

# NICE Guidelines on promoting physical activity to children and young people



**Dr Charlie Foster**

British Heart Foundation Health Promotion Research Group  
University of Oxford  
Scottish Physical Activity Collaborating Centre



**Dr Trish Gorely**

School of Sport & Exercise Sciences  
Loughborough University



# Session Objectives

---

- To examine what you feel would be the priorities for children and young people
- To briefly examine the process of developing public health evidence
- To look at the NICE evidence
- To examine how this evidence and recommendations fit with policy and practical experience

# NICE construction

## 1. Topic selected

The programme guidance topic is referred to NICE by the Department of Health.

## 2. Stakeholders register interest

Potential stakeholders are asked to register an interest. Stakeholders may include national organisations representing professionals, research and academic institutions, industry and special interest groups from the general public. Stakeholders are consulted throughout the guidance development process.

## 3. Programme development group established

A programme development group (PDG), made up of members selected for their expertise in the field is established.

## 4. Scope prepared

The scope sets out what the guidance will - and will not - cover, and outlines the review process. After a consultation period the scope is finalised.

# NICE construction

## 5. Evidence reviewed

An evidence review and economic appraisal of the programme is carried out. The evidence review may be done by NICE or by a contracted research body. Stakeholders comment on the synopsis.

## 6. Draft programme guidance prepared

The PDG reviews the synopsis and produces draft programme guidance.

## 7. Consultation on the draft guidance

There is a one month consultation period on the draft guidance.

## 8. Fieldwork carried out

The draft guidance is also field tested. A series of fieldwork meetings are held with practitioners not previously involved in developing the guidance. The meeting reports are combined into a technical report, which is submitted to the PDG.

## 9. Final guidance produced

The PDG reviews the technical report and comments from the consultation and produces the final guidance.

## 10. Guidance issued

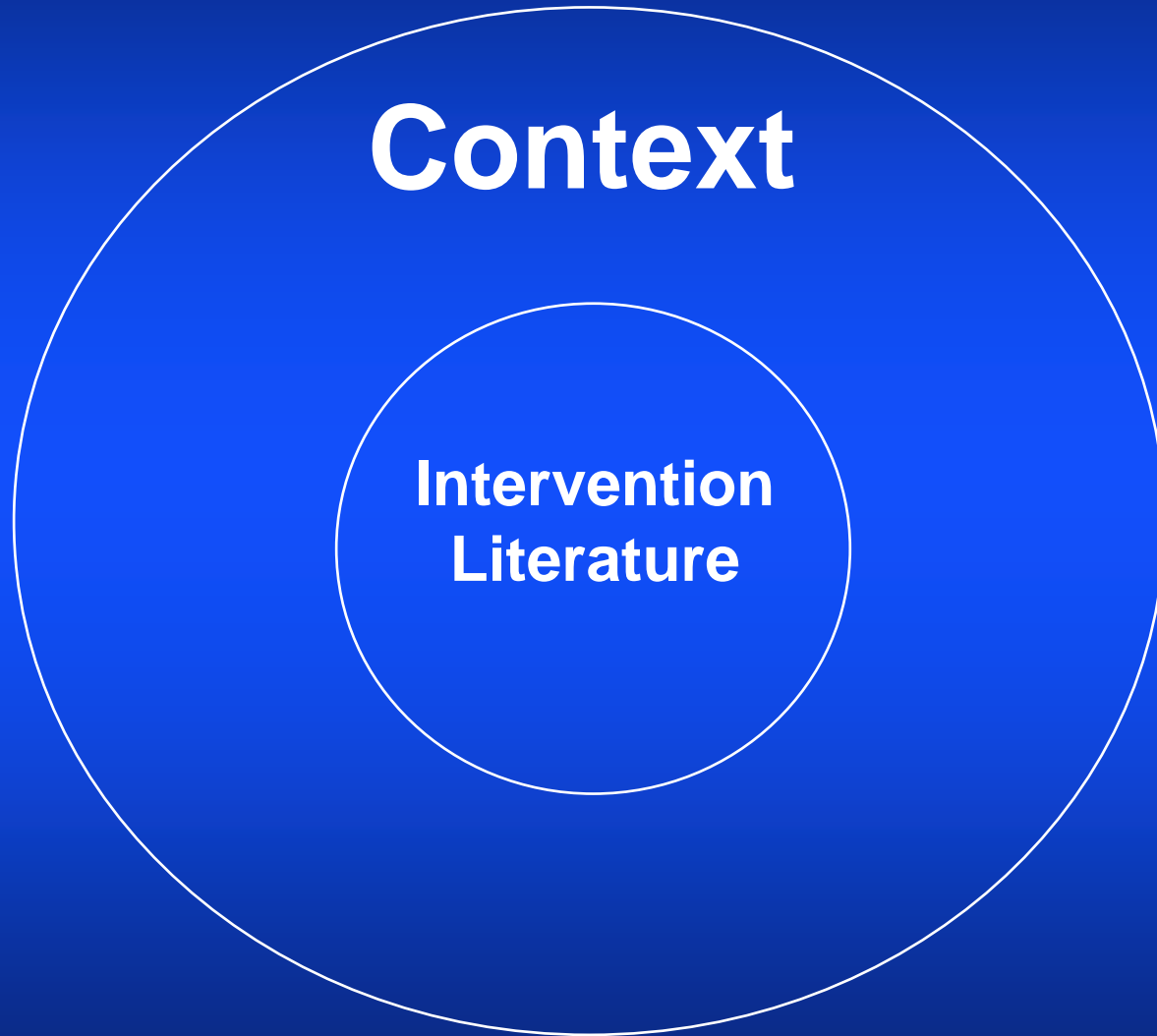
NICE formally approves the final guidance and issues it to the NHS.

# 360 degree review

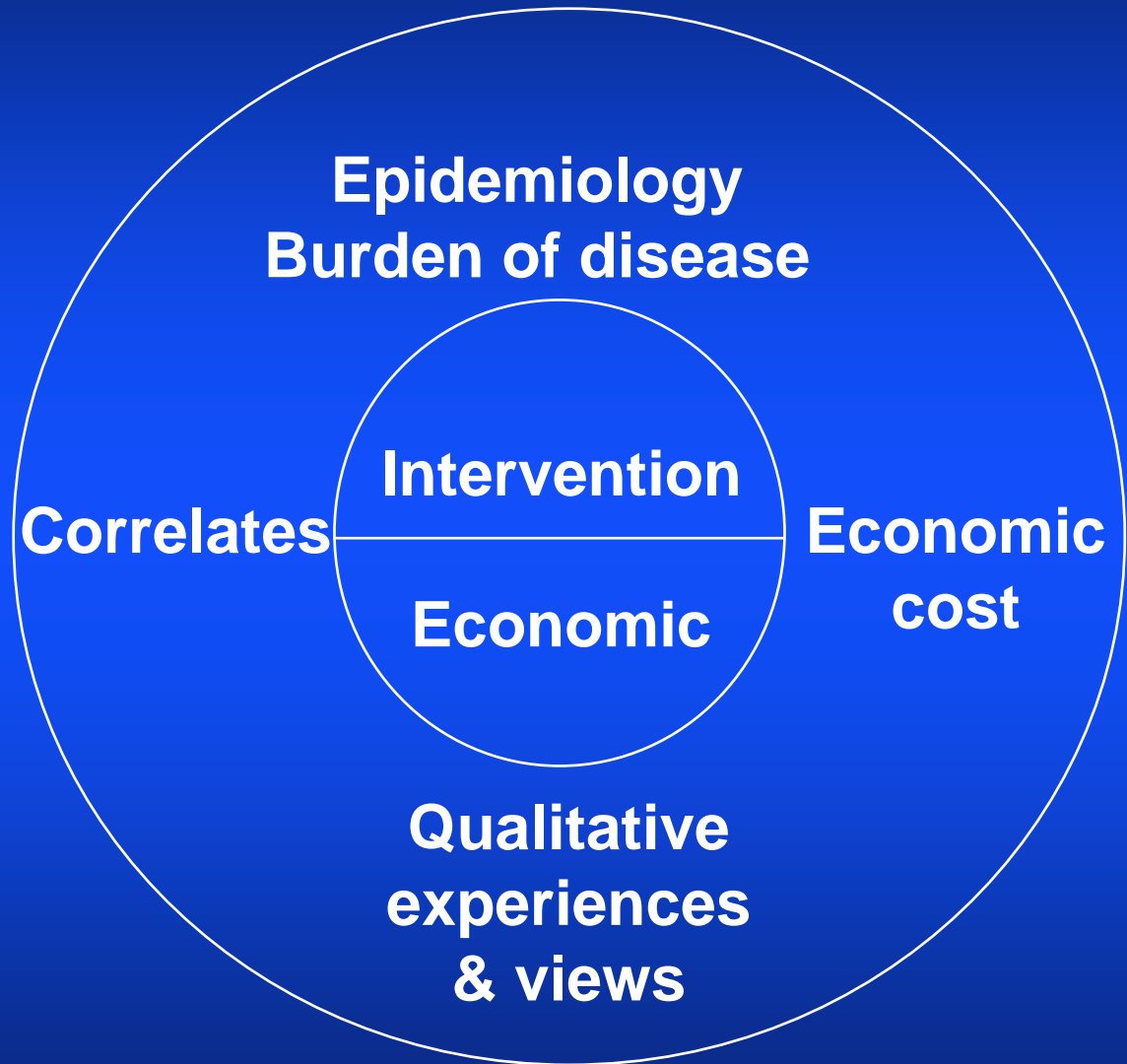


**Intervention  
Literature**

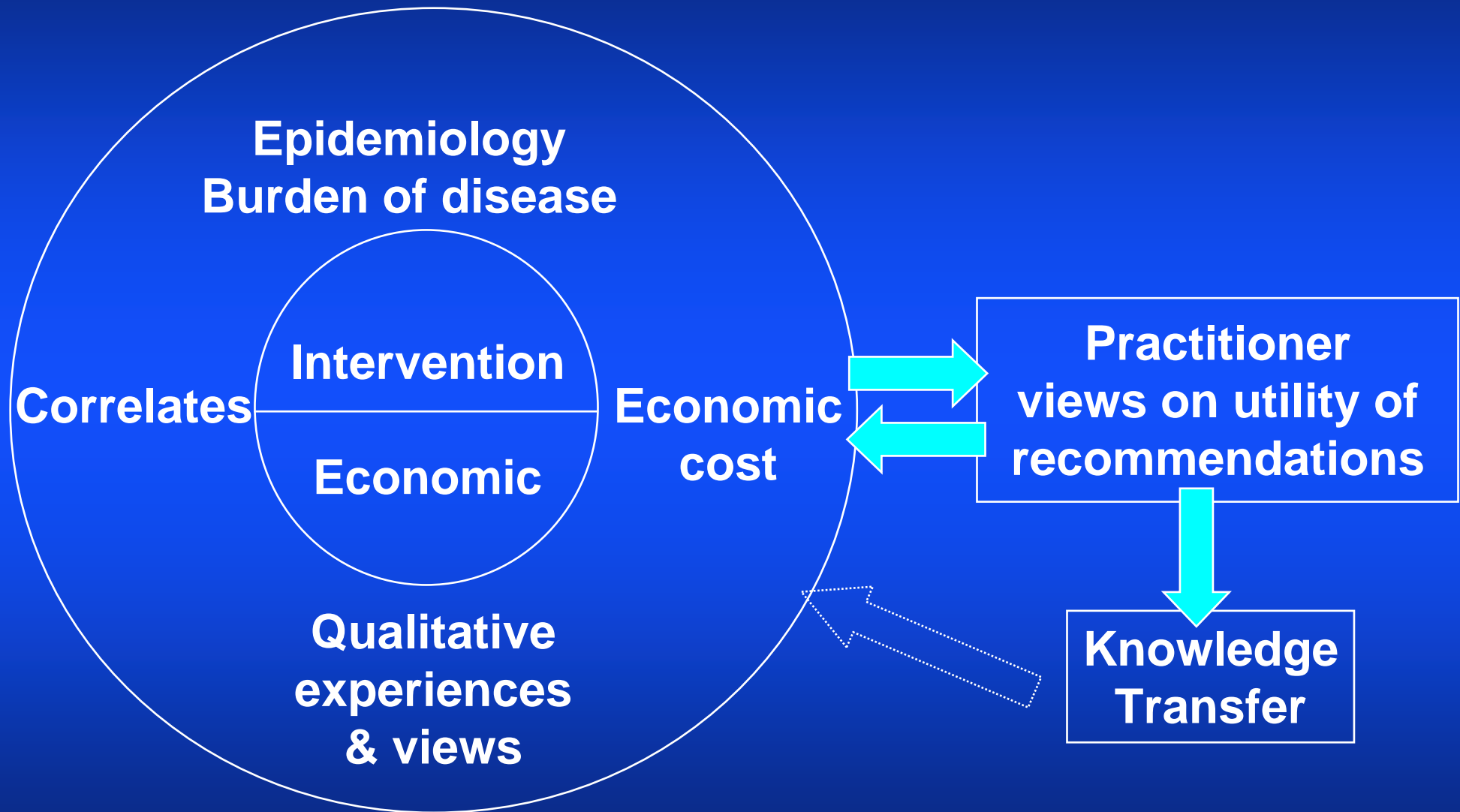
# 360 degree review



# 360 degree review



# 360 degree review



# Scope

- The recommendations are for:
- all children and young people up to age 18
- specifically:
  - children aged 11 and under
  - girls aged 11 to 18



# Epidemiology

---

- The health benefits of physical activity for children
- How active are children and young people?
- Does physical activity 'track' from childhood to adulthood?

# Health benefits of physical activity for children

---

- Physical activity has small but significant physical health benefits for children, notably prevention of overweight and obesity and Type 2 diabetes, and improvements in skeletal health.
- Physical activity has moderate psychological health benefits for children, particularly for self-esteem, but also for depression.
- There is limited evidence that childhood physical activity directly affects health in adulthood
- However, health indicators such as obesity do track from childhood to adulthood, therefore childhood physical activity may have an indirect influence on adult health.
- There is little evidence for the differential effect of physical activity on childhood health by gender, age or ethnicity.

# Physical activity levels

---

- Surveys show that high proportions of children are active at recommended levels.
- There is, however, a significant minority of children who take little or no physical activity
- Inactivity is highest among young girls (from around age 10)
- Provision of PE and sport in schools has been increasing while active travel to school has declined.
- Levels of sport and exercise are lower among lower socio-economic groups and people from black and minority ethnic groups.

# Does physical activity track?

---

- Physical activity tracks within childhood at moderate levels.
- Tracking from childhood/adolescence into adulthood is small. It is difficult to determine whether this is due to a true effect or is attributable to measurement problems.
- Tracking is likely to be strengthened by increasing the quality of the physical activity experience
- Sedentary behaviours appear to track better than physically active behaviours, but this would be clarified by further research.

# Correlates of physical activity

Correlate category	Correlate	Direction of association	Estimated strength of association	Comments
Demographic/biological	Male gender	+	Moderate-to-large	Gender differences are highly reproducible, but could vary depending on type of physical activity assessed.
	Age	-	At least small-to-moderate in adolescence	Highly reproducible. Little effect in pre-adolescence.
Psychological	Positive motivation, expressed via constructs such as intentions, enjoyment, perceived competence, self-efficacy	+	Small in adolescent girls	Effects less likely in younger children.
	Positive body image	+	Small-to-moderate in adolescent girls	
	Barriers	-	Small-to-moderate	Perceived barriers may reflect real barriers or be justifications of personal preferences

# Correlates of physical activity

Behavioural	Previous physical activity	+	Moderate	Consistent with evidence for moderate tracking during childhood and adolescence.
	Sport participation	+	At least moderate	Some evidence for larger effect in adolescent girls.
	Smoking	-	Moderate	
	Sedentary behaviour at weekends and after school	-	Small	Important to note that overall sedentary time was unrelated to physical activity.

# Correlates of physical activity

Social/cultural	Parental and social support	+	Large	But unclear on the most positive type of parental support.
Environmental	Access to facilities	+	Small-to-moderate	
	Distance from home to school	-	Moderate	But will interact with local conditions.
	Time spent outside	+	Moderate-to-large	
	Local crime	-	Small	

# Children – Environmental correlates of walking (quantitative studies)

	Association
● Places to be active	+
● Safe local roads	+
● Short distance home to school	+
● Access to public transport	-
● Parental perceptions of traffic (volume, crossing busy streets)	-

# Children and adolescents

<b>Group</b>	<b>Barriers to walking</b>	<b>Facilitators for walking</b>
Adolescent girls (11-18)	Harassment	Social and family influences  Socialisation

# Active Travel

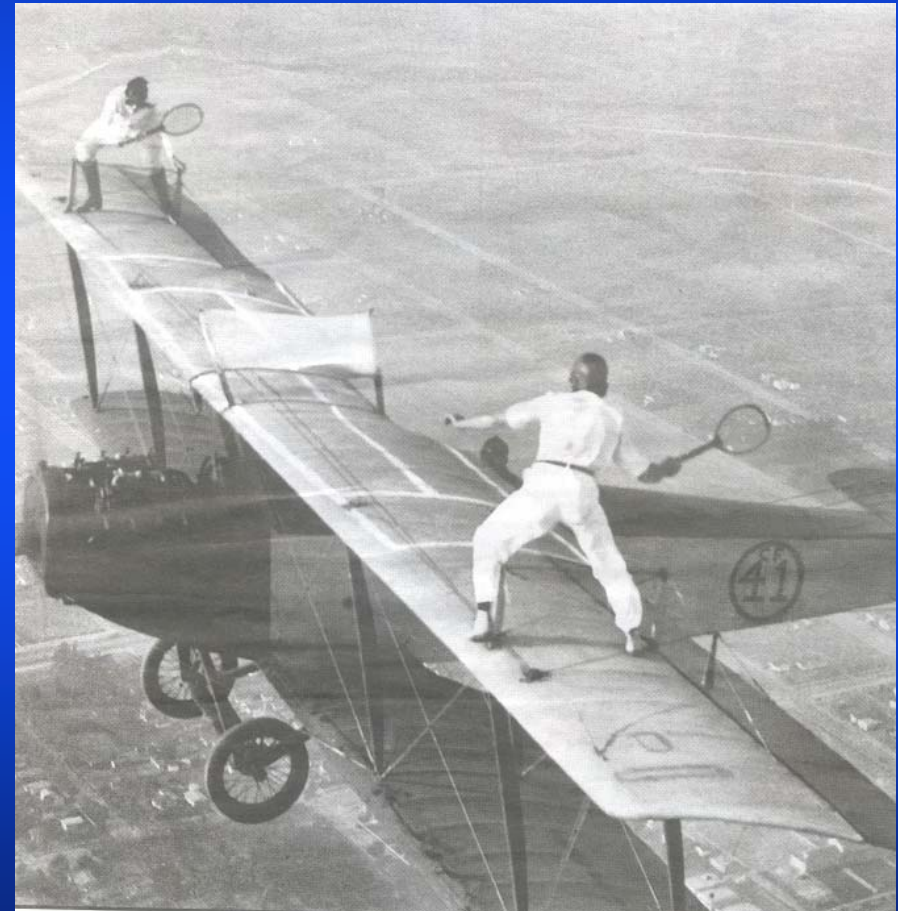
Core Group	Barriers	Facilitators
Active Travel	<p>Children's' and parents' fear of traffic</p> <p>Parental restrictions on independent movement</p> <p>Limited local play destinations</p> <p>Adult disapproval of children outside</p>	<p>Personal freedom</p> <p>Enjoyment with family and friends</p> <p>Exploring local surroundings</p>

# Families and community

<b>Core Group</b>	<b>Barriers</b>	<b>Facilitators</b>
Families and community	Stranger danger  Risk of personal accidents  Intimidation	Independent play

# QUESTION FOR YOU

- What are the key groups (e.g. age, gender, ethnicity...) to focus the interventions reviews?





# Under 8s

---

- What interventions and programmes are effective in increasing levels of physical activity/core physical skills in children under 8 years of age, particularly in those doing less than recommended levels?
- What are the characteristics of the physical activity interventions or programmes which increase physical activity/core physical skills in children under 8 years of age, particularly in those doing less than recommended levels?

## Assessment of studies by NICE quality appraisal

Area	++	+	-
<b>Physical activity – Pre-school</b>	Fitzgibbon et al., 2005 Reilly et al., 2006		Alpert et al., 1990 McGarvey et al., 2004
<b>Physical activity – Primary school</b>		Warren et al., 2003	
<b>Core physical skills- Preschool</b>		Reilly et al., 2006 Zachopoulou et al., 2006	Alpert et al., 1990

# Preschool: physical activity interventions

- There is evidence from four studies (two CRCT [++] and two CBA[-]) that interventions to increase physical activity through physical activity and education sessions at nursery/preschool result in no change in physical activity outside of these sessions.
- Directly engaging the parents in physical activity and nutrition education may positively influence effectiveness (one CBA[-])
- There is insufficient evidence to identify any features potentially related to effectiveness in terms of intervention delivery or intensity, nor can any statements be made about any potential differential impact for specific socio-demographic groups, cultural factors or baseline activity status.

# Primary school: physical activity interventions

---

- There is evidence from one RCT[+] that lunch-time clubs in primary schools have limited positive effects on physical activity either during school time or outside of school hours.

# Preschool: core physical skills interventions

---

- There is evidence from three studies (one CRCT[+], one CNRT[+] and one CBA[-]) that supervised physical activity interventions conducted in the preschool setting may be effective in improving core physical skills

# Adolescent girls

---

- **what interventions are effective in increasing levels of physical activity (or core physical skills) in adolescent girls aged 11-18 years?**

# Types of interventions

---

- School-based (single-behaviour) interventions (n=6) (inc. Prochaska & Sallis)
- School-based (multiple behaviour) interventions (n=5) (inc. Prochaska & Sallis)
- Primary health care intervention (n=1)
- Mediated interventions (n=6)
- Counselling interventions (n=3)
- Educational interventions (n=5)

# School-based (single-behaviour) interventions: Evidence statement

- There is evidence from 4 studies [3 cluster RCTs (+), and 1 controlled non-randomised trial (-)], that school-based interventions, outside of physical education lessons, targeting the single behaviour of physical activity, can lead to moderate-to-large increases in physical activity in adolescent girls for up to 6 months.
- 2 studies [1 RCT (++) and 1 cluster RCT (+)], failed to show an effect.
- Characteristics of successful interventions were not consistent across studies, although 3 of the 4 successful trials targeted girls only.
- Successful interventions included self-monitoring techniques, stage-matched counselling, teacher-led extra-curricula physical activity, and multi-level programming targeting psychological, social and environmental correlates.

# School-based (multiple behaviour) interventions: Evidence statement

- There is evidence from 4 studies [1 RCT (++)], 1 cluster RCT (+); 2 controlled non-randomised trials (-)] that school-based interventions, outside of physical education lessons, targeting multiple health behaviours, including physical activity, do not lead to increases in physical activity in adolescent girls.
- Characteristics of these interventions included targeting younger boys and girls (<14 y), and those with a range of activity levels with strategies that included education, mediated approaches, and broad-based education and policy initiatives.
- Only one [-] quality study reported a beneficial effect. Characteristics of this study included educational material delivered via the internet to older girls only.

# Primary health care intervention: Evidence statement

---

- There is evidence from 1 RCT [++] that a primary health care intervention designed to increase physical activity in adolescent girls is not successful.
- Characteristics of the intervention included targeting physical activity and nutrition through computer-mediated and counselling approaches with younger adolescent boys and girls.

# Mediated interventions: Evidence statement

- There is evidence from 4 studies (2 RCTs [++] and 2 cluster RCTs [+]), that interventions delivered via a medium such as computer, phone or printed materials do not lead to increases in physical activity in adolescent girls.
- There is evidence from 2 studies (1 cluster RCT [+] and 1 randomised non-controlled trial [-]), that mediated interventions can lead to increases in physical activity in adolescent girls.
- A characteristic of successful interventions is that they included younger girls (aged < 15 y).

# Counselling interventions: Evidence statement

- There is evidence from 2 studies (1 RCT [++] and a cluster RCT [+]), that counselling interventions do not lead to changes in physical activity in adolescent girls.
- A characteristic of these interventions is that they included younger girls (<15 y).
- There is evidence from 1 controlled non-randomised trial [-], that a counselling intervention can lead to an increase in physical activity in adolescent girls.
- A characteristic of this intervention is that it was short (8 weeks) and included older girls (>14 y) only.

# Family & Community

---

- Which community interventions or programmes targeted at children and/or their families increase children's physical activity or core physical skills taken either alone or with their family?
- What are the characteristics of a physical activity intervention or programme targeted at children and/or their families which increases children's physical activity or core physical skills taken either alone or with their family?

# Organisation of the review

- Included studies were grouped primarily by setting
  - » Interventions based within the **family** (n=11)
  - » Interventions based within the **community** (n=2)
  - » Interventions based within **Primary Care** (n=4)
  - » Interventions based in **clubs out of school hours** (n=7)
  - » Interventions based within **families and schools** (n=7)
  - » **Social marketing** interventions (n=1)

# Family-based physical activity interventions I

- Targeting overweight or obese children:
  - » two trials lead to increases in physical activity
  - » two trials failed to show an effect
  - » Characteristics of successful interventions included:
    - being located in the home
    - focused on small, specific lifestyle changes
  - » Characteristics of unsuccessful interventions included:
    - requirement for regular attendance at sites external to the home for education and/or physical activity sessions
    - broader physical activity and dietary behaviour change
    - targeted 8-9 year old African-American girls

# Family-based physical activity interventions II

- Targeting all young people regardless of weight status:
  - » Four studies lead to increases in physical activity
  - » Two studies failed to show an effect
  - » One study showed a negative effect
  - » Characteristics of successful interventions included:
    - being located in the home
    - use of information packs
  - » Characteristics of unsuccessful interventions included:
    - requirement for regular attendance at physical activity and education sessions

# Community-based physical activity interventions

- Two trials failed to show an effect
- Characteristics of these interventions included:
  - » targeting early adolescent boys (10-14 y) through a voluntary sector group using skill-building activities at group meetings and internet role-modelling, problem solving, goal-setting and review, and physical activity knowledge games
  - » broad-based education and policy initiatives aimed at both adolescent boys and girls

# Primary care based physical activity interventions

- One study lead to an increase in physical activity
- Three studies failed to show an effect
- involved assessment of health behaviours (usually physical activity and nutrition), development of a behaviour change plan/goal, and brief counselling from a GP or nurse practitioner.
- Three studies provided some level of follow-up support
- involved adolescents over 11 years old, although one study also included a younger group (8-11 yrs).

# Interventions in clubs outside of school I

- Targeting weight gain prevention:
  - » three trials failed to show an effect
  - » characteristics included:
    - African-American boys and girls under 12 years

# Interventions in clubs outside of school

## II

- Targeting young people regardless of weight status:
  - » two trials lead to increases in physical activity
  - » two trials failed to show an effect
  - » Characteristics of interventions included:
    - Activities undertaken included physical activity and education sessions; behavioural skills training; and homework sessions
    - Duration of sessions varied from 45 mins to 2 hours
    - Frequency varied from daily to 3 times per week
    - Successful and unsuccessful interventions were not obviously or consistently different
    - All studies focused on African-American children

# Interventions within families and schools

- Five studies lead to increases in physical activity
  - » positive outcomes included an actual increase in physical activity or less of a decline in physical activity relative to controls.
- Two studies failed to show an effect
- Characteristics of successful interventions included:
  - » Targeted boys and girls aged 13 and under
  - » Multiple components
    - *School level*: computer tailored advice, changes to the school environment, classroom sessions, physical activity sessions, and physical education.
    - *Family level*: facilitating social support, education on creating a supportive home environment, homework activities involving parents, and community sport information.
  - » Unsuccessful interventions were not consistently different

# Social marketing interventions

- One study lead to increases in physical activity in 9-15 yr olds
- Characteristics of the interventions included:
  - » employing engaging messages (primarily via TV ads)
  - » promoting opportunities to incorporate physical activity into daily lives.
  - » a sustained campaign (2 years)
  - » behavioural changes were seen in the activities targeted by the campaign (e.g, free-time activities)

# Active Travel

---

What interventions and programmes are effective in increasing levels of active travel in children and young people?

What are the characteristics of active travel interventions which increase physical activity/core physical skills in children and young people?

# Four approaches

---

- Cycling promotion
- Safe routes to school/School travel plans
- Walking Buses
- Walking promotion

# Assessment of studies by NICE quality appraisal - Cycling promotion

	Quality		
Outcome	++	+ UBA	-
positive effect		DETR., 1999a DETR., 1999b DETR., 1999e Osborne., 2006 Sustrans., 2007	
no effect			
negative			

## Assessment of studies by NICE quality appraisal - Safe routes to school/School travel plans

	Quality		
Outcome	++ RCT	+ UBA	-
positive effect		DETR., 1999c Staunton et al., 2003	
no effect	Rowland et al., 2003		
negative			

# Assessment of studies by NICE quality appraisal - Walking Buses

Outcome	Quality		
	++	+ UBA	- UBA
positive effect		DETR., 1999d Mackett et al., 2005 Cairns, S.; 2006c	
no effect			
negative			Bickerstaff., 2000

## Assessment of studies by NICE quality appraisal - Walking promotion

Outcome	Quality			
	++	+ CBA	+ UBA	-
positive effect		McKee et al., 2007	Cairns, S.; 2006a Cairns, S.; 2006b Zaccari & Dirkis, 2003	
no effect		Tapestry., 2003		
negative				

# Safe routes to schools/School Travel Plans

---

- There is evidence from one UK study (RCT [++]) to suggest that introduction of school travel plans and direct support from a school travel plan advisor at primary schools did not lead to increases in self reported levels of walking and cycling at 12 months.
- There is evidence from one US and one UK study (UBA [+]) to suggest that a mix of promotional measures including curriculum, parental and community promotions (e.g. mapping safe routes to school, walk and bike to school days) can increase self reported walking and cycling at 24 months. In the UK study this activity was in support of a travel plan.
- The evidence is applicable to the UK.

# Walking Buses

- There is evidence from three UK (UBA [+]) studies to suggest that Walking Buses, (volunteer-led walking groups supported by parents and teachers plus the involvement of the local highways or transport authority), led to increases in self reported walking among 5-11 year olds, and reduced car use for children's' journeys to and from school at 10 weeks and 14 to 30 months.
- There is evidence from one (UBA [-]) study to suggest that the provision of a walking bus may in itself not be sufficient to stem a more general decline in walking to and from school. Retaining volunteers to act as coordinators for these schemes appears to be a key factor in the sustainability of walking buses.
- Currently walking buses are found to be commonly delivered in the UK, however evidence for their applicability remains uncertain (as they may be applicable only to the specific populations or settings included in the studies).

# Active Play

- Data used - practical examples; practitioners' views; children's views; and case studies.
  - » What practitioners think works to support and increase children's active play
  - » What parents think about active play and risk
  - » What young children say encourages and discourages their participation in active play
  - » Practical advice about how play can help develop core skills.
  - » How the adverse effects of cold and wet weather can be overcome

# Active Play

- **Children's views**

- » Children say that they like physically active outdoor and indoor pursuits; meeting with their friends; quiet activities; being able to choose from a range of activities.
- » Barriers to active play outdoors include fears for their own safety, in particular being bullied; dirty, unkempt play areas and parks; the lack of things to do; and traffic.

- **Seasonality**

- » There is often reluctance by parents and professional carers to also go outside and supervise children playing outdoors in poor weather.
- » It appears that practitioners are put off by the weather more than children.

# Field Testing Recommendations

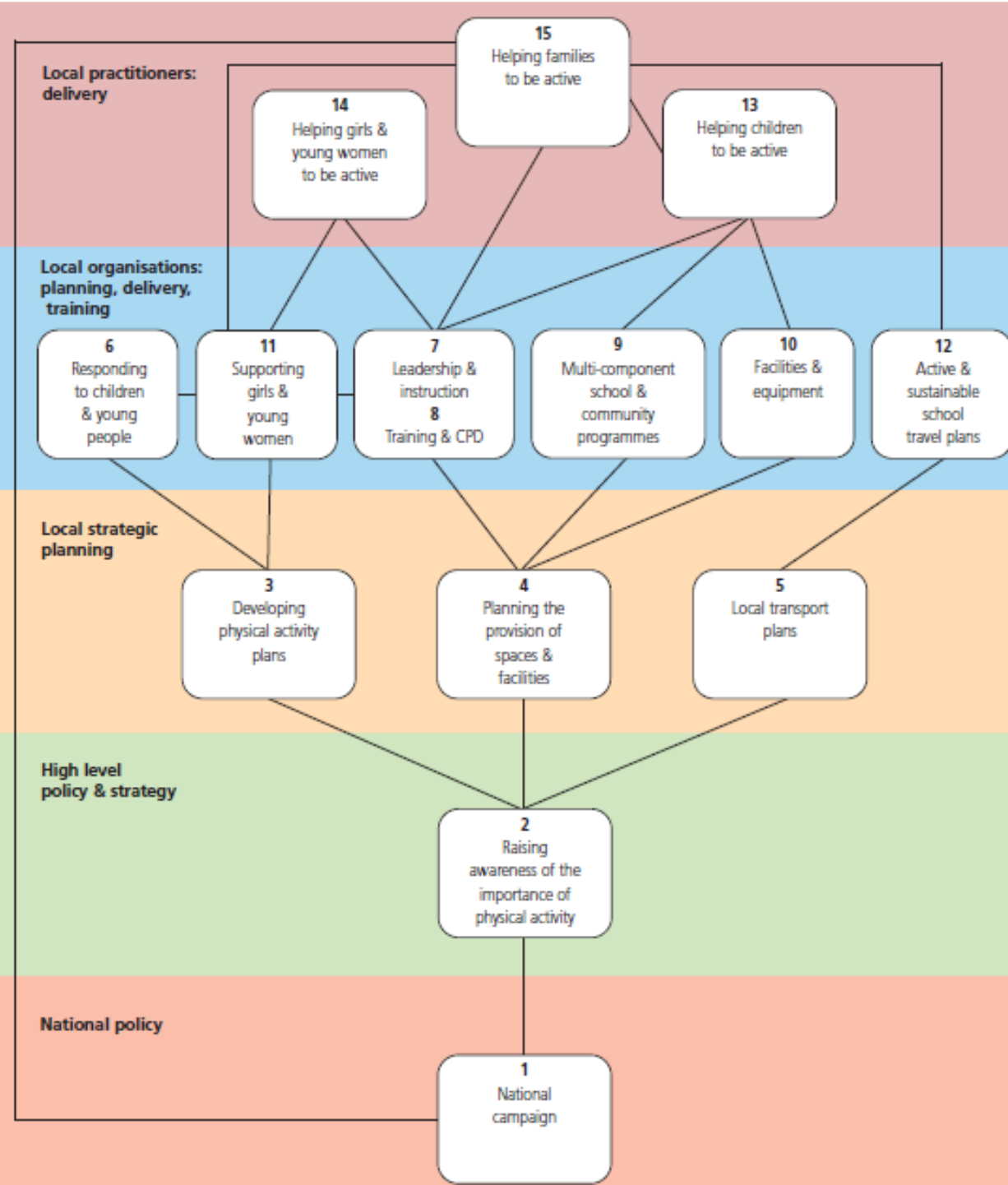
---

- Overall these recommendations were thought to be both useful and relevant and that if successfully implemented would have a significant impact on policy and service provision.
- They were thought to be well structured. It is thought that for areas that are not doing so much work in this area they will be useful guidance to help develop new policies.
- For areas currently carrying out a lot of the work highlighted in the recommendations, then they provide reassurance and weight to the work already being carried out.

# TEA & THINKING

---

- What would be your top recommendation for practice?
- Why?



# Recommendations

---

- Key priorities:
  - » Involving children and young people (3, 6, 11, 14)
  - » Working with families (12, 15)
  - » Developing a skilled workforce (7, 8)
  - » Coordinating a local strategy (2)
  - » Providing space, facilities and equipment (2, 4, 9, 10, 13)
  - » Promoting physically active travel (5, 12)

# Involving children and young people

---

- Children and young people should be:
- consulted on a regular basis to find out what helps or prevents them from being physically active and what type of activities they enjoy
- involved in the design, planning and delivery of activities

# Working with families

- Encourage parents and carers to get involved in physical activities. Make them aware of:
  - » government advice on physical activity
  - » the wider benefits



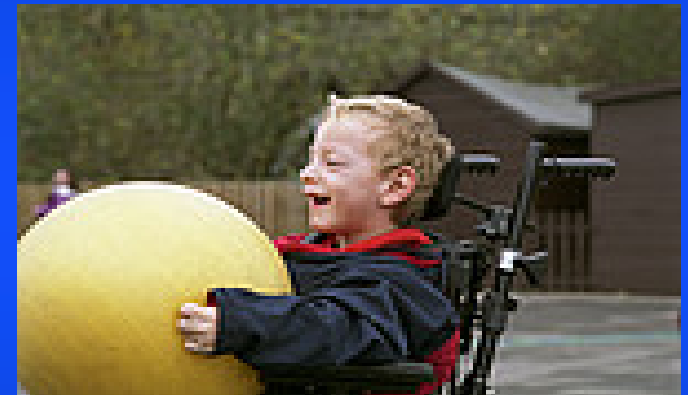
# Developing a skilled workforce

---

- » Physical activity sessions should be led by people meeting sector standards
- » Staff and volunteers should have the skills to design, plan and deliver these sessions
- » Staff and volunteers should be given regular and relevant training and development opportunities

# Coordinate a local strategy

- Ensure a coordinated local strategy is in place to:
- increase physical activity among children, young people, their families and carers
- help achieve local area agreement targets



# Space, facilities and equipment

---

- » Provide high quality, safe and accessible spaces for children and young people to be physically active
- » Ensure spaces and facilities meet the recommended safety standards
- » Actively promote public parks, play areas and more non-traditional spaces for physical activity

# Physically active travel

---

- » Continue to encourage physically active modes of travel (such as walking or cycling)
- » Continue working with schools on travel plans, focusing on physical activity
- » Ensure local transport plans take account of children and young people's need to be physically active

# Costs

- Funding is available and this guidance is unlikely to result in a significant change in the use of resources. However, the following may result in additional costs:
- provision of high quality and safe spaces for children and young people to be physically active
- initiatives to promote physical activity (set-up costs)
- recruitment and training of staff and volunteers

# Potential savings and benefits

- Reduction in health problems such as obesity, heart disease and cancer
- Improvements in children and young people's cognitive ability and academic achievement
- Improved social cohesion and a reduced risk of criminal behaviour

# In Scotland...

- How do we ensure high-level policies and strategies are linked up to address the need for children and young people to be physically active?
- How can we get children and young people and their families involved in the design, planning and delivery of physical activities, including active play?

# Find out more

- Visit [www.nice.org.uk/PH17](http://www.nice.org.uk/PH17) for the:
  - » guidance
  - » quick reference guide
  - » costing statement
  - » audit support
  - » guide to resources



# Conclusions

---

- Challenges – evaluation, follow up and sustainability, resource competition
- The evidence base can only take us so far in knowing what to do
- What to do should be a mixture of evidence based practice, research and common sense