

## Accidents and their prevention

Accidents are a major cause of death and disability. About 14,000 people die in the UK, most of them in England and more than 700,000 will be seriously injured in England alone.<sup>[1]</sup>

They cost the UK an estimated £150 billion every year. For children and young people, accidents are the greatest threat to life.

Three published guidance documents from the National Institute for Health and Care Excellence (NICE) outline recommendations for all those with a strategic role to play in injury prevention, including integrated care systems (ICSs), local authorities and their partners.<sup>[2] [3] [4]</sup>

There is no requirement for primary healthcare teams to undergo training in unintentional injury prevention.

### Concepts in accident prevention

- **Primary prevention:** removal of circumstances causing injury – eg, traffic speed reduction, fitting stair gates for young children, reducing alcohol consumption.
- **Secondary prevention:** reduces severity of injury should an accident occur – eg, use child safety car seats, bicycle helmets, smoke alarms.
- **Tertiary prevention:** optimal treatment and rehabilitation following injuries to minimise long-term consequences – eg, effective first aid, appropriate hospital care.

## Role of clinicians in accident prevention

### Clinical roles for health professionals in accident prevention

These include:

- Advice to patients: health workers such as health visitors can sometimes be well placed to identify accident risks or medical conditions conferring risk and to advise accordingly – for example:
  - Child accident prevention:
    - Identify hazards (eg, if a family is being seen by a health visitor at home or if treatment is being sought for accidental injury).
    - Advise about prevention – eg, stair gates, keeping chemicals out of reach, etc .
  - Patients with medical conditions :
    - Identify and treat accident-causing conditions – eg, [obstructive sleep apnoea](#), visual or balance disorders.
    - Give appropriate advice on fitness to drive.
    - Advise patients on how to minimise accident risks from their medical condition.
- Identify unacceptable risks and intervene where appropriate – for example:
  - Identify vulnerable children and adults with recurrent injuries or at high risk. This includes those who are experiencing neglect and may require child protection procedures.
  - Consider reporting to the [Driver and Vehicle Licensing Agency \(DVLA\)](#) patients who fail to comply with medical driving regulations.

- Accident surveillance: health professionals and their organisations can monitor injury rates and report preventable accidents. NICE recommends establishing local protocols to alert health visitors, school nurses and GPs when a child or young person repeatedly needs treatment for unintentional injuries at an emergency department or minor injuries unit.<sup>[2]</sup> On a national basis, NICE recommends ensuring that all hospital trusts are made aware of the data collection requirements for the universal and mandatory A&E (minimum) commissioning dataset.

### **Non-clinical interventions**

These include:

- Advocacy and policy making.
- Collaboration with other agencies.
- Promoting accident prevention education and training.
- Research.

### **How effective are interventions by health professionals?**

Research into child safety practices suggests that safety advice for families can be effective. Reviews have found that:

- Home safety education (usually given in a face-to-face setting), particularly with the provision of safety equipment, is effective in increasing safety practices.<sup>[5]</sup>
- Parenting interventions (usually home-based) may be effective in preventing childhood injury.<sup>[6]</sup>

## **Accident prevention advice**

This section is intended to outline the major causes of accidents in the UK and to give health professionals some knowledge of how these can be prevented.

Advice tips can be found under headings 'Safety advice for carers of young children', 'Home accident prevention' and 'Road accident prevention advice', below.

### **Specific medical conditions**

Doctors are well placed to advise patients on accident risks relevant to their medical problems. For example:

- **Sleep disorders:**
  - These may be under-recognised and underdiagnosed.
  - Tools such as the Epworth Sleepiness Scale and expertise such as sleep disorder clinics are valuable.
- **Diabetes:**
  - Hypoglycaemia is an important cause of driving errors.
  - People with diabetes at highest risk are those with a history of mismanagement of hypoglycaemia, lower limb neuropathy or greater exposure, ie high-volume driving.
- **Epilepsy:**
  - People with poorly controlled epilepsy can be advised how to minimise their risks of injury during a seizure – eg, taking a shower instead of a bath, not ironing when alone and other tips. Identified risk factors for injuries include the number of anti-epileptic drugs, history of generalised seizures and seizure frequency.
- **Attention deficit hyperactivity disorder (ADHD):**
  - ADHD has been shown to be associated with an increased risk of serious transport accidents.

## **Accidents and children** <sup>[7]</sup>

Accidents are the main cause of death among children aged 1–5 years. About 100,000 children are admitted to hospital annually in the UK and 2 million attend emergency departments.

For health workers, important points when advising on child accident prevention are:

- Offer practical advice, not just general education – eg, health visitors or midwives may be able to advise about car seats or home safety equipment.
- Use an evidence-based approach where possible and dispel myths – eg, some parents wrongly believe that cooker guards and baby walkers are safe.
- Promoting safety does not require overprotection ('wrapping children in cotton wool') – this would delay development and increase the risk of obesity.
- Promote sensible precautions in line with the child's level of development.

### **Safety advice for carers of young children**

## Important information

## **Falls**

Use stair gates until the child is aged 2 years; teach older children how to climb stairs but supervise them (even 4-year-olds may need some help). If the gaps between banisters or balcony railings are more than 6.5 cm (2.5 in) wide, cover them with boards or safety netting.

Change your baby's nappy on the floor; don't leave your baby unattended on a bed, sofa or changing table, even for a second.

Don't put baby seats on tables (a baby's wriggling could tip it over the edge).

Take care to avoid tripping when carrying a baby.

Don't let children under the age of 5 years sleep in the top of a bunk bed.

Keep low furniture away from windows. Fit windows with safety catches (and ensure adults know where the keys are kept in case of fire).

Use a five-point harness with a highchair.

Don't use a baby walker.

## **Choking, strangulation and suffocation**

Keep all ties and cords short (eg, on curtains, blinds and switches) to avoid a child being strangled by the cord.

Do not tie or hang things to babies' cots, and keep all toy ribbons short.

Cut food up small enough for a child's mouth; don't give young children hard food such as boiled sweets or nuts.

Don't leave children alone when eating; encourage them to sit still while they are eating.

Keep small objects such as coins and buttons away from babies and toddlers. Button batteries have particular risks of oesophageal perforation if swallowed and urgent assessment in ED is needed for x-rays to assess the position of the battery.

Keep plastic bags out of reach.

## **Burns and scalds**

95% of burns and scalds happen in the home. [7]

Put cold water in a bath before hot water, check the temperature carefully; consider fitting thermostatic mixing valves.

Use the back rings of the hob where possible and turn the handles of pans inwards so that they can be less easily grasped or knocked by small children.

Keep hot drinks, teapots, matches, irons and hair straighteners out of reach.

Use fireguards and spark guards.

## **Drowning**

Children can drown in a few inches of water; they must be supervised at all times when bathing and near ponds, water containers or pools.

Garden ponds or pools must be properly fenced.

## **Poisoning**

Keep chemicals and medicines out of sight and reach.

Children can often open 'child-proof' containers.

### **Cuts and bumps**

Use safety glass in low doors/windows, or cover with safety film.

Keep scissors, knives and razors out of children's reach.

Cover sharp corners; use door stoppers to prevent trapped fingers.

### **Home safety**

For general home safety advice, see 'Home accident prevention', below.

### **Car safety**

Use correct child seats.

Twelve children aged under 10 years are killed or injured as passengers in cars every day and correct seats save lives. [7]

Put children in a rear seat of a car whenever possible.

Do not put a rear-facing baby seat in a front car seat with an active airbag (forward-facing seats in the same position, while not illegal, are also not ideal for toddlers).

Never leave children alone in a car.

### **Outdoor safety**

Find safe places to play.

Use a harness or hold hands with small children in the street.

## **Elderly or disabled people and accident prevention**

Frailty and health problems make the elderly, particularly those over the age of 75 years, at increased risk of accidents, usually occurring in the home.

Falls are the most common cause. Inability to get up after falling puts the person at risk of hypothermia and pressure sores. Hip fractures after falls are a major cause of morbidity and mortality.

NICE and Clinical Knowledge Summaries (NICE CKS) have issued guidelines on the assessment and prevention of falls in older people. [8]

They state that older people should be asked routinely if they have fallen in the previous year. Those who have fallen, or those considered at risk of falling, should have a multifactorial falls risk assessment and should be considered for interventions, including those to improve their strength and balance, and removal of any home hazards.



Environmental interventions have a role in safety for disabled or elderly people living at home - this has led to the concept of 'smart homes', which incorporate alarm or monitoring devices and other safety features . However, safety for those needing home care has many aspects; this includes not only physical safety but social and emotional well-being.

### **Accidents in the home**

In the UK annually, home accidents cause almost 5,000 deaths and 2.7 million A&E department attendances.

## Important information

## **Home accident prevention** <sup>[9]</sup>

See also 'Safety advice for carers of young children', above.

### **Fire and electrical safety**

Fit smoke detectors on every floor and renew batteries regularly.

Plan your fire escape route.

Use fireguards.

Keep portable heaters and candles away from furniture, clothes and curtains.

Fat friers and 'chip pans' are a serious fire risk. If there is a chip pan fire, turn off the heat (if safe to do so) and call 999/112/911. Do not move the pan and do not pour water on it (this can cause a fireball).

Do not overload circuits, including using multiple adapters in sockets.

Have your wiring checked regularly.

Do not use equipment with cracked plugs or worn cables.

Always ensure electrical equipment that you buy has been safety tested.

Do not touch electrical equipment with wet hands and do not take it into the bathroom.

Do not smoke in bed.

Keep matches and lighters away from children.

Outdoors, use a residual current device (RCD) with electrical power tools.

Keep bonfires and barbecues away from buildings, fences and trees and ensure children are supervised.

### **Heating and cooking**

Never block air vents. Service heating appliances and sweep chimneys annually.

Be alert to the symptoms of carbon monoxide poisoning (drowsiness and flu symptoms).

When cooking, use the back rings of the cooker; turn the handles of pots and pans inwards on the cooker so that they can be less easily grasped by small children.

### **Medicines and cleaning fluids**

Always ensure containers are clearly labelled and out of children's reach.

### **Other measures**

Stairs should have banisters or rails.

Avoid loose rugs and flooring. Clean up spills to avoid slipping.

Only climb up on something firm and strong.

When using power tools, use adequate protection including gloves, goggles and sturdy shoes.

Improve lighting in halls and stairways.

With DIY, always work within your ability, follow instructions, check equipment and keep tools and chemicals away from children.

## Road accidents<sup>[10]</sup>

In terms of numbers of people killed or injured, this is an important area for accident prevention in the UK and worldwide. Although the figures are still high, statistics for Great Britain suggest that the situation is gradually improving. For the year ending June 2023 <sup>[11]</sup> :

- 1,633 reported road deaths.
- 29,429 people killed or seriously injured.
- 133,443 casualties of all severities.

Common causes of these accidents included speeding, drink driving, driving after taking drugs or careless driving, including using a mobile phone whilst driving. About 10% of those killed were inexperienced drivers.

## Driving speed

Higher speed both increases the risk of collision and the risk of serious injury to the driver or others. Even a modest speed reduction helps reduce both the number and the severity of accidents – eg, pedestrians hit at speeds below 30 mph receive mainly survivable injuries but this changes to mainly fatal injuries at speeds of between about 30 mph and 40 mph.

## Medical conditions that affect driving

The DVLA issues guidance and regulations with regard to medical conditions that impair safe driving. See '[At a glance fitness to drive](#)'.

## Excessive sleepiness

- 20% of accidents on motorways in the UK are caused by sleepiness and >300 people per year are killed by drivers falling asleep while driving. Sleepy drivers perform worse on tests than those over the alcohol limit.
- Increased awareness of sleep disorders and their treatment is needed, by both the public and by doctors.

## Car seats and seat belts

The value of seat belts is indisputable. In most vehicles, it is now compulsory for everyone to wear a seat belt, or appropriate child restraint, if available, in the front and back. It is the driver's responsibility to ensure that passengers are correctly restrained.

## Alcohol and drugs

Alcohol impairs judgement, reaction times, co-ordination and concentration. Statistics from the Department for Transport (DfT) show that in 2021 an estimated 6,740 people were killed or injured in drink-drive accidents, a rise of 4% from 6,450 in 2020, but the second lowest number recorded since 1979. <sup>[12]</sup> The total number of accidents where at least one driver or rider was over the legal alcohol limit rose by 1% to 4,660 in 2021. The final estimate of drink-drive fatalities of 260 for 2021 is higher than in 2020 and this rise was statistically significant - however the number of accidents in 2020 was reduced because of national restrictions due to the COVID pandemic. 17% of road deaths in 2021 occurred in collisions where at least one driver or rider was over the legal drink-drive alcohol limit.

Legal limits for driving with alcohol in England, Wales and Northern Ireland are :

- 35 µg alcohol per 100 ml of breath; **or**
- 80 mg of alcohol per 100 ml of blood; **or**
- 107 milligrams per 100 ml of urine

However, most drivers are impaired at a blood alcohol level of 50 mg/100 ml. The Royal Society for the Prevention of Accidents (RoSPA) has called for the legal alcohol limit to be reduced to 50 mg/100 ml blood, as it is in many other countries (including Scotland).

It is difficult for drinkers to know how much alcohol they are consuming, as strength and sizes of drinks can vary considerably. Also, the speed of absorption into the body varies with a person's size, age, weight and gender and whether they have eaten. The same amount of alcohol will give different blood alcohol levels in different people. Therefore, the best and safest advice is not to drink when driving.

Drivers may also be impaired due to the use of drugs, both illicit and prescribed. Any drugs that cause sedation are a problem, including many [antihistamines](#) and antidepressants.

## **Mobile phones and driving**

Research has shown that using hand-held or hands-free mobile phones whilst driving increases the risk of drivers crashing, injuring or killing themselves and/or other people, by four times. It is an offence for drivers to use a hand-held mobile phone whilst driving .

## **Motorcyclists and cyclists**

Motorcyclists are extremely vulnerable - despite forming only 1% of road traffic, they account for 20% (one in five) of road deaths and serious injuries. Information on preventing accidents for motorcyclists is available on the RoSPA website. 104 motorcyclists are seriously injured on UK roads per week and 6 are killed.<sup>[13]</sup>

4,364 UK cyclists were killed or seriously injured in 2021 in reported road accidents, and another 11,994 were slightly injured.<sup>[14]</sup> Research has shown that bicycle helmet use is associated with reduced odds of head injury, serious head injury, facial injury and fatal head injury.<sup>[15]</sup> The reduction is greater for serious or fatal head injury. Further is available on the RoSPA website; safety tips for cyclists are also available .

## **Road accident prevention advice**

### **General points**

- Watch your speed when you are driving. Watch your speedometer, know the limits, concentrate and slow down when you are entering villages.
- Do not use hands-free or hand-held mobile phones whilst driving.
- Follow DVLA guidance on medical conditions that can affect driving.
- Do not park on pavements - this affects pedestrian safety.
- Broken-down vehicles should be moved off the road if possible. Switch on hazard warning lights and wear a high-visibility jacket if possible.
- If stopping on a hard shoulder is necessary, leave the vehicle and wait on the embankment for assistance. Stationary vehicles on the hard shoulder are at high risk of being involved in an accident. Use motorway emergency phones to aid locating you. If you feel vulnerable, leave the passenger door open and enter your vehicle if someone approaches, then communicate through a narrowly opened window.

### **Preventing sleepiness while driving**

- Drive when well rested, healthy and not taking sedating medication.
- Take regular rest breaks (at least 15 minutes every two hours).
- If feeling sleepy during a journey, stop somewhere safe, take drinks containing caffeine and take a short nap.
- If necessary, plan an overnight stop. Avoid driving into the time when you would normally be falling asleep, into the small hours (2 am-6 am) or after a full day at work.
- Be extra careful when driving between 2 pm and 4 pm, especially after a meal.

### **Alcohol, medicines and drugs**

- If intending to drive, do not drink alcohol. Never rely on trying to calculate accurately how much alcohol is in your body and whether you are above or below the drink-drive limit.

- If intending to drink alcohol, either arrange for a non-drinking person to drive, use public transport or stay overnight. Be aware that you may still be impaired the following morning after a drink the night before.
- Avoid driving while under the influence of medicines. Check for warnings on the packet patient information leaflet AND ask a pharmacist or doctor if the medicine could affect your driving.
- Do not drive under the influence of drugs.

### **Seat belt regulations**

All passengers should use appropriate seat belts or child restraints; this is the driver's responsibility. Detailed information is available on suitable child seats and current regulations.

## **Sports, water and leisure safety**

The RoSPA website has information on safety in different sports, activities, environmental hazards and holiday leisure pursuits.

## **Safety in the workplace**

Information and 'safety packs' for employers are available from the Health and Safety Executive.<sup>[16]</sup> Workplace safety is important. In the UK, there are 600,000 workplace injuries annually and 1.2 million cases of ill health caused or exacerbated by work. Small businesses (employing <50 people) have a rate of serious accidents almost double that of large companies .

---

## **Further reading**

- [American Academy of Pediatricians](#); Promoting Safety and Injury Prevention - Bright Futures

## **References**

1. [Royal Society for the Prevention of Accidents \(RoSPA\)](#)
2. [Strategies to prevent unintentional injuries among under-15s](#); NICE Public Health Guideline (November 2010)
3. [Preventing unintentional injuries among under-15s in the home](#); NICE Public Health Guideline (November 2010)
4. [Preventing unintentional road injuries among under-15s: road design](#); NICE Public Health Guideline (November 2010)



5. [Keeping Children Safe: a multicentre programme of research to increase the evidence base for preventing unintentional injuries in the home in the under-fives](#); NIHR Journal (2017)
6. [Mytton J, Ingram J, Manns S, et al](#); The feasibility of using a parenting programme for the prevention of unintentional home injuries in the under-fives: a cluster randomised controlled trial. Health Technol Assess. 2014 Jan;18(3):1-184. doi: 10.3310/hta18030.
7. [Child Accident Prevention Trust](#)
8. [Falls – risk assessment](#); NICE CKS, January 2019 (UK access only)
9. [Home Safety](#); Royal Society for the Prevention of Accidents
10. [Road Safety – Advice, Information & Resources](#); Royal Society for the Prevention of Accidents
11. [Reported Road Casualties in Great Britain Year Ending June 2023](#); Gov.UK
12. [Reported Road Casualties in GB involving Illegal Alcohol Levels 2021](#); Gov.UK
13. [Reported Road Casualties GB Motorcyclists 2022](#); Gov.UK
14. [Reported Road Casualties GB Pedal Cyclists 2021](#); Gov.UK
15. [Olivier J, Creighton P](#); Bicycle injuries and helmet use: a systematic review and meta-analysis. Int J Epidemiol. 2017 Feb 1;46(1):278-292. doi: 10.1093/ije/dyw153.
16. [Health and Safety Executive](#)

**Disclaimer:** This article is for information only and should not be used for the diagnosis or treatment of medical conditions. Egton Medical Information Systems Limited has used all reasonable care in compiling the information but makes no warranty as to its accuracy. Consult a doctor or other healthcare professional for diagnosis and treatment of medical conditions. For details see our [conditions](#).

Authored by:	Peer Reviewed by: Dr Surangi Mendis	
Originally Published: 24/02/2024	Next review date: 09/01/2024	Document ID: doc_1747

View this article online at: [patient.in/doctor/accidents-and-their-prevention](https://patient.in/doctor/accidents-and-their-prevention)

Discuss Accidents and their prevention and find more trusted resources at [Patient](#).



To find out more visit [www.patientaccess.com](http://www.patientaccess.com)  
or download the app



Follow us

