Inequalities in child health
How do we keep our children safe?

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Foreword

I am delighted to introduce the second paper in The Health Leadership Series of the University of Notre Dame Australia, College of Medicine, presented by Professor Helen Roberts from the General Adolescent and Paediatrics Unit at University College London Institute of Child Health. Helen is also an Honorary Research Fellow with Great Ormond Street Hospital for Children.

This paper focuses on childhood injury - a largely preventable cause of morbidity and mortality in childhood with a steep social class gradient: children in poorer families suffer many more injuries than children in more affluent families. It is drawn from her latest book What Works in Reducing Inequalities in Child Health.

Helen has a distinguished research and academic career. She has a particular interest in the translation of research evidence into policy and practice across health, education and social care. Between 2004 and 2013 Helen was a non-executive director of the UK’s National Institute for Health and Clinical Excellence (NICE), which had responsibility for providing evidence and guidelines on the effectiveness of interventions and programs in priority areas. Helen was also an editorial advisor for the Cochrane Public Health Review Group.

Inequalities in health (and what can be done about them) and the voice of the user, citizen or patient are a focus of her research and she spent a decade as Head of Research and Development with the children’s charity Barnardo’s. Here she and her team established the ‘What Works’ series, a series of reviews of the evidence-base for child welfare work.

Internationally, she sits on the International Advisory Committee of the Li Ka Shing Knowledge Institute of St Michael’s Hospital, Toronto and from 2001-2010 was on the senior advisory council of the Alberta Heritage Foundation for Medical Research in Canada.

The purpose of the Health Leadership Series is to stimulate discussion and debate about the most important issues that are shaping the health of Australians. Our ambition is that leading scholars in their field will share their thoughts and experiences, and stimulate new thinking that will ultimately lead to actions that enhance health policy and clinical practice.

Helen’s leadership and contribution to giving a voice to children and to addressing health inequalities inspires us all to reflect on how we can all work together to keep our children happy, healthy and safe.

Professor Christine Bennett
Dean of Medicine
Inequalities in Child Health –
How Do We Keep Our Children Safe?

"Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about conformity or it becomes the practice of freedom, the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world."

Paulo Freire (1996)

Key messages

Injury, however caused, is an important source of preventable harm. There is probably no area of child health with as much ready potential to narrow inequalities as unintentional injury in the home, on the roads and in the wider environment.

Unlike physical, emotional and sexual abuse in childhood, the dangers to children from accidental injury have failed to attract the full beam of the attention of the public or the media. Whilst in England Directors of Children's Services are frequently pilloried following a death from child abuse, the same outrage is seldom associated with the threat to children's lives and health posed by the roads, the social housing stock or the lack of safe play areas.

- Doctors and other health professionals can and do play a major role as advocates for children.
- The risk of injury results not only in death and disability but also in the restriction of freedom for children.
- Pamphlets, written educational material and kerbside training show short-term gains in knowledge but have not been shown to be effective in reducing child injury.
- If we listen to the views of children, 'the environment,' 'play' and 'being safe from traffic' are at or close to the top of their agendas.
- Partnerships between housing and town planners, transport experts and others involved in influencing the determinants of health play a significant role in providing safe but exciting environments.
- Parents, usually mothers, are the main providers of healthcare for their children. Most do this well, even in difficult circumstances. Policy and practice messages that suggest that parenting needs to be 'fixed' can be undermining.
Introduction

This paper draws on an important issue raised by the Dean, Professor Bennett, in the first paper of the Health Leadership series - that health is about more than health care; facing and challenging inequality also matters (Bennett 2013). With few exceptions, the less well off you are, the more chance you have of being born early, born small, becoming sick in childhood and beyond, and enjoying fewer years of life.

An underpinning value of the University of Notre Dame Australia, College of Medicine, relates to social justice. As Professor Sir Michael Marmot who led the Commission on Social Determinants of Health acknowledged, social injustice is killing people on a grand scale (CSDH 2008). Addressing inequalities in health is an ethical imperative. Inequalities in health are not only unjust, they are also bad for everyone in our society, not just the least well off (Wilkinson 1994; Wilkinson and Pickett 2009). Paulo Freire, the Brazilian educationalist quoted above, was right in describing the potential of education either to constrict or to liberate. Medical education is changing – there is more to know and more to understand. But a university is a place where people – not just students but all of us – learn to think and learn to argue constructively with ourselves and others. In the context of a medical school where the best and worst of times can be seen daily in our health-care settings, the shaping of our values goes on and needs to be processed.

My focus in this paper is injury - a cause of morbidity and mortality in childhood with a steep social class gradient. The vast majority of children in Britain and Australia grow up in safe and loving families (Lloyd et al. 1997). But a number of children live all or some of their lives with danger. This risk can include hostile and unsafe urban environments, physical, emotional or sexual abuse or neglect, bullying or domestic violence. While considerable effort is put into addressing child protection in the private domain of the home and the family, a determined effort to prevent accidental injury in the public domain has not occurred to the same degree.

The social, geographical and gender patterning of accidents demonstrates that accidents, and more particularly the distribution of accidents, are not matters of chance; areas with significant areas of deprivation have high accidental injury rates. Children in poor housing are at greater risk and child pedestrians are more at risk than children transported in cars.

Terminology is important. A debate in the British Medical Journal followed a decision to eschew the term ‘accident’, except in exceptional circumstances, and replace it with terms relating to the resulting injury (Davis and Pless 2001). The debate that followed, both for and against, included communications from epidemiologists, philosophers, social scientists and historians as well as physicians. Green (2001), objecting to banning the term ‘accident’, pointed out that: ‘At the level of population, most injuries are indeed predictable and preventable. At the individual level, in the 'real world' where injuries are suffered as misfortunes, they are not.’

Injury follows some, but not all accidents. The same event may have very different consequences. For this reason, we need to know about near-accidents and averted accidents as well as those accidents that do occur. How often do we hear the phrase ‘it was an accident waiting to happen’ or communities where, following a child death, people point out that they have foreseen and forewarned the authorities? Just as anaesthetists and those responsible for planes collect and analyse data on near-misses, we need to know more about dangerous places and events for children. Much of the data used by those trying to prevent child accidents are insufficiently localised. Moreover, there are no really robust records of child accidents, only of child injuries. Data tend to describe the consequences of an accident rather than the event itself and its antecedents.
What doesn't work in preventing child injury?

A good deal of evaluation in the child safety arena has concentrated on whether or not a message has been received and remembered rather than whether the behaviour of transport planners, motorists or children has changed, let alone whether the child accident rate is affected. Accident prevention is an area where there remains considerable attachment to ineffective interventions, and to strategies that, in effect, ‘blame’ parents, in particular mothers, and children, ‘educating’ them rather than addressing the source of danger.

A common intervention in child accident prevention has been the use of leaflets, posters and pamphlets. A mother in a community study of child injury in Corkerhill Scotland suggested that the best use for road safety fliers which do little more than warn children, the potential victims, to take more care, might be to make them into papier-mâché road bumps. There is some evidence to suggest that the use of warnings alone may be hazardous, increasing anxiety among mothers without reducing risks to children (Roberts et al. 1993). A Cochrane review on safety education concludes that ‘pedestrian safety education can result in improvement in children’s knowledge and can change observed road crossing behaviour, but whether this reduces the risk of pedestrian motor vehicle collision and injury occurrence is unknown’ (Dupperex et al. 2002).

As one safety organisation has it, accidents happen to children who are:

- overprotected – they will be nervous and unsure and therefore unsafe, or they may rebel.
- under protected – they will be unaware of the dangers.
- not supervised.
- angry.

Parents are advised to reduce the risk by:

- setting a good example (especially when crossing the road).
- making sure home and garden are as safe as possible.
- never leaving children alone.

Well-intentioned advice of this kind is unrealistic. Most parents are all too well aware of the dangers and risks that confront them and their children. Acting on changing behaviour is complex and can only ever work as part of a wider context where the causes of the causes are also addressed.

What works in making a difference?

Acting on the determinants

The main place of injury for the under 5-year olds is in the home; for the over 5-year olds it is on the road. It has long been established that the determinants of injuries and accidental deaths are multi-factorial (Haddon et al. 1964), though by the time any single death is investigated, there will often be a single explanation, such as ‘crossing the road without care’, ‘speeding’, ‘drunken driver’. These explanations, focusing as they do on only one element of the causal pathway, can point towards inadequate solutions, including educational interventions that attempt to train the public in general, and children in particular, to use the road in the ‘right’ kind of way. As Walter Morrison, a participant from a low-income community in a high-income country, put it in a study of safety as a social value: It’s like teaching your child to swim in a pool full of alligators’ (Rice et al. 1994). Children, the most vulnerable members of our society, are frequently allocated the responsibility for dealing with the dangers which confront them.
Preventing household fires

A cause of child death with an exceptionally steep social class gradient is as a result of fire in the home. A Cochrane review of interventions to promote functioning smoke alarms to reduce injury describes how fires detected with smoke alarms are associated with lower death rates (DiGuiseppi and Higgins 2001). However, the reviewers found that interventions to promote smoke alarm use have, at most, only modest beneficial effects on smoke alarm ownership and function.

DiGuiseppi went on to lead a number of trials in this area that illustrate the dangers of simply deciding ‘smoke alarms work; ‘let’s have some’ (DiGuiseppi et al. 2002). If money is to be spent effectively, we need to know which smoke alarms will work for whom. Many smoke alarms delivered to households do not get fitted, and many of those that are fitted are disabled because of nuisance alarms, or because other uses are found for the battery. How do we make sure that alarms are properly installed, and how do we make sure they are not disabled for causing a nuisance every time the toast is burned? Are some kinds of smoke alarm more likely to be functioning after the passage of time than others? Does it make a difference if the battery has a long life?

A study funded by the UK Medical Research Council explored the effectiveness of different kinds of smoke alarm. The study combined a randomised controlled trial with a qualitative element exploring what the users, installers, recruiters and children of the households in the study area had to say about their experiences of different kinds of alarm. The trial (Rowland et al. 2002) was designed to measure the extent of working smoke alarms in local authority (local government) housing in an area of inner London, and free installation was offered. Nearly half of the alarms installed were not working 15 months later. The purpose of a mixed-methods trial of this kind is to consider the difference between an efficacy trial (what works in perfect conditions) and an effectiveness trial (what works in the real world when an intervention is rolled out at scale) (Pless 2002).

Following publication, one British Medical Journal (BMJ) reader asked: ‘What is … one to make of six pages devoted to the hardly surprising fact that feckless families do not bother to use smoke alarms....’ (Hill 2002). The BMJ editor at the time, Richard Smith, responded himself saying: ‘The New England Journal of Medicine published a study showing that the installation of smoke alarms in one area at high risk reduced admissions to hospital and deaths by 80%. This seemed to be a highly effective intervention. Authorities around the world might have started offering free smoke alarms to people in deprived areas. But this would not have been sensible after the results of just one study, particularly as the study was not a randomised trial and was undertaken in one particular set of circumstances. The authors conducted a rigorous evaluation of whether the intervention would work. It didn't. So now new questions arise. Dr Hill rather gives away his view of the world with the use of the word "feckless". I suggest that he tries living for a few months on a very low income in one unheated room with several children in a rough and dangerous area of London. He might discover that "feckless" is a highly loaded word.’ (Smith 2002)

The adults and children in the trial area certainly had reasons other than fecklessness for disabling alarms, with the main barrier to smoke alarm use reported to be the distress to neighbours and children from false alarms (Roberts et al. 2004). Although trial participants considered themselves to be at high risk from fires, understood the importance of smoke alarm use, and would recommend them to others, their reports suggest that, when they disable alarms, tenants trade off the risk of a fire against other risks to health and well-being including neighbour disputes.
I was just like ‘Oh!’ It’s such a pitch you just really want to stop it, and in your own home. It’s a really calm safe environment and suddenly you’ve got this, you know, it’s screaming at you… you feel completely powerless and that’s a horrible feeling in your home.

It only went off once, when I burnt something in the kitchen… I have a 3-year-old daughter, it frightened her… And I didn’t know how to turn this thing off.

I worried about my neighbours. Opposite to me there’s an old lady and she can’t sleep much and sometimes she sleeps during the day and [the alarm] will bother her …

Getting results in the real world can be complex and difficult. It has to include, as crucial evidence of what to do and how to do it, the contribution of those on the receiving end of interventions.

**Preventing road traffic accidents**

Child pedestrian injury arising from road accidents is a leading cause of child accidental death. Children in poor neighbourhoods are more likely to be injured by a car than those in affluent areas. The overall decline in the number of children injured and killed as pedestrians over the last 20 years coincides with fewer children walking or cycling.

Robust evaluations of interventions addressing individual behaviours often have only limited effectiveness, in part because of competing priorities and the law of unintended consequences. Parents driving their child to school may keep their own child safer, but other children on foot or on bikes will be put at greater risk. Risk management may replace one set of risks (cycling to school) with another (lack of exercise, weight management problems and having one’s parents reported to Children’s Services).

**The dangers of getting safely to school …**

In 2010, a London couple was reported in the press as having to be told by their children’s head teacher that unless they supervised their children’s bicycle journey to school, they would be referred to Children’s Services.

There is indeed a risk. Children getting to school under their own steam has declined (Hillman et al. 1990) and many are taken to school by car, increasing the injury risk to other children on foot and on bikes.

Things can however work in a different way. A city-wide speed management program in Gloucester, which included traffic calming, found that at the end of the 5-year intervention the number of parents who said that they let their children go to school on their own had risen from 32% in 1996 to 49% in 2000.

(UK Department for Transport 2000a)

Two systematic reviews have found that urban traffic calming schemes can significantly reduce traffic injuries. (Elvik 2001; Bunn et al. 2003) An area-wide scheme implementing several changes across a neighbourhood can improve main road capacity to carry additional traffic, restrict or remove traffic from residential streets by closing roads, putting in speed bumps or roundabouts and introducing one-way systems. Some schemes go one step further by changing the function of the street, prioritising pedestrians and cyclists over motor vehicles. This kind of initiative may, as well as traffic calming to slow down traffic, include the
introduction of seating, play areas and increased vegetation to make a more social space (UK Department for Transport 2000b).

The faster the traffic, the greater the risk of death and serious injury. When hit by a car travelling at 40 miles per hour (64 kilometres per hour) only one child in 20 will survive; when the car is travelling at 20 miles per hour (32 kilometres per hour), 19 children out of 20 will survive. Each one mile per hour reduction in average speed will cut accident rates by 3 to 6% on urban roads, depending on the existing speed and type of road. As with many measures for improving the life chances of children, the evidence of a positive effect does not translate automatically or without controversy into policy, let alone implementation. Motorists are a powerful lobby group, and are not shy of making their views known. Outrage followed a decision in one part of the United Kingdom to adopt the ‘20 is plenty’ speed restriction.

Website correspondent in response to an article on ‘Blackburn and Darwen Health Chief calls for 20 mph zones’ in Lancashire Telegraph, 9 April 2010

“It always comes down to the driver doesn’t it? Whatever happened to the Green Cross Code? Why have we given up educating children about road safety? Because it’s easier to target/fine drivers than to blame children in our “think of the children” society.”

Drawing on children’s and parents’ safe-keeping strategies: what are people doing right?

We have relatively poor data on how parents keep their children safe most of the time, and why these strategies sometimes fail. But even in high-risk areas, there is good evidence that safety is a dominant social value. A Scottish study (Roberts et al. 1995) suggests that:

- **Parents and children living in particular environments are experts in identifying local risks.** Children and parents living with local risks tend to know what the risks are – for example, the broken fence beside the railway line, the cars that don’t stop at the lights even when the green man is showing. Effective accident prevention draws on the specialist local knowledge of children and parents (see example below).

- **Strategies among parents for keeping their children safe are more apparent than irresponsible risk-taking.** Just as local people are well-placed to recognise local risks, they are also likely to have strategies for avoiding them, most of which work most of the time. Prevention policies need to explore the ways in which safety is integrated into everyday life, and the trade-offs with other household routines (Do I leave my children alone while I go down two floors to hang out my washing, or do I carry the children and the washing down the stone steps?). Effective prevention policies recognise that people living in risky communities are knowledgeable, imaginative, more skilled than most at juggling tight budgets, and use this expertise.

- **Most accidents occur in hazardous environments.** Spatial and socio-economic disparities in accident rates are a reflection of differences in environments. Effective accident prevention involves environmental change.
Children as experts

In carrying out research into child accidents the researchers wanted to involve children as experts as well as witnesses. In addition to being consulted through group discussions, a group of school children conducted their own traffic survey on a main road near the school. They monitored the traffic lights at the school crossing over a one-hour period and found that 31 drivers went through when the lights were red, 73 when the lights were amber.

Child protection from intentional harm

While the brutal treatment of children has a long history (Gordon 1988), it was not until 1962 that an American paediatrician, Henry Kempe, coined the term Battered Baby Syndrome and influenced the identification of a significant problem (Kempe et al. 1962). Although an essentially medical definition of a syndrome was important in harnessing energy and resources, an approach based on individual psychopathology is not always helpful in dealing with a wide range of harm which can be done to children by adults, deliberately or otherwise.

Child protection practices are no longer based on the idea that children suffer abuse predominantly because of the action of a few disturbed individuals. And despite moral panics relating to the risks posed by dangerous strangers, the danger to life which children face from people not known to them is small (other than strangers driving too fast, without care and attention or under the influence of drugs).

The differing requirements and knowledge bases of the organisations with responsibility for child protection including professionals from health, social work, education and the police mean that well co-ordinated action to look after children at risk of or suffering abuse, and protecting the wider community of children, is difficult. It is particularly challenging given evidence of the sometimes harmful consequences for children and families caught up in child abuse investigations.

Part of the difficulty we have with the protection of children from physical harm is that hitting small people is not considered completely wrong everywhere. UK law, for instance, is based on an 1860 judgment, where Chief Justice Cockburn stated: 'By the law of England, a parent …may for the purpose of correcting what is evil in the child, inflict moderate and reasonable corporal punishment.' In 2000, the Department of Health issued a consultation that set out the issue of physical punishment in the context of the government's policy aims and summarised prevailing attitudes to corporal punishment for children (UK Department of Health 2000). One of the questions asked in relation to the 'reasonable chastisement' defence was:

Are there any forms of physical punishment which should never be capable of being defended as 'reasonable'? Specifically, should the law state that any of the following can never be defended as reasonable:

- physical punishment which causes, or is likely to cause, injury to the head (including injuries to the brain, eyes and ears)?
- physical punishment using implements (e.g. canes, slippers, belts)?

Unsurprisingly, very few of those responding to the consultation thought that either of these scenarios was reasonable. Some drew attention to the hand or fist also being an implement, and injury to self-esteem and confidence as also being significant injuries. In England, we have a special word for parents hitting children – smacking, although there is no evidence that smacking works.
There is a strong public health argument, based on Geoffrey Rose's work, which can be mobilised to oppose smacking. Rose and Day (1990) found in samples representing 52 populations in 32 countries that average blood pressure predicted the number of hypertensive people; average weight, the number of obese people; average alcohol intake, the number of heavy drinkers. Might this also be true of other behaviours? Suppose we were to measure how aggressive people are using a rating scale. We might go on to calculate the average level of aggression for the entire population. If we were to plot a graph people’s aggression scores, it would probably show a normal distribution - a few very aggressive people and a few exceptionally inoffensive people at either end of the scale, with most people in the middle of the range. We condemn frank violence, but fail to discourage in law some kinds of behaviour towards children that falls short of an injury which leaves a mark or a bruise. If Rose and Day are right, dealing only with the extremes of aggressive behaviour while ignoring factors which influence aggression in society as a whole is doomed to failure. In the case of violence, it may therefore be more appropriate to focus some of our remedial efforts on 'normal' violence, as well as the extreme, despite the latter being more newsworthy.

We may find, if the Rose hypothesis is correct, that the extent to which we smack our children may be directly related to the prevalence of child abuse. Henry Kempe may have been wrong when he suggested that child abuse is the difference between a smack on the bottom and a fist in the face. What if they were simply different degrees of the same distribution of violent behaviour? And if we start to say that a smack is unacceptable, might that change views of slightly more severe smacking, and the smacking that goes a little bit beyond what was intended, and the really nasty thrashing? In other words, the entire distribution of violence towards children could be shifted. Hurting those who are smaller and weaker than oneself is safer than hurting those who are larger or more powerful. The phrase 'What the child needs is ....', is frequently completed, even now, with the phrase 'a good talking to/short sharp shock.' A powerful Children's Society message some years ago suggests more aptly: 'What that child needs is a good listening to.'

Despite the large investment of professional time and resources devoted to the problems presented by parents who provide less-than-adequate care for their children or who abuse them physically or sexually, there are relatively few studies which robustly assess the effectiveness of interventions in this area and such as there are tend to concentrate on social and psychological variables (social isolation, personal skill deficits) (Macdonald and Winkley 2000; Macdonald 2001a, 2001b, Davies and Ward 2011). More recently the NICE guidelines on child maltreatment (NICE 2009) and The Lancet series on the same subject (Lancet 2009) have added to the academic work in this area. At the same time, child deaths and child exploitation scandals have kept intentional injury rightly high on the policy agenda. It is, however, important to remember that the vast majority of children, including those brought up in poverty, are cared for by loving families who work hard to protect their children’s health and well-being in the face of poor housing, insufficient income and social exclusion (Roberts et al.1995; McCormack 2009).

**Conclusion**

Children’s right to protection and to develop free from violence are enshrined in the UN Convention on the Rights of the Child. Children have the right to feel safe in their homes, in the street and wider environment and at school. Those of us working in child health have both the opportunity and the data to argue for approaches to child health and well-being which level the currently unfair playing field in health, where the most evident inequality in the developed world is child injury.
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