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Workplace health promotion: how to encourage employees to be physically active

NICE public health guidance 13

Workplace health promotion: how to encourage employees to be physically active

Ordering information

You can download the following documents from www.nice.org.uk/PH013

- The NICE guidance (this document) which includes all the recommendations, details of how they were developed and evidence statements.
- A quick reference guide for professionals and the public.
- Supporting documents, including an evidence review and an economic analysis.

For printed copies of the quick reference guide, phone NICE publications on 0845 003 7783 or email publications@nice.org.uk and quote N1582.

This guidance represents the views of the Institute and was arrived at after careful consideration of the evidence available. Those working in the NHS, local authorities, the wider public, voluntary and community sectors and the private sector should take it into account when carrying out their professional, managerial or voluntary duties.

Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way which would be inconsistent with compliance with those duties.

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Introduction

The Department of Health (DH) asked the National Institute for Health and Clinical Excellence (NICE or the Institute) to produce public health guidance on how to encourage employees to be physically active.

The guidance is for employers and professionals in small, medium and large organisations who have a direct or indirect role in, and responsibility for, improving health in the workplace. This includes those working in the NHS, local authorities and the wider public, voluntary, community and private sectors, especially those working in human resources or occupational health. It will also be of interest to employees, trades union representatives and members of the public.

The guidance complements and supports, but does not replace, NICE guidance on physical activity and the environment, workplace smoking and obesity (for further details, see section 7).

The Public Health Interventions Advisory Committee (PHIAC) has considered a review of the evidence, an economic appraisal, stakeholder comments and the results of fieldwork in developing these recommendations.

Details of PHIAC membership are given in appendix A. The methods used to develop the guidance are summarised in appendix B. Supporting documents used in the preparation of this document are listed in appendix E. Full details of the evidence collated, including fieldwork data and activities and stakeholder comments, are available on the NICE website, along with a list of the stakeholders involved and the Institute's supporting process and methods manuals. The website address is: www.nice.org.uk

This guidance was developed using the NICE public health intervention process.

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1 Recommendations

This document constitutes the Institute's formal guidance on how to encourage employees to be physically active.

Many employers recognise that they have an obligation to the health and wellbeing of their workforce. Investing in the health of employees can also bring business benefits such as reduced sickness absence, increased loyalty and better staff retention.

These recommendations aim to help employers and workplace health professionals prevent the diseases associated with a lack of physical activity. The recommendations alone will not reverse the current obesity epidemic or other health trends associated with a sedentary lifestyle. However, efforts made in the workplace, alongside wider strategies to increase physical activity levels, could help improve people's health significantly.

The evidence statements that underpin the recommendations are listed in appendix C.

Recommendation 1: policy and planning

Who should take action?

- Employers in organisations of all sizes (in larger organisations this might include their representatives, for example, human resources [HR] directors and senior managers).
- Public health professionals, occupational health professionals, workplace health promoters.
- Trades unions, other employee representatives, employees.

What action should they take?

Develop an organisation-wide plan or policy to encourage and support employees to be more physically active. This should:

- include measures to maximise the opportunity for all employees to participate
- be based on consultation with staff and should ensure they are involved in planning and design, as well as monitoring activities, on an ongoing basis
- be supported by management and have dedicated resources
- set organisational goals and be linked to other relevant internal policies (for example, on alcohol, smoking, occupational health and safety, flexible working or travel)
- link to relevant national and local policies (for example, on health or transport).

Recommendation 2: implementing a physical activity programme

Who should take action?

- Employers in organisations of all sizes (in larger organisations this might include their representatives, for example, HR directors and senior managers).
- Public health professionals, occupational health professionals, workplace health promoters.
- Trades unions, other employee representatives, employees.

What action should they take?

Introduce and monitor an organisation-wide, multi-component programme to encourage and support employees to be physically active. This could be part of a broader programme to improve health. It could include:

- flexible working policies and incentive schemes
- policies to encourage employees to walk, cycle or use other modes of transport involving physical activity (to travel to and from work and as part of their working day)
- the dissemination of information (including written information) on how to be more physically active and on the health benefits of such activity. This

could include information on local opportunities to be physically active (both within and outside the workplace) tailored to meet specific needs, for example, the needs of shift workers

- ongoing advice and support to help people plan how they are going to increase their levels of physical activity
- the offer of a confidential, independent health check administered by a suitably qualified practitioner and focused on physical activity.

Recommendation 3: components of the physical activity programme

Who should take action?

- Employers in organisations of all sizes (in larger organisations this might include their representatives, for example, HR directors and senior managers).
- People responsible for buildings and facilities.
- Public health professionals, occupational health professionals, workplace health promoters.
- Trades unions, other employee representatives, employees.

What action should they take?

- Encourage employees to walk, cycle or use another mode of transport involving physical activity to travel part or all of the way to and from work (for example, by developing a travel plan).
- Help employees to be physically active during the working day by:
 - where possible, encouraging them to move around more at work (for example, by walking to external meetings)
 - putting up signs at strategic points and distributing written information to encourage them to use the stairs rather than lifts if they can

- providing information about walking and cycling routes and encouraging them to take short walks during work breaks
 - encouraging them to set goals on how far they walk and cycle and to monitor the distances they cover.
- Take account of the nature of the work and any health and safety issues. For example, many people already walk long distances during the working day, while those involved in shift work may be vulnerable if walking home alone at night.

For further recommendations on how to encourage people to walk, cycle or use the stairs, see '[Promoting and creating built or natural environments that encourage and support physical activity](#)' (NICE public health guidance 8).

Recommendation 4: supporting employers

Who should take action?

- Directors of public health, public health practitioners in the statutory and voluntary sectors.
- Local strategic partnerships.
- Private, statutory and voluntary organisations with responsibility for increasing physical activity levels or for occupational health.
- Trades unions, business federations, chambers of commerce.

What action should they take?

- Offer support to employers who want to implement this guidance to encourage their employees to be more physically active. Where appropriate and feasible, this should be provided on the employer's premises. It could involve providing information on, or links to, local resources. It could also involve providing advice and other information or resources (for example, the services of physical activity experts).
- If initial demand exceeds the resources available, focus on:

- enterprises where a high proportion of employees are from a disadvantaged background
- enterprises where a high proportion of employees are sedentary
- small and medium-sized enterprises.

2 Public health need and practice

There is increasing recognition of the need to encourage healthier lifestyles and the government has set specific targets to increase physical activity levels (Department of Culture, Media and Sport 2002; DH 2004; Health Development Agency 2004; House of Commons Health Committee 2004; Wanless 2004).

Physical activity is essential for good health (DH 2004). Increasing activity levels will help prevent and manage over 20 conditions and diseases including cancer, coronary heart disease, diabetes and obesity. It can also help to promote mental wellbeing (DH 2004; Pate et al. 1995). Physically active employees are less likely to suffer from major health problems, less likely to take sickness leave and less likely to have an accident at work (Dishman et al. 1998).

Around 65% of men and 76% of women aged over 16 are not physically active enough to meet the current national recommendations (that is, they spend less than 30 minutes on 5 or more days a week involved in at least moderately intense activities). Physical activity levels vary according to age and gender. Women tend to be less physically active than men, and older people tend to be less physically active than younger people. Levels also vary according to socioeconomic class and ethnicity, although these relationships appear to be complex (Joint Health Surveys Unit 2004).

Trends highlighted by health surveys undertaken in England in 1997, 1998, 2003 and 2004 found a small increase in physical activity levels between 1997 and 2004. However, national travel surveys show that the average distance

people walk and cycle has declined significantly in the last three decades (National Statistics 2004).

The cost of physical inactivity in England, including the direct costs of treatment for major lifestyle-related diseases and the indirect costs caused through sickness absence, has been estimated at £8.2 billion a year (DH 2004).

Sickness absence

In the fiscal year 2005–2006, an estimated 30.5 million working days were lost as a result of work-related illnesses and injuries. On average, each sick person took 16 days off work in that 12-month period. Mental health problems (stress, depression or anxiety) and musculoskeletal disorders accounted for the majority of working days lost, leading to an estimated 10.5 million and 9.5 million days off work (full-day equivalent) respectively (Health and Safety Executive 2007). (The incidence of stress, depression or anxiety and musculoskeletal disorders can be reduced by physical activity.)

Government policy

The government aims to promote health at work by 'improving working conditions to reduce the causes of ill health related to work, and promoting the work environment as a source of better health' (DH 2004). In addition, by 2010, its 'Government setting an example' programme aims to reduce by 30% the number of working days lost through accidents and cases of ill health in the civil service and the rest of the public sector (Health and Safety Executive 2005).

In the wider context, 'Revitalising health and safety strategy' (Department for Environment, Transport and the Regions 2000) sets national targets to be achieved by 2010. These are to reduce:

- by 10% the rate of fatal and major injury accidents
- by 20% cases of work-related ill health
- by 30% the number of working days lost per worker as a result of work-related injury and ill health.

Increasing national physical activity levels is also central to:

- national service frameworks (NSFs) on coronary heart disease, diabetes, mental health, older people and long-term conditions
- DH policy documents on physical activity including 'Choosing activity' (2005), 'At least five a week' (2004) and 'Healthy weight, healthy lives' (2008).

It is also relevant to Healthcare Commission targets, local area agreements and local delivery plans.

The guidance

This guidance considers workplace-based policies and initiatives that aim to increase employees' physical activity levels and are applicable in England. It also considers similar initiatives outside the workplace that are initiated or endorsed by employers. It covers all employed adults including volunteers, subcontractors and temporary staff. It is not aimed at people who are self-employed.

3 Considerations

PHIAC took account of a number of factors and issues in making the recommendations.

General

- 3.1 Physical activity is influenced by a range of factors associated with individuals, workplaces and the wider environment. This guidance can only be one element of a broader strategy to increase physical activity.
- 3.2 The guidance needs to be considered within the context of a range of public health issues, including the high and increasing levels of overweight and obesity. It was noted that physical activity is an important way of helping maintain weight loss over several months or years. The Chief Medical Officer's report on physical activity (DH 2004) noted that: 'all substantial movement of body weight – such

as steps walked per day, or stair climbing – contributes to energy expenditure and may help with weight management. People who need to avoid weight gain should reduce the amount of time they spend inactive’.

- 3.3 It is unrealistic to assume that a one-off intervention can be ‘life changing’, so PHIAC considers it important to provide ongoing interventions, support and encouragement.
- 3.4 PHIAC also considered whether some interventions may cause some individuals harm by reinforcing their determination to avoid being physically active.
- 3.5 Small and medium-sized organisations may have different needs from those of large organisations. PHIAC has tried to ensure the recommendations can be tailored to make them relevant to all business practices.
- 3.6 PHIAC recognised the importance of workplace ethos and the need for employers to lead efforts to promote and support initiatives to increase physical activity levels in the workplace.
- 3.7 There are particularly close links between this guidance and the guidance on ‘Promoting and creating built or natural environments that encourage and support physical activity’ (NICE public health guidance 8).
- 3.8 If an intervention is not included in the recommendations it does not necessarily mean it should be stopped. These recommendations are based on the available evidence and not all interventions may have been evaluated.

Benefits to employers and the NHS

- 3.9 Increasing employee’s physical activity levels may help reduce some illnesses and conditions that are important causes of

sickness absence, resulting in improved productivity and reduced costs for employers.

- 3.10 The economic modelling used on the evidence is conservative and does not consider the long-term benefits of physical activity (such as the prevention of some cancers and other conditions), or the short-term benefits for people's mental wellbeing. The modelling is made difficult because many studies treat physical activity-related outcomes as permanent. However, assuming even modest uptake, the interventions in this guidance could be considered cost effective from an NHS perspective, and cost saving from an employer perspective, because they reduce absenteeism.

Equality issues

- 3.11 PHIAC considered the extent to which the recommendations could generally widen health inequalities, for example, by improving the health of the better off in society without improving the health of those who are worst off.
- 3.12 Increasing levels of physical activity in the workplace could have an impact on equality in the workplace, since not all employees may be able to participate in all the activities on offer (for example, shift workers or people with disabilities may be excluded from some activities). PHIAC emphasised the need to implement plans that give everyone an equal chance to improve their physical activity levels at work.

Quality of evidence

- 3.13 Although some of the evidence was not from the UK, PHIAC considered there was enough that was sufficiently applicable to the UK to inform the recommendations.
- 3.14 The evidence had a number of weaknesses:

- the outcome measures of physical activity used are often based on self-reporting and frequently only report outcomes over a short period
- generally it is not possible to determine which part of a multi-component programme is responsible for a particular change: the effect may be the result of an interaction between different components of the programme
- the range of settings covered is very limited, in particular, evidence is lacking about small and medium-sized enterprises
- there is a lack of evidence about inequalities.

Safety

3.15 PHIAC was aware that cycling to work instead of walking can increase the distance people may commute and can be an effective way to increase levels of physical activity. However, when cycling on busy, rush-hour roads, there is a risk of road traffic accidents. PHIAC did not consider evidence about road injuries. However, NICE guidance on ‘Promoting and creating built or natural environments that encourage and support physical activity’ (public health guidance 8) recommends the planning and provision of safe cycling and walking routes.

4 Implementation

NICE guidance can help:

- Employers in businesses of all sizes, in the private, statutory and voluntary sectors, to improve the health of their employees. Improved employee health and wellbeing may lead to reduced sickness absence and increased productivity among the workforce.
- NHS organisations meet DH standards for public health as set out in the seventh domain of ‘Standards for better health’ (updated in 2006). Performance against these standards is assessed by the Healthcare

Commission and forms part of the annual health check score awarded to local healthcare organisations.

- NHS organisations, social care and children's services meet the requirements of the DH's 'Operating framework for 2008/09' and 'Operational plans 2008/09–2010/11'.
- NHS organisations, social care and children's services meet the requirements of the Department of Communities and Local Government's 'The new performance framework for local authorities and local authority partnerships'.
- National and local organisations within the public sector meet government indicators and targets to improve health and reduce health inequalities.
- Local authorities fulfil their remit to promote the economic, social and environmental wellbeing of communities.
- Local NHS organisations, local authorities and other local public sector partners benefit from any identified cost savings, disinvestment opportunities or opportunities for redirecting resources.
- Provide a focus for children's trusts, health and wellbeing partnerships and other multi-sector partnerships working on health within a local strategic partnership.

NICE has developed tools to help organisations implement this guidance. For details see our website at www.nice.org.uk/PH013

5 Recommendations for research

PHIAC recommends that the following research questions should be addressed in order to improve the evidence relating to workplace physical activity. It notes that 'effectiveness' in this context relates not only to the size of the effect, but also to the cost effectiveness, duration of effect and harmful/negative effects.

1. How is the effectiveness of workplace physical activity interventions influenced by the characteristics (for example, age, ethnicity, gender, socioeconomic status or disability) of employees?
2. How is the effectiveness of workplace physical activity interventions influenced by the size of the workplace and the type of occupations involved?
3. Do employer schemes to encourage employees to walk or cycle to work increase the individual's overall level of physical activity? For example, does an increase in the use of transport involving physical activity to commute to work lead to a decrease in other types of physical activity? Or is there an overall net increase in the individual's physical activity levels?
4. To what extent do employers benefit from increased productivity and reduced sickness absence if their employees become more physically active?
5. How effective are incentive schemes at increasing workplace physical activity levels?

More detail on the evidence gaps identified during the development of this guidance is provided in appendix D.

6 Updating the recommendations

This guidance will be updated as needed and information on the progress of any update will be posted on the NICE website (www.nice.org.uk/PH013).

7 Related NICE guidance

Published

Promoting and creating built or natural environments that encourage and support physical activity. NICE public health guidance PH008 (2008).

Available from: www.nice.org.uk/PH008

Workplace health promotion: how to help employees to stop smoking. NICE public health guidance 5 (2007). Available from: www.nice.org.uk/PHI005

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. NICE public health guidance 2 (2006). Available from: www.nice.org.uk/PHI002

Obesity: guidance on the prevention, identification, assessment and management of overweight and obesity in adults and children. NICE clinical guideline 43 (2006). Available from: www.nice.org.uk/CG043

Under development

Guidance for employers on promoting mental wellbeing through productive and healthy working conditions. NICE public health guidance (due November 2008).

8 References

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Pate RR, Pratt M, Blair SN et al. (1995) Physical activity and public health. A recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *Journal of the American Medical Association* 273: 402–07.

Wanless D (2004) *Securing good health for the whole population*. London: The Stationery Office.

Appendix A: membership of the Public Health Interventions Advisory Committee (PHIAC), the NICE Project Team and external contractors

Public Health Interventions Advisory Committee (PHIAC)

NICE has set up a standing committee, the Public Health Interventions Advisory Committee (PHIAC), which reviews the evidence and develops recommendations on public health interventions. Membership of PHIAC is multidisciplinary, comprising public health practitioners, clinicians (both specialists and generalists), local authority employees, representatives of the public, patients and/or carers, academics and technical experts as follows.

Professor Sue Atkinson CBE Independent Consultant and Visiting Professor, Department of Epidemiology and Public Health, University College London

Mr John F Barker Children's and Adults' Services Senior Associate, Regional Improvement and Efficiency Partnership

Professor Michael Bury Emeritus Professor of Sociology, University of London. Honorary Professor of Sociology, University of Kent

Professor Simon Capewell Chair of Clinical Epidemiology, University of Liverpool

Professor K K Cheng Professor of Epidemiology, University of Birmingham

Ms Jo Cooke Director, Trent Research and Development Support Unit, School for Health and Related Research, University of Sheffield

Dr Richard Cookson Senior Lecturer, Department of Social Policy and Social Work, University of York

Mr Philip Cutler Forums Support Manager, Bradford Alliance on Community Care

Professor Brian Ferguson Director, Yorkshire and Humber Public Health Observatory

Professor Ruth Hall Regional Director, Health Protection Agency, South West

Ms Amanda Hoey Director, Consumer Health Consulting Limited

Mr Alasdair J Hogarth Head Teacher, Archbishops School, Canterbury

Mr Andrew Hopkin Assistant Director, Local Environment, Derby City Council

Dr Ann Hoskins Deputy Regional Director of Public Health/Medical Director, NHS North West

Ms Muriel James Secretary, Northampton Healthy Communities Collaborative and the King Edward Road Surgery Patient Participation Group

Dr Matt Kearney General Practitioner, Castlefields, Runcorn. GP Public Health Practitioner, Knowsley

Ms Valerie King Designated Nurse for Looked After Children, Northampton PCT, Daventry and South Northants PCT and Northampton General Hospital. Public Health Skills Development Nurse, Northampton PCT

CHAIR Professor Catherine Law Professor of Public Health and Epidemiology, University College London Institute of Child Health

Ms Sharon McAteer Public Health Development Manager, Halton and St Helens PCT

Mr David McDaid Research Fellow, Department of Health and Social Care, London School of Economics and Political Science

Professor Klim McPherson Visiting Professor of Public Health Epidemiology, Department of Obstetrics and Gynaecology, University of Oxford

Professor Susan Michie Professor of Health Psychology, BPS Centre for Outcomes Research & Effectiveness, University College London

Dr Mike Owen General Practitioner, William Budd Health Centre, Bristol

Ms Jane Putsey Lay Representative. Tutor and Registered Breastfeeding Supporter, The Breastfeeding Network

Dr Mike Rayner Director, British Heart Foundation Health Promotion Research Group, Department of Public Health, University of Oxford

Mr Dale Robinson Chief Environmental Health Officer, South Cambridgeshire District Council

Ms Joyce Rothschild School Improvement Adviser, Solihull Local Authority

Dr Tracey Sach Senior Lecturer in Health Economics, University of East Anglia

Professor Mark Sculpher Professor of Health Economics, Centre for Economics (CHE), University of York

Dr David Sloan Retired Director of Public Health

Dr Dagmar Zeuner Joint Director of Public Health, Hammersmith and Fulham PCT

Expert testimony to PHIAC:

Emma Adams Research Assistant, School of Sport and Exercise Sciences, Loughborough University

Professor Fiona Bull Co-Director, School's British Heart Foundation National Centre for Physical Activity and Health. Professor of Physical Activity and Public Health, Loughborough University

Nick Colledge Sport and Health Manager, Wigan Leisure and Culture Trust

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Technical Adviser (Health Economics)

External contractors

External reviewers: effectiveness review

'A review of effectiveness of workplace health promotion interventions on physical activity and what works in motivating and changing employees' health behaviour' was carried out by the University of Salford. The principal authors were: Lindsey Dugdill, Alison Brettle, Claire Hulme, Serena McCluskey and Andrew Long (from the University of Leeds).

External reviewers: economic appraisal

'An economic analysis of workplace interventions that promote physical activity' was carried out by the York Health Economics Consortium. The principal authors were: Matthew Bending, Sophie Beale and John Hutton.

Fieldwork

'Fieldwork on the promotion of physical activity in the workplace' was carried out by Greenstreet Berman Ltd.

Appendix B: summary of the methods used to develop this guidance

Introduction

The reports of the review and economic appraisal include full details of the methods used to select the evidence (including search strategies), assess its quality and summarise it.

The minutes of the PHIAC meetings provide further detail about the Committee's interpretation of the evidence and development of the recommendations.

All supporting documents are listed in appendix E and are available from the NICE website at: www.nice.org.uk/PH013

The guidance development process

The stages of the guidance development process are outlined in the box below.

1. Draft scope
2. Stakeholder meeting
3. Stakeholder comments
4. Final scope and responses published on website
5. Reviews and cost-effectiveness modelling
6. Synopsis report of the evidence (executive summaries and evidence tables) circulated to stakeholders for comment
7. Comments and additional material submitted by stakeholders
8. Review of additional material submitted by stakeholders (screened against inclusion criteria used in reviews)
9. Synopsis, full reviews, supplementary reviews and economic modelling submitted to PHIAC
10. PHIAC produces draft recommendations
11. Draft recommendations published on website for comment by stakeholders and for field testing
12. PHIAC amends recommendations
13. Responses to comments published on website
14. Final guidance published on website

Key questions

The key questions were established as part of the scope. They formed the starting point for the review of evidence and facilitated the development of recommendations by PHIAC. The overarching question was:

Which workplace-based policies and initiatives that aim to increase employees' physical activity levels are effective and cost effective, and what are the barriers to participation?

Subsidiary questions were:

1. What is the aim/objective of the intervention?
2. How does the way it is delivered influence effectiveness?
3. Does the degree to which employees are involved in the planning, implementation and review of interventions influence their effectiveness?
4. Does the duration, frequency or intensity of the intervention influence its impact?
5. Does the type of workplace influence effectiveness?
6. What are the most effective and appropriate interventions for different sectors of the workforce such as: men and women, younger and older workers, people from different socioeconomic backgrounds or minority ethnic groups and temporary or casual workers?
7. Does the intervention have an impact on health inequalities?
8. Does effectiveness vary according to the type of job people do?
9. What are the key components of the intervention that motivate individuals to become more physically active?
10. What are the barriers and facilitators to implementation – for both employers and employees?
11. Is there any evidence of cost effectiveness?
12. How can employers be encouraged to promote physical activity at work?
13. What are the resource needs of large, medium and small enterprises in promoting physical activity at work?

Reviewing the evidence of effectiveness

A review of effectiveness was conducted.

Identifying the evidence

The following databases were searched for relevant systematic reviews, experimental studies and qualitative studies (from 1996–2006):

- ABI Inform
- Applied Social Science Index and Abstracts (ASSIA)
- CENTRAL
- Cinahl
- Cochrane Database of Systematic Reviews (CDSR)
- Database of abstracts of reviews of effects (DARE)
- Embase
- PsycINFO
- Social Policy and Practice
- Social Science Citation Index
- SportDiscus
- Transport.

Searches of a range of websites were performed to identify any further projects. The electronic searches were supplemented by hand-checking of the references of all papers included at the 'screening full papers' stage.

Selection criteria

Studies were included in the effectiveness review if:

- the intervention aimed to increase physical activity levels
- the intervention was aimed at employed adults
- the intervention was initiated or endorsed by the employer
- physical activity was an outcome measure
- there was evidence of a change in physical activity levels – or a change of behaviour relating to physical activity
- the paper was published in English in 1996 or later

- the review included papers published in 1996 or later.

Studies were excluded if:

- the intervention was aimed at self-employed or unemployed adults
- the intervention involved a modification to the built or natural environment
- there was no report or measure of a change in physical activity
- the document was a dissertation
- the papers focused on costs or cost effectiveness only.

Quality appraisal

Included papers were assessed for methodological rigour and quality using the NICE methodology checklist, as set out in the NICE technical manual 'Methods for development of NICE public health guidance' (see appendix E). Each study was described by study type and graded (++, +, -) to reflect the risk of potential bias arising from its design and execution.

Study type

- Meta-analyses, systematic reviews of randomised controlled trials (RCTs) or RCTs (including cluster RCTs).
- Systematic reviews of, or individual, non-randomised controlled trials, case-control studies, cohort studies, controlled before-and-after (CBA) studies, interrupted time series (ITS) studies, correlation studies.
- Non-analytical studies (for example, case reports, case series).
- Expert opinion, formal consensus.

Study quality

- ++ All or most criteria have been fulfilled. Where they have not been fulfilled the conclusions are thought very unlikely to alter.
- + Some criteria fulfilled. Those criteria that have not been fulfilled or not adequately described are thought unlikely to alter the conclusions.

- Few or no criteria fulfilled. The conclusions of the study are thought likely or very likely to alter.

The interventions were also assessed for their applicability to the UK and the evidence statements were graded as follows:

- A likely to be applicable across a broad range of settings and populations
- B likely to be applicable across a broad range of settings and populations, assuming they are appropriately adapted
- C applicable only to settings or populations included in the studies – broader applicability is uncertain
- D applicable only to settings or populations included in the studies.

Summarising the evidence and making evidence statements

The review data was summarised in evidence tables (see full review).

The findings from the review were synthesised and used as the basis for a number of evidence statements relating to each key question. The evidence statements reflect the strength (quantity, type and quality) of evidence and its applicability to the populations and settings in the scope.

Additional evidence

PHIAC wanted to know whether evidence from the US was consistent with evidence found in the review from the UK, Europe, Australia, New Zealand and Canada. The US evidence was surveyed by the CPHE team and presented to PHIAC as an additional paper, 'Summary of the US evidence as it relates to the draft workplace physical activity recommendations'. It is available on the NICE website at www.nice.org.uk/PH013

Economic analysis

The economic appraisal consisted of a review of economic evaluations and a cost-effectiveness analysis.

Review of economic evaluations

In addition to scanning the effectiveness evidence the following databases were searched:

- Econlit
- Health Economics Evaluation Database (HEED)
- NHS Economics Evaluation Database (NHS EED).

Literature published in English was considered from 1990 onwards. No geographical restrictions were placed on the search strategy.

A search of grey literature was also undertaken. The IDEAS economic database was searched specifically for cost-effectiveness information. The cost-effectiveness studies resulting from the grey literature search were highlighted by the effectiveness review team.

Studies that met the inclusion criteria were rated to determine the strength of the evidence using the Drummond checklist (Drummond MF, Jefferson TO [1996] Guidelines for authors and peer reviewers of economic submissions to the BMJ. The BMJ Economic Evaluation Working Party. British Medical Journal 313: 275–83).

Cost-effectiveness analysis

Economic models were constructed to incorporate data from the reviews of effectiveness and cost effectiveness. The results are reported in: 'An economic analysis of workplace interventions that promote physical activity'. It is available on the NICE website at: www.nice.org.uk/PH013

Fieldwork

Fieldwork was carried out to evaluate the relevance and usefulness of NICE guidance for practitioners and the feasibility of implementation. It was conducted with practitioners, employers, employee representatives and others who are involved in promoting workplace physical activity. They included: those working in occupational health, health and safety and health promotion in the NHS and local authorities; those in the voluntary sector with a remit for

improving physical activity; small, medium and large private businesses; organisations representing the interests of businesses; employee organisations (for example, trades unions).

The fieldwork comprised:

- a series of focus group meetings held in London by Greenstreet Berman with representatives from the public, private and voluntary sectors
- a series of telephone interviews carried out nationally by Greenstreet Berman with small, medium and large employers and other representatives from the public, private and voluntary sectors.

It was commissioned to ensure there was ample geographical coverage. The main issues arising from these two studies are set out in appendix C under fieldwork findings. The full fieldwork report 'Fieldwork on the promotion of physical activity in the workplace' is available on the NICE website:

www.nice.org.uk/PH013

How PHIAC formulated the recommendations

At its meeting in October 2007 PHIAC considered the evidence of effectiveness and cost effectiveness to determine:

- whether there was sufficient evidence (in terms of quantity, quality and applicability) to form a judgement
- whether, on balance, the evidence demonstrates that the intervention is effective or ineffective, or whether it is equivocal
- where there is an effect, the typical size of effect.

PHIAC developed draft recommendations through informal consensus, based on the following criteria.

- Strength (quality and quantity) of evidence of effectiveness and its applicability to the populations/settings referred to in the scope.
- Effect size and potential impact on population health and/or reducing inequalities in health.

- Cost effectiveness (for the NHS and other public sector organisations).
- Balance of risks and benefits.
- Ease of implementation and the anticipated extent of change in practice that would be required.

Where possible, recommendations were linked to an evidence statement(s) (see appendix C for details). Where a recommendation was inferred from the evidence, this was indicated by the reference 'IDE' (inference derived from the evidence).

The draft guidance, including the recommendations, was released for consultation in December 2007. At its meeting in February 2008, PHIAC considered comments from stakeholders and the results from fieldwork and amended the guidance. The guidance was signed off by the NICE Guidance Executive in April 2008.

Appendix C: the evidence

This appendix sets out the evidence statements taken from the review and the additional evidence paper and links them to the relevant recommendations (see appendix B for the key to study types and quality assessments). The evidence statements are presented here without references – these can be found in the full review (see appendix E for details). The appendix also sets out a brief summary of findings from the economic appraisal.

Evidence statement 1 indicates that the linked statement is numbered 1 in 'A review of effectiveness of workplace health promotion interventions on physical activity and what works in motivating and changing employees' health behaviour'. **Evidence statement US1** indicates that the linked statement is numbered 1 in the additional evidence paper 'Summary of the US evidence as it relates to the draft workplace physical activity recommendations'.

Where a recommendation is not directly taken from the evidence statements, but is inferred from the evidence, this is indicated by IDE (inference derived from the evidence) below.

The review, additional evidence paper and economic appraisal are available on the NICE website (www.nice.org.uk/PH013).

Recommendation 1: evidence statements 4c, 13, IDE

Recommendation 2: evidence statements 3, 4a, 4b, 4c, 13, 15, US3, US4, US5, IDE

Recommendation 3: evidence statements 1, 2, 3, 11, 15, US1, US4, IDE

Recommendation 4: IDE

Evidence statements

Evidence statement 1

There is evidence from four studies (one [++ B] ITS; one [+ A] before and after (BA); one [- A] BA; one [- B] BA) that the use of posters and signs can increase stair (instead of lift) use. However, in two of these studies stair usage declined back to baseline levels at follow-up or by the end of the study period, suggesting that the effectiveness of these posters is short term. In addition, two studies (one [+ A] and one [- B] CBA) reported a decline in stair use/step count. Further study is required.

Evidence statement 2

There is evidence from studies in the public sector that workplace walking interventions using pedometers that focus on: facilitated goal setting, diaries and self-monitoring and walking routes can produce positive results, increasing step count. (One [+ B] and one [- B] BA; one [+ A] and one [- A] individual RCT.)

Evidence statement 3

There is evidence (one [+ A] individual RCT) from one UK public sector workplace that a walking and cycling to work campaign, through use of written health materials distributed to employees, can increase walking to work (but not cycling to work) in economically advantaged women.

Evidence statement 4a

There is evidence from six studies (one [+ B] and one [- B] CBA; one [- A] and one [- B] BA; two [- A] cross-sectional surveys [CSS]) to suggest that workplace health screening can have a positive impact on physical activity. However, while all six studies included a health check or assessment, other components of the intervention differed (these included, for example, counselling), which makes it difficult to attribute effects to a single factor. Two studies (one [+ B] and one [- B] CBA) although reporting positive behaviour change only approached [statistical] significance.

Evidence statement 4b

There is evidence from four studies (one [- B] CBA; one [- B] BA; one [++ B] cluster RCT; one [+ B] individual RCT) that suggests workplace counselling has positive effects on physical activity. Of the two studies (one [++ B] cluster RCT; one [+ B] individual RCT) that focus solely on counselling, the first shows positive effects on increasing physical activity compared to the control. The other, while showing positive improvements, shows no difference between groups receiving counselling, counselling and fitness testing or the control group. Two other studies (one [- B] CBA; one [- B] BA) are multi-component interventions that included counselling, motivational interviewing and health screening, which makes it difficult to attribute effects to a single factor.

Evidence statement 4c

Evidence from one study ([+ B] CBA) suggests that employee-designed interventions that include written health and physical activity information, active commuting, stair climbing, led walks, fitness testing and counselling (all as required) can have a positive effect on physical activity.

Evidence statement 11

Evidence from two walking interventions studies (one [- B] BA; one [+ A] individual RCT) and one active travel intervention ([+ A] individual RCT) suggests self-directed interventions are effective.

Evidence statement 13

There is no evidence that involvement of employees in the implementation and review of the physical activity intervention influences the effectiveness of those interventions. There is evidence, however, from one study ([+ B] CBA) that involving employees in the planning stage of intervention design can have a positive effect on physical activity.

Evidence statement 15

Nine studies (three [- A] BA; one [- B] BA; one [+ A] CBA; one [+ A] individual RCT; one [+ B] and one [- A] qualitative; one [- B] individual RCT) gave details of employees' cited facilitators to the implementation of interventions that

focus on: physical environment (improvements in facilities and convenience of location); incentive schemes; and flexible work practices. In three stair-walking studies, employees found the poster interventions encouraged stair walking, were a good idea and thought-provoking. No factors were cited by the employers as facilitators to the implementation of physical activity interventions.

Evidence statement US1

Two studies (BA + C) report that multi-component interventions that combine the provision of signs to encourage stair use with modifications to make stairwells more attractive can increase the frequency of stair use.

Evidence statement US3

One study (RCT + C) found that an Internet intervention could be effective at increasing moderate physical activity in the short term, however at 3 months the difference was no longer significant.

Evidence statement US4

One non-randomised trial (- C) found that sessions which focused on; the use of self-regulation skills; dispelling the myths of exercise; identifying the expected outcomes from exercise participation; and teaching how to engage in a safe, efficient, and effective exercise programme led to increased exercise levels.

Evidence statement US5

One study (cluster RCT - C) found that tailored information, as part of a broader health improvement strategy significantly increased the level of exercise of blue collar women.

Cost-effectiveness evidence

Overall, workplace physical activity counselling and fitness programmes were found to be cost effective. In addition, the introduction of a workplace physical fitness programme may be broadly beneficial to employers in that it can help reduce absenteeism.

Fieldwork findings

Fieldwork aimed to test the relevance, usefulness and the feasibility of implementing the recommendations and the findings were considered by PHAC in developing the final recommendations. For details, go to the fieldwork section in appendix B and www.nice.org.uk/PH013

Fieldwork participants were fairly positive about the recommendations and their potential to help increase physical activity levels among employees. Many participants felt they were practical and relevant.

Stakeholders and employers cited a range of factors that could limit implementation. This indicated a need to provide employers with further advice and support, particularly with regard to:

- how to get all employees involved in physical activity initiatives (including disabled people and shift workers)
- planning and assessing activities.

This could involve providing organisations (particularly small enterprises) with practical examples and case studies of good practice.

Appendix D: gaps in the evidence

PHIAC identified a number of gaps in the evidence relating to the interventions under examination, based on an assessment of the evidence. These gaps are set out below.

1. Few studies use robust data collection methods to measure the impact of workplace interventions on employees' physical activity levels (most use self-reporting).
2. Few studies aim to determine whether signs and posters encourage people to continue using the stairs in the longer term.
(**Source:** evidence statement 1.)
3. There is a lack of studies on how the effectiveness of workplace physical activity interventions are influenced by:
 - a. The type of workplace.
 - b. The characteristics of employees (for example, their gender, socioeconomic status, ethnicity and employment status).
(**Source:** evidence statements 8 and 9.)
4. Few studies assess the impact of employer schemes to encourage employees to walk or cycle to work.
5. There is a lack of studies on the cost effectiveness (for employers and for NHS services) of introducing workplace physical activity schemes.
6. There is a lack of studies on the potentially negative effects of physical activity interventions in the workplace.
7. There is a lack of research to show whether employers can benefit from increased productivity and reduced sickness absence if their employees become more physically active. (Data may already exist as 'grey' literature within companies.)

8. There is a lack of research on employers' views of the benefits of workplace physical activity.

The Committee made five recommendations for research. These are listed in section 5.

Appendix E: supporting documents

Supporting documents are available from the NICE website (www.nice.org.uk/PH013). These include the following.

- Review of effectiveness: 'A review of effectiveness of workplace health promotion interventions on physical activity and what works in motivating and changing employees' health behaviour'.
- Additional evidence paper: 'Summary of the US evidence as it relates to the draft workplace physical activity recommendations'.
- Economic analysis: 'An economic analysis of workplace interventions that promote physical activity'.
- Fieldwork report: 'Fieldwork on the promotion of physical activity in the workplace'.
- A quick reference guide for professionals whose remit includes public health and for interested members of the public. This is also available from NICE publications (0845 003 7783 or email publications@nice.org.uk – quote reference number N1582).

For information on how NICE public health guidance is developed see:

- 'Methods for development of NICE public health guidance' available from: www.nice.org.uk/phmethods
- 'The public health guidance development process: an overview for stakeholders including public health practitioners, policy makers and the public' available from: www.nice.org.uk/phprocess