

## Appendix A1: Summary of evidence from surveillance

### 2019 surveillance of unintentional injuries: prevention strategies for under 15s (2010) NICE guideline PH29

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#### Evidence considered in surveillance

##### Search and selection strategy

We searched for new evidence related to the whole guideline.

We found 24 studies in a search for randomised controlled trials, systematic reviews and other comparative studies published between 1 January 2014 and 12 June 2019.

We also included 2 studies identified by topic experts and 25 studies identified during the previous surveillance reviews in 2014 and 2015.

From all sources, we considered 51 studies to be relevant to the guideline.

See [summary of evidence from surveillance](#) below for details of all evidence considered and references.

##### Selecting relevant studies

The following strategies were taken to ensure only relevant studies were selected:

- NICE has taken an approach not to review national recommendations as these are not within the current remit. For NICE guideline PH29, where the recommendation covers a mix of audience, both local and national, only the local aspects were considered in surveillance. This mainly applied to recommendation 1, which covered local authorities at a sub-national level.
- Some studies were selected for inclusion in more than one of the 3 surveillance reviews for the unintentional injuries suite of guidelines, where the study was applicable in differing contexts. For NICE guideline PH29, inclusion of interventional studies was

justified on the basis of informing strategies for preventing unintentional injury and their enforcement. This is consistent with the approach taken in developing the guideline.

## Ongoing research

We checked for relevant ongoing research; of the ongoing studies identified, 2 studies were assessed as having the potential to change recommendations; therefore we plan to check the publication status regularly, and evaluate the impact of the results on current recommendations as quickly as possible. These studies are:

- [Effectiveness of Internet-based Injury Prevention Program in Enhancing Mother's Knowledge on Child Safety](#)
- [Intervention to Prevent Fall Injuries to Young Children in the Home](#)

## Intelligence gathered during surveillance

### Views of topic experts

Topic expert views have been considered in this surveillance review. One topic expert highlighted 2015 the [Smoke and Carbon Monoxide Alarm \(England\) Regulations 2015](#) that may impact on [Recommendation 9](#) Installation and maintenance of permanent safety equipment in social and rented dwellings. This has been addressed by cross referring to the regulations - see [editorial amendment section](#).

Topic experts also submitted feedback on coverage and quality of hospital admissions data, socioeconomic inequalities, the Healthy Child Programme, home safety assessments and equipment provision and skate parks. No published evidence was identified during surveillance to indicate the need for new or updated recommendations in these areas. See [summary of evidence from surveillance](#) below for further details.

Concerns were also raised around implementation barriers and age groups considered across all guidelines in the unintentional injury suite ([PH29](#), [PH30](#) and [PH31](#)). Further details can be found in the consultation document as well as the [summary of evidence from surveillance](#) below.

## Summary of evidence from previous and 2019 surveillance

Please note for the 2019 surveillance of this topic, recommendations 1,5,7,10 and 21 were not in scope for the surveillance process where they covered national policy, which is not within NICE’s current remit. However, these recommendations were considered where they covered local and sub-national areas.

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 view on the need to update each section of the guideline.

Evidence from an evidence update for this topic was also considered. Evidence updates were produced by NICE to highlight new evidence relating to published NICE guidelines.

Surveillance evidence summary	Intelligence gathering	Impact statement
<b>General guideline surveillance issues</b>		
No relevant evidence was identified.	<p><b>Implementation</b></p> <p>Topic experts raised the concern that injury prevention is a much-neglected area within public health, local authorities and the health service. They highlighted that cuts to public health budgets since 2010 have only served to exacerbate this problem. One expert noted the lack of a national injury surveillance system, which makes it difficult to focus preventative efforts.</p> <p>One expert highlighted a recent survey(1) of local authorities and health and wellbeing boards on</p>	<p><b>Implementation</b></p> <p>Topic experts raised concerns around the lack of resources available to implement the guideline recommendations, with one highlighting survey evidence which suggests a large proportion of local authorities do not carry out home safety assessments or provide equipment. It is acknowledged that recommendations across the guideline will be interpreted in a context of budgetary constraints and that will have an impact on implementation. The guideline website has</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
	<p>their child injury prevention programmes. Results of the survey suggest that only a small proportion had injury prevention programmes in place, with many of these being small scale.</p> <p>Some experts noted that the organisation of public health and preventative services has changed considerably since the guideline was published, and that the wording of the recommendations, particularly the sections headed ‘who should take action’, should be updated to reflect this.</p> <p><b>Age groups</b></p> <p>One topic expert felt that the age group considered in this guideline may need to be subdivided, given that the risks and interventions may be very different for early years and teenagers. Similarly, another expert called for the age range in the guideline to be extended to under 20 years, to be in line with other guidance from the World Health Organisation and other evidence globally. An expert also highlighted that child exploitation (sexual and drug related) should be referred to in the guideline. Both intentional and unintentional injuries were considered to be more prevalent in older adolescents, indicating the need for strategies to be in place for older age groups.</p> <p><b>Hazards</b></p> <p>Several topic experts highlighted evidence on new hazards that have emerged since the guideline was</p>	<p>dedicated tools and resources which are designed to help put the guidance into practice, this includes the NICE endorsed resource, the <a href="#">Injury Prevention Briefing</a>, which was added to the website following feedback from the last surveillance review. Also, the NICE website includes <a href="#">shared learning resources</a> that provide examples of how NICE guideline PH29 has been used in practice.</p> <p>Some experts noted that the wording of the recommendations may need to be updated to reflect the changes in organisation of public health services since the guideline was published. These have been accounted for in the <a href="#">editorial amendments</a> described below.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p> <p><b>Age groups</b></p> <p>One topic expert called for the guideline to be subdivided by age group, given that the risks of injury and interventions may differ by age group - and within age group by sex - in type and location of unintentional injuries. The committee took these considerations into account during guideline development by producing recommendations that cover overarching strategies, regulation, enforcement, surveillance and workforce</p>

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	<p>originally published. These included window blind cords, cot bumpers, microwave ovens, trampolines, laundry capsules, e-cigarettes, reed diffusers and hair straighteners. One expert also noted the following document published since the development of NICE guideline PH29:</p> <ul style="list-style-type: none"> <li>- <a href="#">Undetected button and coin cell battery ingestion in children</a> (June 2019), Healthcare Safety Investigation Branch</li> </ul>	<p>development in relation to preventing unintentional injuries in the home, on the road and during outdoor play and leisure that apply to all children under 15 years. Age-specific differences in delivery aspects are accounted for by the list of relevant organisations and groups in the “Who should take action?” section of the recommendations.</p> <p>Experts also called for the age range in the guideline to be extended to cover people under 20 years to be in line with other guidance and global evidence. The original guideline referral from the Department of Health outlined a focus on unintentional injuries among under 15s in the home, on the road and during outdoor play and leisure. We identified several other sources of guidance and evidence on prevention of unintentional injury throughout this surveillance review and did not find the age range to be consistent. Some reports focussed on ages 0-19, while others on under 5s and between 10-19. Due to this inconsistency and considering the original referral from the Department of Health, we do not propose any changes to the guideline at this time.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p>

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		<p><b>Hazards</b></p> <p>Several topic experts highlighted new hazards that have emerged since the guideline was published. However, no evidence was identified on interventions to reduce unintentional injury from these new hazards. Until there is evidence in this area, the guideline will not be affected. There is a corresponding <a href="#">research recommendation</a> in this area to encourage further research.</p> <p>New evidence is unlikely to change guideline recommendations.</p>
<p><b><a href="#">Recommendation 1</a> Incorporating unintentional injury prevention within local and national plans and strategies for children and young people's health and wellbeing</b></p>		
<p><b>2014 Evidence update</b></p> <p><b>Child death review teams</b></p> <p>A report(2) discussed the child death review and prevention process in Humboldt County, California (a process similar to child death overview panels in the UK). The programme's immediate goal was to develop a strategic plan comprising surveillance,</p>	<p>No topic expert feedback was relevant to this section.</p>	<p><b>Child death review teams</b></p> <p>Although limited by its US setting and lack of outcome data, the report provides an indication of what can be achieved by child death review teams, and the processes described are consistent with those recommended by NICE guideline PH29. Since the searches were performed for the current guidance, child death overview panels have been</p>

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<p>identification of risk factors, interventions and evaluations, and implementation. Four main priorities were identified: child passenger safety, driving under the influence, youth driving, and drowning. The authors did note that the death rate improved among those aged 0 to 24 years in the period after the programme was set up, however these improvements could not be directly attributed to the child death review process.</p> <p><b>Coordinating local unintentional injury prevention activities</b></p> <p>A study(3) examined community-based intervention programmes for preventing unintentional injuries among children in Israel. A 5-year multi-component programme comprising promotion of child safety and prevention of injuries was set up to raise public awareness of, and reduce rates of, injury among children aged 0 to 14 years in families from low-income communities.</p> <p>The authors summarised that overall, the process and impact were satisfactory, but outcomes were unclear. The primary limitation of the study noted by the authors was that it lacked control communities, so no firm conclusions about the effect of the interventions on outcomes could be made.</p> <p><b>2015 surveillance</b></p>		<p>implemented in the UK, which form the beginnings of a similar local surveillance system. Analysis of nationally collated data arising from this system is awaited.</p> <p><b>Coordinating local unintentional injury prevention activities</b></p> <p>Within its limitations, the evidence indicated what can be achieved by a child injury prevention programme coordinated at a local level and is consistent with the recommendation in NICE guideline PH29 to ensure that an injury prevention coordinator is in place. Further research is awaited to assess the effect of these programmes on injury outcomes.</p> <p><b>Health inequalities in childhood injuries</b></p> <p>NICE guideline PH29 advises ensuring that local plans and strategies for children and young people's health and wellbeing include a commitment to preventing unintentional injuries among them. In particular, the plans and strategies should aim to prevent unintentional injuries among the most vulnerable groups to reduce inequalities in health. This commitment should be part of a wider objective to keep children and young people safe.</p> <p>The new evidence indicating that the incidence of fractures, burns and poisonings was significantly</p>

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<p>No relevant evidence was identified.</p> <p><b>2019 surveillance</b></p> <p><b>Health inequalities in childhood injury</b></p> <p>A UK cohort study(4) (n=979,383) examined the relationship between injuries and deprivation among children under 5 years over the period 1990-2009. Estimates were made of the incidence of fractures, burns and poisonings by age, sex, socioeconomic group and calendar period. Adjusted incidence rate ratios were used to compare the least and most socio-economically deprived areas. Incidence rates decreased over time for burns and poisonings and increased for fractures. They were significantly higher in more deprived households and these gradients persisted over time.</p> <p>A UK cohort study(5) (n=207,048 mother-child pairs) assessed the association between maternal depression and/or anxiety episodes and rates of child poisonings, fractures, burns and serious injuries. Maternal depression and/or anxiety episodes were associated with increased rates of child poisonings, fractures and burns, but not with serious childhood injury.</p>		<p>higher in more deprived households and were associated with maternal depression and/or anxiety, reinforces the guideline recommendation to focus plans and strategies on vulnerable groups to reduce inequalities in health. No new evidence was identified on specific plans or strategies and no impact on the guideline is anticipated.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p>



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<b><u>Recommendation 2</u> Coordinating unintentional injury prevention activities</b>		
No relevant evidence was identified.	No topic expert feedback was relevant to this section.	<b>No new evidence was identified which may change current recommendations</b>
<b><u>Recommendation 3</u> Identifying and responding to attendances at emergency departments and minor injuries units</b>		
No relevant evidence was identified.	No topic expert feedback was relevant to this section.	<b>No new evidence was identified which may change current recommendations</b>
<b><u>Recommendation 4</u> Developing professional standards for injury prevention</b>		
No relevant evidence was identified.	No topic expert feedback was relevant to this section.	<b>No new evidence was identified which may change current recommendations</b>
<b><u>Recommendation 5</u> Funding the development of injury prevention standards and curricula</b>		
No relevant evidence was identified.	No intelligence was identified for this recommendation.	<b>NICE no longer makes recommendations to government departments, including Department for Health and Social Care and</b>

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		Department for Education, so this section was not included in the review.
<p><b><u>Recommendation 6</u> Providing the wider childcare workforce with access to injury prevention training</b></p>		
<p><b>2014 evidence update</b> No relevant evidence was identified.</p> <p><b>2015 surveillance</b> No relevant evidence was identified.</p> <p><b>2019 surveillance</b></p> <p><b>Implementation of fire safety briefing</b></p> <p>A nested sub-study(6) was conducted within a clustered randomised controlled trial of an Injury Prevention Briefing (IPB) for fire safety messages to parents. The IPB used a 7 step process to combine scientific evidence with practitioner contextual knowledge in the children’s centre setting. The findings suggested that incorporating service provider perspectives and scientific evidence into health education initiatives enhanced potential for successful implementation, particularly when supplemented by ongoing training and facilitation.</p>	<p>No topic expert feedback was relevant to this section.</p>	<p>The guideline recommends provision of access to appropriate education and training in how to prevent unintentional injuries for everyone who works with (or cares for and supports) children, young people and their families. Priority should be given to those who work directly with children, young people and their families.</p> <p>The new evidence supporting implementation of fire safety messages using an IPB to parents, with supplementary ongoing training and facilitation for children centre staff, is consistent with this advice.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p>

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<p><a href="#">Recommendation 7</a> Establishing a national injuries surveillance resource</p>		
<p><b>2014 evidence update</b></p> <p><b>Risk factors for injury</b></p> <p>A case-control study(7) investigated risk factors for thermal injury, fracture and poisoning in pre-school children. The study used prospectively gathered data from The Health Improvement Network (THIN), a UK database of all healthcare provision (including secondary and tertiary care) in 3.9 million patients from 255 general practices. For poisonings and thermal injury, modifiable risk factors (namely those that could be subject to risk reduction measures) associated with injury were perinatal depression, hazardous or harmful alcohol consumption, and deprivation. For fracture, not living in a single adult household was associated with reduced risk.</p> <p>A systematic review(8) (18 cohorts, n=200,000 children) examined injury patterns and risk factors in school-aged children. Across the included studies, factors identified in more than 1 cohort and setting that were associated with increased risk of injury comprised male sex, behavioural problems (including risk-taking behaviour), a large number of siblings, and a young mother. Factors not often</p>	<p>Topic expert feedback indicated that Recommendations 7 remains valid, but its implementation is restricted due to lack of resource and national prioritisation.</p>	<p>The evidence from previous surveillance reviews suggests that injury surveillance can highlight potential injury risk factors, in agreement with recommendations in NICE guideline PH29 to monitor injury risk. Any risk factors can then feed into the targeting of interventions to vulnerable or at-risk groups. Evidence supporting the use of linked primary, secondary and mortality data is also consistent with the guideline advice to ensure the injury surveillance includes local, regional and national injury datasets and data sources.</p> <p>Topic expert feedback confirmed that the recommendation remains valid, but its implementation is restricted due to lack of resource and prioritisation.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p>

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<p>explored or not consistently associated with risk included history of injury, sensory deficit, poor learning ability, attention, parental health or parenting ability, family dysfunction, socioeconomic status and the wider environment of the child.</p> <p><b>2015 surveillance</b></p> <p>A cohort study(9) (n=2,147,853) was identified which linked primary and secondary data on poisonings, fractures and burns in 0-24 year olds to provide injury surveillance on a population level. The results suggested that linking routinely-collected data could be an affordable mechanism for injury surveillance in England.</p> <p><b>2019 surveillance</b></p> <p>No relevant evidence was identified.</p>		
<p><b><u>Recommendation 8</u> Gathering high quality injury data from emergency departments</b></p>		
<p>No relevant evidence was identified.</p>	<p>Topic expert feedback indicated that Recommendations 8 remains valid, but its implementation is restricted due to lack of resource and prioritisation.</p> <p>Public Health England also indicated that data from hospital admissions does not yet have the</p>	<p><b>No new evidence was identified which may change current recommendations.</b></p> <p>Topic expert feedback indicated that Recommendations 8 remains valid, but its implementation is restricted due to lack of resource and prioritisation. The coverage and quality of hospital admissions data is also limited in a public</p>

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	coverage and quality to generate useful outputs and its value is therefore limited.	health context, and further data are awaited that may impact on the guideline.
<p><b><u>Recommendation 9</u> Installation and maintenance of permanent safety equipment in social and rented dwellings</b></p>		
<p><b>2014 evidence update</b></p> <p><b>Thermostatic hot water control</b></p> <p>Three studies examined the use of thermostatic hot water control, including thermostatic mixing valves (TMV), in social housing(10–12). The findings from 2 RCTs and a cost effectiveness analysis indicated that for the primary outcome of bath hot tap water temperature, families with TMVs had a significantly lower median hot water temperature than those in the control arm at both 3 months after TMV installation. Installing a TMV led to a 68% reduction in scald risk and was calculated to save the NHS £11,200,344. The authors estimated the cost of installing a TMV in every household in social housing to equate to a net benefit lying within NICE’s value-for-money threshold for cost per quality-adjusted life year.</p> <p><b>Provision of multiple home safety equipment</b></p> <p>An RCT(13) investigated the effect on injuries of installing safety devices (including permanent</p>	<p>Topic expert feedback indicated that legislative changes came into effect in 2015 about landlords responsibility to install smoke alarms in their properties which could impact on recommendation 9. The new legislation is incorporated in the Smoke and Carbon Monoxide Alarm (England) Regulations 2015. The regulations require private rented sector landlords, from 1 October 2015, to have:</p> <ul style="list-style-type: none"> <li>● at least one smoke alarm installed on every storey of their rental property, which is used as living accommodation, and</li> <li>● a carbon monoxide alarm in any room used as living accommodation where solid fuel is used - after that, the landlord must make sure the alarms are in working order at the start of each new tenancy.</li> </ul> <p>One topic expert noted that that children living in high-rise accommodation might be at higher risk of</p>	<p>NICE guideline PH29 notes that groups facing a higher than average risk of an unintentional injury need to be prioritised, which include children aged under 5 and those living in temporary, rented and social housing with families on a low income. It recommends that local authorities should consider developing local agreements with housing associations and landlords to ensure permanent safety equipment, including hard-wired or 10-year, battery-operated smoke alarms, thermostatic mixer valves for baths, window restrictors, and carbon monoxide alarms, are installed and maintained in all social and rented dwellings.</p> <p><b>Smoke alarms</b></p> <p>Evidence on cost effectiveness for interventions to increase possession of functioning smoke alarms showed that education and free or low cost equipment in households with children under 1.8 years was cost-effective. This also supports NICE guideline PH29 advice on the provision of smoke detectors.</p>

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<p>devices such as smoke alarms cupboard and window locks) in the homes of young children compared to control. For the primary outcome of modifiable, medically attended injuries (injuries preventable by the study interventions involving a call or visit to a doctor or emergency department), the injury rate per 100 child years was significantly less in the intervention versus control group, but there was no difference in all medically attended injuries.</p> <p>A Cochrane review(14) examined home safety education and provision of safety equipment for injury prevention. Included studies were those where home safety education with or without the provision of safety equipment was provided to people aged 19 years and under, and which reported injury, safety practices or possession of safety equipment. A total of 98 studies (n=2,605,044) were identified of which 49 studies were from the USA and 14 were from the UK. For the primary outcome of medically attended or self-reported injuries, there did not appear to be a significant effect of home safety interventions after adjustment for baseline injury rates. However, it should be noted that the studies pooled for this analysis included some interventions outside the scope of NICE guideline PH29 (such as non-permanent home safety equipment), and the authors also indicated that due to low incidence of</p>	<p>injury than average. However, no evidence was cited in this area.</p>	<p>A cross reference will be added to the recommendation text to refer to the Smoke and Carbon Monoxide Alarm (England) Regulations 2015. See <a href="#">editorial amendments</a> for further details.</p> <p><b>Thermostatic hot water control</b></p> <p>Taken together, the evidence from all 3 studies suggests that thermostatic control of hot water can reduce water temperature to safer levels at which scald risk is reduced. Specifically, TMVs appear to be a cost-effective means of preventing bath water scalds which is consistent with the recommendation in NICE guideline PH29 to install and maintain them in social and rented housing.</p> <p><b>Provision of home safety equipment</b></p> <p>Across all surveillance time points, the majority of evidence identified supported the installation and provision of safety devices, with and without education, videos and checklists, to prevent general unintentional injuries in the home.</p> <p>The collective evidence appears to be broadly consistent with recommendations in NICE guideline PH29 that permanent safety equipment should be installed and maintained in social and rented housing, and that this should be accompanied by home assessments, information and education.</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>injuries these findings were potentially underpowered. Further analysis of specific home safety interventions showed increases in the proportion of families with safe hot tap water temperatures and functional smoke alarms.</p> <p><b>2015 surveillance</b></p> <p><b>Prevention of poisoning</b></p> <p>A network meta-analysis(15) (n=28 studies) evaluated the effectiveness of different interventions to increase prevalence of safe storage of i) Medicines only, ii) Other household products only, iii) Poisons (both medicines and non-medicines), iv) Poisonous plants; and v) Possession of poison control centre (PCC) telephone number in households with children. Compared to usual care intervention, the intervention with education and low cost/free equipment elements was most effective in promoting safe storage of medicines while interventions with education, low cost/free equipment, home safety inspection and fitting components were most effective in promoting safe storage of other household products, safe storage of poisons and possession of PCC telephone number.</p>		<p><b>Prevention of poisoning</b></p> <p>Evidence was identified to support the use of interventions combining education, low cost/free equipment, home safety inspection and fitting components to promote safe storage practices in the prevention of accidental poisoning. This is in line with the guideline advice to local authorities to consider developing local agreements with housing associations and landlords to ensure permanent safety equipment is installed. Evidence on interventions for safe storage of poisonous plants was less certain, however, without any further evidence on what interventions may be effective in this area, the recommendation is unlikely to change.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p>

### Prevention of falls

A network meta-analysis(16) (NMA) of 29 studies (of which 16 were included in at least 1 of 4 NMAs; n not reported) examined the effectiveness of a range of interventions to increase possession of safety equipment or change behaviours to prevent falls in households with children under 5 years of age at home. The only permanent intervention covered was increasing possession of window locks. Results indicated that there was no significant difference between this intervention compared to usual care.

### Smoke alarms

A cost-effectiveness study(17) used a model-based probabilistic approach to assess interventions for increasing the possession of functioning smoke alarms in households with pre-school children. Education and free or low cost equipment was the most cost-effective intervention with an estimated incremental cost-effectiveness ratio of £34,200 per QALY gained compared to usual care. This was reduced to approximately £4,500 per QALY gained when 1.8 children under the age of 5 were assumed per household.

### Prevention of scalds

An overview of reviews and a combined systematic review(18) was identified on the effectiveness of interventions to prevent scalds in children (n=14 systematic reviews and 39 primary studies). Results indicated that education, home safety



Surveillance evidence summary	Intelligence gathering	Impact statement
<p>checks along with provision of free or discounted thermometers or TMVs were effective in reducing incidence of scalds.</p> <p><b>2019 surveillance</b></p> <p><b>Provision of home safety equipment</b></p> <p>A before and after study(19) (n=3,458) evaluated the effect of the London Health Sciences Home Safety Programme (HSP) for the prevention of home injuries in children up to 2 years of age. The programme included provision of safety devices, education, a safety video, and home safety checklist to all first time parents. Emergency department visits for home injuries were compared 5 years before and 2 years after the programme was implemented and differences in socioeconomic area were adjusted for in the analysis. Results indicated that there was a significant decline in emergency department visits for home injuries after HSP implementation.</p>		
<p><b><u>Recommendation 10</u> Incorporating guidance on home safety assessments within relevant national initiatives</b></p>		
<p>No relevant evidence was identified.</p>	<p>A Topic expert noted the need for recommendations about the healthy child</p>	<p>Topic expert feedback proposing healthy child programme to include specific topics and advice is addressed at the revised web page for this</p>

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	programme to include specific topics and advice that should be provided at each contact.	guidance. The relevant footnote in NICE guideline PH29 will be updated accordingly. <b>No new evidence was identified which may change current recommendations</b>
<b><u>Recommendation 11</u> Incorporating home safety assessments and equipment provision within local plans and strategies for children and young people's health and wellbeing</b>		
<p><b>2014 evidence update</b></p> <p><b>Reducing inequalities in home safety</b></p> <p>A secondary analysis(20) of an UK RCT(21) examined the effect of a home safety intervention on reducing inequalities in safety practices among families with children under 5 years from deprived areas of Nottingham, UK. The aim of the original RCT was to examine child injury outcomes in families assigned to control (n=1,717) or to an intervention (n=1,711) comprising a safety consultation by a health visitor followed by an offer of free (for families receiving means tested benefits) or low cost safety equipment. The intervention appeared to reduce inequalities in stair gate use for the socioeconomic markers of housing tenure and receipt of benefits. However, no significant reductions were seen with any markers for working smoke alarms.</p>	<p>Topic expert feedback indicated that there is stronger evidence about the impact of home safety assessments and equipment provision which should strengthen the recommendations in this area. However, no studies were cited.</p> <p>The surveillance review identified the following policy documents published since the development of NICE guideline PH29:</p> <ul style="list-style-type: none"> <li>- <a href="#">Reducing unintentional injuries in and around the home among children under 5 years</a> (March 2018), Public Health England</li> <li>- <a href="#">Early years high impact area 5: managing minor illness and reducing accidents</a> (November 2018), Public Health England</li> </ul> <p>The surveillance review identified an <a href="#">NIHR commentary</a> on the association between socioeconomic status and burn and scalds. The commentary found that, given the high rate of</p>	<p><b>Reducing inequalities in home safety</b></p> <p>Some aspects of the evidence are consistent with NICE guideline PH29 in that inequalities among vulnerable families for some types of home safety equipment were reduced by a health visitor-led intervention to assess home safety and install equipment. However, this intervention did not overcome inequalities for all socioeconomic markers and did not show an effect with smoke alarms. This evidence may therefore also indicate the importance of the nature of the intervention (in this case, health visitor-led) which is consistent with the recommendations in NICE guideline PH29 to tailor interventions to the household. The authors suggested that further research is needed into uptake of interventions among minority groups, young mothers and single parents. For smoke alarms, other potential barriers to uptake such as</p>

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<p><b>2015 surveillance</b></p> <p><b>Home safety education</b></p> <p>A systematic review(22) (20 studies, 10 studies in meta-analysis, n=5,074) examined parenting education with or without other support compared to usual care or other interventions for the prevention of unintentional injuries in children under 18. The results indicated that intervention families had a significantly lower risk of injury than control families. Most of the studies reporting home safety practices, home hazards or composite home safety scores found statistically significant effects favouring intervention arm families.</p> <p><b>Prevention of falls</b></p> <p>A multicentre matched case-control study(23) estimated associations for risk and protective factors for falls from furniture in children aged 0 to 4 years. Compared with parents of control participants, parents of cases were significantly more likely not to use safety gates in the home and not to have taught their children rules about climbing on kitchen objects. Cases aged 0 to 12 months were significantly more likely to have been left on raised surfaces, had their nappies changed on raised surfaces, and been put in car/bouncing seats on raised surfaces. Cases 3 years and older were significantly more likely to have played or</p>	<p>serious injuries in children from deprived areas shown in this study, injury prevention programmes should be targeted at these households.</p> <p>Prevention programmes should be a collaboration between agencies (e.g. public health teams, health visitors, fire services), and should include home safety schemes and provision of safety equipment.</p>	<p>the nuisance of alarms sounding when cooking may also need to be addressed.</p> <p><b>Education, advice and information</b></p> <p>The guideline recommends ensuring that home safety assessments and education are incorporated in local plans and strategies for children and young people's health and wellbeing. They should be aimed at families with a child under 5 or with other children who may be particularly vulnerable to unintentional injuries.</p> <p>Additionally, commissioners are advised to specify that education, advice and information is needed both during a home safety assessment and during the supply and installation of home safety equipment. Factors to take into account include the developmental age of the children and whether or not a child or family member has a disability.</p> <p>New evidence on the following home education interventions is consistent with this advice to support vulnerable groups:</p> <ul style="list-style-type: none"> <li>● Training provided to mothers of children under 6 years old increased hazard awareness</li> <li>● Parenting education with or without other support reduced the risk of injury in children under 18.</li> </ul>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>climbed on furniture. Cases were significantly less likely to have played or climbed on garden furniture.</p> <p><b>2019 surveillance</b></p> <p><b>Home safety education</b></p> <p>A total of 8 studies were identified covering educational interventions for home safety.</p> <p>A study(24) in Turkey (n=300 mothers) aimed to identify the effects of training provided to mothers with children aged 0-6 years about the hazards leading to paediatric injuries. After the training on the prevention of paediatric injuries, the mothers' scores on 2 data collection tools increased significantly. The tools used were the '0-6-year-old Children's Mothers' Identification Scale of Safety Precautions for the Prevention of Paediatric Injuries' and the 'Risk Assessment Form for Paediatric Injuries'. The validation of these tools was not reported in the abstract.</p> <p>A controlled before and after study(25) (n=40 parents via school-based intervention, n=47 parents at clinics) of families of children with special needs evaluated whether provision of home fire safety information via a DVD increased families' knowledge, behaviour and ability regarding home fire safety. No difference in scores between pre- and post-test scores existed between</p>		<ul style="list-style-type: none"> <li>● Digital educational tools that are tailored to the needs of the individual including:</li> <li>● DVD based educational tools to support parents of children with special needs in increasing knowledge and behaviour about fire safety.</li> <li>● web-based safety advice in the youth setting for prevention of falls, poisoning, drowning, and burns.</li> <li>● Group-delivered safety interventions targeting fire prevention, fall prevention, poison control, through health education, goal-setting and social support.</li> <li>● Tailored multi-component interventions in place of education alone for poison prevention.</li> <li>● More intensive home safety interventions to increase the use of smoke alarms and stair gates, promote safe hot tap water temperatures, fire escape planning and storage of medicines and household products, and reduce baby walker use. However, further evidence may be needed to establish which interventions are most cost-effective.</li> <li>● an IPB for fire safety messages to parents in disadvantaged communities to achieve changes in home safety behaviours. This also has</li> </ul>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>groups (with special needs vs. without special needs, or classroom vs. individualised instruction). However, having a smoke alarm in the home and having a smoke alarm outside of where everyone sleeps increased over time and was retained. Having a fire escape plan increased at post-intervention but returned to pre-levels at follow-up. Perceived knowledge and ability increased over time.</p> <p>An RCT(26) (n=1,292 parents) in the Netherlands evaluated the effect of a web-based intervention, E-Health4Uth, on parents' safety behaviours with regard to the prevention of falls, poisoning, drowning, and burns. Compared to the control condition consisting of usual care, parents in the intervention condition showed significantly less unsafe behaviour compared to parents in the control condition in terms of top and bottom of staircase; storage of cleaning products; bathing of the child; drinking hot fluids; using rear hotplates; and the total risk score.</p> <p>An RCT(27) (n=277) examined the effectiveness of an intervention grounded in social cognitive theory on the reduction of home safety problems among low-income families with toddlers. Mothers in the safety promotion intervention group received an eight-session, group-delivered safety intervention targeting fire prevention, fall prevention, poison control and car seat use, through health education,</p>		<p>implications for workforce training as discussed under <a href="#">recommendation 6</a>.</p> <ul style="list-style-type: none"> <li>● Messages that show positive outcomes combined with scripted parental mediation appear most effective in communicating fire safety behaviours to young children, but the overall effectiveness of video-based messages to teach children safety behaviours remains uncertain.</li> </ul> <p>The following ongoing studies identified during surveillance will be monitored and their results assessed for impact on the guideline when they are published:</p> <p><a href="#">Effectiveness of Internet-based Injury Prevention Program in Enhancing Mother's Knowledge on Child Safety</a></p> <p><a href="#">Intervention to Prevent Fall Injuries to Young Children in the Home</a></p> <p><b>Resources</b></p> <p>Public Health England have published <a href="#">Reducing unintentional injuries in and around the home among children under 5 years</a> (March 2018) which describes the latest trends in unintentional injuries among children under 5 years and gives details of an action plan to reduce injury rates.</p> <p>It highlights 3 action areas:</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>goal-setting and social support. Compared to the attention-control group, the intervention group significantly reduced safety problems to a greater degree than the attention-control group at the 12-month follow-up, with no significant differences at the 6-month follow-up.</p> <p>A multi-component study(28) aimed to increase the evidence base for thermal injury, falls and poisoning prevention for the under-5s. Six work streams conducted 5 multicentre case-control studies assessing risk and protective factors, a study measuring quality of life and injury costs, national surveys of children’s centres, interviews with children’s centre staff and parents, a systematic review of barriers to, and facilitators of, prevention and systematic overviews, meta-analyses and decision analyses of home safety interventions.</p> <p>Modifiable risk factors for falls, poisoning and scalds were found. Most injured children and their families incurred small to moderate healthcare and non-healthcare costs, with a few incurring more substantial costs. Meta-analyses and decision analyses found that home safety interventions increased the use of smoke alarms and stair gates, promoted safe hot tap water temperatures, fire escape planning and storage of medicines and household products, and reduced baby walker use. Generally, more intensive interventions were the</p>		<ol style="list-style-type: none"> <li>1. Providing leadership and mobilising existing services, which references and is consistent with NICE guideline PH29.</li> <li>2. Essential role of the early years workforce – emphasises training needs, health visitors ‘4-5-6 model’ where injury prevention features. This is in line with NICE guideline PH29.</li> <li>3. Focusing on 5 kinds of injuries for the under-5s to tackle the leading, preventable causes of death and serious harm - choking, suffocation and strangulation; falls; poisoning; burns and scalds; and drowning.</li> </ol> <p>In terms of interventions, it discusses leadership, mobilising existing services and focusing on what works, with a direct cross referral to NICE guideline PH29. As it is broadly consistent with NICE guideline PH29, it is unlikely to impact.</p> <p><a href="#">PHE Early years high impact area 5: managing minor illness and reducing accidents</a> (Nov 2018)</p> <p>This report mainly focusses on managing minor illness and preventing hospital admissions; it cross refers to NICE guideline PH29 in general terms. It covers the role of the health visitor in reducing accidents, working in partnerships with local authorities and home services, and inter-agency training. This is broadly consistent with the guideline advice to local authority children's</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>most effective, but these were not always the most cost-effective interventions. Children's centre and parental barriers to, and facilitators of, injury prevention were identified. Children's centres were interested in preventing injuries, and believed that they could prevent them, but few had an evidence-based strategic approach and they needed support to develop this.</p> <p>A cluster RCT(29) (n=1,112 parents at 36 children's centres) related to the above study, assessed an IPB for fire safety messages to parents in disadvantaged communities, compared to usual care, to achieve changes in home safety behaviours. The primary outcome was whether families had a plan for escaping from a house fire. The IPB used a 7 step process to combine scientific evidence with practitioner contextual knowledge in the children's centre setting. There was no significant effect of the intervention on families' possession of plans for escaping from a house fire. However, significantly more families in the intervention arms reported more behaviours for escaping from house fires.</p> <p>An RCT(30) (n=320) examined the effects of message framing and parental mediation on children's perceptions of fire safety messages. The study used a 2x3 factorial design to consider both message framing (gain or loss) and parental mediation (no mediation as control, compared to</p>		<p>services and their partnerships, and no impact is anticipated.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>unscripted or scripted) with children who were 4 and 5 years of age. Children were more likely to recall the safety messages if they were older and could recall the smoke inhalation message if they had unscripted mediation. Message understanding was poor, with only about 50% of children choosing a correct behaviour in a similar scenario. For the burn message, correct understanding was associated with gain-framing and scripted mediation. Only the scripted mediation group was significantly associated with an increase in perceived social norms. Gain-framing was associated with increased odds of self-efficacy for both behaviours.</p>		
<p><b><u>Recommendation 12</u> Developing policies for public outdoor play and leisure</b></p>		
<p><b>2014 evidence update</b></p> <p><b>Upgrading playground equipment</b></p> <p>A retrospective cohort study(31) in Toronto, Canada examined the association between playground injuries and school socioeconomic status before and after upgrading playground equipment. Prior to equipment upgrades there was a significant effect of socioeconomic status on equipment-related injuries, with an increased risk among children at poorer schools. After upgrading</p>	<p>One expert noted that skate parks should be a main focus of the guideline surveillance. However, no studies were cited or identified through the surveillance evidence search.</p>	<p><b>Upgrading playground equipment</b></p> <p>The collective new and previous evidence indicates that upgrading playground equipment reduces inequalities in injury risk between schools of a lower and higher socioeconomic status. This is consistent with NICE guideline PH29 that injury prevention policy should address the needs of lower socioeconomic groups and should focus initiatives (including modification of equipment) on groups most at risk of an unintentional injury.</p>



Surveillance evidence summary	Intelligence gathering	Impact statement
<p>unsafe equipment, the relationship between injury and socioeconomic status was no longer significant.</p> <p><b>2015 surveillance</b></p> <p>No relevant evidence was identified.</p> <p><b>2019 surveillance</b></p> <p><b>Risk factors for playground injuries</b></p> <p>A systematic review(32) (number of studies unreported) aimed to identify the risk or protective factors associated with playground injuries among children less than 18 years of age and secondly to identify interventions, programmes or policies aimed at preventing playground-related injuries among this age group. Risk factors included absence of handrails and guardrails on playground equipment, non-impact-absorbing surfacing, and critical fall heights. Effective interventions included modifying playground surfacing and reducing equipment height to less than 1.5 m.</p>		<p>Evidence indicates that organisations responsible for installing and maintaining playgrounds should consider alternative play spaces that allow children to play outdoors, in a natural environment that supports healthy child development and promotes physical activity. This is consistent with the guideline advice for prevention initiatives to include modification of equipment and the environment, and the provision of information, education and safety equipment.</p> <p>The evidence also indicates that playgrounds should adhere to and maintain playground standards in order to reduce the risk of serious injury. This is consistent with NICE guideline PH29 advice to take into account the principles of British and European standards covering equipment and the environment (where they exist) as part of a risk-benefit assessment of outdoor play and leisure environments.</p> <p><b>Skate parks</b></p> <p>Topic expert feedback indicated the need to focus the surveillance review on skate parks but in the absence of any submitted or identified evidence, no impact on the guideline is anticipated.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><a href="#">Recommendation 13</a> Providing education and advice on water safety</p> <p><a href="#">Recommendation 14</a> Water safety advice for leisure providers</p>		
<p><b>2014 evidence update</b></p> <p><b>Swimming lessons and drowning risk</b></p> <p>A case-control study(33) investigated the association between swimming lessons and drowning risk among 301 children aged 1 to 19 years. For children aged 1 to 4 years, participation in formal swimming lessons was significantly lower among cases of drowning versus controls, however in children aged 5 to 19 years there was no significant difference in formal swimming instruction between cases and controls. For informal swimming lessons, no significant differences were found between cases and controls for either age group.</p> <p><b>2015 surveillance</b></p> <p>No relevant evidence was identified.</p> <p><b>2019 surveillance</b></p> <p><b>Interventions to prevent drowning</b></p>	<p>No topic expert feedback was relevant to this section.</p>	<p>The collective new and previous evidence indicates that education, swimming lessons and water safety, and pool fencing may be effective strategies to reduce the risk of drowning. The evidence suggests that among younger children, formal swimming lessons may reduce drowning risk. Among older children, although not associated with risk reduction, formal lessons do not appear to increase risk (there have been concerns that swimming lessons may have the potential to increase exposure to water-based risks or reduce parental vigilance). This is consistent with current advice in the guideline to:</p> <ul style="list-style-type: none"> <li>● Encourage children, young people, their parents and carers to become competent swimmers and to learn other water safety skills</li> <li>● Provide children, young people, their parents and carers with information and education on water safety in play and leisure environments.</li> </ul>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>A systematic review(34) (7 studies) aimed to evaluate interventions designed to reduce fatal and non-fatal drowning events among children and adolescents or reduce the injury severity incurred by such incidents. Interventions were categorised into 3 themes of education, swimming lessons and water safety, and pool fencing. All were found to be effective strategies to prevent children from drowning, particularly young children aged 2-4 years, but very little evidence was found for interventions to reduce drowning in older children and adolescents. The authors noted that studies were limited by lack of consistency in measured outcomes and drowning terminology.</p>		<p>New evidence is unlikely to change guideline recommendations.</p>
<p><b><u>Recommendation 15</u> Advising on off-road cycle safety</b></p>		
<p><b>2014 surveillance</b> No relevant evidence was identified.</p> <p><b>2015 surveillance</b> No relevant evidence was identified.</p> <p><b>2019 surveillance</b></p>	<p>No topic expert feedback was relevant to this section.</p>	<p><b>Bicycle safety education</b></p> <p>The new evidence suggests that:</p> <ul style="list-style-type: none"> <li>● educational and skills training bicycling programmes, including interactive digital mobile platforms, increase knowledge of cycling safety, but may not decrease injury rate, or improve bicycle handling ability and attitudes.</li> </ul>

### Cycling safety education and promotion

A total of 6 studies covered bicycle safety education and promotion.

A systematic review(35) (25 studies) assessed the effectiveness of bicycle skills training programmes in reducing bicycle-related injuries in children and youth. Both observational (i.e. case-control) and experimental (i.e. RCTs) designs met the inclusion criteria. The results indicated that educational and skills training bicycling programmes increased knowledge of cycling safety, but did not decrease injury rate, or improve bicycle handling ability and attitudes.

A cross sectional study and accompanying survey(36) (n=286 participants for survey, n=140 aged 7-15) aimed to determine whether the 'BikeSafe' on-bicycle curriculum affects children's bicycle safety knowledge and collected cross-sectional data on cycling beliefs and attitudes. Intervention group participants demonstrated significant differences in knowledge gain between testing points, whereas control group participants did not. Participants were more likely to be encouraged to ride a bicycle by parents/guardians than by friends or school. Older respondents reported lower intentions of helmet use compared to the younger age group.

A before and after study(37) (n=80 children average age 9 years) evaluated whether a brief hazard perception intervention might be effective to

- Participants in bicycle training are more likely to be encouraged to ride a bicycle by parents or guardians than by friends or school.
- Older children receiving training may improve cycling-related knowledge and confidence but may be less likely to use helmets or change cycling behaviour, compared to the younger age group.

Although the guideline advises specifically on off-road cycling, the guideline committee noted that dividing on- and off-road cycling into 2 separate activities was an artificial division, particularly in relation to older children. This surveillance review has not made any distinction between on- and off-road use because the evidence could potentially apply to either setting but does not distinguish them. The new evidence is broadly consistent with the guideline advice for schools, school travel advisers, injury prevention coordinators, local authorities and the police to encourage children and young people to undertake cycle training and to wear cycle helmets.

New evidence is unlikely to change guideline recommendations.

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>improve hazard perception skills in child bicyclists towards a level more comparable to adult bicyclists. The results suggested that a brief intervention for training hazard perception skills in child cyclists was able to improve children's situation awareness and hazard perception for potentially dangerous situations. The training, however, was too short to improve children to higher adult levels.</p> <p>An RCT(38) (n=60 children aged 5-6 years) assessed the relationship of iBsafe game play (an interactive Bike and Bite safety mobile game app founded in behavioural theory and designed to educate kindergarten-aged children about bicycle and dog-related safety) and child safety knowledge and skills; hypothesising that iBsafe increases safety knowledge with translation to practice Parent-child dyads were randomly assigned to receive a weeklong field trial of iBsafe or control. Compared to controls, post-intervention iBsafe children had significantly higher bicycle and dog-related safety knowledge scores; and they exhibited significantly more safety skills.</p> <p>A controlled before and after study(39) (n=117; age: 13.9 +/- 0.7 years) examined and compared the effects of short-term cycle skills training (CST) over 1-10 weeks with or without on-road training on cycling-related knowledge, confidence and behaviours in adolescent girls. CST with or without</p>		

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>on-road training improved cycling-related knowledge but did not change cycling habits in adolescent girls. CST with on-road training improved adolescent girls' confidence to cycle on the road, but not to school.</p> <p>A controlled quasi-experimental study(40) (n=2,415) assessed the impact on commuter cycling and injury rates of a multi-component cycling promotion intervention comprising infrastructural changes near schools (e.g. changes to the road surface and traffic regulation) and promotional activities. Participants from control and intervention schools were assessed at baseline and at one year follow-up. No significant differences between groups in school commuter cycling were detected in the short-term or in the long-term. No differences between groups were observed in the incidence or characteristics of traffic injuries. Approximately 50% of all traffic injuries occurred during school transport with most reported as solo injuries.</p>		
<p><b><u>Recommendation 16</u> Conducting local firework safety campaigns</b></p>		
<p><b>2014 surveillance</b></p> <p>No relevant evidence was identified.</p>	<p>No topic expert feedback was relevant to this section.</p>	<p>The limited new evidence from a single study indicated that preventive interventions did not statistically change the use of fireworks, fireworks budget, making a bonfire, and fireworks-related</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>2015 surveillance</b> No relevant evidence was identified.</p> <p><b>2019 surveillance</b> A comparative study(41) (n=1,584 teenagers, age unreported) assessed the effectiveness of educational interventions in increasing the perceived risk of fireworks and preventing fireworks-related injuries among male teenagers. The interventions included distribution of a multimedia disk regarding injury victims; distribution of safety brochures; mailing to parents from schools discussing the risk of fireworks and limiting the fireworks budget; and peer-to-peer education by trained students about the risks of fireworks. The use of firecrackers inversely correlated with the economic level of families. The risk factors for fireworks-related injury included use of hazardous fireworks, making bonfires, history of fireworks-related injury, fireworks budget, and "willingness to pay." Preventive interventions did not statistically change the use of fireworks, fireworks budget, making a bonfire, and fireworks-related injuries compared with the preceding year. No statistically significant differences among the different interventions were observed.</p>		<p>injuries. In isolation, these findings are unlikely to impact on the guideline advice to conduct local firework injury prevention campaigns during the lead up to all celebrations and festivals where fireworks are used and to use the principles of behaviour change to inform campaign planning, delivery and evaluation.</p> <p><b>New evidence is unlikely to change guideline recommendations.</b></p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><a href="#">Recommendation 17</a> Maintaining and managing road safety partnerships</p>		
<p><b>2014 surveillance</b></p> <p>A study(42) examined the reasons for increased risk of road injury among disadvantaged groups. The study indicated that the factors related to increased risk of road injury in people from disadvantaged areas were: more hazardous environments (such as dense housing, proximity to fast-moving traffic, and high levels of on-street parking); lifestyle (such as being more likely to walk and less likely to have a car); and limited facilities for children and young people (meaning roads were more likely to be used as places to socialise and play).</p> <p><b>2015 surveillance</b></p> <p>No relevant evidence was identified.</p> <p><b>2019 surveillance</b></p> <p><a href="#">Safe routes to school programme</a></p> <p>A study in the US(43) investigated the impact of safe routes to school (SRTS) programmes on child cyclist and pedestrian injury rates. Crash records from 18 states for the period 1995-2010 were used to examine the association between SRTS and risk</p>	<p>No topic expert feedback was relevant to this section.</p>	<p>New evidence suggests that road safety partnerships should consider increased injury risk in walking and cycling and take measures to reduce risk, including the use of an SRTS programme. New evidence also indicates the value of digital technology measures to increase community engagement in addition to a standard SRTS programme, and to supplement virtual reality training through the use of videos and Internet tools. New evidence also shows short-term benefits of visual interventions to reduce distracted cell phone usage in pedestrians crossing roads, but further evidence is likely to be needed to explore ways of sustaining these benefits over time.</p> <p>The collective new and previous evidence is consistent with NICE guideline PH29 in terms of the need for road safety partnerships that should consider increased injury risk in disadvantaged areas and involve communities when planning road safety interventions. The evidence also reinforces the advice to ensure that the road safety partnership develops policies, strategies and programmes which are based on an understanding of how children and young people use (and wish to use) their environment.</p>



Surveillance evidence summary	Intelligence gathering	Impact statement
<p>of injury in children aged 5 years to 19 years compared with adults aged 30 years to 64 years. SRTS was associated with a 23% reduction in injury risk in child cyclists and pedestrians and a 20% reduction in fatality risk in child cyclists and pedestrians compared with adults.</p> <p>A prospective controlled comparison study(44) evaluated the initial utility of adding a technology-enabled citizen science engagement model, called Our Voice, to a standard SRTS programme to enhance programme engagement activities and student travel mode behaviour. The findings indicated that adding a technology-enabled citizen science process to a standard primary school SRTS programme was associated with higher levels of community engagement and walking or cycling to school compared to SRTS alone.</p> <p><b>Pedestrian education</b></p> <p>An RCT(45) (n=348) assessed the effectiveness of a video game-based educational tool in teaching primary school children the principles of pedestrian safety. The control group of more traditional and labour-intensive didactic learning demonstrated a significantly higher mean score increase in pre-test and post-test knowledge as compared with the video game group. However, observation of study participants revealed that participants who played the video game, as compared with the didactic</p>		<p>New evidence is unlikely to change guideline recommendations.</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>group, more frequently exhibited appropriate behaviour when exiting a parked car, signalling to a car that was reversing, signalling to a stopped car, and crossing the street.</p> <p>An RCT(46) (n=240 children aged 7-8) assessed whether children gained pedestrian safety knowledge through digital media, including videos, software and Internet websites, compared to training by virtual pedestrian environment or other strategies. It also assessed whether pedestrian safety knowledge was associated with safe pedestrian behaviour both before and after training and whether increases in knowledge were associated with increases in safe behaviour among children trained individually at street side locations, but not those trained by means of other strategies. Children trained by videos, software or Internet interventions, and those trained individually, showed increased knowledge following training relative to children in the other groups. Correlations between pedestrian safety knowledge and pedestrian behaviour were mostly non-significant. Correlations between change in knowledge and change in behaviour from pre- to post-intervention also were non-significant, both for the full sample and within conditions. Children trained individually gained in both knowledge and safer behaviour.</p> <p><a href="#">Distraction and mobile technologies</a></p>		

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>A prospective observational cohort study(47) (11,533 pedestrians, 71% children) in Los Angeles County, USA evaluated the effectiveness of an intervention to reduce pedestrian cell phone distraction behaviours. The intervention is a “sidewalk” stencil reading “heads up, phones down” painted on sidewalks at a children’s hospital, middle school and high school. Anonymous pedestrian observations were conducted before, 1 week and 4 months after intervention placement. Total distractions reduced significantly 1 week after placement, but this was not sustained at 4 months. A sustained reduction was only observed in texting at 4 months.</p>		
<p><b><u>Recommendation 18</u> Carrying out local child road safety reviews and consultations</b></p>		
<p><b>2014 surveillance</b> No relevant evidence was identified.</p> <p><b>2015 surveillance</b> No relevant evidence was identified.</p> <p><b>2019 surveillance</b> No relevant evidence was identified.</p>	<p>No topic expert feedback was relevant to this section.</p>	<p><b>No new evidence was identified which may change current recommendations</b></p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><a href="#">Recommendation 19</a> Aligning local child road safety policies</p>		
<p>No relevant evidence was identified.</p>	<p>No topic expert feedback was relevant to this section.</p>	<p><b>No new evidence was identified which may change current recommendations</b></p>
<p><a href="#">Recommendation 20</a> Promoting and enforcing speed reduction</p>		
<p><b>2014 surveillance</b></p> <p><b>Speed reduction zones</b></p> <p>A study(48) investigated traffic speed at school and playground zones in Calgary, Canada. Vehicle speed data were collected in 30 minute blocks at off-peak times at a sample of 11 schools and 16 playgrounds randomly located in the 4 quadrants of the city.</p> <p>The mean speed of the 4580 vehicles measured was 32.0 km/h (20 mph), lower than the default speed of 50 km/h in urban areas, but higher than the 30 km/h reduced speed limit. The study also found that mean and 85th percentile speeds were significantly lower in school zones, on roads with 2 lanes and on roads with fencing, speed displays, controlled intersections, or with reduced speed zones over 200m in length. The primary limitation</p>	<p>An <a href="#">NIHR commentary</a> was identified on a study which investigated the impact of an infrastructure change of extending an urban motorway to reduce traffic on Glasgow’s non-motorway roads. This study aimed to evaluate the impact of this new motorway on the number, severity and types of road users involved in accidents. The study found that reduction in road traffic accidents was not associated with the motorway extension.</p>	<p><b>Speed reduction zones</b></p> <p>The collective evidence and intelligence suggest that measures to reduce speed around schools and playgrounds appear to have an impact on average speed in these areas, and that 20 mph zones appear to reduce casualties, particularly among children. It is therefore consistent with current recommendations in NICE guideline PH29. A report by the House of Commons Transport Committee (2012), which noted that 2011 was the first year since 2003 that road accident fatalities increased, provided further support for 20 mph zones by recommending that the Government should encourage the development of inter-agency partnerships to help introduce these zones at a local level.</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>of the study was that it was performed in a single Canadian city, which is likely to have a different road layout to equivalent urban areas in the UK, and therefore external validity to a UK setting may be reduced.</p> <p>An observational study(49) of the effect of introducing 20 mph traffic speed zones on road collisions, injuries, and fatalities in London from 1986 to 2006. Data from before and after introduction of the 20 mph zones were then compared relative to other roads to allow for the general underlying trend of decreasing road casualties. After introducing 20 mph zones, among all children aged 0 to 15 years, all casualties were reduced, and the number killed or seriously injured was reduced. For pedestrians aged 0 to 15 years, all casualties were reduced, including the number killed or seriously injured. There was also a reduction among cyclists aged 0 to 15 years in all casualties. In areas adjacent to 20 mph zones, all casualties among those aged 0 to 15 years fell suggesting that casualties had not migrated to nearby roads. A sensitivity analysis comparing inner and outer London did not alter results.</p> <p><b>2015 surveillance</b> No relevant evidence was identified.</p> <p><b>2019 surveillance</b></p>		<p><b>Infrastructure change</b></p> <p>New evidence indicates that a motorway extension in a UK city with a good road safety record did not reduce casualties in the surrounding urban area over and above the downward trend. The implications are that transport planners and engineers need to reconsider justifying investment in new road infrastructure on the basis that they will reduce collisions in the surrounding areas. NICE guideline PH29 doesn't currently make recommendations about motorways or changes to road infrastructure. We will consider this issue at the next surveillance timepoint when more evidence may be available.</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
No relevant evidence was identified.		
<p><a href="#">Recommendation 21</a> Involving the police in driver education initiatives and activities to reduce traffic speed</p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this section.	<b>No new evidence was identified which may change current recommendations</b>
<p><b>Research recommendation 1</b></p> <p><b>What are the recent epidemiological and aetiological trends in types, causes and impact of unintentional injuries among under-15s? Use data collected by the recommended surveillance systems (see recommendations 7–8) to identify findings for specific groups and activities in the home, on the road and during outdoor play and leisure. Factors to consider are:</b></p> <ul style="list-style-type: none"> <li>● cause, nature, location and factors involved in the incident and type, site and severity of injury</li> <li>● numbers of children and young people involved, time spent undertaking the activity and the extent of supervision</li> <li>● demographic details with data presented for subgroups of children and young people (for example, grouped according to age, gender, ethnicity, socioeconomic status, disability and place of residence).</li> </ul>		
The surveillance review did not search for epidemiological evidence.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>Research recommendation 2</b></p> <p><b>How do parents, carers, children and young people perceive risk in the home, on the road and during outdoor play and leisure – and how do they perceive the risks and benefits inherent in specific activities? How do these perceptions vary between populations and subgroups based on gender, age, race/ethnicity, socioeconomic status, disability, or other characteristics of the participants or their environment? How strongly associated is children and young people’s exposure to risk with their behaviour, the causes, incidence and severity of unintentional injury?</b></p>		
<p>The surveillance review did not search for qualitative evidence.</p>	<p>No topic expert feedback was relevant to this area.</p>	<p>The current review did not identify evidence to address this research recommendation.</p>
<p><b>Research recommendation 3</b></p> <p><b>Does exposure to risk and the opportunity to experience risk-taking have a beneficial effect on children and young people? Does the effect vary according to age and other socio-demographic factors or according to the quality and nature of the risk?</b></p>		
<p>No relevant evidence was identified.</p>	<p>No topic expert feedback was relevant to this area.</p>	<p>The current review did not identify evidence to address this research recommendation.</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>Research recommendation 4</b></p> <p><b>To what extent – and how – does children and young people’s behaviour alter when their environment is made safer? How does children and young people’s (and their parents’ and carers’) perception of risk impact on the amount and type of physical activity undertaken by children and young people?</b></p>		
<p>The surveillance review did not search for qualitative evidence.</p>	<p>No topic expert feedback was relevant to this area.</p>	<p>The current review did not identify evidence to address this research recommendation.</p>
<p><b>Research recommendation 5</b></p> <p><b>What is the differential effectiveness and cost effectiveness of legislation, regulation, policies and standards to prevent unintentional injuries in the UK? Studies should consider the process and cost of development, promotion, implementation and enforcement. They should collect baseline data prior to any change and for a meaningful length of time afterwards on:</b></p> <ul style="list-style-type: none"> <li>● home safety assessments, thermostatic mixing valves (TMVs), smoke alarms (hard-wired and 10-year battery-operated), carbon monoxide alarms and window restrictors</li> <li>● water safety initiatives, sports rules and regulations, cycling skills training for children and young people and cycle helmet use</li> <li>● road safety knowledge and skills, road user behaviour, different types of road signage, differential effectiveness of speed enforcement (networked, targeted or mixed approaches) in rural and residential areas.</li> </ul>		
<p>Some evidence was identified on home, cycling skills training and road safety knowledge and skills</p>	<p>No topic expert feedback was relevant to this area.</p>	<p>The limited evidence identified was consistent with current recommendations. Further studies of larger samples and longer follow-up are likely to be</p>



Surveillance evidence summary	Intelligence gathering	Impact statement
and behaviour, as summarised under recommendations <a href="#">11</a> , <a href="#">15</a> and <a href="#">17</a>		needed to fully address the research recommendation. There remains limited evidence in this area.
<p><b>Research recommendation 6</b></p> <p><b>How effective and cost effective are social marketing and mass-media campaigns in support of legislation, regulation, policy and standards to reduce unintentional injuries among children and young people in the home, on the road and during outdoor play and leisure?</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.
<p><b>Research recommendation 7</b></p> <p><b>What is the impact of injury prevention training and development initiatives on those involved in preventing injuries in terms of their level of knowledge and degree of competency? What impact do such initiatives have on the scope and quality of preventive activities? Examples of training and developmental initiatives include: training people to undertake home risk assessments and educating representatives of community partnerships and private landlords about the Housing Health and Safety Rating System (HHSRS).</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>Research recommendation 8</b></p> <p><b>What prevents and what encourages children and young people to comply with legislation, regulation and standards to prevent unintentional injuries in the home, on the road and during outdoor play and leisure?</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.
<p><b>Research recommendation 9</b></p> <p><b>What prevents and what encourages delivery and implementation of policies/strategies to prevent unintentional injuries among children and young people in the home, on the road and during outdoor play and leisure? (These are outlined, for example, in white and green papers and policy briefings.)</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>Research recommendation 10</b></p> <p><b>How do the following factors influence the effectiveness and cost effectiveness of interventions to prevent unintentional injury in the home, on the road and during outdoor play and leisure:</b></p> <ul style="list-style-type: none"> <li>● method of delivery (for example, session format, learning materials)</li> <li>● content</li> <li>● frequency and duration of follow-ups</li> <li>● deliverer</li> <li>● parental/carer involvement</li> <li>● demographic characteristics of the participants (for example, gender, age, race/ethnicity, socioeconomic status and disability)?</li> </ul>		
<p>Some evidence was identified on digital educational interventions for home, road and bicycle safety as summarised under recommendations <a href="#">11</a>, <a href="#">15</a> and <a href="#">17</a> where the format and content of interventions were assessed.</p>	<p>No topic expert feedback was relevant to this area.</p>	<p>The new evidence identified did not measure conclusively the effectiveness or cost effectiveness of interventions in preventing unintentional injuries. There remains limited evidence in this area.</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>Research recommendation 11</b></p> <p><b>What are the most effective and cost-effective ways of providing under-15s, their parents and carers with information, advice and education about safety and hazards in the home, on the road and in outdoor play and leisure environments?</b></p>		
<p><b>2019 surveillance</b></p> <p><b>School-based educational programmes</b></p> <p>A systematic review(50) (27 studies) assessed the effects of school-based educational programmes for the prevention of injuries in children and evaluated their impact on improving children's safety skills, behaviour and practices, and knowledge, and assessed their cost-effectiveness. Studies were included if they aimed interventions at primary or secondary prevention of injuries from more than one injury mechanism and were delivered, in part or in full, in schools catering for children aged four to 18 years. The primary outcome was injury occurrence. Only 3 studies could be combined in meta-analysis, and only 2 of these were RCTs which showed evidence of an effect. Only one study reported intervention costs but did not undertake a full economic evaluation. Overall the body of evidence was of low certainty and was insufficient to determine whether school-</p>	<p>No topic expert feedback was relevant to this area.</p>	<p>New systematic review evidence on school-based educational programmes for the prevention of injuries in children included only a few studies reporting the effect on injury occurrence in children and so these effects were inconclusive, indicating that further evidence is needed to address the research recommendation. The review did find evidence that school-based injury prevention education programmes can improve children's safety skills, safety behaviours and safety knowledge. However, the evidence was inconsistent, with some studies showing a positive effect and others showing no effect.</p> <p>There remains limited evidence in this area.</p>

Surveillance evidence summary	Intelligence gathering	Impact statement
<p>based educational programmes can prevent unintentional injuries.</p> <p>A 6-year prospective, uncontrolled study(51) (n=1,926 second grade children in one US public school district) assessed the effectiveness of a school-based education programme targeting targets burn, fire, and life safety. The curriculum was delivered in 30-minute segments for 9 consecutive weeks via presentations, a safety smoke house trailer, a model-sized hazard house, a student workbook, and parent letters. A written knowledge pre-test and post-test was given immediately before and after the programme, and a second post-test was administered to the same students 12 to 13 months later. The results indicated that the programme effectively increased short-term knowledge and long-term retention of fire and life safety.</p>		

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>Research recommendation 12</b></p> <p><b>To what extent do interventions to prevent unintentional injuries among under-15s in the home, on the road and during outdoor play and leisure impact on the household’s safety knowledge and behaviour? What role do family members and carers (fathers, mothers, grandparents and extended family units) play in preventing unintentional injuries?</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.
<p><b>Research recommendation 13*</b></p> <p><b>To what extent do interventions to reduce speed and prevent unintentional injuries on the road among under-15s influence people’s attitude, knowledge and behaviour towards road safety (both drivers and the general public)? How can interventions be designed to maximise this effect?</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.

Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>Research recommendation 14*</b></p> <p><b>How can systematic methods, combining health and engineering research, be developed to:</b></p> <ul style="list-style-type: none"> <li>● assess the effectiveness and cost effectiveness of injury prevention interventions outside the health sector (for example, within education and employment)</li> <li>● identify wider public health outcomes as a standard part of research into engineering measures to reduce speed and unintentional injuries (including co-benefits and unintended consequences, such as the impact on physical activity and air quality)?</li> </ul>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.
<p><b>Research recommendation 15*</b></p> <p><b>How effective and cost effective are home safety interventions (including combined interventions) in preventing unintentional injuries among different population groups? For example, how effective are they in relation to participants' gender, age, race/ethnicity, socioeconomic status, disability, or other characteristics? To what extent does effectiveness and cost effectiveness vary according to the type of injury being prevented?</b></p>		
No relevant evidence was identified.	Several topic experts highlighted evidence on new hazards that have emerged since the guideline was originally published. These included window blind cords, cot bumpers, microwave ovens, trampolines,	New hazards have been identified but no new evidence was found to address the research recommendation. There remains limited evidence in this area.

Surveillance evidence summary	Intelligence gathering	Impact statement
	laundry capsules, e-cigarettes, reed diffusers and hair straighteners.	
<p><b>Research recommendation 16*</b></p> <p><b>To what extent does the provision of safety information, advice and education during a home safety intervention contribute to its effectiveness and cost effectiveness? (For example, does it reduce the number – and severity – of unintentional injuries in the home among under-15s?)</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.
<p><b>Research recommendation 17*</b></p> <p><b>How effective and cost effective are the different methods used to deliver safety information, advice and education? To what extent do effectiveness and cost effectiveness vary with different types of injury prevention activity?</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.



Surveillance evidence summary	Intelligence gathering	Impact statement
<p><b>Research recommendation 18</b></p> <p><b>To what extent does exposure to risk during outdoor play and leisure affect children and young people’s risk-management skills in the setting where the hazard was encountered, other designated play areas, non-designated play areas and non-play settings?</b></p>		
No relevant evidence was identified.	No topic expert feedback was relevant to this area.	The current review did not identify evidence to address this research recommendation.
<p>* Research recommendations 13-17 concern home and road interventions and are covered by the surveillance reviews for NICE guidelines PH30 and PH31</p>		

## Editorial amendments

During surveillance of the guideline we identified the following points in the recommendations that should be amended:

- Recommendation 4: In the ‘Who should take action’ section:
  - Remove Children’s Workforce Development Council should be removed because this no longer exists.
  - Health Professions Council is now Health and Care Professions Council and should be changed accordingly
- Recommendation 5: ‘Department of Health’ should be changed to ‘Department of Health and Social Care’
- Recommendation 7: In the ‘Who should take action’ section:
  - Remove ‘Association of Public Health Observatories’ as these no longer exist
  - ‘Department of Health and its Public Health Service’ should be changed to ‘Department of Health and Social Care and Public Health England’
  - ‘Department for Communities and Local Government’ should be changed to Ministry of Housing, Communities and Local Government

'Data Protection Act 1998' should be replaced by 'Data Protection Act 2018'

- Recommendation 16: In the 'Who should take action' section, 'Primary care and hospital trusts' should be replaced by 'Clinical commissioning groups and hospital trusts'.

- Footnote 3: The broken link should be amended to direct to the following policy document URL:

<https://www.gov.uk/government/publications/an-information-revolution-summary-of-responses-to-the-consultation>

- Footnote 4:

The broken link to the Information Governance Toolkit should be replaced by the following URL:

<https://www.igt.hscic.gov.uk/>

The archived link to NHS Information Governance - Guidance on Legal and Professional Obligations should be replaced by

<https://www.gov.uk/government/publications/nhs-information-governance-legal-and-professional-obligations>

The cross reference and link to "Also see HM Government (2008) [Information sharing: guidance for practitioners and managers](#). London: Department for Children, Schools and Families and Communities and Local Government."

Should be replaced by "Also see HM Government (2015) [Information sharing advice for safeguarding practitioners](#). London: Department for Education."

- Footnote 7: The archived link to the HHSRS should be replaced by <https://www.gov.uk/government/collections/housing-health-and-safety-rating-system-hhsrs-guidance>
- Footnote 8: The link directs to an archived version of the Healthy Child Programme and should be replaced by the following URL:  
<https://www.gov.uk/government/publications/healthy-child-programme-0-to-19-health-visitor-and-school-nurse-commissioning>
- The bullet points in recommendation 9 referring to smoke and carbon monoxide alarms should be removed, and a cross referral added after the remaining bullets to state:

‘For duties on installing and maintaining smoke and carbon monoxide alarms, refer to the [Smoke and Carbon Monoxide Alarm \(England\) Regulations 2015](#)’

- Footnote 13: The broken link to ‘Firework safety: be media wise!’ should be replaced by  
“See Department for Business, Energy & Industrial Strategy (2010): [Firework safety: be media wise!](#)”

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