

- The program was effective at increasing PA in those who engaged and improvements were largely retained at 12months with a transition towards more vigorous PA, possible through participation in sport in some.
• The program included a high proportion of those with disability and long-term health problems and supports the use of the LGM in this group. These individuals were more likely to enrol and the program was just as effective. However, within this classification some groups may still be under represented.

• The program also recruited individuals with a low perception of their health related quality of Life, which showed sustained improvement after the intervention that was more marked in those with meeting physical activity guidelines

• Whilst, a small increase in service use was found during follow-up period this evaluation provides data to further support the cost effectiveness of the LGM pathway.
2. Introduction

The evidence for health, wellbeing and wider economic and societal benefits of physical activity are overwhelming and do not need to be restated here. However, inactivity remains a major concern for public health in the UK due to a large proportion of the population who are inactive[1]. In England only 56% of the adult population meet government activity guidelines and 28% of people are classed as inactive (less than 30mins activity a week)[2]. Furthermore, these levels have remained essentially unchanged over the last 10 years [3].

‘Let’s Get Moving’ (LGM) was launched by the department of Health in 2009 and is a care pathway for physical activity in primary care. It provides service providers with a systematic way to recruit individuals and screen for those who are inactive, and includes a brief intervention, to support behaviour change, centred on motivational interviewing [4]. A schematic of LGM can be found in figure 1. In 2013 Sport England commissioned 15 projects to support inactive people to get active through participating in sport (‘Get Healthy, Get Active’). The Oxford project reported here ‘Go active, Get Healthy’, is an individual level physical activity intervention based on the LGM pathway and incorporates recommendations from feasibilities studies that have evaluated LGM delivery.
3. Literature review

Studies have indicated LGM is feasible to deliver [5, 6] and has the potential to be cost effective in the primary care setting [6, 7]. However, data demonstrating the effectiveness of the pathway remains limited and there is a need for evidence to guide local commissioning and provision of the pathway.

The Oxford project ‘Go active, Get Healthy’, was developed considering recommendations from feasibilities studies that have evaluated LGM delivery. These recommendations include the use of multiple entry points for recruiting to the program [6] and providing training to enable staff to undertake screening and recruit individuals[8].

The referral process has been found to be a significant predictor of uptake and length of engagement with exercise on referral schemes [9]. However, whilst proactive primary care referral has been shown to be more effective it also incurs
more cost [7, 10] and such barriers for collaboration between the primary care and sports/leisure providers remain largely unexplored [11]. Considering this the ‘Go active, Get Healthy’ piloted a payment-by-results model for referrers, whereby referrers received payment for referring eligible individuals who went on to take up the program.

4. Project delivery

‘Go active, Get Healthy’ (the program) was incorporated into the Oxfordshire Physical activity care pathway co-ordinated by Oxfordshire Sport and Physical Activity (OXSPA), a Community Sports Partnership Appendix 1. The program was project managed by OXSPA who recruited and trained referrers and directly recruited potential participants through a marketing and promotion of the program. They screened participants, performed assessments and delivered the motivation interviewing intervention via contracted MI professionals. OXSPA also administered the referrer payments and co-ordinated partners. Project management was facilitated through a bespoke web based data capture and management system commissioned for the project. The single system managed recruitment, screening, registration, motivational interviewing and assessment data and also participant timeline and scheduling. The system provided different user interfaces and permission levels for different users such as central administration, motivational interviewer and evaluation teams.

Oxfordshire local authorities contracted leisure providers were responsible for developing and delivering activities suitable for sedentary individuals and provided subsidised activities and local promotion.
Recruitment

Multiple entry points were used to recruit people from Oxfordshire to Go active, Get Healthy [6] these were broadly classified as: 1) ‘Self-referral’, 2) ‘Health referral’ and 3) ‘non-health referral’.

Self-Referral

Individuals were able to Self-refer (sign up) to Go active, Get Healthy online via the OXSPA website or by returning a referral card. Referral cards (appendix 2) provided demographic information and current PA levels. OXSPA used a number of marketing and promotional tools to raise public awareness of the program and to encourage people to refer themselves. Including posters distributed and displayed at 325 sites at a range of locations (colleges, coffee shops, libraries, workplaces), promotional video and case studies on OXSPA website, news articles and community events, where ‘fitness MOTs’ were used to engage the public.

Health professional referral

OXSPA promoted the program to potential referrers and offered half day training sessions on the Health benefits of PA, raising the issue of PA with patients and providing support to them changing their behaviour. The program focused on primary care providers (GP surgeries/health centres), but hospital based services and pharmacies were also targeted. After referrers signed up they were provided with referral cards and information on the referral and payment process (referrers were paid £30 for every successful referral). Referral cards were returned to OXSPA sport development officers and as of march 2015 referrals were able to be made
electronically by primary care referrers through the DXS system. An example referrer information sheet can be found in appendix 3.

**Non-health referral**

The process for non-health referrals mirrored that of health referrals. Non-health referrers targeted were employers, community enterprises and service providers.

**Screening**

Inactive people were recruited by the above means were confirmed eligible for the program at a baseline assessment performed over the phone by a sports development officer at OXSPA. The eligibility criteria were 1) adult (≥16 years) and 2) scoring ‘0’ (< 1 session of 30 mins exercise/week) on the single item activity measure (appendix 3), this was adjusted after the 8th Oct 2014 to scoring either 0 or 1. Screening on the single item activity measures was standard over all Sport England commissioned ‘Get Healthy, Get Active’ programs.

**Intervene**

Individuals meeting eligibility criteria and choosing to take up the program were provided with information about the program and possible activities at the baseline assessment by the sports development officer. They were then sent an information pack, which included vouchers for subsidised activities provided by their local leisure provider. Participants were also able to choose to receive up to 3 MI sessions over a 3-month period. Participants were assigned to a motivational interviewer and asked for their preference for MI session timing, participants were then contacted by their motivational interviewer who delivered the sessions over the telephone.
Active Participation

Participants chose how to increase physical activity, which may have included these, may have included unstructured and structured activities. Information on suitable structured activities provided local leisure providers were included in their information pack, along with vouchers for subsidised activities. Available activities and subsidies varied over time and according to local provision (current examples available: https://www.getoxfordshireactive.org/find-an-activity).

Review

All participants that chose to take up the program were reviewed after 3 months, 6 months, and 12 months. No further intervention was offered at the review sessions, in terms of MI sessions or subsidised activities.

5. Evaluation Methods

Design

This was a pragmatic practice-based evaluation and followed recommendations of the of the ‘Standard Evaluation framework for PA interventions’[12].

Participation incentives

Data from all recruited individuals that provided consent for their data to be used for monitoring and evaluation purposes were included in the analysis. The evaluation aimed to follow up all participants that decided to take up the program and used the following approaches to maximise follow up response rate:
• Participants were offered a £20 gift voucher or donation to charity on their behalf for completing a follow up assessment.

• Motivational interviewers reminded participants at their last motivational interview session to expect a telephone call for the evaluation and confirmed preferred time

• The data capture and management system generated automatic emails reminding people that assessment was due and if there was no response after 3 call attempts

• A minimum of 3 telephone call attempts were made at each assessment point unless they had previously decided to ‘opt out’ of further evaluation. If unsuccessful a message was left with details of how the participant can get in contact.

• A paper version of the assessment was available if people did not wish to complete the assessment over the telephone

Assessment

Demographic data of age, sex, ethnicity, long-term health problems and disability, and Postcode (social-economic proxy) was ascertained via referral cards or on-line sign ups.

A baseline assessment was offered to all referred individuals; those who were eligible and enrolled on the program were then followed up at 3months, 6months and 12months (figure 2).
Initially, the baseline assessment confirmed eligibility and willingness to take up the program and the evaluation; at this point individuals were also able to defer involvement to a later date. Outcome measures were then ascertained.

**Outcome Measurement**

All outcome measures were collected at baseline (entry into program), three months (end intervention), 6 months and 12 months. All assessments were carried out over the phone unless a paper version was specifically requested. Data was accepted up to one month after the secluded assessment date. The baseline assessment was carried out by a sports development officer and further assessments carried out by a motivational interviewer. Motivation interviewers were re-assigned participants for assessments so as to not perform assessment on individual that they provided MI for. Data was directly inputted into the data capture and management system.
Viable data ranges, compulsory field entries and codes for missing data were placed on questionnaire data entry as per standard operating procedures[13-15]. All assessors received training on administering outcome measures and carrying out assessments.

**Physical activity**

The primary outcome was physical activity (total MET-minutes per week) measured using the International Physical activity Questionnaire (short) telephone format (IPAQ) (appendix 4) and was administered according to guidelines[13]. The IPAQ was standard over all Sport England commissioned ‘Get Healthy, Get Active’ programs and was modified to include a ‘time spent doing sport’ item. Data was processed according to guidelines [16]. Metabolic equivalents were assigned to the amount of time spent in Vigorous (8.0METs x minute), Moderate (4.0 x minute) and Walking (3.3 x minute) domains in the previous 7 days. Time spent sitting and time spent doing sport were also recorded but not included in the calculation of total MET-minutes per week. Sitting minutes was estimated as an average per weekday (not considering weekends) and sport the total amount of time in the previous 7 days.

**Perceived Health and well-being**

Health outcome was measured using the EQ-5D-5L (telephone version, see appendix 5). The EQ-5D-5L is comprised of a descriptive system and an index score. The descriptive system comprises the following 5 dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has 5 levels: 1) No problems, 2) Slight problems, 3) Moderate problems, 4) Severe problems, 5) Extreme problems. The index score asks individuals to rate their health according to
a 0 to 100 scale (‘0 worst health you can imagine – 100 best health you can imagine’) and used to indicate health related quality of life[14].

**Process Evaluation**

Process evaluation was on going through out the project. However, formal evaluations took place to capture experience from participants and referrers and case studies were recorded.

**Participant**

All participants were given an exit questionnaire upon finishing the intervention. This would either be administered after their 3months assessment or, if they chose to formally discontinue intervention, at the time of notification of their decision to opt out. The Following questions were asked on a three point scale:

- **How satisfied were you with process of getting referred into the programme?**
- **Did you find the coaching on the telephone helpful for motivating you to take part in exercise?**
- **How much did you enjoy the activities you tried?**
- **How much do you perceive the activities you tried benefitted you in terms of your health and wellbeing?**
- **In general how satisfied are you with programme?**
- **How important do you feel physical activity is for your future and wellbeing?**
- **Do you plan to participate in physical activity in the future?**
Referrer

In July 2014 referrers sent a newsletter about the progress of the program and asked to complete an online survey in July 2014. The following question were asked and rated on a 1-6 Likert scale (1 = ‘strongly disagree’, 6 = ‘strongly agree’)

- The information and materials I received about GO Active, Get Healthy enabled me to engage with the programme
- I found the process of referring people into the programme straight forward?
- I found the process of referring people into the programme straight forward?
- I am confident about raising the issue of physical inactivity?
- The referral payment is an important incentive to encourage me to refer into GO Active, Get Healthy?

In addition they were asked to provide their three main reasons for referring to the program.

Service use and return on Investment

Health Service Use

Participants were asked to recall what health services they had used in the previous 3 months. Unit cost were then assigned to the services to estimate health service costs, unit costs were; inpatient days (unit = access bed day £306); Emergency Department visits (unit = A&E attendance £138); Allied Health Professional appointment (unit = community health service cost per patient contact £63); Nurse appointment (unit = community health service cost per patient contact £45) [17]; GP appointment (unit = per patient contact lasting 9.22 minutes, with qualification cost and direct care staff cost £36); Consultant appointment (unit = 1hour hospital based consultant time £104)[18]
Return on Investment

Return on investment was modelled using the National Institute for Health and Care Excellence (NICE) Physical activity return on investment tool v.1.05. (https://www.nice.org.uk/about/what-we-do/into-practice/return-on-investment-tools/physical-activity-return-on-investment-tool). The tool evaluates interventions in their geographical area (e.g. region, county or local authority) and models the economic returns that can be expected in different payback timescales. The advanced individual – level intervention, custom individual level intervention procedure was used, where PA data obtained from IPAQ and used to calculate the number of individuals that had moved from inactive to either low active (30-149 minutes of moderate exercise per week) or meeting recommendations (150 minutes or more of moderate exercise per week). Cost per person for the brief intervention and recruitment cost was estimated at £176 and geographical location was set as Oxfordshire.

The model then estimated the number of individuals in which diseases could be prevented if levels of PA were increased due to the intervention. Based on the predicted prevented number of disease cases (Chronic Heart Disease, Stroke and Type II diabetes) the impact of the intervention in terms of health related quality of life (expressed in Quality Adjusted Life Years, QALYs) and health care costs savings are estimated for 48 annual cycles (lifetime).

Analysis

People who performed the baseline assessment were deemed to have enrolled (starters) and those who performed the 3month assessment where deemed to have completed the brief intervention (completers). To compare nominal data between
groups Pearson $X^2$ analysis from the crosstabs procedure in SPSS was used, post hoc
group difference were determined using z-tests with Bonferroni adjusted p-values.
For continuous data independent sample t-test or One-way ANOVA were used after
checking data with normal distribution, non-parametric equivalents for used for data
that violated normality assumptions. Primary analysis for outcome data was
intention-to-treat, including all enrolled participants, with the conservative approach
of baseline Observation Carried Forward (BOCF), used to impute missing data. Per-
protocol subgroup analysis was also performed on those who performed the
assessments. Alpha was set at 0.05 with adjustment for multiple comparisons where
appropriate. The Individual PA response was calculate from IPAQ data as the
proportion of people that had any increase in PA and the proportion of people that
achieved UK government guidelines for 19-64 year olds (150min a week moderate
intensities PA or 75minutes vigorous activity or a combination of both) [19]. For
individual perceived health improvement the percentage of proportion that had an
increase in EQ5D-5L VAS score was calculated and the proportion of people with a 5
point increase (considered minimal important difference) [20]. Alpha was set at 5%.

6. Results

Recruitment and participant flow under payment by results

Between January 2014 and March 2016, 812 people were referred to the program
under the payment by results (PBR) scheme, recruitment rate was approximately 30
people per month over the duration of the programme and was relatively constant
throughout (figure 3). Figure 3 also shows referral rate was maintained after
payments-by-results to referrers had finished. Participant flow can be found in figure 4, most (59.0%) people were referred to the program by either a health professional (41.6%) or non-health referrers (17.4%). Whilst, there was a trend towards a less non-health professional referrals after payments-by-results had finished this was not significant (health professional: 45.1%, non-health professional: 13.4%, self-referred: 41.5% p = 0.17).

Figure 3. Accumulative referrals over the duration of the program End

End PBR = End of the Payment-by-results referentive, Date (mm/yyyy)

Sixty nine different health organisations referred to the program. The number of referrals per individual referrer varied considerably (median= 2, mode= 1, range=42-1), with the top 9 referrers accounting for 50% of referrals. Seventeen non-health
organisation referred to the program and also varied in number of referrals per individual referrer (median= 3, mode= 1, range=77-1), with one referrer, accounting for over 50% of referrals (a community enterprise). Of those who ‘self-referred’ most reported finding out about program through an event or via the OXSPA website.

Only 23 people referred (all routes) to the program failed eligibility criteria, demonstrating an efficient process and clear guidance. Most of the 264 people excluded prior to the baseline assessment were due to either not wanting to take part or becoming uncontactable (91.3% of those excluded). Baseline assessment data was obtained in 548 individuals (thus deemed to have enrolled in the program “Starters”). Attrition of individuals assessed was relative stable over time with over time with 69.9%, 64.4% and 66.0% of those enrolled loss to follow up at 3, 6 and 12 months respectively.

Figure 4. Participant Flow

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![Participant Flow Diagram](image)
Referrer experience

Nineteen refers completed the online survey on their perception of the program. Responses can be found in Table 1a. The majority found the process of referring people into the program straightforward and that they were confident about raising the issue of physical inactivity. The referral payment for referral was not deemed an important incentive to refer to the program. This was further explored by asking respondents to rank their three main reasons for referring into GAGH. Seven themes were identified from the responses. Table 1b reports the frequency that a theme was given as a reason for referring. Health and wellbeing benefits to the individuals was the most frequently reported reason for referring, specific reasons included both physical health such as preventing diabetes and mental health such as depression. Simply to increase PA, without explicitly linking this to a health benefit was also a common reason for referring. Interestingly, using the programme to promote self-determination was the 3\textsuperscript{rd} highest reason for referring. Explicitly referrers used the programme for ‘promotion of self-care to patient’ and ‘encourages pts to take responsibility’. The payment incentive to the referrer was not a prevalent reason for referring. However, other qualities of the programme were highlighted as reasons, including ease of referring and the wide choice of activities that are available through GO Active.
Table 1a. Response’ to referrer experience survey

<table>
<thead>
<tr>
<th>Question</th>
<th>Mode</th>
<th>Median</th>
<th>(Range)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1</strong> The information and materials I received about GO Active, Get Healthy enabled me to engage with the programme</td>
<td>5</td>
<td>5</td>
<td>(2-6)</td>
</tr>
<tr>
<td><strong>2</strong> I found the process of referring people into the programme straight forward</td>
<td>5</td>
<td>5</td>
<td>(2-6)</td>
</tr>
<tr>
<td><strong>3</strong> I am confident at determining who is suitable for GO Active, Get Healthy</td>
<td>4</td>
<td>4</td>
<td>(3-5)</td>
</tr>
<tr>
<td><strong>4</strong> I am confident about raising the issue of physical inactivity</td>
<td>6</td>
<td>6</td>
<td>(3-6)</td>
</tr>
<tr>
<td><strong>5</strong> The referral payment is an important incentive to encourage me to refer into GO Active, Get Healthy</td>
<td>3</td>
<td>3</td>
<td>(1-6)</td>
</tr>
</tbody>
</table>

Mode (most frequent), median and range of responses on 1-6 Likert scale (1 =‘strongly disagree’, 6 = ‘strongly agree’)

Table 1b. Themes identified for reason given by referrers to refer

<table>
<thead>
<tr>
<th>Theme</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health and wellbeing benefit to the individual</strong></td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>22</td>
</tr>
<tr>
<td><strong>Qualities of the program</strong></td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td><strong>Promote self-determination</strong></td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td><strong>Promote physical activity in the individual (not explicitly linked to a health benefit)</strong></td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td><strong>The payment</strong></td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>Benefits or supports the service provided by the refer</strong></td>
<td>0</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td><strong>The wider societal benefits of promoting Physical activity</strong></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Reported is the frequency that each theme was identified according to order of importance given by referrer
Demographic

*Referral Demographic*

Table 2 show the demographic of those referred. The majority of people referred to the program (via all routes) were women. This was most prominent in self-referral where the proportion women was significantly greater than health professional and non-health professional referrals \((p<0.05)\). Total referrals were greatest in the 35-54 age band. However, the greatest number of people referred by health professionals were 55+, a significantly greater proportion than those referred by non-health professionals and self-referred \((p<0.05)\). The majority of people referred to the program were white with no difference between referral routes \((p>0.05)\). In total 33.3% of people referred reported having a long-term health problem or disability that that limited their daily activities. The proportion of people reporting a long-term health problem or disability varied considerably between referral routes. Most people (52.1%) refereed from a health professional had health problem or disability, a greater proportion than those \((p<0.05)\) referred from non-health professionals (34.8%), which was in turn significantly greater than those who self-referred (13.5%, \(p<0.05)\). 5.4% of people referred were from deprived areas and there was no difference between referral routes \((p>0.05)\) for this group. Whilst, most people went on to enrol (“Starters”), those who self-referred were less likely to do so \((p<0.05)\).
Table 2 Referral demographic.

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Health Referral</th>
<th>Non-health Referral</th>
<th>Self-Referral</th>
</tr>
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<tbody>
<tr>
<td><strong>N</strong></td>
<td>812</td>
<td>338</td>
<td>141</td>
<td>333</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (%)</td>
<td>29.0</td>
<td>32.4&lt;sup&gt;a&lt;/sup&gt;</td>
<td>43.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>19.5&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Female (%)</td>
<td>71.0</td>
<td>67.6&lt;sup&gt;a&lt;/sup&gt;</td>
<td>56.7&lt;sup&gt;a&lt;/sup&gt;</td>
<td>80.5&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-19 (%)</td>
<td>2.5</td>
<td>2.4&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.9&lt;sup&gt;a&lt;/sup&gt;</td>
<td>2.5&lt;sup&gt;a&lt;/sup&gt;</td>
</tr>
<tr>
<td>20-34 (%)</td>
<td>23.7</td>
<td>18.5&lt;sup&gt;a&lt;/sup&gt;</td>
<td>31.6&lt;sup&gt;b&lt;/sup&gt;</td>
<td>25.5&lt;sup&gt;a,b&lt;/sup&gt;</td>
</tr>
<tr>
<td>35-54 (%)</td>
<td>43.9</td>
<td>38.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>51.5&lt;sup&gt;b&lt;/sup&gt;</td>
<td>46.4&lt;sup&gt;a,b&lt;/sup&gt;</td>
</tr>
<tr>
<td>55+ (%)</td>
<td>29.9</td>
<td>40.7&lt;sup&gt;a&lt;/sup&gt;</td>
<td>14.0&lt;sup&gt;b&lt;/sup&gt;</td>
<td>25.5&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian/Asian British (%)</td>
<td>5.5</td>
<td>4.3</td>
<td>7.9</td>
<td>5.6</td>
</tr>
<tr>
<td>Black/Black British (%)</td>
<td>3.3</td>
<td>4.6</td>
<td>0.0</td>
<td>3.4</td>
</tr>
<tr>
<td>Mixed (%)</td>
<td>3.2</td>
<td>3.4</td>
<td>5.0</td>
<td>2.2</td>
</tr>
<tr>
<td>White (%)</td>
<td>85.6</td>
<td>84.6</td>
<td>86.4</td>
<td>86.2</td>
</tr>
<tr>
<td>Other (%)</td>
<td>2.5</td>
<td>3.1</td>
<td>0.7</td>
<td>2.5</td>
</tr>
<tr>
<td><strong>Health problem or disability</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(%)</td>
<td>33.3</td>
<td>52.1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>34.8&lt;sup&gt;b&lt;/sup&gt;</td>
<td>13.5&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Deprived area</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(%)</td>
<td>5.4</td>
<td>3.7</td>
<td>7.5</td>
<td>7.5</td>
</tr>
<tr>
<td><strong>Enrolled in program</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(%)</td>
<td>67.5</td>
<td>74.9&lt;sup&gt;a&lt;/sup&gt;</td>
<td>73.0&lt;sup&gt;a&lt;/sup&gt;</td>
<td>57.7&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

Each superscript letter (<sup>a,b,c</sup>) denotes a homologous subset of Referral route whose proportions do not differ significantly from each other (p<0.05), * performed baseline assessment

**Program Demographic**

The demographic of those who enrolled was similar to those referred. Table 3 shows there was no difference (p>0.05) between those who enrolled and those who were excluded at this point (predominantly made up of people opting out), except for people with a long-term health problems or disability were more likely to enrol (p<0.001).
Table 3. Demographics at Enrolment

<table>
<thead>
<tr>
<th></th>
<th>Enrolled</th>
<th>Excluded</th>
<th>$\chi^2$ (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$N$</td>
<td>548</td>
<td>264</td>
<td></td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td>0.258</td>
</tr>
<tr>
<td>Male (%)</td>
<td>27.8$^a$</td>
<td>31.7$^a$</td>
<td></td>
</tr>
<tr>
<td>Female (%)</td>
<td>72.2$^a$</td>
<td>68.3$^a$</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>0.121</td>
</tr>
<tr>
<td>16-19 (%)</td>
<td>2.1$^a$</td>
<td>3.6$^a$</td>
<td></td>
</tr>
<tr>
<td>20-34 (%)</td>
<td>22.0$^a$</td>
<td>27.2$^a$</td>
<td></td>
</tr>
<tr>
<td>35-54 (%)</td>
<td>44.0$^a$</td>
<td>43.6$^a$</td>
<td></td>
</tr>
<tr>
<td>55+ (%)</td>
<td>31.9$^a$</td>
<td>25.6$^a$</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td>0.821</td>
</tr>
<tr>
<td>Asian/Asian British (%)</td>
<td>6.2$^a$</td>
<td>4.0$^a$</td>
<td></td>
</tr>
<tr>
<td>Black/Black British (%)</td>
<td>3.2$^a$</td>
<td>3.6$^a$</td>
<td></td>
</tr>
<tr>
<td>Mixed (%)</td>
<td>3.0$^a$</td>
<td>3.6$^a$</td>
<td></td>
</tr>
<tr>
<td>White (%)</td>
<td>84.1$^a$</td>
<td>85.6$^a$</td>
<td></td>
</tr>
<tr>
<td>Other (%)</td>
<td>2.5$^a$</td>
<td>2.4$^a$</td>
<td></td>
</tr>
<tr>
<td>Health problem or disability (%)</td>
<td>39.1$^a$</td>
<td>21.2$^b$</td>
<td>$&lt;0.0001$</td>
</tr>
<tr>
<td>Deprived area (%)</td>
<td>6.3</td>
<td>5.4</td>
<td>0.463</td>
</tr>
</tbody>
</table>

Each superscript letter ($^{a,b,c}$) denotes a homologous subset of frequency of those enrolled and those were excluded whose proportions do not differ significantly from each other, displayed with the p value derived from the $\chi^2$ statistic.

Long-term health problem or disability characteristics.

Of the 214 people with a long-term health problems or disability who enrolled 85 (39.7%) reported impairments in 2 or more categories. The orders of impairments in terms of frequency reported were: Pain, ($n=97$), Mobility ($n=93$), Mental health ($n=86$), Fatigue ($n=71$), “Other” ($n=59$), Hearing ($n=16$), Vision ($n=9$), Speaking or being understood ($n=6$), Learning ($n=5$). EQ5DL-5L dimension scores (Table 4) indicate the severity and impact of impairments, with most people reporting some problems with Pain, Motility and Anxiety /depression and 39.9%, 27%, 33.4% reporting moderate to severe problems in these dimensions respectively. People with long-term health problems or disability had greater severity problems across all dimensions (all at p<0.001) and rated their general health (EQ5D-VAS) significantly
worse than those reporting no long-term problem (Health problem mean: 48.9 ± 23.0, No health problem mean: 56.8 ± 21.1, p<0.001).

Table 4. EQ-5DL-5L dimension scores at enrolment

<table>
<thead>
<tr>
<th>Level</th>
<th>Mobility</th>
<th>Self-care</th>
<th>Usual Activities</th>
<th>Pain/discomfort</th>
<th>Anxiety/ Depression</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Health problem</td>
<td>No problem</td>
<td>Health problem</td>
<td>No problem</td>
<td>Health problem</td>
</tr>
<tr>
<td>1</td>
<td>41.8%</td>
<td>75.9%</td>
<td>83.1%</td>
<td>95.1%</td>
<td>56.3%</td>
</tr>
<tr>
<td>2</td>
<td>30.5%</td>
<td>16.0%</td>
<td>9.4%</td>
<td>3.0%</td>
<td>25.8%</td>
</tr>
<tr>
<td>3</td>
<td>17.8%</td>
<td>7.2%</td>
<td>5.6%</td>
<td>0.9%</td>
<td>13.6%</td>
</tr>
<tr>
<td>4</td>
<td>9.4%</td>
<td>0.9%</td>
<td>1.9%</td>
<td>0.3%</td>
<td>2.8%</td>
</tr>
<tr>
<td>5</td>
<td>0.5%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>0.0%</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Percentage of response to each EQ-5D-5L dimensions level according to whether the individual had a long-term health problems or disability (dimension levels: 1) No problems, 2) Slight problems, 3) Moderate problems, 4) Severe problems, 5) Extreme problems.

Attrition.

Loss to follow up after enrolment was 69.9% at 3months, 64.4% at 6months and 66.0% at 12months. The number of motivational interviews performed indicated that intervention attrition increased over time, with 333 first scheduled motivational interviews, 200 second and 113 third performed. Most people who discontinued intervention did not give a reason or became uncontactable (94%). The main reason given was lack of time (3%) and 1% of those who discontinued intervention reported no suitable activities for them, >1% gave finding the intervention not beneficial, lacking motivation or financial constraints as their reason. Table 5 shows there was no significant difference between the demographic of the completers of the 3month assessment and those lost to follow up. However, there was a trend for or a greater proportion of those living a deprived area to complete that neared significance.
Table 5. Demographic of those completers compared to loss to follow up

<table>
<thead>
<tr>
<th></th>
<th>Completers</th>
<th>Loss to follow up</th>
<th>$X^2$ (p value)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
<td>0.771</td>
</tr>
<tr>
<td>Male (%)</td>
<td>26.9a</td>
<td>28.2a</td>
<td></td>
</tr>
<tr>
<td>Female (%)</td>
<td>73.1a</td>
<td>71.8a</td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td>0.738</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16-19 (%)</td>
<td>1.2a</td>
<td>2.4a</td>
<td></td>
</tr>
<tr>
<td>20-34 (%)</td>
<td>20.7a</td>
<td>22.6a</td>
<td></td>
</tr>
<tr>
<td>35-54 (%)</td>
<td>46.3a</td>
<td>43.0a</td>
<td></td>
</tr>
<tr>
<td>55+ (%)</td>
<td>31.7a</td>
<td>22.0a</td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td>0.502</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian/Asian British (%)</td>
<td>8.5a</td>
<td>5.2a</td>
<td></td>
</tr>
<tr>
<td>Black/Black British (%)</td>
<td>2.4a</td>
<td>3.5a</td>
<td></td>
</tr>
<tr>
<td>Mixed (%)</td>
<td>2.4a</td>
<td>3.3a</td>
<td></td>
</tr>
<tr>
<td>White (%)</td>
<td>85.4a</td>
<td>85.0a</td>
<td></td>
</tr>
<tr>
<td>Other (%)</td>
<td>1.2a</td>
<td>3.0a</td>
<td></td>
</tr>
<tr>
<td><strong>Health problem or disability</strong></td>
<td>0.817</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(%)</td>
<td>38.3a</td>
<td>39.4a</td>
<td></td>
</tr>
<tr>
<td><strong>Deprived area</strong></td>
<td>0.050</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(%)</td>
<td>8.6a</td>
<td>4.6a</td>
<td></td>
</tr>
<tr>
<td><strong>Referral route</strong></td>
<td>0.201</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health (%)</td>
<td>53.9a</td>
<td>46.8a</td>
<td></td>
</tr>
<tr>
<td>Non Health (%)</td>
<td>20.4a</td>
<td>19.7a</td>
<td></td>
</tr>
<tr>
<td>Self (%)</td>
<td>25.7a</td>
<td>33.4a</td>
<td></td>
</tr>
</tbody>
</table>

Each superscript letter (a,b,c) denotes a homologous subset of frequency of completers and those loss to follow up whose proportions do not differ significantly from each other, displayed with the p value derived from the $X^2$ statistic.

Outcome

Physical activity

Intension-to-treat analysis (BOCF) estimated 22.1% of those enrolled increased PA at 3months, 27.5% at 6months and 25.4% at 12months. Those meeting minimum UK government recommended PA guidelines for adults (≥150mins a week) were estimated at 18.1%, 18.2% and 17.3% at 3, 6 and 12months respectively. Per-protocol analysis revealed 81.6% had increase PA from baseline at 3months, 79.6% at 6months and 78.3% by 12months and minimum UK government PA Guidelines were met by 53.3%, 49.3% and 46.9% at 3, 6 and 12months respectively. Table 6
shows average of time (minutes) spent in each PA domain per week for intention-to-treat and per-protocol analysis.

Table 6. Weekly time spend doing physical activity according to intensity domain

<table>
<thead>
<tr>
<th>Activity</th>
<th>Baseline</th>
<th>3months</th>
<th>6months</th>
<th>12months</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking (mins/week)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per-protocol</td>
<td>130 ± 350</td>
<td>254 ± 415</td>
<td>213 ± 321</td>
<td>181 ± 247</td>
</tr>
<tr>
<td>Intention-to-treat</td>
<td>126 ± 338</td>
<td>153 ± 294</td>
<td>148 ± 265</td>
<td>136 ± 228</td>
</tr>
<tr>
<td>Moderate (mins/week)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per-protocol</td>
<td>22 ± 170</td>
<td>198 ± 339</td>
<td>190 ± 323</td>
<td>129 ± 164</td>
</tr>
<tr>
<td>Intention-to-treat</td>
<td>23 ± 171</td>
<td>74 ± 257</td>
<td>80 ± 260</td>
<td>57 ± 193</td>
</tr>
<tr>
<td>Vigorous (mins/week)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per-protocol</td>
<td>4 ± 45</td>
<td>48 ± 100</td>
<td>61 ± 124</td>
<td>70 ± 125</td>
</tr>
<tr>
<td>Intention-to-treat</td>
<td>4 ± 43</td>
<td>14 ± 56</td>
<td>22 ± 79</td>
<td>24 ± 94</td>
</tr>
<tr>
<td>Total Activity (mins/week)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per-protocol</td>
<td>155 ± 282</td>
<td>500 ± 527</td>
<td>463 ± 504</td>
<td>380 ± 399</td>
</tr>
<tr>
<td>Intention-to-treat</td>
<td>152 ± 272</td>
<td>241 ± 308</td>
<td>249 ± 366</td>
<td>217 ± 319</td>
</tr>
<tr>
<td>Sport (mins/week)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Per protocol</td>
<td>2 ± 13</td>
<td>25 ± 89</td>
<td>25 ± 76</td>
<td>26 ± 82</td>
</tr>
<tr>
<td>Intention-to-treat</td>
<td>2 ± 13</td>
<td>9 ± 51</td>
<td>10 ± 48</td>
<td>10 ± 50</td>
</tr>
</tbody>
</table>

Mean ± standard deviation

Figure 5 illustrates the mean change in total PA over a year after enrolment in MET minutes per week. Intention-to-treat and per-protocol analysis found a significant increase in PA over assessments (both analysis at p<0.001). Post hoc-contrast analysis found that average PA remained significantly greater than baseline at 12months (per-protocol: p = 0.009, Intention-to-treat: p < 0.001), with no significant reduction in PA from 3months to 6months (intention-to-treat: 3 month v 6month p= 0.116, per-protocol: 3month v 6month, p= 0.675). Mean total PA was greatest at 6months in intention-to-treat analysis, likely due to the assumptions of BOCF as n was greatest this assessments point. Intention-to treat pre-post effect sizes for total MET minutes per week (Cohen’s d) were: 3months $d = 0.22$ (95%CI: 0.10-0.34), 6months $d = 0.27$ (95%CI: 0.15-0.39), 12months $d = 0.22$ (95%CI: 0.09-0.34).
mean ± standard error, BOCF =intention-to-treat analysis, completers = per protocol analysis

**Figure 5. Total physical activity over time**

mean ± standard error

Figure 6 show the intensity of PA performed increase over time (p<0.001 intention-to-treat and per-protocol). The proportion of PA in the vigorous domain significantly increased (p<0.05) from baseline in both intention-to-treat and per-protocol analysis. The per-protocol analysis also found a further increase in the portion of PA in the vigorous domain between 3month and 6months which was maintain at 12months (p<0.05).
Figure 6. Contribution of each physical activity intensity to total

Mean Physical Activity (Met Mins per week) stratified by physical activity performed in each domain (Red = intention-to-treat and blue = Per-protocol)

Physical activity considering demographic

Figure 7 shows total PA change over time stratified according to demographic descriptors for intention-to-treat analysis. No significant differences (p<0.05) were found in baseline PA or response to the intervention when stratified according to demographic categories.
Figure 7. Total physical activity over time stratified by demographic

Mean ± SE (intention-to-treat) 16-19 age group not included due to n=10
**Perceived Health and well-being**

Intention-to-treat analysis found perceived health (EQ-5D-5L VAS), improved in an estimated 18.9% of those enrolled at 3months, 23.8% at 6months and 23.3% at 12months. Minimum important differences (5 points improvement) were estimated at 18.9%, 23.4% and 23.1% at 3, 6 and 12months respectively. Per-protocol analysis revealed 63.6% of those completing the program perceived their general health to be better at 3months, 67.0% at 6months and 68.1% by 12months and minimum important difference (5 points) 63.2%, 66.0% and 68.1% of completers at 3, 6 and 12months respectively.

Intention-to-treat and per protocol analysis found a significant increase in perceived health, both at p<0.001 (figure 8). Post hoc-contrast analysis found that perceived health remained greater than baseline across all follow-up assessments (intention-to-treat (3month: $d = 0.17$ (95%CI:0.05-0.28), 6month: $d = 0.22$ (95%CI:0.10-0.34) , 12month: $d = 0.22$ (95%CI:0.10-0.34) and per-protocol analysis across all assessment points vs baseline p<0.001). There was a trend for Individuals meeting minimum UK government PA to have greater improvements in perceived health, which was significant at 3months (EQ5D VAS) (table 7). Dimension scores are displayed in appendix 5 and shows there was no significant change in these over assessments.
Figure 8. Perceived health overtime

mean ± standard error, Perceived health: EQ-5D-5L VAS (visual analogue scale), BOCF = intention-to-treat analysis, completers = per protocol analysis

Table 7. Comparison of perceived health between those meeting minimum UK government physical activity guidelines and those not

<table>
<thead>
<tr>
<th>Change in EQ5D VAS</th>
<th>Not Achieving PAG</th>
<th>Achieving PAG</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0months to 3months</td>
<td>5 (5-20)</td>
<td>10 (0-30)</td>
<td>0.041</td>
</tr>
<tr>
<td>0months to 6months</td>
<td>10 (0-29)</td>
<td>20 (0-30)</td>
<td>0.197</td>
</tr>
<tr>
<td>0months to 12months</td>
<td>10 (0-27.5)</td>
<td>15 (0-30)</td>
<td>0.316</td>
</tr>
</tbody>
</table>

Pre-protocol analysis only due to calculation of change scores, Median (Interquartile range), *P-value Manwhitney u-test due to non-Gaussian distribution, PAG Physical Activity Guidelines, Perceived health: EQ-5D-5L VAS (visual analogue scale)
Health and well-being considering to demographic

Figure 9. Perceived health over time over time stratified by demographic

mean±standard error (intention-to-treat), Perceived health: EQ-5D-SL VAS (visual analogue scale), 16-19 age group not included due to n=10

Figure 9 shows perceived health over assessments stratified according to demographic descriptors. The only significant differences found was when long-term health condition or disability was considered, with those with a long-term with problem perceiving their health to be significantly worse across assessments (p<0.001). However, there was no difference in group to time interaction (p>0.05)
indicating the pattern of improvement in perceived health was the same for those with a long-term health problem despite generally perceiving their health to be worse. Perceived health same the same as those with being significantly lower.

**Participant experience**

Forty nine participants responded to the exit questions, responses can be found in figure 10. The program was well received by respondents with 95% satisfied or very satisfied with the program in general and the majority very satisfied with the referral process. Most (89%) found the motivational interviews helpful or very helpful and over 94% founding the activities they tried enjoyable or very enjoyable. Only 3% of respondents did not feel that the activities they tried benefitted their health and wellbeing and all participants felt that PA was either important or very important for their future health and wellbeing, with 86% of participants definitely planning to participate in PA in the future. In depth cases studies of activities and participant testimonial can be found in appendix 6.
Figure 10. The percentage response to participant experience exit questions
Service Use and return on investment

The majority of participants had used health services (in the previous 3 months) over the course of the follow up period (Baseline 81.3%, 3 month 87.7%, 6 month 85.1%, 82.7%). The most frequent service used was the GP with 72.5%, 71.8%, 68% and 67.4% or participants visiting their GP at baseline, 3, 6 and 12 month respectively. Hospital inpatient and emergency depart used were the least used services with less than <10% of participants using the service across follow up assessments (except for 12 month where 14.6% used emergency department). Table 8 show service use over time, after bonferroni correction the only significant differences in services use found were for consultant appointments, which were significant greater at 6 months (p = 0.002) and 12 months (p = 0.001) compared to baseline. Overall there was a significant increase in health service costs at 6 months (p = 0.005).
Table 8. Service use over time

<table>
<thead>
<tr>
<th></th>
<th>Baseline (n=546)</th>
<th>3month cohort (n=163)</th>
<th>6month cohort (n=194)</th>
<th>12month cohort (n=185)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inpatient (days)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>0 (0-90)</td>
<td>0 (0-8)</td>
<td>0 (0-6) [0.403]</td>
<td>0 (0-6) [0.281]</td>
</tr>
<tr>
<td>3month</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>0 (0-2)</td>
<td>0 (0-2)</td>
<td>0 (0-1) [0.513]</td>
<td>0 (0-2) [0.219]</td>
</tr>
<tr>
<td>6month</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
<td>0 (0-10)</td>
<td>0 (0-8)</td>
<td>0 (0-8) [0.002]*</td>
<td>0 (0-12) [0.001]*</td>
</tr>
<tr>
<td>12month</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baseline</td>
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| **Cost**                |                  |                       |                       |                        |
| Baseline                | £104             | £0-£27,644            | £0-£1,732            | £0-£1,732             |
| 3month                  | £117             | £0-£2,732             | £0-£1,732            | £0-£1,732             |
| 6month                  | £144             | £0-£2,915             | £0-£1,732            | £0-£1,732             |
| 12month                 | £146             | £0-£19,369            | £0-£1,732            | £0-£1,732             |

ED (emergency department), GP (General Practitioner), AHP (Allied Health Professional) Median (range), [p value]: Related Samples Wilcoxon Signed Rank test pairwise comparison with baseline

*significant after Bonferroni correction

Longer term return on investment modelled using the NICE ROI tool and estimated increases in PA derived from intention-to-treat analysis at 12months (most conservative estimate of long-term PA behaviour change). Modelled for health service benefits and return on investment compared to no intervention over, 2, 5, 10 and 48 (lifetime) years and can be found in table 9.

Table 9. Return of investment

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<th>10years</th>
<th>Lifetime</th>
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<td>67</td>
<td>74</td>
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<td>£0.02</td>
<td>£0.06</td>
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<td>£4.55</td>
<td>£4.69</td>
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* based on a cost per person for the brief intervention and recruitment cost of £176
7. Discussion

A PA care pathway for sedentary individuals, *based on let’s get moving* was successfully piloted in Oxfordshire. *Go active, get healthy* was able to identify and recruit people who perform 30 minutes or less PA a week through multiple entry points. The brief intervention was effective at increasing PA which was sustained, with approximately 50% of those who engaged meeting UK government PA guidelines over 12 months. Furthermore, improvement was observed in the health and wellbeing of participants over the follow up period, who perceived their overall health to be very poor prior to the intervention.

In 2015-2016 Oxfordshire had the greatest proportion of people meeting UK PA guidelines of all the county sports partnerships, despite this over 17.5% (95%CI: 15.6% -19.6%) (n= 96,500) of the county remain inactive[21]. *Go active, get healthy* achieved 812 referrals over the course of the payment by results scheme (Jan 2014 – mar 2016), with greatest proportion being identified through referrals from either health or non-health referrers. These referrers were proficient at identifying those suitable for the program, with only 11 people referred through these route failing eligibility criteria. In addition, referrers surveyed were confident at raising the issue of inactivity. However, the health referrers who sign up to the program and referred patients may not be representative. A recent study found the majority of GPs in England (80%) are unfamiliar with the UK PA guidelines and 55%, reported that they had not undertaken any training with respect to encouraging PA [22]. Whilst 69 health originations signed up, 50% of referral where made by 9 referrers and only 6 of these were Primary care providers (there are 74 GP practises under Oxfordshire CCG [23]). Engaging primary care providers remains a challenge and a barrier to
recruiting the inactive population into the physical activity care pathway [11]. Whilst, payment-by-results may have helped to initially engage referrers and overcome barriers associate with cost [7, 10], the continued referral rate after end of payment-by-results and the feedback given by the referrers suggest it was not a major motivation to refer and more emphasis was placed on the quality of the program. Thus, the payment-by-results may have help to initiate relationships with potential health referrers, but these insights combined provide little support for the ongoing effectiveness of the payment-by-results model, except for some non-health referrers. It could be postulates that, currently, a more effective use of resource would be to identify and support engaged referrers, rather than indiscriminately attempting to engage potential referrers who are indifferent to refereeing to community PA interventions. It is noteworthy that the second and third top health referrals were via hospital services and this route may be a productive source of referrals. Indeed, Musculoskeletal and Diabetes services have shown interested in the sustainability of the pathway.

The overall referral demographic was similar to the demographic of Oxfordshire[24]. Notable exceptions were higher proportion of women and people with long-term health problems and disabilities being referred to the program. Both these group represent populations that have specific barriers [25-27] and lower levels of PA [21], thus are key groups to identify and recruit into community physical activity interventions. Importantly, these and other demographics differed between referral routes. Health referrers tended to identify people who were older and more than half (53.1%) of those referred had a disability or long-term health problem compared to 13.5% to those who self-referred. In addition, although women were predominant across referral routes, 4 times more women self-referred than men. These findings,
of different demographics identified via the different routes, supports the recommendations from the Essex LGM pilot that the use of multiple entry points for that recruitment would be likely most effective [6]. However, the results of this evaluation are also consistent with previous findings that being referred can improve uptake and length of engagement with exercise program [9, 28], as those referred to the program (health and non-health referrers) were significantly more likely to enrol. Whilst, payment-by-results may have contributed to this finding in could be related to those with a long-term health form or disability also being more likely to take up the program as this was the only difference found in the demographic between referral and enrolment.

Demographic also did not differ between those who completed the program (assessed at 3months) and those who were lost to follow-up, although there was a trend for those from a deprived area being more likely to complete that approached significance. Poor reporting of participation rate and long-term follow-up for community behavioural interventions [29] limits the generalisability of study result and the extent they can informed scaled up interventions [30]. Initial participation rate of 67.5% (individuals enrolled divided by referrals) compared favourably to that found in the literature 9.2% (±5.7%) [31]. However, attrition after enrolment was high with 70.0% lost to follow-up at 3months. Never-the-less this was comparable to other pragmatic studies of LGM[7] and remained stable over 12months enabling the evaluation of longer term behaviour change[29].

Primary analysis followed the intention-to-treat principle, in order to give a more reliable estimate of true effectiveness with data obtained at baseline carried forward used to estimate data for those lost-to-follow, due to likely bias of those taking part
in assessments having a better outcome. This analysis revealed the program was effective at increasing PA with average levels significantly improving at 3months and remaining higher than 600 MET minutes a week, threshold for low activity [16], for 12months, and an estimated 17.3% of those enrolled met UK PA at 12months. Pre-post effect sizes were 0.22-0.27, favourably comparable to the moderated treatment versus control effect size (0.19) found in a meta-analysis of intervention to increase PA in healthy adults [32]. During the course of the follow-up period PA behaviour transition towards more vigorous activity, in some individuals possibly through increase participation in sport, further indicating that the program promoted behaviour change. Indeed 86% percent of responses to the exist questions definitely planned to participate in PA in the future and no none had no intention to participate in PA in the future.

Larger effects of PA intervention have been found in meta-analysis of studies in chronically ill adults [33] and perceived health has been shown to correlated with PA levels[34]. Whislt, no difference was found in improvement in PA levels between those with a long-term health problem or disability and those without, the program contained a high proportion (39.7%) of people who with a long-term health problem and the overall the perceived general health was very low. Mean index score on the EQ5D-5L was 54 (95%CI: 52-56) which compares to a UK norm of 86 (95%CI:85-86) and for individuals with ‘Insufficient’ PA a mean norm score = 82 (95%CI: 80–83)[35]. Thus, the program recruited those who may benefit most from the improved wellbeing associated with increasing PA. Quality of life outcomes have shown improve after PA interventions, a meta-analysis of studies in adults with chronic illness[36] finding pre-post effect sizes \(d = 0.27\ 95%CI:0.22-0.33\). The present evaluation found EQ5D-5L VAS scores (an indication health-related quality of
life) significantly improved and intention-to-treat analysis found pre-post effect sizes of $d = 0.17$ (95%CI:0.05-0.28), $d = 0.22$ (95%CI:0.10-0.34) and $d = 0.22$ (95%CI:0.10-0.34) at 3, 6 and 12 months respectively. For those who engaged in the program 63.2%, 66.0% and 68.1% of had a minimum important increase in improved health (5 points) at 3, 6 and 12 months respectively. In addition, those who increased PA level to meet UK government PA guidelines had a significantly greater increase in perceived health at 3 months and exit questions found all individuals perceived PA to be important for their future health and well-being.

This improvement in health related quality of life was not reflected in a decrease in health service use since no reduction in service use observed and a significant increase in consultant appointments over the 12 months was found. In a cohort study of UK adults aged 70 and over Simmonds et al 2014[37] found PA level did not influence primary care consultations or referrals to secondary services over four years. However, PA was associated with increase prevalence of unplanned hospital admission and higher intensity PA to reduced number of prescriptions. Whilst, the numbers of prescriptions were not measured in the current evaluation, the observation that PA behaviour transition towards more vigorous activity is encouraging. In addition, this pragmatic evaluation had no control group and considering the low levels of perceived health in participants it is possible that their service use may have been greater in the absence of the program. Certainly a study utilising robust trial methodology found reduction in primary care service use when a PA intervention was compared to a control [38].

Whist, the present evaluation found a small, but significant, increase in health service costs, community based PA intervention centred on MI, such as the LGM,
have demonstrated the potential to be cost effective [6, 7, 10]. The long-term potential of the programs cost effectiveness was modelled using the NICE return of investment tool which considering cost associated with the predicted prevented number of disease cases (Chronic Heart Disease, Stroke and Type II diabetes). The program demonstrated potential cost-effectiveness in the long-term (modelled up to 48 annual cycles), especially when considering the value of health gains. Furthermore per-participants cost of £176 were at the lower end of with those previously reported for MI based interventions (£133, to £819 ) that were deemed cost effective[10] and if scaled up per-participants intervention cost are estimated to reduce to £88 per participants.

Limitations

The results of this evaluation have to be considered within its limitations, firstly there was no control group and despite efforts to follow up all participants lost to follow-up was 69.9% at 3months. Never-the-less this was a pragmatic evaluation that followed recommendation of the ‘Standard Evaluation framework for PA interventions’[12] and provides practice-based evidence, that has ecological validity consistent with the RE-AIM framework, and thus able to inform scaled-up interventions[30, 39]. The main analysis was intention-to-treat using Baseline Observation Carried Forward. This approach assumes that there is no change in baseline for those with missing data. Given the inclusion criteria for baseline PA it is implausible that individuals PA levels would have reduced and it may well have been the case that some of those not followed would have improved PA levels. Therefore estimates of effect can be view as conservative and it is possible the true effect was
greater. Indeed, greatest improvement in physical activity and health related quality of life was observed when there was least missing data.

It is also important to consider Oxfordshire is an affluent area of the UK with comparatively low levels of inactivity when assessing the external validity of the results. Coupled with this the sample was small identifying less than 1% on Oxfordshire inactive population [21]. However, the demographic was similar to that of Oxfordshire and engaged populations with high risk for inactivity, specifically those with long-term health problem or disability. Conversely within this group, those with communication and intellectual disabilities were underrepresented.

8. Key findings and Recommendations

- This evaluation supports the use of multiple entry points as identified in previous evaluations of LGM[6] and that referred individuals are more likely to engage [9, 28].

- There is limited evidence to support payment by results for referrals. However, it may have helped initially engage referrers and have improved the likelihood of referred individuals to enrol.

- The program was effective at increasing PA in those who engaged and improvements were largely retained at 12months with a transition towards more vigorous PA, possible through participation in sport in some.
The program included a high proportion of those with disability and long-term health problems and supports the use of the LGM in this group. These individuals were more likely to enrol and the program was just as effective. However, within this classification some groups may still be under represented.

The program also recruited individuals with a low perception of their health related quality of Life, which showed sustained improvement after the intervention that was more marked in those with meeting physical activity guidelines.

Whilst, a small increase in service use was found during follow-up period this evaluation provides data to further support the cost effectiveness of the LGM pathway.

9. Conclusion

This evaluation provides further evidence to support the LGM physical activity pathway and provides additional insights. Notably behaviour change was indicated by sustain participation in PA in those who engaged which included a high proportion of those with long-term health problem of disabilities. However, little evidence was found to support the addition of the payment-by-results model in terms of engaging disinterested referrers and this recourse may be better spent on promoting the program and educating potential referrers. The Insights gained from
this evaluation can help develop the delivery of the Oxfordshire PA care pathway for inactive individuals and inform wider scaled-up interventions based on LGM.
10. References


11. Appendices

Appendix 1. Oxfordshire Physical Activity Pathway Overview

Physical Activity Pathway overview

Raise the issue

1. In the past week, on how many days have you been physically active for a total of 30 minutes or more?

Physical activity may include: walking or cycling for recreation or to get to and from places; gardening; and exercise or sport which lasts for at least 10 minutes.

2. Over those days, were you active for 150 minutes or more?

No  Yes

3. Are you interested in being more physically active?

No  Yes

Exit strategy for those not interested
- Highlight recommendations
- Provide GO Active information cards

Exit strategy for those interested
- Brief advice
  - Benefits
  - Barriers
  - Solutions
- 30 minutes or less per week
- No need for supervised sessions
- Low/moderate risk
- See appendix 1. Risk assessment traffic light

- 60-90 minutes per week
- Need for supervised sessions
- See appendix 2. Referral criteria

- 90-150 minutes per week

Help patients with specific health issues to become more physically active by offering tailored exercise programmes by trained professionals.

Visit the GO Active website to find a suitable activity near you
www.getoxfordshireactive.org
Give patients GO Active information cards

Adapted with kind permission from NPS Physical Activity Pathway Quick Reference Guide © NPS Health Scotland 2013.
Appendix 2. Referral Card

Want free advice about how and where to get more active?
Please complete and return this freepost card and we will contact you. Alternatively visit our website at www.getoxfordshireactive.org for further information.

Name:  
Gender:  Male  Female
Age: 16-19  20-34  35-54  55+
Telephone:  Postcode:
Email:  
Ethnicity:  White  Mixed  Asian/Asian British  Black/Black British  Chinese/Other
If other please specify:

In the past week, on how many days have you done a total of 30 min or more of physical activity which was enough to raise your breathing rate? (This may include sport, exercise and a brisk walk or cycling for recreation or to get to and from places, but should not include homework or physical activity that may be part of your job).

[ ] None  [ ] One  [ ] Two  [ ] Three  [ ] Four  [ ] Five  [ ] Six  [ ] Seven

Do you have any long term illness, health problem or disability that limits your daily activities?  [ ] Yes  [ ] No

Which of the following best describes how your impairment or illness affects you? (Please select all that apply)
[ ] Vision  [ ] Hearing  [ ] Mobility  [ ] Fatigue  [ ] Pain  [ ] Speaking or making yourself understood
[ ] Learning or remembering  [ ] Mental Health problems  [ ] Other

Where did you find out about GO Active, Get Healthy?
[ ] Referred by my Doctor / Health Practice (Name of surgery and address)
[ ] Information from my local Health Centre (Name of centre and address)
[ ] Information from my local Leisure Centre  [ ] Information from my local Library
[ ] From a friend  [ ] Surfing the internet  [ ] Other (please specify):

What is the best time to contact you by telephone, bearing in mind it may take about 10 minutes to find out more about you and possible activities that would be suitable eg weekdays 1-2pm

We would like to be able to send you details of activities that might be of interest to you. GO Active Get Healthy will use your information in accordance with the Data Protection Act 1998. Please tick here if you are not happy if or GO Active Get Healthy to contact you with information about activities which might be of interest to you.

Please tick here if you do not want GO Active Get Healthy to use the information you have provided as part of the long term monitoring and evaluation of the GO Active Get Healthy programme, or contact you for monitoring and evaluation purposes.
Appendix 3. Referrer information sheet

WHAT IS GO ACTIVE, GET HEALTHY?
Currently 22% of adults in Oxfordshire are classed as inactive (doing less than 30 minutes of physical activity a week). GO Active, Get Healthy is an arm of the GO Active programme. It still provides information for moderately active people but is focused more on supporting inactive adults to try sport and physical activity.

WHY SHOULD I ENCOURAGE MY PATIENTS TO GET MORE PHYSICALLY ACTIVE?
- There is strong evidence for the health benefits of physical activity, particularly in relation to long term conditions. For more information see www.bmj.com/content/347/bmj.j6277.
- One in four people say they would become more physically active if recommended to do so by a healthcare professional.
- Between January 2014 and December 2015 we are incentivising practices to get involved. We will be working with Oxford Brookes University to track participants. If inactive participants increase their physical activity in their first three months on the programme we will pay their referrer £30.

WHO SHOULD I REFER TO GO ACTIVE, GET HEALTHY? AND HOW CAN I REFER SOMEONE?
- You should refer adult patients who are inactive (doing less than 30 minutes of physical activity a week) to GO Active, Get Healthy.
- You can still refer moderately active patients who want to do more exercise, however they will not be eligible for the full programme support package.
- Please refer patients using the GO Active, Get Healthy leaflet. The free post referral form is inside and can be completed with or by the patient. Please ensure your practice details are on the form so we can process your payment as applicable.

WHAT WILL MY PATIENT BE OFFERED ON GO ACTIVE, GET HEALTHY?
Following referral all patients will receive information about activities in their area. Inactive patients will also be offered:
- 1-2 intensive motivational interviews with a trained professional to identify suitable activities and provide motivational support.
- Up to £100 of subsidy towards activities at their local leisure centre.
- Up to a further £50 of incentives for completing the follow-up assessments, either as a further subsidy for activities, sports equipment or a charity donation.

HOW CAN MY SURGERY BE INVOLVED?
- Request an information pack, including surgery sign-up form.
- Our project team can arrange a brief talk to your staff or even a half day training session on the evidence for physical activity, how to raise the issue of physical activity with patients and how to identify the relevant and safe referral route for each patient.

For more information, to book a presentation, or to arrange a free training session, please contact Jenny Shaw on 01865 252560 or jshaw@oxford.gov.uk
www.gettoxfordshireactive.org
Appendix 4. International Physical activity Questionnaire (short) telephone format (IPAQ) – Sport England Modified

INTERNATIONAL PHYSICAL ACTIVITY QUESTIONNAIRE (August 2002)

SHORT LAST 7 DAYS TELEPHONE FORMAT

READ: I am going to ask you about the time you spent being physically active in the last 7 days. Please answer each question even if you do not consider yourself to be an active person. Think about the activities you do at work, as part of your work around the house or garden, to get from place to place, and in your spare time for recreation, exercise or sport.

READ: Now, think about all the vigorous activities which take hard physical effort that you did in the last 7 days. Vigorous activities make you breathe much harder than normal and may include heavy lifting, digging, aerobics, or fast bicycling. Think only about those physical activities that you did for at least 10 minutes at a time.

1. During the last 7 days, on how many days did you do vigorous physical activities?
   ______ Days per week [VDAY; Range 0-7, 8,9]

   8. Don't Know/Not Sure

   9. Refused

   [Interviewer clarification: Think only about those physical activities that you do for at least 10 minutes at a time.]

   [Interviewer note: If respondent answers zero, refuses or does not know, skip to Question 3]

2. How much time did you usually spend doing vigorous physical activities on one of those days?
   __ __ Hours per day [VDHRS; Range: 0-16]
Minutes per day

998. Don't Know/Not Sure
999. Refused

[Interviewer clarification: Think only about those physical activities you do for at least 10 minutes at a time.]

[Interviewer probe: An average time for one of the days on which you do vigorous activity is being sought. If the respondent can't answer because the pattern of time spent varies widely from day to day, ask: "How much time in total would you spend over the last 7 days doing vigorous physical activities?"

Hours per week

9998. Don't Know/Not Sure
9999. Refused

READ: Now think about activities which take moderate physical effort that you did in the last 7 days. Moderate physical activities make you breathe somewhat harder than normal and may include carrying light loads, bicycling at a regular pace, or doubles tennis. Do not include walking. Again, think about only those physical activities that you did for at least 10 minutes at a time.

3. During the last 7 days, on how many days did you do moderate physical activities?

Days per week

8. Don't Know/Not Sure
9. Refused

[Interviewer clarification: Think only about those physical activities that you do for at least 10 minutes at a time]

[Interviewer Note: If respondent answers zero, refuses or does not know, skip to Question 5]
4. How much time did you usually spend doing moderate physical activities on one of those days?

___ ___ Hours per day  [MDHRS; Range: 0-16]

___ ___ Minutes per day  [MDMIN; Range: 0-960, 998, 999]

998. Don't Know/Not Sure

999. Refused

[Interviewer clarification: Think only about those physical activities that you do for at least 10 minutes at a time.]

[Interviewer probe: An average time for one of the days on which you do moderate activity is being sought. If the respondent can't answer because the pattern of time spent varies widely from day to day, or includes time spent in multiple jobs, ask: “What is the total amount of time you spent over the last 7 days doing moderate physical activities?”

___ ___ ___ Hours per week  [MWHRS; Range: 0-112]

___ ___ ___ Minutes per week  [MWMIN; Range: 0-6720, 9998, 9999]

9998. Don't Know/Not Sure

9999. Refused

READ: Now think about the time you spent walking in the last 7 days. This includes at work and at home, walking to travel from place to place, and any other walking that you might do solely for recreation, sport, exercise, or leisure.

5. During the last 7 days, on how many days did you walk for at least 10 minutes at a time?

_____ Days per week  [WDAY; Range: 0-7, 8, 9]

8. Don't Know/Not Sure

9. Refused

[Interviewer clarification: Think only about the walking that you do for at least 10 minutes at a time.]
6. How much time did you usually spend **walking** on one of those days?

   _ _ Hours per day  [WDHRS; Range: 0-16]

   _ _ _ Minutes per day  [WDMIN; Range: 0-960, 998, 999]

998. Don't Know/Not Sure

999. Refused

[**Interviewer probe:** An average time for one of the days on which you walk is being sought. If the respondent can't answer because the pattern of time spent varies widely from day to day, ask: “What is the total amount of time you spent walking over the last 7 days?”]

   _ _ _ Hours per week  [WWHRS; Range: 0-112]

   _ _ _ _ Minutes per week  [WWMIN; Range: 0-6720, 9998, 9999]

9998. Don't Know/Not Sure

9999. Refused

READ: Now think about the time you spent sitting on week days during the last 7 days. Include time spent at work, at home, while doing course work, and during leisure time. This may include time spent sitting at a desk, visiting friends, reading or sitting or lying down to watch television.

7. During the last 7 days, how much time did you usually spend **sitting** on a **week day**?

   _ _ Hours per weekday  [SDHRS; 0-16]

   _ _ _ Minutes per weekday  [SDMIN; Range: 0-960, 998, 999]

998. Don't Know/Not Sure

999. Refused

[**Interviewer clarification:** Include time spent lying down (awake) as well as sitting]
[Interviewer probe: An average time per day spent sitting is being sought. If the respondent can’t answer because the pattern of time spent varies widely from day to day, ask: “What is the total amount of time you spent sitting last Wednesday?”

___ ___ Hours on Wednesday [SWHRS; Range 0-16]

___ ___ Minutes on Wednesday [SWMIN; Range: 0-960, 998, 999]

998. Don’t Know/Not Sure

999. Refused

READ: Finally, I’d like you to think about any Sport that you have done in the last 7 days. By Sport we mean any competitive or non-competitive sporting activity, including sessions of deliberate exercise such as running or jogging. Think only about those sports or exercises that you did for at least 10 minutes at a time.

8. During the last 7 days, on how many days did you take part in sport for at least 10 minutes at a time?

_____ Days per week [WDAY; Range: 0-7, 8, 9]

8. Don’t Know/Not Sure

9. Refused

[Interviewer clarification: Think only about the sport that you do for at least 10 minutes at a time.]

[Interviewer Note: If respondent answers zero, refuses or does not know, skip to Question 7]

9. How much time did you usually spend taking part in sport on one of those days?

___ ___ Hours per day [WDHRS; Range: 0-16]

___ ___ Minutes per day [WDMIN; Range: 0-960, 998, 999]

998. Don’t Know/Not Sure

999. Refused
**Interviewer probe:** An average time for one of the days on which you take part in sport is being sought. If the respondent can't answer because the pattern of time spent varies widely from day to day, ask: "What is the total amount of time you spent taking part in sport over **the last 7 days**?"

___ ___ ___ Hours per week  [WWHRS; Range: 0-112]

___ ___ ___ Minutes per week  [WWMIN; Range: 0-6720, 9998, 9999]

9998.  Don't Know/Not Sure

9999.  Refused

This is the end of the questionnaire, thank you for participating.
Appendix 5. EQ-5D-5L (telephone format)

Health Questionnaire

English version for the UK

SCRIPT FOR TELEPHONE ADMINISTRATION

GENERAL INTRODUCTION

It is suggested that the telephone administrator follows the script of the EQ-5D. Although allowance should be made for the interviewer's particular style of speaking, the wording of the questionnaire instructions should be followed as closely as possible. In the case of the EQ-5D descriptive system on page 2, the precise wording must be followed.

It is recommended that the administrator has a copy of the EQ-5D in front of him or her as it is administered over the telephone. This enables the respondent's answers to be entered directly on the EQ-5D by the administrator on behalf of the respondent (i.e. the appropriate boxes on page 2 are marked and the scale on page 3 is marked at the point indicating the respondents 'own health state today'). If the respondent asks for clarification, the administrator can help by re-reading the question verbatim. The administrator should not try to offer his or her own explanation but suggest that the respondent uses his or her own interpretation.

If the respondent has difficulty with regard to which box to mark, the administrator should repeat the question verbatim and ask the respondent to answer in a way that most closely resembles his or her thoughts about his or her health state today.
INTRODUCTION TO EQ-5D

We are trying to find out what you think about your health. I will first ask you a few brief and simple questions about your own health state today. I will then ask you to do a rather different task that involves rating your health on a measuring scale. I will explain the tasks fully as I go along but please interrupt me if you do not understand something or if things are not clear to you. Please also remember that there are no right or wrong answers. We are interested here only in your personal view.

---

EQ-5D DESCRIPTIVE SYSTEM - PAGE 2: INTRODUCTION

First I am going to read out some questions. Each question has a choice of 5 answers. Please tell me which answer best describes your own health state today.

Do not choose more than one answer in each group of questions.

(Note for administrator: it may be necessary to remind the respondent regularly that the timeframe is today.)

---

EQ-5D DESCRIPTIVE SYSTEM - PAGE 2: TASK

MOBILITY

First I’d like to ask you about mobility.

Question 1: Would you say you have...

1. No problems in walking about?
2. Slight problems in walking about?
3. Moderate problems in walking about?
4. Severe problems in walking about?
5. You are unable to walk about?

So, would you say you have no problems in walking about, some problems in walking about or are you confined to bed?

(Note for administrator: mark the appropriate box on EQ-5D)
SELF-CARE

Next I’d like to ask you about self-care.

Question 2: Would you say you have...

1. No problems washing or dressing yourself?
2. Slight problems washing or dressing yourself?
3. Moderate problems washing or dressing yourself?
4. Severe problem washing or dressing yourself?
5. You are unable to wash or dress yourself?

So, would you say you have no problems with self-care, some problems washing or dressing yourself or are you unable to wash or dress yourself?

(Note for administrator: mark the appropriate box on EQ-5D)

USUAL ACTIVITIES

Next I’d like to ask you about usual activities, for example work, study, housework, family or leisure activities.

Question 3: Would you say you have...

1. No problems with doing your usual activities?
2. Slight problems with doing your usual activities?
3. Moderate problems with doing your usual activities?
4. Severe problems with doing your usual activities?
5. Are you unable to do your usual activities?

So, would you say you have no problems performing your usual activities, some problems performing your usual activities or are you unable to perform your usual activities?

(Note for administrator: mark the appropriate box on EQ-5D)
PAIN/DISCOMFORT

Next I’d like to ask you about pain or discomfort.

Question 4: Would you say you have...

1. No pain or discomfort?
2. Slight pain or discomfort?
3. Moderate pain or discomfort?
4. Severe pain or discomfort?
5. Extreme pain or discomfort?

So, would you say you have no pain or discomfort, moderate pain or discomfort or extreme pain or discomfort?

(Note for administrator: mark the appropriate box on the EQ-SD questionnaire)

ANXIETY/DEPRESSION

Finally I’d like to ask you about anxiety or depression.

Question 5: Would you say you are...

1. Not anxious or depressed?
2. Slightly anxious or depressed?
3. Moderately anxious or depressed?
4. Severely anxious or depressed?
5. Extremely anxious or depressed?

So, would you are not anxious or depressed, moderately anxious or depressed or extremely anxious or depressed?

(Note for administrator: mark the appropriate box on the EQ-SD questionnaire)
(Note for administrator: If possible, it might be useful to send a visual aid (i.e. the EQ VAS) before the telephone call so that they can have this in front of them when completing the task).

I would now like to ask you to do a rather different task.

To help you say how good or bad your health state is, I'd like you to try to picture in your mind a scale that looks a bit like a thermometer. Can you do that? The best health state you can imagine is marked 100 (one hundred) at the top of the scale and the worst state you can imagine is marked 0 (zero) at the bottom.

I would now like you to tell me the point on this scale where you would put your own health state today.

Thank you for taking the time to answer these questions.
### Appendix 5. EQ-5D-5L demision scores

#### Intention-to-treat

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<th>Level</th>
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Percentage of response to each EQ-5D-5L dimensions level
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Percentage of response to each EQ-5D-5L dimensions level
Case Study - Ann from Oxford

What made you decide to take part in the GO Active, Get Healthy programme?

I was soon to retire, and thought I should make the most of my health before old age prevented me. Also, I had recently lost a bit of weight, so was psychologically “ready” for this step. I saw an advert in the pharmacy for GO Active, and thought the potential encouragement might help.

How did you find the process of getting referred into the programme? (if referred in)

Easy, but I was self-referred. I sent in the self-referral sheet – it was brilliant because it was easier to take the plunge with something more anonymous than to ring up, which I probably would not have done.

Did you find the motivational coaching on the telephone helpful for motivating you to take part in exercise?

Yes! Actually the most important part was that my motivational coach didn’t seem to think I was a no-hoper because I was scared of the gym. I felt that at my age I should have already been in a gym. I hadn’t and was worried I’d look silly not knowing how it all worked. My coach gave me the courage to try it out. The next most important part was knowing someone would ring me in a few months. This mattered when I lost my motivation a few months in. I didn’t want to tell them I hadn’t sustained my exercise level (pride!). That might seem like pressure, but it worked really well for me during the time when I was still establishing a new routine.

What activities/exercise have you tried and how have you found it?

The gym – both cardiovascular and strength machines. I am surprised that I really enjoy it. I still go. Less frequently and religiously than I did at first, but regularly. I even went to the hotel gym when I was on holiday – which would be unthinkable two years ago. The gym is the only exercise I’ve found that I actually like, other than walking. I did some low-key exercise classes but I stopped going when we got a dog, because walking took over and the local health centre closed down.
Walking (though I did that before I contacted GO Active). I love it. I walk a lot more now than I did in my twenties!

Has the programme also had an effect on significant others in your life such as friends, family? If so, how?

Not really, though some are mildly amused (and supportive) of my new found activity level.

Do you plan to continue your activity/participate in physical activity in the future?

Yes, I have now made it a regular thing.
*Not real name as wished to remain anonymous

The programme was a big surprise to me. I signed up for a MOT fitness test at Bury Knowle Park, just to confirm I am really unfit. My job and family life have been my priorities on the last 8 years and since coming over to the UK, in 2007, I’ve never done ANY exercise, apart from the odd cycling to town once or twice a year. I was feeling unfit, and my migraines started to take over my life, when I finally decided to go to a specialist who said there wasn’t much to do, I should get exercising more along with eventual medication I would take after stopping breastfeeding. It was the last straw. I dreaded doing any physical effort because I knew it would increase my headaches by much, before they actually got better.
It wasn’t the case though. I came back to swimming slowly, only half an hour per week, when my daughter was at the swimming pool as well. Having a person to call me and ask me how I was doing made me think twice before giving up. It also helped me to see that sometimes priorities have to change in order to assure life to go in a smoother way.
I used the vouchers to find some classes that would inspire me, and with some help from my painkillers I went for high impact ones, like Zumba and Body Attack. I felt great! I then talked to one of the guys working at a Fusion run gym, and she draw me a personal plan which helped me to stick to my goals.
I must admit I haven’t been completely loyal to the plan, but now my headaches are decreasing and I WON’T STOP going to the gym. I managed to put together the money for a membership, taking advantage of the voucher for half price for a month, and even convinced a friend to come along.
I am walking more now, and I my waist is the thinnest it has been since I was 28 years old. I don’t exercise everyday but my mindframe has changed and I think that is the most important. I can’t thank you enough or express in words what it meant to me. I am looking forward to the day I can say “I USED TO have migraines every day”, but I feel this day is closer than ever.
Thanks again
Case Study – Marian from South Oxfordshire

What made you decide to take part in the GO Active, Get Healthy programme?

I have been very unwell with extreme anxiety which had impacted on my everyday living / activities. This programme was one of the options available to me towards improving my quality of life and fitness.

How did you find the process of getting referred into the programme? (if referred in)

My GP gave me the information and contact was very simple and responsive.

Did you find the motivational coaching on the telephone helpful for motivating you to take part in exercise?

The coach was very sensitive, listened and supportive in the establishing goals. The reviews helped sustain on-going motivation and celebrate achievements.

What activities/exercise have you tried and how have you found it?

For me it was going out, walking down the garden and the block, shopping, swimming again and having one to one fitness sessions. All of the above have been extremely difficult for me and at time very frightening.

Has the programme also had an effect on significant others in your life such as friends, family? If so, how?

We are now able to have a very much more normal and spontaneous life. I am now more independent; I can now look forward to the future and make plans. My family are less responsible for my every day activities.

Do you plan to continue your activity/participate in physical activity in the future?

Yes most definitely!

Is there anything else you would like to add?

Many thanks, I hope funding continues.
Case Study – Michael from Oxford City

What made you decide to take part in the GO Active, Get Healthy programme?

I was referred to More Life by my GP. We had a person from GO Active Get Healthy attend one of our group sessions.

How did you find the process of getting referred into the programme? (if referred in)

Very easy at More Life group session. Just filled in a form.

Did you find the motivational coaching on the telephone helpful for motivating you to take part in exercise?

I found the motivational coaching via telephone call most helpful in motivating me to sustain a concentrated effort to get active to allow my health and wellbeing to improve.

What activities/exercise have you tried and how have you found it?

Walking. It has improved my health and it have found it rewarding.

Has the programme also had an effect on significant others in your life such as friends, family? If so, how?

My wife. Our relationship thrives and we support one another.

Do you plan to continue your activity/participate in physical activity in the future?

I plan to continue with my activity especially my physical activity to maintain my health.

Is there anything else you would like to add?

My GP is happy with me as my health has improved and the figures for my various health conditions are the best they’ve been since being diagnosed with them, thank you.
Participant Testimonials

"I found the GO Active, Get Healthy scheme motivating, thought provoking and best of all successful in its attempt to get me exercising again”

Paul from Cherwell

“Thoroughly enjoy the table tennis sessions, really feel benefit both physically and I think mentally (all those rules to take in board!). Great innovation very pleased to be able to play at the leisure centre thank you.”

Maureen, 50+ Table Tennis, Thame

“I can't thank you enough or express in words what it meant to me. I am looking forward to the day I can say “I USED TO have migraines every day”, but I feel this day is closer than ever”

Dri from Oxford

"I wasn't quite sure what to expect from the GO Active programme as I was feeling fairly unhealthy and not very motivated..... I highly recommend this as the first step if you are feeling overwhelmed by the thought of getting active again”

Polly from Brize Norton

“I love Walking Football because it keeps me fit, it can be as competitive as you want it to be, and it is great game! You get to meet likeminded people who are positively inclined in their attitude to life. I really enjoy myself!”

Robert, Walking Football Participant, Witney
“The most important part was that my motivational coach didn’t seem to think I was a no-hoper because I was scared of the gym...... My coach gave me the courage to try it out”

Ann from Oxford
Activities

Case Study - Zumba Class for Refugee Resource Centre, East Oxford

In February 2016 Oxford City Council worked with the Refugee Resource Centre based on Cowley Road, Oxford to set up a Zumba class for their women’s group through the GO Active, Get Healthy programme.

Eden Habtemicheal from the Refugee Resource Centre highlighted the issue; that joining a mainstream class was very difficult for these women who faced a number of barriers from language, confidence and suitability. A class in a venue the women were familiar with, with other women they knew and that was affordable would allow this group to become more active and experience the benefits of this both mentally and physically.

With funding from the GAGH programme and in-kind use of the local church hall, a specific class was set up on Thursdays 10 -11am with experienced instructor Sally Pye leading the women through various dance moves.

Initially a 6 week pilot; the class now has 8 – 12 women on average every week and with the women making small contributions to cover the cost of the instructor and the church continuing to provide its hall for free the class is now sustainable. The option of opening the class up to other women in the area is also being explored to strengthen it further and ensure it remains as a much needed outlet for local women to enjoy.
On visiting the session some of the women spoke of why the class was so important to them and what made them want to be involved:

**Why did you join?** “To meet up with my friends and hopefully some new people too; it is important for us to socialise with other women and share stories; to help each other”

**What do you think of the class?** “Good! I am really happy it started and I get excited every week at coming along. I have more energy now to look after my family and by looking after my body more I hope I am preventing illness and injury. I feel it stretches, releases and relaxes my body”

“Good, energetic and fun! I would definitely come back”.

**Case Study – GO Active Thame 50+ Table Tennis Club**

As part of the Ping Pong Care Campaign, we screened the movie “Never too old for Gold” in December 2013 at Thame Leisure Centre with ping pong tasters afterwards. The Ping Pong Care Campaign is a national health & wellbeing campaign that encourages and promotes active ageing.

We used this event and visited existing groups at Thame Leisure Centre to consult with 55+ users on what activities they would be interested in trying out. 5 taster sessions were chosen – Pilates, Zumba Gold, Table Tennis, Circuits and Tai Chi.

In total 50 adults were engaged through the initial taster programme. Due to the popularity of Zumba Gold and Table Tennis two new classes were set up from the tasters, whilst participants from the Pilates and Tai Chi taster sessions were able to join the existing classes at the centre.
The GO Active Team and Thame Leisure Centre worked in partnership with Lord Williams School to compromise on the dual use of the small sports hall at Thame Leisure Centre, to allow for the club to run. The partnership agreement also led to the dual use of Lord Williams 4 Table Tennis Tables.

The informal table tennis sessions regularly have 12 participants, mostly female 60+ players with no/or little table tennis experience. The session has also catered for older adult participants with learning difficulties.

Since the start of these sessions, 3 new tables have been purchased for the use of the club with funding from GO Active and Generation Games. One of the participants has qualified as a Table Tennis level 1 coach.

Participant Feedback

“I am so grateful for the opportunity to play table tennis again. It is a game I loved as a teenager some 50+ years ago but finding facilities to play is so difficult I have rarely played since. The Monday sessions are providing a good physical work out. In addition, I have met a group of friendly people who believe in the value of exercise as important in our advancing years. After each session, I return home enjoyably tired but refreshed mentally. I am a true covert!” - Chris Redmond

“Since you started it several new people have joined, most of whom come on a regular basis and it's not unusual for the room to be full of players. There's a real buzz in the room and it's great to have something uplifting to start the week off with. It's also starting to have a real community feel to it.” - Sally Brayne

“It has definitely been a success due to the partnership working of all involved!” Centre Manager feedback, Thame Leisure Centre