Accident prevention

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A priority for paediatricians

Trauma prevention is a neglected area from the point of view of coordinated input by paediatricians at local level and to an extent at the Royal College of Paediatrics and Child Health (RCPCH) level. This oversight is surprising given that injury to children is associated with considerable morbidity and mortality. Part of the difficulty generating interest in trauma prevention may lie in the relatively intangible benefits of reducing injury, but nonetheless every paediatrician should consider it within their remit to take any opportunity to reduce accidents which account for over one third of all deaths up to 19 years of age. Injury prevention schemes can be cost effective provided they are well directed with achievable goals.¹

Effective injury prevention depends on a combination of three areas of implementation: education, alteration of environmental hazard, and the enforcement of safety legislation. Paediatricians can be involved in improving all the elements of injury prevention: primary prevention (prevention of the accident; for example, using safe materials in playgrounds²); secondary prevention (reducing the effects from the accident; for example, promoting the wearing of bicycle helmets³); and tertiary prevention (diminishing the consequences of the event by the effectiveness of the emergency services provided after the accident). The latter aim can be achieved by improving resuscitation training for dealing with critically ill children by teaching courses such as Paediatric Advanced Life Support (PALS),⁴ Advanced Paediatric Life Support (APLS),⁵ the Advanced Trauma Life Support course (ATLS),⁶ and Prehospital Paediatric Life Support Courses.⁷

The aim of this leading article is to examine the scale of the problem, to show what government strategies have been developed, what resources are available, and how paediatricians at local and at RCPCH level help reduce the morbidity and mortality associated with injury.

THE SCALE OF THE PROBLEM

Trauma is overall the leading cause of death in childhood in the developed world as shown in table 1.

The morbidity associated with injury is indicated by HASS (home accident surveillance system) or LASS (leisure accident surveillance system, not including road traffic accidents). These are two surveillance databases of the attendances to 18 accident and emergency (A&E) departments and their data are extrapolated to represent the picture throughout England and Wales.⁸ They estimate that annually nearly 2 million children attend A&E departments because of injury. The true figure for childhood morbidity associated with accidents is probably much higher, as for example, up to 30% of cycling injuries are treated at home and so do not enter any system of injury surveillance. The financial cost to the NHS of trauma in all ages is put at £12 billion per year, and the average cost of dealing with a childhood injury is £1300; about 10 000 patients are believed to be permanently affected by injury each year.⁹

This burden of trauma on the health-care services and on society as a whole has been recognised by the government.

GOVERNMENT STRATEGIES

The *Saving Lives: Our Healthier Nation* (OHN) White Paper is the government

public health strategy for England (www.ohn.gov.uk). It was published in July 1999 with the two laudable aims of improving health and reducing the health gap (that is, health inequalities) within England. Four disease processes have been targeted: cancer, coronary heart disease, mental health, and accidents. The target for accidents is: "the reduction in death rates by at least one fifth and to reduce the rate of serious injury by at least one tenth by 2010", so saving up to 12 000 lives.

The Department of Health set up the Accidents and Accidental Injury Task Force. Its terms of reference were to advise the Chief Medical Officer on:

- (1) The most important priorities for immediate action in order to meet the (White Paper) target
- (2) The development of an implementation plan, consulting with other stakeholders where necessary
- (3) Whether the necessary delivery structures are in place to forward the implementation plan
- (4) How progress on the implementation plan should be monitored
- (5) How to develop and publicise a more unified approach to accident prevention across the government and the NHS.

It had been expected to report its findings in December 2001.

The OHN paper has launched a raft of initiatives aimed at reducing accidents involving other departments of government; these include "Safe routes to schools and healthy citizens programme" (directed at minimising the effects of accidents though the skills programme for 14–16 year olds), "Hedgehogs—child road safety" (aimed at 7–12 year olds), "THINK! Road safety", and also "Fire kills—you can prevent it". The latter three campaign details are located on the Department for Transport, Local Government and the Regions Safety pages (www.dltr.gov.uk). Other governmental departments provide useful information on their user friendly websites (see the appendix). These sites provide useful points of reference to local initiatives that can be undertaken in conjunction with community health bodies, police, health promotion bodies, and other organisations such as the Royal Society of Prevention of Accidents, the Child Accident Prevention Trust, and the National Community Fire Safety Centre (www.community-fire-safety.org.uk), as well as local authorities.

THE ROLE OF LOCAL AUTHORITIES IN INJURY PREVENTION

Local authorities have statutory duties regarding injury prevention and can be a

Table 1 Causes of deaths in boys and girls in 1999 (published by the Office for National Statistics, www.statistics.gov.uk)

	Age of boys/girls			
	1–4	5–9	10–14	15–19
All causes	306/241	141/111	176/117	555/267
Trauma (includes poisoning)	61/47	30/22	67/28	329/114
Infection	31/26	7/5	5/5	18/20
Neoplasms	42/30	46/30	39/17	53/34
CNS disease	44/31	20/20	21/23	38/23
Respiratory disease	29/17	9/11	9/11	15/13
Circulatory disease	15/20	2/7	10/6	16/13

valuable source of information. They have a legal requirement to reduce traffic accidents and have duties regarding trading standards, environmental health, and educational roles in accident prevention.

There is a great deal of expertise within local authorities: environmental health officers, road safety officers, trading standards officers, community fire and police officers, youth workers, and workers in childcare and community development sectors all have an impact on decreasing the burden of trauma.

THE ROLE OF THE VOLUNTARY SECTOR IN INJURY PREVENTION

There are many voluntary national bodies that can assist in the three areas of injury prevention. These include the Child Accident Prevention Trust, the Royal Society for the Prevention of Accidents, and Trauma Care; their websites provide links to other key players in these areas. These three bodies can provide information and support for paediatricians and other healthcare professionals interested in primary, secondary, or tertiary prevention strategies.

Child Accident Prevention Trust (www.capt.org.uk)

Two paediatricians, Dr Hugh Jackson and Professor Donald Court, formed a committee in the late 1970s to focus on child accident prevention, which became the Child Accident Prevention Trust (CAPT) in 1981. This charity is committed to reducing childhood injury and supports local coalitions of families, health professionals, and organisations in making communities safer for children under their "SAFEKIDS" campaign.

Every year CAPT holds a Child Safety Week (in 2003 it commences on 23 June). This week has a number of aims, including providing clear safety information to the public, persuading local communities to take part in child safety activities, and encouraging the media to give positive coverage to child injury prevention and safety issues. CAPT has produced a planning kit to help organise activities around the theme of accident prevention. This can be directly downloaded from the website.

Royal Society for the Prevention of Accidents (www.rosa.co.uk)

This charitable organisation provides information, advice, resources, and training, and promotes safety in all areas of life.

Traumacare UK (www.traumacare.org.uk)

This is a multidisciplinary charitable organisation. It includes healthcare professionals who have contact with the

consequences of trauma, from those who work in the prehospital phase of trauma, to those who are hospital based, and those involved in the rehabilitation of the injured patient. The central tenet is the seamless transition of care from the arrival of the first professional in contact with the injured patient to the last healthcare worker. Traumacare UK focuses on improving tertiary prevention and has produced a manual of trauma management in the UK. This organisation holds biannual conferences covering all aspects of trauma and acts as a forum for professionals from different backgrounds to meet and discuss problems that they face in looking after the injured patient.

EDUCATION

Education combined with directed environmental change comprises the keystones of injury prevention. The importance of the educational aspects of injury prevention has been illustrated by the Department for Education and Skills which published good practice guidance in December 2001 with the aim of increasing the amount of safety education taught within schools (www.teachernet.gov.uk/bank/Safety/Guidance/leaflet2.pdf).

Attitudes to safe behaviour can be taught as part of the National Curriculum. The Injury Minimisation Programme for Schools (IMPS) (www.impsweb.co.uk) includes an education pack with accident prevention lessons based on the National Curriculum, and a hospital visit including first aid training and a tour of the local A&E department. Five months after the programme, children are more likely to identify subtle dangers, are more likely to seek help, and to tell others that their behaviour is dangerous.¹⁰ Paediatricians can actively support this programme by contacting IMPS. Currently this programme is active in 13 centres in England and is actively seeking more locations throughout the UK.

HOSPITAL BASED WORK IN INJURY PREVENTION

The home, roads, playgrounds, and sporting arenas have risks which can be reduced by environmental and behavioural changes; wearing bicycle helmets, for example, reduces by 63–88% the risk of head, brain, and severe brain injury for all ages of cyclists.¹¹

Local initiatives involving hospital based paediatricians in the UK have had an impact in these areas—for example, the work on bicycle helmet use^{12–15} and on playground safety^{14–15} has led to a better understanding of the effects of altering the environment and on implementing advances in the design.

Another hospital based scheme is the Gloucestershire Home Safety Check and Herefordshire Home Check (www.homesafety.co.uk). This is based at the Health Promotion Unit at Gloucestershire Royal Hospital and represents a collaboration with local health authorities, Health Trusts, voluntary and non-statutory groups, and neighbourhood and community groups. It offers home safety visits, repairs and rectifications, smoke detector fitting, and child safety services.

WHAT PAEDIATRICIANS CAN DO AT A LOCAL LEVEL

Paediatricians may wish to form local networks with their other hospital based colleagues, and with the local authorities and community services. Healthcare professionals such as general practitioners, health visitors, school nurses, community nurses, and managers, combined with heads of schools, playgroup leaders, and local media can form a powerful alliance to launch injury prevention schemes.

An example of a local prevention initiative, in conjunction with A&E colleagues, is the routine collection of data relating to injuries attending A&E. These data can, for example, identify areas frequently associated with injury and lead to effective safety changes in road design in "accident blackspots" by liaising with local police and the local authority. Similarly, types of frequently occurring domestic injuries can lead to targeted local campaigns.

Any such campaign which has an educational element needs to be designed with its audience in mind. Teenagers can very effectively teach one another; the same message from an "old fogey" (that is, anyone over the age of 20 years!) may not be assimilated as well.¹⁶ The RCPCH can also be supportive in local initiatives.

WHAT CAN THE RCPCH DO?

The RCPCH can be more active in supporting injury prevention by the following:

- (1) Establishing Trauma Fellowships which would allow trainees and seniors to develop the necessary skills to research the causes of injury and establish effective interventions, and help in develop prevention strategies on a local or national scale.
- (2) Showing more overt support of CAPT activities; yearly initiatives with CAPT could be developed and the membership of the RCPCH be encouraged to take part. Such activities could count towards continuous professional development (CPD) and awards be given to examples of

particularly good working partnerships, so encouraging prevention work.

- (3) Providing a database of injury prevention activities involving members; they could briefly describe their work on the BPSU monthly return card, along with their contact details.
- (4) Currently the BPSU does collect information regarding non-accidental abdominal injuries; its remit could be widened to study a particular form of injury and then, with the support of other agencies, study the effect of injury prevention strategies on a national basis.

The last RCPCH based meeting on paediatric accidents was in 1991; one of the authors of the publication of the meeting held under the auspices of the Royal College of Physicians was the current President Elect of the RCPCH, Professor Alan Craft. He wrote in the opening chapter "Improvements in accident rates will be slow and will come about as a result of environmental change by education. Both are needed, but the education needs to be correctly targeted. The doctor undoubtedly has a role to play in this change."¹⁷

Accident prevention needs paediatricians being involved at local level and for the RCPCH to appear more active in injury prevention.

APPENDIX

The Department of Trade and Industry website (www.dti.gov.uk) provides advice on regulatory guidance, consumer protection, environmental issues, and product safety, as well as containing the home safety network.

Other helpful government websites include the Health and Safety Executive (www.hse.gov.uk) and the Health Development Agency (www.had-online.org.uk) which comes under the Department of Health (www.doh.gov.uk).

The Scottish Executive and National Assembly also have a wealth of informative sites which can be accessed via www.scotland.gov.uk and www.wales.gov.uk.

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IMAGES IN PAEDIATRICS.....

Cloacal exstrophy

This newborn baby was referred to us for malformed lower abdomen since birth. On examination the umbilical cord was displaced downward and the lower abdominal wall was replaced by a large red coloured mass. The mass had a thin, red, protruding tubular structure in the middle resembling an elephant trunk, and five visible orifices. External genitalia could not be identified (fig). A diagnosis of cloacal exstrophy was made.

Cloacal exstrophy is the rarest and most extreme form of the exstrophy–epispadias complex that occurs once in 200 000 to 400 000 births.¹ Embryologically four separate folds—cephalic, caudal, and right and left lateral—each of which has a splanchnic and somatic aspect, form the anterior abdominal wall. Failure of the caudal fold to close results in cloacal exstrophy.² Classically it consists of an exstrophic central bowel field flanked by two hemi-bladders. Omphalocele is present in 90% of cases. There are 3–4 orifices in the central bowel field, which is an ileocaecal region. The proximal orifice leads to the terminal ileum, which often prolapses, producing an elephant trunk deformity. The distal orifice leads to a short, blind ending colon segment. One or more appendiceal orifices may be present. The anus is imperforate, and external genitalia have a wide range of anomalies, including absent penis/clitoris, absent scrotum, epispadias, hemiscrota, etc.¹

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