

Health and well-being

The relationship between environment and health is complex. Our surroundings are a key factor in our health and sense of well-being.



Summary

The health of Scotland's people has improved greatly over a few generations. Historically, the emphasis on improving health was to create environments free from infectious diseases and chemical hazards.

Today, we are increasingly recognising the key role that the natural environment has to play in influencing the state of health and sense of well-being, along with lifestyle, social and genetic factors.

These relationships are complex, but it is becoming more and more important in health policy and practice to address the link between health and deprivation and how this is affected by the environment. We must also recognise how the health assets offered by the environment can be harnessed to support communities developing the resources and capacities which impact positively on health.

Introduction

The environment has long been accepted as an important contributor to well-being. [Environmental health](#) addresses all the environmental (physical, chemical and biological) factors that act on an individual, and includes the assessment and control of those factors that can potentially affect health. Environmental health is targeted towards preventing disease and creating health-supportive environments. Historically, there has been a very successful focus on creating environments free from significant hazards.

Although this continues to be important, there is increasing recognition that creating safe, positive and sustainable natural environments nurtures good health and well-being.

A number of international organisations are particularly concerned by the links between environment and health, including the World Health Organization (WHO), United Nations and the European Union. There are also a number of specific challenges in Scotland.

Scotland is renowned for its wildlife and the natural beauty and amenity of its [landscape](#), and its many high-quality urban and rural environments. However, there are also poorer environments and areas of deprivation in Scotland, which foster hopelessness and stress. Although the quality of the air we breathe and water we drink may be high, the difference in health and life expectancy between different communities is stark. For example, a [difference in life expectancy of 8.5 years](#) was found for men in the adjacent communities of East Dunbartonshire and North Glasgow. It is recognised, at least in part, that people's health will be affected by the physical characteristics of the places in which they live, and thus it is important that people have access to positive environments.

Description of health conditions

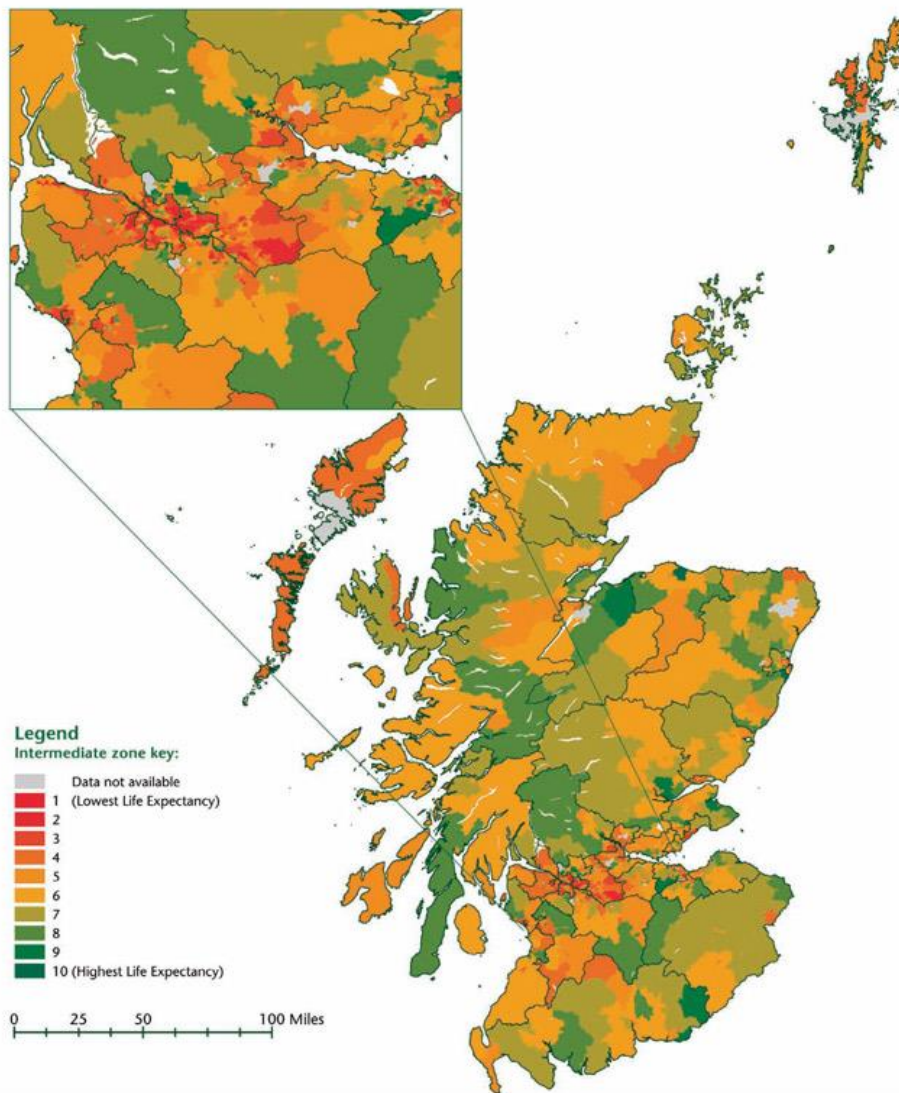


To help understand the health of Scotland's population, data are gathered routinely on health outcomes, the burden of disease and other demographic factors. The health and well-being profiles in the [Scotland Overview Report for 2010](#) summarise several areas (such as population profiles, mortality, health and injury, maternal health and mental health).

Life expectancy

Average life expectancy in Scotland is 76 years for men and 80 years for women. The Scottish figures are 4 and 5 years below the European averages for men and women respectively. Glasgow has the lowest life expectancy in Scotland for both men and women, whereas men in the Borders and women in Orkney are expected to live longest (Figures 1 and 2). Despite being below EU averages, Scottish life expectancy has risen by 7 years for men and 5 years for women over the past 30 years.

Figure 1: Life Expectancy: Males

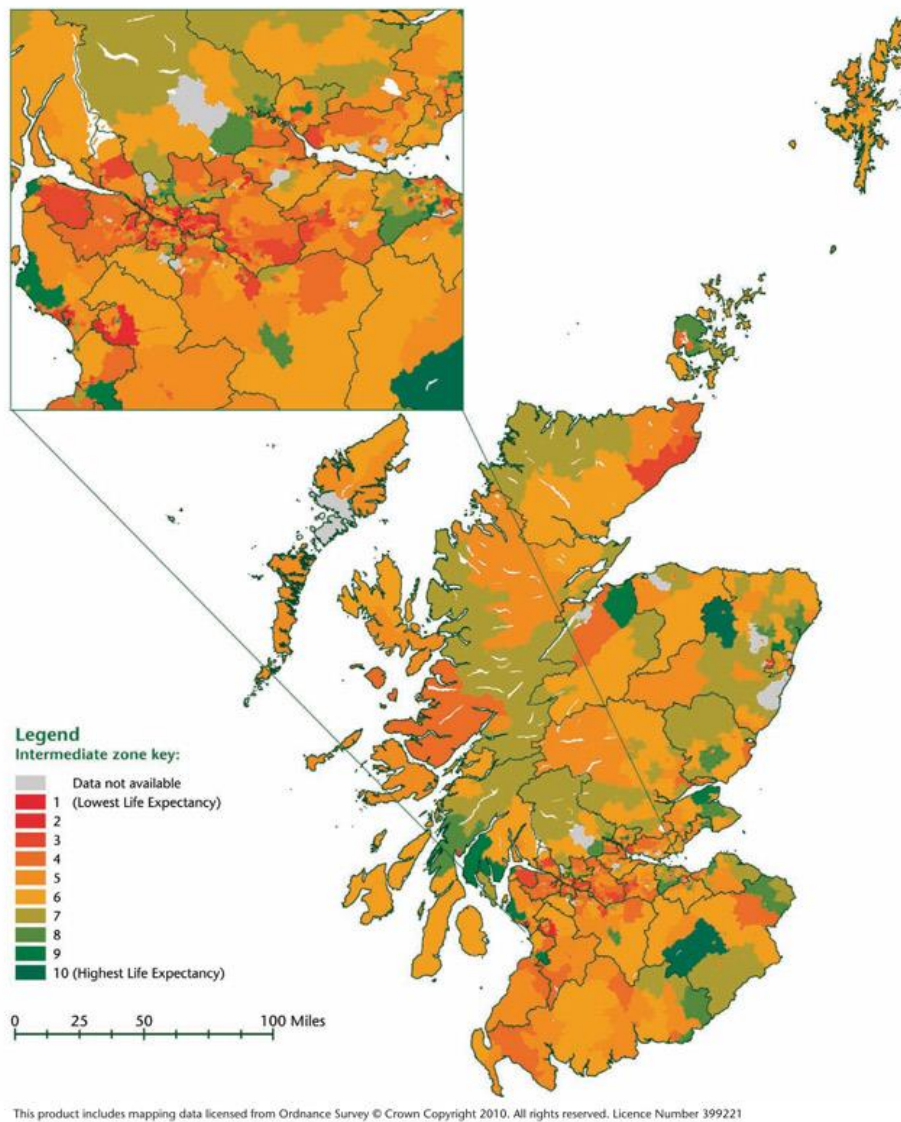


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The black boundaries shown represent the Community Health Partnership (CHP) areas within Scotland; their names can be found on the CHP boundary map on page ii of the [report](#). Life expectancy for a sex and intermediate zone is not presented when the 5-year total population for that sex is less than 5,000 people and/or there are fewer than 40 deaths for the sex over the 5-year period.

Source: [Health and well-being profiles 2010 – Scotland Overview Report](#).

Figure 2: Life Expectancy: Females



The black boundaries shown represent the Community Health Partnership (CHP) areas within Scotland; their names can be found on the CHP boundary map on page ii of the [report](#).

Life expectancy for a sex and intermediate zone is not presented when the 5-year total population for that sex is less than 5,000 people and/or there are fewer than 40 deaths for the sex over the 5-year period.

Source: [Health and well-being profiles 2010 – Scotland Overview Report](#).

Hospital admissions

[Health conditions](#) that account for a major proportion of hospital admissions in Scotland are alcohol-related conditions, [heart disease](#) and major [cancers](#). In addition, other diseases that have important impacts on population health include mental health, [allergies](#), [epilepsy](#), [lung damage](#), [chronic liver disease](#) and obesity. Many of these conditions are influenced by the physical environment, although the complex interrelationship with other factors such as lifestyle and genetics makes it difficult to assess its significance.

Cancer rates

It [is estimated](#) that one in three people in Scotland will develop some form of [cancer](#) during their lifetime, and that around one in nine males and one in seven females will develop some form of cancer before the age of 65. An individual's risk of developing cancer depends on many factors, including age, lifestyle and [genetic make-up](#).

Environmental factors

Although it is difficult to identify the role that specific environmental factors play in many diseases, for others there is a more obvious link. For example, there is a strong link between exposure to asbestos and certain types of lung cancer and, although the underlying causes of asthma are not fully understood, there are thought to be links between asthma attacks and environmental factors.

Health inequalities (social deprivation and health)

"Scotland's health is improving rapidly [but] it is not improving fast enough for the poorest sections of our society. Health inequalities... remain our major challenge." [Annual Report](#) of the Chief Medical Officer: Health in Scotland 2008.

Inequalities in health outcomes are apparent between areas with different levels of deprivation, with the rate of premature mortality from cancer and heart disease being higher in the most deprived areas.

For instance, between 2000 and 2009, heart disease mortality rates in the under-75s fell by 45% in Scotland overall, but only by 36% in the most deprived areas. During the same period, cancer mortality rates in the under-75s fell by 12% in Scotland overall, but by only 3% in the most deprived areas. [Research shows](#) that social deprivation tends to lower expectations of life in general, as well as giving a lower life expectancy.

Pressures affecting a healthy environment



Scottish people are exposed to a range of chemical, physical and biological hazards, which affect health and well-being. Some of the more important hazards are covered below.

Air pollution

Air quality (including indoor air quality) has been identified as a major factor in respiratory diseases such as asthma and allergies. Although huge improvements have been made in air quality in the UK, air pollution still causes problems for both human health and the environment on a local scale. It is currently estimated that air pollution reduces the life expectancy of every person in the UK by an average of 6–8 months, with associated costs of up to £20 billion each year ([Air Quality Strategy, 2007](#)). More information can be found in the [air quality](#) topic.

Indoor exposure to air pollutants is also an important issue. Typical indoor air pollutants include tobacco smoke, emissions from heating and cooking, chemicals (such as cleaning products, air fresheners, pesticides), emissions from furniture and construction materials, and biological contaminants (allergens and moulds).

Chemical pressures

There are thousands of chemicals in routine use in domestic, occupational and industrial settings. Exposure to chemicals is strictly regulated and controlled, and chemicals have to pass stringent safety checks before they can be marketed. However, if used in the wrong concentrations, chemicals can have potentially toxic effects ranging from minor skin rashes to cancer and fatal poisoning.

Biological pressures

Biological hazards include bacteria, viruses and protozoa, as well as allergens, mould spores and pollen. Microbiological contamination of [bathing water](#) and drinking water, soil and food can give rise to gastrointestinal illness (e.g. *E. coli*).

Radiation

Radioactive materials exist naturally in the environment as minerals in rocks and soils, as well as gases such as radon. Radioactive materials are put to beneficial use in medicine and industry (e.g. x-rays) as well as being used to generate power in nuclear facilities. There is a continuous comprehensive monitoring programme for radioactivity in the environment across Scotland. More information is available in the accompanying [factsheet](#) and on [SEPA's](#) website.

Other sources of radiation in the environment include electric and magnetic fields, radio- and microwaves, and infrared, ultraviolet and visible light. Exposure to ultraviolet light (from the sun and sunbeds) can increase the risk of skin damage and of developing skin cancer.

Noise, light and odour

Noise, odour and light pollution are generally much more prevalent in urban locations and close to transport networks and industry. The main sources of noise pollution are road, rail and air traffic, construction and industrial processes. Odour can be associated with waste disposal operations, agriculture and industrial processes. Individuals react differently to these pressures; however, they can cause short-term health effects such as headache, nausea and annoyance, as well as longer-term effects such as sleep disturbances, hypertension and stress. More information on these can be found in the [noise, light and odour](#) topic.

Natural events

Severe natural events such as flooding, high winds and heat waves affect people's lives in many ways. They can have serious effects on mental health, homes and businesses and the environment. Flooding, for example, can cause short-term issues relating to [health impacts](#) of cleaning up flood water in urban areas as it is often contaminated with sewage and other pollutants, as well as longer-term impacts on mental health.

Climate change

Climate change is very likely to affect [human health](#). For example:

- the expected hotter drier summers and milder wetter winters are likely to result in fewer winter deaths from hypothermia but exacerbate respiratory conditions in the summer months (due to changes in air pollution, such as a longer pollen season and predicted increased ozone). They may also result in increasing health problems due to new pests and diseases;
- the expected increased frequency and intensity of extreme precipitation events is likely to result in more flooding; however, there may be positive aspects for health in the provision of more greenspace in urban areas set aside to mitigate flooding;
- a drive to more active travel to mitigate greenhouse gas emissions could have positive benefits for health and well-being, both from a physical point of view of taking more exercise but also from an air quality point of view.

Consequences of a change in a healthy environment



[It is considered](#) that part of the total burden of disease in industrialised countries can be attributed to environmental factors. The cost to the NHS from environmentally mediated disease is also considerable. For further information on expenditure for specific diseases, the [Scottish Health Service Costs](#) (known as the Costs Book) provides a detailed analysis of where resources are spent in the National Health Service Scotland (NHSS).

Improving health makes economic sense and can have a massive impact on an individual's quality of life. [For example](#), it is widely accepted that physical activity contributes to well-being and is essential for good health. Increasing physical activity levels in the population help in the prevention and management of over [20 conditions and diseases](#).

Contact with nature

Physical activity has been described as the '[best buy in public health](#)', and enjoying the outdoors as part of our everyday lives has an important role to play in getting more people active more often. Spending time in places with trees, grass, water and open space can reduce the psychological symptoms of stress and promote recovery from mental fatigue. One key finding of the [UK National Ecosystem Assessment Report](#) was that natural environments provide both direct and indirect positive effects on mental and physical health (such as contact with nature, physical activity, social engagement and scavenging of air pollutants).

Contact with the natural environment can also be therapeutic and can help prevent mental health conditions and obesity. Research has shown that death rates are lower in low-income populations living in the greenest areas compared with those living with no or little green in their local space; it is clear that having greenspace nearby is more than just an aesthetic amenity, and that such spaces are a critical part of healthy urban habitats. Safe and accessible playgrounds and greenspace gives children opportunities for play and social interactions, which, in turn, have positive impacts on their physical and emotional health and development.

Response by society



Policies, strategies and legislation

Internationally concerted effort in the area of environment and health is ongoing, and activity in this area is summarised in [Health and Environment in Europe: a progress report](#).

In Scotland, there are currently several policies with relevance to health and well-being and the environment.

- [Equally Well](#) (Equally Well, the Early Years Framework and Achieving Our Potential) – is a public health strategy for Scotland with a focus on health inequalities where a key principle is reducing people's exposure to factors in the physical and social environment that cause stress, are damaging to health and wellbeing and lead to health inequalities;
- [Good Places Better Health](#) (GPBH) – is the Scottish Government's strategy on health and the environment. This new approach recognizes that physical environment has a significant impact on the health of Scotland's people and that actions is required to create health-nurturing environments for everyone;
- [Better Health, Better Care](#) – sets out to deliver a healthier Scotland by helping people sustain and improve their health, especially in disadvantaged communities, ensuring better, local and faster access to health care
- [Towards a Mentally Flourishing Scotland](#) – policy and action plan outlining the Government's plans for mental health improvement;
- [Early Years Framework](#) – sets out the importance of getting the early years of a child's life right and giving children the best start in life;
- [Preventing Overweight and Obesity](#), A Route Map towards Healthy Weight – includes environment both for increasing physical activity and for making healthy food choices;
- [Cycle Action Plan](#) – aims to increase cycling across Scotland, supporting both new and experienced cyclists;
- [Let's Make Scotland More Active](#) – the broad framework of objectives and priorities for the development of physical activity in Scotland;

- In addition, the Government has a [wide range of initiatives](#) in place to encourage more people to live healthier lives and to reduce smoking, alcohol consumption and drug misuse.

Several pieces of Scottish legislation are focused on the protection of human health from environmental harm. Assessment of environmental legislation for protection of human health was [summarised](#) in 2007.

Furthering Understanding

Partnership working

It is recognised that many complex issues of health and well-being appear at the community level and that solutions involve input from a spectrum of agencies and institutions. Some of the agencies in Scotland responsible for delivering on this agenda are listed in Table 1.

Modelling

The interaction between environment and health is not straightforward, and [models](#) have been used to further this understanding.

Alternate Indexes to GDP

Almost all nations currently use Gross Domestic Product (GDP) as one of their main measures of success. However, GDP is often misunderstood and therefore commonly used as a proxy measure for well-being. Work is currently being carried out at various levels to find indicators of societal well-being. For example, Oxfam Scotland are working on a [Humankind Index](#), and the UK Government is looking into the concept of [national well-being](#).

Indicators

Scotland has identified a suite of [national indicators of mental health](#) and well-being for adults and children.

Research

There is a wealth of research going on in this area. Many Scottish institutions have programmes delivering on specific aspects related to the environment and health.

Green exercise programmes

The value that the natural world can play in improving people's health is being explored by various programmes such as [Paths to health](#), the [Green Gym](#) and, most recently, the [Blue Gym](#). These programmes encourage people to get outside and participate in a range of activities. For example, Green Gym groups run by BTCV offer a way of keeping fit by clearing woodland, building dry stone walls, repairing footpaths and/or creating community gardens.

Table 1: Primary bodies in the area of Environment and Health

Government bodies	
Health Scotland	NHS National Services Scotland (NSS)
Health Protection Scotland (HPS)	Health and Safety Executive (HSE)
Health Protection Agency	Scottish Environment Protection Agency (SEPA)
Information and Statistics Division (ISD)	Department of Health Advisory Non-departmental Public Bodies (ANDPBs)
Food Standards Agency (FSA) Scotland	Scottish Government
Forestry Commission Scotland (FCS)	Health Boards
Scottish Natural Heritage (SNH)	Local Authorities

Charities and NGOs (examples)	
Royal Environmental Health institute Scotland (REHIS)	Living Streets Scotland
Environmental Protection UK (EPUK)	Scottish Allotments and Gardens Society
Scottish Environment LINK	Sustrans Scotland
Greenspace Scotland	WWF Scotland
The Conservation Volunteers	Friends of the Earth Scotland
Paths for All	

Research community	
Medical Research Council (MRC)	Natural Environment Research Council (NERC)
Academic Institutions	

Links to health data
Scottish Public Health Observatory (ScotPHO)
Office for National Statistics (ONS)
Scottish Census Results OnLine (SCROL)
Scottish Neighbourhood Statistics (SNS)