

Appendix A: Summary of evidence from surveillance

2018 surveillance of Physical activity for children and young people (2009) NICE guideline PH17

Summary of evidence from 2018 surveillance

Studies identified in searches are summarised from the information presented in their abstracts.

Feedback from topic experts who advised us on the approach to this surveillance review was considered alongside the evidence to reach a final decision on the need to update each section of the guideline.

This guideline was previously reviewed in 2012 and again in 2015. At both time points, the surveillance review decision was not to update the guideline.

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
<u>Recommendation 1: National campaign</u>			
The remit of NICE Public Health guidelines no longer covers national policy. Therefore this recommendation did not undergo surveillance and will remain in the guideline.			

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
<u>Recommendation 2: Raising awareness of the importance of physical activity</u>			
No relevant evidence was identified.	No relevant evidence was identified.	<p>Many of the topic experts noted that recommendation 2 makes reference to several structures and positions that no longer exist or do not universally exist. Examples of these include: PCTs and chair of children's trusts.</p> <p>Additionally, the second bullet point of recommendation 2 makes reference to 'local area agreement targets' that no longer exist.</p>	<p>No new evidence was identified at any surveillance review which would impact this recommendation.</p> <p>However, in response to topic expert comments on out-of-date content, the recommendation will be amended accordingly with editorial corrections.</p> <p>New evidence is unlikely to change guideline recommendations</p>

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
<u>Recommendation 3: Developing physical activity plans</u>			
No relevant evidence was identified.	A review of reviews (number of studies and total n not reported in the abstract) investigated the association between socioeconomic and determinants of physical activity behaviours across the life course (1). The results indicate that there was no association between socioeconomic status and physical activity for pre-school, school-aged children or adolescents. However, the authors point out this may be due to the availability of data for these age groups and the limited quality of primary studies.	A topic expert noted that bullet 1 in recommendation 3 mentions public health observatories, which are now part of Public Health England.	<p>New evidence was identified on the association between socioeconomic status and physical activity behaviours, particularly for pre-school, school-aged children and adolescents. The guideline currently recommends ensuring that children from different socioeconomic groups are actively involved and considered during the planning and provision of physical activity (see recommendations 3 and 4). As the new evidence highlighted several limitations around availability of data, more evidence is required before the impact on the guideline can be assessed.</p> <p>In response to topic expert comments on out-of-date content, the recommendation will be amended accordingly with an editorial correction.</p> <p>New evidence is unlikely to change guideline recommendations.</p>

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
<u>Recommendation 4: Planning the provision of spaces and facilities</u>			
<p>Two studies were identified as being relevant to this section of the guideline. An after-school programme based in the community was found to be an effective way of increasing moderate to vigorous physical activity (MVPA) (2). Shared use of school facilities in the community was found to increase participation in after-school programmes (3).</p>	<p>No relevant evidence was identified.</p>	<p>A report was highlighted which evaluates the ‘Street Play’ project led by Play England. The Street Play project examined the effect of temporary street closures to encourage physical activity in a safe environment. There was no comparison of physical activity levels before and after the Street Play intervention, however the report concludes that the intervention was acceptable for residents and may help to reduce sedentary time spent indoors.</p>	<p>The new evidence is consistent with recommendation 4 which states: provide facilities for children and young people to take part in physical activities in both the school and community setting.</p> <p>A report from Play England was highlighted which evaluated the impact of street closures on physical activity in children. As the report did not contain any effectiveness data, it is unlikely to impact the recommendations at this point. However this area will be monitored and considered at the next surveillance point.</p> <p>New evidence is unlikely to change guideline recommendations.</p>

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
<u>Recommendation 5: Local transport plans</u>			
<p>One study was identified as being relevant to this section of the guideline. A 'Safe Routes to School' programme was found to encourage walking and cycling to school (4).</p>	<p>No relevant evidence was identified.</p>	<p>No relevant evidence was identified.</p>	<p>This evidence is consistent with recommendation 6 which says that local transport plans should aim to increase the number of children and young people who regularly walk, cycle and use other modes of physically active travel, and that school travel plans should be developed that have physical activity as a key aim.</p> <p>New evidence is unlikely to change guideline recommendations.</p>
<u>Recommendation 6: Responding to children and young people</u>			

<p>No relevant evidence was identified.</p>	<p>A systematic review of 22 studies (n not reported) aimed to identify the barriers to children participating in sport (5). Barriers identified in quantitative studies included 'time' (2 studies), 'cost' (3 studies), 'opportunity/accessibility' (3 studies) and 'friends' (2 studies). Barriers identified in qualitative studies included 'time' (6 studies), 'cost' (5 studies), 'not being good at sport' (6 studies) and 'fear of being judged/embarrassed' (6 studies).</p> <p>A systematic review of 17 studies (n not reported) examined the barriers and facilitators of the implementation of physical activity policies in schools (6). The results indicated that one of the most common domains identified as a barrier was: 'environmental context and resources' (e.g., availability of equipment, time or staff); 'goals' (e.g. perceived priority of the policy in the school) and 'social influences' (e.g. support from school boards) and 'skills' (e.g. teachers' ability to implement the policy).</p>	<p>A topic expert noted that cost may be another barrier to physical activity in children, particularly for looked-after children and large families. They called for attractive pricing arrangements in leisure facilities to promote physical activity.</p>	<p>Evidence was identified which highlighted several barriers that children may face in sports participation. These included 'time', 'cost', 'friends', 'not being good at sport' and 'fear of being judged'. Barriers to the implementation of physical activity policies in schools included 'environmental context and resources', 'goals', social influences' and 'skills'. A topic expert also highlighted that cost could be another barrier to physical activity in children. The guideline currently mentions lack of privacy in changing facilities, inadequate lighting, poorly maintained facilities and lack of access for children with a disability as barriers to physical activity which should be removed. It also states that dress policies should be practical and affordable, however it does not make any other reference to cost as a barrier. No new evidence was identified on the pricing arrangements of leisure centres to promote physical activity in children.</p> <p>Barriers such as 'friends' and 'fear of being judged' are factors that could be addressed during the design phase of physical activity</p>
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			<p>programmes, when there is a consultation with children and parents (see recommendation 6). Therefore no impact on the guideline is expected at this point.</p> <p>In terms of barriers to the implementation of physical activity policies in schools, the guideline already makes clear recommendations on how physical activity policies in schools can be implemented and encouraged, with the majority of recommendations being aimed at school governors and heads of schools. For example, the guideline mentions that governors and heads of schools should “continue to encourage a culture of physically active travel” (recommendation 12) and “provide daily opportunities for participation in physically active play by providing guidance and support, equipment and facilities” (recommendation 10). There are also recommendations on leadership and instruction (see recommendation 7) and on training and continuing professional development (recommendation 8) which is relevant to the barriers identified in the new evidence around skills and support for teachers.</p>
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Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
			<p>Therefore, with these themes already running through the guideline it is unlikely that the recommendations will be impacted.</p> <p>New evidence is unlikely to change guideline recommendations.</p>
<p><u>Recommendation 7: Leadership and instruction</u></p>			
<p>One study was identified as being relevant to this section of the guideline. A programme to promote healthy weight in preschool settings through both physical activity and nutrition, using staff and parent education and providing opportunities for play and physical activity, was found to increase physical activity levels among young children in early years day-care centres (7).</p>	<p>No relevant evidence was identified.</p>	<p>No relevant evidence was identified.</p>	<p>The new evidence is broadly consistent with recommendation 7 which states that: staff and leaders should have appropriate skills; opportunities for play and physical activity should be available in pre-school establishments; and parents and carers should get involved in physical activities with their children.</p>
<p><u>Recommendation 8: Training and continuing professional development</u></p>			

<p>One study was identified as being relevant to this section of the guideline. A professional staff-development programme ('Movin' Afterschool') was found to reduce sedentary behaviour and increase some aspects of physical activity among children aged 4–13 years (8).</p>	<p>A cluster RCT (n = 402) examined the effect of a training initiative for existing after school programmes to increase physical activity levels in children aged 5 to 12 years old (9). The initiative consisted of three 3-hour learning workshops with additional opportunities for further training and technical assistance. No details of the control group were reported in the abstract and the follow-up time is not stated. Results indicated that compared to control sites, there was no change in MVPA at the intervention sites. However, total minutes of vigorous activity, vigorous activity in bouts and total accelerometer counts per day were significantly higher at the intervention sites compared to control.</p> <p>An RCT (n = 76) examined the short-term effect of an education intervention for basketball coaches to increase MVPA in girls aged 9 to 12 years old (10). The intervention consisted of two 2-hour coach education sessions which covered strategies to increase MVPA and decrease inactivity. The intervention was delivered over 2 days and</p>	<p>No relevant evidence was identified.</p>	<p>Evidence was identified to suggest that training staff who provide and deliver physical activity programmes was effective in increasing physical activity in children. This is in line with recommendation 8 in the guideline which covers training and continuing professional development to promote physical activity.</p> <p>New evidence is unlikely to change guideline recommendations.</p>
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	<p>compared to a control, but there are no further details of the control group in the abstract. Results indicated that compared to the control group, girls in the intervention group spent significantly more time in MVPA, vigorous physical activity, moderate activity and significantly lower proportion of the practice being inactive.</p> <p>A cluster RCT (n = 379) examined the effect of a training intervention for pre-school teachers to encourage physical activity of 4-year olds during school hours (11). The intervention included training for pre-school teachers in how to encourage children to increase physical activity during structured sessions in the classroom, structured and unstructured sessions during break times and how to integrate physical activity into pre-academic lessons. Data was collected over 2 years but the intervention duration was not reported and there are no details of the control group in the abstract. Results indicated that the intervention schools engaged in significantly more MVPA than control schools.</p>		
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Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
Recommendation 9: Multi-component school and community programmes			

<p>Provision of non-traditional play materials in school playgrounds, alongside managing adults' perceived risk of free play, was found to increase MVPA and reduce sedentary time in children aged 4 to 7 years old (12). However, the increase was not significant after a 2-year follow-up.</p> <p>A review of reviews found that interventions to reduce sedentary behaviour in children and young people appear to have some effect (13). However, the types of sedentary behaviour that should be targeted, how best to target them, and how these behaviours interact with physical activity levels, have not been firmly established.</p> <p>A tailored online intervention to promote physical activity among young people aged 12–13 years, delivered in a school setting, was found to have no effect on MVPA levels (14).</p>	<p>One systematic review was identified which examined the effect of multicomponent interventions to improve physical activity (15). The study focussed on children aged 2 to 5 years (n = 24 studies, number of participants not reported) and concluded that theory-driven, multicomponent interventions involving structured physical activity and both parents and their children were the most promising interventions to increase physical activity. However, the authors note that there was a large amount of heterogeneity in study design and outcome measures which limited their ability to draw firm conclusions.</p> <p>In addition, 9 studies were identified which investigated the effect of a multicomponent intervention on increasing physical activity in children. Results were as follows:</p> <ul style="list-style-type: none"> ● A 12 month lifestyle intervention delivered to schools was found to have no significant effect on physical activity levels of children aged 5 to 6 years old. The intervention included help to teachers to provide an extra 30 mins of activity a day, promoting 	<p>No relevant evidence was identified.</p>	<p>There was mixed evidence on the effectiveness of multicomponent interventions to increase physical activity in children. In general, findings were supportive of recommendation 9 which advises organisations to develop multicomponent interventions that include education, advice, family, lunch and break time sessions.</p> <p>There was some evidence to suggest that broader lifestyle interventions (focussing on diet and activity), environmental changes in classrooms, and online programmes had no effect on physical activity. However, there was substantial variability in sample size, age groups and intervention components of these studies which limits the conclusions that can be drawn. Until there is consistent evidence in these areas, no impact on the guideline is expected.</p> <p>One study was identified supporting the use of mobile phones and an activity tracker to increase physical activity. The guideline does not currently mention the use of wearable technology as part of a physical activity intervention. However more</p>
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	<p>healthy lifestyles learning, school-based healthy cooking and education workshops for parents and children and highlighting local physical activity opportunities in the community. (16) (cluster RCT, n = 1467)</p> <ul style="list-style-type: none"> ● A school-based pedometer intervention was found to significantly increase MVPA and active commuting in children aged 12 to 17 years old. The intervention group received pedometers and took part in a class competition lasting 12 weeks, with rewards given for creative ideas to promote physical activity. The control group received education as usual. (17) (cluster RCT, n = 1162) ● A playground intervention with workshops for parents and teachers was found to significantly increase total accelerometer counts, minute of MVPA and reduce sedentary time compared to control. The intervention involved adding recycled materials without an 		<p>evidence in this area is required before the impact on guidance can be assessed.</p> <p>New evidence is unlikely to change guideline recommendations.</p>
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	<p>obvious play purpose into school playgrounds alongside a workshop for parents and teachers about risk reframing. There were no details of the control group in the abstract. (18) (RCT, n = 226)</p> <ul style="list-style-type: none"> ● An 8 week mobile-phone-based intervention was found to significantly increase physical activity days per week in adolescents after a 6 month follow-up, compared to control. The intervention involved use of a Fitbit alongside an online educational programme and biweekly text messages. There were no details of the control group in the abstract. (19) (RCT, n = 40) ● A 6 week pre-school intervention was found to have no significant effect on step count of children aged 4 to 6 years old. The intervention was implemented by teachers and included environmental changes to the classroom and classroom activities. There were no details of the control group in the 		
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	<p>abstract. (20) (cluster RCT, n = 2438).</p> <ul style="list-style-type: none"> ● A multi-level intervention based in childcare services was found to have no significant impact on the step counts of children aged 3 to 5. The intervention included fundamental movement skill sessions, structured activities, staff role modelling, limiting screen time and sedentary time, and environmental changes to promote physical activity. The follow-up time was 6 months however the abstract does not contain details of the intervention duration. (21) (cluster RCT, n = 459) ● A 10-week school-based lifestyle intervention was found to significantly increase physical activity time at break and lunchtimes but not total daily physical activity minutes in children aged 9 to 12 years old. The intervention was conducted before and after school and included weekly physical activity lessons and breaks, biweekly promotions, posters and material 		
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	<p>for parents. There were other intervention components that aimed to improve fruit and vegetable consumption. The intervention was compared to a control group but no details of this group were included in the abstract. (22) (cluster RCT, n = 3463)</p> <ul style="list-style-type: none"> ● A 20-week school-based intervention was found to have no significant effect on physical activity in adolescent boys aged 12 to 14 years old. However it was found to significantly reduce screen time. The intervention consisted of teacher development, provision of fitness equipment to schools, physical activity sessions, lunchtime student mentoring, researcher led seminars, and a smart-phone application with a website as well as parental strategies for reducing screen time. There were no details of the control group included in the abstract. (23) (cluster RCT, n = 361) ● A multilevel preschool-based intervention was found to 		
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	<p>significantly reduce sedentary time, and increase MVPA and total physical activity in children aged 2 to 4 years, when comparing pre-intervention to post-intervention. However there was no significant effect on light physical activity or any physical activity measures after 6 and 12 months. The intervention included staff training, portable play equipment and modified outdoor playtime. The control group was described as standard care. (24) (cluster RCT, n = 338)</p> <ul style="list-style-type: none"> ● A school-based lifestyle intervention was found to have no significant impact on physical activity in children aged 9 to 10 years old at 18 and 24 month follow-up. The intervention included building a receptive environment, a drama-based healthy lifestyles week, one-to-one goal setting and reinforcement activities. The intervention was compared to a control group but no details of this group were included in the abstract. (25) (cluster RCT, n = 1324). 		
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Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
Recommendation 10: Facilities and equipment			

<p>Two studies were identified as relevant to this section of the guideline.</p> <p>Provision of non-traditional play materials in school playgrounds, alongside managing adults' perceived risk of free play, was found to increase MVPA and reduce sedentary time in children aged 4 to 7 years old (12). However, the increase was not significant after a 2-year follow-up. A further report from the Health and Safety Executive was highlighted about the benefits of challenging play opportunities.</p> <p>Results from a meta-analysis suggested that school break-time interventions appear to increase physical activity levels in children aged 3 to 11 years old (26).</p>	<p>Classroom equipment</p> <p>A systematic review of 8 studies (n not reported) examined the impact of school-based standing desk interventions on sedentary behaviour of children (27). Results indicated that time spent standing increased in all studies and sitting time decreased from a range of 59 to 64 minutes. However, the authors conclude that half of the studies had a non-randomised design and many were pilot or feasibility studies.</p> <p>A pilot RCT (n = 85) examined the impact of 'virtual field trips' on sedentary behaviour in a primary school lesson (28). The intervention was a 30 minute London 2012 Olympic-themed session delivered via an interactive whiteboard. The comparator group were shown a sedentary version of the 'fieldtrip'. Results indicated that compared to the control, the intervention group showed significantly less sedentary time and significantly more light, moderate and vigorous physical activity.</p> <p>Playgrounds</p>	<p>No relevant evidence was identified.</p>	<p>A variety of evidence was identified which relates to interventions involving facilities and equipment to increase physical activity in children.</p> <p>Classroom equipment</p> <p>Results from a systematic review indicated that standing desks may be effective at decreasing sedentary behaviour, however the evidence is considered too preliminary at this point to impact the guideline. Similarly, results from a pilot study suggest that interactive white-boards to deliver 'virtual field trips' may increase physical activity in the classroom. More evidence is needed in this area before an impact on guidance can be assessed.</p> <p>Playgrounds</p> <p>Evidence was also identified to support the enhancement of school playgrounds to promote physical activity, which is in line with recommendation 10.</p> <p>Active video games</p> <p>Evidence was identified on the use of active video games to promote physical activity in children. Whilst all findings indicated a positive effect of</p>
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	<p>A cluster RCT examined the effect of a 4-month school playground intervention on physical activity levels of children aged 4-13 years (29). The intervention, which included policy changes and portable equipment for playgrounds, was compared to a control (no further details provided). Results indicated that at follow-up, the intervention group significantly increased the proportion of break time in MVPA compared to the control.</p> <p>Active video games</p> <p>Two systematic reviews were identified which examined the effect of active video games (30) and health games (31). One review of 22 studies (n not reported) reported mixed effects of active video games, with 9 out of 14 studies showing an increase in physical activity (30). The other review (5 studies, n not reported) concluded that active games (n = 3) and educational games (n = 1) had positive effects on children's physical activity self-efficacy (31). Whilst a game themed mobile phone application was found to have no impact on activity levels</p>		<p>active video games on activity levels, two systematic reviews concluded that more rigorous research is needed in this area. The guideline does not currently mention active video games as a way to increase physical activity in children. However, more high quality evidence from studies with larger sample sizes are needed before the impact on the guideline can be assessed.</p> <p>New evidence is unlikely to change guideline recommendations</p>
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	<p>(31). Both reviews concluded that more rigorous research is needed in this area.</p> <p>Results from 2 RCTs (32,33) indicated that active videogames:</p> <ul style="list-style-type: none"> ● Significantly decreased total sedentary time in adolescents. The intervention involved an active video game and encouragement to play, with a 10 month follow-up. (32) (n = 270) ● Significantly increased MVPA in children aged 8 to 11 years old. The intervention involved playing an active video game on the Xbox 360, twice a week for 60 minutes over a 12 week period. (33) (n = 80) <p>A further study (34) (n = 40) examined the effect of adding a narrative cutscene to an existing active video game on the Nintendo Wii game 'Swordplay Showdown'. The intervention involved watching a narrative cutscene before game play, whereas the control group played the active video game without the narrative. Results indicated that the intervention group significantly increased their steps per 10 second</p>		
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Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
	period and overall step count during game play.		
Recommendation 11: Supporting girls and young women			

<p>No relevant evidence was identified.</p>	<p>Two meta-analyses of 20 studies (35) and 45 studies (36) examined the effectiveness of interventions to increase physical activity in adolescent girls. The reviews indicated that effect sizes were small but significant, with greater treatment effects for interventions that were theory-based (35,36), had multiple components (35,36), school-based (35,36), tailored to girls only (36) and targeted both physical activity and sedentary behaviour (36).</p> <p>A cluster RCT (n = 199) examined the effect of a school-based peer-led walking intervention on physical activity levels of girls aged 11 to 13 years (37). The intervention lasted 12 weeks and involved regular 10-15-minute peer-led walks throughout the school week. The comparator group did not receive the intervention. Results indicated that the intervention group significantly increased their light intensity physical activity compared to the control group, but there were no significant changes to MVPA.</p> <p>A cluster RCT (n = 357) investigated the impact of a multi-component school-based programme on</p>	<p>No relevant evidence was identified.</p>	<p>Evidence was identified which supports the use of school-based interventions for girls, which is in line with recommendation 11. Interventions found to be particularly effective included those that were school based, such as peer-led walking programmes. Other effective interventions included those that had multiple components and targeted girls only.</p> <p>Bullet 1 in recommendation 11 states that “Activities may be delivered in single and mixed-gender groups”. This is partially consistent with the new evidence, which favours interventions tailored to girls only. The new evidence does not mention interventions delivered to mixed-gender groups, therefore no impact on the guideline is expected.</p> <p>The new evidence also supports the use of interventions that target both physical activity and sedentary behaviours. Although sedentary behaviours are not explicitly mentioned in the guideline, this is generally in line with recommendation 11 which advises that a broad range of options be considered. We will revisit this area once the updated</p>
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Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
	<p>physical activity of girls aged 12 to 14 years old (38). The 12-month intervention included enhanced school sport, lunchtime physical activity sessions, interactive seminars, student handbooks, nutrition workshops, pedometers, parent newsletters and text messages to encourage physical activity. There were no details of the control group in the abstract. Results indicated that the intervention significantly decreased sedentary time compared to control, but there were no significant differences in physical activity levels.</p> <p>A systematic review (number of studies not reported) examined the impact of physical activity interventions on secondary school-aged girls' (aged 11-18 years) participation in team sport and to identify potential strategies for increasing participation (39). The findings from this review indicate that there is limited evidence on physical activity interventions for promoting team sport participation among girls in the UK.</p>		<p>CMO physical activity guidelines are published in 2019.</p> <p>New evidence was also found on interventions to promote team sport participation among girls in the UK. The findings demonstrate that there is limited evidence in this area. Recommendation 11 does not currently refer to specific interventions to promote team sport among girls, therefore no impact on the guideline is expected.</p> <p>New evidence is unlikely to change guideline recommendations.</p>

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
Recommendation 12: Active and sustainable school travel plans			

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
<p>One study was identified as relevant to this section of the guideline. A 'Safe Routes to School' programme was found to encourage walking and cycling to school (4).</p>	<p>A systematic review of 27 studies (n not reported) examined the effectiveness of active school transport interventions to increase physical activity in children (40). The review concluded that interventions to increase active school transport may be effective, however effect sizes were generally low and many of the studies were of poor quality and had short follow-up periods.</p> <p>A systematic review of 23 studies (n not reported) examined the effect of interventions to increase rates of active travel to school (41). The results indicate that more high quality research is needed in the area of active commuting, with randomised designs, greater sample sizes, and the use of valid and reliable instruments.</p>	<p>No relevant evidence was identified.</p>	<p>Evidence was identified to support the use of interventions to increase active school transport. These findings generally support the guideline which recommends various ways to promote active school travel (see recommendation 12). However, new evidence also suggests that more research in the area of active commuting is needed. This is in line with research recommendation 2, meaning no impact on the guideline is expected.</p> <p>Since the guideline was published, NICE guideline PH41 (Physical activity: walking and cycling) has been released which includes the information covered in this recommendation. To reduce duplication within NICE guidelines, we propose that recommendation 12 in PH17 be stood down and replaced with a cross-referral to recommendation 8 in PH41.</p> <p>New evidence is unlikely to change guideline recommendations.</p>

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
Recommendation 13: Helping children be active			

<p>Two studies were identified as relevant to this section of the guideline. A systematic review found that interventions aimed at increasing physical activity levels among pre-school children do appear to be affective in this age group (42).</p> <p>An obesity prevention programme was found to improve movement skills in girls aged 3 to 5 years at 3-year follow-up (43).</p>	<p>After school programmes</p> <p>A systematic review of 15 studies examined the effectiveness of after-school interventions to increase physical activity in children aged 5 to 18 years old (44). Due to differences in study designs, it was not possible to confirm the effect of after-school programmes on physical activity. The authors concluded that the effect of after-school interventions varied considerably.</p> <p>Results from two RCTs (45,46) indicated that afterschool programmes:</p> <ul style="list-style-type: none"> ● Significantly increased light and MVPA and decreased sedentary time in children aged 8 to 11 years old. The intervention lasted 10 weeks and involved nutrition information and supervised physical activity at a community centre. (45) (n = 36) ● Significantly increased physical activity levels in children with an average age of 12.3 years. The intervention involved sports mentoring with weekly 90 minute 	<p>No relevant evidence was identified.</p>	<p>After school programmes</p> <p>There was mixed evidence to support the effectiveness of after school programmes in promoting physical activity in children. Results from one systematic review were inconclusive due to high heterogeneity, whilst a further two studies showed positive effects of after school programmes. The guideline currently recommends providing opportunities as part of extra-curricular and extended school provision (recommendation 13) and after school (see recommendation 9), which is consistent with some of the new evidence. Therefore no change to the guideline is expected at this point.</p> <p>Teacher led and classroom interventions</p> <p>There was mixed evidence to support the use of school-based interventions to increase physical activity in children. Results from two meta-analyses showed no significant effect of school-based interventions, which is not in line with the guideline. However, the authors note that findings are limited by high heterogeneity between studies and</p>
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Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
	<p>sessions over 18 weeks. (46) (n = 664).</p> <p>Teacher led and classroom interventions</p> <p>Three meta-analyses were identified which examined the effect of school-based (47,48) and childcare centre-based (49) interventions to increase physical activity in children. Results indicated that there was no significant overall effect of school-based interventions on physical activity (47,48) or MVPA (47). However, larger treatment effects were found for younger age groups (47). Both reviews of school-based interventions concluded that the findings were limited by high heterogeneity and that more high quality evidence is needed. Interventions in childcare services centres were found to significantly increase physical activity in children under 6 years old (49), particularly those that included structured activity, were delivered by experts, and used theory.</p>		<p>conclude that more high quality research is needed. Because of this uncertainty, the recommendations are unlikely to be impacted at this point.</p> <p>New evidence is unlikely to change guideline recommendations.</p>

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
<u>Recommendation 14: Helping girls and young women to be active</u>			
No relevant evidence was identified.	No relevant evidence was identified.	No relevant evidence was identified.	No new information was identified at any surveillance review. This recommendation should not be updated.
<u>Recommendation 15: Helping families to be active</u>			

<p>One study was identified as being relevant to this section of the guideline. A systematic review found that evidence for the effect of family-based and community-based interventions on physical activity in children and young people is limited, but interventions targeted at families appear to have some effect (50).</p>	<p>Two meta-analyses were identified that examined the effect of family or parent interventions to encourage physical activity in children (51,52). The results indicated that both family-based interventions (51) and parent-child interventions (52) significantly increased physical activity in children, however the effect size for family interventions was small (51).</p> <p>In addition, 4 RCTs were identified which investigated the effect of family based interventions on increasing physical activity in children. Results were as follows:</p> <ul style="list-style-type: none"> ● A year-long tailored family counselling intervention was found to significantly decrease MVPA in children aged 4 to 7 years old. There was no effect of the intervention on throwing and catching a ball or motor functioning. (53) (cluster RCT, n = 91). ● A family-based intervention to reduce screen-time was found to have no effect on physical activity levels in children aged 9 to 12 years old. The intervention was 	<p>Several topic experts highlighted that the guidance from the Chief Medical Office (CMO) on how much physical activity people should be doing has been updated since the guideline was first published.</p>	<p>There was mixed evidence to support the use of family and parent interventions to increase physical activity in children. The results of two meta-analyses reported small but positive effects on activity levels, whilst a number of separate reports indicate non-significant findings. This new evidence is broadly consistent with the current recommendation, which lists various ways to help families be active together.</p> <p>One study reported a significant decrease in MVPA after a family counselling intervention. This is not an intervention currently mentioned in the guideline, so no impact is expected.</p> <p>Since the guideline was published, the CMO guidance on physical activity levels has been updated. This is likely to impact bullet 1 of recommendation 15 and an editorial correction has been proposed to address this.</p> <p>New evidence is unlikely to change guideline recommendations.</p>
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	<p>delivered over 20-weeks and included face-to-face meeting with the parent where training and education was provided. The control group received the intervention at the end of the study. (54) (RCT, n = 378).</p> <ul style="list-style-type: none"> ● A 7 week ‘Healthy Dads, Healthy Kids’ intervention was found to significantly increase physical activity in primary school-aged children at 14-week follow-up. The intervention was delivered to overweight fathers and involved 7 sessions plus booklets and pedometers. The comparator group was a waitlist control. (55) (RCT, n = 93 fathers and 132 children). ● A 6-month parental support programme was found to have no effect on physical activity in 6-year old children. However, results from a subgroup analysis suggested that total physical activity significantly improved in girls at the weekend. The intervention was delivered to parents and included motivational interviewing, health information 		
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Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
	and teacher-led classroom activities for children. There were no details of the control group in the abstract. (56) (cluster RCT, n = 243).		
<p>Research recommendation 1: Develop valid, sensitive, and reliable tools to measure physical activity in children and young people. The tools should measure the amount and pattern of activity (including sedentary behaviour).</p>			
No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	No topic expert feedback was relevant to this research recommendation.	This research recommendation will be considered again at the next surveillance point.
<p>Research recommendation 2: Future research should be conducted with greater rigour, improved study design, appropriate sample sizes, and valid and reliable measures of physical activity. It should include long-term follow-up of participants and monitoring of implementation fidelity. Studies should seek to identify causal pathways leading to a change in physical activity and health outcomes (such as a decrease in body fat and an increase in self-esteem). They should identify any potential mediating variables. They should also investigate the relationship between the length and intensity of the intervention and changes in physical activity (including sedentary behaviour).</p>			

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	See evidence under recommendation 12.	No topic expert feedback was relevant to this research recommendation.	New evidence relevant to this research recommendation was identified. A systematic review of 23 studies (n not reported) examined the effect of interventions to increase rates of active travel to school (41). The results indicate that more high quality research is needed in the area of active commuting, with randomised designs, greater sample sizes, and the use of valid and reliable instruments.
Research recommendation 3: Determine the most effective and cost-effective methods of increasing (and sustaining) the number and length of journeys children and young people take using a physically active mode of travel. The focus should be on journeys in the wider community (that is, not just on those to and from school).			
No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	No topic expert feedback was relevant to this research recommendation.	This research recommendation will be considered again at the next surveillance point.
Research recommendation 4: Determine the most effective and cost-effective methods of increasing and sustaining different types of physical activity among specific groups of children and young people. Groupings could be by: age, culture, ethnicity, disability (including families where someone else is disabled), gender, geographic area (for example, inner-city, urban, rural), religion or socioeconomic status. Particular attention should be given to disadvantaged groups. The interventions examined may target specific behaviours (for example, active play).			

Previous surveillance summary	2018 surveillance summary	Intelligence gathering	Impact statement
No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	No topic expert feedback was relevant to this research recommendation.	This research recommendation will be considered again at the next surveillance point.
Research recommendation 5: Determine to what extent different types of physical activity displace others and the factors leading to sedentary behaviour over time.			
No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	No new evidence relevant to the research recommendation was found and no ongoing studies were identified.	No topic expert feedback was relevant to this research recommendation.	This research recommendation will be considered again at the next surveillance point.

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