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D.A. Houweling | E.A. Koudijs | A.J.P. van Overveld | C. Vros

Towards a healthy, child-friendly living environment: an overview of Dutch policy

Status report for the 2010 Parma Ministerial Conference

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Houweling, D.A.
Koudijs, E.A.
van Overveld, A.J.P.
Vros, C.

Contact:
Ellen Koudijs
Centre for Environmental Health
Ellen.Koudijs@rivm.nl

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Abstract

Towards a healthy, child-friendly living environment: an overview of Dutch policy
Status report for the 2010 Parma Ministerial Conference

Increasing consideration is being given to the healthy, child-friendly planning of the living environment in the Netherlands. Particularly in the fields of physical activity and indoor air quality, numerous policy initiatives have been implemented to improve children's health and well-being.

In Europe, many children are still adversely affected by environmental hazards. At the WHO Ministerial Conference on Environment and Health in Budapest in 2004, the Netherlands was one of fifty-two European nations which agreed to pay greater attention to measures addressing the impact of environmental hazards upon children's health by adopting the Children's Environment and Health Action Plan for Europe (CEHAPE). This is built around four Regional Priority Goals: safe water and adequate sanitation (RPG I); protection from injuries and adequate physical activity (RPG II); clean outdoor and indoor air (RPG III); and chemical-free environments (RPG IV).

Within this framework, each country has set its own priorities in a national Children's Environment and Health Action Plan (CEHAP). The Netherlands has incorporated the RPGs into its CEHAP, known as the Youth Environmental and Health Action Plan.

The commitments made in Budapest are to be reviewed during the WHO Ministerial Conference on Environment and Health, at Parma in March 2010. This report provides a current overview of Dutch government activities in respect of each RPG. As such, it is intended to serve as a background document in preparing for the Ministerial Conference.

Since 2005 the Netherlands has initiated a number of policy actions to ensure a child-friendly environment, to encourage physical activity by children (RPG II) and to improve the quality of the indoor environment (RPG III). Measures have also been taken to ensure a safe water supply (RPG I) and to reduce exposure to hazardous chemicals and physical and biological agents (RPG IV).

Key words:
children, environment, health, policy, CEHAPE

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Summary

Because many children in Europe are still suffering the consequences of environmental hazards, it was agreed at the 2004 WHO Ministerial Conference on Environment and Health that policy in these fields would pay more attention to young people. Children are particularly sensitive to hazards in the environment, and in some cases are subject to greater exposure. Lessening or eliminating risk factors of this kind therefore has the potential to deliver major health benefits for them.

The agreements reached in Budapest are set out in the Children's Environment and Health Action Plan for Europe (CEHAPE). This describes measures that countries can take to prevent or reduce the effects of environmental pollutants on children. Specifically, it focuses upon four so-called Regional Priority Goals (RPGs).

- RPG I Reduce the morbidity and mortality arising from gastrointestinal disorders by ensuring adequate access to safe, affordable water and sanitation.
- RPG II Prevent health consequences from accidents and injuries, and pursue a decrease in morbidity by promoting adequate physical activity.
- RPG III Prevent respiratory disease due to outdoor and indoor air pollution, and in particular reduce the frequency of asthmatic attacks.
- RPG IV Reduce the risk to health arising from exposure to hazardous chemicals, excessive noise and biological agents, and guarantee safe working environments.

Taking CEHAPE as its starting point, a 2005 assessment by the Dutch National Institute for Public Health and the Environment (RIVM) identified those points requiring a greater policy effort by the Netherlands in order to comply with the agreements reached at Budapest (van Overveld and Houweling, 2005). This study showed that the nation was broadly compliant with most of the points agreed internationally, but that further effort was none the less required in certain areas, most of them pertaining to RPG II and III. For example, policy opportunities were identified in respect of children's living environment, both indoor and outdoor. Based upon this assessment, the Ministry of Housing, Spatial Planning and the Environment (VROM) drew up a Youth Environmental Health Action Plan (VROM, 2006). In March 2010, the 2004 Budapest agreements are to be evaluated at a Ministerial Conference in Parma.

The present report summarizes the current status of Dutch policy action in respect of each RPG. This includes activities focusing upon one or other of those goals, even when they are not contained in the Youth Environmental Health Action Plan. The summary is based upon data gathered in 2009 for a WHO survey1 and information obtained from contact persons at VROM, in the Ministries of Health, Welfare and Sport (VWS), Agriculture, Nature and Food Quality (LNV) and Transport, Public Works and Water Management (V&W), as well as the special Ministry for Youth and Families (J&G). The report is intended as a background document, for use in preparing for the Ministerial Conference in Parma.

The assessment reported here reveals that numerous actions related to RPG II and III have been pursued in the Netherlands, in order to make the living environment more child-friendly, to encourage physical activity and to improve the quality of the indoor environment at schools, at childcare facilities and in the home. Specific, concerted regard for child health and development when shaping the living environment has increased in recent years. And young people are more frequently being involved in the

[1] Survey Tool for Review of Environment and Health Policies in the Member States of WHO European Region.

development and implementation of policy. Moreover, there has also been policy action in respect of RPG I and IV.

This report does not assess whether or not the activities described are effective. Nor does it provide answers to questions concerning their contribution towards achieving policy objectives or related to possible policy gaps. The effectiveness of the policy action taken is to be evaluated later this year, with its results reported in the State of the Living Environment of September 2010.

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1 Introduction

1.1 Purpose of this report

Once every five years, WHO Europe organizes a Ministerial Conference on Environment and Health.

Because many children in Europe are still suffering the consequences of environmental hazards, it was agreed at the 2004 conference in Budapest to focus policy upon young people. The agreements reached are set out in the Children's Environment and Health Action Plan for Europe (CEHAPE). Children are particularly sensitive to hazards in the environment, and in some cases are subject to greater exposure. Policy action designed to lessen or eliminate risk factors of this kind therefore has the potential to deliver major health benefits for them.

The Budapest commitments are to be evaluated at the next Ministerial Conference on Environment and Health, at Parma in March 2010. This report summarizes the policy action taken in the Netherlands, as a result of the 2004 agreements, to improve children's health and environment. It also outlines developments here in respect of relevant environment-related health indicators and compares the situation with that in other countries. The report is intended as a background document, for use in preparing for the Ministerial Conference in Parma.

1.2 Background

Towards the end of the 1980s, a number of European countries committed themselves to preventing and reducing health risks associated with environmental factors. In pursuit of that objective, WHO Europe began organizing a quinquennial Ministerial Conference on Environment and Health. The first was held in Frankfurt in 1989. Its aim was to bring together various relevant sectors in Europe, in order to initiate policy and action in the field of environment and health.

Each conference ends with the signing of a Ministerial Declaration, in which the Member States commit themselves to the agreements reached. At Helsinki in 1994, for example, they agreed that each nation would compile a National Environment and Health Action Plan (NEHAP). The Dutch versions of that document are the Health and Environment Action Programme for 2002-2006 and the subsequent National Action Plan on Environment and Health.

At the Budapest conference in 2004, the Netherlands was one of fifty-two European nations which agreed to pay greater attention to measures addressing the impact of environmental hazards upon children's health. This commitment was enshrined in the Children's Environment and Health Action Plan for Europe (CEHAPE).

1.3 About CEHAPE

Under CEHAPE, each Member State is expected to take actions which contribute towards one or more of the four so-called Regional Priority Goals defined in the plan, as follows.

- RPG I Reduce the morbidity and mortality arising from gastrointestinal disorders by ensuring adequate access to safe, affordable water and sanitation.
- RPG II Prevent health consequences from accidents and injuries, and pursue a decrease in morbidity by promoting adequate physical activity.
- RPG III Prevent respiratory disease due to outdoor and indoor air pollution, and in particular reduce the frequency of asthmatic attacks.
- RPG IV Reduce the risk to health arising from exposure to hazardous chemicals, excessive noise and biological agents, and guarantee safe working environments.

1.4 CEHAPE in the Netherlands

Taking CEHAPE as its starting point, in 2005 the RIVM assessed where Dutch policy requires an additional impulse in order to achieve the RPGs. The results of that exercise are reported in the document Children and Environment, inventory of Dutch policy (van Overveld & Houweling, 2005). That subsequently formed the basis for a Youth Environmental Health Action Plan (VROM, 2006), the Dutch "CEHAP". Its primary focus is RPG II and III, since many of the other points from the European plan are already well rooted in regular Dutch policy and so VROM felt that no additional stimulus was needed to prioritize child health in those areas (VROM, 2006).

Meanwhile, the plan defines supplementary policy actions intended to improve the living environment for children, both indoors and outdoors. The following are some of the areas covered.
- Child-friendly towns and cities.
- Encouraging physical activity by children.
- Improving air quality inside schools and childcare facilities.
- Reducing smoking in young people.
- Reducing children's exposure to tobacco smoke (passive smoking).

1.5 Approach

This report summarizes the current status of Dutch policy action in respect of each RPG, based upon data gathered in 2009 for a WHO survey[2] and information obtained from ministerial contact persons at VROM, VWS, LNV, V&W and J&G.

Where the RPG objectives are already sufficiently rooted in regular policy, the Netherlands has not formulated actions specific to children. In such cases, the general policy is described. Moreover, activities targeting children and focusing upon one or other of the RPGs or an issue raised in the WHO evaluation, but not included in the Youth Environmental Health Action Plan, are also reported. Data concerning relevant health indicators is drawn both from Dutch sources like the Public Health Forecast (VTV) and National Public Health Compass and from international ones, such as the European Environment and Health Information System (WHO-ENHIS).

[2] Survey Tool for Review of Environment and Health Policies in the Member States of WHO European Region.

1.6 Structure of the report

Each subsequent chapter addresses one of the RPGs, briefly describing the European agreements contained in CEHAPE, how they have been translated to the Netherlands and what relevant actions have been incorporated into the Youth Environmental Health Action Plan. The scope of and developments in associated health effects are also outlined.

Appendix 1 summarizes the status of past, ongoing and planned policy activities in the field of children's environment and health. The action and its current situation are described in each case, together with the name of the responsible or coordinating institution and details of the source or contact person providing the information.

Appendix 2 contains background figures for and describes trends in a number of important health and other indicators. It also compares the policy and general situation pertaining to health and environment in the Netherlands with that in other European countries[3].

[3] Appendix 2 contains the latest available figures for a number of environmental and health indicators. However, much of this information is out of date. To properly evaluate the effectiveness of policy action, the data – particularly that pertaining to the ENHIS indicators – will have to be updated. Which in turn will require European cooperation and resources.

2 Regional Priority Goal I

"We aim 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."

2.1 Context

The RIVM assessment showed that regular policy in the field of safe water and sanitation is sufficient to comply with the agreements contained in CEHAPE and the Ministerial Declaration (van Overveld & Houweling, 2005). For this reason, the Youth Environmental Health Action Plan provides for no additional action in this respect (VROM, 2006).

2.2 Progress

Appendix 1 summarizes the status of regular policy in the field of safe water and sanitation. Legislation on this subject is provided by the EU Drinking Water Directive, which is integrated into the Dutch Water Supply Act. From 2011, national policy will be enshrined in a new Drinking Water Act, a Drinking Water Order and a series of ministerial regulations covering such matters as legionella prevention, materials and chemicals coming into contact with drinking water and testing programmes. Sewage treatment, waste water and bathing water quality are also covered adequately in regular policy. High-risk sewer overflows have been made safe and waste water in rural areas is now treated in a responsible manner (VROM, 2009). This policy does not specifically target children, but it protects them along with all other age groups.

Test data shows that the statutory requirements are generally complied with. The challenge is to ensure that the current high standards are maintained in the future. The "Drinking Water Antenna" report for 2008 (van der Aa & Tangena, 2009) highlights a number of aspects requiring attention, such as the impact of climate change and manure policy upon the supply of drinking water. Climate change, for example, is expected to reduce the availability of river water as a source and to undermine its quality, as well as demanding an adaptive urban policy that creates capacity for water storage and sewer overflows without increasing the potential risk from vector-borne infectious diseases.

2.3 Figures and trends: gastrointestinal diseases

The purpose of RPG I is to prevent morbidity and mortality caused by unsafe drinking water and poor sanitation. Because the quality of water in the Netherlands is high, medical complaints resulting from the consumption of contaminated tap water are almost unheard of (Versteegh & Dik, 2009).

One expected consequence of climate change, however, is a rise in the incidence of water-related infections. Moreover, an increase in the temperature of shallow waters used for leisure and recreation may produce more toxic bacteria like blue-green algae. Due to a lack of data, though, it is impossible to quantify the precise impact of these negative developments upon morbidity and mortality rates (Ligtvoet & van Minnen, 2009; Huynen, de Hollander et al., 2008). For details, see Appendix 2.

3 Regional Priority Goal II

"We aim 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."

3.1 Context

Even in 2005, when CEHAPE was adopted, a wide range of policy actions were already in place to prevent accidents and injuries and to encourage physical activity. To achieve the CEHAPE objectives, the following additional measures were recommended (van Overveld & Houweling, 2005).

- Consider the specific needs of children when planning urban environments.
- Adopt a more local, neighbourhood-based approach to preventing accidents. And specifically target known vulnerable groups, such as people on low incomes and residents of deprived areas.
- Make children's living environment a permanent policy priority.

The focus of activities under the Youth Environmental Health Action Plan (the Dutch CEHAP) is to encourage the safe and healthy design of the everyday environment in which children live. In the Netherlands there is a shortage of public space where young people can meet, play, take part in sports and move about by physically active means such as walking and cycling. The available space often fails to meet reasonable environmental and other quality standards and is unsafe (VROM, 2006).

The Youth Environmental Health Action Plan objective for RPG II is therefore formulated in the following terms:

> "To create a child-friendly outdoor living environment, which can be used more independently. Young people must have space outside where they can move, play and meet, and which is suitable for physically active modes of transport between the places used by children: schools, homes, childcare facilities and other destinations. And this outdoor environment must be safe." (VROM, 2006.)

It can be concluded from the RIVM assessment of 2005 that many fine examples and plans were already in place, but that these good ideas were not being applied consistently or on a wide scale. Moreover, there was a lack of cohesion and children themselves had very little input into the initiatives. Given these findings in respect of the prevailing situation, the action plan stated that the following measures must be taken to improve matters.

- Specifically consider child health and development when designing living environments. Include children as a priority group in policy and in plans for public space, the environment, health and safety. Above all, focus upon physical activity and air quality.
- Always consider child health and development when designing living environments. Do not allow good initiatives – the best examples of specific consideration, first and foremost those related to physical activity and air quality – to remain one-offs. Reproduce them in other places and at other times.
- Be consistent in policy and initiatives for children's living environments. Adopt a unified policy perspective so that the message is always the same and initiatives reinforce one another – on the one hand by exploiting the same opportunities as others have done and, on the other, by actively seeking to draw value for new initiatives from previous ones: a "win-win" situation (VROM, 2006).

3.2 Progress

Appendix 1 to this report includes a summary of the status of activities related to RPG II in the Netherlands. Below is a more detailed description of those actions focusing upon the healthy design and development of the living environment, including the creation of one which encourages physical exercise.

3.2.1 Healthy design and development of the living environment

This is something done primarily at the local level. The national government backs it by making expertise available and by encouraging the sharing of experiences. In addition, a number of tools have been developed to support local authorities and other stakeholders in their efforts. Three key contributing factors to healthy surroundings are good environmental quality, the presence of green space and the encouragement of physical activity. Action has been taken in all of these areas. Those focusing upon air quality are discussed under RPG III and those related to noise under RPG IV.

3.2.2 Physical activity

By encouraging exercise, the Dutch government hopes to combat obesity. One important strategy in this respect is the creation of a living environment that stimulates children to play sports and to engage in other physical activity. Means of achieving this when designing neighbourhoods include the provision of safe outdoor play areas and facilities for physically active modes of transport.

3.2.3 Safety

Many aspects of safety relevant to children fall within the scope of regular policy and legislation covering building quality, trading standards, health and safety at work and so on. Examples include the safety of play equipment, road safety around schools and nurseries and safety in the workplace. For this reason, no additional actions pertaining to these matters have been agreed in the Netherlands.

By international standards, Dutch roads are comparatively safe. Moreover, the safety of young road users has improved faster than that of the rest of the population. In the mid-1980s, the annual child death toll from traffic accidents was about 120. But in recent years the average has fallen to approximately 35. That represents a reduction of 3.3 per cent a year. Road safety remains a policy priority, though, not least because mobility is likely to continue increasing over the next few years. Innovation has an important role to play in this aspect of policy, but so too do information and efforts to change behaviour. Examples include road-safety education and the campaign to encourage children to wear bicycle helmets. At the local level, safety around schools is being improved through such measures as the introduction of traffic-free zones and marked “safe routes” for young pedestrians.

3.2.4 Youth participation

Various programmes are seeking to involve children and young people in the planning process. The most prominent initiative in this respect is “Every Chance for Every Child”, the Ministry for Youth and Families’ policy programme for 2007-2011 (J&G, 2007). It contains an entire section devoted to “youth participation” and the “child-friendly living environment”, and also includes a firm target: by 2011, every local authority in the country will have some form of active youth involvement in such issues as creating a child-friendly living environment.

Meanwhile, a number of training programmes, courses and guides have appeared to help civil servants and other professionals in drawing children and young people into their decision-making procedures. Since 2008 the Minister for Youth and Families has awarded an annual prize, the “Young Local Cup”, to the local authority with the year’s best initiative in this field.

Young Local Cup winner 2008

"Borsele district has no secondary school. Because of this, its children have to cycle a considerable distance to the town of Goes. And a lot can happen on the way: a flat tyre, an argument, a downpour… In response, the local authority has joined a special project, Safe Haven. A safe haven is a house along a busy cycling route where children on their way to or from school can find sanctuary and any help they may need: the loan of a replacement bicycle, a sympathetic ear or shelter from bad weather."
Source: http://www.jonglokaalbokaal.nl/jlb-2008/

3.3 Figures and trends: road traffic accidents, other accidents and obesity

The purpose of RPG II is to reduce the number of children injured in accidents and affected by obesity. The current situation and developments in the Netherlands are described in brief below. For more details, see Appendix 2.

3.3.1 Accidents

Personal accidents, as opposed to those on the road and at work, are relatively common. Accounting for 2 per cent of the burden of disease in the Netherlands, in 2003 their consequences ranked eleventh in the list of most common medical conditions by this measure (Lanting & Stam, 2009). And between 2003 and 2007 there was no significant increase or decrease in the number of attendances at hospital Accident and Emergency units following such accidents.

Each year, about 35 children aged 14 and under are killed in road traffic accidents in the Netherlands and another 685 or so are injured seriously enough to require admission to hospital (averages for 2005-2007). The safety of young road users has improved faster than that of the rest of the population in recent decades, and is also high compared with many other countries.

3.3.2 Obesity

In the period 2002-2004, an average of 13.5 per cent of boys and 16.7 per cent of girls aged 4-16 in the Netherlands were overweight. In adults and children alike, the incidence of obesity is increasing. Compared with 1997, by 2002-2004 the percentage of overweight children aged seven and over had increased sharply and in some subgroups had even doubled (Visscher, Viet et al., 2008).

4 Regional Priority Goal III

"We aim 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."

4.1 Context

The RIVM assessment (van Overveld & Houweling, 2005) revealed that additional policy efforts were required in the Netherlands for it to meet the CEHAPE objectives. This was especially the case with indoor air quality, although improvements were also needed outdoors. The following measures were identified as necessary.

- Action in response to the findings of the survey "Health Quality of the Housing Stock", in particular those related to flueless heating appliances .
- Drawing attention within the EU to currently underconsidered topics, such as moulds and allergens.
- Introduction of an EU quality mark for emissions from furniture and building materials.
- Special policy consideration for the location of premises where children spend much of the day – schools, nurseries and so on – so as to maximize their distance from roads as much as possible, for health reasons, as well as enforcing the applicable environmental standards.
- More research into the health effects of moulds and allergens in terms of childhood allergies and respiratory conditions.

The Youth Environmental Health Action Plan has the following to say about the indoor environment:

> "The quality of the environment inside schools leaves a lot to be desired. And there are strong suspicions that the same applies to childcare facilities. The air quality within buildings is unsatisfactory, with excessive dust, humidity, odours, carbon dioxide, pathogens and allergens. Moreover, overheating in the summer and poor hygiene – usually the result of inadequate cleaning – create unpleasant and unhealthy classroom conditions and encourage the spread of infectious diseases." (VROM, 2006)

The plan's stated objective for RPG III, therefore, is to improve the indoor environment of those buildings where children spend much of their time when not at home – schools and childcare facilities – in respect of the concerns identified (VROM, 2006). Given the principal health effects upon children of a poor indoor environment – respiratory conditions, reduced concentration and fatigue – and the continuing lack of knowledge about the issue, the following primary goals have been set.

1. Fill in the knowledge gaps. Gain a better understanding of the current situation at schools and childcare facilities as regards air quality, noise, temperature and so on, and develop know-how about possible improvements – both technical solutions and behavioural changes – and their effects.
2. Draw attention to and tackle known problems. Alert teachers and school governing bodies to the issues, and in particular encourage teachers to improve classroom ventilation.

4.2 Progress

Appendix 1 to this report includes a summary of the status of activities related to RPG III in the Netherlands. Because improvements to outdoor air quality and reducing exposure to tobacco smoke are

adequately covered by regular policy (see Appendix 1), this section concentrates mainly upon progress related to the indoor environment.

4.2.1 Quality of the indoor environment

To safeguard the quality of the indoor environment in homes and other premises, the Dutch building regulations impose minimum standards for ventilation systems and other aspects of construction. These regulations are to be amended in 2010 to include noise limits on ventilation systems. As well as this statutory change, much has been done recently to eliminate gaps in our knowledge, to inform people about this topic and to support them in modifying their behaviour. And numerous studies have been conducted in order to clarify the situation in homes, schools and childcare facilities (for a list of publications, see http://www.vrom.nl/pagina.html?id=11719) (VROM, 2009). Based upon the findings, policy and regulations pertaining to the indoor environment are being reviewed and, as necessary, revised. Issues included in this process are ventilation, temperature and humidity, as well as the recommendations from the PINCHE report (van den Hazel, Zuurbier et al., 2005) concerning guidelines for noise thresholds for children and for the acoustics of classrooms. In addition, tools have been developed and funds made available to help schools improve their indoor environment. Moreover, the Ministry of Education, Culture and Science (OCW) has been allocated €165 million to invest in school buildings from the government's incentive fund to counter the economic crisis. Another €97.3 million has been made available to improve the indoor environment at schools and to implement energy-saving measures in the primary education sector.

4.2.2 Outdoor air quality

To protect children from the effects of polluted air outdoors, the Air Quality Order regarding vulnerable facilities (schools, child care centres) entered force at the beginning of 2009. This statutory instrument restricts the siting of so-called "vulnerable facilities" – including schools and other buildings used by children – in the vicinity of major roads where air pollution limits are exceeded. Moreover, the Netherlands makes every effort to comply with the relevant EU directives and regulations, although not always entirely successfully.

4.2.3 Smoking

The Tobacco Act provides a statutory framework for the regulation of smoking. In addition, the Preventive Health Policy Paper of 2006 has made reducing smoking a priority.

4.3 Figures and trends: asthma

The purpose of RPG III is to reduce the number of children suffering from asthma and other respiratory conditions. It must be emphasized, though, that air pollution is not the only risk factor contributing to the development and exacerbation of such complaints.

Between 5 and 7 per cent of children aged nine or under in the Netherlands have asthma or another respiratory condition (Gezondheidsraad, 2007). Their prevalence[4] is highest in boys in this age group, at 53-60 per thousand in 2003.

The one-year prevalence of asthma was more or less constant between 1972 and 1983, but rose sharply in the period 1984-1997. That increase was greatest in the under 15s, followed by the 15-24s, but in

[4] "Prevalence" refers to the number of cases per thousand or per hundred thousand members of the population at a given point in time. "Incidence" is the number of new cases reported during a given period of time.

both age groups the prevalence then fell slightly between 1998 and 2003. As far as incidence is concerned, no clear trend is discernible (see Appendix 2 for more details).

5 Regional Priority Goal IV

"We commit ourselves to reducing 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."

5.1 Context

According to the RIVM assessment, much effort at the policy level has already been put into limiting exposure to chemical, biological and physical agents in the Netherlands (van Overveld & Houweling, 2005). Consequently, no special action in order to achieve the CEHAPE objectives seemed necessary. It was noted, however, that the current activities require evaluation in order to check whether the approach adopted has been effective. Only with regard to monitoring children's exposure to the agents in question was it noted that additional policy action is required for the Netherlands to comply with the international agreements.

Although reducing exposure to toxic chemicals, noise and biological agents is not a priority under the Youth Environmental Health Action Plan, certain activities have been undertaken in these areas. They include research into combined exposure to noise and air pollution, disseminating information about hazardous substances in the home, studies to fill gaps in our knowledge of brominated flame retardants and a campaign to highlight the dangers of ultraviolet radiation.

5.2 Progress

Appendix 1 to this report includes a summary of the status of activities related to RPG III in the Netherlands. Because a safe working environment is adequately covered by regular policy, and to a large extent so too is exposure to asbestos, they are not discussed here. It should be noted, however, that there is an ongoing debate in this country regarding standardization, the presence of asbestos in schools and the quality of asbestos removal and its supervision.

5.2.1 Noise

Many of the activities designed to reduce children's exposure to noise are described under RPG II or III. The RIVM is currently carrying out research into combined exposure to noise and air pollution. The results are due to be published in spring 2010.

5.2.2 Food safety

Numerous programmes dedicated to ensuring the safety of food are in place. A recent report on young children's exposure to contaminants and pesticide residues in foodstuffs (Boon, Bakker et al., 2009) revealed that baby and infant food in the Netherlands is safe as regards levels of the mycotoxins fumonisin B1, deoxynivalenol and patulin, as well as nitrates and organophosphate insecticides. There is some chance of suffering negative health effects from exposure to dioxins and acrylamide, however, although the risk is not deemed great.

5.2.3 Chemicals

Policy on chemical substances is governed by the European REACH regulation. In the context of the Dutch CEHAP, the RIVM has set new values to estimate children's exposure to certain chemicals by hand-to-mouth contact (ter Burg, Bremmer et al., 2007) and has also described a method for determining safe limits for chemical substances in toys (van Engelen, Park et al., 2008). Action targeting such substances in the indoor environment are described under RPG III.

5.2.4 Radiation

To limit damage caused by ultraviolet radiation, children, parents and nursery workers are informed about its harmful effects and about ways to minimize exposure. The Royal Netherlands Meteorological Institute issues a daily forecast of solar UV levels for the next few days. No government ministry is currently responsible for ultraviolet radiation.

To assess exposure to radon, concentrations in newly-built homes were measured in 2006. The Netherlands has Europe's second-lowest average annual indoor radon concentration (Pruppers, Kelfkens et al., 2006). Another study, looking at the measuring techniques used and at thoron's contribution to the figures, is currently under way. A further survey of radon concentrations in new homes begins early this year, with the results due in 2011.

5.3 Figures and trends: cognition and skin cancer

The purpose of RPG IV is, amongst other things, to reduce the health risks associated with exposure to noise and ultraviolet radiation.

5.3.1 Noise and cognition

Excessive noise in the living and working environment can give rise to a variety of health problems, such as discomfort and disturbed sleep, hearing loss, hypertension and coronary heart disease. In children, long-term exposure to transport noise can affect learning performance, the main effects being cognitive: impaired reading comprehension, attention deficiency, long-term memory loss and reduced problem-solving ability. The average reading performance of children at primary schools close to three major EU airports, amongst them Schiphol in the Netherlands, falls when noise levels are high (van Kempen, van Kamp et al., 2005); the effect has been estimated as equal to approximately one month's loss of ability per 5 dB(A). This is greater than the difference between boys and girls, but less than that between the children of well-educated and poorly educated parents.

5.3.2 Skin cancer

About 25,500 new cases of skin cancer are reported in the Netherlands each year, making it one of the most common forms of the disease. And approximately 650 people a year die of the condition. Irregular exposure to ultraviolet radiation and sunburn are risk factors for melanoma, and to a lesser extent for basal cell carcinoma. Because of this, it is important that young people, especially, be protected from such radiation. In the case of squamous cell carcinoma, the most significant risk factor is total cumulative UV dose. For more information, see Appendix 2.

6 Conclusion

In order to meet the CEHAPE objectives in RPG II and III, a variety of additional policy action has been taken in the Netherlands since 2005. Much of this has sought to make the living environment more child-friendly, to encourage physical activity by children and to improve the quality of the indoor environment, at schools and childcare facilities as well as in homes. An earlier RIVM assessment (van Overveld & Houweling, 2005) indicated that regular policy was adequate to meet the RPG I and IV objectives in CEHAPE and the Ministerial Declaration. None the less, a number of additional activities have been undertaken in those two domains.

Based upon the 2005 assessment, it was concluded that there were many fine examples of successful policy activities but that these good ideas were not being reapplied consistently elsewhere. Moreover, there was a lack of cohesion and children themselves had very little input into the initiatives (VROM, 2006).

The assessment reported here reveals that specific, concerted regard for child health and development when shaping the living environment has increased in recent years. Particularly in the case of exercise and indoor air quality, policy action has been taken on a large scale. Examples of this range from information drives and awareness-raising campaigns designed to change behaviour to financial incentives and legislative measures, amongst them amendment to the statutory building regulations (for a full list, see Appendix 1). Youth participation in policy development and implementation has also been enhanced in the past few years, through such measures as the "Every Chance for Every Child" programme and the "Young Local Cup".

To what extent the actions surveyed are effective, whether they result in attainment of the policy goals and where any gaps in policy lie are not matters for this report. As far as possible, the effectiveness of the measures described here will be assessed later this year, during the planned evaluation of the National Action Plan on Environment and Health for 2008-2012. The results will then be published in the State of the Living Environment of September 2010. By then, the final data from the WHO survey will be available and so a comparison can be made between the health and environment policy situation in the Netherlands and other countries[5].

[5] Appendix 2 contains the latest available figures for a number of environmental and health indicators. However, much of this information is out of date. To properly evaluate the effectiveness of policy action, the data – particularly that pertaining to the ENHIS indicators – will have to be updated. Which in turn will require European cooperation and resources.

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Appendix 1: Current status of Dutch policy in respect of the Regional Priority Goals in the Children's Environment and Health Action Plan for Europe (CEHAPE)

RPG I: reduce the morbidity and mortality arising from gastrointestinal disorders by ensuring adequate access to safe, affordable water and sanitation.

Objective	Action	Status	Implementation/ coordination	Source/ contact person
1.1 Access to clean drinking water at home and elsewhere.	General	EU legislation on drinking water quality has been implemented. National policy: Water Supply Act and Water Supply Order. From 01/2011: Drinking Water Act and Drinking Water Order.	VROM.	Ans Versteegh (RIVM).
	Reduce levels of environmental pollutants in sources of drinking water	Covered by national policy, with additional measures concerning enteroviruses, Cryptosporidium/Giardia and Campylobacter (Water Supply Order). RIVM has conducted research into the increasing use of surface water in the mains supply and into the effectiveness of treatment methods. See Wuijts & Dik (2009), at http://prev-rivm/bibliotheek/rapporten/609033006.html. Risk management takes place at sources. Measures in place include the replacement of lead pipes and monitoring for contamination at groundwater and surface water extraction points.	VROM, VWS. VROM.	Ans Versteegh (RIVM).
	Legionella prevention.	Covered by regular legislation.	VWS, VROM, SZW, V&W.	Ans Versteegh (RIVM).
	Promotion of hygienic behaviour at schools, nurseries, etc.	Under way.	Community health services.	Ans Versteegh (RIVM).
	Approval policy for sanitary tap ware.	An approval policy for sanitary tap ware has been proposed, based in part upon the findings of a study of drinking water quality in new homes (Wuijts, Slaats et al., 2007). This affects taps made mainly of metal. Items of this kind are to be covered by the policy for metal products contained in a new Ministerial Regulation, which is currently still in draft form. This means that only	VROM	van der Aa & Tangena (2009).

Objective	Action	Status	Implementation/ coordination	Source/ contact person
		alloys on an approved list (see Appendix B3 of the regulation) may be used in the manufacture of sanitary tap ware.		
	Recommended flushing out of drinking water systems in new homes.	A campaign to encourage the flushing out of new water pipes was launched in July 2009. Cards are hung from the taps in new homes, advising the householder to run the water for a while before use. For more information about the campaign, see www.kraandoorspoelen.nu.	Association of Dutch Water Companies (Vewin), in partnership with individual suppliers.	
1.2 Sewage treatment and waste water.	General	Covered by regular policy and legislation.	VROM, V&W.	
	Prevent cross-contamination of surface water by waste water in combined sewer system	All high-risk sewer overflows have been made safe. In new residential developments, rainwater and domestic waste water are drained separately. With existing housing, this is done only in the event of district regeneration projects or if the sewers have to be replaced.		
1.3 Bathing water quality: (i) seawater and natural fresh water.	i) Quality monitoring and reporting.	EU legislation has been implemented. The RIVM conducts an annual survey of community health services and provincial authorities to find out how medical complaints associated with the recreational use of natural water they have recorded.	Food and Consumer Product Safety Authority (VWA), VROM, V&W	Cisca Schets (RIVM).
	Public information about bathing water quality parameters, causes of contamination and preventive measures.	Both current and regular, in newspapers and on radio, television and the internet.	Provincial and water authorities.	
(ii) swimming baths.	ii) Policy concerning monitoring parameters, both microbiological (pseudomonas aeruginosa, legionella, colony counts) and physical and	Covered by national policy.	VROM.	

Objective	Action	Status	Implementation/ coordination	Source/ contact person
	chemical (free chlorine, pH value, oxidation-reduction potential, combined chlorine).			

RPG II: prevent health consequences from accidents and injuries, and pursue a decrease in morbidity by promoting adequate physical activity.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
2.1 Road safety.	General.	Legislation governing seat belts, probationary driving licences, speed restrictions in areas used extensively by children, mandatory cycle paths and driving under the influence of alcohol and drugs has been implemented. The Mobility Policy Paper lists road safety as one of its main priorities, with the intention of improving it despite growing public mobility. This goal should be achieved through innovative technology, by considering safety when designing public space, with good maintenance and through better domestic and international agreements. Public information campaigns to improve behaviour should also contribute to greater safety on the roads.	V&W.	Nel Aland (V&W).
		The Road Safety Action Programme for 2009-2010 (http://www.verkeerenwaterstaat.nl/Images/20092769 bijlage 1_tcm195-244775.pdf) describes a number of activities, including several generic ones based upon the three pillars of road safety policy: cooperation, completeness and permanence. Within this framework, children are singled for special attention. In 2009/2010, for example, V&W has started a regional trial with an innovative means of motivating youngsters to wear cycle helmets voluntarily. In addition, the Dutch Road Safety Prize has been inaugurated to reward the best idea in this field.	V&W in partnership with the Joint Provincial Forum (IPO), metropolitan region transport authorities, Ass. of Regional Water Authorities (UVW) and Ass. of Netherlands Municipalities (VNG)	

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Creation of traffic-free zones around schools and nurseries, as part of THE PEP* implementation.	This is already happening at the local level, but there has been no national action as yet. Local initiatives such as "School on Save" (http://www.schoolopseef.nl/), the "Traffic Snake" (http://www.verkeersslang.nl) and the "Child Ribbon" (www.kindlint.nl) are contributing towards this objective. *THE PEP= Transport, Health and Environment Pan-European Programme.	V&W	Youth Environmental and Health Action Plan.
	Road-safety education aimed at children.	By third-sector organizations like the Dutch Traffic Safety Association (VVN) and Transport Knowledge Resource Centre (KpVV). Resources available include an online "permanent education toolkit" (http://pvetoolkit.kpvv.nl/), which contains selected items from the range of educational projects and products available to each target group: the KpVV itself, provincial authorities and regional road safety bodies. Also available from the KpVV is the report *Implementation of Road Safety and Health Education in Secondary Schools: a literature survey* (http://www.kpvv.nl/files_content/kennisbank/Verkeers%20en%20gezondheidseducatie%20in%20VO%20compleet%20eBook.pdf).	Royal Dutch Touring Club (ANWB), VVN, KpVV etc.	
2.2 Personal non-traffic accidents.	Implementation of legislation and regulations covering safety in and around the house, including building regulations and trading standards law.	Done. Specifically for children: safety of toys and play equipment.	VWS.	
	Public information.	Mass media campaigns organized by the Consumer Safety Institute, including a new child safety campaign every two years. See www.veiligheid.nl.	VWS, Consumer Safety Institute.	
	Safe schools.	OCW provides information about physical and social safety in schools. There is no additional legislation on top of building regulations and the like, but there are information drives such as the Consumer Safety Institute's "Safety at Primary School" campaign.	OCW, Consumer Safety Institute.	
	Safe workplaces: implementation of health and safety law.	Done.	SZW.	

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
2.3 Physical activity.	As a possible follow-up to "Operation Young", more focus upon a healthy living environment.	No follow-up as such, but J&G's "Every Chance for Every Child" programme (http://www.jeugdengezin.nl/kamerstukken/2007/alle-kansen-voor-alle-kinderen.asp) does include a section on a healthy lifestyle which addresses sport, exercise and combating obesity. The aim is that the number of young people with a healthy lifestyle will have increased by 2011. That involves a combination of meeting exercise targets, not smoking, drinking less alcohol and so on. Parents are educated on such matters as healthy eating and drinking, and there is an active policy in place – with young people especially targeted – to encourage sport exercise. A policy paper entitled *Healthy Youth* is to be submitted to Parliament shortly.	J&G.	Youth Environmental and Health Action Plan, Natalie Jonkers.
	Space for Sport and Exercise: more focus upon children.	By creating an alliance of schools and sport, this collaboration between VWS, OCW and the Dutch Olympic Committee and National Sports Federation (NOC*NSF) hopes to encourage all young people to begin a lifelong engagement with sport and exercise. The National Sports and Exercise Action Plan (http://www.nasb.nl/) funds and advises local authorities and other partners. It has no legislative basis. A national government incentive programme encourages joint employment in education and sport – for example, someone who works half the time as a school PE teacher and the other half as a trainer at a sports club. Use of sporting authorities and celebrities, as in the Krajicek Playgrounds and Cruijff Courts initiative. Government programme for ethnic-minority youth participation through sport (MADS).	VWS, together with OCW, NOC*NSF.	Youth Environmental and Health Action Plan.
	Policy memorandum on play areas, encouraging local authorities to reach agreements concerning children and public outdoor space.	A policy memorandum (http://kindvriendelijkesteden.nl/images/stories/algemeen/buitenspeelruimtegemeentes.pdf) has been circulated and local authorities do provide play areas, but there is no statutory norm. In April 2006 there was a call for 3 per cent of public outdoor space to be designated as play areas. A *Play Areas Policy Handbook* has been issued and a Child-Friendly Cities Network (http://www.kindvriendelijkesteden.nl/) has been established.	VROM.	Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Obesity Policy Paper (2009): additional efforts for children and young people.	Inform parents and children about healthy choices. Growing up in a healthy environment. Adopt an all-embracing approach. Link prevention and care for young people. http://www.minvws.nl/kamerstukken/vgp/2009/nota-overgewicht.asp	VWS.	
	Choosing a Healthy Life (2006): preventive health paper.	A paper produced once every four years and containing priorities for collective preventive health measures. The objective is to reduce the burden of disease. Priorities include obesity, diabetes and depression, with a specific focus upon obesity in children and young people with a view to preventing problems in later life. http://www.minvws.nl/kamerstukken/pg/2006/preventienota-kiezen-voor-gezond-leven.asp	VWS.	
	"30 Minutes of Movement" campaign.	Launched in 2007, the campaign runs until 2010. Its aim is to support national and local policy, with a specific focus upon children.	VWS.	
	"Go for Health" project.	See http://www.gavoorgezond.nl/. Aimed specifically at children, the project has five main themes: nutrition, exercise, physical health, the social environment and a safe and health school climate.	VWS.	
	Obesity Covenant and Healthy Weight Covenant.	The Obesity Covenant was signed in 2005 as the first step in a joint approach to the problem with third-sector partners. The Healthy Weight Covenant was signed in 2009 by the Minister of VWS and more than twenty partners from the business community, city governments and the third sector. This new agreement covers the period 2010-2015 and includes a "subcovenant" on "Young People of a Healthy Weight". See http://www.convenantovergewicht.nl/ and http://www.convenantovergewicht.nl/assets/Image/ADM/D/deelconvenant_intersectoraal_lokaal_beleid__def__16112009.pdf.	VWS.	Frederiek Mantingh.
	"Dutch Vigour" component of the 2028 Olympic Plan	Encouraging all sectors of the population to lead an active and healthy lifestyle.		

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Other programmes and initiatives.	These include "Health – Local First". Through the "Children Participate Covenant" and grants to local authorities from its policy fund for poverty alleviation, the Ministry of Social Affairs and Employment (SZW) is enabling children from poor families to take part in sports. VWS also subsidizes the Youth Sports Fund. Other initiatives include "Big Move", "From Pain to Power" and "Ethnic-Minority Youth Participation", as well as various programmes organized by the Netherlands Organization for Health Research and Development (ZonMW), such as "Healthy Power".	VWS, SZW, OCW, local authorities, etc.	
	Health Council of the Netherlands and Council for Housing, Spatial Planning and the Environment advice.	A request for advice with the aim of acquiring knowledge about the relationship between the physical environment and exercise habits, paying particular attention to specific groups including children. Currently in preparation.	VROM, VWS.	
Playing fields, playgrounds and other sports and play facilities.	Social cost-benefit analysis of green space (2006).	The 2006 social cost-benefit analysis "Investment in the Dutch Landscape" has no specific focus upon young people.		Youth Environmental and Health Action Plan.
	"Green and Healthy City" and "Green in and around Town": focus upon the health function of green space.	The "Green and the City" knowledge network (www.groenendestad.nl) provides tips and advice on how local partners can increase the amount of green space available for children to use.	LNV.	Youth Environmental and Health Action Plan.
	Youth, Nature, Food and Health Action Plan: increase young people's involvement in the natural environment.	This programme is called "Great Green! By and for young people". The aim is that by 2015 children and teenagers will generally have a positive attitude towards healthy, responsibly produced food and active involvement in the natural environment. Includes research into understanding young people as potential users of the natural environment, published in the Alterra report "Playing in Green".	LNV.	Youth Environmental and Health Action Plan, Marianne van de Bogaart
	Nature and Environmental Education Implementation Programme.	The programme focuses specifically upon young people. The creation of "green" learning and play sites has begun. The primary purpose is education, but exercise is also included.	LNV.	Maria le Grand.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Use of Urban Renewal Investment Budget incentive funds to create urban green space.	Funds from the Urban Renewal Investment Budget (ISV) have been made available to create green space in towns and cities. This activity falls within the scope of national cities policy (GSB).	Coordinated by Housing, Communities and Integration (WWI, a VROM portfolio).	Youth Environmental and Health Action Plan.
	Expand the Environmental Subsidy Scheme for Social Initiatives (SMOM) in line with the Future Environment Agenda.	Has not happened.		Youth Environmental and Health Action Plan.
	Repeat the Child-Friendly Initiatives competition, with additional criteria covering environmental quality and health.	Has yet to happen, but will.	VROM.	Youth Environmental and Health Action Plan.
	"Growing Up Green": advice concerning greater cohesion in "green" youth policy.	Completed; see http://www.rlg.nl/adviezen/088/088.html.	Council for the Rural Area (RLG).	
	"Health, Welfare and Green" policy vision: green space for a healthy life.	In preparation.	LNV.	
	"Mud on Your Trousers".	Creation of six "natural" play areas through a participatory process centring on the active involvement of families. The six locations are in Groningen, Leeuwarden, Almere, Enschede, Zutphen and Venlo. Funded by J&G. ZonMW assesses the plans and distributes the resources.	Dutch Association for Rural Landscape Management.	

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Play Knowledge Resource Centre.	Concerned with the importance of play and intending to gather and develop knowledge about it, this resource centre is currently in the process of being established.	Jantje Beton, Play Industry Association, Consumer Safety Institute, Netherlands Institute for Sport and Physical Activity (NISB), National Organization for Playgrounds and Child Recreation (NUSO), Scouting Netherlands, Netherlands Organization for Applied Scientific Research (TNO).	
	"Active Youth in Green Neighbourhoods"	Voluntary work with urban nature by young people. In the country's forty highest-risk neighbourhoods, young people are being encouraged to engage actively with the local natural environment through training and supervision. Funded by J&G.	Alexander Foundation.	
	"Leap of Nature" project.	A joint project by the Netherlands Institute for Sport and Physical Activity (NISB), play charity Jantje Beton and the nature conservancy Staatsbosbeheer. The aim is to give groups of urban children the opportunity to play in nature reserves close to where they live. Following successful pilots, Leap of Nature is now to be extended to more sites.	LNV.	
Child-friendly urban development.	Inclusion of children and young people's needs in studies of the use of urban space, such as those prompted by the Public Space Policy Paper.	As of spring 2007, 51 per cent of local authorities had responded. Three-quarters (75 per cent) of them stated that they have their own play areas policy, and interest in such measures is increasing. "Green and the City" provides local government officers with tips on such issues as providing sufficient green space for children to play in.	VROM, LNV.	Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Long-term support for networks of child-friendly towns and cities and "healthy" local authorities, promoting environmental, health and living space policy coordination, as well as the exchange of knowledge and experience between national and local levels.	It is not clear whether this is happening.		Youth Environmental and Health Action Plan.
	TNO study of child-friendly neighbourhoods in Zeist and follow-up study "Neighbourhoods and Young People".		VWS.	
	Family Policy Paper for 2008-2011	Encouraging child and family-friendly living environments. Encouraging local authorities to bear in mind criteria that have a positive impact upon family life at the local level.	J&G.	
	Child-friendly living environments.	An interdepartmental alliance for a child-friendly living environment. The Association of Netherlands Municipalities (VNG) and the Child-Friendly Cities Network also take part.		
Other general action in the Dutch CEHAP.	Encouraging a local approach in policy and projects to improve the quality of the living environment.	One of the policy priorities identified in the National Action Plan on Environment and Health is the "healthy design and development of the living environment", with young people as an important focal point. Amongst other things, the government is encouraging the sharing of local knowledge and policy instruments. The quality of the living environment is also one of the factors incorporated into the "Healthy Neighbourhood" experiments in high-problem areas.	VROM/WWI, VWS, LNV, OCW, V&W.	Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Enhancing opportunities for environmental health professionals and local authority environment and planning officers to input advice.	National Action Plan on Environment and Health includes measures to make good tools and best practices more widely available. Environmental health professionals are also supported by the RIVM's Centre for Environmental Health.	VROM, VWS.	Youth Environmental and Health Action Plan.
	Development of the *Guide to Health in Planning*.	This tool is ready and has also been translated into English. A number of the questions explore children's needs with regard to the living environment – road safety, play facilities and so on. See http://www.gezondheidinmer.nl/isurveyuk/	VROM, VWS.	Youth Environmental and Health Action Plan.
	List of tools for use in considering various aspects of the quality of the living environment.	This document, *Healthy Planning* (VROM, 2008), is ready but needs greater publicity. See http://www.vrom.nl/pagina.html?id=2706&sp=2&dn=8360 A digital database of the list has also been compiled and is available through the RIVM website at http://gezondeplannen.ibase.info/ibaserivm/(S(v3yifb3u3c243j55hw2bt455))/Default.aspx)	VROM.	Youth Environmental and Health Action Plan.
	Drawing the theme of health and the environment to the attention of NGOs and private bodies concerned with the living environment.	"Green and the City" (www.groenendestad.nl) highlights this issues and provides local government officers and professionals with tips.	LNV, VROM.	Youth Environmental and Health Action Plan.
	Research into the extent to which the CEHAPE objectives are reflected in the Youth Health Monitor, plus subsequent revision of the health questionnaires if required.	For the most part, the CEHAPE goals and objectives are expressed in terms of activities. However, these do not feature in the Youth Health Monitor. Instead, it contains a variety of indicators pertaining to numerous aspects of young people's health.	VWS.	Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Identify best practices in local interventions and publicize them on an expanded version of the existing RIVM Health and Environment website, so that they are applied on a wider basis.	This has not been done across the board, but rather with a focus upon health effects related to traffic and to the indoor environment. At the European level, THE PEP and PRONET have collected and evaluated local best practices. The theme of "healthy design and development" is also to be taken up by the RIVM this year, in the context of the National Action Plan. (See www.healthytransport.com and www.proneteurope.eu.)	VROM, V&W	Youth Environmental and Health Action Plan.
	Add a module on involving young people in policy development and implementation to the training programme for local and regional government officers.	Youth participation is an important theme of the policy programme "Every Chance for Every Child". Since 2008 the Minister for Youth and Families has awarded an annual prize, the Young Local Cup, to the local authority with the year's best initiative in this field (see www.jonglokaalbokaal.nl). The *Play Areas Policy Handbook* includes tips for local government officers, to help them involve young people in that policy. Rotterdam was the European Young Capital in 2009. The organizing body, Your World, now intends to spend 2010 and 2011 sharing its experiences and best practices in respect of youth participation, child and youth-friendly living environments and diversity throughout the rest of the country. In 2010 the Ministry for Youth and Families will present an award for the most child and family-friendly living environment and publish good examples in this domain.	J&G, VROM.	Youth Environmental and Health Action Plan.
	Youth and Family Centres.	These centres provide accessible parenting support at the local level, plus a complete range of health information. The first were opened in 2008; since the end of 2009 some 150 local authorities have one in their area. The intention is that they achieve full national coverage by 2011, with at least one in every local authority area and more in the major cities.	J&G.	

RPG III: prevent respiratory disease due to outdoor and indoor air pollution, and in particular reduce the frequency of asthmatic attacks.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
3.1 Improve outdoor air quality.	Limit industrial and transport emissions.	Covered by regular policy and legislation. The National Air Quality Partnership Programme (NSL) includes a package of measures at the national, provincial and local levels intended to reduce the risk to health and to comply on time with the EU limits for PM_{10} and NO_2.	VROM, V&W and local authorities.	Youth Environmental and Health Action Plan.
	Assess representativeness of stations in air quality monitoring network.	The National Air Quality Monitoring Network takes measurements representative of various actual situations on a selective basis. By combining the results with dispersion models which are calibrated using the measurements, it is possible to calculate the air quality data for numerous locations and so gain a good indication of exposure to atmospheric pollutants throughout the country.	RIVM.	Youth Environmental and Health Action Plan.
	Order in Health Council on vulnerable facilities.	The Health Council of the Netherlands issued recommendations for the instrument in 2008. The Air Quality Order regarding vulnerable facilities entered force on 15 January 2009.	VROM.	Other.
	Healthy design and development of the living environment.	Many different channels are used to encourage local authorities to make residential neighbourhoods in their areas healthier. A lot of the resulting measures, such as policy to promote cycling, have a beneficial impact upon air quality.	Various.	National Action Plan on Environment and Health.
3.2 Improve the indoor environment	Cover noise in the *Indoor Environment Handbook*.	The handbook has been updated.	VROM.	Youth Environmental and Health Action Plan.
	Lists of methods and tools for achieving healthy indoor air.	Partially implemented: quality chart has been compiled and standards institute NEN has revised its practical guidelines.	VROM.	Youth Environmental and Health Action Plan (VROM, 2006).
	Distribute list of tools through “healthy communities” network.	Not done; network is no longer active.		Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Research into the role of moulds and allergens childhood allergies and respiratory conditions.	The Health Council of the Netherlands has issued advice concerning allergies related to environmental factors. See Gezondheidsraad, 2007: http://www.gezondheidsraad.nl/sites/default/files/200715.pdf.	Health Council.	
	Project to raise EU awareness of topics not currently receiving sufficient attention.	To help place moulds and allergies on the European agenda, the Dutch section of the International Society of Indoor Air Quality and Climate (ISIAQ.NL) and the Dutch Association of Ventilation Equipment Suppliers (VLA) have developed a system to measure and evaluate microbiological agents. This still requires further validation, however.		
	Assessment of indoor air quality at schools.	Various studies have been completed. For reports, see http://www.vrom.nl/pagina.html?id=11719.	Studies commissioned by VROM, OCW, VWS.	Youth Environmental and Health Action Plan.
	Steps following up assessment of indoor air quality at schools.	To be carried out over the next few years. An activity plan will define how action is to be taken, and by whom.		Youth Environmental and Health Action Plan.
	Reassessment of regulations.	A request has been made to the Health Council of the Netherlands for advice as to whether the recommended CO_2 limits in the building regulations need to be revised. A response is expected in mid-2010.	VROM.	Youth Environmental and Health Action Plan.
	Assessment of schools' acoustic quality.	Completed. Follow-up action: include maximum noise limits for ventilation systems in the building regulations. This has yet to be done.	VROM, VWS.	Youth Environmental and Health Action Plan.
	Meta-analysis of literature and of completed studies at schools and childcare facilities.	Completed; see http://www.vrom.nl/pagina.html?id=2706&sp=2&dn=w970.	VROM.	Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	VROM Inspectorate, Northern Region, study of indoor environment at schools.	Completed; see http://www.vrom.nl/pagina.html?id=2706&sp=2&dn=8047.	VROM, VWS, OCW, SZW.	Youth Environmental and Health Action Plan.
	Improvement initiative in secondary education.	Yet to be done.		Youth Environmental and Health Action Plan.
	Radon measurement at the schools involved in the study.	Not done.	RIVM on behalf of VROM.	Youth Environmental and Health Action Plan.
	Ventilation information for schools.	Various initiatives are currently in their start-up phase. One-day inspection visits have been piloted and this method is to be adopted by community health services for all primary schools over the next five years. If the results are favourable, a similar approach will then be applied to childcare facilities.	Community health services on behalf of VROM.	Youth Environmental and Health Action Plan.
	Approach schools to provide customized ventilation advice.	Completed. See also the action for the improvement initiative.	Community health services on behalf of VROM.	Youth Environmental and Health Action Plan.
	Proposal for a major follow-up project in 2007	Not submitted to EU Directorate General for Health and Consumers (DG Sanco). To be carried out by the Netherlands Association for Community Health Services (GGD NL) over the next five years, based upon the Government Vision for the Indoor Environment at Primary Schools.	GGD NL on behalf of VROM and OCW.	Youth Environmental and Health Action Plan.
	Complete awareness-raising project for teaching staff and pupils.	Has begun.	VROM, OCW.	Government Vision for the Indoor Environment at Primary Schools
	Maximum noise level for classroom ventilation systems.	Included in the new building regulations due to take effect in January 2011.	VROM/WWI.	Government Vision for the Indoor Environment at Primary Schools

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Circulation of air in classrooms with natural ventilation complies with building regulations.	Under way.		Government Vision for the Indoor Environment at Primary Schools
	Classroom temperatures are controllable in summer.	Not yet begun.		Government Vision for the Indoor Environment at Primary Schools
	Covenant with stakeholders containing agreements at administrative level concerning tasks and roles.	Covenant has yet to be agreed. The focus at present is the compilation of a joint plan of action, which is due to be ready in the second quarter of 2010. The steering group is made up of VROM, OCW, the Council for Primary Education (PO-raad) and VNG. The Platform for the Indoor Environment at Schools provides input. The plan of action is to include the following items: develop a series of inspiring and innovative specifications that will serve as an example to good, modern primary schools (action: Chief Government Architect); revise the building regulations (changes expected to take effect on January 2011) to include requirements for supplementary ventilation, maximum noise levels for mechanical ventilation systems and a minimum ventilation capacity according to the number of persons in the room (action: "Government Vision for the Indoor Environment at Primary Schools" and Chief Government Architect).	VROM.	Government Vision for the Indoor Environment at Primary Schools
	One-day inspection visits to primary schools.	Action under way for the next five years.	GGD NL on behalf of VROM	Government Vision for the Indoor Environment at Primary Schools
	Make funds available for schools to purchase sun blinds, make minor structural adjustments and so on.	Under way.	OCW	Government Vision for the Indoor Environment at Primary Schools

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Particular attention to compliance and to quality of permit conditions at schools, both new and renovated.	Research was conducted in 2009 into the issuing of permits to a number of schools. They continue to be monitored in 2010.	VROM Inspectorate.	Government Vision for the Indoor Environment at Primary Schools
	Advice from Chief Government Architect concerning climate proof school building.	Advice was issued in July 2009 and a policy response appeared in November. Activities are to be incorporated into the plan of action for school indoor environments.	VROM.	Parliamentary debate on the indoor environment, July 2008.
	"Fresh Schools" programme, part of KOMPAS project for energy-aware living and working.	Under way.	SenterNovem on behalf of WWI.	
	Subsidy scheme to renovate schools and introduce energy-saving measures.	The government made €165 million available at the beginning of July 2009.	OCW.	OCW incentive funds.
	School building Partnership.	The Council for Primary Education (PO-raad) and construction industry associations have joined forces to build better schools. A covenant was signed on 10 November 2009 by the PO-raad, the Royal Institute of Dutch Architects (BNA), the Dutch Association of Consulting Engineers (NLingenieurs), the National Association of Installation Engineers (UNETO-VNI), the Dutch Construction and Infrastructure Federation (Bouwend NL), the Dutch Construction and Infrastructure Contractors Federation (Aannemersfederatie NL), the System Building Knowledge Resource Centre (Systeembouwend NL) and the Service Centre for Schoolbuilding. Over the next year, the partnership is to combine know-how and experience gleaned from twenty school building projects to produce publications and presentations that will inform local authorities and governing bodies about how to create a healthy, functional and futureproof school building.	Service Centre for Schoolbuilding.	

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	"Energetic Schools" campaign.	At the request of the Minister for VROM, the Energy-Saving in the Built Environment (EGO) group at WWI has launched an "Energetic Schools" campaign with the aim of improving the indoor environment as well as cutting energy consumption. This is done by providing participating schools with customized advice and a teaching pack. The appointed contractor is the Dutch Climate Alliance which, together with local nature and environmental education (NME) centres, in mid-2009 recruited local authorities and schools to take part in the campaign in the 2009-2010 school year. These participants are actively supported by the NME centres. Schools can also order the teaching pack and work on their own, without NME assistance. So far, ten local authorities and fifty schools have been selected to participate.	WWI/EGO	
	Consider the indoor environment during health and safety checks at crèches.	Covered by the annual risk audit of childcare facilities.	Community health services.	Youth Environmental and Health Action Plan.
	Assess the quality of the indoor environment at childcare facilities.	The study has been completed and is to be submitted to Parliament in 2010, together with a proposed plan of action. That is being compiled in collaboration with national parents' organization BOinK and the two business associations in the childcare sector, the Social Enterprises Group (MOgroep) and the Association of Childcare Enterprises.	VROM, OCW.	Youth Environmental and Health Action Plan.
	Improvement initiatives for childcare facilities.	Responsibility for providing information has been assumed by BOinK.	BOinK.	Youth Environmental and Health Action Plan.
	Ventilation information for childcare facilities.	No follow-up as yet (see information for schools).		
	Brochure for parents and guardians to provide information and advice about hazardous substances at home.	Not done. However, VROM is this year launching a campaign about emissions from building materials and interior design products in babies' bedrooms.	VROM and VWS, in collaboration with Consumer Safety Institute.	Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Research into quality of domestic indoor environment.	A study of 1240 homes was conducted in 2005-2006, to assess the quality of their indoor environment.	VROM.	National Action Plan on Environment and Health.
	Guide for householders with tips for a healthy indoor environment at home.	Information is available both through the government's public information service and on the VROM website. See the *Ventilation and Indoor Environment* dossier at http://www.vrom.nl/pagina.html?id=11716.	VROM.	Youth Environmental and Health Action Plan.
	Phasing out of flueless heating appliances.	Has begun in consultation with other parties in the chain.		Parliamentary memo 22-12-2008: "Progress on actions pertaining to ventilation and flueless heating appliances".
	Reduce emissions from building materials and interior design products.	The Asbestos Products Order bans the use and reuse of asbestos. The Chipboard Order imposes limits on the formaldehyde content of chipboard, but does not cover furniture. The 2003 building regulations include a performance standard in respect of formaldehyde concentration.	VROM.	
3.3 Reduce exposure to tobacco smoke.	Smoking ban in public buildings – schools, healthcare facilities, offices and other workplaces, shops and shopping centres, bars and restaurants – and on public transport.	The Preventive Health Policy Paper of 2006 has made reducing smoking a priority.	VWS.	
	Ban on sale of tobacco products to persons aged under 16.	Enshrined in law.	VWS.	
	"Smoking – not in front of the kids" campaign.	Under way.	VWS.	

RPG IV: reduce the risk to health arising from exposure to hazardous chemicals, excessive noise and biological agents, and guarantee safe working environments.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Consider the combined health effects of exposure to noise and air pollution in long-term research, including interactions between these factors and those between air pollution and exercise.	Research question in 2008: combined effect of air pollution and noise in respect of cardiovascular diseases (children not considered). Current research: *Risk of Airborne Particulate Matter: a toxicological and epidemiological hybrid study* (RAPTES: http://www.raptes.nl/). This is looking at the effect of PM on the human body. Healthy volunteers are briefly exposed to various kinds of PM, then subjected to a series of health tests, amongst them cycling. No children are included in the study. The EU-funded ESCAPE project (http://www.escapeproject.eu/index.php) is a European cohort study on the consequences of air pollution, including how it affects pregnancy and the development of asthma and allergies in children. The RIVM has conducted exploratory research into the combined effects of air pollution and noise on schoolchildren's cognition. The results are to be reported in March 2010.	RIVM/Utrecht University Institute for Risk Assessment Sciences (IRAS).	Youth Environmental and Health Action Plan, Erik Lebret (RIVM).
4.1 Limit exposure to noise.	General.	Policy is based upon EU and WHO guidelines, health risks and health impact assessments. Children and parents are specifically considered.		Hans Herremans (VROM).
	Consider effects upon children in planned research.	The RANCH study has investigated the effects of aircraft and other noise upon such factors as the reading performance of schoolchildren aged 9-11. See http://www.rivm.nl/bibliotheek/rapporten/441520021.pdf (van Kempen, van Kamp et al., 2005).	RIVM.	Youth Environmental and Health Action Plan.
	Pay particular attention to children as a specific target group in current policy.	Not done for noise, although it has been for air pollution.		Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Creation of traffic-free zones around schools and nurseries, as part of THE PEP implementation.	See RPG 2.		Youth Environmental and Health Action Plan.
	Reassess policy and regulations, based upon PINCHE recommendations.	See RPG 3.		Youth Environmental and Health Action Plan.
	Investigate the quality of the indoor environment at primary schools and ensure that they comply with building regulations, including those pertaining to noise.	See RPG 3.		Youth Environmental and Health Action Plan.
	Cover noise in the *Indoor Environment Handbook*.	See RPG 3.		
4.2 Food safety.	Evaluate the effectiveness as regards children of permitted levels of potentially hazardous substances in foodstuffs, and if necessary single them out as a vulnerable group.	Various programmes have been established for the routine monitoring, control and testing of foodstuffs and beverages. These include checks for the presence of pesticides and dioxin-like substances. The Food and Consumer Product Safety Authority (VWA) has developed a new approach for assessing the health risks to children of exceeding the safe daily intake limits for chemical substances. For current status, see http://www.vwa.nl/portal/page?_pageid=119,1639824&_dad=portal&_schema=PORTAL&p_news_item_id=23971.	VWA.	Youth Environmental and Health Action Plan.
	Risk assessment of young children's exposure to contaminants and pesticide residues in food.	Research was conducted by the RIVM and the RIKILT Institute of Food Safety in 2009. For the report (Boon, Bakker et al., 2009), see http://www.rikilt.wur.nl/NR/rdonlyres/BDEEDD31-F58C-47EB-A0AA-23CB9956CE18/98338/3500700021.pdf.	RIVM.	

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Food consumption surveys.	Since 2003, the collection of basic data for food consumption surveys has been conducted with a view to establishing what people aged 7-69 in the Netherlands eat. The first basic data collection period began in March 2007 and ends in March 2010. Thereafter, the intention is that the exercise be repeated in comparable three-year cycles. Information concerning food consumption by children aged 2-6 is included in the survey for 2005-2006. That is repeated once every five years. This data is used to calculate young children's exposure to contaminants and pesticide residues in food and to estimate the health risks to them.	RIVM.	Jeanette van Engelen (RIVM).
	Research into trends in eating patterns and into children's exposure to chemicals.	A study has been conducted by the RIVM, the RIKILT Institute of Food Safety and the Netherlands Organization for Applied Scientific Research (TNO). For the report, see http://www.rikilt.wur.nl/NR/rdonlyres/BDEEDD31-F58C-47EB-A0AA-23CB9956CE18/85544/R2009002.pdf.		
4.3 Limit exposure to hazardous substances.	Evaluate the effectiveness as regards children of exposure limits for hazardous substances, and if necessary single them out as a vulnerable group.	VROM has compiled a list of hazardous substances requiring priority in measures to combat them. That list was expanded in 2004. In 2005 the RIVM conducted research into cumulative exposure to pesticides (van Raaij, Ossendorp et al., 2005). See http://www.rivm.nl/bibliotheek/rapporten/320108001.pdf. Safety information about the indoor environment at home includes tips to prevent newborn babies being exposed to hazardous substances in their bedrooms (see RPG 3).	VROM.	Youth Environmental and Health Action Plan.
	Monitor exposure to hazardous substances.	Ongoing research: Generation R cohort studies (Rotterdam) and ABCD (Amsterdam).	Erasmus University Rotterdam (Generation R); Amsterdam Community Health Service in collaboration with Amster-	Youth Environmental and Health Action Plan.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
			dam Medical Centre (ABCD).	
4.4 Assess effects of substances on unborn and young children, and provide accessible information about them.	Determine where more knowledge is required about substances classified as brominated flame retardants.	Research into exposure to PBDEs has been completed, with a study of risk assessment now under way. For perfluours, an exposure study has begun and will be followed by a risk assessment.	RIVM.	Youth Environmental and Health Action Plan (source for current status: Marco Zeilmaker)
	Draw health and environmental issues to the attention of those responsible for training professionals, so that they consider risks to children and provide parents with information.			Youth Environmental and Health Action Plan.
	Assess exposure to chemicals.	The RIVM has defined new values for estimating the extent to which children are exposed to certain chemicals by hand to mouth contact (ter Burg, Bremmer et al., 2007). See http://www.rivm.nl/bibliotheek/rapporten/320005004.html.	RIVM	
	Improve methods for evaluating the safety of chemicals for children.	The RIVM is currently conducting or analysing a number of studies. At least one scientific publication is expected in 2010.	RIVM on behalf of VWA.	Aldert Piersma.
	Ensure safe limits on the chemical content of toys.	To ensure that toys are safe, the RIVM has described a method for determining acceptable limits of chemical substances in them. As well as a safe maximum concentration of the material concerned, this also considers how toys are actually used by children. See van Engelen, Park et al. (2008): http://www.rivm.nl/bibliotheek/rapporten/320003001.html	RIVM.	
	Assess the risks to unborn children from dioxins	The VWA has conducted research in collaboration with the RIVM. See R. Hoogeboom, M. Zeilmaker et al. (2009), *Risk Assessment concerning Dioxins and*		Marco Zeilmaker.

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	introduced though the ingestion of mineral clay during pregnancy.	*Heavy Metals in Clay Products for Human Consumption*: http://www.vwa.nl/cdlpub/servlet/CDLServlet?p_file_id=42303		
	Set limits on the lead content of soil.	To determine whether the concentrations of lead in old inner-city soil present a risk to health of children playing outdoors, a laboratory test has been developed (see http://www.rivm.nl/bibliotheek/rapporten/711701080.html). This can be used to estimate the bioavailability of lead from the soil in the gastrointestinal tract. Plans to validate the test by means of a study using young pigs are at an advanced stage.	RIVM.	Jacqueline van Engelen.
	The metabolism of unborn children and infants.	To identify substances with the potential to cause foetal and neonatal intoxication following intrauterine exposure, research is under way to map the metabolic activity in the foetus and neonate of enzymes involved in the biotransformation of foreign substances.	RIVM.	Jacqueline van Engelen.
	Produce a brochure for parents and guardians to provide information and advice about hazardous substances at home, including details of PINCHE recommendations.	See RPG 3.		Youth Environmental and Health Action Plan.
Consider hazardous substances during health and safety checks at nurseries.	Consider hazardous substances during health and safety checks at nurseries.	See RPG 3.		Youth Environmental and Health Action Plan.
4.5 Limit exposure to ultraviolet radiation.	"Too much sun isn't healthy" campaign.	Begun in 2004, this campaign involved information for children themselves and for parents, childcare facilities and schools. It has now ended.	Dutch Cancer Society.	

Objective	Action	Status	Implementation/ co-ordination	Source/ contact person
	Ten golden rules for sensible sunbathing.	Ten key tips to avoid overexposure to ultraviolet radiation, both outside and on sunbeds, have been posted online at www.verstandigzonnen.nl.	Sensible Sunbathing Alliance.	
	Ultraviolet radiation forecasting.	The Royal Netherlands Meteorological Institute (KNMI) issues a daily forecast of solar UV levels for the next few days. The value given correlates with the intensity of the ultraviolet radiation emanating from the sun.	KNMI.	
	Ultraviolet radiation research.	The RIVM has the following tasks: - measuring solar UV levels in Bilthoven; - analysing the effect of ozone-depleting substances upon UV levels; - analysing the effect of climate change upon UV levels; - mapping European and global solar UV levels; - assessing the health impact of changing UV levels.	RIVM.	
4.6 Radon in homes.	Monitoring.	Radon concentrations in new homes were measured in 2006. At present, further research is under ways to review the techniques used and thoron's contribution to the findings. A new survey begins early this year, with the results expected in 2011.	RIVM.	Roelf Blaauboer, Radiation Research Laboratory.

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Appendix 2: Trends in environment-related health indicators in the Netherlands and Europe

This appendix describes the environment-related health risks in the Netherlands for each Regional Priority Goal (RPG), based upon background figures and trends in a number of important health and other indicators. It also compares the policy and general situation pertaining to health and environment in the Netherlands with that in other European countries, in so far as data is available. Since they are not always up to date, the international figures provide only an indication of the actual situation. The WHO is currently working on an update of the information, but that was still not available when this report went to press.

RPG I: Reduce the morbidity and mortality arising from gastrointestinal disorders by ensuring adequate access to safe, affordable water and sanitation.

Contamination of drinking water

Microbiological contamination occurs only very rarely in the Netherlands, when there is a defect in the water treatment process or a pipe breaks. How many infections it causes is unknown. An estimated 800 people a year fall ill after inhaling the legionella bacteria, with about 40 dying as a result. The number of reports of patients suffering from legionellosis ranges between 250 and 400 each year (source: *Infectieziektebulletin RIVM/CIb*, the bulletin of the Netherlands Centre for Infectious Disease Control at the RIVM).

Drinking water contains chemical substances such as lead, nitrates, pesticides and, occasionally, medicines. These reach existing homes in such small concentrations, however, that they present no risk to health from drinking tapwater. But it has recently been established that the water in newly-built homes frequently contains larger amounts of lead, nickel and copper, to such an extent that it no longer meets the statutory quality requirements imposed by the Water Supply Act. Because those standards are based upon long-term exposure, though, which is probably not the case in these situations, for the time being there is no acute risk to health.
(Source: http://www.rivm.nl/gezondheidenmilieu/themas/water/drinkwater/index.jsp.)

Bottle-fed infants who receive water drawn from private wells or through lead pipes are at possible risk, however. Fortunately, there are few lead water pipes left in the Netherlands. The last lead mains were replaced in 2005, and by the end of 2006 all lead pipes in rented homes and 90 per cent of those in owner-occupied dwellings had to have been removed.
(Source: http://www.rivm.nl/vtv/object_document/o1514n19299.html.)

Climate change is expected to lead to a rise in infections associated with drinking water (Huynen, de Hollander et al. 2008; Ligtvoet & van Minnen, 2009). Due to lack of data, however, it is impossible to predict the precise extent of this likely trend (Ligtvoet and van Minnen, 2009).

Access to and availability of clean drinking water

Close to 100 per cent of the population in almost all western European countries, including the Netherlands, has continuous access to adequate amounts of safe drinking water at home (see figure 1).

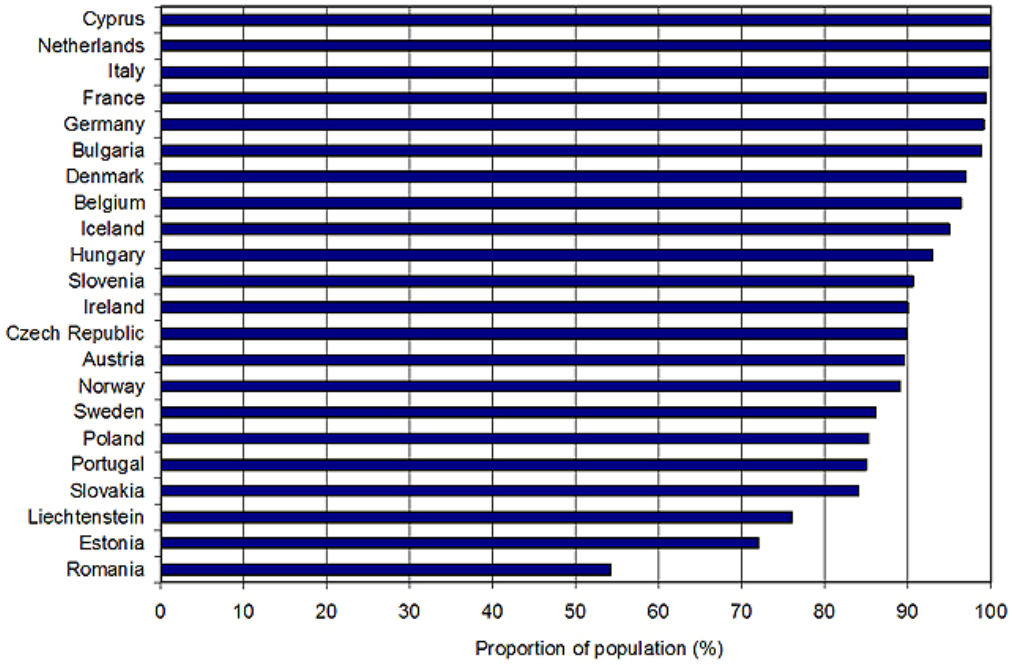

Figure 1. Proportion of the population connected to a public water supply in Europe, 2002 or last available year, based upon EUROSTAT data covering 22 countries in Europe. Source: ENHIS, 2009.

Figure 2 gives a broader view of the WHO European Region and reveals that a significant proportion of the population, especially in the Commonwealth of Independent States, has poorer access to improved drinking water sources, particularly in rural areas.

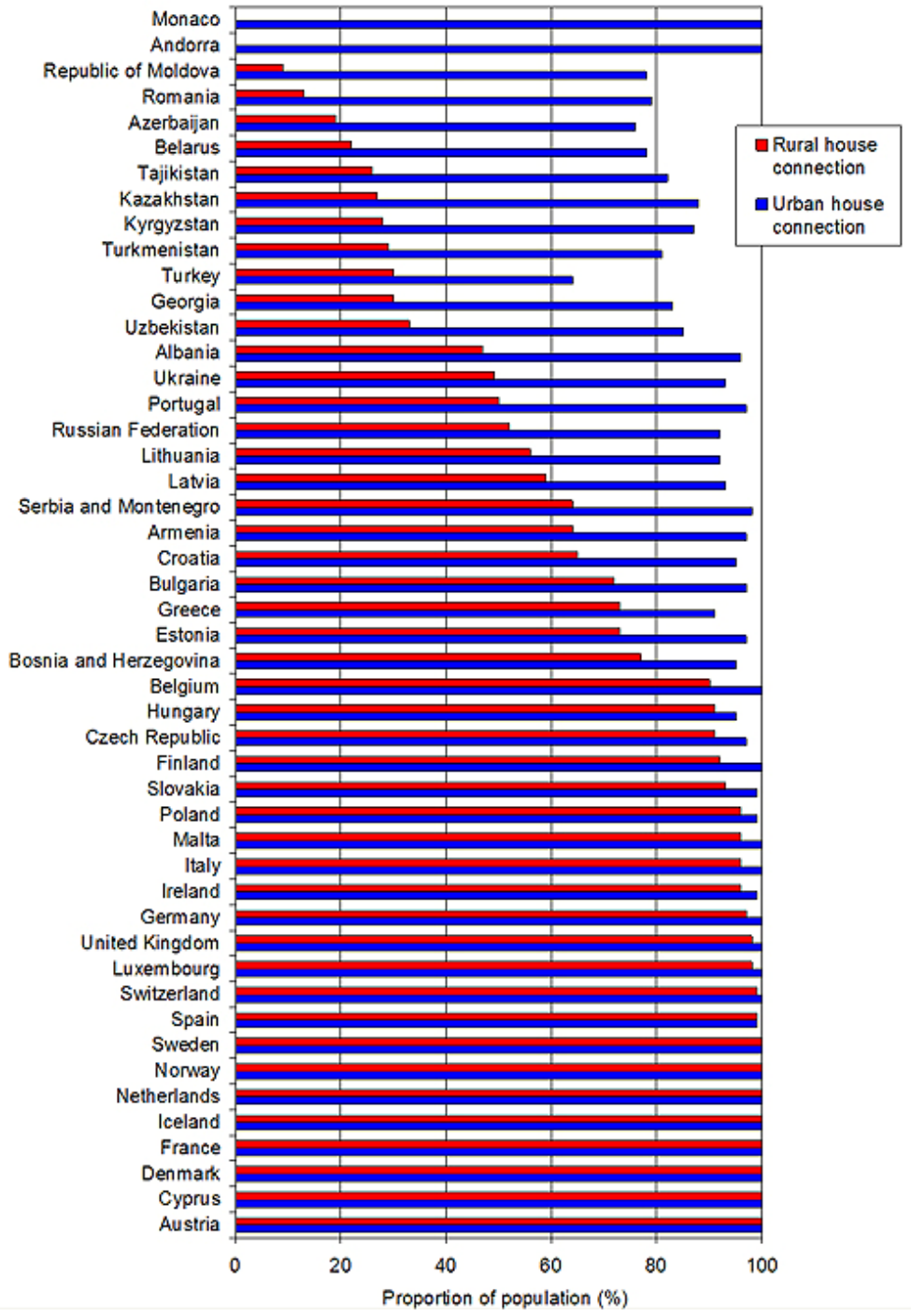

Figure 2. Percentage of the population with access to an improved water supply in urban and rural areas, WHO European Region, 2004 or last available year, based upon data from the Joint Monitoring Programme database. Source: ENHIS 2009.

Sanitation

Almost all households in the Netherlands are connected to waste water treatment facilities. But this is not always the case elsewhere in the region. In figure 3, showing the percentage of the child population living in homes connected to such facilities, the differences between western and eastern European countries are clear.

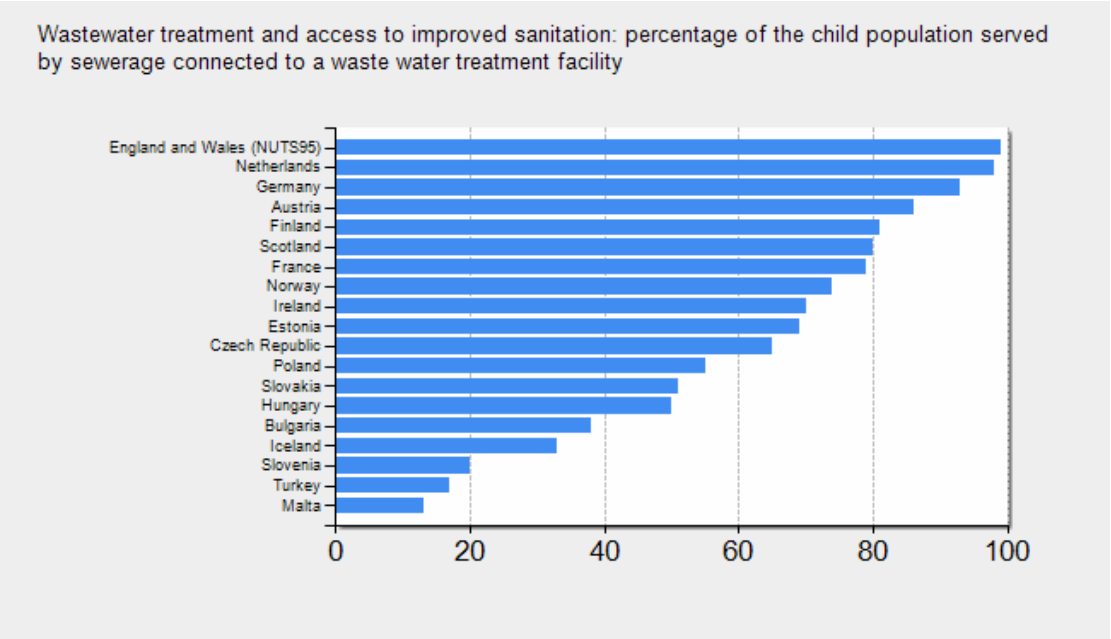

Figure 3. Waste water treatment and access to improved sanitation: percentage of the child population living in agglomerations with more than 2000 inhabitants who are served by sewerage connected to a waste water treatment facility; selected European countries, 2001. Source: ENHIS 2009.

Figure 4 shows the percentage of the population in urban and rural areas with a domestic connection to public sanitation facilities in 2004, in those Member States for which data are available. This data covers only populations connected to a sewerage system, so private septic tanks and dry sanitation are excluded.

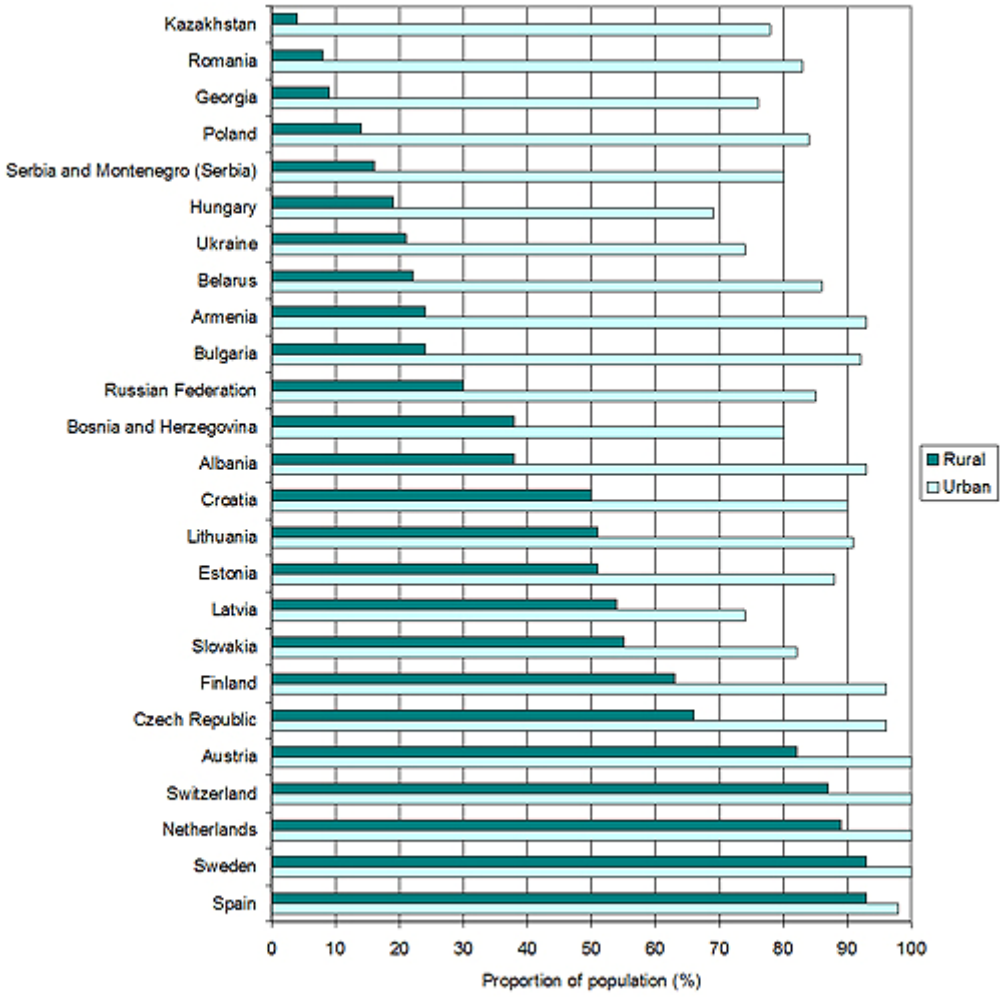

Figure 4. Percentage of the population connected to public sanitation facilities in urban and rural areas; selected countries in the WHO European Region, 2004. Source: ENHIS 2009.

Contaminated surface water

Some people develop health problems after swimming in water contaminated with micro-organisms like bacteria, viruses or parasites. Such complaints usually follow the ingestion of polluted water or contact with the skin, eyes or ears. Children, the elderly, pregnant women and people with weak immune systems are most at risk, since they are more susceptible to infectious diseases. Bathing water's precise contribution to the incidence of such diseases remains unknown, however. As well as micro-organisms, this water can also contain chemical contaminants. But their concentrations are almost always so low that they cause no medical problems. None the less, an increase in the temperature of shallow waters used for leisure and recreation may produce more toxic bacteria like blue-green algae (Huynen, De Hollander et al., 2008; Ligtvoet & van Minnen, 2009). Due to a lack of data, though, it is

impossible to quantify the precise impact of these negative developments upon morbidity and mortality rates (Ligtvoet & van Minnen, 2009).

Trends in medical complaints related to recreational surface water

The RIVM conducts an annual survey of community health services and provincial authorities to ascertain how many medical complaints associated with the recreational use of surface water they have recorded. The numbers reported seem to bear a close correlation with the average summer temperature (see figure 5): swimming is a more common activity during hot summers, whilst warmer water also contains more pathogens. And because not all complaints are reported, the actual figures are most probably higher.

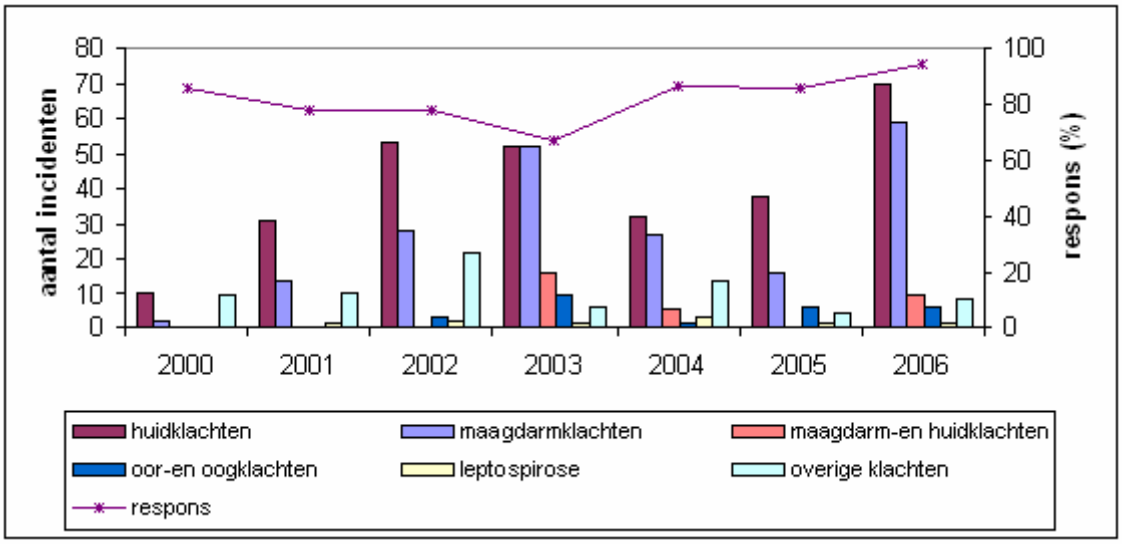

Figure 5. Number of incidents by category and total response rate reported by provincial authorities and community health services, 2000-2006. Source: Infectieziekten Bulletin 17/03/2006 and 18/02/2007; see http://www.rivm.nl/gezondheidenmilieu/themas/water/zwemwater/index.jsp.

Bathing water quality in the WHO European Region

The quality of bathing water in the Netherlands is adequate; as shown in figures 6 and 7, all sites sampled comply with the mandatory requirements. These graphs present the results of bathing water quality assessments in coastal and fresh water zones in 2005. The quality parameters were based upon criteria contained in Bathing Water Directive 76/160/EEC. Bathing sites are assessed as "Mandatory requirements fulfilled" if they meet the compulsory criteria set by the Directive. Insufficiently sampled sites are those which could not meet the required sampling frequency.

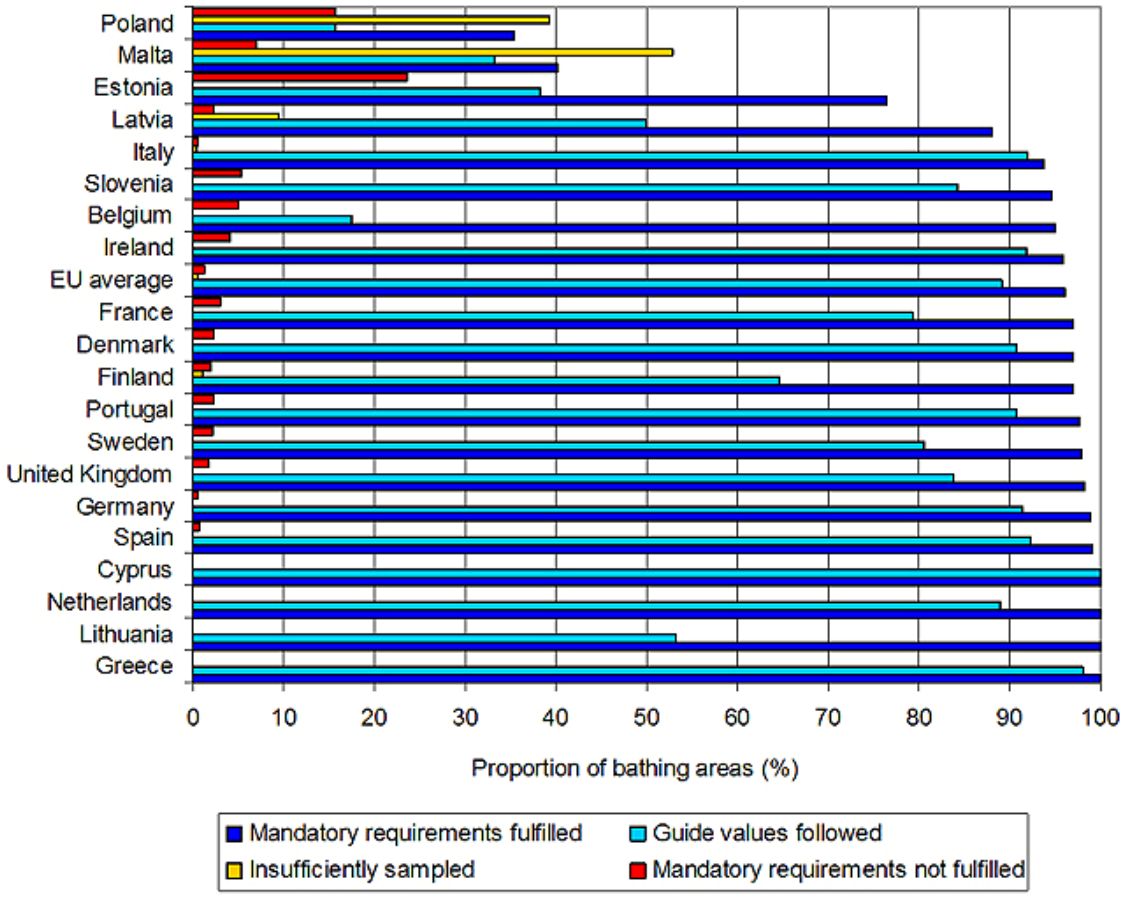

Figure 6. Bathing water quality for coastal zones in the EU in 2005, expressed as a percentage of the total number of bathing sites. Based upon the EU's annual bathing water quality report for 2005. Source: ENHIS 2009.

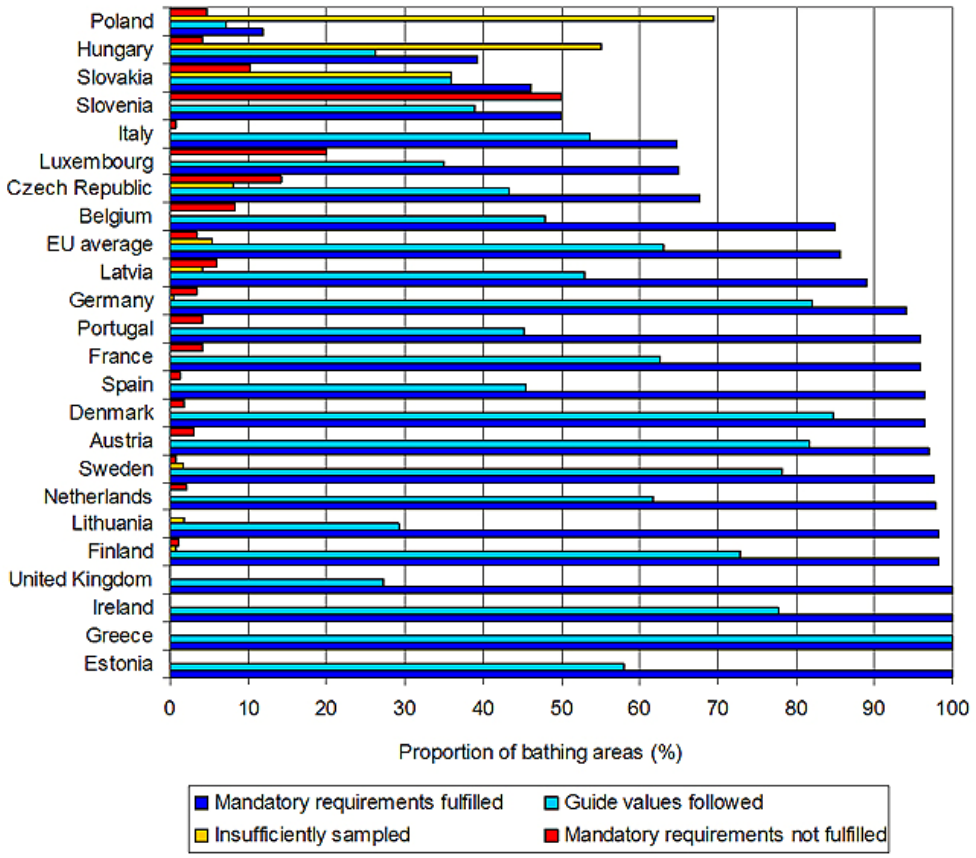

Figure 7. Bathing water quality for fresh water zones in the EU in 2005. Source: ENHIS 2009.

RPG II: Prevent health consequences from accidents and injuries, and pursue a decrease in morbidity by promoting adequate physical activity.

Personal accidents

Personal accidents, as opposed to those on the road and at work, are relatively common. Accounting for 2 per cent of the burden of disease in the Netherlands, in 2003 their consequences ranked eleventh in the list of most common medical conditions by this measure.
(Source: http://www.rivm.nl/vtv/object_document/o4514n31267.html.)

A quarter of all patients treated at Dutch hospital Accident and Emergency (A&E) units for injuries sustained in personal accidents are aged 14 or under. Apart from falls, the most common causes of accidental death in young children (ages 0-4) are choking and drowning.

Trends in personal accidents
Between 2003 and 2007, there was no significant increase or decrease in the number of A&E attendances following personal accidents.

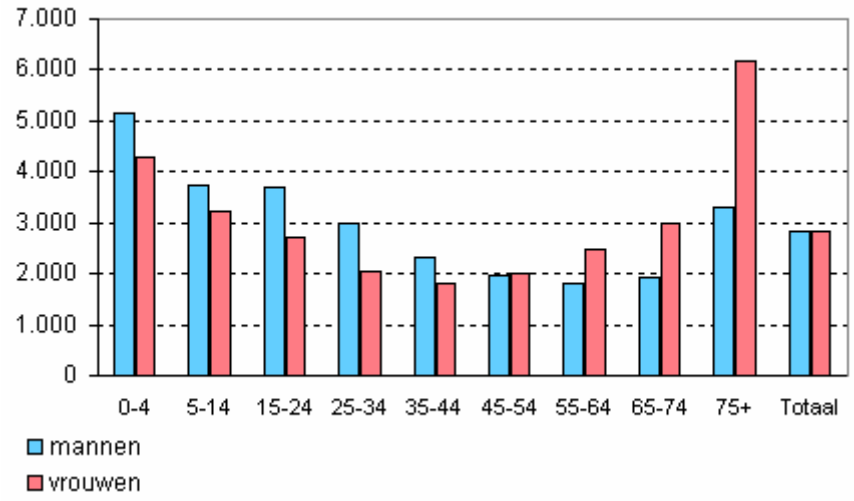

Figure 8. A&E attendances resulting from personal accidents: average incidence per 100,000 people per year, 2003-2007. Source: Dutch Injury Surveillance System, Consumer Safety Institute; see http://www.rivm.nl/vtv/object_document/o4519n31267.html.

Mortality and injuries related to road traffic accidents in the Netherlands

Each year, about 35 children aged 14 and under are killed in road traffic accidents in the Netherlands. And, according to the registration system, another 685 or so are injured seriously enough to require admission to hospital (averages for 2005-2007). The group in greatest danger in absolute terms is cyclists aged 10-14, the main reason being that this is when they first start to go out on the roads unaccompanied.

Trends in road safety

The safety of young road users has improved faster than that of the rest of the population in recent decades, and is also high compared with many other countries. In the mid-1980s, the annual child death toll from traffic accidents was about 120. But in recent years the average has fallen to approximately 35 (figure 9). That represents a reduction of 3.3 per cent a year.

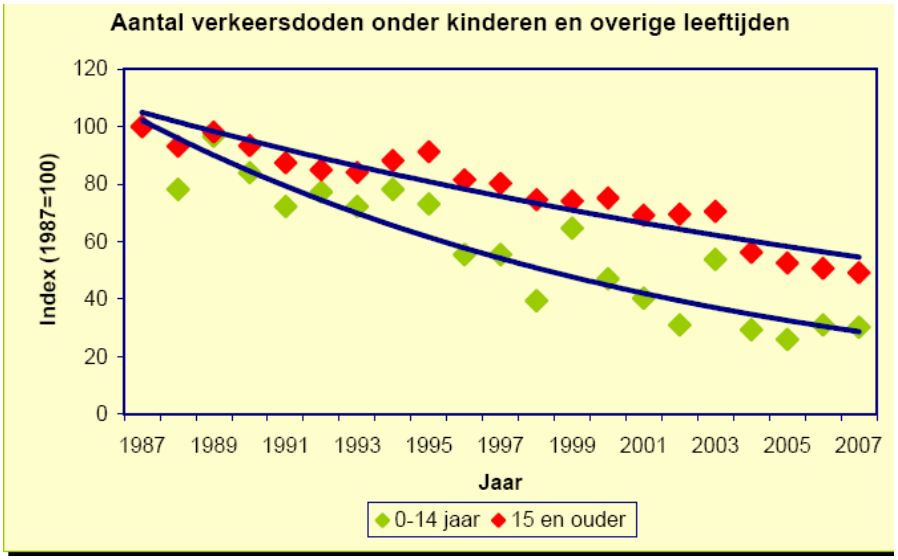

Figure 9. Indexed (1987 = 100) graph showing the number of recorded road deaths of children aged 0-14 and of other age groups (15+), 1987-2007. Source: V&W, http://www.swov.nl/nl/research/kennisbank/inhoud/30_risco/kinderen_in_het_verkeer.htm and http://www.swov.nl/rapport/Factsheets/NL/Factsheet_Kinderen.pdf.

Mortality and morbidity related to road traffic accidents in the WHO European Region

Figure 10 shows the standardized death rates (SDR) from road traffic injuries (RTIs) in persons aged under 25 for countries of more than one million inhabitants in the WHO European Region. SDRs are the average of data from the three most recent years available. The very low mortality rates in some countries in the Caucasus region and Central Asia may be related to a low level of motorization and underreporting.

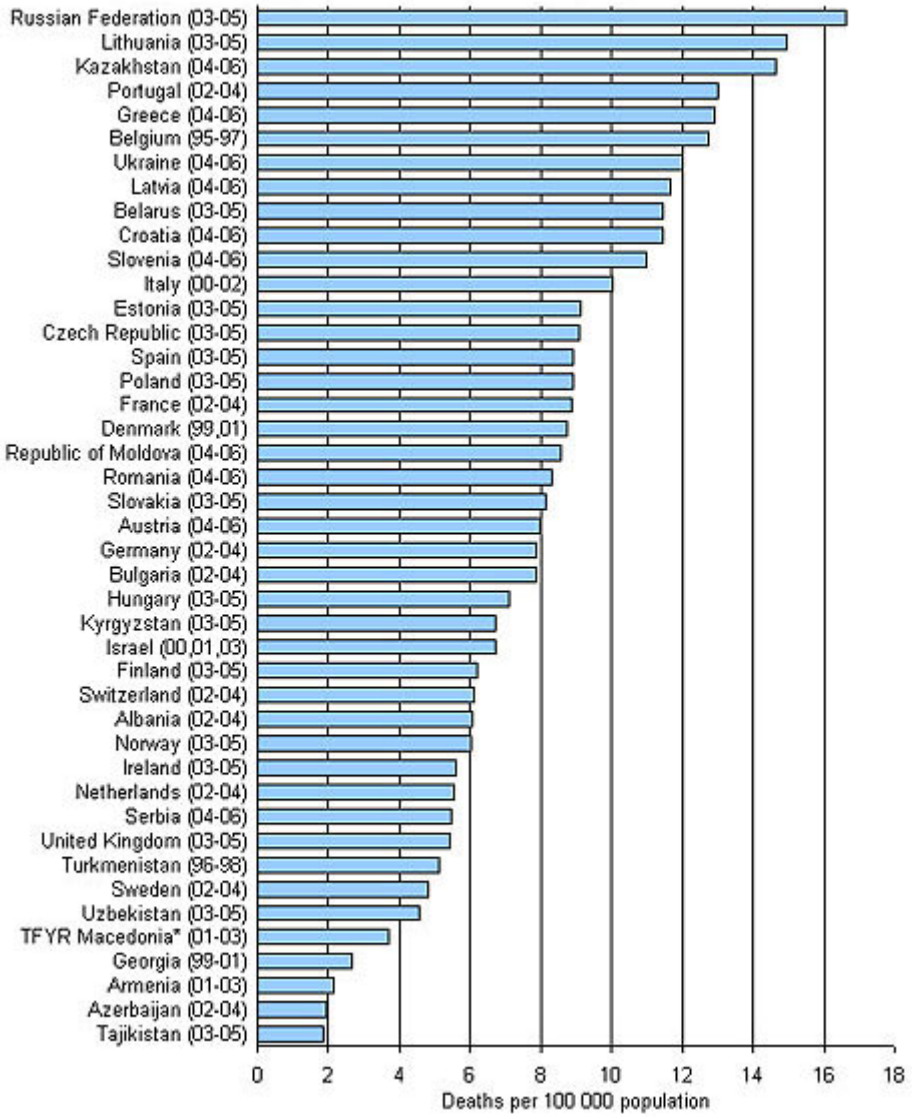

Figure 10. Standardized death rates (SDRs) from road traffic injuries in children and young people aged 0-24 years. SDR = average of the three most recent years available. * TFYR Macedonia = the former Yugoslav Republic of Macedonia. Source: WHO Health for All mortality database, May 2008/ENHIS 2009.

Figure 11 shows the standardized road traffic injury rates in children and young people by mode of transport – that is, how many car passengers, pedestrians, cyclists, motorcyclists and moped riders are injured per 100,000 people. In the "Other" category, the mode of transport is unknown, usually due to incomplete health system reports. Except in the case of Slovenia, this category forms a negligible proportion of the overall injury rate. It should be noted that data collection and reporting practices differ between countries, as does the definition of an injured person.

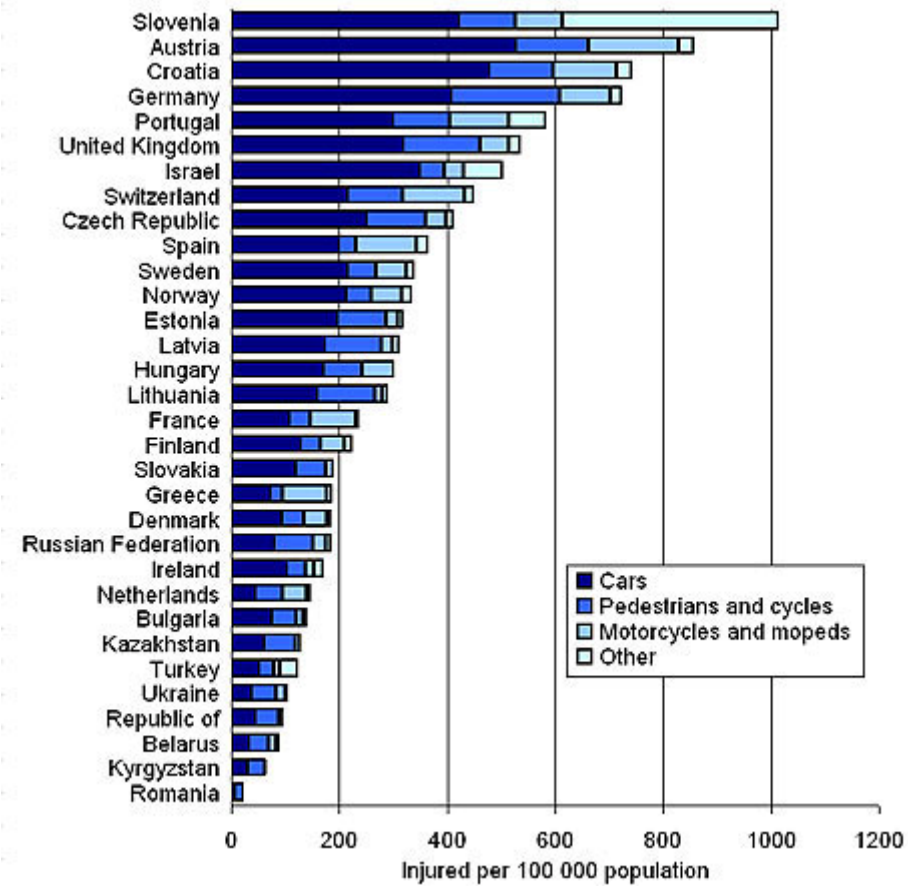

Figure 11. Standardized road traffic injury rates in children and young people aged 0-24 years. Population: 2004. Deaths and injuries: 2003 or 2004. Source: UNECE statistical database, May 2008/ENHIS 2009.

Figure 12 shows the number of injured persons aged 0-24 as a function of the number of motor vehicles in the country concerned. This data provides an indirect indication of the magnitude of the road safety improvements required in each country.

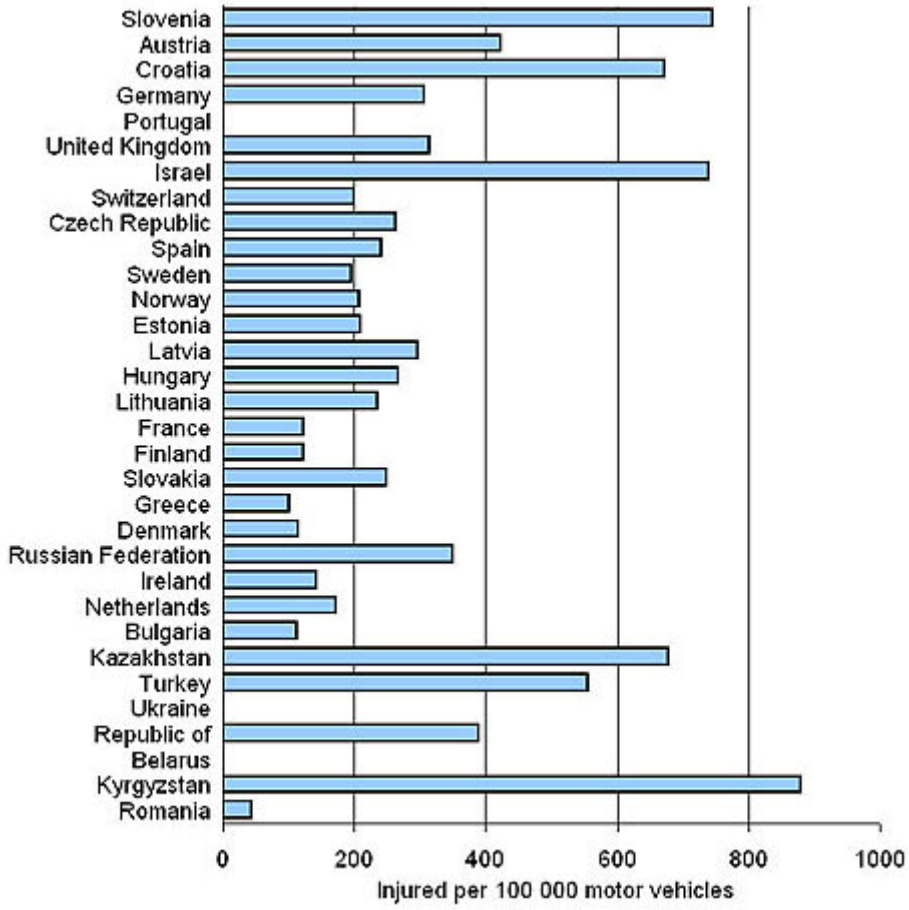

Figure 12. Children and young people aged 0-24 years injured in road traffic accidents, per 100,000 motor vehicles in 2003 or 2004. Source: UNECE statistical database, May 2008/ENHIS 2009.

Child physical activity and child-friendly urban development

Play areas policy

In spring 2007, 75 per cent of responding Dutch local authorities indicated that they have their own play areas policy (response rate 51 per cent). See figure 13.

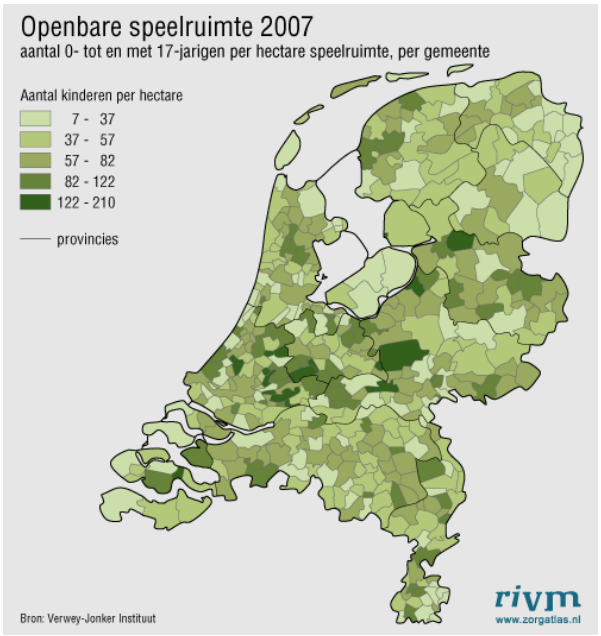

Figure 13. Public play areas by local authority district in 2007 (number of children per hectare). Source: www.vng.nl and http://www.rivm.nl/vtv/object_map/o2960n21780.html.

Child physical activity

Recommended levels of activity for all sectors of the population in the Netherlands are set out in the Dutch Healthy Exercise Norm (NNGB). Children aged under 18 are advised to perform at least one hour of moderately intensive physical activity every day, with that exercise specifically aimed at improving or maintaining physical fitness – power, agility and coordination – at least twice a week. According to Statistics Netherlands, only 26 per cent of all those aged 12-18 attained this level in 2007: 33 per cent of boys and 18 per cent of girls (see figure 14).

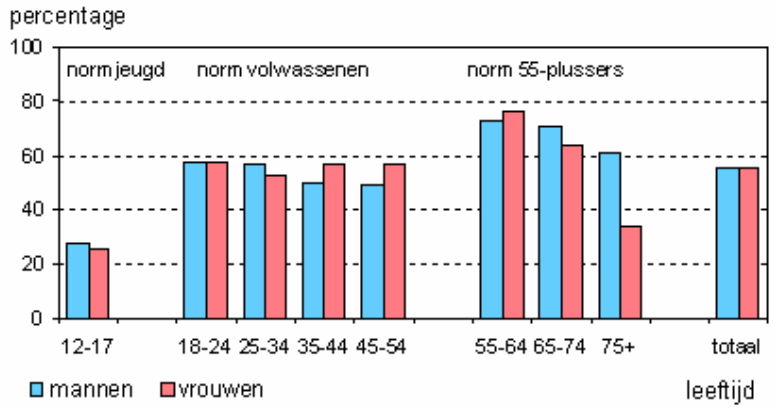

Figure 14. Percentage of people achieving the level of activity recommended for their age group in the Dutch Healthy Exercise Norm, 2007. Source: Statistics Netherlands StatLine 2008 and National Compass, http://www.rivm.nl/vtv/object_class/kom_inactief.html

Figure 15 uses self-reported data from the countries participating in the Health Behaviour of School-Aged Children (HBSC) survey to show the proportions of 11-year-old boys and girls who exercised at the level recommended by the Moderate-to-Vigorous Physical Activity (MVPA) guidelines. Overall, about one-third of children (38.8 per cent) reported taking exercise at this level.

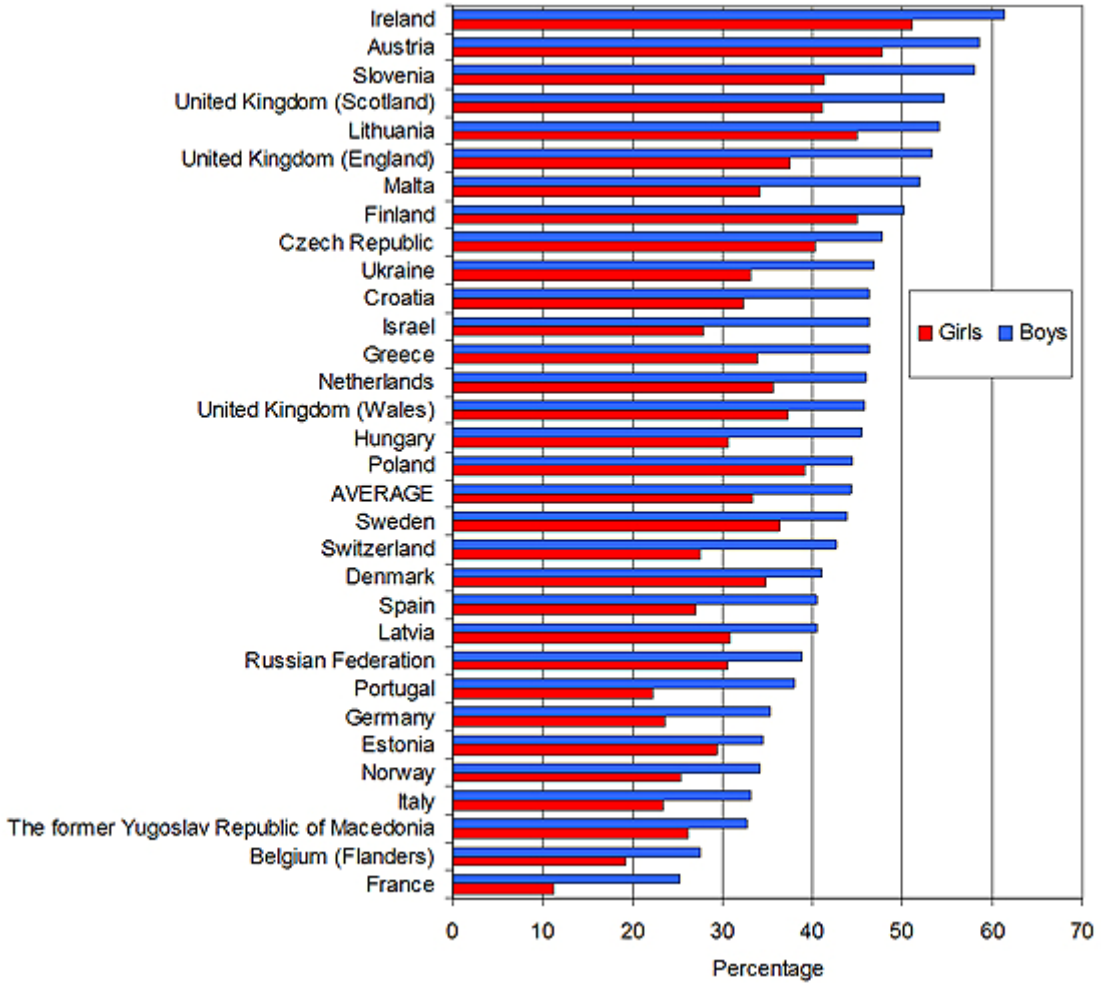

Figure 15. Physical activity by 11-year-old children in selected countries in the WHO European Region, 2001/2002. Source: HBSC 2001-2002/ENHIS 2009.

Trends in physical activity

Statistics Netherlands reports that the percentage of those aged 12 and over who comply with the relevant NNGB increased slightly between 2001 and 2007.

Child obesity

Obesity is already a widespread problem amongst young people in the Netherlands. In 2002-2004, an average of 13.5 per cent of boys and 16.7 per cent of girls aged 4-16 were overweight.

In adults and children alike, the incidence of obesity is increasing. Compared with 1997, by 2002-2004 the percentage of overweight children aged seven and over had increased sharply and in some sub-groups had even doubled (see figure 16).

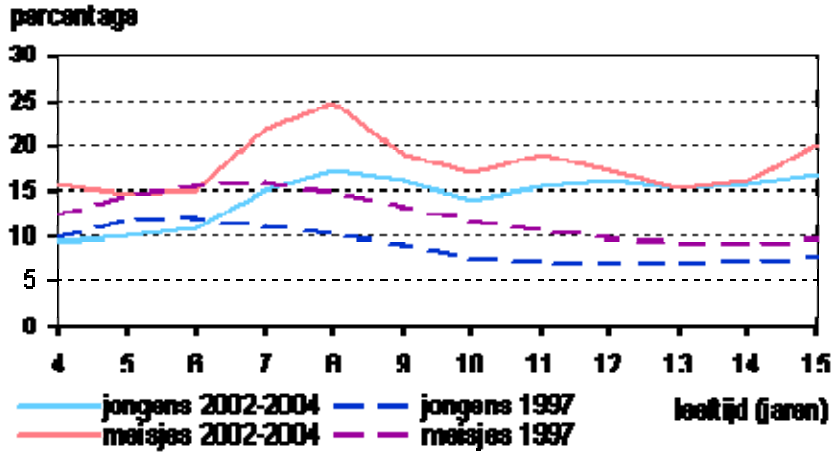

Figure 16. Percentages of overweight children aged seven and over in 1997 and in 2002-2004. Source: http://www.rivm.nl/vtv/object_document/o1254n18950.html.

Figures 17 and 18 show the average prevalence of obesity and excess body weight in children aged 13 and 15 in thirty-five countries and subregions that participated in the 2001-2002 HBSC survey. The prevalence of overweight and obese adolescents ranges from 3 per cent to almost 35 per cent amongst 13-year-olds and from 5 per cent to 28 per cent amongst 15-year-olds.

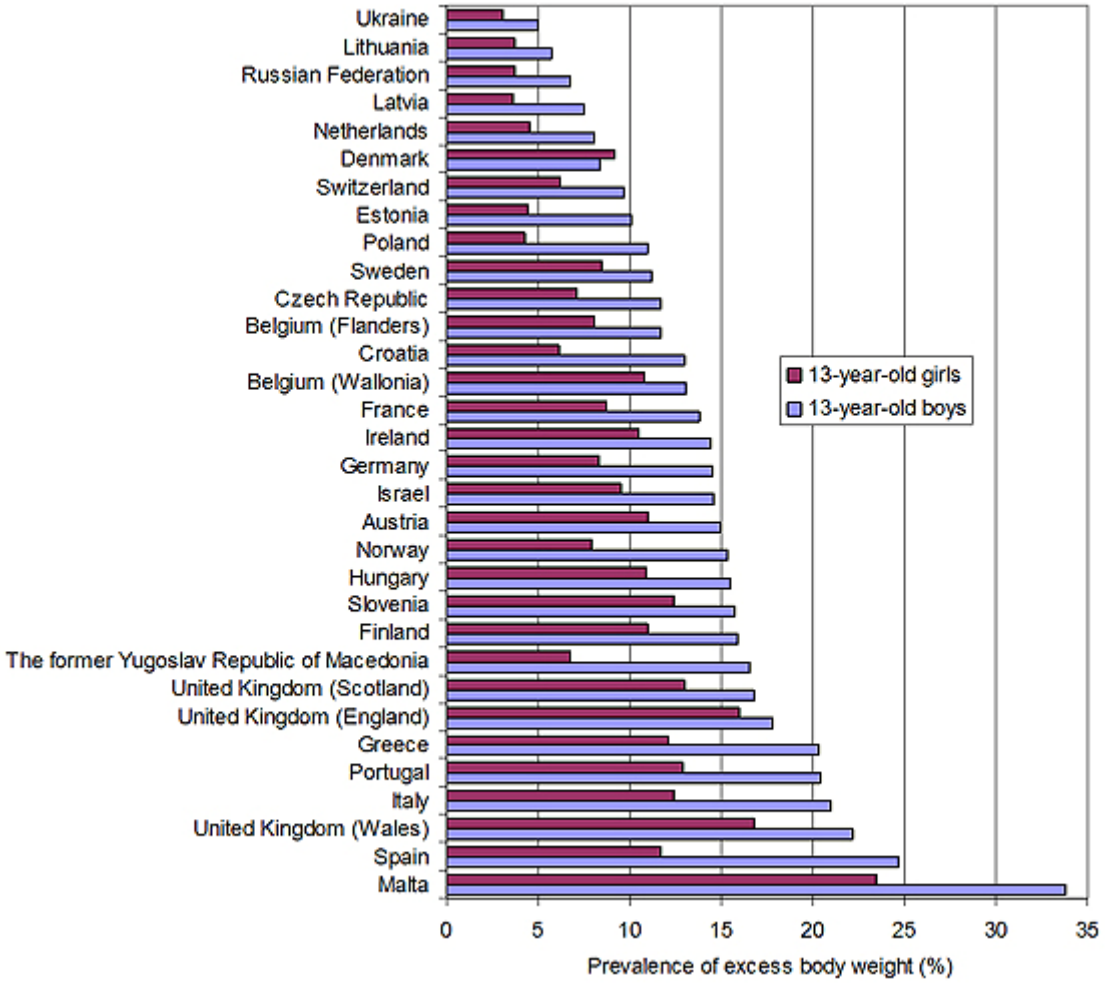

Figure 17. Prevalence of excess body weight, including obesity, amongst 13-year-olds in countries of the WHO European Region, 2001/2002. Source: HBSC 2001-2002/ENHIS 2009.

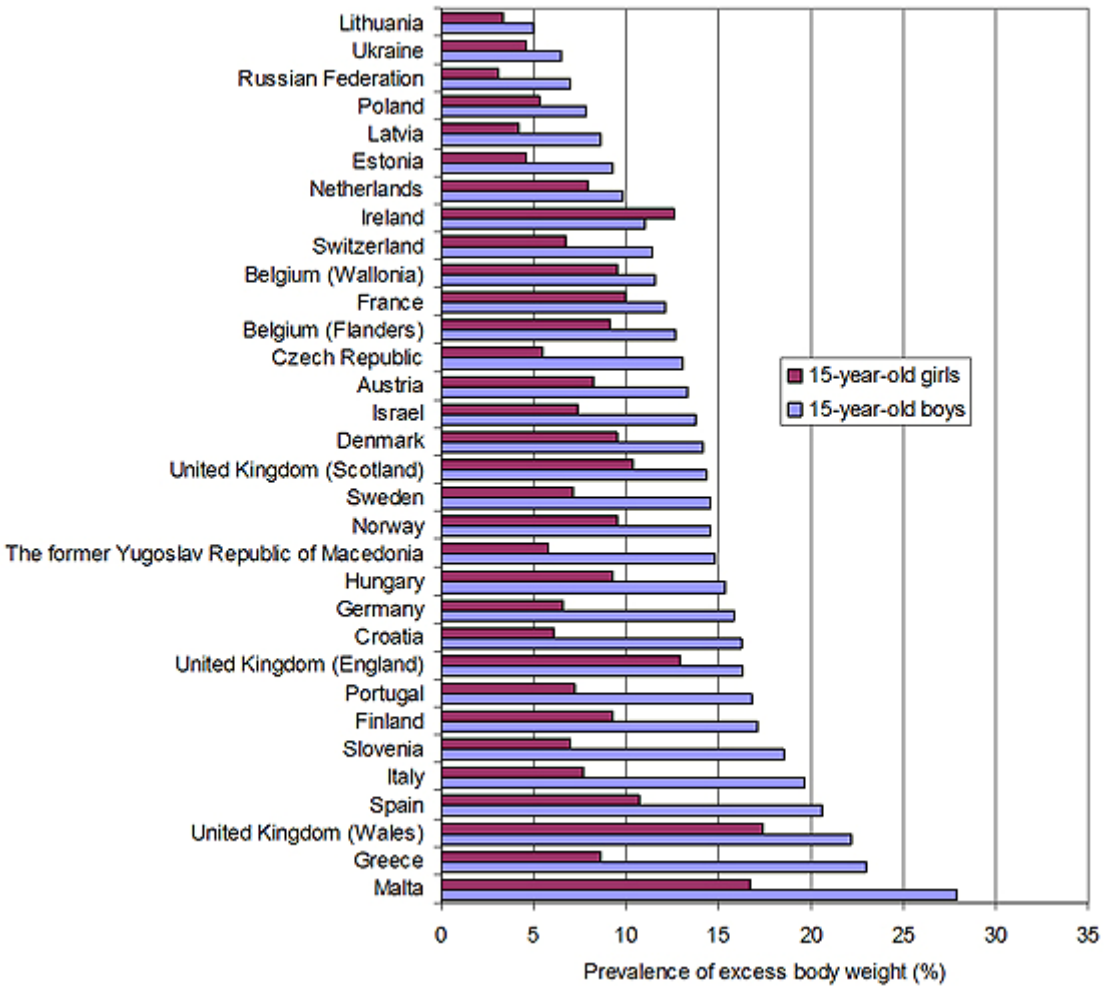

Figure 18. Prevalence of excess body weight, including obesity, amongst 15-year-olds in countries of the WHO European Region, 2001/2002. Source: HBSC 2001-2002/ENHIS 2009.

Implementation of policies to reduce obesity

Figure 19 shows the extent to which countries are implementing policies to reduce childhood obesity, by allocating each a score of 0, 1 or 2. The total score expresses the level of enforcement of the twelve policy options listed in figure 20. Higher values therefore indicate greater efforts to implement those policies.

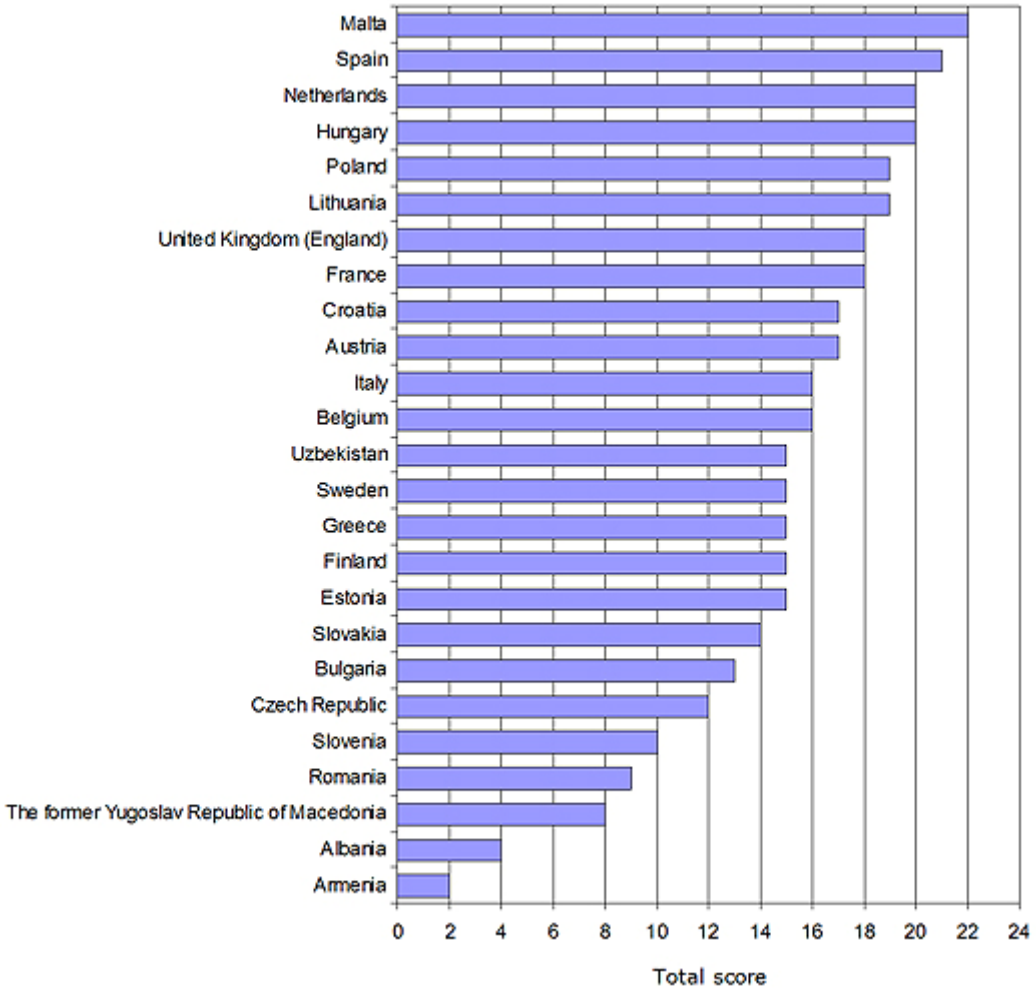

Figure 19. Degree of implementation of twelve policies aimed at reducing excess body weight and obesity in children in 25 selected countries, 2005–2006.

NB. The total score for degree of implementation is the sum of the scores for each policy: 0 = no policy; 1 = partly implemented or enforced; 2 = substantially implemented or enforced.

Source: ENHIS-2 project countries and countries volunteering data/ENHIS 2009.

Figure 20 shows the proportion of countries implementing each policy to a high, medium or low degree. Only two policy elements were found to be widely enforced, although most were being at least partially implemented.

Policy area	Key policies to reduce and prevent obesity	Proportion of countries implementing the policy (%)
1. Marketing/labelling.	Legislation requiring labeling of foods with nutritional information, such as ingredients and the corresponding energy intake.	High
	Legislation to practice responsible advertising and marketing of food, particularly with regard to promotion and marketing aimed at children of foods high in saturated fats, trans-fatty acids, free sugars and salt.	Low
2. Healthy diet and nutrition.	National strategy to promote and increase the consumption of fruit, vegetables and legumes, to reduce the consumption of saturated fats, sugars and to eliminate trans-fatty acids.	Medium
	Written policy document, adopted by a political body, explicitly concerned with nutrition.	Medium
	Set of recommended nutrient reference values.	High
3. Physical activity.	Legislation requiring a minimum of 30 minutes of physical activity per day in schools.	Low
4. Education/ awareness/research	Health and nutrition education and awareness programs in schools.	Medium
	National health survey or participation in an international health survey that allows monitoring of the prevalence of obesity, eating habits, physical activity and health in children.	Medium
5. Implementation structures/ collaboration	Special administrative structure with responsibility for implementation of the policy.	Medium
	Nutrition council or other advisory structure responsible for providing scientific advice to national policymakers.	Medium
	Any form of regular government-initiated collaboration between the various parties responsible for food production, manufacture and sale, control and legislation and nutrition education.	Medium
	Any form of regular consultation between the ministries of health and agriculture on matters related to nutrition.	Low

Figure 20. Proportion of the 25 surveyed countries implementing and enforcing key policies for preventing and reducing obesity and excess body weight in children, 2005-2006. Source: ENHIS-2 project countries and countries volunteering data/ENHIS 2009.

The percentage of implementing and enforcing countries was calculated using those scoring 2 for a given policy. The percentages are grouped as: low = less than 50 per cent of countries; medium = 50–69 per cent of countries; high = 70 per cent or more of countries.

Rationale. The indicator measures the degree of implementation of twelve specific policies, in five broad areas, aimed at preventing excess body weight and obesity in children. The policies were selected in accordance with the WHO Global Strategy on Diet, Physical Activity and Health and the WHO Food and Nutrition Action Plan for the European Region, 2000–2005.

RPG III: Prevent respiratory disease due to outdoor and indoor air pollution, and in particular reduce the frequency of asthmatic attacks.

Asthma

The purpose of RPG III is to reduce the number of children suffering from asthma and other respiratory conditions. In the Netherlands, between 5 and 7 per cent of those aged nine or under have such a condition (Gezondheidsraad, 2007). Figure 21 shows this country's one-year prevalence[6] of asthma in 2003, by age and sex. The condition is more common in boys than in girls, and highest of all – 53-60 per thousand – in boys aged nine or under.

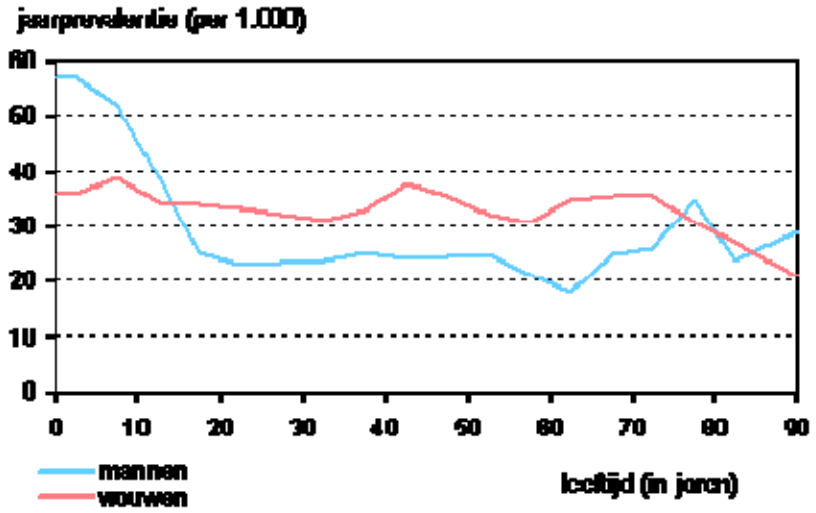

Figure 21. One-year prevalence of asthma in 2003, by age and sex, based upon data from five general practice registers. Source: http://www.rivm.nl/vtv/object_document/o4668n18082.html.

[6] The terms "prevalence" and "incidence" should not be confused. The incidence of a condition refers to the number of new cases reported during a given period of time, whereas its prevalence is the number of cases per thousand or per hundred thousand members of the population at a given point in time. A high prevalence of a disease in a particular area therefore means that a lot of people there are suffering from it. When a condition tends to be long-lasting or chronic, even a low incidence can result in a high prevalence. The one-year prevalence of a disease is the number of new and pre-existing cases occurring during the year in question, divided by the number of years lived by the total population during that year.

Approximately 4-7 per cent of children in the Netherlands aged twelve or under have asthma (see figure 22).

Study	Asthma diagnosis	Number of participants	Age	Year studied	Prevalence (%)
PIAMA	Reported complaints	3170	0-1	1997-1998	5.7
			1-2	1998-1999	4.4
			2-3	1999-2000	4.1
			3-4	2000-2001	4.1
			4-5	2001-2002	3.9
ISAAC	Reported complaints + measured hypersensitivity	1098	8-12	1997-1998	7.2

Source: http://www.rivm.nl/vtv/object_document/o4663n18082.html.

Prevalence		Incidence		
Age	Boys	Girls	Boys	Girls
0-4	53.26	33.97	22.91	15.71
5-9	60.61	40.06	12.02	10.57
10-14	47.02	31.85	7.55	9.11
15-19	30.79	40.01	5.78	6.46

Figure 22. Prevalences of asthma in Dutch children according to studies of two different kinds, the International Study of Asthma and Allergies in Childhood (ISAAC) and Prevention and Incidence of Asthma and Mite Allergy (PIAMA).

Trends in Asthma

The one-year prevalence of asthma was more or less constant between 1972 and 1983 (source: Nijmegen and District Permanent Register of Morbidity), but rose sharply in the period 1984-1997. That increase was greatest in the under 15s, followed by the 15-24s, but in both age groups the prevalence then fell slightly between 1998 and 2003 (see figure 23). As far as incidence is concerned, no clear trend is discernible.

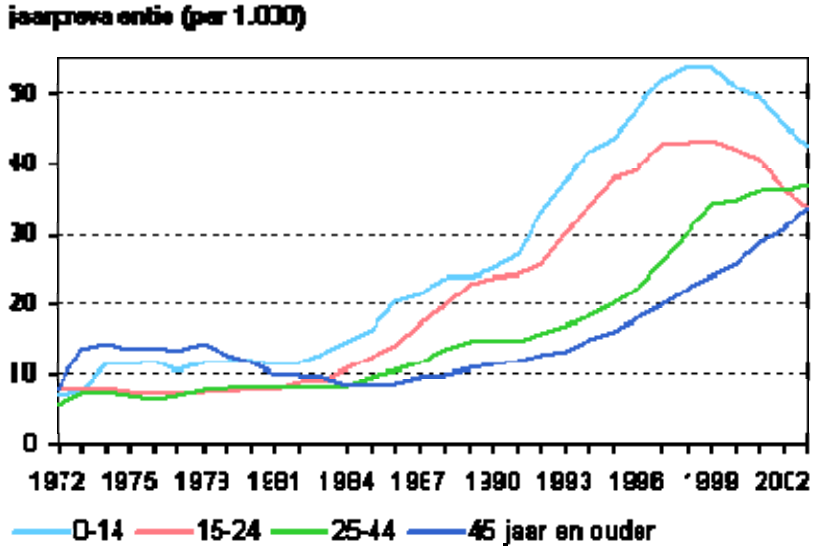

Figure 23. Trends in the one-year prevalence of asthma by age, 1971-2004 (three-year moving average), standardized to the 1990 population of the Netherlands. Source: Nijmegen and District Permanent Register of Morbidity and http://www.rivm.nl/vtv/object_document/o4662n18082.html.

Indoor damp

Figure 24 shows the proportion of the population in selected European countries self-reporting as living in homes with problems of damp in 1995, 2001 and 2006. Such problems decreased in the Netherlands during this period, but remain serious.

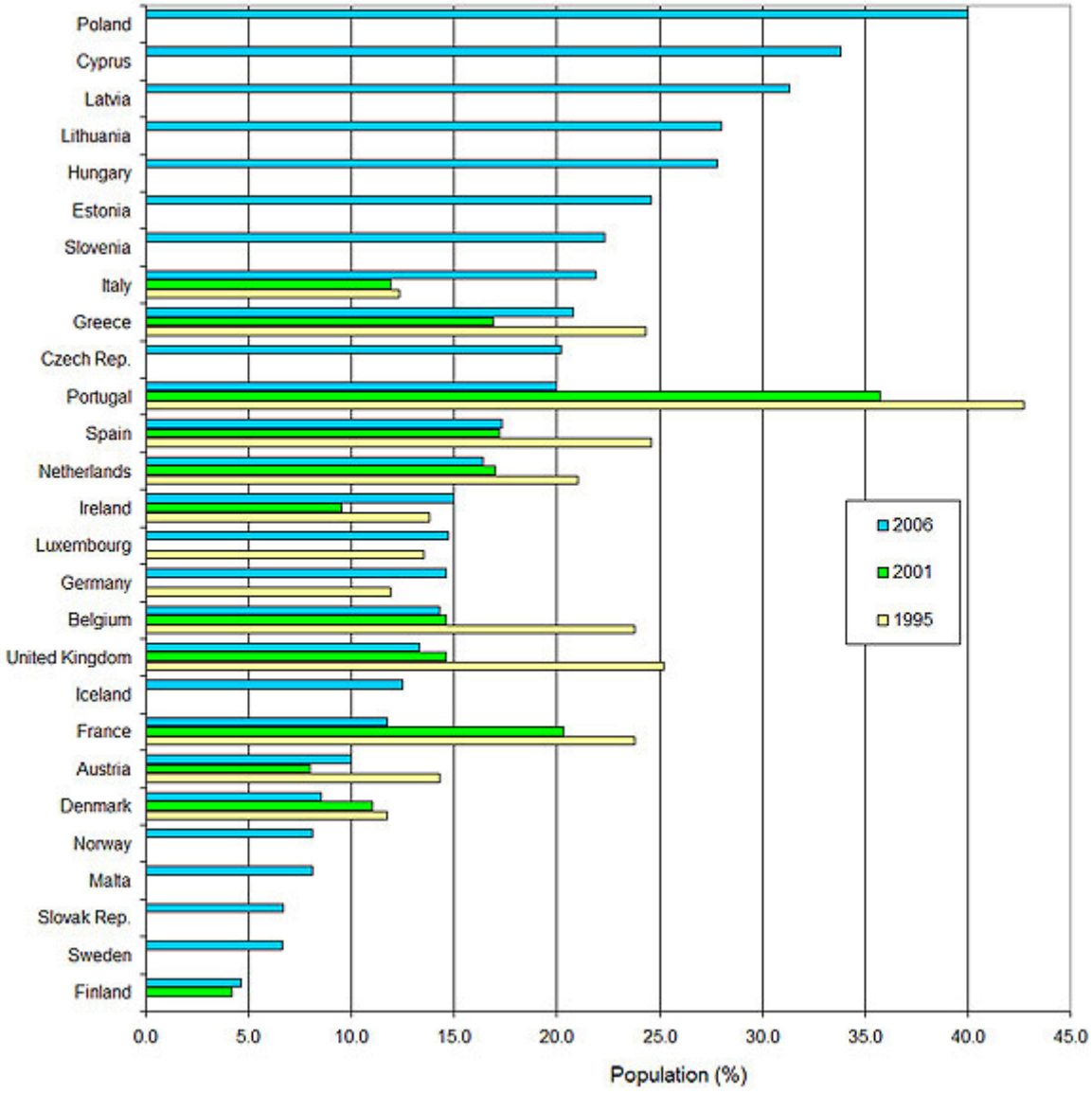

Figure 24. Proportion of the total population self-reporting as living in homes with problems of damp, 1995–2006.
NB. The data for 1995 and 2001 is based upon the voluntary EUROSTAT ECHP survey of the EU 15 during that period, whilst the data for 2006 is based upon the ongoing EUROSTAT SILC survey, which is mandatory for all EU member states and in which Norway and Iceland participate voluntarily.

Smoking

Smoking is bad for one's health, but so too is passive smoking. Tobacco smoke releases numerous toxic substances into the air. Amongst the thousands of chemicals it contains are polycyclic aromatic hydrocarbons (PAHs), benzene, carbon monoxide, formaldehyde, soot particles and particulates. At least forty of these substances are carcinogenic.

Twenty-eight per cent of people in the Netherlands aged 18 or over were smokers in 2006. In all adult age groups, more men than women smoke: 31 versus 25 per cent overall (source: STIVORO Adults).

Of those aged between 10 and 19 years old, 22 per cent say that they have smoked in the past four weeks. At 1 per cent, the rate is lowest at the younger end of this scale, and at 40 per cent it is highest in those aged 17 or over (see figure 25). Almost half of young people (44 per cent) admit to having smoked at some time in their life (source: STIVORO Youth).

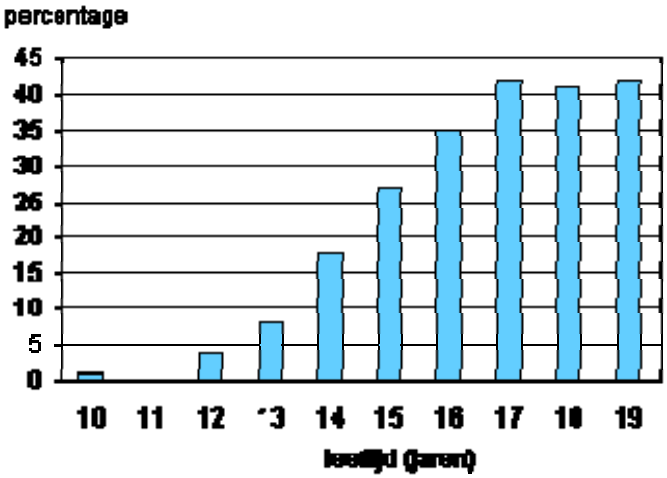

Figure 25. Percentage of persons[7] aged 10-19 who claim to have smoked in the past four weeks, by age. Source: STIVORO Youth/National Compass, http://www.rivm.nl/vtv/object_document/o1209n19085.html.

[7] Because of the small numbers surveyed, it is not possible to present separate figures for boys and girls.

Figure 26 shows data for the proportion of 15-year-olds who self-reported smoking daily, as collected for the HBSC survey (in Germany, only selected regions are included). On average, approximately 18 per cent of respondents said that they smoke every day, but there is considerable variation between countries and between girls and boys.

Children who smoke daily are a potential source of exposure to environmental tobacco smoke (ETS) for their non-smoking peers.

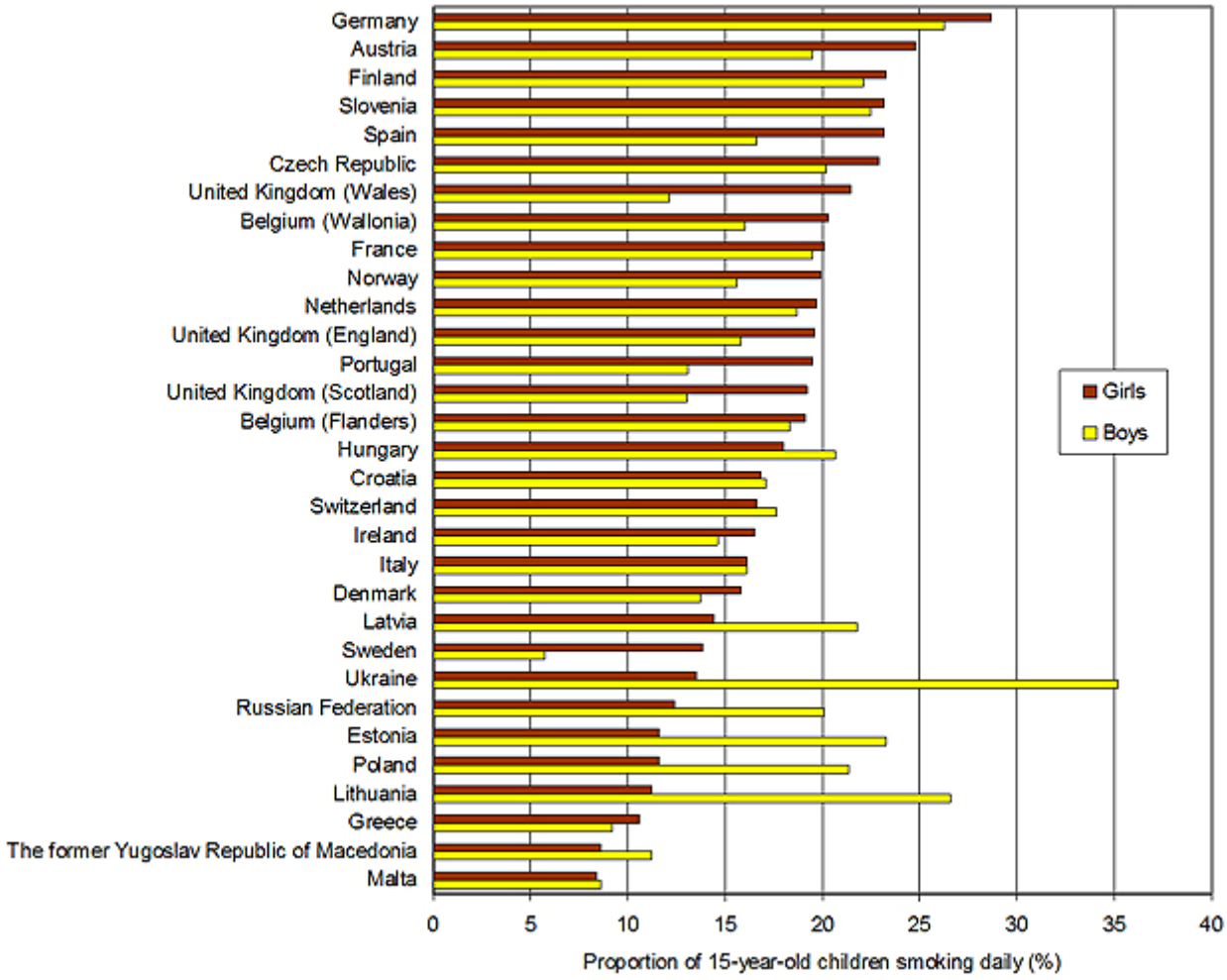

Figure 26. Proportion of children aged 15 who smoke daily, 2001-2002. Source: ENHIS 2009.

Trends in smoking

The percentage of adult smokers in the Netherlands declined during the 1980s, then stabilized at about 33 per cent in the 1990s, but in recent years has fallen again, to 28 per cent in 2006.

The number of young people who report having smoked in the past four weeks has been declining since 1997. In the senior group in this category (ages 15-20), it fell from approximately 46 per cent to 37 per cent in 2006. In the youngest group (ages 10-14), the decrease was from 12 to 6 per cent. Between 1991 and 1994, the percentages had actually risen slightly (see figure 27).

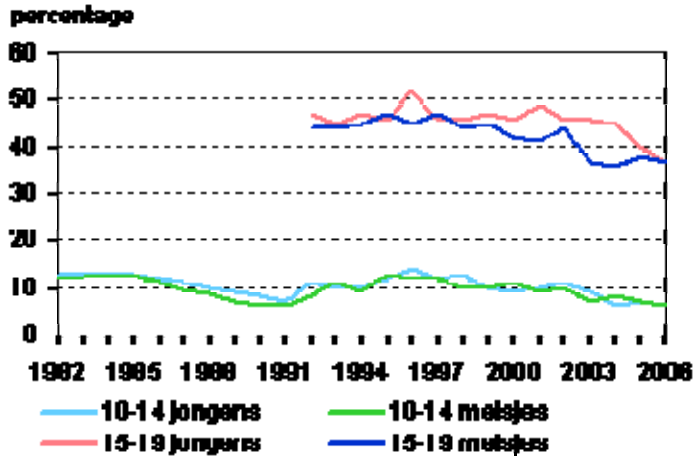

Figure 27. Percentages of young people – ages 10-14 for the period 1982-2006 and ages 15-19 for the period 1990-2006 – who claim to have smoked in the past four weeks. Source: STIVORO Youth.

The percentage of smokers is lower amongst those who have been in higher education than in groups with lesser qualifications, a gap which has widened in the past fifteen years.
(Source: National Compass, http://www.rivm.nl/vtv/object_document/o1211n19085.html.)

Smoking-related diseases and other health problems

In 2005 a total of nearly 20,000 people in the Netherlands died as a result of smoking-related conditions (see figure 28).

	Men	Women	Total
Lung cancer*	5,711	2,325	8,036
Chronic obstructive pulmonary disease (COPD)*	3,066	1,815	4,881
Coronary heart disease*	2,030	660	2,690
Cerebrovascular accident* (stroke)	803	578	1,381
Heart failure*	439	219	658
Oesophageal cancer*	843	244	1,087
Laryngeal cancer	151	40	191
Oral cancer	343	99	442
Total	13,386	5,980	19,366

Figure 28. Number of adult deaths (persons aged 20 or older) attributable to smoking, as derived from 2006 statistics for eight "smoking-related conditions". Source: Statistics Netherlands cause of death statistics, adapted by the RIVM and National Compass, http://www.rivm.nl/vtv/object_document/o1208n19085.html.

*

Lung cancer: http://www.rivm.nl/vtv/object_class/kom_longkanker.html.
COPD: http://www.rivm.nl/vtv/object_class/kom_copd.html.
Coronary heart disease: http://www.rivm.nl/vtv/object_class/kom_chz.html .
Cerebrovascular accident: http://www.rivm.nl/vtv/object_class/kom_beroerte.html.
Heart failure: http://www.rivm.nl/vtv/object_class/kom_hartfalen.html.
Oesophageal cancer: http://www.rivm.nl/vtv/object_class/kom_slokdarmkanker.html.

Unborn and young children

Passive smoking by a pregnant woman can damage the health of her unborn baby. And children, like adults, can be directly affected by exposure to smoke in enclosed environments (see figure 29).

Effect	Group affected	Number affected
Reduced birth weight (20-40 per cent greater chance of weight less than 2500g).	Babies by prenatal exposure.	Unknown.
SIDS ("cot death", chance doubled).	Babies by prenatal exposure.	Approximately 25 cases a year.
Impaired cognitive skills (eg. language and learning ability) and behavioural problems (eg. lack of concentration).	Babies by prenatal exposure and children.	Unknown.
Respiratory infections and complaints (eg. wheezing, asthma).	Children.	Many tens of thousands of cases a year.

Figure 29. Health effects of passive smoking upon unborn babies and other children, with numbers affected. Source: Gezondheidsraad, 2003, http://www.rivm.nl/milieuportaal/bibliotheek/veelgesteldevragen/bimi-gezondheidseffecten-passief-roken.jsp.

There are reasonably clear indications that maternal smoking during pregnancy and after the birth of a child increases the risk of infant mortality and sudden infant death syndrome (SIDS or "cot death"; http://www.rivm.nl/vtv/object_document/o2323n18836.html; DiFranza & Lew, 1995: http://pediatrics.aappublications.org/cgi/reprint/97/4/560.pdf). The chance of SIDS is doubled by exposure to ETS (Gezondheidsraad, 2003). A mother who smokes when pregnant also increases her risk of giving birth prematurely (http://www.rivm.nl/vtv/object_class/kom_vroeggeboren.html) and shortening gestation, of intrauterine growth restriction and low birth weight (http://www.rivm.nl/vtv/object_document/o1979n18569.html) and of impaired lung function in her baby. Mothers who smoke themselves or are "passive smokers" have a 20-40 per cent higher risk of giving birth to an underweight or short baby than those who do not (Gezondheidsraad, 2003).

Policies to reduce ETS exposure

Figure 30 indicates the percentage of the 52 countries in the WHO European Region which either do or do not have a relevant policy to reduce exposure to ETS (i.e. bans or restrictions on smoking, the advertising of tobacco products and the sale of tobacco to minors).

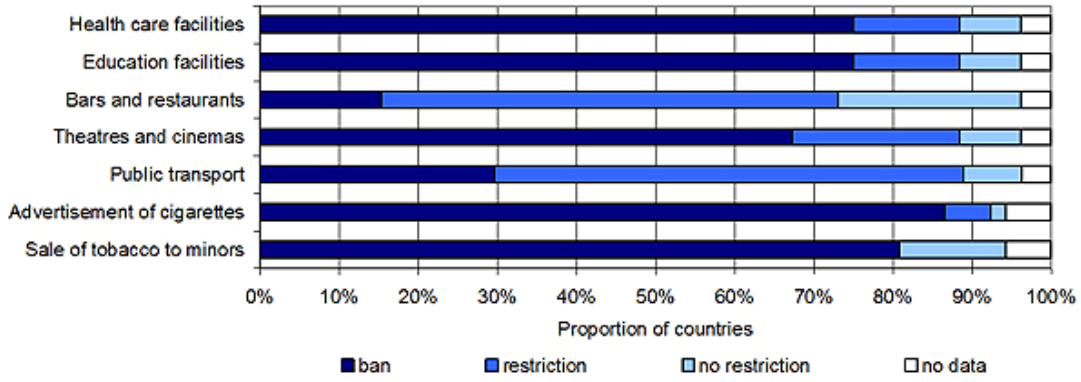

Figure 30. Proportion of countries in the WHO European Region implementing policies to reduce exposure of children to ETS. Source: WHO Tobacco Control Database 2006/ENHIS 2009.

Rationale. This indicator illustrates the existence and stage of implementation and enforcement of national legal instruments to ensure smoke-free areas, smoke-free public transport, restricted advertising of tobacco products and bans on the sale of tobacco to minors. Legal instruments are effective tools to provide protection against exposure to tobacco smoke.

Figure 31 shows the score for the indicator "reduced exposure to ETS" by country. A higher score reflects a more extensive scope and comprehensive policies. The Netherlands has banned smoking in bars, restaurants, theatres and cinemas since July 2008, resulting in a maximum score.

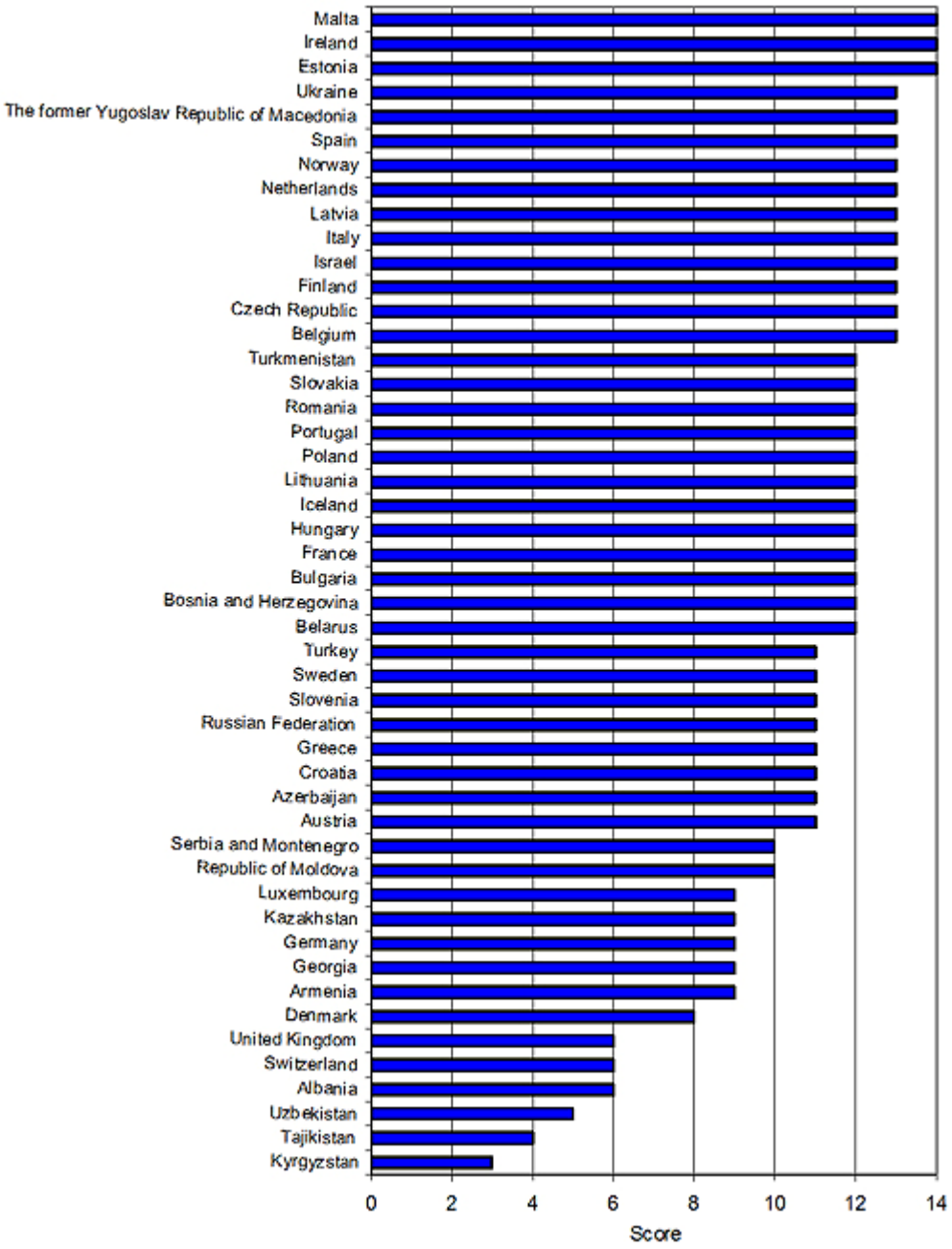

Figure 31: Degree of implementation of policies to reduce exposure of children to ETS in the WHO European Region. NB. No data is available for Andorra, Cyprus, Monaco and San Marino. Source: WHO tobacco control database, September 2006/ENHIS 2009.

Particulate matter concentrations in cities

Figure 32 shows the concentrations of PM_{10} particulate matter to which urban child populations were exposed in 2006, or the most recent year for which data is available. The distribution is approximate, since concentrations are measured by city and it is assumed that the proportion of children in each city's population is similar.

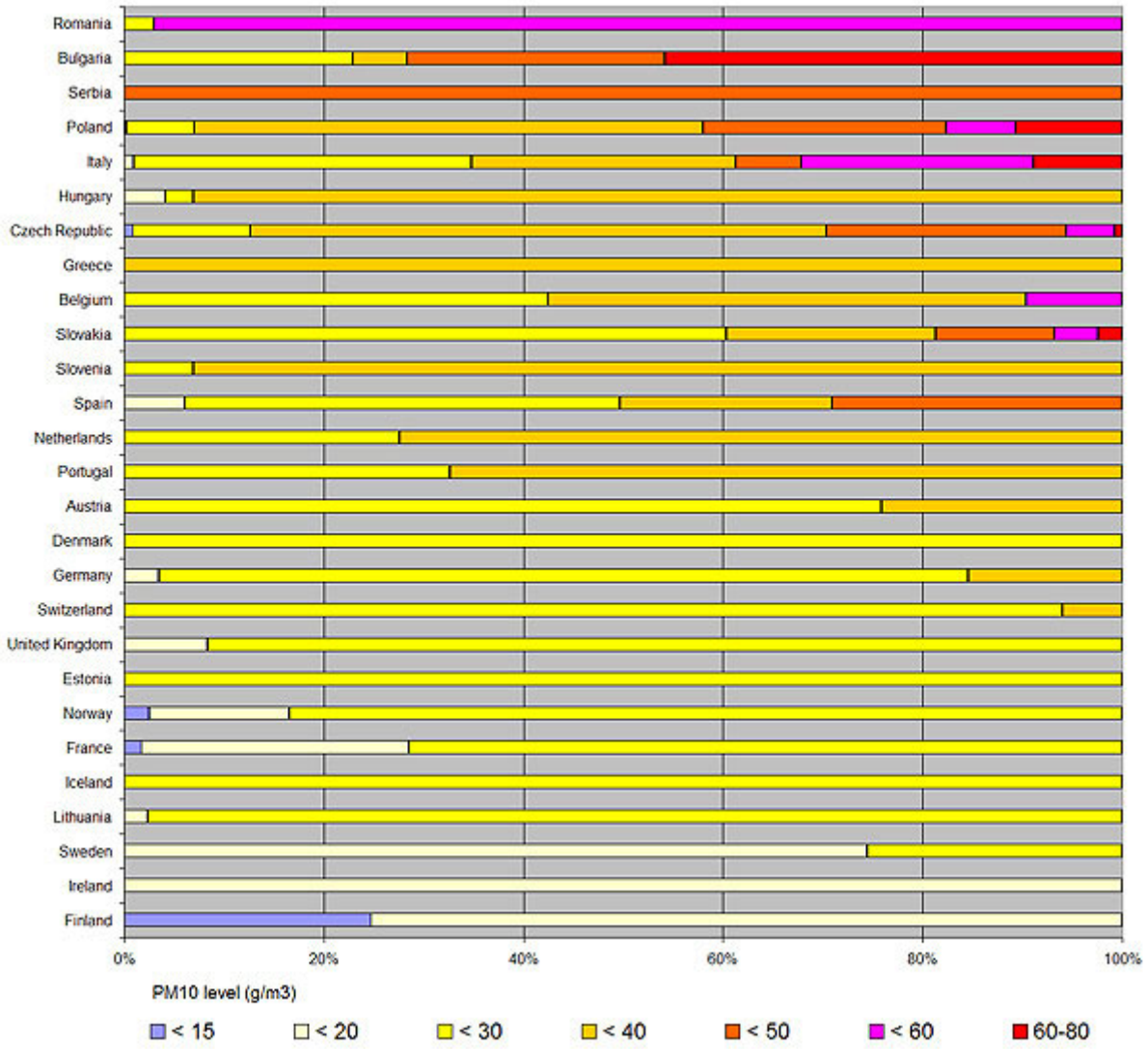

Figure 32. Percentage of children living in cities with various PM_{10} levels, 2006. Source: ENHIS 2009.

Figure 33 shows population-weighted means of PM_{10} concentrations measured in the 405 cities providing data for the years 2004-2006. The maximum Air Quality Guidelines (AQG) level for mean annual concentrations is exceeded in most countries, the Netherlands included.

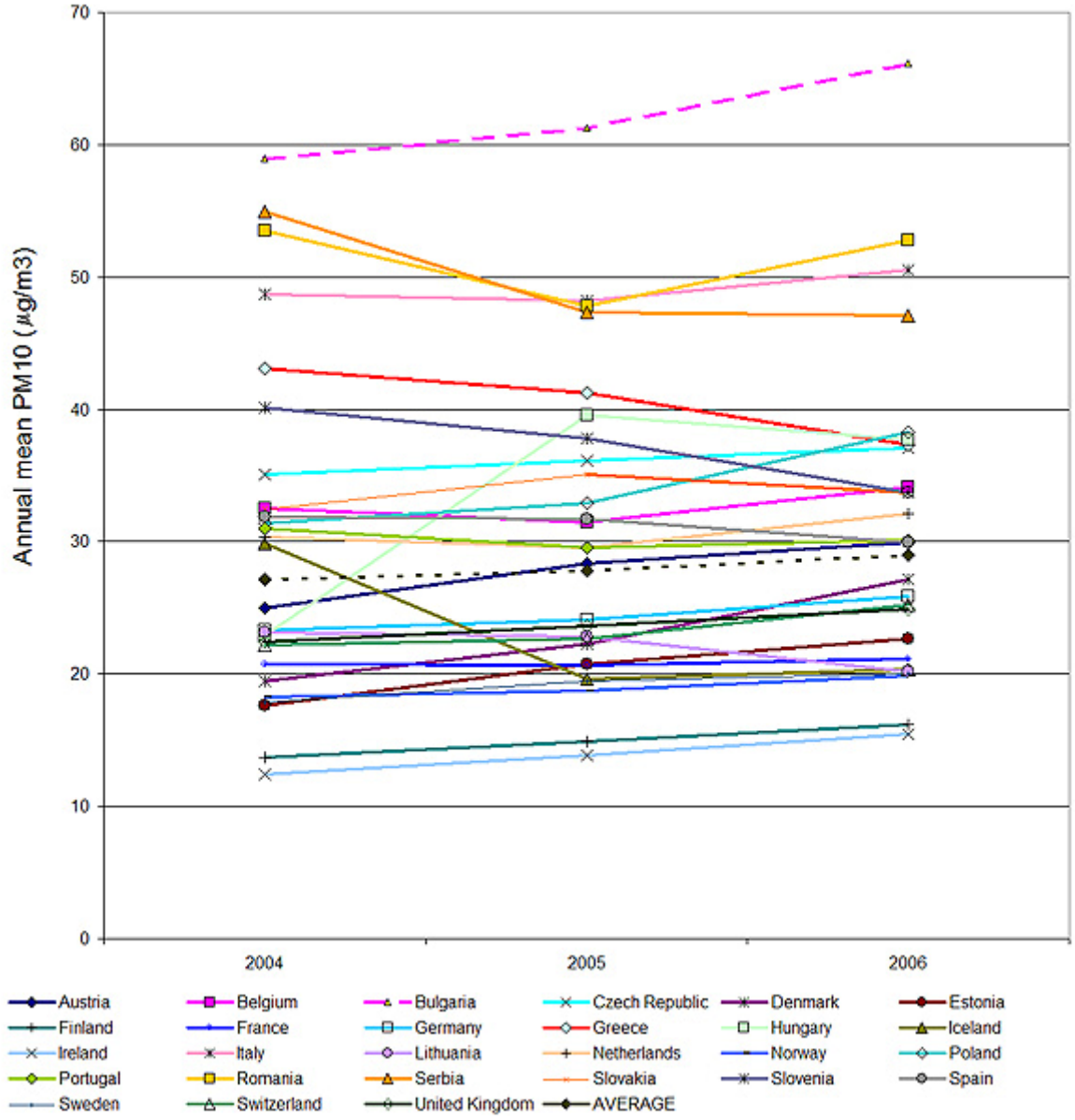

Figure 33: Children's exposure to PM_{10} in cities, 2004-2006. NB: EU limit = 40 µg/m³; Air Quality Guidelines limit = 20 µg/m³. PM10 concentration data from AirBase; city population data from EUROSTAT. Source: ENHIS 2009.

RPG IV: Reduce the risk to health arising from exposure to hazardous chemicals, excessive noise and biological agents, and guarantee safe working environments.

Effects of ultraviolet radiation

Long-term exposure to ultraviolet (UV) radiation ages the skin and increases its susceptibility to cancer. About 25,500 new cases of skin cancer are reported in the Netherlands each year, making this one of the most common forms of the disease, and approximately 650 people a year die as a consequence. There are three types of skin cancer.

- Melanoma: 11 per cent of new cases, 91 per cent of deaths.
- Squamous cell carcinoma: 15 per cent of new cases, approximately 9 per cent of deaths.
- Basal cell carcinoma: 74 per cent of new cases, fewer than 1 per cent of deaths.

Irregular UV exposure and sunburn at a young age are the primary risk factors for melanoma, and to a lesser extent for basal cell carcinoma. In the case of squamous cell carcinoma, the most significant risk factor is total cumulative UV dose. What all three forms have in common is that the results of the damage may take decades to manifest itself. In other words, wider public exposure to UV radiation does not show up as rise in the number of cases of skin cancer for many years. This has to be taken into account when analyzing the consequences of ozone-layer depletion and climate change for skin cancer incidence.

Cataracts

UV radiation is a contributory factor in the development of cataracts, a common condition in the Netherlands. About 60,000 new cases are reported each year, with the total number of sufferers exceeding 340,000. In this country, fortunately, cataracts are not life-threatening and are easily operable. But in less developed nations they can be fatal. As with skin cancer, the development of cataracts is the product of an accumulation of damage suffered over a period of decades.

Positive effects

UV radiation stimulates the production of vitamin D in the skin. This substance is key to the process of bone metabolism and a deficiency can result in degenerative osteal conditions: rickets in children and osteoporosis in adults. Exposure to UV radiation also helps to suppress the symptoms associated with certain skin diseases, such as psoriasis. And recent research has indicated that vitamin D may reduce the risk of developing some internal cancers, as well as inhibiting the growth of pre-existing tumours. What remains unclear is the dose at which the positive effects derived from vitamin D production begin to be outweighed by the negative effects of exposure to UV radiation. But whatever the case, sunburn is to be avoided if at all possible, and especially during childhood.

(Source: http://www.rivm.nl/milieuportaal/onderwerpen/straling-en-EM-velden/ultraviolette-straling/.)

Figure 34 shows the variations between countries in age-standardized melanoma incidence rates in Europe in 2002.

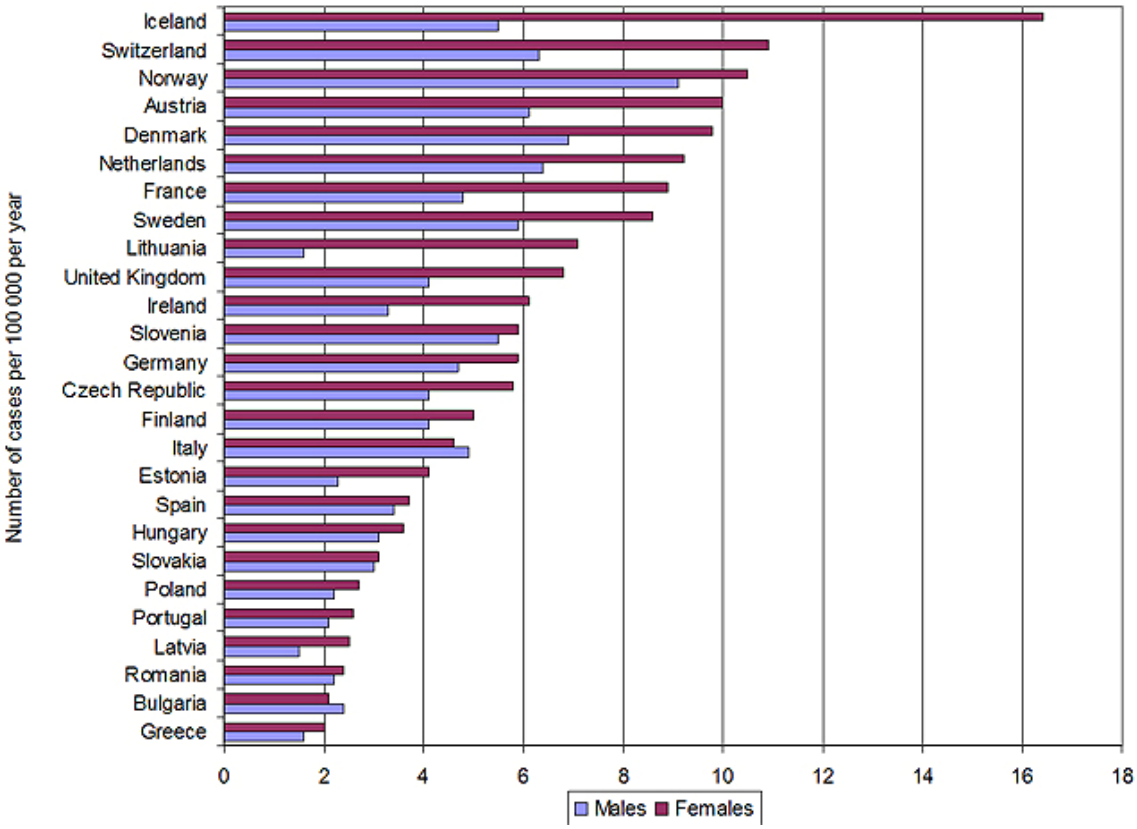

Figure 34. Age-standardized rates of melanoma incidence in people aged under 55 in selected European countries, 2002. Source: ENHIS 2009.

Radon concentration in homes

On average, the concentration of radon in homes built after 1980 is 50 per cent higher than in those dating from before 1970. Thanks to the construction of these new, relatively "radon-rich" dwellings, the overall average concentration of the gas in the domestic environment has been increasing steadily in the past forty years. By 2005 it had reached approximately 24 Bq/m^3 (see figure 35).

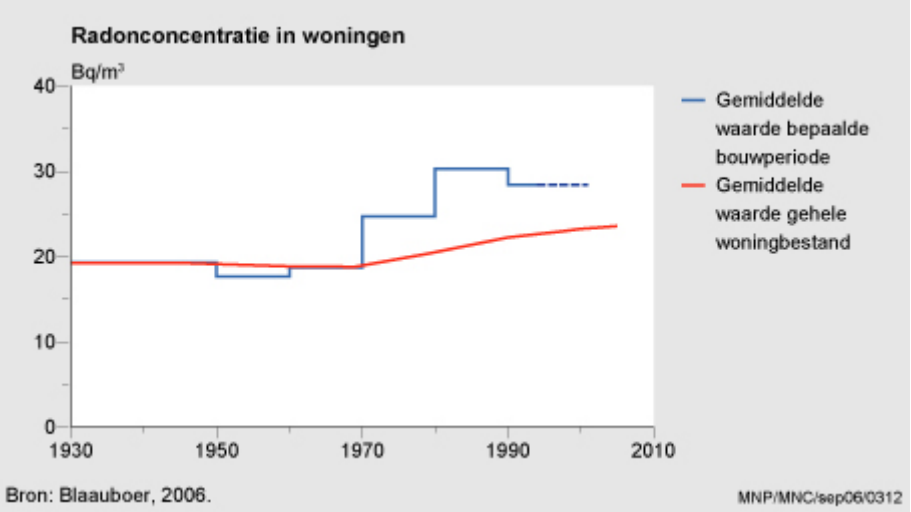

Figure 35. Radon concentrations in homes, 1930-2005. Source: http://www.milieuennatuurcompendium.nl/indicatoren/nl0312-Radonconcentraties-in-woningen.html?i=13-95.

The amount of radon found in a home is influenced by its method of construction, the building materials used and its ventilation. Approximately 30 per cent of the ionizing radiation to which people in the Netherlands are exposed comes from natural sources, such as cosmic and terrestrial radiation, and cannot be controlled. Another 45 per cent is released from natural substances by human intervention; examples include radon in homes and radium in *phosphogypsum. The remaining 25 per cent is generated by artificial sources, with the biggest contributors in this category being radiation-emitting medical devices (*Pruppers, Kelfkens et al., 2006*). Dutch homes have Europe's second-lowest average indoor radon concentrations (*Pruppers, Kelfkens et al., 2006*).*

Figure 36 shows the estimated arithmetic mean of indoor radon levels in each EU country. There is almost a tenfold difference between the minimum (20 Bq/m^3), found in the Netherlands and the United Kingdom, and the maximum (120-140 Bq/m^3) reported for the Czech Republic and Finland. This and the subsequent maps also indicate those countries providing insufficient or unreliable data.

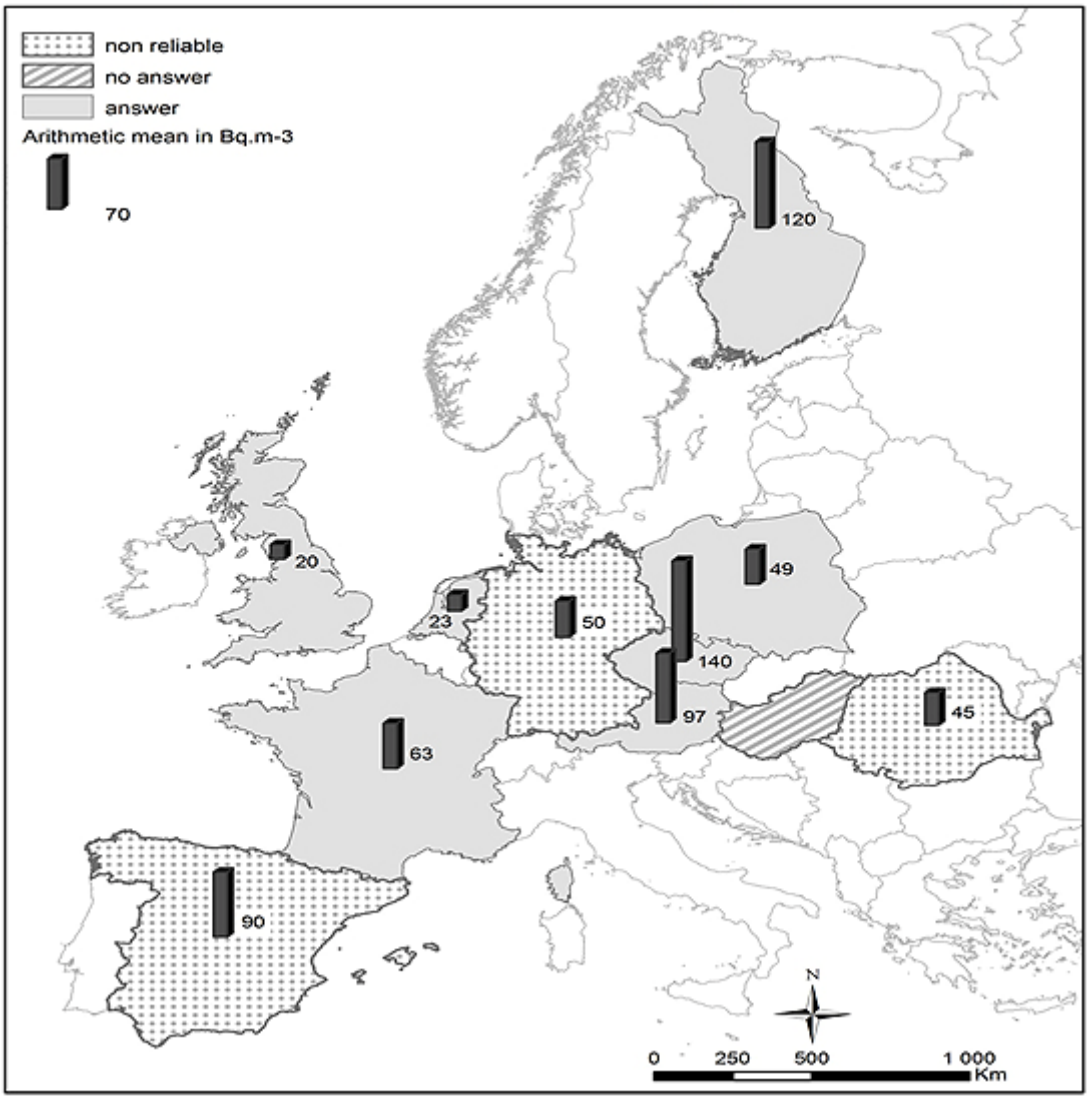

Figure 36. Estimated annual mean radon levels inside dwellings in selected European countries. Source: ENHIS 2009.
NB. These estimates are based upon a review of national surveys carried out by the European Commission Joint Research Centre (JRC).

Figures 37 and 38 show the percentage of radon measurements higher than 200 Bq/m^3 and 400 Bq/m^3. The countries with the highest mean radon levels also have the highest percentages of housing stock exceeding these levels, indicating a larger proportion of homes requiring remedial action.

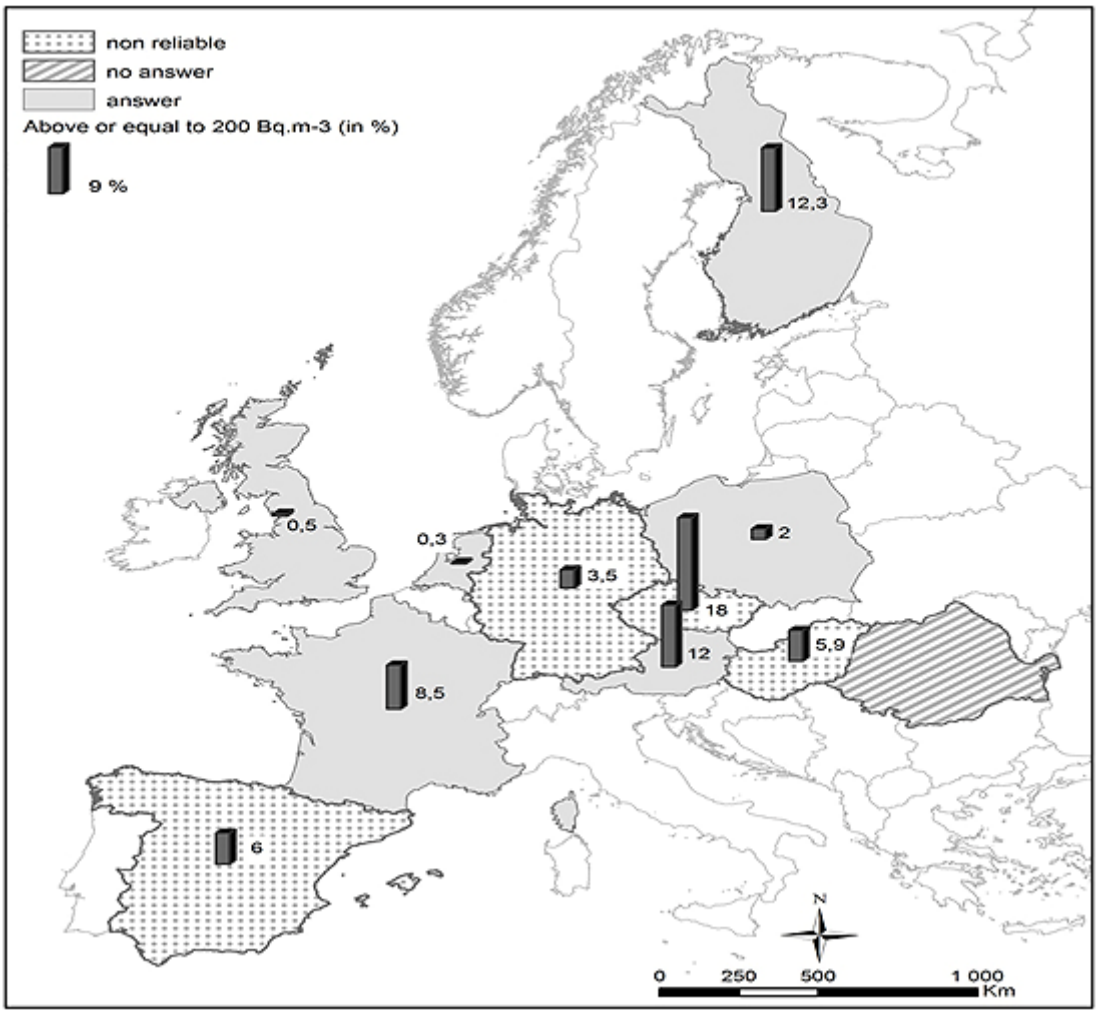

Figure 37. Estimated proportion of dwellings with radon levels ≥200 Bq/m3 in selected European countries. Source: ENHIS 2009.

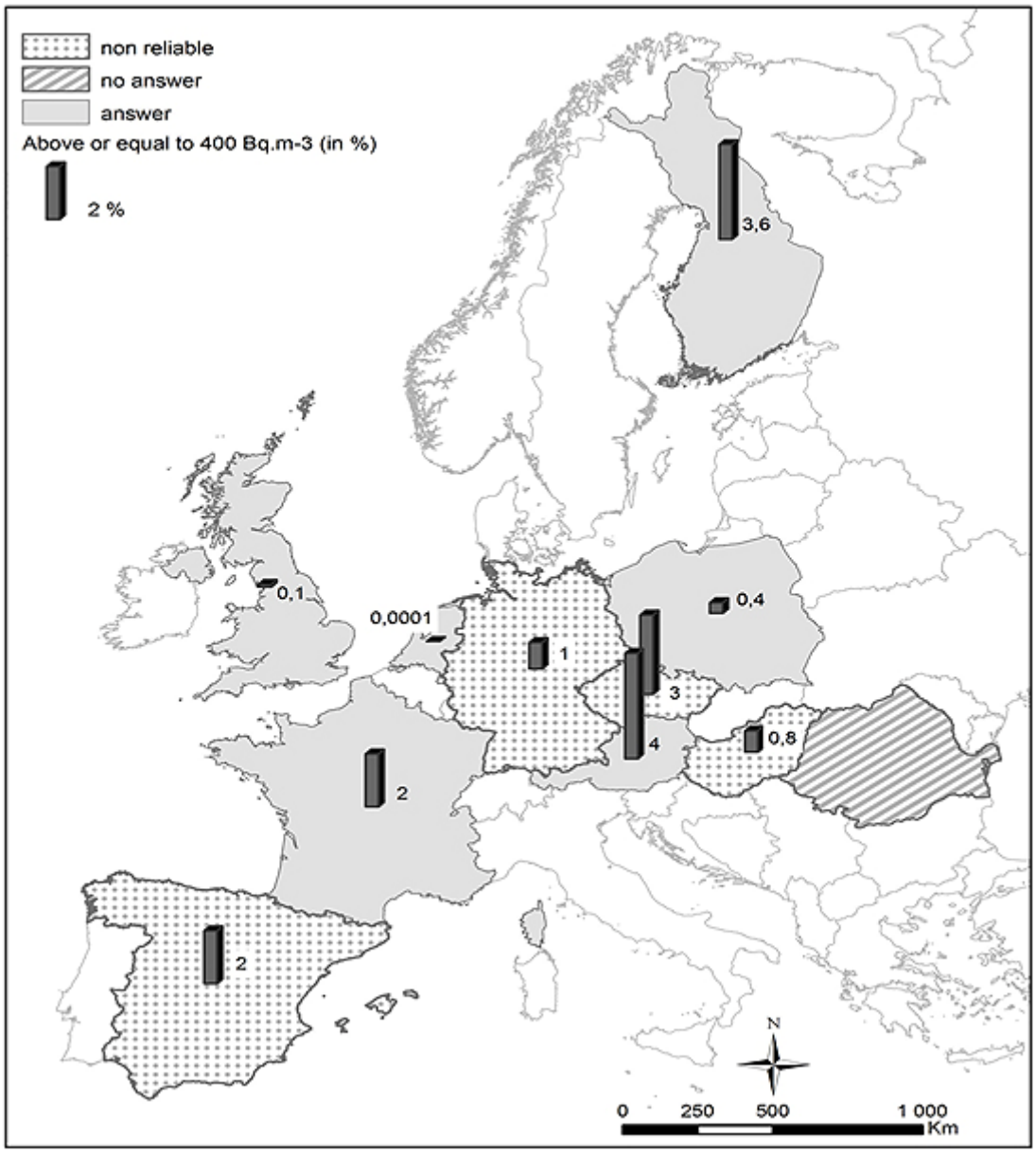

Figure 38. Estimated proportion of dwellings with radon levels ≥400 Bq/m3 in selected European countries. Source: Dubois/ENHIS 2009.

Heavy metal intake

Figure 39 shows the average intake of heavy metals and arsenic by the adult population in various European countries.

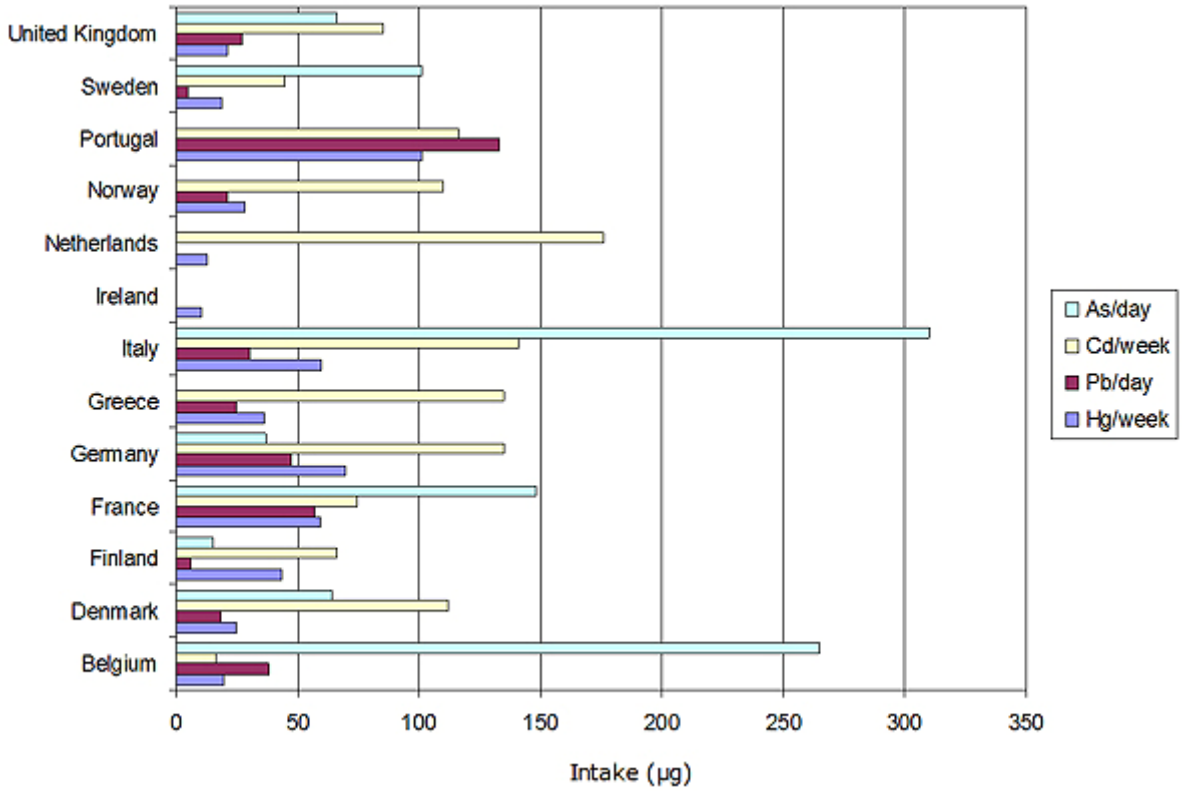

Figure 39. Heavy metal intake through food by adults in selected EU countries, 2004. Source: ENHIS 2009.
NB. The intakes of mercury (Hg) and cadmium (Cd) are weekly, those for lead (Pb) and arsenic (As) daily.

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National Institute
for Public Health
and the Environment

P.O. Box 1
3720 BA Bilthoven
The Netherlands
www.rivm.com