

# North Somerset Joint Strategic Needs Assessment

## Unintentional Childhood Injuries

### 1. Introduction

#### 1.1 Why Childhood Unintentional Injury Prevention is important

The term 'unintentional injury' is used to describe an injury occurring as a result of an unplanned and unexpected event which occurs at a specific time from an external cause. This chapter is specifically concerned with unintentional injury in children and young people under the age of 18. The term 'unintentional injury' rather than 'accident' is used to highlight the fact that these incidents are often not random, chance events, but predictable and preventable through increased awareness, improvements in the environment and greater product and equipment safety.

Reducing unintentional injury is important because it has a significant impact on the lives of children, young people and their families. It is the second biggest cause of death for children under 5 after congenital malformations and chromosomal abnormalities, and the second biggest cause of death for children and young people under 18 after cancer<sup>i</sup>. In 2014, the highest number of avoidable deaths in children and young people 0-19 in England and Wales, were from unintentional injuries and this accounted for 195 deaths<sup>ii</sup>.

However, deaths are just the tip of the iceberg. In 2014-2015 there were 106,043 hospital admissions in children aged under 14, due to unintended and deliberate injury in England<sup>iii</sup> and 4,488,752 A & E attendances for children and young people 0-17 in England<sup>iv</sup>.

Childhood injury can have severe physical, emotional and financial consequences for children and their families. For instance, children may require years of painful skin grafts and be scarred for life or can be left with permanent brain damage. There are also significant financial costs; caring for a child with an acquired disability can push a family into poverty, as well as having an impact on the school attendance, attainment and future prospects of the injured child.

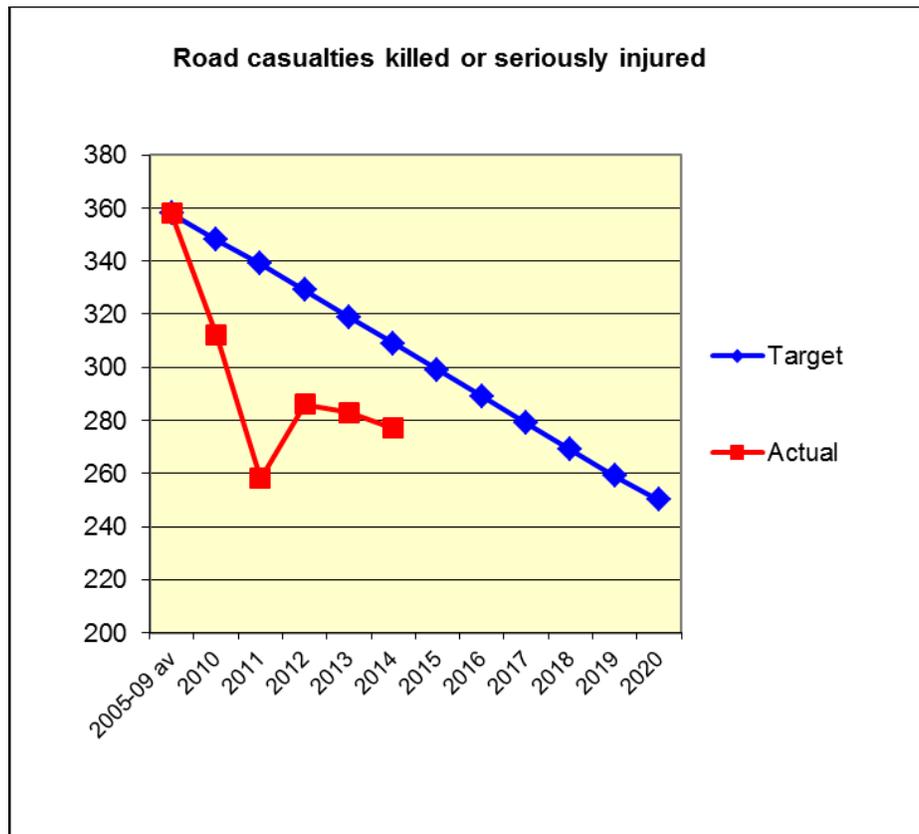
The cost of childhood injury to society is huge, particularly to the police, fire and rescue services, ambulance and health services. Children's attendance at A&E following an unintended injury costs the NHS approximately £146m a year and Emergency Admissions cost approximately £131m a year<sup>v</sup>. When other factors like costs to companies and individuals are taken into account, long term treatment costs are even higher.

There are also significant costs for local authorities, which might include wheelchairs, home adaptations and specialist education for children with brain damage.

The importance of childhood injury prevention was reinforced by its inclusion in the Public Health Outcomes Framework for England, 2013 – 2016, which contains outcomes for hospital admissions caused by unintentional and deliberate injuries in children and young people aged 0-14 and 15-24 years.

The West of England Joint Local Transport Plan 2011-2026 has set a target of a 30 percent reduction in the number of people killed and seriously injured (KSI) across the West of England. Despite an increase between 2011 and 2012, the KSI figures are well below the trajectory, although 19 fatalities in 2014 is still too high<sup>vi</sup> (See Figure 1)

Figure 1: KSIs in the West of England



## 1.2 The situation in North Somerset

There were an estimated 46,800 children and young people aged 18 or under living in North Somerset in 2014 (22.5% of the population)<sup>vii</sup>.

13.6% of children under 16 are living in poverty in North Somerset<sup>viii</sup> and are more

likely to suffer serious unintentional injury or death when compared with children from more affluent families and communities<sup>ix</sup>.

### 1.3 Emergency Hospital Admissions

Emergency hospital admissions due to unintentional and deliberate injuries are reported together in the Public Health Outcomes Framework. In 2014-2015 in North Somerset, approximately 80% of emergency hospital admissions for under 18s were caused by unintentional injuries, which equates to 368 admissions. Of these 368 admissions for unintentional injury, there were 145 in the 0-4 age range, 166 in the 5-14 age range and 57 in the 15-17 age range<sup>x</sup>.

Between 2010 and 2015, North Somerset has consistently had a significantly lower annual rate of emergency admissions for the 0-4 and 0-14 age group than England and the South West or England<sup>xi</sup> (see figs 2 and 3). Unfortunately, comparative data isn't available for the 15-17 age range as the Public Health Outcome indicator is for the 15-24 age range. In this age range, North Somerset rates of emergency admissions were below England and the South West until 2013, when they rose above them. (See fig 4) This is more likely to be because of recent high rates of deliberate self-poisoning in North Somerset, rather than unintentional injury.

Figure 2

2.07i - Hospital admissions caused by unintentional and deliberate injuries in children (aged 0-4 years) - North Somerset

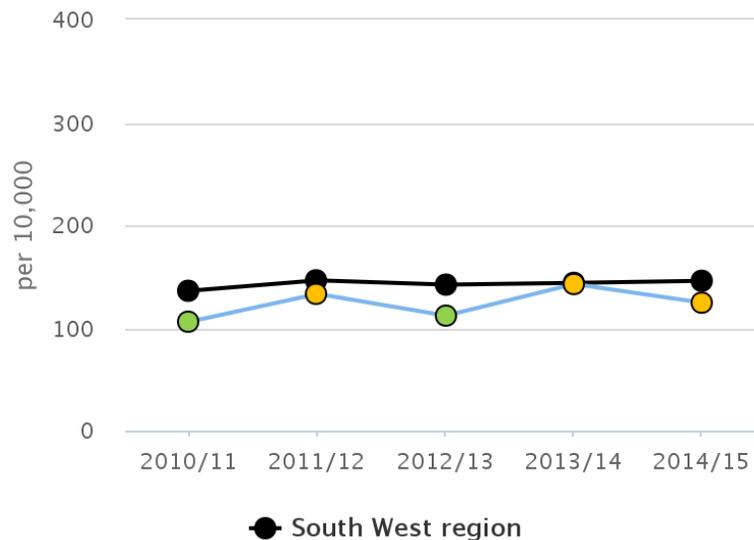


Figure 3

2.07i - Hospital admissions caused by unintentional and deliberate injuries in children (aged 0-14 years) - North Somerset

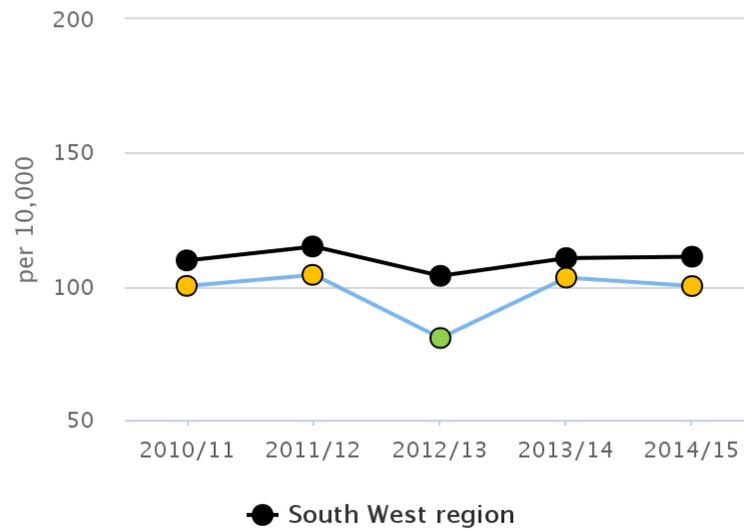
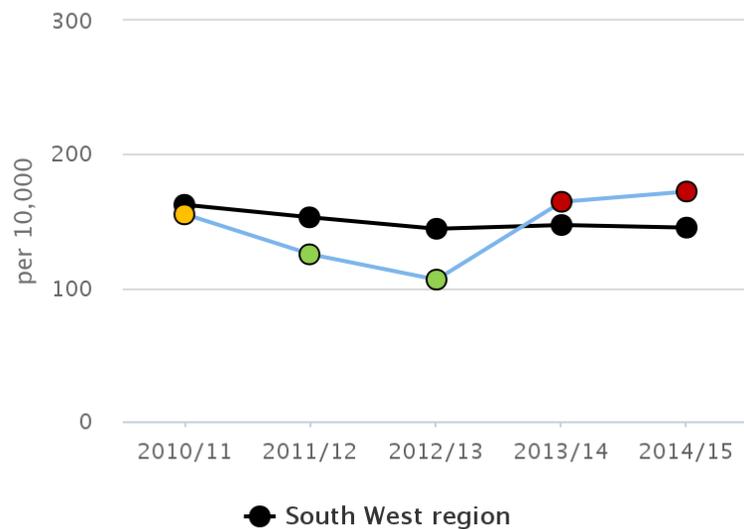


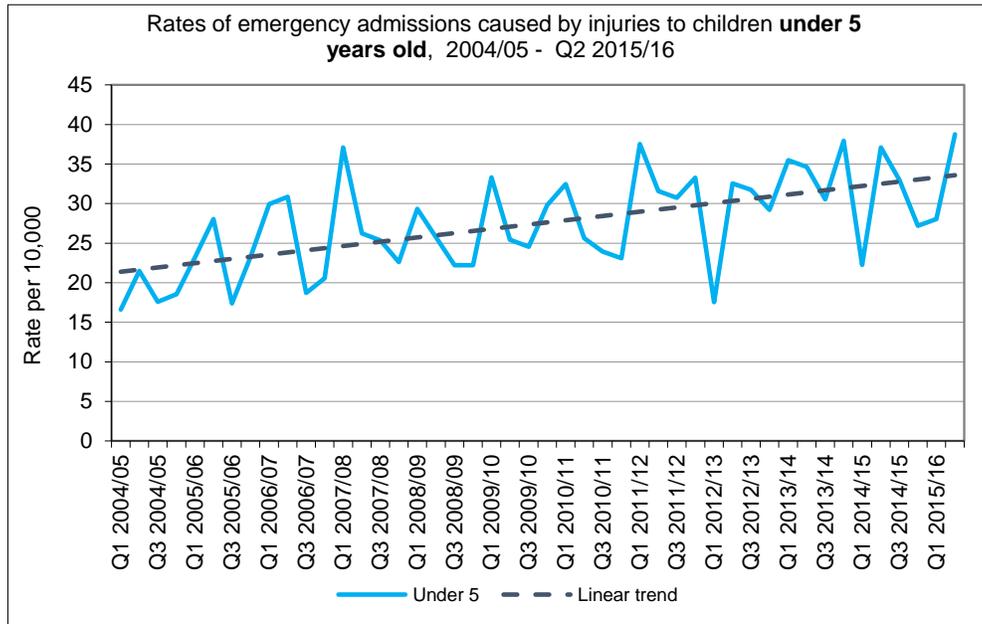
Figure 4

2.07ii - Hospital admissions caused by unintentional and deliberate injuries in young people (aged 15-24 years) - North Somerset



Currently, the only age group with an upward trend in terms of emergency admissions to hospital for unintentional and deliberate injuries is the 0-4 age range. (See Fig 5)

**Figure 5**

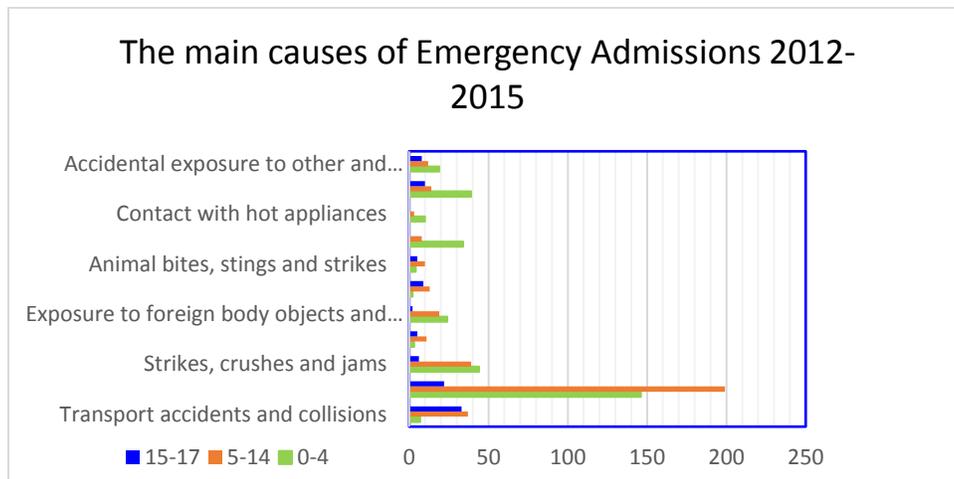


### 1.4 Causes of childhood unintentional injury

The leading causes of emergency admissions to hospital for under 18s between 2004 and September 2015 were falls (34.8%), transport accidents (8.7%) and strikes, crushes and jams (7.9%)

Falls and strikes, crushes and jams, affect all age groups while transport injuries mostly affect older children (see fig 6). Young children (0-4) experience more accidental poisonings and burns and scalds than older children.

**Figure 6:** The number of children and young people in North Somerset admitted to hospital, grouped by the main causes (2012 to 2015)



## **Falls**

The largest cause of emergency admissions to hospital for falls in the 0-4 age group since 2006 is a 'fall from the same level from slipping, tripping and stumbling' which account for about 17% of falls. It is difficult to know what preventative actions can be taken with this type of injury, but there are other more preventable causes. A large number of falls in 0-4s happen in the home and approximately 35% were due to falls from chairs, beds, other furniture and stairs and steps. Although we cannot assume these all happen in the home, it is reasonable to assume that the vast majority do. There is work to be done in terms of educating parents about issues such as the importance of changing nappies on the floor, ensuring high chairs are away from the wall with effective harnesses and installing stair gates. Similarly, it is likely that most 'strikes, crushes and jams' in the 0-4 age range happen in the home, implying a continued need to educate parents about carrying out minor adaptations to ensure a safe environment for their babies and toddlers.

In the 5-14 age group, most emergency admissions to hospital for falls are due to 'falls from playground equipment' which account for approximately 28% of falls in this age group. Unfortunately, there is no clear information about whether these incidents happen in the home, in playgrounds or in larger attractions such as Puxton Park or Noah's Ark, or what types of equipment are involved.

There are far fewer falls in the 15-17 age group and no clearly identifiable causes for concern.

Although falls from windows are rare, there is a high chance of them resulting in a fatality. The Child Death Overview Panel have considered window restrictors on council properties and sent a recommendation for these to be in place.

## **Road traffic casualties**

In 2015 there were 27 children under 16, killed or seriously injured on roads in the West of England. 24 were seriously injured and 3 were killed.

20 of the children were child pedestrians, 19 receiving serious injuries and 1 being killed. 2 of the children were cycle casualties, one being seriously injured and 1 being killed<sup>xii</sup>.

In the same year in North Somerset, there were 4 children seriously injured in road traffic incidents and 1 fatality<sup>xiii</sup>.

## **Burns and scalds and unintentional poisonings in the 0-4 Year old age range**

Other than falls and strikes, crushes and jams, there are two other significant causes of unintentional injury in the 0-4 age range.

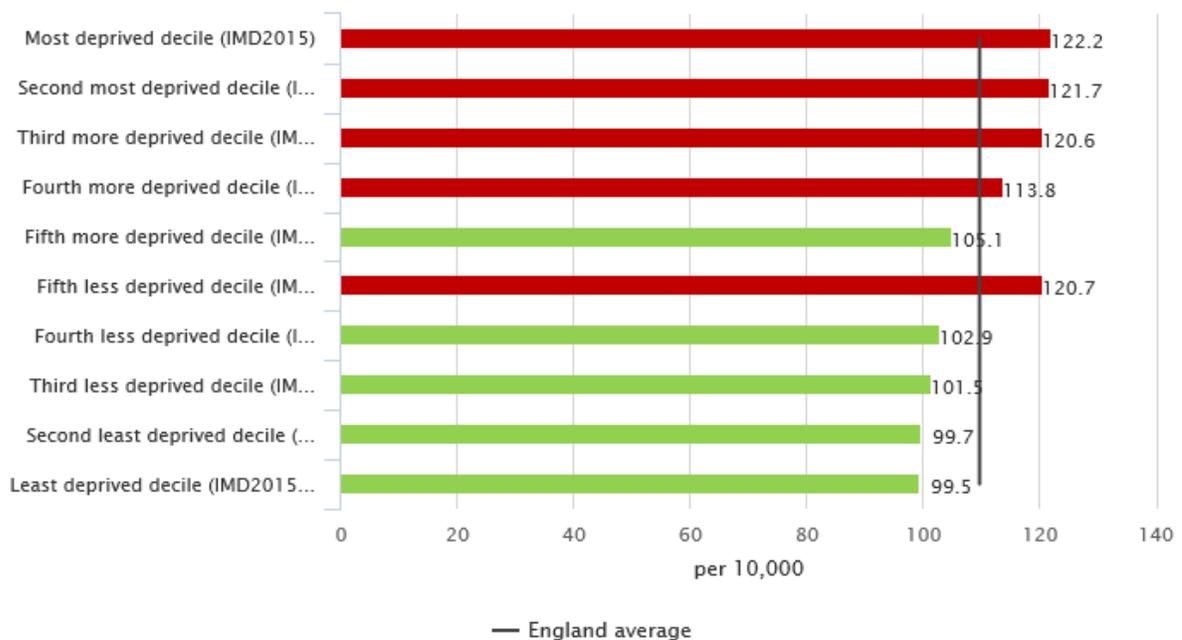
Approximately 10% of the emergency admissions to hospital in this age range since 2006 have been due to contact with hot appliances, fluids, gases or vapours. The vast majority of these incidents happen in the home and are due to contact with household appliances, hot drinks or other hot fluids. Nearly all of these incidents will be preventable as they are closely linked to risky parental habits such as leaving drinks or hot appliances like hair straighteners or irons within reach.

Approximately 9% of hospital admissions in this age range since 2006 have been due to accidental poisoning. These admissions most commonly happen as a result of medicines being left where they are accessible to small children. They are thus largely preventable.

### 1.5 Health inequalities

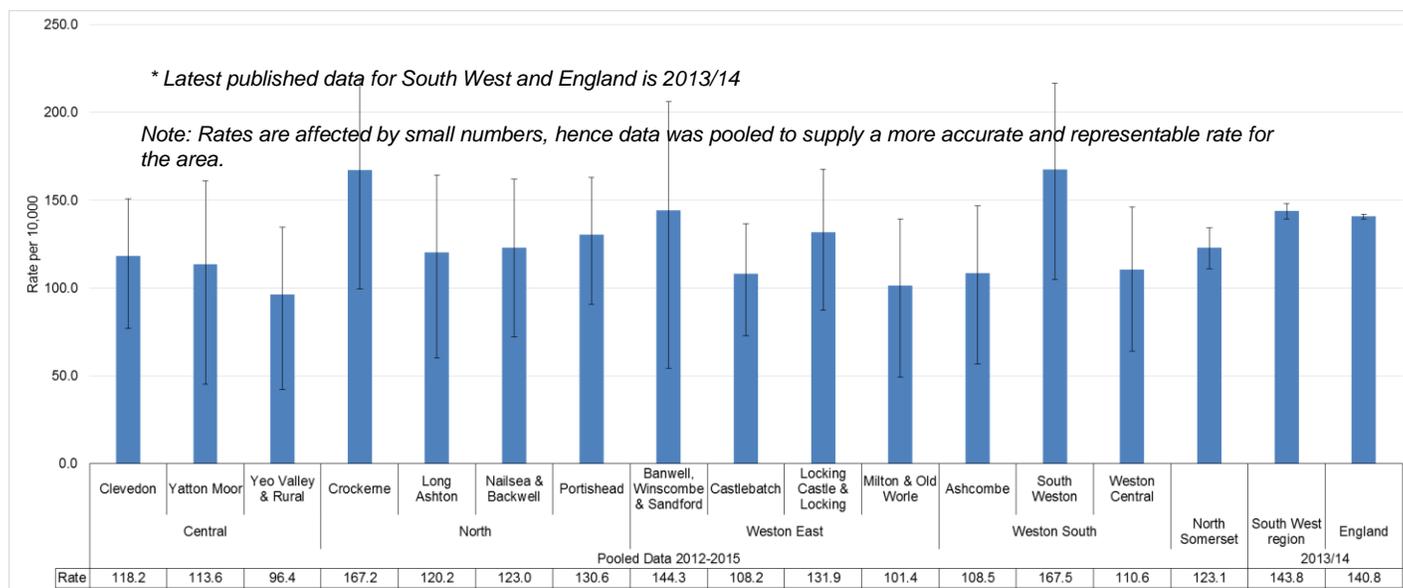
There is evidence at national level that childhood injuries affect families in more deprived areas more than in affluent areas. (See figure 7)

**Figure 7** Hospital admissions caused by unintentional and deliberate injuries in children (aged 0-14) in England<sup>xiv</sup>



Similar data is not currently available for North Somerset, but figure 8 shows that some of the most deprived areas such as Weston South and Crockerne have higher rates of emergency admissions.

**Figure 8** Trend in Hospital Admissions for Accidental and Deliberate Injuries in Children (aged 0-4), by Children Centre Reach Area, North Somerset (2012-2015), South West and England (2013-14).



## 2. Current Strategies, Services and Community Voice

### 2.1 Key drivers for change

#### The Public Health Outcomes Framework

The Public Health Outcomes Framework ‘Healthy Lives, Healthy People: Improving outcomes and improving transparency’ sets out a vision for Public Health, desired outcomes and the indicators that will help to understand how well Public Health is being improved and protected. There are two indicators directly related to Childhood Injury Prevention (see 1.3)

The framework focuses on achieving positive health outcomes for the population and reducing inequalities in health, rather than process targets, and is not used to performance manage local areas.

#### NICE Guidance

The National Institute of Clinical Excellence has published 3 guidance documents relating to unintentional childhood injury:

- Unintentional Injuries: prevention strategies for under 15s (PH29)
- Unintentional Injuries in the home: interventions for under 15s (PH30)

- Unintentional Injuries on the road: interventions for under 15s (PH31)

The above documents make recommendations in 6 categories: general, workforce training and capacity building, injury surveillance, home safety, outdoor play and leisure, and road safety.

### **A guide for commissioners of child health services on preventing unintentional injuries: Keeping Children Safe at Home study team May 2016**

This guide presents a series of evidence-based statements for commissioners of services that derive from the *Keeping Children Safe at Home* (KCS) project. It is intended to assist commissioners to identify local programmes that are effective in reducing unintentional injuries to pre-school-aged children. The recommendations are based on research findings and arise from systematic reviews, meta-analyses, case-control studies and decision analyses.

### **Reducing unintentional injuries in and around the home among children under 5 years: Public Health England June 2014**

This document sets out three action areas for local authorities and their partners that will reduce the numbers of children injured and killed. It also describes four steps local partnerships can take to build robust injury prevention strategies.

### **Reducing unintentional injuries on the roads among children and young people under 25 years: Public Health England June 2016**

This document sets out three key actions that can be taken by local authorities and their partners to further reduce the numbers of children and young people injured and killed on the roads. Drawing on what currently works, a four-step model is described to help build robust injury prevention strategies.

## **2.2 What guidance documents tells us about what works**

The following bullet points summarise the key issues identified in the guidance documents described in 2.1:

- There should be a child and young person injury coordinator in each area, effective local partnerships involving the public, private, voluntary and community sectors and a process for reporting to the local strategic partnership.
- Plans and strategies should aim to prevent unintentional injuries among the most vulnerable groups, to reduce inequalities in health.
- There should be 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.

- There should be training in how to prevent unintentional injuries for everyone who works with, cares for and supports children, young people and their families, including voluntary and community organisations.
- Home safety assessments for families with children under 5 or particularly vulnerable older children should be incorporated in local plans and strategies for children and young people's health and wellbeing. Home safety equipment should be supplied and installed when appropriate, especially stair safety gates and smoke alarms (with local fire and rescue service).
- Health Visitors should routinely provide home safety information at 9 month and 2-2.5 year visits, which should cover poison, fall, fire and burns and scalds prevention.
- Children's Centres should be supported with advice about what injury prevention information to cover with parents.
- In addition to falls, poisoning and burns and scalds, injury prevention education should also focus on choking, suffocation and strangulation and drowning.
- Cycling training should be encouraged and the use of correctly fitted and fastened cycle helmets while cycling off the road.
- Local child road safety reviews should be carried out at least every three years, to consider issues such as cycle lane safety and speed limits.
- Schools should be assisted with School Travel Plans which can be supported by changes to the road environment, including engineering measures to reduce speed and provide safer routes commonly used by children and young people.
- Public Health should work with social housing providers and landlord organisations to promote the installation of thermostatic mixing valves, supported by advice about reducing burns and scalds.

## **2.3 Current service provision**

A range of services in North Somerset provide interventions, often in partnership, to support children and their families to stay safe from unintentional injury. They are outlined below:

### **The home safety equipment scheme**

The home safety equipment scheme is a partnership between North Somerset

Council, North Somerset Community Partnership Community Interest Company and West of England Care and Repair, which is targeted at high risk groups.

The scheme, which is recommended by National Institute of Clinical Excellence guidance, is intended to improve home safety by providing free fire guards, safety gates, smoke alarms, cupboard/draw locks and window restrictors to high risk homes. Health Visitors and other professionals refer high risk families (Using agreed criteria) to West of England Care and Repair, who fit home safety equipment. West of England Care and Repair will also pass on referrals to Avon Fire and Rescue for a home fire safety visit, if requested by the family.

From April 2015 until March 2016, there were 155 home visits and 385 pieces of equipment fitted by West of England Care and Repair and the scheme is ongoing.

### **The Red Cross First Aid Multiplier Project**

The North Somerset Council Public Health Team have worked with the Red Cross on a multiplier project which involves Children's Centre staff being trained to deliver First Aid education to parents. In 2015, 9 trained Children Centre Staff delivered First Aid education to 177 parents. Unfortunately, from 2017 the Red Cross are no longer able to support this work, but discussions are happening to try and sustain it.

### **Support for Early Years Providers**

Early Years providers are given specific support because of the rising trend in emergency admissions to hospital in the 0-4 age group. There were two training courses on injury prevention in 2015 and 2016, training 21 staff from various settings which work with young children. In addition, 'Homestart' and the Midwives at Ashcombe ward had on-site training in 2015.

Children's Centres and Health Visitors have been provided with resources such as leaflets, posters, DVDs, guidance documents and display materials to help them disseminate information about child injury to parents.

Information about parents has also been provided through 'Life' magazine, which has contained 8 articles on injury prevention for the under 5s since 2013. There is also an Injury Prevention newsletter which is sent out to early years providers 3 times a year, to keep them updated.

### **Trading Standards**

Trading Standards have initiated two major interventions that have led to the seizure of over £100,000 of unsafe electrical goods being imported from the far east, particularly faulty phone chargers. The seizure was followed up by advice about how to comply with safety legislation in the future.

## **The Health Visiting Team**

As part of the Healthy Child Programme, Health Visitors are expected to discuss safety antenatally, at the new birth visit and at the, 6-8 week, 1 year and 2 years 3 month developmental reviews, as well as at any other contacts at home or in clinics.

All A&E/minor injury attendances for the under 5s are reviewed by Health Visitors and the triage framework ensures follow up phone calls or home visits to assess risk and provide support and education, in circumstances such as:

- Injuries in children under 6 months of age,
- Three Frequent attendances to A&E etc. in a short space of time
- Known families that are being monitored for safeguarding reasons.
- Burns and scalds
- Fractures
- Head injuries
- Ingestion e.g. washing tablets, overdose on Calpol etc.

There is also a protocol for injuries to non-mobile babies, which is followed by health, social and education professionals in acute and community settings.

Health Visitors received training in July 2015 which updated them on prevalence rates and current good practice. They have access to a resource pack that can be used for educational purposes and an accident prevention champion group has been developed which has surveyed employees' knowledge of injury prevention to tailor future training.

## **The School Health Nursing Team**

The School health Nursing Team will:

- Offer sessions to schools on medicine safety
- Refer families with children under 5 to Health Visitors, if they have any concerns about safety
- Provide information to parents about injury prevention, at a meeting before their child starts school

## **Lifeskills Safety Education Centre**

Lifeskills is an interactive safety education centre, developed to teach people how to deal with potentially difficult or dangerous situations. It is concerned with home safety and road safety, but also deals with broader safety issues in the environment. Lifeskills runs 3 programmes which are relevant to children:

*Year 6 children's programme (10-11 years).* - In the last 2 years, 3655 children in North Somerset have visited Lifeskills from 55 Primary schools, including all three in South Weston, the area with the worst rates of emergency admissions to hospital.

*Special Educational Needs programme* – In the last 2 years, 2 out of 3 special schools in North Somerset have attended Lifeskills.

*The Early Years Programme.* - Staff working in Children's Centres can attend training sessions at Lifeskills to develop the necessary skills for using the Centre. Having attended the training they can bring parents to the Centre for free, to discuss various safety or health messages. 6 staff members from Children's Centres were trained to take parents to Lifeskills in 2014.

### **The Local Authority Health and Safety Team**

The Health and Safety Team will:

- Provide information and advice to all staff on health and safety compliance and legislation, liaise with all enforcement officers and promote best practice across the council
- Run training for educational visit coordinators for adventurous activities
- Ensure arrangements are in place so that play equipment and surfaces on council land are safe
- Ensure that Health and safety requirements are met when concessions are let
- Advise on reducing the risk of injury at events on council land

### **Road Safety**

There are a number of schemes available to help keep young pedestrians and drivers safe while using roads and these are largely run or coordinated by the Local Authority Road Safety and Sustainable Travel team.

#### *Child Pedestrian Training*

Child pedestrian training is offered to year 1 and 2 children across North Somerset. This is based on the highly successful Kerbcraft Model, using trained volunteers and school staff to deliver the practical training. Schools where new infrastructure is being delivered or where there have recently been child pedestrian casualties are proactively targeted.

### *Bikeability Cycle Training*

The national standard 'Bikeability' training is offered to all schools from years 5 to 8. Take up has been very good in North Somerset reaching over 1,200 children. Bikeability Balance for reception children and Bikeability Fix will be delivered in the future.

Although much progress has been made in minimising collisions involving children and young people, they remain a key target group for North Somerset road safety interventions, as they are particularly vulnerable and inexperienced road users.

### *Travel Smart Schools*

The Travel Smart Schools Portal provides lesson plans and equipment to teachers to help them to deliver road safety education. These resources are promoted directly to schools, where there are specific road safety issues. The resources can be downloaded directly from the sustainable travel and road safety web portal. [www.travelsmartschools.com](http://www.travelsmartschools.com)

### *Modeshift STARS*

New or expanding schools are required to produce a travel plan, although all schools will keep their travel plans up to date. The Road Safety and Sustainable Travel Team work with all schools to help them develop their travel plans and ensure road safety considerations are a key part of this process. Modeshift STARS is a national schools award scheme that has been established to recognise schools that demonstrate excellence in supporting cycling, walking and other forms of sustainable travel. [www.modeshiftstars.org](http://www.modeshiftstars.org)

### *Child Car Seat Safety*

The Road Safety and Sustainable Travel Team and Avon and Somerset Police work in partnership to undertake child car seat checking as data shows that half of child car seats are poorly fitted. Training is provided to social workers, family support workers, foster carers and child minders so that they are able to use the right seats and fit them correctly. Car seat fitting guides are also distributed to parents and child care professionals.

### *Delivery of Wrecked (West)*

Wrecked is done in conjunction with the West of England Road Safety Partnership and uses video clips of road safety scenarios to stimulate peer-group discussions with young people, leading to the development of safer behaviours. It has been enthusiastically received and has happened at Weston College and in some secondary schools with older students. In the next year Avon fire and Rescue will be delivering the package on behalf of the West of England Road Safety Partnership in Schools in North Somerset.

## *Reducing Speed around Schools*

Road Safety has carried out a small programme of 20mph limits around schools.

## **2.4 Strategic support**

### **The Child Accident Prevention Trust (CAPT)**

CAPT is the UK's leading charity working to reduce the number of children and young people killed, disabled or seriously injured in unintentional injuries. They produce a range of resources to support childhood injury prevention, including regular updates via their 'Making the Link' network.

### **The Wiltshire, Avon and Gloucestershire Early Years Network**

Although not exclusively concerned with Unintentional Injury Prevention, This forum enables attendees to discuss relevant public health topics in early years, including Unintentional Injury Prevention.

## **2.5 What do people think? (Community Voice)**

Attempts have been made to engage with parents of children who have been injured, through contact with Children's Centres and Weston Hospital A & E. Unfortunately, no parents have come forward.

In 2012, a range of professionals attended an unintentional injury meeting and were consulted on strengths and weaknesses in current provision. Section 3.1 highlights plans to repeat this process, so that a wide range of views are represented in the next Childhood Unintentional Injury Reduction Plan.

Studies have been done which show that parents often have misconceptions about risk. For instance, a 2008 study on parental poison prevention practices<sup>xv</sup> showed that parents' perceptions of the toxicity of various common household substances was often inaccurate.

A survey carried out by the Rail Safety and Standards board in 2011 found that 48% of parents didn't realise that electricity in the third rail was turned on all the time and a quarter believed myths about being protected from currents by rubber soled shoes<sup>xvi</sup>.

## **3. Challenges for Consideration**

### **3.1 General**

Review the Childhood Injury Reduction Coordinating Group and consider issues such as chairing, membership, frequency of meetings and reporting

arrangements.

Convene a wider meeting of health professionals to help establish a broad set of aims which will inform the next Childhood Injury Reduction Action Plan.

Ensure that there is a better partnership with community and voluntary organisations, so they are fully involved in developing and delivering actions on the next action plan.

Consider extending the timescale of the next action plan to 2 or 3 years and ensuring that it is integrated into other local plans.

Consider alternative arrangements for the role of Injury Prevention Coordinator, such as splitting the role between different individuals. Examples of different arrangements can be found at <http://www.makingthelink.net/topic-briefings/injury-prevention-co-ordination>

Consider the large numbers of social housing that have exposed central heating pipes at low level which become extremely hot and present an extreme risk to children. Currently, no organisation is taking responsibility for making these homes safe when children are present.

### **3.2 Workforce training and capacity building**

Consider whether a Health Visitor can be specifically trained in Injury Prevention so that other Health Visitors can refer families for specialist advice.

Consider the best advice that it is realistic for Health Visitors to routinely give during 9 month and 2/2.5 yearly visits

Consider establishing better training for community group members in areas of high health need, so they can disseminate safety messages to parents and carers within local communities.

### **3.3 Injury surveillance**

Improve injury surveillance data related to falls from playground equipment, as it is currently unclear where and how these incidents happen.

Review systems for sharing information about children and young people who are repeat attendees at Emergency Departments and A& E, as well as follow-up procedures.

### **3.4 Information for parents**

Review the home safety equipment scheme to consider the best way of giving parents additional key information. Consult with parents about what information would be most appropriate.

## 4.0 Key documents

'Public Health Outcomes Framework' available at:

<http://www.phoutcomes.info/>

National Institute for Health and Clinical Excellence (NICE) 'Strategies to prevent unintentional injuries among under-15s' (PH29), available at:

<http://publications.nice.org.uk/strategies-to-prevent-unintentional-injuries-among-the-under-15s-ph29>

National Institute for Health and Clinical Excellence (NICE) 'Preventing unintentional injuries among under-15s in the home'(PH30), available at:

<http://publications.nice.org.uk/preventing-unintentional-injuries-among-the-under-15s-in-the-home-ph30>

National Institute for Health and Clinical Excellence (NICE) 'Preventing unintentional injuries among under-15s: road design' (PH31), available at:

<http://publications.nice.org.uk/preventing-unintentional-road-injuries-among-under-15s-ph31>

'A guide for commissioners of child health services on preventing unintentional injuries': Keeping Children Safe at Home study team May 2016 available at:

<https://www.nottingham.ac.uk/research/groups/injuryresearch/documents/kcs-guide-for-commissioners.pdf>

'Reducing unintentional injuries in and around the home among children under 5 years': Public Health England June 2014 available at:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/322210/Reducing\\_unintentional\\_injuries\\_in\\_and\\_around\\_the\\_home\\_among\\_children\\_under\\_five\\_years.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/322210/Reducing_unintentional_injuries_in_and_around_the_home_among_children_under_five_years.pdf)

'Reducing unintentional injuries on the roads among children and young people under 25 years: Public Health England June 2016 available at:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/322212/Reducing\\_unintentional\\_injuries\\_on\\_the\\_roads\\_among\\_children\\_and\\_young\\_people\\_under\\_25\\_years.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/322212/Reducing_unintentional_injuries_on_the_roads_among_children_and_young_people_under_25_years.pdf)

## 5.0 references

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- i CAPT Advocating Child Safety 2011
- ii ONS Avoidable mortality in England and Wales: 2014
- iii Public Health Outcomes Framework 2016
- iv The Health and Social Care Information Centre 2016
- v Child Accident Prevention Trust Tackling inequalities in childhood accidents 2013
- vi West of England Joint Transport Plan progress report 2015
- vii Chimat Child Health Profile 2016
- viii PHE Child Health Profiles 2016
- ix Kavanagh et al 2007 and Towner et al 2005
- x Avon ICT Consortium 2015
- xi Public Health Outcomes Framework 2016
- xii West of England Joint Transport Plan progress report 2015
- xiii Dept of Transport: Reported KSI Casualties by LA and road user type, England, 2015
- xiv County and UA deprivation deciles in England (IMD2015)
- xv Parental poison prevention practices and their relationship with perceived toxicity: cross
- xvi Rail safety and standards board 2011

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