



**The General Practice Physical Activity
Questionnaire (GPPAQ)**

**A screening tool to assess adult physical activity
levels, within primary care**

Updated May 2009

DH INFORMATION READER BOX

Policy	Estates Commissioning IM & T Finance Social Care / Partnership Working
HR / Workforce Management Planning / Clinical	
Document Purpose	Best Practice Guidance
Gateway Reference	11854
Title	General Practise Physical Activity Questionnaire
Author	Physical Activity Policy, Health Improvement Directorate
Publication Date	18 May 2009
Target Audience	GPs
Circulation List	Directors of PH
Description	An update to the General Practise Physical Activity Questionnaire Report. This how to use guide, has been made easier to use and now includes the new read codes for patient record templates and is cross referenced to updated policy including Be Active Be Healthy
Cross Ref	GPPAQ Questionnaire
Superseded Docs	GPPAQ Report 2006
Action Required	Replace GPPAQ Report 2006 with GPPAQ report 2009
Timing	NA
Contact Details	Jo Foster Physical Activity Policy Team, HIP Wellington House 135-155 Waterloo Road SE1 8UG 020 7972 4544
For Recipient's Use	

CONTENTS

1. Executive Summary	3
2. The Case for Physical Activity for Health	5
a. CMO recommendations for physical activity	6
b. Current National Physical Activity Levels	6
3. The GPPAQ Screening Tool	7
a. Background	7
b. Intended Purpose	7
c. Tools for Practical Use in Primary Care	7
4. Instructions for use	9
a. How often to use	9
b. Exclusions for use	9
c. Completing the questionnaire	9
d. Analysing the Physical Activity Index	9
5. NICE Public Health Guidance Four Commonly Used Methods To Increase Physical Activity: Brief Interventions	11
a. Brief intervention in physical activity	11
b. Physical Activity Care Pathway	12
Annex 1	
a. Calculating the Physical Activity Index	13
b. Summary of the Physical Activity Index	13
c. Combining responses for Physical Activity and Cycling	14
d. GPPAQ Read Codes	14
Annex 2	17
a. Brief Intervention/Motivational Interviewing within the Physical Activity Care Pathway	
b. Inactive Patients who self report 3 hours or more per week of walking	
Annex 3	18
GPPAQ Technical Background and Evaluation	
Annex 4	21
References	

1. Executive Summary

The General Practise Physical Activity Questionnaire (GPPAQ) was commissioned by the DH and developed by the London School of Hygiene & Tropical Medicine as a validated short measure of physical activity.

The GPPAQ was developed to assist Primary Care Trusts meet the National Service Framework recommendations that *“primary care teams assess and record the modifiable risk factors for each of their patients, including physical activity”*.

The GPPAQ is a validated screening tool for use in primary care that:

- Is used to assess adult (16 – 74 years) physical activity levels.
- Provides a simple, 4-level Physical Activity Index (**PAI**) categorising patients as: Active, Moderately Active, Moderately Inactive, and Inactive. That is correlated to CVD risk
- Is used to help inform a practitioner of when a brief intervention to increase physical activity is appropriate. All patients who receive a score less than Active should be offered a brief intervention supporting behaviour change to increase Physical Activity
- Can be used as part of the NHS Health Check programme to assess people’s risk of heart disease, stroke, kidney disease and diabetes.

In response to the NICE Guidance 2006 endorsing Brief Interventions for Physical Activity in Primary Care, the DH has now developed a Physical Activity Care Pathway that uses the GPPAQ to screen patients for inactivity and then offers a Brief Intervention based on the principles of Motivational Interviewing to assist behaviour change to all those classified as less than active.

The NICE guidance states that if (through validated screening tool, such as GPPAQ) an individual is identified as less than active, practitioners should offer a brief intervention in physical activity. Which should include the following recommendations:

- When providing physical activity advice, primary care practitioners should take into account the individual’s needs, preferences and circumstances.
- They should agree goals with them. They should also provide written information about the benefits of activity and the local opportunities to be active.
- Where appropriate offer a referral into a condition specific or exercise on referral programme, if they exist in your area.
- They should follow them up at appropriate intervals over a 3 to 6 month period.
- For those with CHD risk of greater than 30% over ten years, GPPAQ should be completed annually

The patients defined as ‘Active’ should receive a degree of verbal reinforcement that reflects their current level of physical activity and should be encouraged to either make small increases to their physical activity or continue with their current level.

For those who are classified as “less than active” through the GPPAQ but say that they walk, further investigation is required into the frequency and intensity. If the practitioner deems the patient sufficiently active protocol for an “active” patient can

follow. If unsure in any way or a patient expresses an interest in increasing their physical activity levels a brief intervention can be given.

The GPPAQ is also appropriate for use in the NHS Health Check programme, which will assess people's risk of heart disease, stroke, kidney disease and diabetes and support people to reduce or manage that risk through individually tailored advice. If, through GPPAQ, the individual is identified as less than active, practitioners should offer a brief intervention in physical activity.

2. THE CASE FOR PHYSICAL ACTIVITY FOR HEALTH

The **Chief Medical Officer's report *At least five a week*** published in 2004 set out the important general health benefits associated with physical activity. These were reflected in the recently published **Be Active Be Healthy (2009) – A plan to get the nation moving**.

Physical activity can help all of us to lead healthier and even happier lives, irrespective of age. Even relatively small increases in physical activity are associated with some protection against chronic disease and improved quality of life.

The health benefits of physical activity are significant and well recognised. Regular physical activity of moderate intensity, such as brisk walking, can bring about major health benefits as well as significant cost savings for the NHS. Increasing levels of physical activity would contribute to achieving reductions in coronary heart disease and obesity, hypertension, depression and anxiety.

People who are physically active reduce their risk of developing major chronic diseases – such as coronary heart disease, stroke and type 2 diabetes – by up to 50%, and the risk of premature death by about 20–30%.

Physical activity:

- is associated with a reduction in the overall risk of cancer, has a clear protective effect on colon cancer and is associated with a reduced risk of breast cancer in women after the menopause;
- reduces the risk of diabetes – physically active people have a 33–50% lower risk of developing type 2 diabetes compared with inactive people, with a particularly strong preventive effect for those at high risk of developing diabetes;
- is important for helping people to maintain weight loss over several months or years. (Those who include physical activity as part of their weight loss plan have a better chance of long-term success. Physical activity brings important reductions in risk of mortality and morbidity for those who are already overweight or obese);
- can help protect against osteoporosis and have beneficial effects in those with osteoarthritis and low back pain;
- in childhood has a range of benefits, including healthy growth and development, maintenance of energy balance, psychological well-being and social interaction; and • is associated with reduced risk of depression and dementia in later life, is effective in the treatment of clinical depression and can be as successful as psychotherapy or medication, particularly in the longer term.

More generally, physical activity helps people feel better and feel better about themselves, as well as helping to reduce physiological reactions to stress. The benefits, though, can go well beyond our own health and well-being. With higher transport costs and concerns about global warming, more cycling and walking as

part of daily life can save money and help the environment. Fewer car journeys can reduce traffic, congestion and pollution, feeding back into the health of communities.

Physical activity also offers us opportunities for more social interaction – whether it is by joining a walking group, being part of a team engaging in sport or simply leaving the car at home for short, local trips.

A. CHIEF MEDICAL OFFICER RECOMMENDATIONS FOR PHYSICAL ACTIVITY

Recommendations for active living throughout the lifecourse

For general health benefits, adults should achieve a total of at least 30 minutes a day of at least moderate intensity physical activity on 5 or more days of the week.

The recommendations for adults are also appropriate for older adults. Older people should take particular care to keep moving and retain their mobility through daily activity. Additionally, specific activities that promote improved strength, co-ordination and balance are particularly beneficial for older people

The recommended levels of activity can be achieved either by doing all the daily activity in one session, or through several shorter bouts of activity of 10 minutes or more. The activity can be lifestyle activity* or structured exercise or sport, or a combination of these.

*Lifestyle activity means activities that are performed as part of everyday life, such as climbing stairs or brisk walking.

B. CURRENT PHYSICAL ACTIVITY LEVELS

Currently 40% of men and 28% of women meet the Chief Medical Officer's recommendations for physical activity. This represents an increase from levels recorded in 1997 (32% and 21% respectively). Health Survey for England 2007.

Participation in physical activity declines significantly with age for both sexes, while the prevalence of those achieving less than 30 minutes of at least moderate intensity activity increases with age and is markedly higher in some groups. Only 17% of men and 13% of women between the ages of 65 and 74 meet the Chief Medical Officer's recommendation for physical activity. This drops to 8% and 3% of men and women respectively over the age of 75.

Levels of physical activity also show an association with ethnicity. With the exception of Black Caribbean and Irish populations, all other minority ethnic groups have lower rates of adherence to the Chief Medical Officer's recommendations on physical activity for adults. Inequalities are greatest for South Asian women. Only 11% of Bangladeshi and 14% of Pakistani women were reported to have done the recommended amounts of physical activity, compared with 25% in the general population.

The Public Health White Paper *Choosing health, Making healthier choices easier* reiterated the commitment to develop a patient activity questionnaire to support NHS staff and others to understand their patients' levels of physical activity.

3. THE GPPAQ SCREENING TOOL

A. BACKGROUND

In 2002 the Department of Health commissioned researchers from the London School of Hygiene & Tropical Medicine to produce a short measure of physical activity, which could be used in routine general practice to assist Primary Care Trusts to meet the National Service Framework recommendations that primary care teams assess and record the modifiable risk factors for each of their patients, including physical activity.

This questionnaire is called the GP Physical Activity Questionnaire and was validated for patients aged 16-74 as a screening tool for physical activity levels in primary care.

B. INTENDED PURPOSE

The General Practice Physical Activity Questionnaire (**GPPAQ**) is a validated screening tool that:

- Is used to assess adult (16 – 74 years) physical activity levels.
- Provides a simple, 4-level Physical Activity Index (**PAI**) of: Active, Moderately Active, Moderately Inactive, and Inactive. That is correlated to CVD risk.
- Is used to help inform a practitioner of when a brief intervention to increase physical activity is appropriate. All patients who receive a score less than Active should be offered a Brief Intervention in Physical Activity (NICE Guidance 2006)
- Is a useful screening tool for the Vascular Risk Health Checks programme

Although the questionnaire includes walking, DIY, green exercise and housework, these are not reflected in the final score due to significant over reporting observed during validation and further questioning of walking amount and walking intensity is required in order to confirm the need for a brief intervention. Details of how to probe the walking question are set out in annex 2.

The GPPAQ is appropriate for use in the NHS Health Check programme, which will assess people's risk of heart disease, stroke, kidney disease and diabetes and support people to reduce or manage that risk through individually tailored advice. If, through GPPAQ, the individual is identified as less than active, practitioners should offer a brief intervention in physical activity.

C. TOOLS FOR PRACTICAL USE IN PRIMARY CARE

The General Practice Physical Activity Questionnaire comprises:

- A written questionnaire for completion by patients if completed outside of the consultation
- Electronic template of the questionnaire (Excel) which can be completed during the consultation and automatically generates the Physical Activity Index (PAI)
- Coding algorithm (See Appendix 1)
- Read Codes for the PAI, which can be used in patient record templates

The DH is planning to incorporate the GPPAQ algorithm within patient record software, it is currently only available through bolt on package frontdesk. Until then,

the electronic template of the questionnaire can be saved as a separate file for each patient.

Please note that the coding algorithm is an integral part of the questionnaire. Any unauthorised modification to the coding algorithm is likely to negate the validation of the questionnaire.

There are specific read codes for the Physical Activity Index which can be integrated into locally created templates within patient records.

The GPPAQ algorithm classifies patients into one of four categories / physical activity indexes – active, moderately active, moderately inactive, inactive

More detail is available in Annex 1

4. INSTRUCTIONS FOR USE IN PRIMARY CARE

A. HOW OFTEN TO USE

The level of physical activity should be entered on the clinical record for all patients over the age of sixteen and should be updated at least every five years¹.

For patients with clinical evidence of occlusive arterial disease and those whose risk of CHD events is greater than 30% over ten years, physical activity levels should be recorded annually.

B. EXCLUSIONS FOR USE

The GPPAQ was not evaluated for use in children and young people (aged <16 years) or adults older than 74 years. Both groups may require age-specific physical activity assessments.

The GPPAQ has not been designed for use as a research tool to measure self-reported physical activity before and after interventions, and therefore is not appropriate for measuring the effectiveness of physical activity interventions.

C. COMPLETING THE QUESTIONNAIRE

The General Practice Physical Activity Questionnaire takes approximately 30 seconds to fill in.

GPPAQ can be completed:

- By patients waiting for appointments
- In disease specific clinics
- In routine consultations
- In activity clinics

It then takes a maximum of 1-2 minutes to transfer the responses to the electronic template and analyse the result. The template will automatically assign a Physical Activity Index.

D. ANALYSING THE PHYSICAL ACTIVITY INDEX (PAI)

Questions concerning walking, housework/childcare and gardening/DIY are included. However, they have not been shown to yield data of a sufficient reliability to contribute to an objective assessment of overall physical activity levels and are not included in the calculation of the PAI.

Where patients have reported that they walk regularly and their PAI is less than active, a discussion is needed around the amount of and intensity of walking. This will help to determine whether the patient is currently meeting the Chief Medical Officer's recommendation for 30 minutes of moderate activity on 5 days of the week (or more).

¹ Department of Health (2000). National Service Framework for Coronary Heart Disease. London: Department of Health, Chapter 2, Appendix A

Walking, Gardening (Green exercise) Housework, DIY activities can contribute to meeting the Chief Medical Officer's recommendation and walking, in particular, should be encouraged.

All patients who receive a score of less than active should be offered a Brief Intervention in Physical Activity in line with the NICE Guidance (2006)

5. NICE PUBLIC HEALTH GUIDANCE FOUR COMMONLY USED METHODS TO INCREASE PHYSICAL ACTIVITY: BRIEF INTERVENTIONS

A. BRIEF INTERVENTION IN PHYSICAL ACTIVITY

NICE Public Health Intervention Guidance published in March 2006 endorsed Brief Interventions in Physical Activity.

The recommendations stipulated that primary care practitioners should:

- Take the opportunity, whenever possible, to identify inactive adults
- Advise them to aim for 30 minutes of moderate activity on 5 days of the week (or more).
- Use their judgement to determine when this would be inappropriate (for example, because of medical conditions or personal circumstances).
- Use a validated tool, such as the Department of Health's general practitioner physical activity questionnaire (GPPAQ), to identify inactive individuals.

The group with most to gain from an increase in physical activity are those with a PAI of 1, i.e. the 'Inactive'. It is estimated that 9% of CHD could be avoided if all those who are sedentary and moderately inactive became more moderately active.

<http://www.nice.org.uk/Guidance/PH2/Guidance/pdf/English>

Key points:

If, through the validated tool GPPAQ the individual is identified as less than active, practitioners should offer a brief intervention in physical activity:

- When providing physical activity advice, primary care practitioners should take into account the individual's needs, preferences and circumstances.
- They should agree goals with them. They should also provide written information about the benefits of activity and the local opportunities to be active.
- Where appropriate offer a referral into a condition specific or exercise on referral programme, if they are available locally.
- They should follow them up at appropriate intervals over a 3 to 6 month period.
- Those with CHD risk of greater than 30% over ten years, GPPAQ should be completed annually

The 'Active' group should receive a degree of verbal reinforcement that reflects their current level of physical activity and should be encouraged to either make small increases or continue with their current physical activity level.

For those who are classified as "less than active" through the GPPAQ but say that they walk, further investigation is required into the frequency and intensity. If the practitioner deems the patient sufficiently active protocol for an "active" patient can follow. For those who are still deemed inactive; or unsure if they meet the CMO recommendations; or if a patient still expresses interest in increasing their physical activity levels, a brief intervention can be given. For details about how to discuss walking in greater detail please see Annex 2

B. PHYSICAL ACTIVITY CARE PATHWAY

The Department of Health has developed a Physical Activity Care Pathway to help primary care deliver the NICE Guidance for Brief Interventions.

This:

- Uses the GPPAQ to screen patients for inactivity
- Follows the NICE guidance protocols detailed above, to deliver a brief intervention, including patient follow up at 3,6 and 12 months
- Uses the evidence based behaviour change technique Motivational Interviewing to deliver the brief intervention

The Physical Activity Care Pathway has been positively evaluated by the British Heart Foundation National Centre for Physical Activity and Health at Loughborough University, in a feasibility study in 14 surgeries that concluded in September 2008.

The Department of Health plans to launch the Physical Activity Care Pathway resources in late 2009. This will include a commissioning toolkit and how to guide, a training package and patient resource pack.

ANNEX 1

A. CALCULATING THE 4-LEVEL PHYSICAL ACTIVITY INDEX (PAI)

Patients can be classified into four categories based on the original EPIC index from which the GPPAQ was developed.

Inactive	Sedentary job and no physical exercise or cycling
Moderately inactive	Sedentary job and some but < 1 hour physical exercise and / or cycling per week OR Standing job and no physical exercise or cycling
Moderately active	Sedentary job and 1-2.9 hours physical exercise and / or cycling per week OR Standing job and some but < 1 hour physical exercise and / or cycling per week OR Physical job and no physical exercise or cycling
Active	Sedentary job and ≥ 3 hours physical exercise and / or cycling per week OR Standing job and 1-2.9 hours physical exercise and / or cycling per week OR Physical job and some but < 1 hour physical exercise and / or cycling per week OR Heavy manual job

Note: Questions concerning Walking, Housework/Childcare and Gardening/DIY have been included to allow patients to record their physical activity in these categories, however these questions have not been shown to yield data of a sufficient reliability to contribute to an understanding of overall physical activity levels. As noted above further questioning is required.

B. SUMMARY OF THE PAI

Physical exercise and / or cycling (hr/wk)	Occupation			
	Sedentary	Standing	Physical	Heavy Manual
0	Inactive	Moderately Inactive	Moderately Active	Active
Some but < 1	Moderately Inactive	Moderately Active	Active	Active
1-2.9	Moderately Active	Active	Active	Active
≥ 3	Active	Active	Active	Active

C. COMBINING RESPONSES FOR PHYSICAL EXERCISE AND CYCLING

Cycling \ Physical Exercise	0	Some but < 1	1-2.9	≥3
0	0	Some but < 1	1-2.9	≥3
Some but < 1	Some but < 1	1-2.9	≥3	≥3
1-2.9	1-2.9	≥3	≥3	≥3
≥3	≥3	≥3	≥3	≥3

D. GPPAQ READ CODES

4 Byte	Version 2	CTV3	
138X. GPPAQ physcl act ind: inactive	138X. General practice physical activity questionnaire physical activity index: inactive	XaPP8 General practice physical activity questionnaire physical activity index: inactive	366121000000108 General practice physical activity questionnaire physical activity index: inactive (finding)
138Y. GPPAQ phys act ind: mod inactv	138Y. General practice physical activity questionnaire physical activity index: moderately inactive	XaPPB General practice physical activity questionnaire physical activity index: moderately inactive	366171000000107 General practice physical activity questionnaire physical activity index: moderately inactive (finding)
138a. GPPAQ phys act ind: mod active	138a. General practice physical activity questionnaire physical activity index: moderately active	XaPPD General practice physical activity questionnaire physical activity index: moderately active	366211000000105 General practice physical activity questionnaire physical activity index: moderately active (finding)
138b. GPPAQ physical act ind: active	138b. General practice physical activity questionnaire physical activity index: active	XaPPE General practice physical activity questionnaire physical activity index: active	366241000000106 General practice physical activity questionnaire physical activity index: active (finding)

ANNEX 2:

A. AN EXAMPLE OF A MOTIVATIONAL INTERVIEW WITHIN A PHYSICAL ACTIVITY BRIEF INTERVENTION

Practitioners can consider the following example of a brief verbal intervention for inactive patients based on the principles of Motivational Interviewing (MI).

Any intervention should be consistent with the agenda on patient led consultations and choice. One way to do this is to base behaviour-change negotiations on the principles of motivational interviewing (MI). Although developed in the field of addictions, brief versions of MI have been adapted and applied to a wide variety of behaviours and conditions such as smoking, diet, physical activity, medical adherence and diabetes, with evidence of effectiveness (Resnicow et al., 2002; Rollnick, 1999, Rubak, 2005).

Motivational Interviewing elicits change talk in the patient, empowering them to change their own behaviour. Below are example questions for an MI based dialogue.

Example Dialogue for Inactive Patients

Question set One:

“On a scale from 0 to 10, where 0 is not important at all, and 10 is extremely important, how important is getting more active for you?”
“Why did you pick this number?”
“Why did you not pick a lower number?”
“What would you need to do to get you to a higher number?”

Question set Two:

“Now think about why you want to do this. Think about how you’ll feel, what you’ll look like, what you’ll be able to do that you can’t do now. Also think about what might be stopping you from changing and what will happen if you don’t?”

Why you want to change

e.g. To be able to play with children / grandchildren; To help health

What will happen if you change

e.g. more energy, less lonely, control condition

Why you don’t want to change

e.g. low confidence, don’t think will enjoy it

What will happen if you don’t

e.g. condition will get worse, feel bad about self, not be able to play with children/grandchildren

Question set Three:

‘If you were to decide to increase your physical activity, how confident are you that you would succeed? If, on a scale of 0 to 10, 0 means that you are

not at all confident and 10 means that you are 100% confident you could become more active. What number would you give yourself?
Why did you pick this number on the scale?
Why did you not pick a lower number?
What would you need to do to get a higher number?

All the while you're trying to elicit change talk from them and reaffirm these statements back to the patient.

Finally, provide the patient with a brief summary of what you heard and then ask,

"What do you think the next step is for you?"

You can talk about the patient's day and work with the patient about when activity could be built in e.g. getting off the bus a stop early or walking children to school. And also talk about activities that might be of interest to the patient whether it's gardening, dance, swimming, cycling, walking or football.

A common response is for the patient to say they don't know or are uncertain. If they do, follow with,

"Let's list what the options are at the moment. You could.

Stay as you are and do nothing;
Start to increase the amount of physical activity that you do"

Again this should illicit change talk

Go through the patient's day with them, and talk about when activity could be built in e.g. getting off the bus a stop early, joining in a health walk or walking the children to school

Also talk about what activities might be of interest to them, signpost to local activities from gardening to dance to football

Ask the patient what they make of these opportunities?

If interested talk to the patient about appropriate levels of activity and how to build up their activity levels. If someone hasn't been active for a long time going straight into vigorous activity isn't a good idea, advise patients to build up their activity levels and intensity gradually.

Encourage a patient to set a specific goal such as:

"I will go for a walk on Tuesday at lunchtime at the park for thirty minutes. If I can't make it then I will go on Wednesday."

In just a few minutes, it is possible to encourage the patient to consider why and how they might change their physical activity without feeling as if they are being pushed or coerced into something they are not ready for.

(Dialogue based on Rollnick et al, 1997; Miller, 2005; Rollnick et al, 2005)

B. ASSESSING INACTIVE PATIENTS WHO SELF REPORT 3 HOURS OR MORE PER WEEK OF WALKING

Patients who fall within the inactive category, but claim to undertake significant amounts of walking may require a modified, brief intervention that probes their understanding of walking and walking pace and the basis upon which they have declared the amount of walking accumulated during the last week. For those patients who remain confident that they achieve the recommended levels of physical activity by virtue of their walking intensity and duration, encourage them to continue. The example dialogue given for Inactive patients could be prefaced with the following:

“You say you do three hours or more of walking per week. So that I might better understand how walking fits into your day, perhaps you could talk me through a typical day for you, starting from when you get up in the morning right through to when you go to bed telling me where walking fits in. How about yesterday, could you talk me through yesterday?”

If the patient insists the previous day was atypical, use the day before that. Try to avoid going too far back as the accuracy of recall will be diminished. The practitioner’s task in this exercise is simply to listen, without offering any judgement of what is being said. This is not further assessment of the patient’s activity. The aim is to get the patient talking about their current behaviour in a non-threatening (the threat of being told to change) environment that will build rapport and conveys to the patient that the practitioner listens and is genuinely interested in their situation.

Ensure you assess the level of intensity of walking, you can use the following tool to assess intensity:

- 0 breathing easily, conversation is easy
- 1 breathing lightly and talking easily but heart rate increases
- 2 still talking comfortably but breathing more quickly body warming up
- 3 breathing more deeply and harder, talking with a little more difficulty
- 4 breathing very hard and short of breath, cannot carry on a conversation

Light Activity 0-1 Moderate Activity 2-3 Vigorous Activity 4

Patients should be hitting 2-3 for the walking to count towards their activity level

Once the patient has completed the description of their day the practitioner should simply summarise the information on walking and then proceed to the motivation and confidence questions described above, as appropriate.

ANNEX 3: GPPAQ TECHNICAL BACKGROUND AND EVALUATION

In 2002 the Department of Health commissioned researchers from the London School of Hygiene & Tropical Medicine to produce a short measure of physical activity

The measure was intended for use in routine general practice and its purpose was to provide a simple 4-level Physical Activity Index (PAI) reflecting an individual's current physical activity. The index would be used to decide when interventions to increase physical activity might be appropriate. A working title for the measure was the General Practice Physical Activity Questionnaire (GPPAQ).

After reviewing the literature and consultation with experts, performance requirements for the GPPAQ were agreed. These were that:

- The method of completion should be self explanatory
- It should be designed for use by adults aged 18-74 years (later revised to 16-74 years)
- It should be possible for respondents to complete the questionnaire without assistance
- It should take less than one minute to complete
- Individual physical activity categories should be simple, requiring limited computation
- The physical activity categories should allow for the assignment of a physical activity Read Code
- The output of the questionnaire should enable practice staff to make a decision on whether the patient concerned should be advised to be more active or whether more detailed assessment was required

Although no existing self-report measure of physical activity had specifically been developed for routine general practice, a short physical activity questionnaire used in the European Prospective Investigation into Cancer (EPIC) met many of the criteria and a simple index of physical activity could be derived. It had established acceptable levels of repeatability and validity in a sample of English adults aged 40-65 years (Wareham et al, 2002). It was decided that this short questionnaire should form the basis of the new measure.

A pilot study was conducted in three general practices, with practice nurses administering the self-completion of GPPAQ to 61 patients from a variety of newly registered patients, including a number of patients for whom English was not the first language. The GPPAQ was well received by nurses, patients and general practitioners. Practitioners welcomed a simple and efficient way of assessing physical activity. In particular, they were keen to have a standardised way of assigning Read Codes for physical activity. The patients did not experience any problems in completing the questionnaire, even when English was not the first language.

The pilot study was limited to new registration appointments, but most practitioners suggested other possible uses for the GPPAQ, including hypertension and diabetes clinics.

Due to the positive findings of the pilot study, a further study was conducted to examine how reliable and accurate the GPPAQ was in routine general practice. Four surgeries were recruited in Coventry, West Midlands. Table 2 summarises the surgeries:

Practice 1	Registered patients	Number of GPs	Patient Characteristics
1	10,600	6	Mixed income 70% white Low income
2	-	-	Mainly white Middle income
3	11,500	6	Mainly white Low income
4	-	-	50% white Mixed income
5	14,400	9	70% white Mixed income
6	6450	3	Mainly white

NB. Practices 1 and 2 have two locations, as do Practices 3 and 4.

A Research Fellow (RF) of the University of Warwick recruited patients in the waiting rooms of the four surgeries. The timing of recruiting visits to the surgeries was varied. The routine nature of the recruitment meant that study participants were those who normally attend general practice. A total of 334 participants successfully completed the GPPAQ and a total of 258 participants completed it again a week later. The PAI category allocated to each individual, resulting from the completion of the second GPPAQ, was compared with allocation to a physical activity category resulting from analysis of activity recorded for the same individual during the preceding week using an Actigraph motion sensor. Demographic characteristics of participants who completed the first GPPAQ are summarised in Table 2.

	N	%
Gender*		
Male	109	32.8
Female	223	67.2
Age group*		
18-24	22	6.6
25-34	61	18.4
35-44	67	20.2
45-54	74	22.3
55-64	65	19.6
65-74	43	13.0
Ethnic group*		
White	308	92.8
Non-white	24	7.2
Body Mass Index (BMI)*		
<25	143	43.5
≥25 to < 30	120	36.5
≥30	66	20.1

*Excludes missing data

Following the completion of the study the following conclusions can be drawn:

- The GPPAQ has good face validity and is acceptable for use in routine general practice;
- The GPPAQ has good construct validity- that is the PAI derived from the questionnaire has the relationship with other measures that we might expect ;
- The GPPAQ is repeatable - that is a person who had high physical activity on time 1 tended to have high physical activity on time 2.
- The PAI derived from the GPPAQ is taken from the original EPIC study which has published criterion validity with positive associations with both daytime energy expenditure and cardiorespiratory fitness.
- The PAI derived from the original EPIC questionnaire predicts all-cause and cardio-vascular mortality in men and women. The combination of work and leisure time physical activity into a single index are more consistently associated with mortality than either components used alone (Khaw et al, Int J Epidemiol, 2006)
- The GPPAQ is a simple and 'quick to administer' instrument for assessing physical activity in routine general practice. The 4-level PAI derived from the GPPAQ is suitable for ranking an individual's physical activity for the purpose of determining the need for intervention or more detailed assessment and can be correlated to the existing Read Codes for physical activity.
- The GPPAQ was used within the Physical Activity Care Pathway feasibility pilot as a screening tool prior to the brief intervention, practitioners reported the questionnaire as taking up to 2 minutes to complete, input and analyse. They also had no problems with language barriers, easily translating the questionnaire as and when required.

ANNEX 4: REFERENCES

Department of Health (2009) Be Active Be Healthy London: Department of Health.

Department of Health (2000). National Service Framework for Coronary Heart Disease. London: Department of Health.

Department of Health (2004). At least five a week: Evidence on the impact of physical activity and its relationship to health. Department of Health, London, 2004.

National Institute for Health and Clinical Excellence. Four commonly used methods to increase physical activity: brief interventions in primary care, exercise referral schemes, pedometers and community-based exercise programmes for walking and cycling – Public health Intervention Guidance no.2. London: National Institute for Health and Clinical Excellence; 2006

Khaw KT, Jakes R, Bingham S, Welch A, Luben R, Day N, Wareham N. Work and leisure time physical activity assessed using a simple, pragmatic, validated questionnaire and incident cardiovascular and all-cause mortality in men and women: The European Prospective Investigation into Cancer in Norfolk prospective population study. *Int J Epidemiol.* (2006, in press)

Miller WR. Enhancing Patient Motivation for Health Behavior Change *Journal of Cardiopulmonary Rehabilitation* 2005;**25**:207-209

Rollnick S, Butler CC, Stott N. Helping smokers make decisions: the enhancement of brief intervention for general medical practice. *Patient Education and Counseling* 1997; 31:191-203

Resnicow K, Diiorio C, Soet JE, Ernst D, Borrelli B, & Hecht J. Motivational interviewing in health promotion: it sounds like something is changing. *Health Psychology* 2002;**21**:444-451.

Rollnick S, Mason P, Butler C. (1999) *Health Behaviour Change: A guide for practitioners*, London: Churchill Livingstone.

Rollnick S, Butler CC, McCambridge J, Kinnersley P, Elwyn G, Resnicow K. Consultations about changing behaviour., *British Medical Journal* 2005;**331**:961-963

Rubak S, Sandbaek A, Lauritzen T, Christensen B. Motivational interviewing: a systematic review and meta-analysis. *Br J Gen Pract.* 2005; 55:305–312

Wareham NJ, Jakes RW, Renni KL, Schuit J, Mitchell J, Hennings S, Day NE. Validity and repeatability of a simple index derived from the short physical activity questionnaire used in the European Prospective Investigation into Cancer and Nutrition (EPIC) study. *Public Health Nutrition* 2002; 6:407-413..