

A Children's Environment and Health Strategy for the United Kingdom

Consultation Document



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This consultation seeks feedback from interested parties on a proposed Children's Environment and Health Strategy for the United Kingdom. This strategy may be used to inform the development of more specific initiatives for England, Northern Ireland, Scotland and Wales.

A supporting document, *Children's Environment and Health Action Plan: A Summary of Current Activities which Address Children's Environment and Health Issues within the UK*, provides the evidence base for this strategy and should be read in conjunction with this document. This and other supporting documents are available at www.hpa.org.uk/cehape.

Please send your comments and direct any queries concerning this consultation document to cehape@hpa.org.uk.

This report was prepared by the Health Protection Agency and commissioned by the Department of Health on behalf of the Interdepartmental Steering Group on Environment and Health. The views expressed here do not necessarily represent those of any government or devolved administration department or agency.

Professor Gary Coleman

Head of Chemical Hazards and Poisons Division and Children's Environment and Health Action Plan Project Leader, Health Protection Agency

Dr Raquel Duarte-Davidson

Children's Environment and Health Action Plan Project Manager, Health Protection Agency

Authors

Alexander Capleton, Tina Endericks and Raquel Duarte-Davidson

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FOREWORD

I warmly welcome this Children's Environment and Health Strategy and the work being taken forward across Europe to protect the health of children from environmental hazards. This is vital to improve the health not only of children, but also of the adults they will become and future generations.

The Children's Environment and Health Action Plan covers a very broad area of environmental hazards, many of which are already being addressed within the UK. However, we cannot be complacent. I support the proposed approach of building on current initiatives, ensuring there is better coordination across government and tackling locations such as schools and homes. The identification of examples of good practice and the sharing of these across the UK should help make changes more effective and coherent.

This approach of linking the environment to the health of children will help drive forward change and this strategy identifies some important areas where this is required. These include some longstanding concerns such as hygiene in schools, injuries and health inequalities and also areas which are becoming increasingly important such as obesity, skin cancers and the long-term chronic effects of the increasing number of chemicals and pollutants in our environment. This forward looking approach will also help ensure that new concerns such as climate change are addressed.

I look forward to seeing how the action plan evolves from this strategy and extend my support for this. The establishment of the first cross-government and devolved administration working group to take this forward emphasises the importance of this work.

I especially appreciate the involvement of young people in this initiative and that their views have been taken into consideration in its development. I recognise the added value this will bring together with how essential their involvement and support is to the success of this strategy.

A handwritten signature in black ink, appearing to read 'Pat Troop'.

Professor Pat Troop
Chief Executive
Health Protection Agency

EXECUTIVE SUMMARY

The European environment and health process, led by the World Health Organization (WHO) Regional Office for Europe, aims to support the 53 WHO Europe member states as they plan and implement national and international environment and health policies. At the fourth WHO conference on environment and health in 2004, ministers from across the WHO Europe region, including the UK, signed up to the Children's Environment and Health Action Plan for Europe (CEHAPE). This plan commits them to the development of national Children's Environment and Health Action Plans to protect the health of children and young people from environmental hazards. The CEHAPE consists of four Regional Priority Goals covering: water, sanitation and health; accidents, injuries, obesity and physical activity; air pollution; and chemical, physical and biological hazards.

To meet the UK commitments to CEHAPE this Children's Environment and Health Strategy has been prepared to provide an overview of current activities in the UK. Following a public consultation process, recommendations will be made on the measures necessary to improve children's and young people's environmental health in the UK as well as encouraging a coherent cross-government approach.

The UK, through a wide range of previous initiatives and existing policies, has addressed many of the key concerns under CEHAPE and as a consequence is in a good position relative to other European countries on many of the environmental influences on health included in CEHAPE. As such, the strategy aims to build on and complement policies and activities already undertaken by government departments, devolved administrations, local and regional authorities and the National Health Service (NHS). Specifically, it is envisaged that this strategy will complement existing strategies and plans in England and the devolved administrations and help encourage a comprehensive strategic approach to protecting and improving children's and young people's health and well-being in the UK.

The challenge for the UK now is that, whilst the legislative base on public health has been well developed and the baseline in most Regional Priority Goals is very good, there are specific areas that could still benefit from improvement. Addressing these should be an important component for improving children's and young people's health in the future. Some areas for improvement highlighted in this strategy include:

- a counteracting the increased number of overweight and obese children and young adults, coupled with improving the amount of physical activity they undertake,
- b addressing concerns regarding the number of children whose asthma is affected by air pollution and the effects of air pollution on the long-term lung function of children,
- c promoting good sun protection behaviour amongst children to prevent skin cancer,
- d reducing unintentional poisonings amongst children,
- e gaining a better understanding of environmental inequalities and the disproportionate burden of disease experienced by children in lower socioeconomic groups so that appropriate interventions can be effectively targeted to ensure the needs of these children are adequately addressed.

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1 INTRODUCTION

1.1 Background

Children can be particularly susceptible to the harmful effects of the environment. This is because their bodies are still developing and they can have relatively higher exposures to environmental hazards compared to adults. Yet there are still too many unknowns associated with this exposure, especially where there may be cumulative effects and long-term impacts.

In order to help address this, in 2004 the World Health Organization (WHO) Europe Region developed an action plan to tackle major environmental risks to children's health: the Children's Environment and Health Action Plan for Europe (CEHAPE). This plan commits member countries to develop national Children's Environment and Health Action Plans to reduce the burden of disease in children caused by major environmental risk factors. The UK signed up to CEHAPE and committed to developing a child-focused environment and health strategy for the UK.

The Children's Environment and Health Action Plan for Europe consists of four Regional Priority Goals, focusing on the main causes of the environment-related burden of disease across the 53 WHO Europe member countries. These are: water, sanitation and health; accidents, injuries, obesity and physical activity; respiratory health, indoor and outdoor air pollution; and chemical, physical and biological hazards (Box 1.1).

BOX 1.1 Children's Environment and Health Action Plan for Europe Regional Priority Goals

Regional Priority Goal I

To prevent and significantly reduce the morbidity and mortality arising from gastrointestinal disorders and other health effects, by ensuring that adequate measures are taken to improve access to safe and affordable water and adequate sanitation for all children.

Regional Priority Goal II

To prevent and substantially reduce health consequences from accidents and injuries and pursue a decrease in morbidity from lack of adequate physical activity, by promoting safe, secure and supportive human settlements for all children.

Regional Priority Goal III

To prevent and reduce respiratory disease due to outdoor and indoor air pollution, thereby contributing to a reduction in the frequency of asthmatic attacks, in order to ensure that children can live in an environment with clean air.

Regional Priority Goal IV

To reduce the risk of disease and disability arising from exposure to hazardous chemicals (such as heavy metals), physical agents (e.g. excessive noise) and biological agents and to hazardous working environments during pregnancy, childhood and adolescence.

(WHO, 2004)

Within the UK, CEHAPE is being taken forward through the development of the Children's Environment and Health Strategy. The development of this strategy has drawn on many published reports and papers. Amongst these it is worth mentioning the report *Health Protection in the 21st Century: Understanding the Burden of Disease: preparing for the future* (HPA, 2005), which included a review of current environment and health issues of relevance to children. In addition, a number of in-depth reviews were undertaken to provide a snapshot of the situation in 2006/07 (Capleton and Duarte-Davidson, 2007; O'Connell and Duarte-Davidson, 2007; Wyke et al, 2007; Capleton et al, 2008); these have been summarised in a separate report: *Children's Environment and Health Action Plan: A Summary of Current Activities which Address Children's Environment and Health Issues within the UK* (HPA, 2007a). The summary report provides background information and analysis for the issues discussed in this strategy document and the two reports (HPA, 2005, 2007a) should be read in conjunction with this document.

The development of the Children's Environment and Health Strategy is being coordinated by a cross-government Interdepartmental Steering Group on Environment and Health. This is chaired by the Department of Health, with representatives from relevant UK government departments, agencies and the devolved administrations (Box 1.2). The Health Protection Agency (HPA) has been commissioned by the Department of Health, on behalf of the Interdepartmental Steering Group, with developing the Children's Environment and Health Strategy for the UK.

BOX 1.2 Membership of the Interdepartmental Steering Group on Environment and Health

Department for Business, Enterprises and Regulatory Reform
Department for Children, Schools and Families
Department for Communities and Local Government
Department for Environment, Food and Rural Affairs
Department for Transport
Department of Health (Chair)
Department of Health, Social Services and Public Safety (Northern Ireland)
Department of the Environment (Northern Ireland) – Environment and Heritage Service
Environment Agency
Food Standards Agency
Health Protection Agency
Scottish Government
Scottish Environment Protection Agency
Welsh Assembly Government

1.2 Scope and aims

The Children's Environment and Health Strategy will provide recommendations to government as to the measures necessary to ensure the UK meets its commitments under CEHAPE, and to help provide a coherent cross-government approach to improving

children's and young people's environmental health. Box 1.3 provides definitions of environmental health and children and young people used for this strategy.

BOX 1.3 Definitions – environmental health and children and young people

Environmental health includes both the direct and indirect effects of chemical, physical (including ionising and non-ionising radiation, and noise) and biological hazards on health and well-being, and encompasses some aspects of the physical and social environment that influence health and well-being, such as housing, urban development, land use and transport.

For the development of the Children's Environment and Health Strategy, a **child and young person** is a person under 19 years of age, which includes the foetus. The reproductive capacity of adults and the health of the breastfeeding mother are also taken into account where this may affect the health of the child or young person.

The UK is in a relatively good position regarding environmental health as it has long recognised the importance of, and the health benefits to be gained from, a clean and healthy environment. Over the past 150 years many initiatives have led to a significant reduction in mortality and morbidity through improving water and sanitation provision, air quality, nutrition, housing quality, controlling exposures to chemical, physical and biological hazards, and conducting research to further our understanding of the links between the environment and health. As a result, legislation, administrative systems and policies are in place that address substantially many of the commitments made in the CEHAPE. However, although many of these initiatives have been successful, there still remain opportunities to bring about further improvements in children's health through effectively managing environmental hazards and environmental influences on children's health and well-being.

This strategy focuses on environmental factors that impact children's health, based on an assessment of current activities and issues identified across the UK. It aims to work alongside existing environment and health policies and initiatives whilst identifying gaps and priority areas that may be taken forward to further protect children's health from environmental hazards and encourage the development of environments that facilitate and promote good health and well-being.

1.3 Why children and young people?

Children represent approximately a quarter of the population of the UK; in 2005 there were approximately 14.8 million young people under 19 years of age living in the UK. Children and young people (Box 1.3) can be especially vulnerable to environmental determinants of disease (WHO, 2005a). For example, children:

- a are still growing and developing, which means that particular biological systems may be more susceptible to harm from environmental hazards than adults, and immunity to disease is not as well developed,

- b often experience different patterns and levels of exposure to environmental hazards than adults because they take in more food, water and air per kilogramme body weight than adults, consume a different diet (particularly when very young) and can absorb some chemicals more readily than adults,
- c can be more vulnerable to unintentional injuries due to their tendency for exploratory behaviour, play and their ability to judge risks and their maturity.

The environment has an important influence on children's and young people's health and well-being. So it is important to ensure that their environment promotes healthy behaviours (e.g. walking and cycling), promotes well-being (e.g. access to well-managed green spaces) and is not detrimental to their health (e.g. through exposure to pollution and unsafe environments).

Since the early 1900s there have been substantial improvements in the quality of the environment in the UK that have resulted in measurable improvements in children's health. For example:

- a drinking water quality in the UK is of a very high standard and many diseases once associated with poor quality drinking water (e.g. typhoid) are no longer a risk factor and outbreaks of disease associated with the public water supply are now infrequent,
- b legislation has been enacted to control lead in drinking water, paint, fuel, toys and from industrial emissions and, as a result, blood lead levels in children have declined significantly,
- c deaths from unintentional injuries and poisonings (including carbon monoxide) amongst children have declined substantially over the past ten years as a result in improvements in safety,
- d international and national legislation to control persistent organic pollutants has resulted in measurable declines in the levels of these pollutants detected in breast milk.

Despite these advances, there are areas where children's and young people's health can still be improved and in which environmental factors play an important role. In particular, changes in lifestyle and eating habits have resulted in a decrease in physical activity and a rise in overweight and obese children, and unintentional injuries continue to be a leading cause of mortality and morbidity amongst children. Additionally, the development of new technologies (e.g. nanotechnology, mobile phones and WiFi) may pose risks to children's health that need to be fully evaluated to ensure any risks are properly controlled. Also, as our understanding of the links between the environment and children's health advances, areas where further improvements could be made may be identified and hence require further action.

1.4 Burden of disease in children and young people

To help understand the impact that the environment has on children's health this needs to be looked at within the context of the broader burden of disease for children.

1.4.1 Births

Since 2002 the number of births in the UK has increased steadily from about 670,000 births per year to about 750,000 in 2006¹.

1.4.2 Deaths

Childhood mortality has been decreasing since the beginning of the 20th century and is currently about 5,000 deaths per year from birth to 14 years old². The main causes of death³ vary between age groups and these are:

- a congenital malformations and conditions that originate during the perinatal period (i.e. 5 months before and 1 month after birth) for children aged 0–12 months,
- b congenital malformations, injuries and neoplasms (an abnormal mass of tissue, normally a tumour) for children aged 1–4 years,
- c injuries and neoplasms for 5–14 year olds.

1.4.3 Hospital admissions⁴

In England approximately 1.8 million Finished Consultant Episodes⁵ are attributed to children aged 0 to 14 years and account for about 12% of all such episodes. The main reasons for being admitted into hospital for 0 to 14 year olds are acute respiratory infections and asthma, and injuries and poisonings.

1.4.4 General Practitioner (GP) visits

The main burden of disease falls on GPs, with approximately one-third of all GP consultations being for patients aged 0 to 15 years (HPA, 2005). Around 50% of these are attributable to infections: mainly respiratory tract infections (including the common cold and ear and throat infections) and intestinal infectious diseases. Visits for non-infectious diseases include nervous system problems, skin diseases, other respiratory diseases, such as asthma, and injuries and poisonings (RCGP, 2006).

¹ Sources: the Office of National Statistics, General Registrar Office for Scotland and Northern Ireland Statistics and Research Agency.

² Source: Office for National Statistics.

³ Sources: Office of National Statistics, General Registrar Office for Scotland and Northern Ireland Statistics and Research Agency, and GP visits.

⁴ Source: Hospital Episode Statistics (<http://www.hesonline.nhs.uk/>).

⁵ A Finished Consultant Episode is a single treatment episode dealt with by one consultant in the NHS which is independent of the number of days spent in hospital.

1.5 Views of young people

A key element in the development of the Children's Environment and Health Strategy in the UK has been the involvement of young people. They have been engaged from an early stage to ensure this strategy is of value, and meets their needs and priorities. This has included looking at their understanding and awareness about the effects that the environment has on their health, and also has highlighted the issues which they consider important. This has been used to help inform the development of this strategy and will in turn help inform the development of initiatives to meet the UK CEHAPE commitments.

A number of workshops have been organised with young people from across the UK. The groups were asked to identify which health issues they considered most important. The top five in descending order were: mental health; obesity and healthy eating; lung cancer, asthma and allergies (pollution related); sexual health; and drug use (HPA, 2007a). Mental health was the highest priority as young people considered this to be key for good health in all other areas. Two issues that were consistently highlighted during the youth participation exercises were the lack of information and education on health and the environment, and the barriers caused by current attitudes/peer pressure.

Children's and young people's involvement in the development of this strategy will continue. A specific young people's workshop is planned to take into account their views and proper consultation with children and young people will take place throughout.

1.6 Policy context

1.6.1 European Union policy context

In 2003, the European Union (EU) developed an EU Strategy on Environment and Health in support of, and in response to, the WHO Fourth Ministerial Conference on Environment and Health. The strategy, also known as the SCALE (Science, Children, Awareness, Legislation and Evaluation) initiative currently has a specific focus on children and aims to reduce the burden of disease caused by environmental factors in the EU, identify and prevent new health threats caused by environmental factors and to strengthen EU capacity for policymaking in this area. The Strategy on Environment and Health led to the European Environment and Health Action Plan 2004–2010. The action plan has 13 specific actions, including: developing a coherent approach to biomonitoring, strengthening environment and health research, ensuring potential hazards on environment and health are identified and addressed, and improving indoor air quality. The concerns of children are integrated throughout the action plan and implementation is being shared between member states, stakeholder groups, the European Commission and international organisations. Within the UK, the Department for Environment, Food and Rural Affairs is the lead government department.

1.6.2 UK policy context

It is recognised that some areas highlighted for action in the CEHAPE Regional Priority Goals are already being addressed in the UK. So it is important that the Children's

Environment and Health Strategy complements and works with these existing policies and initiatives, whilst also ensuring children's environmental health is comprehensively addressed throughout the UK. Some of the main English policies focusing on children are as follows.

- a *Every Child Matters, Change for Children* (DfES, 2004) sets out the government's cross-cutting national framework to build services around the needs of children and young people in England. This aims for every child to be healthy, stay safe, enjoy and achieve, make a positive contribution and achieve economic well-being. This is underpinned by the Children Act 2004 which provides the legislative basis for this framework.
- b *Choosing Health: Making Healthier Choices Easier* (DH, 2004) outlines how the government intends to provide practical support and information to improve individuals' access to services so that they can make healthier choices. This focuses on a number of areas, including children and young people, and aims to reduce infant mortality, support all children to attain good physical and mental health, reduce inequalities, and ensure children develop a good understanding of opportunities and risks in choices that impact their health.
- c *The Children's Plan: Building Brighter Futures* (DCSF, 2007) aims to make England the best place in the world for children and young people to grow up. It focuses on a number of goals for 2020 which have been developed following consultation with parents and young people. These goals include strengthening support for families, working towards achieving world class schools, involving parents in their children's learning, and ensuring children have more places to play and exciting things to do.

Additionally, a children's health strategy is currently being developed jointly by the Department of Health and the Department for Children, Schools and Families and is due to be published later this year.

It is envisaged that this Children's Environment and Health Strategy will work alongside the Children's Plan and the forthcoming children's health strategy, and other similar initiatives in the devolved administrations, to encourage a comprehensive, strategic approach to addressing children's health issues and ensuring children enjoy as high a standard of health as possible.

Within the devolved administrations there are a number of similar plans and initiatives that look at children's health, well-being and public health. These include:

- a *Investing for Health* (DHSSPS, 2002) – the public health strategy for Northern Ireland setting out how to improve health in Northern Ireland and reduce health inequalities,
- b *Our Children and Young People – Our Pledge* (OFMDFM, 2002) – a strategy and action plan aimed at ensuring children in Northern Ireland thrive and look to the future with confidence,
- c *Towards a Healthier Scotland* (Scottish Office, 1999) – a public health strategy for Scotland,

- d *Scottish Strategic Framework for Environment and Health* – a strategic framework being developed to address environment and health issues in Scotland,
- e *Health Challenge Wales* – an initiative to improve and protect health and well being in Wales,
- f *Children and Young People: Rights to Action* (Welsh Assembly Government, 2004) – the strategic approach adopted in Wales, based on the United Nations Convention on the Rights of the Child, for implementing the Children Act 2004 and improving outcomes for children and young people from birth to adulthood.

Other key drivers that will influence future priorities in the UK include climate change, sustainable development, transport, housing growth and new technologies. In addressing these it is important that the specific needs of children and young people are taken into account.

1.7 Structure of the Children's Environment and Health Strategy

This strategy identifies priority areas to be taken forward in the UK to continue to reduce the burden of disease in children from environmental risk factors and promote good health and well-being. This will help ensure a coherent approach is taken across the UK to meeting the commitments made under CEHAPE. It is recognised that the areas highlighted in the strategy as being of priority may be adapted to meet specific needs and situations within each administrative region or locally within the regions. Also, in taking forward priority areas identified in this strategy it will be important to determine whether interventions can be constructed that will generate real benefits to children and young people in terms of the costs of setting up such interventions and the health benefits that these will bring about.

This strategy is structured according to Regional Priority Goal area to reflect the format of the WHO CEHAPE priorities. The information presented in Sections 2–5 includes an overview of the burden of disease, current status in terms of addressing each specific Regional Priority Goal area and the areas that may need to be addressed in the UK in the future. Within each section examples of good practice or information on the current state are presented to illustrate progress in specific areas. Overarching issues and priorities are covered in Section 6. The effectiveness of this strategy will depend largely on its implementation and the approach taken to deliver the commitments; this is covered in Section 7. Appendix A summarises the Children's Environment and Health Strategy priorities according to Regional Priority Goal and to the burden of disease. Unless specified, information presented in this document is applicable to the whole of the UK.

1.8 Consultation process

The aim of this consultation is to seek feedback on the areas highlighted for further action and to ensure that by addressing these areas (or others proposed) a real

contribution can be made towards improving children's and young people's environmental health in the UK.

The consultation process is taking place between 17 March and 13 June 2008 and will involve engaging with, and inviting feedback from, interested parties through a variety of means, including a written consultation and workshops. The final strategy will provide recommendations as to the priority areas to focus on to bring about further improvements in children's and young people's health by continuing to control exposure to environmental hazards and by encouraging the development of environments that facilitate good health and well-being. This strategy will set the overarching context whilst allowing flexibility for the regions and devolved administrations to focus efforts towards issues that are a particular priority (e.g. bathing water or radon) and to enable it to fit in with other policies and initiatives already addressing children's and young people's health.

This document and the consultation process adhere to the Code of Practice on Consultation (Cabinet Office, 2005) and are in line with the six consultation criteria set out in the code (Appendix B).

Electronic versions of this strategy, the consultation questionnaire and supporting documents are available on the HPA website at <http://www.hpa.org.uk/cehape/>. Hard copies are also available on request (contact details below) and a copy of the questionnaire can also be found in Appendix C.

If you wish to respond to this consultation please complete the consultation questionnaire (Appendix C). The deadline for the receipt of written comments is 13 June 2008. Comments should be sent to:

**CEHAPE Consultation Officer
Chemical Hazards and Poisons Division
Health Protection Agency
5th Floor, Neuadd Meirionnydd
Heath Park
Cardiff
CF14 4YS**

Tel: 02920 687 252

Email: cehape@hpa.org.uk

Should you have any queries regarding this strategy document or the consultation, please do not hesitate to contact us using the contact details above. If you have comments or complaints about the consultation process itself, please contact the Consultation Coordinator at the Department of Health, contact details for whom can be found in Appendix B.

A list of organisations invited to respond to the written consultation is available on the HPA website (<http://www.hpa.org.uk/cehape/>). Please tell us if you know of other individuals or organisations who would be interested in receiving this consultation document.

All responses received before the deadline will be acknowledged. Responses will be collated and summarised into a report that will be published alongside the revised

Children's Environment and Health Strategy later this year on the HPA website. A list of respondents will be published as part of the consultation report, unless respondents indicate otherwise. Views expressed will not be attributed to the organisation or individual responding in the consultation report.

All information in responses, including personal information, may be subject to publication or disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Regulations 2004). Personal information relating to children or young people (aged under 18 years) responding as part of the consultation process will not be disclosed.

Two workshops will be held concerning the strategy (one youth focused workshop and one for other stakeholders). If you would like to register your interest in attending either workshop, please contact the CEHAPE Consultation Officer.

2 WATER, SANITATION AND HEALTH

Regional Priority Goal I

To prevent and significantly reduce the morbidity and mortality arising from gastrointestinal disorders and other health effects, by ensuring that adequate measures are taken to improve access to safe and affordable water and adequate sanitation for all children by:

- (a) ensuring that all child care institutions and schools are provided with safe water and sanitation, ensuring safe and affordable water and adequate sanitation infrastructure and service development
- (b) implementing national plans to increase the proportion of households with access to safe and affordable water and adequate sanitation, thereby ensuring that all children have access to clean water and sanitation and
- (c) raising awareness among the population, particularly caregivers, and ensuring the provision of education on basic hygiene.

(WHO, 2004)

2.1 Why is this important?

In the UK, most gastrointestinal disorders are self limiting and of short duration and those affected do not necessarily seek treatment through the health service or the GP surgery (HPA, 2005). Children, particularly those under five years, generally experience substantially more infectious intestinal disease compared with the rest of the population (in the under fives these are primarily caused by rotavirus). This is because they will have had less prior exposure to such infections and so won't necessarily have developed immunity. Children are more vulnerable to complications such as dehydration following episodes of diarrhoea and vomiting, which can result in the need for attendance to a GP or, in serious cases, admission to hospital.

About half of hospital visits and one-third of all GP consultations for patients under 15 years are attributable to infectious intestinal diseases (HPA, 2005). The number of children and young people who suffer from infectious intestinal disease as a result of consuming poor quality drinking water in the UK is not known, but available data suggests they constitute only a small proportion of cases (probably less than 2%, based on data for cryptosporidiosis¹).

Occasionally, outbreaks² of intestinal infectious disease occur in the UK. In 2006, 25% (i.e. 183 out of 732) of reported outbreaks of infectious intestinal disease in England and Wales were associated with schools and 2% (14) with swimming pools (HPA, 2007b). In Scotland, 3% (10) of outbreaks occurred in schools and 1 incident occurred in a swimming pool. The number of children experiencing infectious intestinal disease acquired from poor bathing water quality (other than swimming pools) is not known.

¹ Cryptosporidiosis is an intestinal infectious disease commonly associated with water supplies.

² Small localised groups of people infected with a disease.

2.2 Where are we now?

The UK enjoys a safe public water supply; compliance with drinking water standards is greater than 99% and the number of disease outbreaks associated with the public water supply is low and has been declining for many years (Capleton and Duarte-Davidson, 2007). However, evidence suggests that the private water supplies, which serve a small proportion of the population (1% in England and Wales, less than 1% in Northern Ireland and about 3% in Scotland), have a lower water quality, therefore posing a greater risk to children's health (HPA, 2007a).

There are a number of initiatives aimed at improving drinking water quality further, including a number of programmes to reduce the risk of exceeding specific drinking water standards and improving compliance with those standards. A new drinking water quality standard for lead will come into force in 2013. Currently, levels of lead must be below 25 micrograms per litre ($\mu\text{g/l}$), but the new standard means that levels of lead will have to be below 10 $\mu\text{g/l}$. A number of actions are currently taking place across the UK to meet this new standard (Box 2.1).

BOX 2.1 Complying with a revised drinking water standard for lead

Actions to reduce lead levels in drinking water include the replacement of lead pipes, the use of phosphate dosing (which reduces the amount of lead that will dissolve into the drinking water from lead pipes and solder), and the testing of levels of lead in water supplies. The Drinking Water Inspectorate has recommended that local authorities (England and Wales) review how often lead levels in drinking water go above the new standard, in order to identify whether additional action is needed in a particular community. One example of this is promoting the fact that water companies will replace their part of the service pipe when the building owner indicates that they are replacing their domestic lead plumbing. Schools and childcare centres are of particular interest; the Department for Children, Schools and Families has recommended that for schools built before the early 1950s the extent of lead pipe work within the schools should be assessed, and a programme drawn up for its removal where applicable.

Substantial improvements in bathing water quality have been made in the UK over the past ten years with over 99% of UK bathing waters meeting the minimum EU standards in 2006 (Defra, 2007a). The revised European Directive on the management of bathing water quality, which entered into force in 2006, will result in further improvements in bathing water quality. However, a small number of disease outbreaks have been associated with swimming pools (HPA, 2007a), which can contribute to an increase in cryptosporidiosis in local communities.

The UK enjoys excellent sanitation provision: very few homes lack good sanitation provision and less than 1% of homes are without basic amenities. There are a number of initiatives ongoing throughout the UK aimed at improving the condition of poor quality housing. For example, in England, the Decent Homes initiative aims to bring all social housing into decent condition by 2010 (DCLG, 2006a).

Several surveys of water and sanitation provision in UK schools have been conducted that have highlighted that some school toilets have lower standards of hygiene than desired. The Building Schools for the Future programme includes a standard

specification layout and design for toilets, which will contribute towards improving such facilities (DfES, 2007). A number of initiatives are also underway to improve personal hygiene in schools (Box 2.2).

BOX 2.2 Improving hygiene in schools

The Health Protection Agency is piloting a hygiene and hand-washing initiative for delivery in primary schools across England. A resource pack has been piloted in a total of 800 schools. The programme is being evaluated by looking at changes in hand-washing behaviour, effectiveness of the resource pack, raised awareness of the importance of hand washing, and changes in school attendance.

Following an outbreak of *E. coli* in schools in South Wales in 2005, the Welsh Assembly Government took a number of steps to bring about improvements in hygiene and infection control in schools. This includes the production of two booklets to provide information on good hygiene in schools:

- a *Mind the germs!* – distributed to all nurseries, playgroups and other childcare settings in Wales,
- b *Teach germs a lesson* – distributed to all primary and secondary schools in Wales.

The Scottish Government launched a National Hand Hygiene Campaign in January 2007 to raise awareness of the importance of good hand hygiene. The campaign included a hand hygiene pack which was distributed to all local authority nurseries and primary schools across Scotland and included a DVD, posters, stickers and activity materials. The content of the pack was trialled to ensure that the emphasis was on making hand washing a 'fun' activity and included a number of useful materials to help teachers develop fun hand-washing related activities.

2.3 Areas for improvement

Measures are in place across the UK to ensure good access to safe and affordable water and adequate sanitation for all children. The main areas that may benefit from further action are listed below together with proposals of how these might be addressed.

Investigating levels of lead in drinking water supplies in homes and schools (especially in primary schools) where there is a likelihood that levels may exceed the new standard (10 µg/l) may help to reduce children's exposure to lead. This could be achieved through the development of a coordinated programme to ensure compliance with the forthcoming revised drinking water standard for lead. This programme should specifically include childcare institutions and other locations where children spend substantial periods of time.

The number of disease outbreaks originating from private water supplies is higher than that from public water supplies. It may be necessary to develop means to ensure private drinking water supplies are well documented, that there is an adequate legislative basis (in accordance with the European Drinking Water Directive) and that compliance with the standards is high to ensure the quality of private water supplies. Further research into the health impacts of contaminated private water supplies would also be beneficial.

There are some deficiencies regarding access to water and sanitary provision in some schools. Whilst the impact on children's health has not yet been quantified, it is prudent to continue to improve school sanitation provision. It is therefore important to

continue to encourage and support initiatives to improve sanitary provision and hygienic behaviour in schools (e.g. standards for school toilets and hand-washing initiatives).

A number of investigations have looked at the health effects associated with the use of bathing and recreational waters; however, findings remain uncertain. There is currently a lack of data on the health effects in children, and consideration could be given to addressing this gap. Similarly, further research on the use by children of recreational waters other than beaches could help identify areas for future action.

Whilst the overall number of cryptosporidium outbreaks in swimming pools is low, it is important that these continue to be investigated to identify common factors so interventions, such as the treatment of pool water, can be developed to reduce these in the future. Swimming pool hygiene lies outside the remit of government departments and agencies and there is no hygiene legislation relating to swimming pools.

2.4 Questions

Do you agree that the areas highlighted need to be addressed with regards to water, sanitation and children's health in the UK?

Are there any additional areas concerning water, sanitation and children's health that you feel need to be addressed in the UK, but aren't highlighted in this strategy? If so, please explain.

What issues concerning water, sanitation and children's health, if any, do you feel are a priority for the UK over the next few years?

Is there anything else you would like to add?

3 ACCIDENTS, INJURIES, OBESITY AND PHYSICAL ACTIVITY

Regional Priority Goal II

Prevent and substantially reduce health consequences from accidents and injuries and pursue a decrease in morbidity from lack of adequate physical activity, by promoting safe, secure and supportive human settlements for all children. This will be addressed by:

- (a) developing, implementing and enforcing strict child-specific measures that will better protect children and adolescents from injuries at and around their homes, playgrounds, schools and workplaces
- (b) strengthening the implementation of road safety measures, including adequate speed limits as well as education for drivers and children, and enforcement of the corresponding legislation
- (c) supporting and implementing child-friendly urban planning and development as well as sustainable transport planning and mobility management, by promoting cycling, walking and public transport and
- (d) providing safe and accessible facilities (including green areas, nature and playgrounds) for social interaction, play and sports for children and adolescents.

A reduction in the prevalence of overweight and obesity by:

- (a) implementing health promotion activities in accordance with WHO strategies and action plans on diet, nutrition, physical activity and health and
- (b) promoting the benefits of physical activity in children's daily life by providing information and education, as well as pursuing opportunities for partnerships and synergies with other sectors with the aim of ensuring a child-friendly infrastructure.

(WHO, 2004)

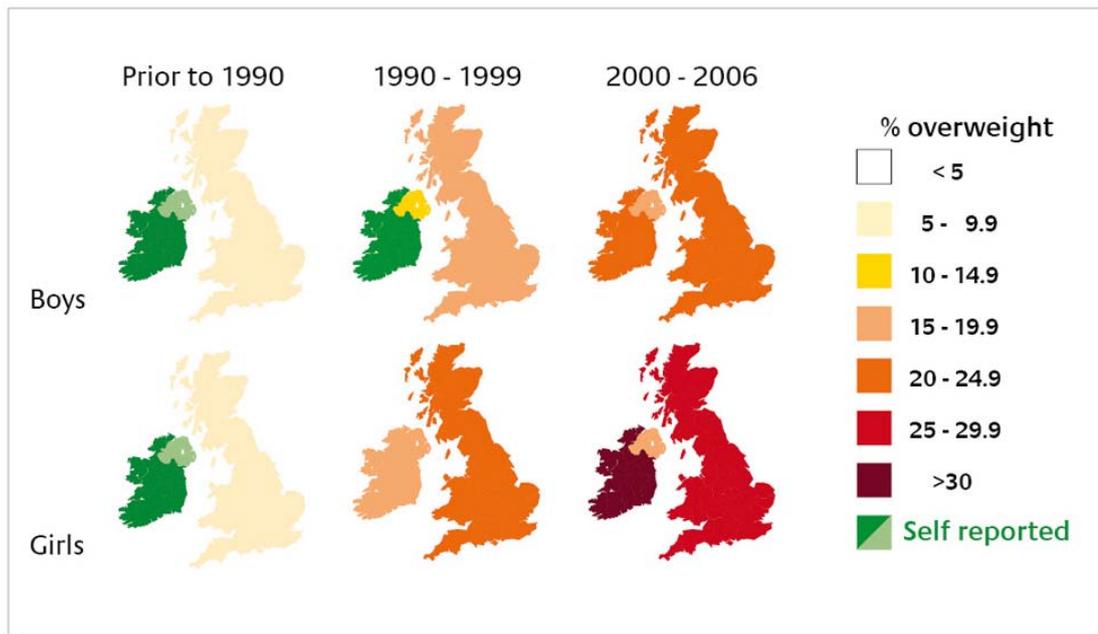
3.1 Why is this important?

Injuries (unintentional) are a leading cause of death and hospital admission among children aged 0–14 years in the UK. In 2005, 250 children in the UK died as a result of unintentional injuries, approximately half of which were associated with transport accidents and, in England, for 2005/06, there were approximately 101,000 hospital admissions as a result of unintentional injury (Wyke et al, 2007). The number of deaths caused by unintentional injuries amongst children and young people has been declining for many years in the UK (HPA, 2007a) and is amongst the lowest of developed nations (UNICEF, 2007).

Obesity is a serious and growing public health problem in the UK. The prevalence of overweight (Figure 3.1) and obese children and young people has increased rapidly in recent years. For example, in England the prevalence of obesity in boys and girls (aged 2–15 years) has risen from 11% and 12%, respectively, in 1995, to 18% in both boys and girls in 2005 (The Information Centre, 2006). In 2004, a third of boys (32.6%) and more than a third of girls (34.1%) aged 2–15 years were either overweight or obese in England. Similar proportions of overweight and obese children have been found in Scotland, and in Northern Ireland, approximately 10% of 2–10 year olds are obese. It is

predicted that if obesity continues to increase unchecked, by 2025 approximately 15% of children and young people aged under 20 years will be obese (current levels: 8% boys, 10% girls; Government Office for Science, 2007).

FIGURE 3.1 Prevalence of overweight children in the UK up to 17 years old



Source: International Association for the Study of Obesity, 2007.

3.2 Where are we now?

3.2.1 Unintentional injuries

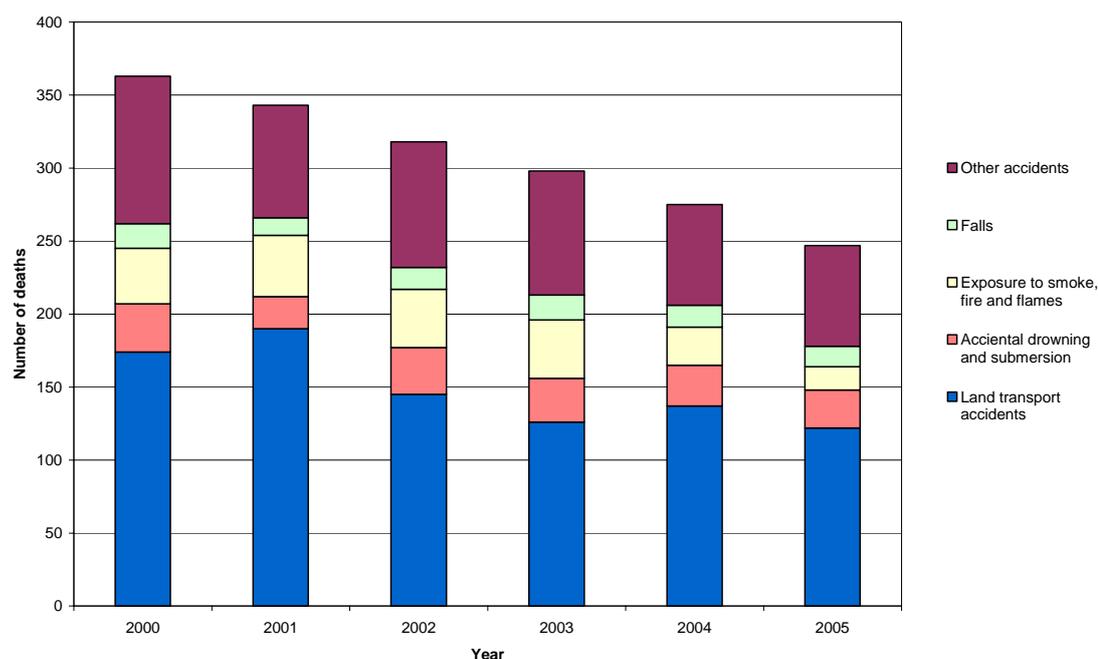
A range of initiatives aimed at safeguarding against unintentional injuries have contributed to the decline in deaths, including better building design, product and toy safety improvements, education initiatives, better car and road environment designs, and comprehensive road safety policies with a specific focus on children. However, there remain substantial socioeconomic differences with children living in more deprived areas experiencing much higher rates of unintentional injury (Edwards et al, 2006).

A number of initiatives have been introduced or are being developed to reduce unintentional injuries amongst children. In England, the government has committed to reduce the number of unintentional and deliberate injuries to children and young people through a Public Service Agreement (HM Government, 2007c). This will be delivered through a number of initiatives, but is underpinned principally by the Staying Safe Action Plan (DCSF, 2008). The need for a proportionate approach to health and safety to allow children to take risks while staying safe is highlighted in the Children's Plan for England (DCSF, 2007). Similar initiatives are in place in the devolved administrations. For example, in Scotland recommendations for improved child safety have been put forward in the Child Safety Strategy (RoSPA, 2007), in Northern Ireland reducing injuries is part

of Investing for Health (DHSSPS, 2002), and in Wales addressing injuries is a key theme of Health Challenge Wales.

Road traffic injuries are addressed through separate but complementary policies to those targeting unintentional injuries encountered elsewhere. The number of children and young people killed or seriously injured as a result of accidents on the road has declined in the last six years (Figure 3.2). The reduction has exceeded the target set in the government's strategy *Tomorrow's Roads: Safer for Everyone* to reduce deaths and serious injuries amongst children by 50%¹ by 2010 in England, Scotland and Wales (DfT, 2000). Recently, a specific child road safety strategy has been published, which amongst its priorities includes promoting good practice in child road safety education, communicating road safety messages to children and encouraging the use of 20 miles per hour zones (DfT, 2007). Northern Ireland has a separate, but similar road safety strategy also with a target to reduce child deaths and serious injuries by 50% (DoE(NI), 2002).

FIGURE 3.2 Deaths as a result of unintentional injury amongst 0–14 year olds in the UK



Data sources: General Registrar for Scotland, Northern Ireland Statistics and Research Agency and Office for National Statistics. Other accidents include contact with heat and hot substances and exposure to inanimate mechanical forces.

Accurate health surveillance, locally and nationally, of injury rates amongst children and young people is essential for an accurate picture of injuries to be ascertained and to enable the impact of interventions to be effectively monitored and evaluated. Until 2003

¹ Compared with the average for 1994–98.

the Department for Trade and Industry operated the Home and Leisure Accident Surveillance Schemes. Since then the schemes have not been replaced.

3.2.2 Obesity and physical activity

The recent Foresight Programme report on obesity sets out the scale and complexity of the problem and highlights the influences driving this long-term trend for rising weight across the UK (Government Office for Science, 2007). Obesity is a complex issue with a number of factors having a significant influence:

- a there are some significant regional differences in obesity prevalence (all ages) with a generally higher prevalence in Scotland and the north of England,
- b in families where both parents are overweight or obese, children are significantly more likely to be overweight or obese themselves,
- c inequalities are also an important risk factor as children and young people from more deprived socioeconomic backgrounds have a higher prevalence of obesity than their more affluent peers.

Other influences on the proportions of overweight and obese children include physical activity levels, diet, education and lifestyle factors.

In England, the government has recently developed a Public Service Agreement target to 'halt the year on year rise in obesity among children under 11 by 2010' (HM Government, 2007b) and the Children's Plan has set out its goal to reduce the proportion of overweight and obese children in the population to 2000 levels by 2020 (DCSF, 2007). Additionally, a national strategy and action plan for tackling obesity in children, as well as in adults, was published early in 2008 and has a specific focus on children, aiming to reduce the proportion of overweight and obese children to 2000 levels by 2020 (DH and DCSF, 2008). Tackling obesity is also now one of the national requirements for primary care trusts, in collaboration with local authorities and other partners.

Low physical activity and sedentary behaviours are associated with obesity amongst children and they may be both a cause and consequence of being overweight. There have been significant changes in patterns of physical activity and exercise in children across the UK (HPA, 2007a). For example, from 1992 to 2003 there was a general decrease in the number of journeys to school made on foot by children aged 5–10 years of 9% and for adolescents aged 11 to 16 years of 5% with a corresponding increase in the number of journeys by car.

However, in England, there has been an increase in the percentage of 5–15 year olds participating in at least two hours of high quality physical education and school sport (from 60% to 85% between 2003/04 and 2006/07). A number of initiatives are in place to promote physical activity, exercise and healthy eating throughout the UK (Box 3.1).

BOX 3.1 Examples of initiatives aimed at increasing physical activity amongst children and young people

In **England** the National Physical Education, School Sport and Club Links Strategy provided government and lottery funding to improve school sporting facilities and physical education up to 2008. The overall objective has been to enhance the uptake of sporting opportunities for 5–16 year olds and that at least 85% of children will do two hours of sport or exercise a week by 2008. The long-term ambition is that by 2010 all children will be offered at least four hours of sport every week.

In **Northern Ireland** the Fit Futures implementation plan aims to halt the rise in obesity in children and young people by 2010. The regional strategy for health and well-being builds on a target of reducing levels of obesity by 50% by 2025.

In **Scotland** the National Activity Strategy Scotland aims for 80% of all children aged 16 years and under to meet the minimum recommended levels of physical activity by 2022. In schools major programmes include Active Schools, Y-Dance School, Travel Coordinators, and the Schools (Health Promotion and Nutrition) Act 2007. In communities programmes include Paths to Health, Jog Scotland, Beyond the School Gates, and Girls on the Move.

In **Wales**, the Welsh Assembly's Climbing Higher Strategy is a 20 year vision for sport and physical activity of the whole population, and includes ensuring young people have a wide range of positive sporting and physical activity experiences within secondary school sport. In June 2006 the Food and Fitness – Promoting Healthy Eating and Physical Activity for Children and Young People in Wales 5 Year Implementation Plan was launched. It sets out the ways in which the Welsh Assembly Government is helping to support parents, children and young people in their efforts to eat well, stay fit and achieve the highest standard of health possible.

3.2.3 Access to green spaces

Having safe and accessible facilities (e.g. playgrounds and green spaces) benefit children substantially through offering opportunities for play, social interaction and risk taking that, in turn, have positive impacts on their physical, mental and emotional health and well-being. Similarly, well-planned urban environments that take into account the needs of children and young people also can facilitate children's access to facilities and independence. However, opportunities for play can be limited by factors outside children's control, such as a lack of access to and conflicts over use of local space, the distance of the play area from home, and the need for parental permissions to take part in particular activities or go to certain places due to fears over safety. A number of initiatives are in place across the UK to improve children's access to safe and suitable play facilities, and to encourage youth participation in the planning, transport and infrastructure process. For example, it is government policy that children and young people should be involved in the decision making process about the planning of play areas, services and facilities they use. Also, in England, the Children's Plan sets out proposals to create more safe places for children to play outdoors in the natural environment (DCSF, 2007).

3.3 Areas for improvement**3.3.1 Unintentional injuries**

Most injuries result from accidents in the home or road traffic accidents; there also exist considerable inequalities between different groups. A number of

initiatives are underway throughout the UK aimed at reducing unintentional injuries amongst children and young people in the home and on the road. It is important to ensure that unintentional injuries are given the same high priority and addressed comprehensively in all parts of the UK to ensure children are afforded the same high levels of safety regardless of where they live. However, it is also important that a proportionate approach is taken towards health and safety and injury reduction initiatives to ensure that children's opportunities to learn about and experience risk and participate in physical activity are not adversely restricted.

Ensuring accurate surveillance of unintentional injuries, both locally and nationally, is essential to enable proper and full evaluation of the effectiveness of initiatives aimed at reducing unintentional deaths and injuries amongst children and young people. It would be prudent to review current injury surveillance throughout the UK to ensure that the impact of initiatives to prevent unintentional injuries can be fully evaluated.

3.3.2 Obesity and physical activity

A number of guidelines, policies and initiatives are in place to try to promote healthy eating and counteract the increased trend in overweight and obese children coupled with lack of physical activity. Future analysis will indicate if these strategies have been successful. A number of areas may benefit from further action and these are listed below, together with proposals of how these might be addressed.

It is essential that systems are in place to monitor and evaluate the success of guidelines, policies and ongoing initiatives to reduce and reverse the increasing numbers of overweight and obese children and young people and to continue to encourage them to undertake appropriate levels of physical activity. Such initiatives need to address inequalities, be sustainable and bring about change in lifestyles and behaviour. Currently, a National Child Measurement Programme operates in England to measure obesity in Reception (age 4–5 years) and Year 6 (age 10–11 years). It is important that similar initiatives are taken forward throughout the UK to ensure obesity levels are monitored consistently. Similar initiatives are also required to monitor changes in physical activity levels.

3.3.3 Access to green spaces

A more strategic approach is required to ensure children and young people have ready and easy access to safe and well-maintained green/open spaces that are in easy reach of their homes so that they can take full advantage of the benefits open spaces can provide. Over 80% of the population in the UK lives in urban areas so healthy urban planning should be a particular priority for the future. The availability of green space can be an important factor influencing whether children participate in physical activity, and can have a positive influence on their general well-being and development.

3.4 Questions

Do you agree that the areas highlighted need to be addressed with regards to accidents and injuries, obesity and physical activity, and access to green spaces and children's health in the UK?

Are there any additional areas concerning accidents and unintentional injuries, obesity and physical activity, and access to green spaces and children's health, that you feel need to be addressed in the UK, but aren't highlighted in this strategy? If so, please explain.

What issues concerning accidents and unintentional injuries, obesity and physical activity, and access to green spaces and children's health, if any, do you feel are a priority for the UK over the next few years?

Is there anything else you would like to add?

4 RESPIRATORY HEALTH, INDOOR AND OUTDOOR AIR POLLUTION

Regional Priority Goal III

Prevent and reduce respiratory disease due to outdoor and indoor air pollution, thereby contributing to a reduction in the frequency of asthmatic attacks, in order to ensure that children can live in an environment with clean air. This is to be achieved through:

- (a) developing indoor air quality strategies that take into account the specific needs of children
- (b) implementing the Framework Convention on Tobacco Control and setting up health promotion programmes that will reduce smoking prevalence and the exposure of pregnant women and children to environmental tobacco smoke
- (c) improving access of households to healthier and safer heating and cooking systems and cleaner fuel
- (d) applying and enforcing regulations to improve indoor air quality, especially in housing, childcare centres and schools and
- (e) reducing emissions of outdoor air pollutants from transport-related, industrial and other sources through appropriate legislation and regulatory measures which ensure that air quality standards such as those developed under EU legislation take into account the values set by the WHO Air Quality Guidelines for Europe.

(WHO, 2004)

4.1 Why is this important?

Children and young people can be more susceptible to the effects of poor air quality, both indoors and outdoors, as their lungs are still developing and they take in proportionately more air than adults (WHO, 2005b). However, the impact of this is difficult to quantify. Indoor and outdoor air pollution can adversely affect children's health in a number of ways.

Indoor air pollution (e.g. from fossil fuel appliances and environmental tobacco smoke) has been linked with increases in lower respiratory tract infections, respiratory effects such as rhinitis, cough, exacerbation of wheeze and asthma, and effects on the foetus. Carbon monoxide poisoning can lead to behavioural deficits in children and harm the unborn child; also children can be particularly susceptible as they may suffer health effects in a shorter period of time than an adult breathing in the same concentration of carbon monoxide (HPA, 2007c). Exposure to high levels of carbon monoxide can also be fatal.

Outdoor air pollution (e.g. from vehicle exhausts, industry or the products of combustion) has been associated with a range of respiratory effects in children. For example, high levels of air pollution have been linked with exacerbation of asthma and respiratory tract infections and recent research in the USA has linked exposure to particulates in the air with reduced lung development in children (Gauderman et al, 2007).

Whilst asthma is not causally associated with air pollution, air pollution can exacerbate existing asthma and an estimated 30% of the acute exacerbations of childhood asthma are related to outdoor air pollution (HPA, 2005). Deaths from asthma in the UK are rare, but amongst children and young people, asthma is a major reason for GP consultations and hospital admissions. GP consultations and hospital admission rates for asthma amongst young people have been declining since the 1990s (Anderson et al, 2006). In 2005 GP consultations for asthma in England and Wales were 275 and 462 per 10,000 amongst 1–4 and 5–14 year olds (RCGP, 2006); hospital admissions for asthma in 2005 were 41 and 19 per 10,000 for 0–4 and 5–14 years olds, respectively, in the UK (Lung and Asthma Information Agency, 2007).

4.2 Where are we now?

4.2.1 Outdoor air pollution

Outdoor air quality in the UK has improved greatly over the past few decades; however, there are still localised areas (hotspots) where populations are exposed to high pollution episodes (O'Connell and Duarte-Davidson, 2007). Current UK legislation sets standards and objectives for a variety of outdoor air pollutants known to have health effects; this legislation reflects mandatory European Air Quality Limit Values. Local authorities have a statutory responsibility to produce local air quality management plans which identify areas where high levels of air pollution occur and outline how these will be addressed.

The UK Air Quality Strategy, which is subject to a rolling programme of review, provides a strategic framework within which air quality policies are taken forward for the UK and enables actions to be taken to improve and provide advice on air quality where necessary (Defra, 2007b).

There are a number of initiatives aimed at promoting more sustainable means of transport to and from school, which in turn can help reduce traffic congestion and have beneficial impacts on air pollution. Section 6.3 provides further detail and examples of such sustainable development initiatives.

Despite the significant improvements in the quality of the air in the UK, there are still concerns about levels of pollution and the possible health effects of exposure on the general population, including susceptible groups such as children. In the UK, the number of children whose asthma is made worse because of outdoor air pollution may be considerable (HPA, 2005). The effects of air pollution on the long-term lung function of children may also be considerable, but are not well understood (Gauderman et al, 2007).

There are inequalities in the distribution of air pollution, with the most deprived areas in England, Scotland and Northern Ireland generally experiencing higher pollutant concentrations (NETCEN, 2005). This is largely as a result of most deprived communities being in urban areas, which typically experience higher levels of air pollution (HPA, 2007a).

4.2.2 Indoor air pollution

Currently there is a lack of coordinated action to improve indoor air quality. Building regulations set standards for ventilation in buildings, including schools. Voluntary measures and education are also important in improving indoor air quality.

There have been a number of public health campaigns aimed at reducing children's exposure to environmental tobacco smoke (Figure 4.1). A smoking ban was introduced in Scotland in 2006 and in England, Northern Ireland and Wales in 2007, which prohibits smoking in any public building, workplace, vehicle or other enclosed structure other than an individual's own home or car. There have been some concerns that the ban may result in a displacement of smoking to the home, which could lead to increased exposure of children and young people to environmental tobacco smoke. However, a study in Scotland has shown that the ban on smoking in public places has resulted in a reduction in exposure to environmental tobacco smoke amongst children and young people, particularly in families where neither parent smokes or only the father smokes (Akhtar et al, 2007). Similar studies have been commissioned by the Welsh Assembly Government and the Department of Health, Social Services and Public Safety in Northern Ireland.

FIGURE 4.1 Public health advertisement aimed at reducing children's exposure to environmental tobacco smoke



Deaths from carbon monoxide exposure amongst children have declined substantially over the past ten years and now there are fewer than ten deaths per year (HPA, 2007a). However, there is evidence of a lack of awareness of the dangers of carbon monoxide exposure amongst the general public in the UK and potentially an increasing problem in vulnerable groups. Recently concern has been raised about the potential for chronic carbon monoxide poisoning in home environments that may be undetected and unreported (Wright, 2002).

4.3 Areas for improvement

A number of areas that may benefit from further action are listed below, together with proposals of how these might be addressed.

4.3.1 Indoor air pollution

Provision of a more coordinated policy approach and improving public information on indoor air quality may be beneficial. Currently there is a lack of coordinated action within government to improve indoor air quality and it is important to establish where overall responsibility lies. There may also be benefits in preparing an action plan to address indoor air quality. In particular, more work may be needed to increase public awareness of the risks associated with carbon monoxide exposure and the importance of properly maintained fossil-fuelled appliances.

Further research to better quantify the incidence and impact of chronic carbon monoxide poisoning in the indoor environment may be beneficial. This should specifically consider whether children are disproportionately or more severely affected than adults and, if necessary, identify means of reducing and preventing such exposures.

Continued efforts should be made to educate adults as to the effects of smoking on the health of children. With the advent of the ban on smoking in public places and the restriction of sale of tobacco to the over 18 year olds, children's primary source of exposure will now almost certainly be the home and car environment. As a result, it is important that smokers continue to be made aware of the potential impact of environmental tobacco smoke on children's health and are encouraged to continue to minimise children's exposure. As socioeconomic status is one of the primary determinants of children's exposure to environmental tobacco smoke it is important to focus efforts towards the most vulnerable groups.

4.3.2 Outdoor air pollution

Local air quality management – guidance on local air quality action plans should be extended to include measures which can be taken to reduce the exposure of susceptible groups, including children. Outdoor air policy and legislation focuses on achieving health based air quality objectives in all areas where populations are exposed. Action plans developed by local authorities could prioritise susceptible groups, including children, within the general population, and guidance could be provided on what actions are available and effective. However, evidence in this area is sparse, and care must be taken not to displace poor air quality so that other sensitive or vulnerable groups are disadvantaged.

Improving understanding – research in the USA has indicated that living close to heavily trafficked roads is associated with reduced lung development in children, an effect that will continue into adulthood. Further research would be beneficial in order to determine whether a similar relationship exists in the UK and to characterise the extent and severity of such a health impact, if apparent.

4.4 Questions

Do you agree that the areas highlighted need to be addressed with regards to outdoor air pollution and indoor air pollution and children's health in the UK?

Are there any additional areas concerning outdoor air pollution and indoor air pollution and children's health that you feel need to be addressed in the UK, but aren't highlighted in this strategy? If so, please explain.

What issues concerning outdoor air pollution and indoor air pollution and children's health, if any, do you feel are a priority for the UK over the next few years?

Is there anything else you would like to add?

5 CHEMICAL, PHYSICAL AND BIOLOGICAL AGENTS

Regional Priority Goal IV

Reduce the risk of disease and disability arising from exposure to hazardous chemicals (such as heavy metals), physical agents (e.g. excessive noise) and biological agents and to hazardous working environments during pregnancy, childhood and adolescence.

Reduce the proportion of children with birth defects, mental retardation and developmental disorders, and to decrease the incidence of melanoma and non-melanoma skin cancer in later life and other childhood cancers by:

- (a) passing and enforcing legislation and regulations and implementing national and international conventions and programmes to:
 - reduce exposure of children and pregnant women to hazardous chemical, physical and biological agents to levels that do not produce harmful effects on children's health
 - protect children from exposure to harmful noise (such as aircraft noise) at home and at school
 - ensure appropriate information on and/or testing for effects on the health of developing organisms of chemicals, products and technologies before their marketing and release into the environment
 - ensure the safe collection, storage, transportation, recovery, disposal and destruction of hazardous and non-hazardous waste, with particular attention to toxic waste
 - monitor in a harmonised way the exposure of children, as well as men and women of reproductive age, to hazardous chemical, physical and biological agents and
 - ensure that international agreements on the control of chemical pollutants and hazardous waste are applied
- (b) implementing policies to raise awareness and endeavour to ensure reduction of exposure to ultraviolet radiation, particularly in children and adolescents, and
- (c) promoting programmes including those for the adequate dissemination of information to the public that will prevent and minimise the consequences of natural disasters and major industrial and nuclear accidents and take into consideration the needs of children and people of reproductive age.

(WHO, 2004)

5.1 Why is this important?

Children are exposed to a range of chemical, physical and biological hazards in the UK and, as a result, experience a range of effects on their health and well-being. The impacts of many of these are difficult to quantify as available data is limited and may be as a result of chronic and cumulative exposures that may cause long-term health problems.

The main health impacts amongst children in the UK with regard to exposure to chemical, physical and biological hazards are highlighted below.

5.1.1 Chemicals

The number of deaths and admissions to hospital amongst children and young people as a result of unintentional poisonings has declined in recent years. In 2005, 19 children and young people died in England and Wales and 10,664 children and young people were admitted to hospital in England as a result of unintentional poisoning.

The chronic effects of chemical exposures amongst children and young people are less well understood and quantified in the UK. However, where links between chronic exposure and health effects have been established (e.g. lead and neurodevelopment), effective action has been taken to reduce exposure.

5.1.2 Ionising and non-ionising radiation

Exposure to ionising radiation is known to result in an increased risk of developing cancer. However, studies on the effects of exposure to natural and other background radiation, such as the naturally occurring radioactive gas, radon, have not identified an effect on incidence rates. There may, however, be a small increased risk which is difficult to measure.

Ultraviolet radiation, the main source of which is the sun, is a direct cause of skin cancer. The risk of skin cancer is increased by high childhood exposure to ultraviolet radiation. The incidence of skin cancers amongst 20–24 year olds is on the increase in the UK, and is higher amongst females and young people in Scotland than in England.

Evidence to date suggests that, in general, there are no adverse effects on the health of the population of the UK as a result of exposure to electromagnetic fields (EMFs) below nationally and internationally accepted exposure guideline levels. However, there are a number of epidemiological studies, including studies from the UK, showing an association between exposure to power frequency fields at home and/or from living close to high voltage power lines and a small excess of childhood leukaemia. At present no plausible biological mechanism has been identified to explain this excess, if real, and there is uncertainty about what aspect of EMF exposure, if any, might be responsible. With regard to radiofrequency fields, the widespread development in the use of mobile phones worldwide has not been accompanied by associated, clearly established increases in adverse health effects, including in children.

5.1.3 Noise

Research has shown that exposure to noisy environments at school can adversely affect children's learning and educational attainment. The impact of such exposures at a national level has not been quantified.

5.1.4 Biological hazards

Exposure to biological hazards from environmental sources can result in gastrointestinal illness amongst children, a principal source of which is food poisoning, which highlights the importance of ensuring there is a better understanding of basic food hygiene measures. Food poisoning cases amongst children have declined and levelled off in recent years and, in 2006, there were just over 20,000 cases of food poisoning recorded

by microbiology laboratories in England and Wales. The Food Standards Agency's study of intestinal infectious disease identified that cases diagnosed in microbiology laboratories represent only a percentage of all cases. Other sources of environmentally derived gastrointestinal illness include person-to-person contact and contact with animals.

5.2 Where are we now?

Within the UK there is robust legislation and a wide range of initiatives to protect the public from environmental and occupational exposure to chemicals, biological hazards (particularly food safety and hygiene) and ionising (e.g. radon) and non-ionising radiation (e.g. ultraviolet radiation and radiofrequency fields from mobile phones). Excessive noise is also addressed through regulations which provide local authorities with powers to deal with and investigate complaints.

5.2.1 Chemicals

Legislation and initiatives aimed at protecting the public from exposure to chemicals have led to reduced exposures of many chemicals in children and adults (some examples are given in Box 5.1). However, there is still much to learn regarding children's exposure, the variables that influence exposure and whether there are any associated health effects. The main concern is that any health effects are often difficult to quantify and may be as a result of chronic exposures to multiple chemicals, although new and developing techniques, such as human biomonitoring, are providing new opportunities to better understand and evaluate exposure.

BOX 5.1 Controlling children's exposure to chemicals to protect their health

Lead poses a risk to children as it can affect the development of the nervous system. Various pieces of legislation and initiatives have been put in place to control lead in the environment and protect children's health, most of which have taken effect in the last 20–30 years. These have included banning lead in petrol, restricting the use of leaded paint and the use of lead in toys, controlling lead in food and controlling emissions of lead from industrial processes. As a result, there has been a substantial reduction in blood lead levels in children, so that blood lead levels in the 1990s (1–3 µg/dl) had declined by approximately ten times compared with levels in the 1960s (23 µg/dl).

Measures to control exposure to persistent organic pollutants have been put in place over a number of years and have included implementing international and national legislation to strictly control the production, use, storage and sources of emissions of these chemicals. Monitoring of breast milk has shown a reduction in levels of persistent organic pollutants over time (by over 50% for some pollutants). This has in turn resulted in a reduction in the amount of persistent organic pollutants to which breastfed babies are exposed.

Accidental and fatal poisonings are a significant risk to children, although legislation and safety initiatives have led to a reduction in unintentional poisonings over the past 20–30 years. Currently there is a lack of understanding of the nature of unintentional poisonings amongst children in the UK and of effective interventions to continue to reduce such incidents; this would benefit from further research.

The EU Regulation on the Registration, Evaluation and Authorisation of Chemicals, which came into force in June 2007, is aimed at ensuring a high level of protection of human health and the environment from chemicals. It replaces 40 existing legislative instruments and puts these into a single, coherent system. Risk assessments take into account exposures of vulnerable groups including children (Capleton et al, 2008).

5.2.2 Ionising and non-ionising radiation

The risks from ionising radiation, as a cause of cancer, are generally higher for exposure in childhood than for exposure later in life (HPA, 2005). The principal source of exposure to ionising radiation for children in the UK is from radon gas in homes and schools. The Health Protection Agency has undertaken detailed mapping of domestic radon exposures throughout the UK, and the UK government is considering appropriate action to reduce exposure for adults and children.

Evidence suggests that observable health detriment may occur below the existing UK action level for radon in homes. A review of the current action level¹ for radon in homes is underway, taking into account recent scientific evidence from the Advisory Group on Ionising Radiation, the Committee on Medical Aspects of Radiation in the Environment (COMARE), the World Health Organization and the International Commission on Radiological Protection. Draft advice is likely to be published during 2008.

COMARE has formally written to the government in England and the devolved administrations (January 2008) alerting them to three recommendations from its meeting of October 2007. One is a recommendation to treat schools the same as homes for radon protection purposes, i.e. to use an action level of 200 becquerels per cubic metre (Bq/m³) rather than the occupational level of 400 Bq/m³.

Medical exposures to ionising radiation are increasing generally, as new diagnostic techniques become available. In this regard, the UK Ionising Radiation (Medical Exposure) Regulations require that healthcare staff pay special attention to medical exposures of children and the foetus in order to protect them from unjustified risks.

The UK environment agencies and the Food Standards Agency operate a comprehensive system for monitoring radioactivity in food and the environment, the results of which are published annually (e.g. EA et al, 2007). The Food Standards Agency is responsible for ensuring that the levels of radioactive substances in foods are properly controlled to meet relevant UK and international safety standards.

Non-ionising radiations include ultraviolet radiation and electromagnetic fields. Although the focus of public anxieties varies, the principal public health concern is exposure to ultraviolet radiation, as a direct cause of skin cancer. There have been a number of public health campaigns and awareness-raising initiatives in the UK aimed at improving sun protection knowledge and behaviour in children and young people (Box 5.2), and the government has made a commitment to increase funding for awareness

¹ The action level is the annual radon concentration in a home above which remedial action is recommended to decrease the risk of lung cancer. Currently the action level is 200 becquerels per cubic metre (Bq/m³).

programmes (DH, 2007a). However, the effectiveness of these initiatives needs to be evaluated as a matter of good practice.

BOX 5.2 Protecting children from the sun

There are a number of initiatives and campaigns aimed at developing greater awareness of the risks of skin cancer and promoting good sun protection behaviour, which are specifically child focused. Examples include:

The **SunSmart initiative**, commissioned by the UK Health Departments and run by Cancer Research UK, has an ongoing schools programme providing sun protection guidelines to schools, and encourages schools to develop their own sun protection policies and incorporate sun protection education into the curriculum.

Beat the Burn – the Chartered Institute of Environmental Health worked with seven Welsh local authorities in 2004 to support a series of skin cancer awareness campaigns to promote the SunSmart code, targeting young people and parents. Activities included: posters with sun protection advice near beaches in Anglesey; a series of events in Wrexham including a National Play Day attended by over 500 children; and Merthyr Tydfil Pink Nose Day, involving 13 schools and encouraged children to apply pink sunscreen on their nose for the day.

NHS Fife and NHS Tayside Keep Yer Shirt on Project was run to raise awareness of the importance of skin cancer prevention and reduce the risk of sunburn in pre-school children. The project included: workshops for nursery staff and other child carers; working with parents of pre-school children; encouraging pre-school childcare establishments to develop and implement sun awareness policies; and providing shade structures in nurseries and playgroups.

As part of Northern Ireland's **Care in the Sun** programme, a Living Willows for Shade project has been undertaken whereby such structures are built in school playgrounds to provide shade for pupils. As part of the programme, each school is required to develop a Care in the Sun policy based on Department for Education (Northern Ireland) guidelines and facilitate the design and building of willow shade structures. The scheme was funded by the Big Lottery fund and enabled 48 schools to have living willow shade structures.

There is some concern about the use of sunbeds by children and young people and the effect on their health. The Department of Health (England) has recently announced that it intends to review options for regulation of the cosmetic tanning industry, taking into account the scale of use by minors, with a view to ensuring the health of children and young people are adequately protected (DH, 2007a). In Scotland, a Private Member's Bill to regulate tanning parlours is under debate. However, it is important to ensure protection is afforded to children throughout the UK.

The widespread use of mobile phones has led to concerns about possible health effects associated with exposure to radiofrequency fields, particularly in children. Overall, evidence available suggests that exposure to radiofrequency fields below established guidelines does not cause adverse health effects in the general population, but in view of scientific uncertainties, a precautionary approach has been recommended for children's use of mobile phones. Recently, concern has been expressed about exposures to radiofrequency fields generated by wireless local area networks and WiFi, particularly in schools. Current evidence suggests that exposures are below international guideline levels and therefore do not pose a health risk to children.

However, research is ongoing to better understand the levels and patterns of exposure from these technologies.

5.2.3 Noise

Whilst the impact of noise on children's learning and educational attainment has been studied, little is known about other non-auditory impacts of noise on children's health and well-being. Current specifications for the acoustic design of schools sets standards for sound insulation for new and refurbished schools, including standards for sound insulation of teaching areas. Currently, in accordance with the EU Noise Directive, noise maps are being prepared throughout the UK for major roads, railways and cities with the aim of determining the number of people affected by ambient noise and the location of people affected (Capleton et al, 2008).

5.2.4 Biological hazards

Health surveillance is an important method used to understand the effects of biological hazards on health and highlights patterns of disease within populations. Problems with health surveillance systems include the under-reporting of infections and sampling which can lead to bias towards more severe cases and high risk groups such as infants.

The Food Standards Agency strategic plan for 2005–2010 aims to reduce food-borne disease in the general population by promoting awareness about food hygiene, focusing particularly on schools. To this aim there are a number of initiatives throughout the UK (e.g. Cooking Bus, Spud's Zone and the Elementary Food Hygiene Training) aimed at promoting food hygiene messages to children.

5.2.5 Emergency preparedness

Proper and effective planning and preparation for emergencies (natural, industrial and terrorism) is critical to minimise the consequences of such events and to ensure an effective response can be made. In particular, it is important to take into account the needs of vulnerable groups, such as children, who may have specific needs. In the UK, the NHS emergency planning guidelines (DH, 2005) specifically make reference to the needs of vulnerable groups, including children, and recommend that particular attention should be paid to schools, nurseries, childcare centres and medical facilities for children. More detailed guidelines for the NHS, that specifically address the needs of children in the context of emergency planning, are being developed, and children have been specifically involved in emergency planning exercises to gain a better understanding of their needs in emergency situations (e.g. Exercise Young Neptune; Turner et al, 2007). Specific consideration is also given to children in other emergency planning guidance. For example, guidance on heat waves makes specific reference to the vulnerability of babies and young children (DH, 2007b), and guidelines for sampling after a chemical incident specifically refers to the need to consider 'sensitive site' such as schools, crèches, and playgrounds which are of particular relevance to children (DETR, 1999). However, the specific needs of children should continue to be taken into account.

5.3 Areas for improvement

Generally, children and young people's health is well protected. However, there are some areas that may benefit from further action. These areas are listed below.

5.3.1 Chemicals

There is still much to learn about children's exposure to chemicals and chemical mixtures in the UK, including a better understanding about where children are exposed (e.g. in the home, schools and outdoor environment). Research aimed at improving knowledge of children's exposure should encompass new and developing techniques such as human biomonitoring. There is a need for the UK to develop a robust human biomonitoring programme to be able to monitor exposure, which may also be beneficial in evaluating interventions (e.g. legislation) to reduce exposure (e.g. Box 5.1). These studies should be representative of children in the UK and should consider exposures to chemical mixtures.

Work needs to be done to identify ways to further reduce the number of child deaths and hospital admissions from accidental poisoning. A better understanding of the current trends and patterns of poisonings would help identify interventions and areas that would benefit from further research.

5.3.2 Ionising and non-ionising radiation

Householders in radon affected areas should be encouraged to participate in radon testing and to reduce radon levels in houses which are above the action level. Whilst there have been several campaigns, the proportion of houses installing remedial measures to reduce radon in homes is still relatively low. Encouraging householders to consider radon mitigation should continue.

Landlords and employers in radon affected areas should be encouraged to participate in radon testing and to reduce levels in the building which are above the action level. In particular, all schools in radon affected areas should be tested for radon and, if above the action level, should take measures to reduce the exposure of pupils and staff.

COMARE has recommended that schools should be treated the same as homes for the purposes of radon protection. This would mean that the radon action level for homes of 200 Bq/m³ should be applied to schools and other childcare environments.

Good sun protection behaviour in children and young adults needs to be encouraged. Better coordination and evaluation of campaigns across the UK should be addressed and campaigns should be evaluated. It is important to ensure that sun protection behaviour and knowledge is consistently taught to a high standard across the UK. Schools and childcare institutions should continue to develop and implement sun protection policies which are of proved effectiveness. The use of sunbeds and tanning parlours by children and young people should be prevented or reduced and means to do this need to be explored further and implemented across the UK. Measures could include restricting the use of commercial sunbeds and tanning parlours to those over a specified

age (e.g. 18 years) and requiring that information be provided with the purchase of retail sunbeds regarding the health risks to children's health.

Further research is needed to improve the understanding of electromagnetic field exposures (e.g. from mobile phones, base stations, electrical wiring and appliances and overhead power lines) of children, young people, pregnant women and fetuses, and their effects on health. A comprehensive understanding of exposures to these population groups is important to be able to interpret national and international studies in the light of UK exposures and give better health advice.

5.3.3 Noise

Children and young people are affected by noise and their education can suffer as a direct result. Noise maps (which are currently being produced for major roads, railways and cities) could be used to identify schools likely to be affected by noise and to identify where noise intervention programmes may be most beneficial.

Further investigation is needed on the health effects, other than hearing loss, of noise exposure on children.

5.3.4 Biological hazards

A continued emphasis on teaching food hygiene to children at school should be encouraged in order to establish good habits at an early age. The surveillance system for food-borne diseases is an important way to identify the effect that diseases associated with biological hazards have on health. However, these could be strengthened.

5.3.5 Emergency preparedness

Further consideration of children and young people should be given in planning and preparedness for emergencies and children should be included in emergency preparedness exercises more regularly. Whenever possible it is important to routinely include children and young people in emergency preparedness exercises in order that their needs can be better understood and taken into account in emergency planning.

5.4 Questions

Do you agree that the areas highlighted need to be addressed with regards to chemicals, ionising and non-ionising radiation, noise, biological hazards and emergency preparedness and children's health in the UK?

Are there any additional areas concerning chemicals, ionising and non-ionising radiation, noise, biological hazards and emergency preparedness and children's health that you feel need to be addressed in the UK, but aren't highlighted in this strategy? If so, please explain.

What issues concerning chemicals, ionising and non-ionising radiation, noise, biological hazards and emergency preparedness and children's health, if any, do you feel are a priority for the UK over the next few years?

Is there anything else you would like to add?

6 OVERARCHING ISSUES AND PRIORITIES

Individual environment and health issues relevant to specific Regional Priority Goals for children and young people have been highlighted in the previous sections. However, a number of overarching issues are common to more than one Regional Priority Goal and are discussed below.

6.1 Inequalities

Within the UK there is an uneven distribution of exposure to environmental hazards amongst children of different socioeconomic groups and across the different regions. There is increasing evidence that environmental inequalities are a real and substantive problem, although the causes, effects and distribution are varied and complex. Inequalities amongst children of different socioeconomic groups are apparent in respect of mortality and morbidity from unintentional injuries (including poisonings), obesity and physical activity (HPA, 2007a) and in exposure to environmental pollution (HPA, 2005).

6.2 Settings

As children and young people spend most of their time either at home, in educational establishments or outdoors, focusing on improving the environment in these locations may be of more benefit than looking at environmental risk factors individually. It may also enable a more holistic approach to be taken to reducing the burden of disease associated with environmental risk factors and improving children's health and well-being.

6.2.1 Homes

Children spend a substantial part of their lives in the home environment, particularly before the age of five years; therefore this is a key area where the environment impacts on the health of children. There is some legislation regulating some aspects of the home environment (e.g. building regulations and housing health and safety regulations). However, effective change requires the participation and motivation of householders. Environmental hazards within the home environment that are of relevance to children include lead in drinking water, injury and poisoning risks, environmental tobacco smoke exposure, radon and food hygiene.

6.2.2 Community settings

The wider social and community environment can also have an important impact on well-being, e.g. opportunities for young people, amenities and transport. The 2004/05 survey of English housing undertaken by the Communities and Local Government identified that householders felt that the most important area for improvement was 'opportunities and facilities for children and young people' (DCLG, 2006b). The

government has established several Public Service Agreements and a Sustainable Communities Plan (ODPM, 2003) that aim to build stronger, more sustainable communities and a better quality of life. The Public Service Agreements include agreements to halve the number of children in poverty by 2010–11, build more cohesive, empowered and active communities, and make communities safer (HM Government, 2007a,d,e). This is also being taken forward in the Children's Plan (DCSF, 2007), which emphasises the need for strengthened support for parents and families. One of the key areas being taken forward by the Children's Plan is the development of safe places to play outside.

The Children's Plan also highlights the continued development of the Sure Start Children's Centres, with the aim that these will provide drop in centres for parents and outreach services. These will offer an opportunity to provide advice and information on many of the areas of concern for both parents and children.

6.2.3 Schools

In the UK primary school children spend approximately seven hours a day in the school environment, for 190 days per year. Secondary school children, and those involved in extracurricular activities, spend about eight hours a day in school. The school environment is subject to considerable regulation, but may still lend itself to further improvement. Many of the concerns often relate to historical factors of the location and age of the school. In England, the Building Schools for the Future programme is aiming to refurbish or renew every secondary school and will help address this. This will help to ensure that a more consistent approach is taken within schools across a range of environmental health issues. In particular, there are now standard specifications for school toilets and the acoustic design of schools, and building guidance and regulations help ensure environmental health issues are taken into account when building new schools or renovating existing facilities.

6.3 Sustainable development

The UK Sustainable Development Strategy aims to enable all people satisfy their own basic needs and enjoy a better quality of life without compromising the quality of life of future generations (HM Government, 2005). Sustainable development has important implications for children's and young people's health and well-being. For example, the promotion of more sustainable modes of transport can lead to more walking, cycling and use of public transport by children and young people, which in turn can reduce traffic-generated pollution and noise levels, increase physical activity by children and young people, enable them to develop a greater sense of independence, and can have positive impacts on obesity. The Education and Inspections Act 2006 places a general duty on all local authorities in England to assess the school travel needs of all children and young people in their area, and to promote the use of safe and sustainable modes of travel. Some examples of sustainable transport initiatives are presented in Box 6.1. Whilst the sustainable development strategy focuses on the whole population, it is important that the benefits to children's health and well-being are fully recognised and taken into account when considering sustainability issues.

BOX 6.1 Sustainable transport and the journey to school

The **Walking Bus** picks up children at set points along a route to school and the children walk in pairs with an adult 'driver' at the front and adult 'conductor' at the rear. The route is selected to avoid busy roads where possible and, along with reducing traffic around the school, can reduce children's exposure to air pollution.

Park and Stride schemes encourage parents who normally drive their children to school to park further away from the school and walk their children the final part of the journey to reduce traffic around the school gates. This may, in turn, reduce the amount of traffic generated air pollution to which children are exposed.

In Scotland, School Travel Coordinators work with schools in their areas to develop and implement travel plans. **SUSTRANS**, the sustainable transport charity, provides grants to schools for capital and resource projects, including funding for cycle storage facilities, lockers, improved paths and walkways and support materials for walking buses and other similar initiatives.

In Northern Ireland, **Travelwise NI** is a roads service initiative designed to encourage the use of sustainable transport options. Its website provides information for parents on getting their children to school by cycling, walking buses or car sharing.

6.4 Horizon scanning – climate change and new technologies

A number of new and emerging environment and health issues have the potential to impact children's health. In particular, climate change could have an impact on a number of the areas highlighted in the Regional Priority Goals. This may include increased food-borne diseases caused by warmer summers, changes in drinking water quality caused by flooding and increased intense rainfall events leading to an increased numbers of bacteria in surface waters, increased water temperatures and a decrease in the efficiency of removal of microbes from drinking water (DH and HPA, 2007). Skin cancers can be expected to rise due to increased exposure to sunlight and ozone concentrations are likely to increase, which may lead to an increase in respiratory effects in sensitive individuals (DH and HPA, 2007).

There are also new and developing technologies for which the potential health impact on the general population and, in particular, children is poorly understood. New technologies, such as nanotechnology and wireless computing networks, should be fully assessed for their potential health impacts during childhood and later on in life as their use is increasing. For example, personal care products are increasingly making use of nanotechnology and wireless computing networks are increasingly used in schools and homes.

6.5 Areas for improvement

Inequalities and the disproportionate burden of disease experienced by children in lower socioeconomic groups needs to be addressed. This requires a better understanding of environmental inequalities so that interventions can be effectively

targeted to ensure they properly address the needs of children in the lower socioeconomic groups.

It is important to investigate ways of encouraging householders to take steps to improve their home environment, particularly with respect to reducing exposures from environmental hazards within the home environment.

It is important to continue to encourage the development of sustainable development initiatives with a view to the long-term development of sustainable communities. Such initiatives (such as promoting sustainable transport to school) can have an important impact on children's health and well-being and result in wider environmental improvements (e.g. reduced congestion and less pollution).

Horizon scanning – wherever possible, preventative measures should be put in place to reduce any potential adverse health impacts caused by climate change and new technologies. Research should be undertaken to improve our understanding and knowledge of the health impacts, specifically taking into account the impact on children.

6.6 Question

Are there any other overarching issues not highlighted that you feel should be taken into account in developing the Children's Environment and Health Strategy and action plans?

7 ORGANISING TO DELIVER

7.1 Introduction

The impact of the Children's Environment and Health Strategy will depend largely on its implementation and the approach taken to meet the commitments made as part of the Children's Environmental Health Action Plan for Europe (CEHAPE). This should ensure that it works with current and proposed government initiatives and policies. Regardless of the approach taken for implementation, an important aspect of this strategy will be ensuring that the commitments made under CEHAPE are consistently addressed throughout the UK and that effective systems are in place, or developed to monitor and evaluate its impact.

7.2 Coordination and implementation

It is intended that the outcomes of the Children's Environment and Health Strategy will be implemented within the UK both centrally, via collaborative working between government departments, and at a local and regional level, with coordination being provided centrally where appropriate. Within the UK, the Department of Health has overall responsibility for ensuring the UK meets its commitment to CEHAPE.

An important element of the success of the Children's Environment and Health Strategy will be the engagement and involvement of those with local and regional responsibility for public health and the environment to ensure action is taken to address environmental hazards that are of relevance to children and young people locally. Relevant public health professionals include regional directors of public health, local and regional authorities, directors of public health in PCTs, public health observatories, Local and Regional Services (LaRS) of the Health Protection Agency (HPA), directors of children's services, as well as environmental health professionals, environmental health officers, environmental specialists (e.g. air pollution and contaminated land), land-use planners and other public health specialists. A process to ensure issues are taken forward consistently will need to be considered. However, it is acknowledged that the implementation of different aspects of the Children's Environment and Health Strategy may take place locally, regionally and/or nationally as appropriate.

7.3 Monitoring and evaluation

A considerable amount of data is routinely collected in the UK that is of relevance to environment and health issues relating to children and young people. In particular, routine surveillance of infections and waterborne diseases has been ongoing for some time, although evidence suggests that this could be strengthened. There is also routine surveillance of road traffic injuries and obesity levels. However, there is a lack of good quality and robust data, information and analysis in the areas of chemical exposures, unintentional poisonings and injuries, and their causes and impact on children's health and well-being, particularly for long-term and cumulative effects.

Surveillance systems can help inform the development of effective public health actions to prevent or control chronic and acute diseases linked to hazards in the environment and can be used to evaluate the effectiveness of specific interventions to ensure they are resulting in a reduction in the burden of disease amongst the targeted population. Such evaluations should be a routine component and good practice for any public health intervention and need to be an integral part of the interventions referred to in this strategy. For some, the effect may be measurable quite quickly (e.g. reducing injury rates), whilst some might take longer to measure an effect (e.g. reducing skin cancer rates). Monitoring and evaluating the effectiveness of current initiatives and policies will provide levers for future policy development and action.

Part of the monitoring and evaluation of the impact of CEHAPE may include the use of environment and health indicators as promulgated by the WHO (Pond et al, 2007). The use of indicators provides an indication of the current state of a particular issue (e.g. obesity or air pollution) and can be used to identify changes over time and evaluate the impact of particular policies.

In support of the commitments made under the CEHAPE, the HPA is taking forward the development of a core set of children's environment and health indicators. The aim of the indicators is to describe the burden and distribution of hazards, childhood disease and injury attributable to environmental risks within the region concerned and to provide intelligence to inform interventions, particularly in terms of reducing inequalities. The indicators have recently been piloted in the West Midlands and a final report will be produced later in 2008.

7.4 What's next?

Following public consultation, the Children's Environment and Health Strategy will present recommendations to government as to how best to meet the commitments made under CEHAPE and to improve children's environmental health in the UK. Whilst some actions may be taken forward proactively (e.g. by the HPA or other bodies), addressing some initiatives will require a coordinated government response.

The next WHO Europe ministerial conference of environment and health ministers is scheduled for mid-2009; ministers will report on the implementation of CEHAPE in their respective countries. Whilst the UK already has a good record on environmental health, areas for further improvement still remain to ensure children's environmental health needs are comprehensively addressed; the UK will report to the ministerial conference in mid-2009 to highlight areas that have been (or are being) taken forward to further improve children's health by ensuring they grow up in a clean, healthy and safe environment.

7.5 Questions

Do you agree with the proposed general approach for addressing the CEHAP priorities in the UK?

Do you consider the use of environment and health indicators a useful means of measuring environmental determinants of children's health?

Are there any other means of monitoring the impact of environmental determinants of children's health that should be considered?

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APPENDIX A

Summary of the Children's Environment and Health Strategy Priorities for the United Kingdom

Summary of Children's Environment and Health Strategy Priorities According to Regional Priority Goal (RPG)

	RPG I: Water, sanitation and health	RPG II: Accidents, injuries, obesity and physical activity	RPG III: Respiratory health, indoor and outdoor air pollution	RPG IV: Chemical, physical and biological hazards
Preventing harm	<p>Ensure compliance with lead in drinking water standards</p> <p>Improve quality of private water supplies</p> <p>Continue to improve sanitation in schools</p> <p>Reduce exposure to Cryptosporidium in swimming pools</p>		<p>Promote awareness of risks associated with carbon monoxide</p> <p>Educate adults about the effects of environmental tobacco smoke on children</p> <p>Develop guidance on local air quality management to consider children specifically, where appropriate</p>	<p>Encourage radon testing and remediation by householders and landlords</p> <p>Consider applying the radon action level for homes to the school environment</p> <p>Investigate options for restricting the use of sunbeds amongst children and young people</p> <p>Identify schools affected by high transport noise levels and implement protective measures</p> <p>Continue to involve children in emergency preparedness exercises</p>
Promoting health	<p>Improve hygiene behaviours in children (e.g. hand-washing)</p>	<p>Ensure consistently high standards of road safety education</p> <p>Continue to encourage physical activity amongst children and young people</p> <p>Improve access to and strategic planning of green spaces</p> <p>Involve children in planning new facilities</p>	<p>Improve public awareness of indoor air quality</p> <p>Develop a more coordinated policy approach to indoor air quality</p>	<p>Continue to encourage healthy sun protection behaviour amongst children</p> <p>Continue to teach children about food hygiene</p>
Improving understanding	<p>Investigate further the impacts of bathing water quality on child health</p> <p>Improve understanding of factors involved in disease outbreaks associated with swimming pools</p>		<p>Improve understanding of effects of air pollution on children's lung development in the UK</p>	<p>Investigate the non-auditory impacts of noise on children's health, particularly in the domestic environment</p> <p>Identify means to further reduce unintentional poisonings</p> <p>Improve understanding of chemical exposures</p> <p>Improve understanding of electromagnetic field exposures</p>
Improving intelligence	<p>Improve surveillance of waterborne disease</p>	<p>Improve injury surveillance</p> <p>Monitor success of obesity and physical activity initiatives</p>		<p>Improve surveillance of biological hazards</p>

Summary of Children's Environment and Health Strategy Priorities According to Burden of Disease

Key areas	Key recommendations	Improving surveillance	Improving understanding
Gastrointestinal illness	<ul style="list-style-type: none"> Food hygiene education Personal hygiene education (e.g. hand-washing) Improve school sanitation Improve quality of private water supplies Reduce exposure to <i>Cryptosporidium</i> in swimming pools 	Improve surveillance of gastrointestinal disease, particularly amongst children	Improve understanding of factors contributing to swimming pool outbreaks
Injuries and poisonings	<ul style="list-style-type: none"> Raise awareness of risks of carbon monoxide 	Ensure adequate surveillance of injuries and poisonings	Improve understanding of unintentional poisonings amongst children
Obesity and physical activity	<ul style="list-style-type: none"> Continue to encourage physical activity amongst children and young people Improve access to and strategic planning of greens spaces Involve children in planning of new facilities 	Monitor success of obesity and physical activity initiatives	
Respiratory health	<ul style="list-style-type: none"> Educate adults as to the effects of environmental tobacco smoke on children Develop strategic approach to indoor air quality that considers children Develop guidance on local air quality management to consider children specifically, where appropriate 		Improve understanding of effects of air pollution on children's lung development in the UK
Radiation	<ul style="list-style-type: none"> Encourage healthy sun protection behaviour amongst children Investigate options for reducing or preventing sunbed use amongst children Consider application of radon action level for homes to schools 		Improve understanding of children's exposure to electromagnetic fields
Noise and chemicals	<ul style="list-style-type: none"> Ensure compliance with lead in drinking water Ensure adequate noise control in school environments 		<ul style="list-style-type: none"> Improve understanding of children's exposure to chemicals Investigate further the non-auditory health and well-being impacts of noise exposure

APPENDIX B

Code of Practice on Consultation – Consultation Criteria

The six consultation criteria (Cabinet Office, 2005)*:

- a consult widely throughout the process, allowing a minimum of 12 weeks for written consultation at least once during the development of the policy;
- b be clear about what your proposals are, who may be affected, what questions are being asked and the timescale for responses;
- c ensure that your consultation is clear, concise and widely accessible;
- d give feedback regarding the responses received and how the consultation process influenced the policy;
- e monitor your department's effectiveness at consultation, including through the use of a designated consultation co-ordinator; and
- f ensure your consultation follows better regulation best practice, including carrying out a Regulatory Impact Assessment if appropriate.

Should you have any comments or complaints about the consultation process itself, please contact the Consultations Coordinator using the contact details below:

Consultations Coordinator
Department of Health
Room 2N16
Quarry House
Quarry Hill
Leeds
LS2 7UE

Email: Mb-dh-consultations-coordinator@dh.gsi.gov.uk

Please do not send consultation responses to this address.

* The full text of the Code of Practice is available on the Cabinet Office website:
<http://bre.berr.gov.uk/regulation/consultation/code/>.

APPENDIX C

Consultation Questionnaire

Please complete the consultation questions below and return your response by Friday 13 June 2008, to:

CEHAPE Consultation Officer
Chemical Hazards and Poisons Division
Health Protection Agency
5th Floor, Neuadd Meirionnydd
Heath Park
Cardiff
CF14 4YS

Tel: 02920 687 252

Email: cehape@hpa.org.uk

If you wish your response to be treated confidentially, please indicate this when sending us your response.

Contact details			
Name:			
Position:			
Organisation:			
Address:			
Email:			
Phone number:			
Are you under 18 years of age? (please tick)	Yes	<input type="checkbox"/>	No <input type="checkbox"/>
If responding on behalf of an organisation, please state who the organisation represents and, where applicable, how the views of members were assembled.			

Regional Priority Goal II: Accidents, Injuries, Obesity and Physical Activity

- 5 Do you agree that the areas highlighted need to be addressed with regards to accidents and injuries, obesity and physical activity, and access to green spaces and children's health, in the UK?
- 6 Are there any additional areas concerning accidents and unintentional injuries, obesity and physical activity, and access to green spaces and children's health, that you feel need to be addressed in the UK, but aren't highlighted in this strategy? If so, please explain.
- 7 What issues concerning to accidents and injuries, obesity and physical activity, and access to green spaces and children's health, if any, do you feel are a priority for the UK over the next few years?
- 8 Is there anything else you would like to add?

Regional Priority Goal III: Respiratory Health, Indoor and Outdoor Air Pollution

- 9** Do you agree that the areas highlighted need to be addressed with regards to outdoor air pollution and indoor air pollution and children's health in the UK?
- 10** Are there any additional areas concerning outdoor air pollution and indoor air pollution and children's health that you feel need to be addressed in the UK, but aren't highlighted in this strategy? If so, please explain.
- 11** What issues concerning outdoor air pollution and indoor air pollution and children's health, if any, do you feel are a priority for the UK over the next few years?
- 12** Is there anything else you would like to add?

Regional Priority Goal IV: Chemical, Physical and Biological Hazards

- 13** Do you agree that the areas highlighted need to be addressed with regards to chemicals, ionising and non-ionising radiation, noise, biological hazards and emergency preparedness and children's health in the UK?
- 14** Are there any additional areas concerning chemicals, ionising and non-ionising radiation, noise, biological hazards and emergency preparedness and children's health that you feel need to be addressed in the UK, but aren't highlighted in this strategy? If so, please explain.
- 15** What issues concerning chemicals, ionising and non-ionising radiation, noise, biological hazards and emergency preparedness and children's health, if any, do you feel are a priority for the UK over the next few years?
- 16** Is there anything else you would like to add?

Overarching Issues and Priorities

- 17** Are there any other overarching issues not highlighted that you feel should be taken into account in developing the Children's Environment and Health Strategy and action plans?

Organising to Deliver

- 18** Do you agree with the proposed general approach for addressing the CEHAPE priorities in the UK?
- 19** Do you consider the use of environment and health indicators a useful means of measuring environmental determinants of children's health and the overall impact of the Children's Environment and Health Strategy?
- 20** Are there any other means of monitoring the impact of the Children's Environment and Health Strategy that should be considered?

- 21** Over what timescales do you think the Children's Environment and Health Strategy should operate?

Consultation Process

- 22** Are there any ways we could improve similar consultations in the future?

Anything Else?

- 23** Is there anything else you would like to add concerning the Children's Environment and Health Strategy?

Thank you for taking the time to consider this document

Acknowledgements

This document has been produced by the Health Protection Agency, for the Department of Health, on behalf of the Interdepartmental Steering Group on Environment and Health. This Steering Group consists of representatives of the following government and devolved administration departments and agencies:

Department for Business, Enterprise and Regulatory Reform

Department for Children, Schools and Families

Department for Communities and Local Government

Department for Environment, Food and Rural Affairs

Department for Transport

Department of Health (*Chair*)

Department of Health, Social Services and Public Safety (Northern Ireland)

Department of the Environment (Northern Ireland) – Environment and Heritage Service

Environment Agency

Food Standards Agency

Health Protection Agency

Scottish Environment Protection Agency

Scottish Government

Welsh Assembly Government

The views expressed in this document do not necessarily represent those of any government or devolved administration department or agency.

Health Protection Agency

Centre for Radiation, Chemical and Environmental Hazards

Chemical Hazards and Poisons Division

Chilton

Didcot

Oxfordshire OX11 0RQ

United Kingdom

Tel: +44(0)1235 822895

Email: cehape@hpa.org.uk

www.hpa.org.uk

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