

The Annual Report of the Director of Public Health 2010



Cover pictures drawn by primary school children in NHS Highland

ISBN - 978-1-901942-10-1

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Introduction |

I am delighted to present you with my first annual report as Director of Public Health for NHS Highland.



This report reflects my own observations about the health of people in NHS Highland in my first few months in post and the major challenges that lie ahead if we are to continue improving health and closing the gap between the best and worst off in society. With the prospect of real cuts in spending on health over the next few years, it is more important than ever that we do not lose sight of the long-term health improvement work through which we hope to contain and reduce health service use and cost. For this reason, the last section of this report focuses on the value of health improvement and its effectiveness and cost-effectiveness.

Other sections reflect on the lessons we have learnt from pandemic flu in the last year, where huge efforts from public health staff, front-line health staff and many others successfully managed the major local outbreaks associated with the pandemic, detail the cost to Highland from alcohol misuse, smoking and obesity and record the success in reducing premature deaths from circulatory diseases and cancer.

The increase in long-term conditions associated with the rising proportion of older people, particularly the very elderly, in the population, also challenges us to think differently about how we approach the management of these conditions so that people can live as independently as possible. While we must continue to plan for new pandemics, the major public health challenge for the future is from climate change, where adaptation and mitigation strategies will involve all of us in major changes to lifestyles and service provision.

I would like to express my thanks to the members of the Public Health Team who have contributed to the report and to everyone for their hard work and dedication over the last year.

I do hope that you find this report informative and useful to you. Please take a few minutes to complete the evaluation form and tell me what you found useful, how you intend to use the report and any other information that you would like to see in future reports.

A handwritten signature in blue ink that reads "Margaret".

Dr. Margaret Somerville,
Director of Public Health

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Executive Summary and Recommendations

The population of NHS Highland has increased over the last 10 years and is predicted to increase by a further 10% over the next 20 years. The numbers of people aged over 75 years will more than double in the same time. Premature deaths from circulatory disease and cancer continue to decrease, while alcohol-related deaths are still increasing. Life expectancy and healthy life expectancy continue to increase, but the gap between the two is not reducing; while people are living longer and staying healthy for longer, many older people are still tending to spend the last years of their life with one or more chronic long-term health problems. Socio-economic inequalities in health are also not reducing, despite the overall reduction in death rates.

Health care over the next 20 years is likely to be dominated by the growing population of older people, particularly the rapidly increasing numbers of people aged 75 years and over. While many older people remain fit, active and able to live independently, there needs to be a fresh approach to helping and supporting the minority of the elderly population who are frail with multiple long-term conditions. One important health improvement intervention is preventing falls in elderly people, as fractured hips resulting from falls is a major reason for older people being admitted to hospital and being unable to maintain independent living subsequently.

Up to half of all circulatory diseases and cancers could be prevented by major reductions in the prevalence of three common risk factors: smoking, alcohol and obesity. Providing targeted individual and group support to help smokers stop smoking, coupled with wider initiatives such as banning tobacco advertising and smoking in public places and promoting smoke-free homes and cars, have led to a steady decline in smoking prevalence in the adult population. However, around a quarter of the adult population still smoke and these efforts must continue if we are to reduce smoking prevalence further. We are now taking the same approach, of both targeting individuals with supportive services and developing healthy environments, to reduce alcohol consumption and obesity levels, but it is too soon to note any encouraging trends in the levels of these risk factors in our population. Nevertheless, it is important to continue with our current health improvement activities to reduce levels in the future.

In 2009, the major public health challenge was pandemic flu, which was successfully managed by health sector and other staff. A huge effort from all concerned led to containing the outbreak, which affected many schools and other institutions. Many people also consulted with symptoms some of whom needed hospital admission. Finally another enormous amount of work went into coordinating the subsequent immunisation campaign.

In the future, climate change will pose the major challenge. This will have impacts on the basic requirements for living for the world population in terms of water, food and energy availability and security. Mitigating and adapting to climate change will involve major changes in the way we live and work and provide health services.

Health improvement interventions are effective and cost-effective: if we do not continue to tackle the major determinants of health in the form of lifestyle risk factors and the wider environment, then health service and other societal costs due to ill-health will continue to grow.

Recommendations

This report has not been able to consider all health issues facing the NHS Highland population, but has covered the major conditions and risk factors. A great deal of excellent work is already in progress to tackle them. We need to ensure that good practice continues and is shared between localities, partners and organisations.

For older people, we should

- recognise frailty and multiple long-term conditions as common and requiring a holistic approach to management
- change our approach to one of supporting people to manage their own conditions as far as possible
- develop anticipatory care to reflect patient wishes and avoid unnecessary hospital admissions and procedures
- implement interventions to prevent falls

We should continue tackling the major risk factors of smoking, alcohol and obesity by

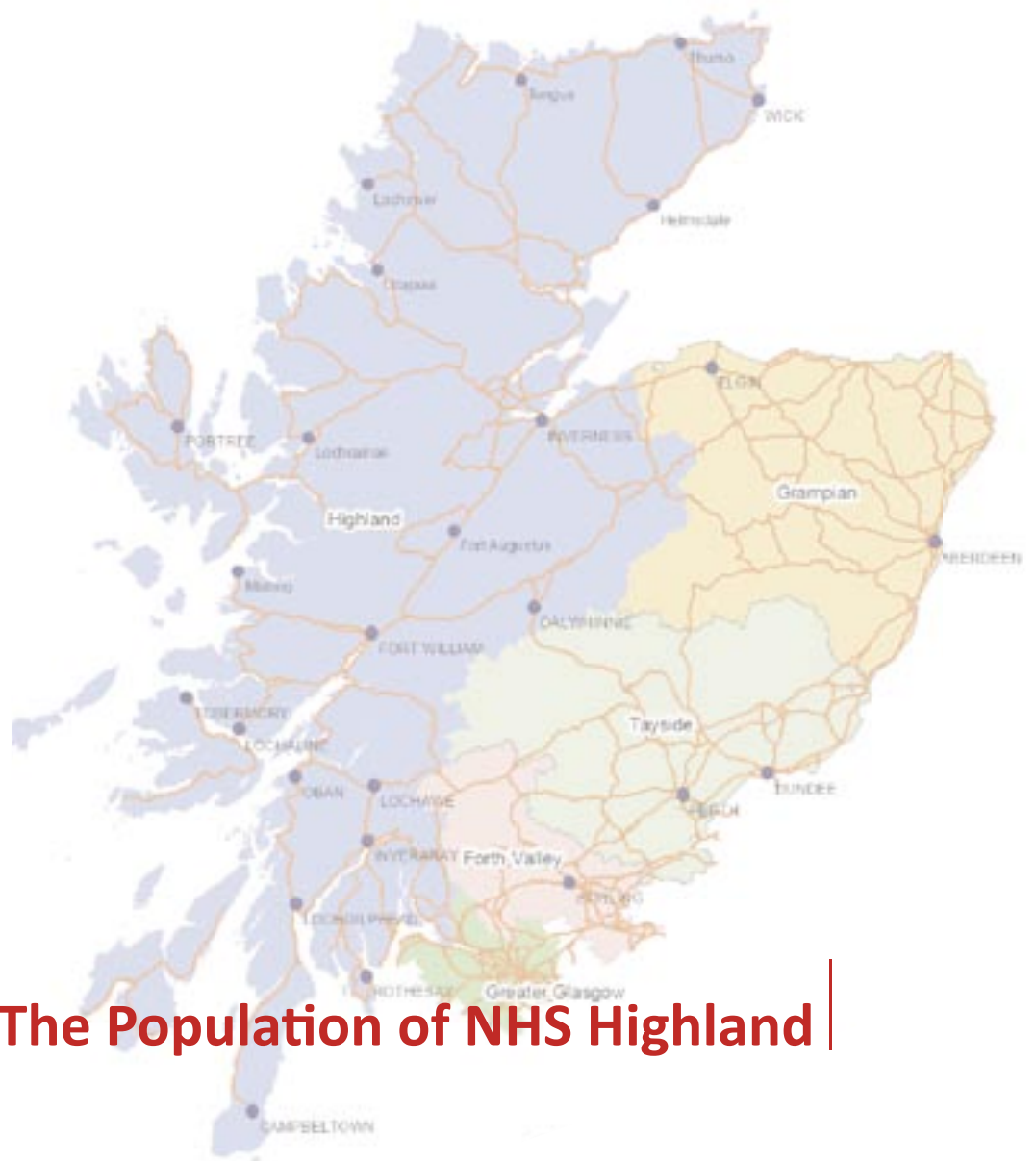
- Continuing smoking cessation services, targeting them at those most in need
- Promoting Smoke-free Homes and Cars Project, to reduce children's exposure to second-hand smoke
- Promoting responsible alcohol consumption
- Supporting the introduction of minimum alcohol pricing
- Reducing alcohol availability to under-age drinkers through pricing policies, legal enforcement and working with the retail sector
- Implementing the healthy weight strategy:
 - promoting a range of physical activities suitable for age and abilities
 - giving consistent messages about healthy eating
 - continue to incorporate consideration of healthy lifestyles into planning, transport and environmental sectors
 - support existing excellent work in schools

We should embed healthy living messages in the day to day working of all organisations, particularly the public sector by

- Ensuring that all front-line staff should be trained and able to assess and provide initial support to people (clients, patients and other staff) wishing to adopt a more healthy lifestyle, (whether it is stopping smoking, reducing alcohol consumption or losing weight)
- Ensuring front-line staff are aware of the more specialist services available to help with behaviour change and direct people to them as necessary
- Changing culture so that staff see their role as supporting people in maintaining their own health
- Providing staff with information and opportunities to change to more healthy behaviours
- Ensuring that the working environment is as healthy as possible, through provision of healthy eating options, active travel schemes and opportunities for physical activity
- Ensuring services are accessible to all

We should all be aware of climate change and be implementing strategies to mitigate and adapt to its likely impacts through

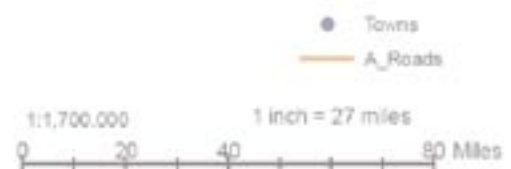
- Developing and testing joint emergency plans for flooding, heatwaves and other extreme weather events
- Implementing energy efficiency measures in everyday life and through building use and design
- Eating less meat, promoting local food procurement and supporting use of allotments
- Reducing travelling by use of virtual meetings and technology, making full use of public transport
- Developing and implementing organisational policies to reduce carbon use



Section 1: The Population of NHS Highland

Key messages:

- The population is projected to increase by around 10% over the next 20 years.
- The population of very elderly people is projected to increase more rapidly in the same time.
- Life expectancy is increasing, in line or better than the rest of Scotland, but it is still poor compared to parts of Europe.
- Inequalities in health are not reducing.



Blue shading = area covered by NHS Highland

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NHS Highland covers over 40% of the land mass of Scotland but has only 6% of the Scottish population.

1.1 Population trends

NHS Highland covers an area of 32,500 square kilometres, just over 40% of the land mass of Scotland, but only 310,500 people (6%) of the Scottish population live in the area. This headline population is an increase of 630 people on the previous year and a continuation of the trend in growth that has seen a 3% increase in the total Board area population since 1999. This estimate is based on the last Census in 2001, adjusted for births, deaths and migration, but may undergo considerable revision after the next Census in 2011.

The main influence on population growth in recent years for Scotland as a whole has been inward migration, rather than an increase in births or reduction in deaths, but population movements across Europe have made it increasingly difficult to provide accurate estimates and projections of future growth. The recent pattern of population growth dependent on net migration gain has not been evident across all NHS Highland and while the Highland population has increased by over 5% the population of Argyll & Bute has fallen by 1.7% over the last 10 years.

Figure 1 Components of population change by administrative area NHS Highland: 1999-2009

	Estimate population 30/6/1999	Components of population change				Estimate population 30/6/2009	Population change	
		Births	Deaths	Natural change	Estimate net civilian migration and other changes		Number	%
Argyll & Bute	91,640	7,766	11,316	-3,550	1,950	90,040	-1,600	-1.7%
Highland	209,200	22,033	23,665	-1,632	12,922	220,490	11,290	5.4
NHS Highland	300,840	29,799	34,981	-5,182	14,872	310,530	9,690	3.2
Scotland	5,071,950	547,885	567,042	-19,157	141,207	5,194,000	122,050	2.4

Source: GRO(S) Population Estimates for 2009

Assuming the continuation of recent high net migration gains off setting an established pattern of negative natural population change the NHS Highland resident population is projected to continue to grow over the medium term to potentially 340,000 people by 2030.

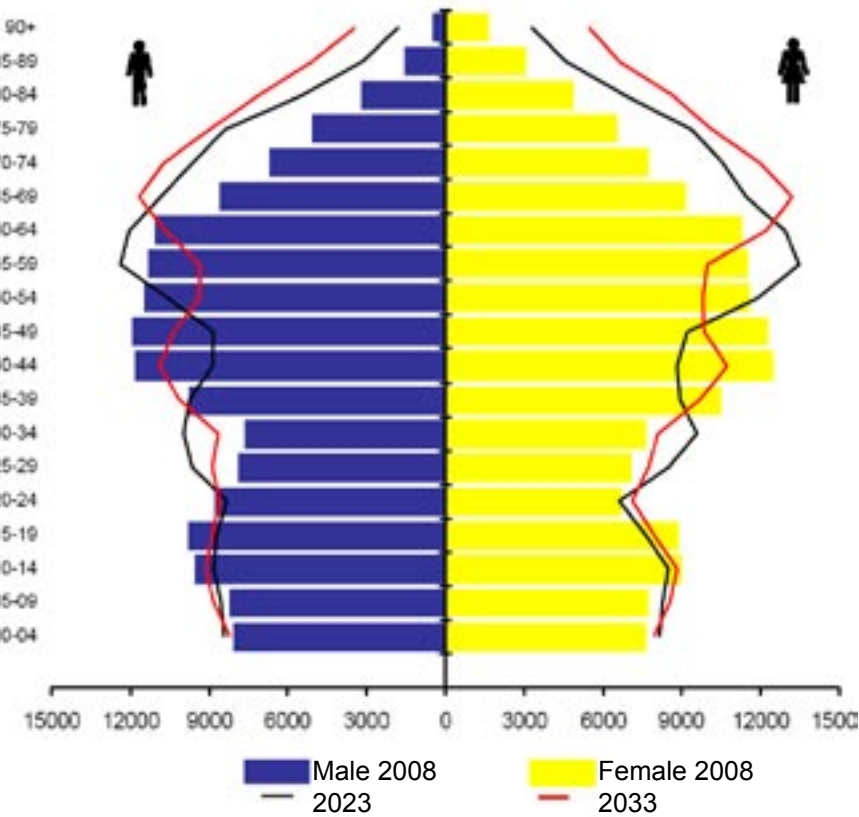
Over 75% of the NHS Highland population lives in a remote or rural location, including 35 inhabited islands. Geographical barriers such as extensive coastline and mountains and climate contribute to the physical aspects of remoteness, but social aspects such as low incomes, poor transport and small but ageing populations contribute to disadvantage in our most remote and rural areas. In contrast, other areas of NHS Highland are rapidly developing with rapid housing growth. There is a need for health care planning to be considered in both contexts.

It is also important when designing new developments, that the new environment provides support for healthy lifestyles.

Social changes include a move towards more single occupancy households, and fewer multi-generational households. If this trend continues, the number of single person households in the NHS Highland area is expected to increase from 48,920 in 2008, to 74,900 in 2033. Of these, 37,360 are expected to be people aged 65 years or older living alone.

Over the next 20 years, the number of people aged 65 and over in NHS Highland's population will more than double, with the biggest increases occurring in those aged 85 years and over.

Figure 2 Projected Population Change Numbers by Age Group and Gender, NHS Highland Area, 2008, 2023 and 2033

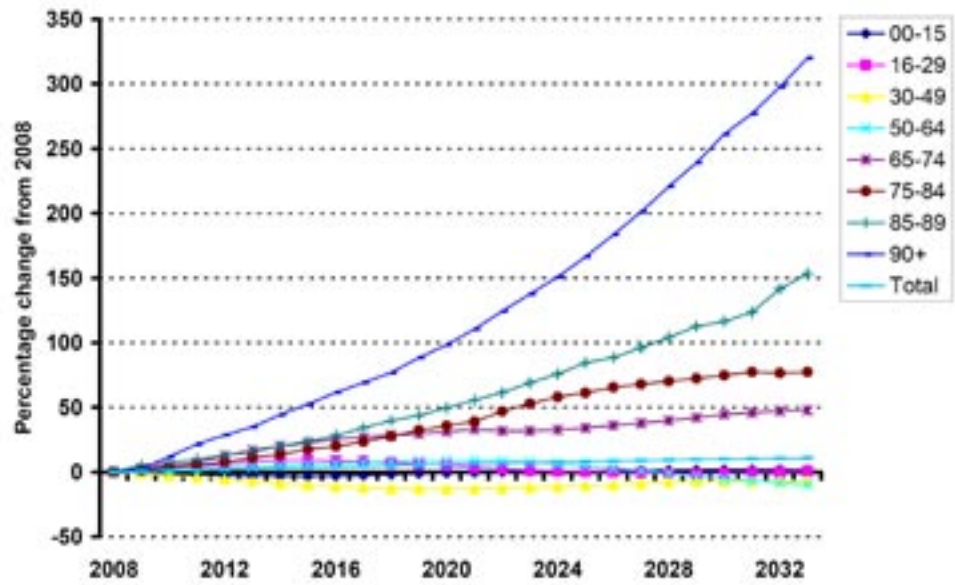


Source: GRO(S) Population Projections (2008 based)

Assumptions about migration affect younger people in the main, so estimates of the number of older people are likely to be more reliable. Figure 2 shows the most likely population changes for 2023 and 2033, compared to 2008. Assuming that migration does not change this, by 2033 the single largest age group in the area is likely to be people aged 65 – 69 years.

The predicted percentage change by age group is shown in Figure 3. Taking a longer view, compared to 1980, the number of people aged 65 years and over will have increased from approximately 43,000 people in 1980 to over 103,000 people in 2033.

Figure 3 Projected Population Change Percentage Change by Age Group, NHS Highland Area, 2008 to 2033

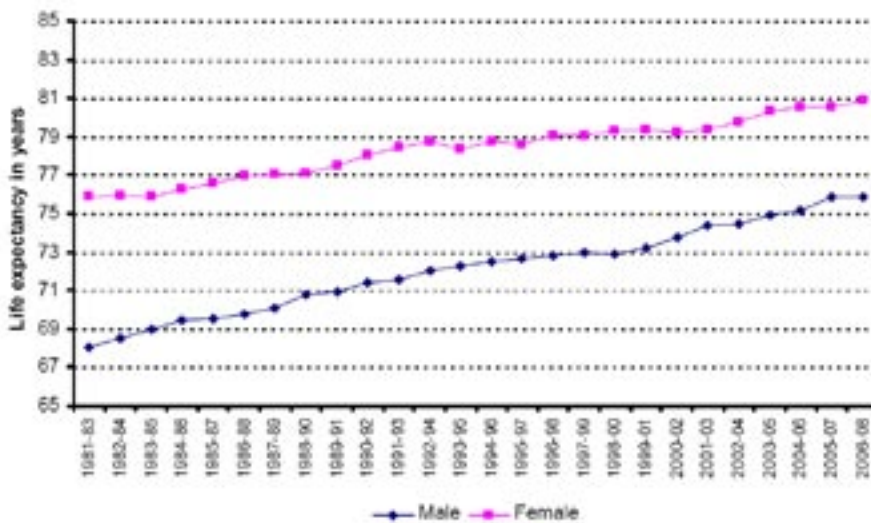


Source: GRO(S) Population Projections (2008) based.

According to the last census, only around 0.5% of the population in NHS Highland are from an ethnic minority background; again estimates of this proportion are likely to increase following the next census. No single ethnic minority group is predominant in the area and ethnic minorities are widely distributed geographically. Inward migration from Europe, largely Eastern Europe, has accounted for substantial changes in the ethnic minority population in recent years.

1.2 Life expectancy and mortality

Figure 4 Life Expectancy at Birth by gender and time period, NHS Highland, 1981 – 2008



Source: General Register Office for Scotland GRO(S)

Life expectancy

Life expectancy at birth is estimated by the General Register Office for Scotland, based on current death rates in an area. Life expectancy has increased steadily in both boys and girls in Highland (Figure 4).

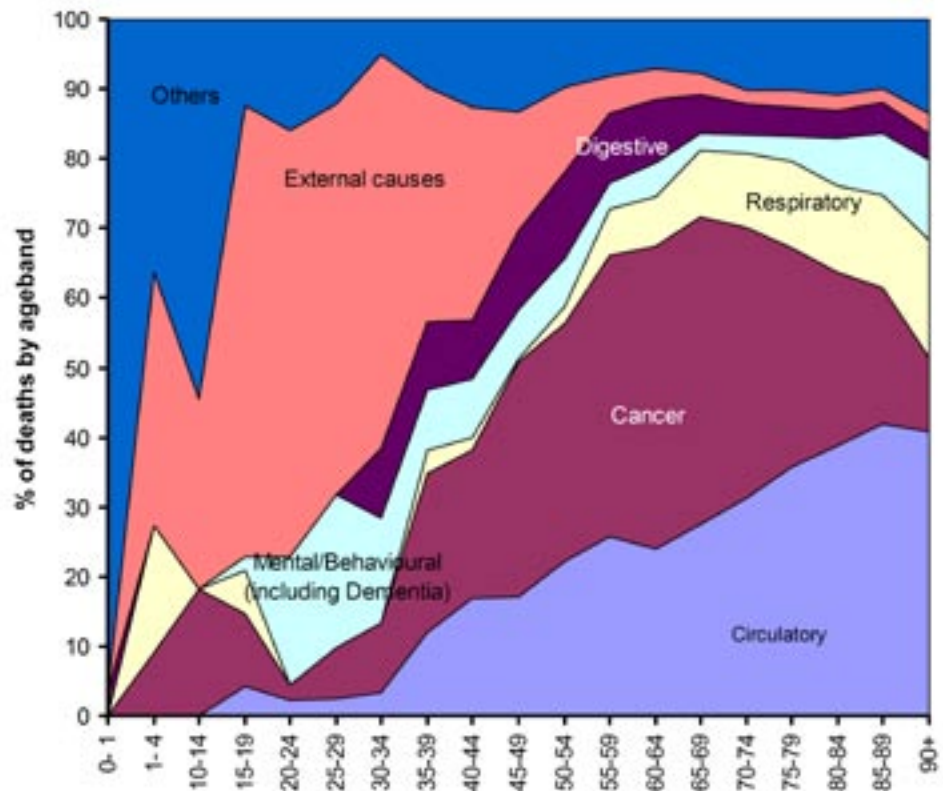
In 1981, men who reached the age of 65, could expect to live for another 12.4 years on average and women for another 16 years. This life expectancy at age 65 has now increased to 17 years for men and 19 years for women. There are, however, differences in life expectancy according to socio-economic status: boys born in the most deprived areas of Highland are likely to live an average of 7 years less than boys from the least deprived areas, while the difference in girls is around 5 years.

For Scotland as a whole, male life expectancy is on average 4 years less than the best in the European Union and female life expectancy is 5 years less. Only newly joined Eastern European countries have a lower average life expectancy.

For those living in rural areas of Scotland, whether those areas are accessible or remote, life expectancy is longer on average than in urban areas.

On average, boys born in the NHS Highland area can expect to live to 76 years of age, and girls to 81 years but there is still a gap between the best and worst off in society of 7 years for boys and 5 years for girls.

Figure 5 Proportion of deaths by cause by age group, NHS Highland, 2006 – 2008



Data Source: GRO(S) Vital Events Recording (Deaths), HIKT

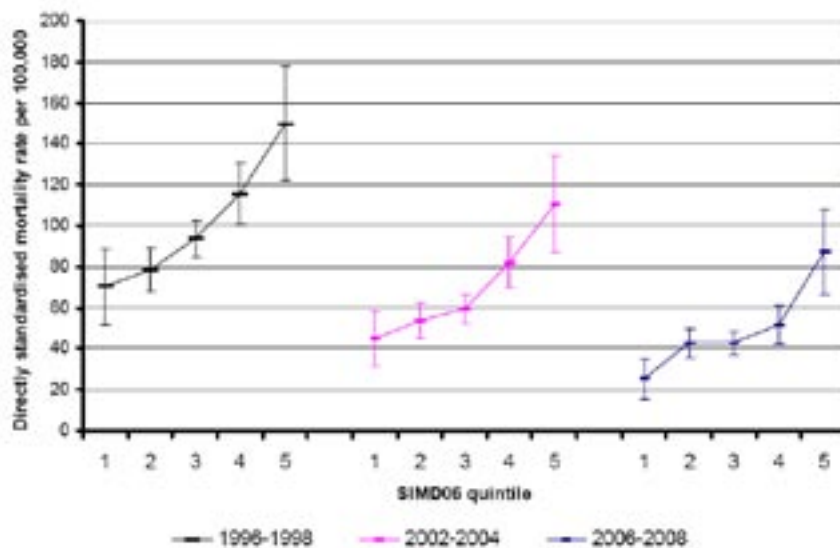
Mortality

On average, there are just under 3,500 deaths in NHS Highland each year, and 80% of these deaths occur in people aged 65 years or over. The commonest causes of death are circulatory disease, including heart disease and stroke (34%), cancers (28%), respiratory disease (11%) and dementia (6%).

Figure 5 shows the proportion of deaths by age group by cause. External causes, such as accidents, violence and suicide, account for a higher proportion of deaths in younger people, while in older people circulatory disease, cancer and respiratory disease predominate.

1.3 Inequalities in health

Figure 6 Premature Mortality from Coronary Heart Disease (CHD) by Deprivation Quintile in, NHS Highland, 1996 - 2008



Source: GRO(S) Vital Events Recording (Death) and Small Area Population Estimate Series

A complex interaction of factors such as low income, gender, social position, education, ethnic origin, geography, age and disability result in systematic differences in physical and mental health opportunities and outcomes for different population groups. The disadvantages that contribute to disparity in health achievement in individuals and groups often accumulate across the life course. Systematic difference in health experience is of particular concern for a number of priority public health conditions including cardiovascular diseases, certain cancers and obesity. However, the public health burden of inequality is much wider and mental ill-health, chronic long-term conditions and risk related behaviours (including alcohol, substance misuse, violence and injuries) are unevenly distributed across society with a disproportionate impact that deepens and reinforces poverty to the detriment of all.

A major cause for public health concern is the continuing inequalities in the health of the NHS Highland population and the evidence that general improvements in health are not experienced at the same rate by all. Figure 6 shows that while coronary heart disease (CHD) mortality has decreased substantially across the deprivation spectrum the inequality gap between the most and least deprived has increased in relative terms despite the excellent progress in overall mortality.

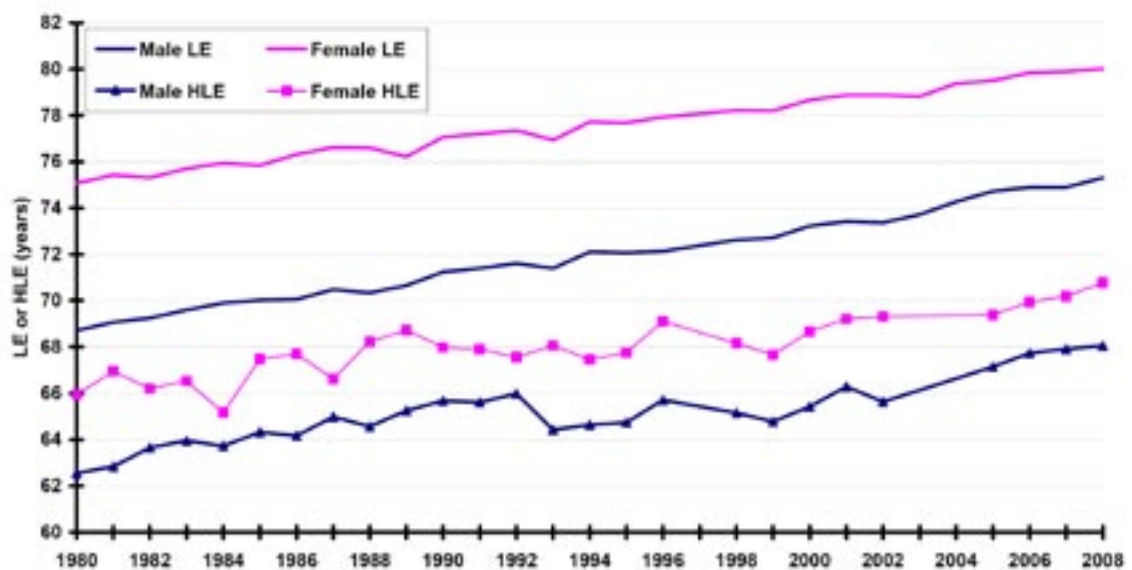
Section 2: Health and Health Care Needs in NHS Highland

Key messages:

- The prevalence of Long Term Conditions (LTCs) is increasing as a result of the ageing population and improving survival from previously fatal conditions such as cancer.
- There are increasing numbers of fit younger elderly people.
- But there are also increasing numbers of frail very elderly people, requiring a fresh approach to prevention and management of LTCs.
- Long Term Conditions and undefined symptoms represent a high proportion of GP consultations and hospital bed use.
- Premature deaths from coronary heart disease and cancer are decreasing.
- The prevalence of smoking is slowly reducing, but smoking remains the biggest cause of avoidable mortality.
- The prevalence of obesity is still increasing and is likely to halt or reverse the downward trend in premature mortality. More effective interventions are still needed to prevent and treat obesity.

2.1 Long-term conditions

Figure 7 Life Expectancy and Healthy Life Expectancy in Scotland, 1980-2008



Data Source: Scottish Public Health Observatory (ScotPHO)

www.scotpho.org.uk/home/Populationdynamics/hle/hle_keypoints.asp

Prevalence of long-term conditions increases with age.

35% of the over 65 years old population report having two or more long-term conditions.

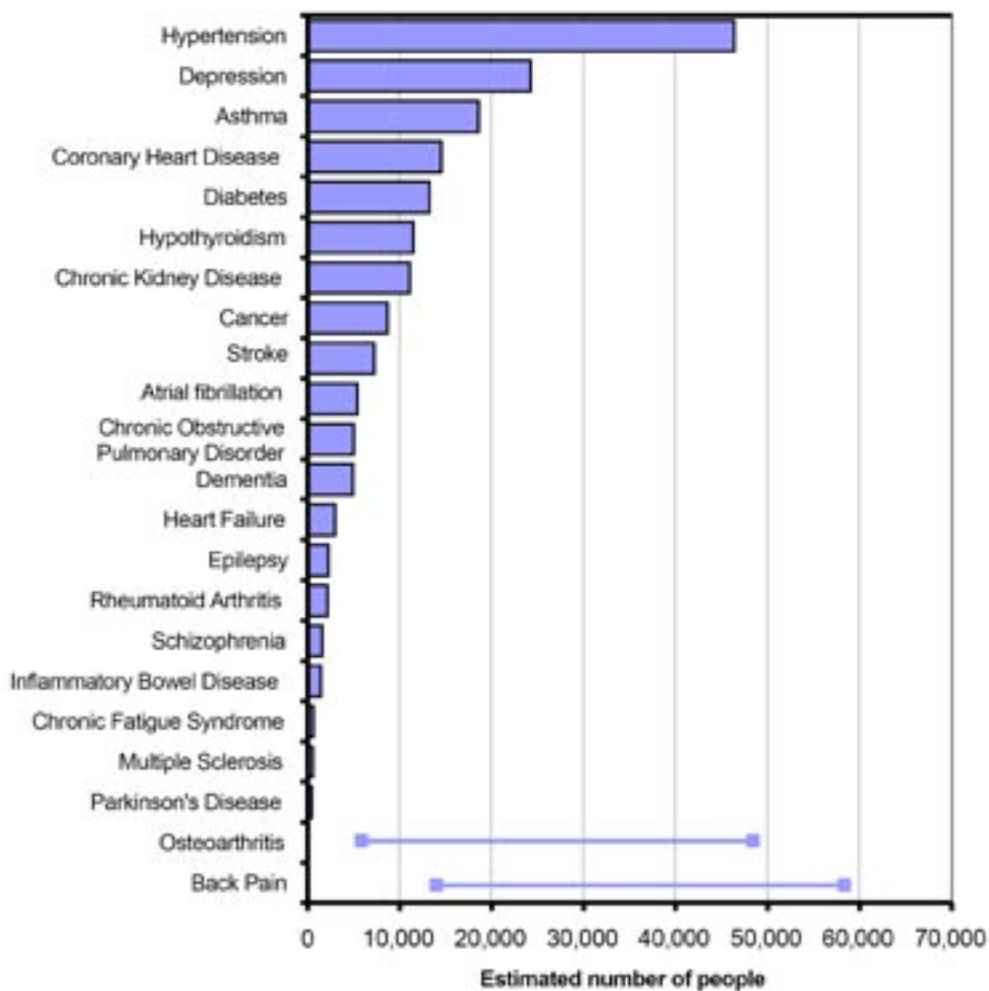
In line with falling premature mortality rates, life expectancy continues to increase, as does healthy life expectancy, but the gap between the two is not closing, indicating that the burden of chronic ill-health in later life continues and is shifting into older age groups. Healthy life expectancy is improving more rapidly for men than for women, but there is still a gap of around 7 years for men and 11 years for women, where life is affected by disability and illness caused by a wide range of chronic diseases or long-term conditions.

Definitions of long-term conditions (LTC) vary, making estimating numbers of people with them difficult. One estimate¹ suggests that 54% of the population aged 16 years or over consulted their GP for a potential long-term condition in a 1 year period; while another² found that 37% of the population reported having a long-term condition, and 11% said that their condition limited their day to day activities.

Figure 8 shows the estimated numbers of people with various long-term conditions. While data on trends are not available as yet, the prevalence of LTCs increases with increasing age (in the Scottish Health Survey² 65% of the over 65s reported an LTC), indicating that as the population ages, prevalence of LTCs is likely to increase.

Measuring health need by looking at individual conditions is only part of the story and could hide one of the major health challenges we face in the next few decades. The Scottish Health Survey found that 35% of the over 65 population reported two or more LTCs. Practice Team Information¹ also shows that people consulting their GPs about one LTC are more likely than not to have at least one other LTC as well.

Figure 8 Estimates of the numbers of people living with LTCs in NHS Highland



Source: Adapted from Long-term Conditions Programme, ISD Scotland. Based upon QOF (2008-09), PTI, SHS 2003, SMR01 and SMR04 and scientific literature

“Until now, we have built a lot of health care services on the paradigm of caring for people with one thing wrong at a time. Population ageing means that we will be faced with unprecedented numbers of people who have many things wrong all at once. These people are frail, and they challenge how health care is delivered. The face of modern health care increasingly and inevitably will be the face of frailty. And we must face up to it”.³

For example, of those consulting their GP for CHD, only 8% have no other LTC, while 67% have at least two other LTCs. This co-existence of LTCs complicates management and contributes to “frailty”.

Frailty is a multi-dimensional syndrome with functional, affective, cognitive and physical components and to date has not customarily featured in traditional epidemiological reports of disease prevalence. One indication of the impact of frailty on the health system may be the observation that the fastest growing diagnosis among the elderly admitted to hospital is “symptoms, signs and ill-defined conditions” rather than any specific single disease category. Given that over half of our acute hospital emergency beds are currently occupied by the over 75s, and that the over 75 population will roughly double in the next 20 years, the way we care for this group of patients will be critical to their welfare and to effective use of NHS resources.

Preventing avoidable admissions, reducing length of stay when admitted to hospital, and preventing complications and premature admissions to institutional care are key goals in providing better care for patients with long-term Conditions.

Frail people have frequently changing care and support needs and require a proactive multi-professional and multi-agency response. They commonly present with falls, immobility and confusion, are frequently admitted to hospital and are susceptible to complications while in hospital resulting in longer lengths of stay and high rates of mortality and institutional care. For a frail older person, a hospital admission should be timely and for a specific reason. Too often, however, it becomes a critical life event that is compounded by complications, poor recovery and subsequent transfer to long term institutional care.

The human costs of complications such as healthcare-acquired infections, delirium, pressure sores, malnutrition, dehydration and side effects of medication are potentially preventable and treatable. System costs can be reduced and quality of care enhanced through effective interventions and better co-ordination between GP and community services and hospital colleagues, and by access to timely and adequate social care.

In summary, successfully managing the increasing prevalence of co-morbidity and frailty requires the NHS

“..to face up to the challenge of how health care is delivered.....”³

The consequences of not doing so were predicted 5 years ago:

“..the next twenty years will see an ageing population, a continuing shift in the pattern of disease towards long term conditions and a growing number of older people with multiple conditions and complex needs. These changes in themselves will make the current model of health care delivery unsustainable”

Kerr Report 2005⁴

Dementia

The term dementia includes a variety of diseases that result in impairment of brain function, reduction in intellectual ability and personality change.

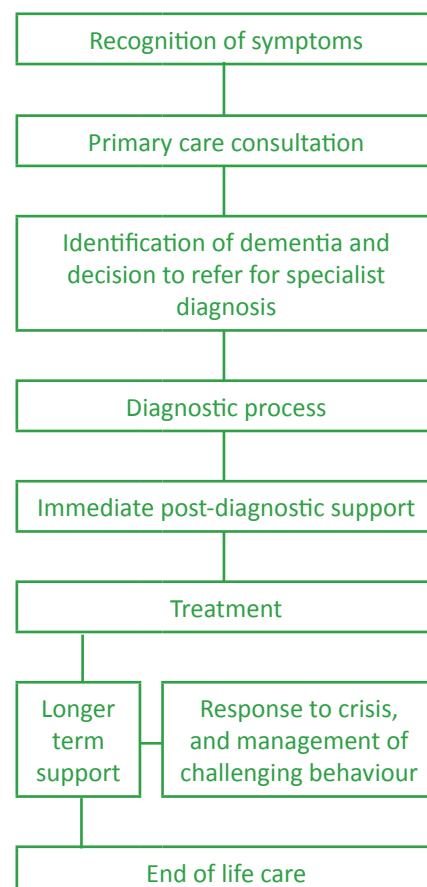
Alzheimer's disease is one form of dementia. Prevalence rates are difficult to calculate, but do rise with advancing age, so a likely effect of the ageing population will be an increase in dementia prevalence. Currently, about 5,000 people in NHS Highland are estimated to be suffering from dementia. Many people with dementia have other co-existing long term conditions, such as circulatory disease or arthritis, requiring a holistic approach to managing them and not just a single condition focussed approach.

There is some hope for prevention, as risk factors for some types of dementia have been identified. It is not yet clear that reducing risk factors in turn results in lower rates of dementia, but many of the risk factors – such as high blood pressure, high cholesterol, obesity, dietary factors and lack of exercise – are those which are addressed by existing circulatory disease prevention programmes in any case. It is not certain, therefore, that rates of dementia in the future will be as high as expected but, until this is known, the UK needs to plan for the currently predicted number of people.

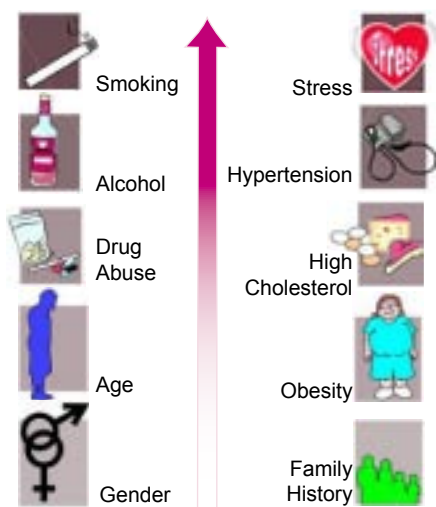
The pathway through dementia services is shown in Figure 9. Some people present to services very late as symptoms may not be recognised, or because of fears of the diagnosis, or because the person or their family and friends see no advantage in having the diagnosis made. There are, however, reversible causes of dementia symptoms that need to be identified and excluded. Prompt diagnosis and good support immediately after diagnosis may reduce longer term problems. Some treatments are available, and it is important that people have access to them if clinically appropriate.

Longer term support can be expected to become a negotiated process as dementia comes to be diagnosed earlier. In some cases, after people have been offered immediate post-diagnostic support and treatment, they may choose to have no routine contact with services other than when they feel it is needed. In other people, with more advanced dementia, regular monitoring by public agencies will continue to be required with increasing impact on social care. The real cost is likely to continue to be met by free carers outside public and voluntary services. In a financial climate where services are unlikely to increase in real terms for some time, NHS Highland Community Health Partnerships (CHPs) are working to ensure that services are as efficient and effective as possible to minimise this impact on carers.

Figure 9 Pathway through Dementia Services



The major risk factors for circulatory diseases.



2.2 Circulatory diseases

Circulatory diseases include coronary heart disease (CHD) which includes heart attacks and angina; cerebrovascular disease (stroke, CVD); diabetes and peripheral vascular disease. These conditions are grouped together as they share common disease processes and risk factors. The major risk factors explain up to 75% of the occurrence of CHD within populations⁵ and can be divided into those that are modifiable and those that are not; the latter include age, gender and family history of CHD.

The National Heart Forum⁶ has estimated the proportion of CHD attributable to five key modifiable risk factors: hypertension, raised blood cholesterol, smoking, physical inactivity and obesity. Approximately 46% of CHD is attributable to blood cholesterol above 5.2mmol/l, 37% to physical inactivity and 19% to smoking. Reducing risk factor levels in our communities, even by small amounts, can lead to substantial reductions in illness and premature death, as CHD affects large numbers of people. If all those who smoke more than 10 cigarettes per day cut down to less than 10, CHD deaths would reduce by 5%, while if all smokers gave up, they would reduce by 20%. The incidence of CHD could be reduced by around 30% in 10 years if such improvements were achieved. These estimated effects relate only to CHD. If the effect on other diseases were added the health improvement effect would be even greater.

Figure 10 Prevalence (%) of Circulatory Diseases, Scotland, 2008

	Angina	Heart Attack	Heart Murmur	Abnormal heart rhythm	Other heart trouble	Stroke	Any CVD	Any CVD or diabetes
Men	4.9	4.0	3.1	5.3	2.1	2.5	9.9	12.2
Women	4.6	2.4	4.6	6.0	2.1	2.8	10.7	12.8

Source: Scottish Health Survey

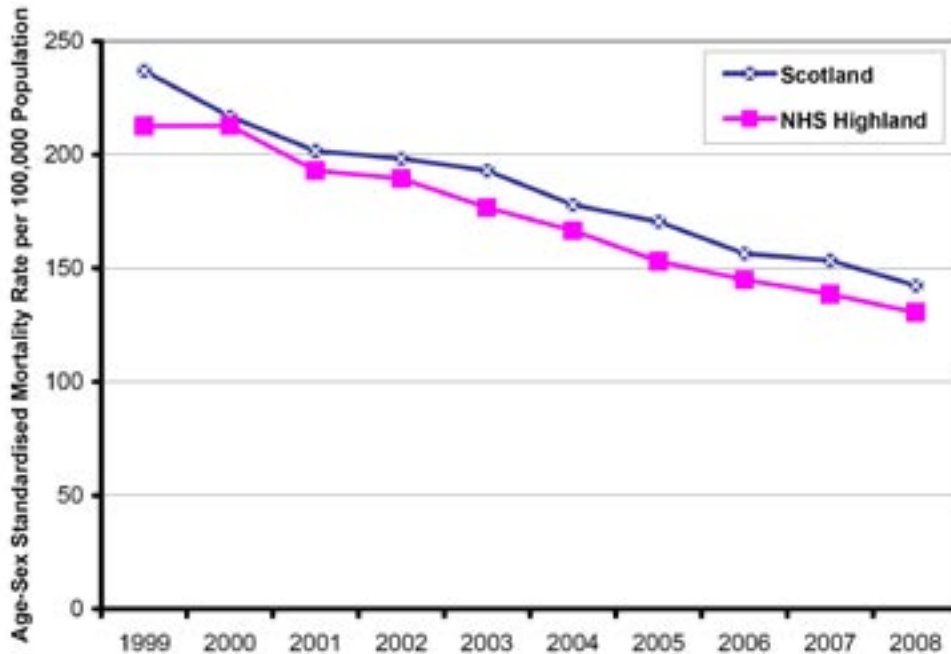
The prevalence of any CVD in men aged 16-64 has increased since 1998 (when it was 8.1%), but it is difficult to know if this trend represents an overall increase in the incidence of CVD among men or whether it reflects improved survival rates for these conditions.

The increase in the prevalence of any CVD among women aged 16-64 between 2003 and 2008 (from 8.9% to 10.7%) was not statistically significant. The combined prevalence for CVD or diabetes has increased significantly in both men and women since 1995, due largely to increasing levels of diabetes over time.

Mortality

Data from the past decade show NHS Highland to be following a similar pattern to the rest of Scotland with decreasing numbers and rates of people dying from CHD and cerebrovascular disease. The picture is similar for those of our population who live in the more deprived areas.

Figure 11 Age-sex standardised mortality rates from coronary heart disease for all ages in Scotland and NHS Highland



Source: ISD Scotland

Just over 700 people died from heart disease in NHS Highland in 2008 – a reduction of nearly 40% in the rate from this cause over the period.

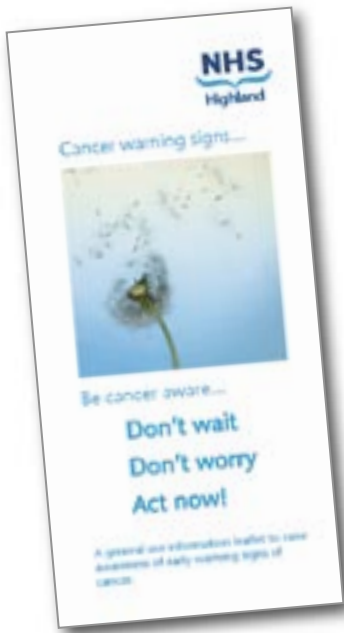
Effective interventions

The potential for health improvement is great given the number of modifiable risk factors. Unfortunately human behaviour is complex and many of the conclusions from studies of multiple risk factor interventions (e.g. weight loss, exercise, smoking cessation) suggest that scarce resources are best targeted on high risk individuals or on national initiatives that focus on fiscal, policy, legislative or environmental actions.

A recent review⁷ of the evidence highlights interventions that can be undertaken at primary care level. Amongst their findings they highlight:

- Evidence is strong that screening for CVD by GPs is an effective way to identify unknown cases of patients with CVD.
- Primary care practices are able to implement systems to provide preventive care services when using multi-method approaches; these include triggers or reminder tools and having a dedicated staff member to coordinate prevention activities.

- *Death rates continue to fall for CHD. However the burden of disease has increased since 1998, particularly from diabetes.*
- *Primary care provides a setting where high risk patients in particular can be identified and targeted.*



2.3 Cancer

One in three people will develop cancer during their lifetime, and the condition is responsible for approximately 25% of deaths in the UK⁸.

Prevention

There are over 200 types of cancer, and numerous risk factors for malignant disease have been identified, but up to half of all UK cancer cases are preventable through lifestyle changes such as stopping smoking, reducing alcohol consumption, maintaining a healthy body weight and avoiding excessive sun exposure.

Diagnosing the condition as early as possible is also important. People with symptoms suggestive of cancer may delay seeking advice from a health professional as a consequence of fear or by not recognising the significance of their symptoms^{9,10}. NHS Highland has recently published a leaflet highlighting cancer warning signs which encourages people experiencing any of these to consult their GP¹¹. NHS Highland residents are also invited to take part in the national screening programmes for bowel, breast and cervical cancer. Screening aims to detect cancer at an early stage before symptoms appear, improving the chances of a successful treatment outcome.

Incidence

Cancer incidence has been increasing in NHS Highland residents since the mid 1980's, a trend that is likely to continue. During 2013 – 2017, an average of 2,244 Highland residents are likely to be diagnosed with cancer each year, rising to 2,467 cases a year during 2018 – 2022¹² (Scottish Cancer Registry). This rising incidence is mostly due to the ageing of the population. Incidence is represented by registrations of new cases of cancer in Figure 12.

Prevalence

Prevalence is increasing for several cancers due to a combination of increasing incidence, improvements in prognosis and screening¹³. At the end of December 2007, it was estimated that 2.4% of men and 3.2% of women in Scotland were living with cancer¹³.

Survival

Survival from cancer in Scotland has improved. During the period 2000 – 2004, five year relative survival among men and women aged 15 – 99yrs in Scotland for all malignant neoplasms combined (excluding non-melanoma skin cancer) was 42% and 51% respectively representing a 16% and 13% increase among men and women respectively compared to the period 1980 – 1984¹³.

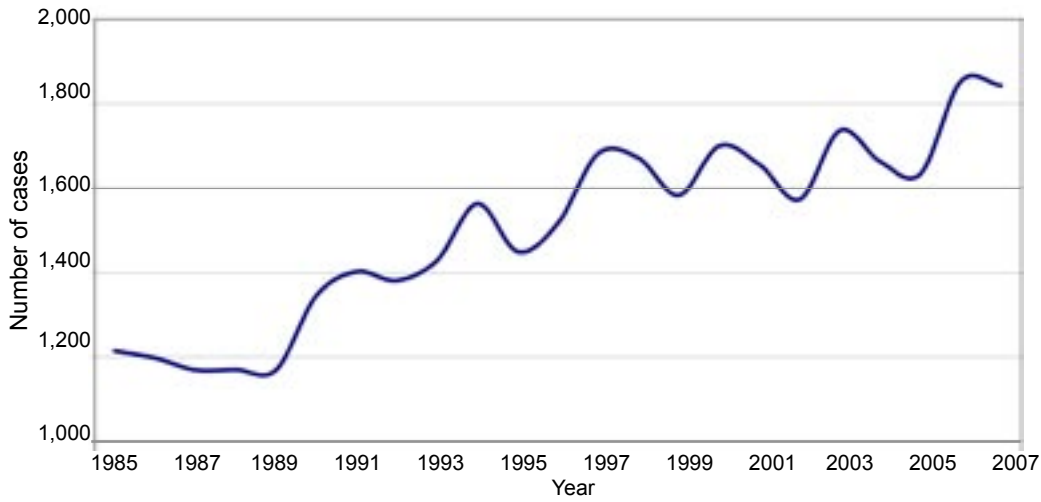
Mortality

Overall, cancer mortality has fallen during the past decade. As shown in Figure 13, although the absolute number of cancer deaths has increased as a consequence of our aging population, the standardised rate, which takes age into account, has fallen.

Up to half of all UK cancer cases are preventable through lifestyle changes such as stopping smoking, reducing alcohol consumption, maintaining a healthy weight and avoiding excessive sun exposure.

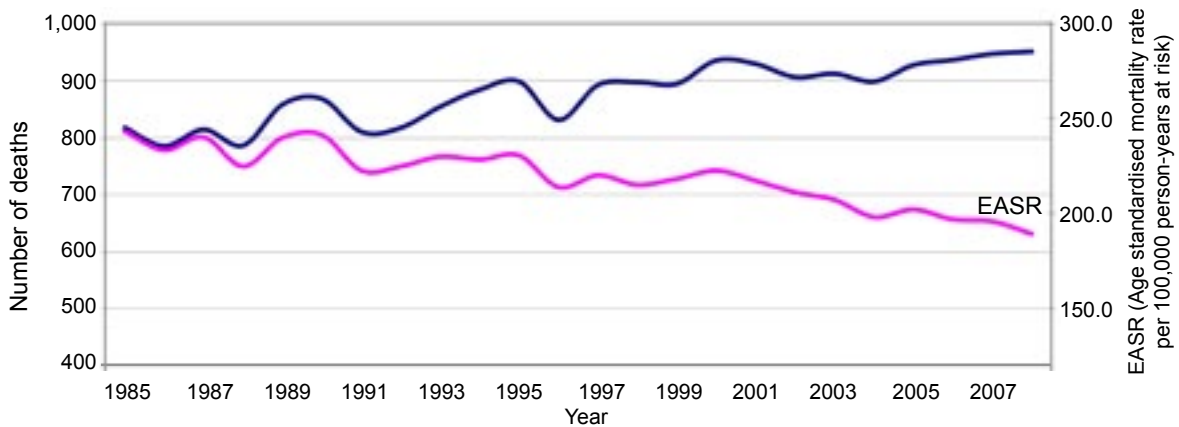
Cancer is becoming a long-term condition: improved survival, through earlier detection and better treatment, and declining death rates are leading to more people now living longer with cancer.

Figure 12 Number of cancer registrations by year among NHS Highland residents, men and women, all ages, and all cancer types (excl. ICD-10 C44 – non-melanoma skin cancer)



Source: www.isdscotland.org

Figure 13 Number of cancer deaths and age-standardised mortality rate (EASR) by year among NHS Highland residents, men and women, all ages, and all cancer types (excl. ICD-10 C44 – non-melanoma skin cancer).



Source: www.isdscotland.org

2.4 Obesity

Adults are more likely to maintain a healthy weight if they reduce consumption of energy dense foods through:

- selecting a low-fat high fibre diet
- consuming fewer take-aways
- eating more fruit, wholegrains, vegetables and salads
- minimising alcohol intake
- consuming less confectionery and fewer sugary drinks

Look around at the people near you; check out the photos of people in the local paper, do some people watching in any public space and you will see normal people going about their normal business – but compare them with similar images from 30 years ago and you will notice that the big difference, apart from the fashion, is that ‘normal’ people have become much fatter. Over 60% of the adult population is now overweight, and we accept this image as normal.

Trends from adult lifestyle survey data and national surveillance indicate that NHS Highland adults exhibit similar rates of overweight and obesity to all Scottish adults: 68.5% for men and 61.8% for women (SHS 2008)¹⁴. These rates are not just restricted to adults; we have more detailed and recent weight data for Highland Council primary school children, which show that 15% of 5 year olds and 27% of 11 year olds were overweight and obese in 2009, comparable to the rest of Scotland. The increasing prevalence of overweight and obesity in children aged 2-15 years is almost entirely due to increasing prevalence in boys (28% in 1998; 32% in 2003; 36% in 2008), whereas rates have remained stable in girls (27% in 2008).

The rate of increase in overweight and obesity, in both children and adults can be described as ‘passive’ in that it is the result of a small but sustained discrepancy in energy balance, and is a consequence of abundance, convenience and underlying biology; it could be viewed as the perverse outcome of constantly expanding ‘choice’. Obesity threatens the health and well-being of individuals and also places a burden on society in terms of health costs, lost productivity and long term chronic disability.

NHS Highland’s Healthy Weight Strategy builds on the national policy drivers: Preventing Overweight and Obesity in Scotland (2010)¹⁵, SIGN 116 Management of Obesity (2010)¹⁶ and the Foresight report: tackling obesity: future choices (2007)¹⁷, which make the case for:

1. local action on environmental changes which can affect individual behaviours on food consumption and activity,
2. local treatment and maintenance for individuals who are overweight and obese,
3. also recognises that those interventions which will have the biggest impact need to be at a national/international level.



Local action includes:

- Improving the uptake of Healthy Start (vouchers for free fruit, vegetables, milk, vitamin and mineral supplements for women and children who experience disadvantage) through the development and implementation of local Maternal and Child Nutrition Best Practice Guidance.
- Working with Highland and Argyll & Bute Councils on improving opportunities to promote activity, through, for example safe routes to school, carbon reduction targets and the cycle to work scheme.

However, the most challenging agenda is ‘energy consumption’: restricting the convenience and abundance of energy dense foods.

NHS Highland has also developed the X and Mini X-programmes to support families to achieve and maintain a healthy weight for their children. The full X-programme provides family based interventions in a group setting over 8 weeks. It is based on promoting behaviour change and includes sessions on family relationships, communication, physical activity, diet and nutrition, food labelling and smart shopping tips, goal setting, local opportunities and ongoing support. The Mini X-programme is a 2-session programme run in schools to whole classes, based on the same principles and approach as the X-programme. It promotes core messages about healthy eating and being active, and features activities to take home for the whole family. It complements and strengthens the Health and Wellbeing Outcomes in the Curriculum for Excellence, involves teaching staff in follow-up work, and is an excellent springboard for extension to other healthy lifestyle activities within the school.



Obesity is a lifelong condition which requires self care and lifelong management in primary care. Management in primary care is supported through the development of an adult healthy weight pathway and roll out of the national Counterweight programme. Self care requires interventions based on the health behaviour change approach, which support individuals to work out their own motivation and actions to make change¹⁸.



One family that completed the X-programme said “it’s shown me how to make small changes for the long term: I’ve thrown away my deep fat fryer”.

The evidence is clear: the treatment of overweight and obesity means restricting calorie intake; whilst physical activity is important for health, it is not an effective treatment strategy.

Putting this into practice is difficult: most people find that making healthy and responsible choices about food entails a constant battle against relentless pressures in the opposite direction.

The annual cost to NHS Scotland of treating smoking related diseases is estimated to be more than £409 million.

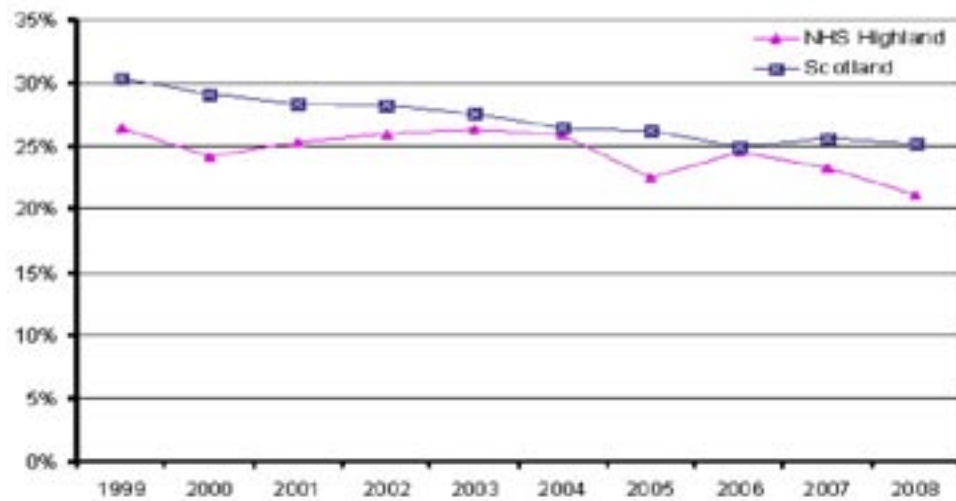
2.5 Smoking

Smoking has long been recognised as the biggest single cause of preventable ill-health and premature death. It is a key factor in health inequalities and is estimated to be linked to some 13,500 deaths and many more hospital admissions in Scotland each year.

Smoking prevalence

The Scottish Household Survey is the data source for monitoring adult smoking prevalence nationally and provides data for this purpose annually. Prevalence has fallen over the last 10 years.

Figure 14 Trends in smoking prevalence, Scotland and Highland, 1999-2008



Source: Scottish Household Survey

Maintaining this decline in smoking prevalence requires continued efforts to help smokers stop smoking as well preventing young people starting to smoke and reducing the numbers of people, particularly children, exposed to secondhand smoke .

Smoking cessation services in Highland

NHS Highland's Smoking Cessation Service has grown considerably over the last two to three years, with 3,789 quit attempts* made in 2009. The quit rate** at one month of 46% in NHS Highland is higher than the national average of 38%. The service has mainly been delivered through GP referral into Specialist Smoking Cessation Services, but it is expanding to include community pharmacies and antenatal services. In 2009, 56% of quit attempts in Scotland were made through pharmacy services, while only 20% of quit attempts in NHS Highland were made through this route. There is room for further development of this service.

*A quit attempt is defined as 'a client actively engaged in the smoking cessation service who commits to a date to stop smoking'.

**Quit rates are calculated as the number of records where the client self-reported as 'not smoked, even a puff, in the last two weeks' as a percentage of total quit attempts made/quit dates set.

Smoking prevention

Smoke-Free Homes and Smoke-Free Cars

The Smoke-Free Home and Smoke-Free Car Project was launched in May 2010 by NHS Highland in partnership with The Highland Council, Argyll & Bute Council, Strathclyde Fire & Rescue and The Highlands & Islands Fire & Rescue Service. It involves smokers and non-smokers promising to make part or all of their home smoke-free for themselves, their family and friends. Children breathe in second-hand smoke at home more than any other place and keeping the home and family car smoke-free can reduce this exposure. A smoke-free home can also help smokers quit and can reduce the risk of children and young people becoming smokers.

As part of the Smoke-Free Home and Smoke-Free Car Project a poster campaign was held for schools in The Highland Council area. The challenge for pupils from Primary 6 and 7 was to create a poster that would encourage families to protect themselves from the dangers of second-hand smoke by keeping their homes and cars smoke-free. Posters were judged on creativity, originality and ability to promote the smoke-free message to primary school children. Over 30 entries were received and the winner (pictured) was from Staffin Primary School in Skye.



Winning poster - Smoke-Free Home and Smoke-Free Car Project

Tobacco education

A Smoking Prevention Officer visits all secondary schools in Highland to deliver a Tobacco Prevention Roadshow, involving Smoking Prevention and Cessation Sessions, a Lunchtime Drop-in for those interested in giving up or who want to ask a question. Resources for both teaching staff and multi-agency professionals and a meeting to discuss the development of a consistent approach to the management of tobacco by creating a School Tobacco Policy that is fair, realistic and well-enforced. The content of the day is entirely dependant on what the school feels the Learning Community would most benefit from in terms of Smoking Prevention and Education.

Argyll & Bute CHP continue with their Smoke Free project. Lesson packs were devised for all primary schools by Education and NHS staff. These are delivered in all primary schools in the Argyll & Bute Council area to Primary 7 and some Primary 6 pupils. Lessons focus on history of smoking, effects of smoking on the body, passive smoking, the tobacco industry, and peer pressure.

A newsletter has been developed and produced called 'Tobacco-Free Youth' for teachers and multi-agency professionals. This is produced in hard copy to distribute and electronically via e-mail and can be downloaded from the Highland GLOW website (the first online community for education). The newsletter has been evaluated extremely well and is being produced three times a year.

Highland GLOW website: www.ltscotland.org.uk/usingglowandict/





Section 3: Public Health Challenges Past, Present and Future

Key messages

- The flu pandemic caused by H1N1 was successfully managed by a huge coordinated effort of staff in NHS Highland and throughout Scotland. Existing plans were useful and are being modified for future use. Planning should continue and is essential to the successful management of major outbreaks and pandemics in the future.
- Alcohol consumption in NHS Highland remains high and alcohol-related health harm is still increasing. Increasing the price of alcohol is an effective way of reducing consumption; NHS Highland fully supports the introduction of minimum pricing for alcohol.
- Falls are a major cause of morbidity and mortality in older people and are largely preventable through simple measures.
- The likely impacts of climate change need to be taken into account now in our emergency plans, provision of new and existing services and in the way we live and work everyday.



3.1 Pandemic flu

Background – what happened

Last year we witnessed first hand the latest influenza pandemic to hit the world. In the previous century flu pandemics occurred in 1918, 1957 and 1968 and experts had warned for some years that another was overdue. Sure enough a new strain of flu swept the globe in 2009. Influenza A H1N1(v) or “swine flu” as it became known first arrived in Scotland on 27 April 2009. We had expected the new strain to be of avian (bird flu) origin and to emerge from the Far East, However, it turned out to be swine flu from pigs and started in Mexico. Thankfully it remained a relatively mild strain and the majority of those who caught swine flu fully recovered. Nonetheless some people did experience an unpleasant and severe illness, others were hospitalised, often those with pre-existing illness, and sadly, in the UK, a total of 457 people died.

NHS Highland became involved in May 2009 when an outbreak of flu occurred in the Dunoon area of Argyll and Bute. At this stage the national policy was to try and contain the outbreak by early identification and treatment of cases and their close contacts.

This containment phase, intended to slow spread, was done to buy time to gather more information about the disease and to give vaccine manufacturers a head start as they tried to develop a safe and protective vaccine.

Within 3 weeks 130 cases in the area had been confirmed of which 55 were aged 17 years and under. This resulted in a total of 12 interventions by us in education establishments with eventual closure of 5 schools and 1 nursery and exclusion of a year group or a class in a further 2 schools and 1 nursery.

Daily liaison with Argyll & Bute Council Education Service colleagues proved invaluable. Thanks to the huge efforts of local healthcare staff in the Cowal and Bute locality and the wider public health team supported by other colleagues in Inverness, the outbreak there was successfully contained.

The subsequent treatment phase, or “mitigation” phase, then ensued. It became clear that the overall impact of swine flu would not be as severe as first feared. The disease mainly affected younger people although certain members of the population were more at risk such as children under 5 years of age, those with ongoing health problems and pregnant women. Nonetheless over the following months many people were unwell.

In Scotland a total of 1,542 people with confirmed influenza A (H1N1) were hospitalised and there were 69 deaths linked to H1N1 (47 of these people had underlying medical conditions). In Highland our peak rate for consultations in general practice with flu like illness was 182 per 100,000 population per week in late November. In contrast, the national peak rate in the previous winter, during a normal flu season, was lower than 35 per 100,000. Approximately 72 patients were admitted to Highland hospitals with swine flu and the deaths of four local people were caused in part or directly by the virus.



A call handler at the ‘Board Incident Control Centre’ set up in Assynt House, Inverness.

Lessons learned

A review of the UK 4 nations response to the influenza pandemic conducted by Dame Deirdre Hine¹⁹ has concluded that the overall response was highly satisfactory, proportionate and effective but that there is also an opportunity to learn lessons and make improvements for the future.

Many of the national issues are relevant locally. Specifically we found our pre-existing plans provided a very useful framework on which to base decision making. In addition the fact that there were established working relationships between key players within all the local agencies who were already familiar with generic major incident planning arrangements greatly facilitated our local response. Existing plans, however, need to be flexible and were modified as we went along due to the evolving situation, the milder flu illness than anticipated and the change of national strategy to one of treatment rather than containment i.e. only treating people as they presented to health services rather than trying to prevent illness by giving antiviral medication to close contacts at home or at work.

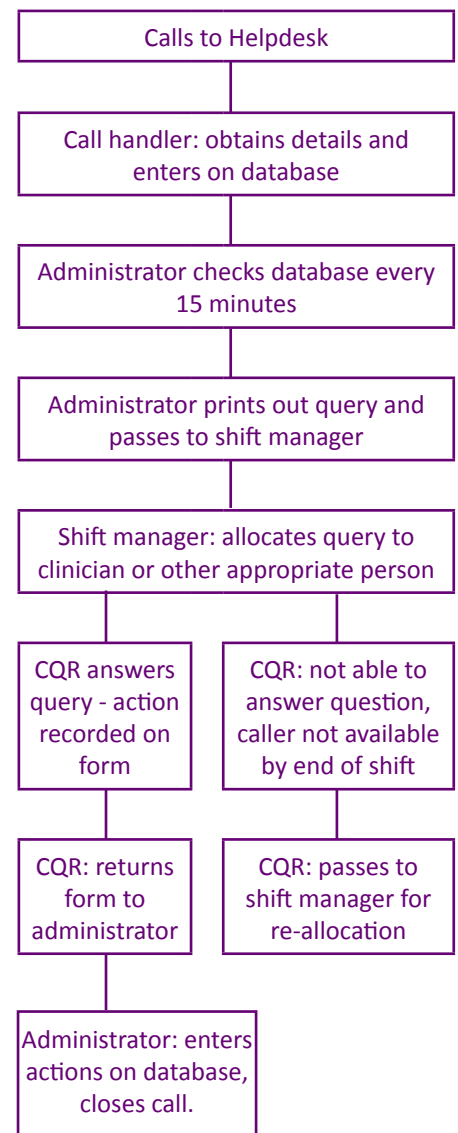
During our containment of the Cowal and Bute outbreak, activation of a local coordinating centre in Dunoon and antiviral distribution centres in Dunoon and Rothesay worked very well, as had activating a Board incident control centre in Inverness with appropriate rotas of staff to coordinate information, handle telephone calls, provide public health advice and plan for future developments. A clear command and control structure and clear identification of roles and responsibilities plus regular liaison and communication ensured that both strategic and operational parts of the NHS Highland knew what to do and when.

Media communications throughout the pandemic were coordinated by Scottish Government and the Cabinet Secretary became the “face” of the pandemic. On the whole this worked well but meant we had limited access to local media which made it more difficult to reassure our own population and tailor messages which accurately reflected the local position rather than the national one.

National and local use and skills in using teleconferencing moved on considerably due to the pandemic. IT and telecoms were well utilised over several months with daily use of teleconferencing and videoconferencing often with every health board and other national agencies involved. We successfully established a central call handling facility within NHS Highland’s headquarters in Assynt House and set up a specific email address box for all emails. These were all useful learning points which could be replicated for other types of incidents.

The key skills in short supply were those related to surveillance, data management and analysis. Further work is required to ensure enhanced capacity in this area.

Helpdesk Queries



Note: CQR = Clinical Query Respondent - Person who undertakes the actions required for the clinical query.

Form FL D1 created by NHS Highland, Public Health, updated 4th June 2009

Within the acute sector there was some excellent training and up-skilling of nursing staff to enable them to care for a ventilated patient, including ventilated children. These skills need now to be kept up in case of future demand. It was difficult to find a balance between keeping people informed and bombarding them with too much detail and information overload was a problem at times especially in primary care. Local pharmacy arrangements for the distribution and delivery of antivirals, and then vaccines, were exemplary.

H1N1 Vaccination

The phased rollout of Scotland's H1N1 vaccination programme was launched on 21 October 2009. Phase One of the programme offered vaccination to the initial at-risk priority groups which included frontline health and social care staff. The second phase offered vaccination to all children over 6 months and under 5 years. A total of 730,000 vaccines were given in Scotland.

Vaccination continues to be offered even now to Phase One at risk priority groups who have not yet received vaccination (in particular newly pregnant women and those who have been newly diagnosed with a condition which places them in a clinical at risk group).

In Scotland, by the end of March 2010 the estimated uptake rate for people in a clinical at risk group was 52.6% for those under 65 years and 56.3% for those aged 65 years and over. In pregnant women, it was 41.6%.

The uptake in NHS Highland was around the national average. Overall NHS Highland also vaccinated some 4,500 healthcare staff and a further 2,320 social care staff with H1N1 vaccine, which was a tremendous effort.



Recommendations

The H1N1 virus is expected to re-appear as the dominant strain during this year's flu season. It is now an integral part of the seasonal flu vaccine. Therefore, uptake of seasonal flu vaccine should be maximised this winter to ensure high levels of population immunity against H1N1. The threat of a further flu pandemic remains the same as before. As in the last century pandemic flu will occur several times, we just don't know when or how virulent a strain it will be next time. Our preparations continue and we must learn the lessons of H1N1 so that we are even better prepared next time. In particular:

1. Lessons learned should inform future plans and preparedness for pandemic flu and other potential major incidents. Emergency plans should incorporate a generic framework response which has inbuilt flexibility to allow for adaptation to any evolving incident.
2. NHS Highland should identify dedicated emergency coordination rooms with adequate tested IT access and infrastructure, or rooms/areas that can quickly be converted to serve this purpose.
3. Key roles and responsibilities should be clearly defined in advance in all emergency plans.
4. Pandemic flu planning along with other large incident planning should be an agenda item 2 or 3 times per year at formal management teams to keep plans and preparations up to speed.
5. Consideration should be given to having one point of electronic contact with key stakeholders such as general practitioners during any future protracted incident.
6. There were particular issues throughout the whole area regarding the care of children who may need hospitalisation. Further work is required to consider how best to do this with the possible development of triage skills in rural general hospitals.
7. Further work is required to define a model of identifying all pregnant women in NHS Highland at any point in time, such as a centralised register of pregnant women.
8. NHS Scotland should progress work to develop a person centred immunisation record.

The threat of another flu pandemic is still the same; so we must maintain and develop our plans to cope with it.

Guide to units:

1 unit =

$\frac{1}{2}$ pint normal strength beer (4% ABV)

25ml measure of spirits

$\frac{1}{2}$ of 175ml glass of wine (12.5% ABV)

Over a third of men and a fifth of women in Highland regularly drink more than the safe recommended amounts of alcohol per week.

60% of both sexes aged 16-24 in Scotland drink more than twice the recommended daily intake.

3.2 Alcohol-related harm

Alcohol and NHS Highland

Alcohol continues to present challenges for public health in NHS Highland with 35.2% of men and 21.1% of women drinking above the recommended weekly limit (Figure 15).

Figure 15 Estimated weekly alcohol consumption in Scotland and NHS Highland, 2003: proportions exceeding guidelines

	Scotland %	NHS Highland %
Men		
Never drunk alcohol	4.2	2.3
Ex drinker	4.2	6.1
Under and up to weekly limits	57.5	56.4
Over 21 units	34.1	35.2
Subtotal: over 50 units	8.8	8.0
Women		
Never drunk alcohol	8.7	7.9
Ex drinker	4.8	5.7
Under and up to weekly limits	63.1	65.3
Over 14 units	23.4	21.1
Subtotal: over 35 units	4.5	4.1

Source: Scottish Health Survey 2003 (New conversion factors)

Nationally men are more likely to die of alcohol related conditions than women, with the standardised mortality rate for men more than twice that for women (35 compared to 15 per 100,000; 40 compared to 15 per 100,000 in NHS Highland). People living in the most deprived areas are 5 times more likely to have alcohol as an underlying cause of death than those living in the least deprived areas (ISD, 2009; ISD, 2010).

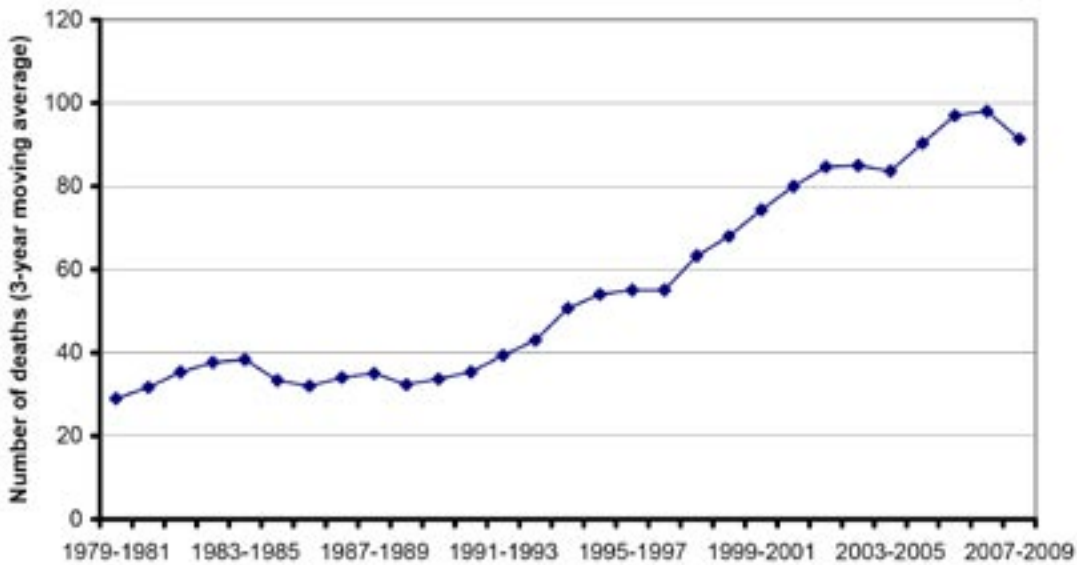
Changing NHS Highland's Relationship with Alcohol

Scotland is renowned worldwide for its relationship with alcohol, famed for its whisky industry and known for its hospitality. Part of the heritage, it's an aspect of the culture that is celebrated.

However, alcohol misuse is a significant and challenging problem facing our communities in terms of both health and social harm. There have been a number of campaigns over the years aimed at increasing awareness of alcohol, units and health impacts yet there has not been a reduction in consumption and related harm.

There is a clear relation between price and consumption of alcohol, the cheaper the relative price of alcohol, the more is consumed and the greater the levels of alcohol-related harm. This relationship is well-established in the UK and elsewhere.

Figure 16 Number of alcohol related deaths in NHS Highland (3- year moving average)

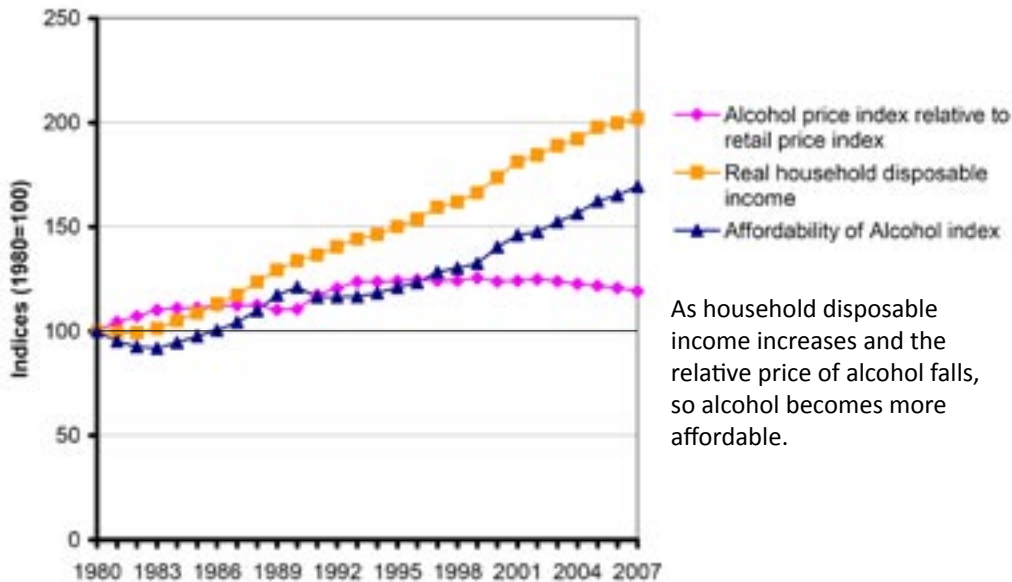


Data Source: GRO(S) Alcohol-related Deaths: www.gro-scotland.gov.uk/statistics/deaths/alcohol-related-deaths/index.html
 Note: Deaths reported above are based upon the underlying cause of death and do not include deaths as a result of road accidents, falls, fires, suicide or violence involving people who had been drinking; or from some medical conditions which are considered partly attributable to alcohol, such as certain forms of cancer.

Alcohol was 69% more affordable in 2007 than in 1980 with the majority of sales occurring in the off-trade sales where low cost and bulk purchasing deals in supermarkets increase accessibility and availability.

The Scottish Adolescent Lifestyle Smoking and Substance Use Survey (SALSUS) 2006 identified that 19% of 15 year olds attempted to purchase alcohol from the off-trade and of those more than half reported success in doing so.

Figure 17 Indices of alcohol price relative to retail price index, real households' disposable income and affordability of alcohol, 1980-2007 in the UK



As household disposable income increases and the relative price of alcohol falls, so alcohol becomes more affordable.

Source: Focus on Consumer Price Indices, Office for National Statistics and Economic Trends, Office for National Statistics, 2008

The minimum price per unit of alcohol of 45p recommended by Scottish Government in September 2010 is predicted to reduce deaths by 50 and, hospital admissions by 1,200 across Scotland in its first year of implementation.



Figure 17 illustrates that alcohol in real terms has become increasingly affordable over the last quarter of a century. While the cost of alcohol increased faster than retail prices generally this has been more than offset by the growth in household disposable income. Discounting by alcohol retailers and competition for trade in a highly competitive market has also increased the availability of cheaper alcohol. As the price of alcohol has come down we know that consumption has increased.

Conversely, an increase in alcohol price focused on cheaper drinks would have an impact upon consumption and help reduce the current high levels of harm to both individuals and society.

The proposed Alcohol (Scotland) etc Bill has identified a number of measures to reduce alcohol consumption including minimum unit pricing. Although not a proven intervention work undertaken by Sheffield University suggests that a minimum price for a unit of alcohol would have a positive impact on reducing consumption. Other measures are needed to support the introduction of minimum pricing, such as reducing the ease with which young people can buy alcohol.

An integral part of engaging with the broader alcohol industry, partners and communities is through the Licensing (Scotland) Act 2005, as public health is now a key objective in local and national licensing policy and staff training. Community Safety, Public Health and Northern Constabulary have started working with licensed premises, through Licensing Standards Officers.

A number of initiatives are being implemented to address the issue of alcohol and young people. Over the past year, in line with the Curriculum for Excellence, there have been developments in teacher training in order to increase their knowledge, improve their confidence in the topic and to provide training resources. Other initiatives include a range of diversionary activities with projects such as Street Football on offer throughout Highland by Action for Children.

Treatment and support services for alcohol misuse

As well as trying to prevent alcohol-related harm, it is also important to ensure that people have access to high quality treatment and support services. With the introduction of alcohol screening and brief interventions, it is anticipated that more people will need such support and the Alcohol and Drugs Partnerships in Highland and Argyll & Bute are working to ensure that people can access this support at the time they need it.

If the difference between genders accessing services for treatment reflected reported rates of drinking over the recommended weekly limits, then 34-37% of individuals using treatment services **should** be women. The proportion is actually 30%, suggesting some women in need of services are not in contact with them.

With the additional investment that has been made for alcohol services since 2008, developed a range of services across the whole area dedicated to alcohol service provision.

- An Alcohol Liaison service has been developed at the Lorne and Isles Hospital facilitating early identification, treatment and support and education for hospital staff
- Cowal and Kintyre is developing alcohol treatment and rehabilitation services including home detoxification
- Osprey House introduced a triage referral system from mid February 2010 allowing quicker access to drug and alcohol assessment for clients in the Inverness locality, an area where long waits have been identified
- Training of volunteer counsellors within the Council on Alcohol services to enhance local service provision
- Health Improvement Co-ordinators recruited to support the health improvement agenda and enhance health input and assessment for youth action services
- Partnership work underway to manage the care needs of drunk and incapable people, involves housing, health, social work services and police
- Investment in employability related projects such as the APEX Scotland DELTA project
- Providing additional investment to support diversionary, mentoring and outreach work for young people through Action for Children

Screening Questions

*How often do you have:
6 or more units on one
occasion?*

*How often during the
last year have you been
unable to remember
what happened the
night before because
you had been drinking?*

*How often during the
last year have you
failed to do what was
normally expected of
you because you had
been drinking?*

*In the last year has a
relative, friend, doctor
or health worker been
concerned about your
drinking, or suggested
you cut down?*

In 2009 in NHS Highland there were 78 adult deaths caused by accidents: 25 of these were land transport accidents and 38 were caused by falls, 31 of which were in those aged 75 years and over.

There were 4,217 emergency admissions due to accidents in 2009, of which 2,329 were the result of a fall.

Health care related to falls was responsible for over 10% of all occupied bed days in NHS Highland hospitals in 2009.

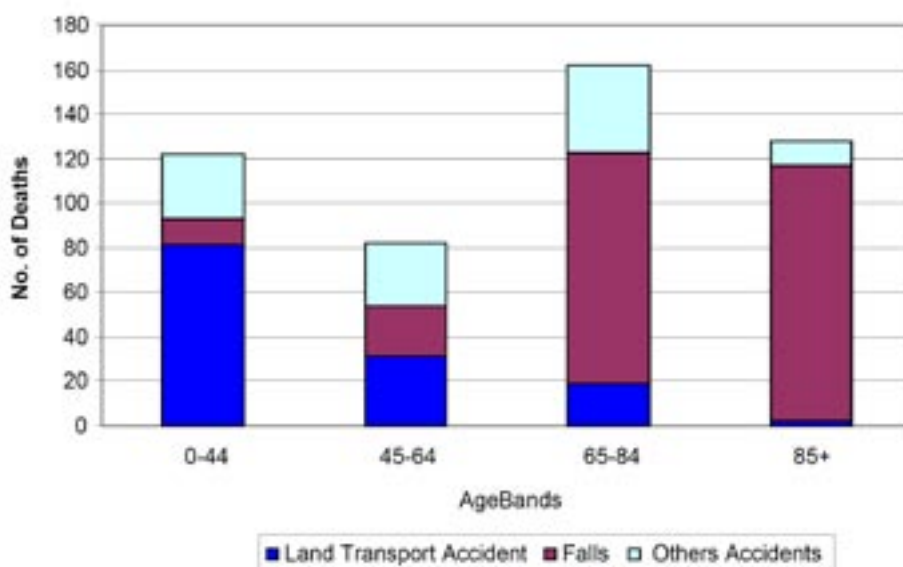
3.3 Accidents/injuries

Accidents can, and do happen. The word ‘accident’ implies that what happened could not have been prevented, it is just one of those things. Yet we know that a significant proportion of accidents are preventable. A better term to use therefore is ‘unintentional injuries’ and national data sets have adopted this term, but in keeping with common usage, this report will use accidents, on the understanding that many are preventable.

When we consider how to reduce the number of accidents, and their impact on health, we may think first of high profile incidents like road traffic accidents, climbing accidents or drowning. While each accident is a personal tragedy, in population terms these contribute only a small proportion of the overall deaths and injuries compared to those caused by low profile incidents such as trips and falls.

The huge impact that falls make is demonstrated in the graph below which shows the total numbers of deaths in NHS Highland from falls, land transport accidents and other accidents over the past 5 years by various age groups.

Figure 18 Unintentional deaths, NHS Highland, 2004-2008



Data Source: GRO(S) Vital Events Recording (Deaths)/HIKT

When we also consider hospital admissions then in 2009 in Highland there were 4,217 emergency admissions due to accidents. Only 358 of these were due to RTAs but an astonishing 2,329 were as a result of a fall. About 80 NHS Highland hospital beds per day are occupied by patients who have had a fall. Throughout 2009 that added up to a total of 29,209 occupied bed days across NHS Highland hospitals, more than 10% of all bed days.

Road traffic accidents

Transport safety is often cited as a public health success story and the sector has certainly made huge life and casualty savings. Seat belts, air bags, speed limits, traffic calming measures to name but a few. However, road death and injury continue to pose a significant public health challenge. In 2008, 2,538 people died on British roads of which 124 were under the age of 16. More can and should be done.

The drink drive message is widely comprehended and adhered to throughout the country. Nonetheless the UK Blood Alcohol Content (BAC) of 80mg/l is among the most lenient in the world. An estimated 6% of all road casualties and 17% of all road deaths occurred when someone was driving over the legal limit. The Parliamentary Advisory Council for Transport Safety²⁰ has recently made 2 major proposals:

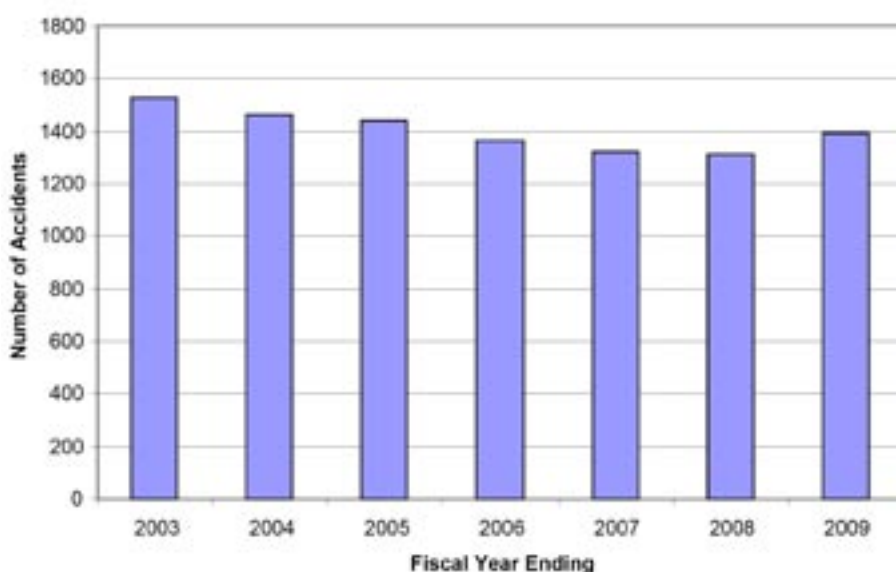
- A reduction in the legal BAC limit from 80 to at least 50mg. Reducing it to 20mg would effectively prohibit any drinking and driving
- Roadside breath testing devices should be approved for random testing

Home accidents

In the UK every year, almost 4,000 people die in home accidents and 2.7 million visit their local accident and emergency departments seeking help²¹. In Scotland this translated to 224 deaths in 2007/8.

Hospital admissions from home accidents increased considerably in the 1980s and 90s but have since levelled off. Emergency hospital admissions in NHS Highland from home accidents show a relatively flat trend over the past few years.

Figure 19 Home Accidents All Ages NHS Highland 2003-2009



Source: ISD 2008.

The UK Blood Alcohol Content level for driving of 80mg/l is one of the most lenient in the world:

Reducing it to at least 50mg/l and introducing random roadside breath testing would reduce road casualties.

Fractured neck of femur (hip fracture) is a serious consequence of falls in older people:

1 in 5 patients with a hip fracture dies within 3 months.

Risk factors for falls include:

- *Lack of mobility and poor balance*
- *Vitamin D and calcium deficiency*
- *Too much medication*
- *Chronic disease*
- *Environmental hazards*
- *History of previous falls*
- *Female gender*

Hospital stays are only the tip of the iceberg though, as many more people will visit their local GP or Accident & Emergency Department. Data seems to suggest that, proportionately in Scotland, around 1,000 people seek some sort of medical attention every day, following a home accident.

The benefits of taking preventative measures are clear and quantifiable in terms of both health and economic costs, resulting in:

- The potential to save lives
- Improved quality of life for all
- Reductions in the cost of acute care
- Reductions in the cost of continued community support required after hospital discharge

Falls

The great majority of both fatal and non-fatal accidents involving older people are falls. Almost three-quarters of falls among the 65 and over age group result in arm, leg and shoulder injuries. Older people are also more likely to injure more than one part of their body. Falls account for 71% of all fatal accidents to those aged 65 and over, and 54% of all injuries.

The most serious accidents involving older people usually happen on the stairs or in the kitchen, whereas the bedroom and the living room are the most common locations for accidents in general. The largest proportion of accidents are falls from stairs or steps with over 60% of deaths resulting from accidents on stairs. 15% of falls are off a chair or out of bed (on two levels) and a similar number are caused by a slip or trip on the same level, e.g. falling over a mat or a rug.

Fractures, particularly hip fractures are one of the most debilitating results of an accidental fall. Ninety per cent of hip fractures occur among those aged 50 and over.

Some NHS Highland facts:

1. There are 20,000 falls estimated to occur in the NHS Highland area each year.
2. In 2008, a total of 2069 patients aged 60 years or older presented to NHS Highland hospitals with a fall as the major reason for admission.
3. In 2009, there were approximately 28 neck of femur fractures treated at Raigmore Hospital each month. One in 5 patients with a broken hip dies within 3 months.

Prevention

Evidence shows that between 25% and 33% of falls can be prevented.

In 4 locations across the NHS Highland area, we are working in partnership with Age Scotland to involve older people and their communities in the prevention of falls²².

In Thurso, Dingwall, Nairn and Lochgilphead, local individuals and organisations have come together to plan ways of:

- raising awareness of the causes of falls and how they may be prevented
- promoting information about local sources of help
- promoting information about local physical activity and social opportunities
- improving falls prevention by identifying gaps in local service provision and working towards solutions

These local Action on Falls Groups held public events during National Falls Awareness Week (21-25th June 2010) to promote the steps everyone in the community can take towards preventing falls and to highlight local opportunities for physical and social activities.

Up to a third of falls can be prevented through simple measures:

- *older people should keep fit and active taking exercise to improve their balance and strength*
- *older people's medication should be reviewed and reduced as much as possible*
- *older people's environment should be as safe as possible*

Climate change is already happening and the scientific consensus is that human activity has contributed significantly to the rise in global temperatures.



Predictions for Scotland show a small rise in average temperatures and rainfall, but with greater variation across seasons with drier summers and much wetter winters.

3.4 Climate change

Climate change is often referred to as global warming, and the Intergovernmental Panel on Climate Change (IPCC) predict that average global temperatures have already risen and are likely to rise even further over the next 20 – 80 years. It is often not recognised, however, that these predictions include greater variability in temperatures and weather for many areas. The recent severe winter, when the snow lay almost continually for the whole month of January and the Highlands enjoyed one of its best skiing seasons ever, may well demonstrate this predicted increased variability in weather patterns.

The facts

When discussing climate change, the media continues to debate whether climate change is actually happening or not and portrays both sides of the argument as if they are “equal”. Yet the scientific consensus is that global temperatures have risen significantly over recent years, indicating that climate change is already happening.

The recent IPCC Report²³ provides decisive evidence that the planet is getting warmer and of the role of human activities in changing the climate, the potential impacts on society and the urgent need to take action to reduce greenhouse gas emissions.

Alongside the temperature rise the global population is now at an unprecedented high level and due to climb even more and even faster. The climate change agenda is therefore inextricably linked to sustainability, as a decreasing area of land is required to support more people in terms of living space, food, water and energy requirements.

The latest models predict an increase of mean annual temperature in the UK of between 2.5° and 3° C by the end of the century. Periods of very cold weather will become less common, but periods of very hot weather will become more common, as will extreme weather events such as storms and flooding.

The effect on global health

Public health and well-being depends upon a range of factors including safe drinking water, sufficient food, shelter, security, income, housing, education, social networks and the environment. A changing climate will affect many of these and the impact will not be evenly distributed around the world. Developing nations will suffer most as will the poor. The World Health Organisation (WHO)²⁴ has identified small islands, arid and high mountain zones and densely populated coastal areas as particularly vulnerable²⁵.

Specific predicted effects are as follows²⁶:

1. Increased frequency of heatwaves and heat related deaths. The cold kills vulnerable people but heat is an even bigger killer.
2. More rain, storms and flooding will compromise fresh water supplies and overwhelm sewage drainage systems, leading to increased risks of food and water borne infection and potential injuries from extreme weather events.
3. Rising temperatures and variable precipitation will decrease the production of staple food crops leading to increased malnutrition.
4. Rising seas will flood coastal regions leading to large scale population displacement. More than half the world's population lives within 60 km of the sea.
5. Some vector (insect) borne diseases such as malaria will increase in range and also seasonality and affect new areas and non immune population groups.
6. Widening health inequality between the rich and poor.
7. Sun burn and increased skin cancers.

What will happen in the Highlands

Our geography and relatively affluent lifestyle may mean that we escape the worst of the changes brought about by global warming. However we would be naive to imagine that it won't matter here.

The global effects listed above will indirectly affect us through their impacts on food supply and distribution, infrastructure damage and insurance costs, population migration and possibly war and instability in parts of the world worst affected by water and food shortages. Beyond these macro effects there will also be potential direct effects. Hotter drier summers, milder wetter winters, and more frequent extreme weather events like flooding and heat waves, as described by the UK Climate Impacts Programme (UKCIP)²⁷, could have a number of health-related consequences.

Climate change is likely to have the following local impacts:

- *More extreme weather events - flooding, heatwaves and droughts*
- *Problems with the quantity and quality of drinking water*
- *Increased heat-related deaths and fewer cold-related deaths*
- *Inward migration from population pressures elsewhere*



Flooding in Inverness



Heavy snowfall in Inverness
January 2010

1. Climate change affects supplies of drinking water. Three problems have been identified: increased rainfall (over short periods) leading to increased numbers of bacteria in surface water; increased water temperature leading to an increase in algal blooms in reservoirs; and a decrease in the efficiency of chemical coagulation: a major method of removal of microbes from drinking water. Our small and often remote water treatment systems and our large number of private water supplies make the Highlands susceptible to these adverse effects.
2. A decrease in cold-related winter deaths and an increase in heat-related summer deaths.
3. The air pollution climate of the UK will continue to change. Though concentrations of a number of important pollutants are likely to decline over the next half-century, the concentration of ozone is likely to increase. This will increase attributable deaths and hospital admissions from respiratory disease. The increases are likely to be significant: with the least constraining assumptions (no threshold of effect assumed) up to about 1,500 extra deaths and hospital admissions per annum might be expected in the UK.
4. Increased cases of sun burning and skin cancer if people spend more time in the sun and have increased exposure to ultra-violet light.
5. Increased cases of food poisoning and insect borne diseases such as Lyme disease. Outbreaks of malaria in the UK are likely to remain rare. Tick-borne diseases however, are likely to become more common, but this will be more likely to be due to changes in land use and leisure activities than to climate change.

The Highland Council has developed an adaptation strategy for more information visit www.highland.gov.uk/yourenvironment/sustainabledevelopment/climatechange/adaptation/

The benefits of measures to tackle global warming

There are significant public health benefits from measures designed primarily to tackle greenhouse gas emission. For example:

- Using more public and active transport will increase physical activity and reduce obesity.
- Four-fifths of agricultural emissions arise from the livestock sector. Although livestock products are a source of some essential nutrients, they provide large amounts of saturated fat, which is a known risk factor for CVD. Efforts to reduce emissions from the livestock industry are likely to reduce the burden of ischaemic heart disease.
- Cleaner ways to generate electricity will improve air quality and reduce pollution leading to less respiratory disease.

Some of the measures being undertaken to mitigate and adapt to the effects of climate change can bring health benefits:

- *Public and active transport schemes can increase physical activity*
- *Changes in agricultural activity can lead to improvements in diet*
- *Using more renewable energy sources will reduce air pollution.*

So what can we do about it?

There are a wide range of practical, often simple, steps we can take, as individuals and as organisations, to reduce our greenhouse gas emissions and our carbon footprint.

Reduce energy use

- Implement practical energy efficient measures such as optimising heating and air conditioning controls, use energy efficient bulbs, switch off computers, monitors and lights when not in use
- Increase vegetable to meat protein ratios and reduce use of processed foods
- Design sustainable buildings

Reduce transport emissions

- Drive less and increase virtual meetings using tele/ videoconferences, sharing of vehicles and travelling by public and active transport
- Promote local food procurement and support use of allotments

Reduce waste disposal

- Reduce paper use by encouraging email of documents
- Encourage recycling and sustainable printing with collection bins and systems

Organisational policy

- Undertake a carbon audit
- Set a target for reducing carbon emissions and energy consumption
- Develop plans for carbon reduction with clear actions and timescales
- Develop a toolkit of best practice
- Appoint environmental champions within each department or service

Health and public services need to:

- plan for extreme weather events and their health and social consequences
- plan for increased population movements and increasing population diversity

Finally we can all be green champions and take a lead when we are in the home, in the workplace and in society by asking questions and promoting sustainable solutions as well as reducing our carbon footprint. We can all play our part in protecting the planet for future generations.



Section 4: The Value of Health Improvement

Key messages:

- At least 80% of heart disease, stroke and type II diabetes and up to 50% of cancer could be prevented through stopping smoking, eating a healthy diet and taking regular physical exercise.
- 90-100 hospital beds in NHS Highland are likely to be occupied every day by people with conditions attributable to alcohol use, obesity and smoking - a cost of £15.4 million per year.
- Health improvement interventions to help people stop smoking, reduce alcohol consumption, increase physical activity levels and provide children with the best start in life, are effective and cost-effective.
- Health improvement, to be effective, must involve all sections of society, not just health services.

At least 80% of premature heart disease, stroke and type II diabetes, and 40% -50% of cancer could be prevented through eating a healthy diet, taking regular physical exercise and avoiding smoking³⁰.

The higher one's social position, the better one's health is likely to be³¹.

4.1. Introduction

As the 17th century author Thomas Fuller wrote:

*'Health is not valued till sickness comes'*²⁸.

At an individual level, good physical, social and mental health can make a world of difference to a person's ability to participate in family and community life. At a societal level, health improves levels of human capital which positively affects individual productivity and ultimately economic growth. Improved health can contribute to an improved economy and an improved economy can contribute to better health. Sickness, on the other hand, has huge implications for the NHS, for individuals and the wider society²⁹.

The cost of ill-health is not borne solely by the NHS but also by the individual, their family, employers and wider society through reduced earnings, days lost from work, and reduced productivity. Health services must focus on improving health as well as treating disease. At least 80% of premature heart disease, stroke and type II diabetes, and 40% of cancer could be prevented through eating a healthy diet, taking regular physical exercise and avoiding smoking³⁰. Failure to tackle these risk factors could lead to an increasing burden of ill-health, rising inequalities and escalating healthcare costs.

4.2 Health improvement and the social determinants of health

Many factors, individual, familial, social and environmental, impact on health. Housing, education, employment, transport, income, social networks and community safety have all been recognised as determinants of well-being, as well as health-related behaviours such as smoking, diet and physical activity.

Differences in health status are seen across socio-economic groups. They reflect social variations in opportunities and life circumstances that influence an individual's chance of having good health and are referred to as health inequalities. Some of the factors underlying these differences in health status cannot be modified, for example gender and genetic make up, but others we can potentially do something about, such as poverty, early childhood experiences and the social gradient between the richest and poorest in society.

The higher one's social position, the better one's health is likely to be³¹. Underlying determinants of health do not occur in isolation, but co-exist and are inter-related. People living in poverty may also be a lone parent, live in poor housing, have left school with few educational achievements, have a long-term disability that affects the work they can do, or live with discrimination which has an impact on their mental health³².

Health inequalities therefore do not arise by chance and cannot be solely attributable to unhealthy behaviour or difficulties in access to health care, but reflect and are caused by social and economic inequalities in our society. Reducing health inequalities is not only a matter of social justice but also makes good economic sense. The cost of health inequalities can be measured not only in individual terms in years of life or healthy life lost but also in terms of cost to the economy of additional illness and disability³¹. As described above, the impact of social factors on health is extremely complex. Social factors are important in influencing health related behaviours such as diet, smoking and physical activity. However, social factors also have an impact on health independent of their effect on behaviours. These issues are wider than the health service, and require our partners to work with us to improve the environment in which people, live, learn, work and play as well as supporting people to make positive changes to their health related behaviours.

Health improvement is therefore concerned with influencing both the social determinants of health and individual health-related behaviours through a variety of interventions aimed at individuals, communities, living and working conditions and the broader social and political context. Interventions at an individual level include support to stop smoking or advising people on healthy eating, at a community level changing attitudes using social marketing techniques and raising awareness and at a broader policy level changing the built environment to encourage physical activity or introducing legislation such as the ban on smoking in public places.

4.3 The cost of disease burden and health risk

“...lifestyle changes such as stopping smoking, increased physical activity and better diet could have a major impact on the required level of health care resources.”

Wanless 2002³³

In 2001, Her Majesty’s Treasury commissioned Sir Derek Wanless to undertake an independent review of the long term resource needs of the NHS. The resulting report ‘Securing our Future Health: Taking A Long-Term View’³³ was published in 2002 and set out an assessment of the resources required to provide high quality health services in the future. The report demonstrated the considerable differences in expected cost depending upon the degree of engagement by the public in health improvement and disease prevention.

Health improvement is concerned with influencing both social determinants of health and health-related behaviour.

The Wanless report ‘Securing Our Future Health’ highlighted the need to “invest in reducing demand by enhancing the promotion of good health and disease prevention”³³.

The resource scenarios described by Wanless are outlined in Figure 20 below:

Figure 20 Projected total NHS spending (£ billion), United Kingdom, 2002-03 prices

	2002/ 2003	2007/ 2008	2012/ 2013	2017/ 2018	2022/ 2023
Solid progress	68	96	121	141	161
Slow uptake	68	97	127	155	184
Fully engaged	68	96	119	137	154

Source: Wanless D. *Securing Our Future Health*, 2002.

The ‘fully engaged’ scenario is characterised by high ‘... levels of public engagement in relation to their health The health service is responsive with high rates of technology uptake, particularly in relation to disease prevention.’ In contrast, the ‘slow uptake’ scenario is described as ‘...no change in the level of public engagement’ in relation to their health. Solid progress’ represents the middle ground with people becoming ‘... more engaged in relation to their health’ relative to the ‘slow uptake’ scenario.

Some of the biggest Public Health challenges we face today, such as obesity, smoking and alcohol misuse also provide a significant burden in terms of NHS resource. The Foresight report modelled future predictions of obesity and concluded that by 2050, 60% of adult men, 50% of adult women and about 25% of all children under 16 could be obese^{34, 35}. Obesity increases the risk of chronic diseases such as type II diabetes, stroke and coronary heart disease as well as cancer.

Smoking is associated with reduced life expectancy and with numerous diseases such as cancer and heart disease³⁷.

Scotland’s drinking culture imposes a substantial burden on Scottish society. Costs span right across the spectrum of society and can relate to alcohol-related health disorders and disease, crime and anti-social behaviour, and problems experienced by both those who misuse alcohol and their families such as domestic violence. Only 7% of societal costs are estimated to be due to health service expenditure and 6.5% to social services, while 20.4% are due to crime, 24.3% due to loss of productive capacity and 41.2% due to wider social costs³⁸.

Using evidence that has quantified the proportion of various conditions attributable to smoking, alcohol and obesity, we have estimated the number of acute and community hospital beds occupied each day by NHS Highland residents as a consequence of these risk factors.

Obesity and its consequences were reported to cost the NHS in Scotland more than £170 million a year in 2003. It is likely that such costs have continued to increase since then³⁶.

It is estimated smoking related disease cost the NHS in Scotland £336 million in 2007.

Alcohol misuse costs between approximately £2.5 billion and £4.6 billion per year³⁸.

Figure 21 Estimated number of acute and community hospital beds used per day by NHS Highland residents due to conditions attributable to alcohol use, obesity and smoking, NHS Highland, 2008/2009 and 2009/2010

	Conditions attributable to		
	Alcohol use (*)	Obesity (**)	Smoking (**)
Beds used per day	87	27	72

(*): Based on 2008/2009 data

(**): Based on 2009/2010 data

Note: Includes day cases. Excludes admissions to psychiatric care facilities and episodes of care for Highland residents occurring outwith NHS Highland facilities.

Source: NHS Highland Health Intelligence and Knowledge Team

While the information suggests that around 186 acute and community hospital beds per day are occupied by NHS Highland residents as consequence of conditions attributable to alcohol use, obesity and smoking, it should be interpreted with caution, as the research methodology used to calculate proportions of the conditions attributable to the risk factors is variable and not necessarily Scottish or UK-based. There will also be overlap as some conditions may be attributable to both alcohol use and smoking and some individuals admitted to hospital will have more than one risk factor: for example some of those who are obese may also smoke.

A more conservative estimate would therefore be that 90 – 100 acute and community hospital beds are occupied daily by NHS Highland residents with conditions attributable to alcohol use, obesity and smoking, equivalent to approximately three general medical or surgical wards within Raigmore Hospital.

The average cost per day associated with the use of an acute or community hospital bed (total costs including treatment) has been estimated as £470³⁹. This is an estimated cost and is included for illustrative purposes. In economic terms there are wider costs to society through adverse effects on employment, productivity and sickness absence. Of course the real cost is the human cost in terms of reduced life expectancy, disability and ill-health which can have such a devastating effect on an individual’s life and the life of their family.

If it is assumed that 90-100 acute and community hospital beds are occupied each day by NHS Highland residents with conditions attributable to alcohol use, obesity and smoking, the associated cost would be £42,300 per day, or £15.5 million per year.

4.4 Measuring the value of health improvement

Particularly in today's current economic climate, resource allocation decisions must be made by bearing in mind that each and every alternative intervention will have an impact on the limited resources available. If we decide to use resources in one particular way and toward a particular intervention, it is an opportunity forgone to obtain the benefits of using these resources in another way or for another intervention – commonly referred to as the “opportunity cost”^{40, 41}.

In aiming to allocate resources to maximise health of a given population and, subject to resource constraints, provide best value in the form of both money and benefit to that population⁴², healthcare policy-makers must consider the balance between the benefits of treating ill-health and the benefits of preventing ill-health⁴³.

One way of considering this balance is to compare the cost effectiveness of interventions from the societal, individual, and healthcare system perspective. The Quality-Adjusted Life-Year (QALY) is a widely used tool to aid healthcare decision making in this way⁴⁴. It allows a comparison to be made between one intervention and another in terms of cost-effectiveness, and takes into account both quantity and quality of life generated by healthcare interventions^{45, 42}. Use of QALYs “allows broad comparison across widely differing programs” which, when combined with intervention costs, can allow priorities to be established based on interventions that are relatively inexpensive (low cost per QALY) and those that are relatively expensive (high cost per QALY)⁴⁶. A low cost per QALY offers good value for money⁴⁶, but if it applies to a high proportion of the population, it may still have a large budget impact. While comparing cost per QALY across interventions means that policy makers can identify which type of intervention would maximise health and provide best value for money, other factors such as prevalence, population health needs and local priorities must also be taken into account when allocating resources.

However, while there are advantages to using QALYs, for example as a framework for valuing health gain from interventions and to help guide priority setting and decisions on resource allocation⁴⁴, caution must be expressed with regard to their use and, in particular, the use of cost per QALY to compare interventions. Often cost per QALY estimates are derived from different types of studies and in different locations with values assigned to aspects of quality of life that do not necessarily reflect the values of the people receiving the intervention within a particular population of interest⁴⁴. Therefore, while QALYs and cost per QALY may have a role to play in a priority-setting process, it should always be remembered that QALYs should be viewed as being only one element on which to inform the resource allocation decision-making process.

QALYs (quality adjusted life years) provide a summary measure of the quantity and quality of health supplied by any intervention so they can be used to compare health benefits across a range of health services, health programmes and interventions.

4.5 Areas for health improvement intervention

There is a growing body of evidence to support the effectiveness of health improvement interventions⁴⁷. In addition, work undertaken by the National Institute for Health and Clinical Excellence (NICE) has shown that investment in public health/ health improvement is also cost-effective i.e. provides benefit to a population and provides value for money^{48, 49, 50, 51}.

The Early Years - The argument for investing effort and resource

The argument for investing in the early years is strong. Disadvantage starts before birth and accumulates throughout life. Action to reduce health inequalities must start before birth to allow for the link between early disadvantage and poor outcome to be broken⁵².

The government's Early Years Framework⁵³ highlights the cost of current failures to deal with this and describes the example of providing intensive secure care for a teenager at a cost of more than £20,000 each year. Add to this the cost of poorer health, lack of employment and criminality and the figure soon escalates. By contrast, parenting programmes often involve a fairly modest outlay and have been shown to provide up to a 27 fold return on investment⁵³. This is backed up by the recent policy document on Mental Health, 'Towards A Mentally Flourishing Scotland' which describes supporting parents in the early years and parenting skills as 'best buys' to improve mental health and wellbeing⁵⁴.

Parenting Framework⁵⁵ has been established by Argyll and Bute Council. The framework reflects current policy documents including the early years framework and the GIRFEC principles. An age-stage approach to parenting as been adopted using the family caring trust materials and the group sessions are called the 4Ts (Today's Tots Tomorrow's Teens). The Highland Council has developed a Parenting Support Framework, steered by a multi-agency reference group. Consultations with families, practitioners and managers are being held as part of the process. During 2009-10 The Solihull Approach Training was piloted with a sample of practitioners, jointly funded by NHS Highland and The Highland Council. The two-day foundation course introduces a method of encouraging parents to look objectively at problems and to find their own solutions. An evaluation of its impact is underway.

The argument for investing in the early years is strong.

Stopping smoking interventions offer excellent value for money



Stopping Smoking Interventions

These offer excellent value for money as the potential benefits, compared to the outlay involved, are huge. They generally tend to show very low cost per QALY rates with cost/QALY figures quoted of between £292 and £1677 which is well below the NICE threshold for value for money⁵¹.

NHS Highland's smoking cessation service provides valuable advice and support to smokers who want to quit. In 2009 the service supported 3,789 people to make a quit attempt. While good progress has been made from the previous year when just over 2,700 people were supported to quit, sustained efforts will be required to ensure a continued reduction in the number of people smoking in NHS Highland.

At the other end of the spectrum May 2010 saw the launch of a campaign to support smokers who are not yet ready to quit or are trying to commit to not smoking in their homes or cars. The Smoke-Free Home and Smoke-Free Car initiative is run in partnership with Highland Council, Argyll & Bute Council, Strathclyde Fire & Rescue Service and the Highlands and Islands Fire & Rescue Service and is designed to reduce the exposure to second hand smoke, particularly for children and young people. We will be paying close attention to the evaluation of this work in the coming months.

Physical Activity

Brief interventions in relation to increasing physical activity within primary care were found to be cost-effective with the incremental cost per QALY i.e. the additional costs and health gains of choosing one intervention over another⁴⁴, ranging from between £20 to approximately £440⁴⁹. When including the healthcare savings from preventing disease and other conditions, physical activity brief interventions result in net cost savings to the health service compared with no intervention. They also result in a better quality of life for participants. The incremental net costs saved per QALY gained in this situation varied from approximately £750 to around £3,150⁴⁹.

The physical activity agenda is being encouraged through various initiatives, particularly the Community X-programme and school based Mini-X with links to Active Schools, Active Travel and family goal setting. The development and implementation of Local Authorities' Physical Activity and Sport Strategies includes the linking of physical activity opportunities to the national agenda around "Active Nation" – Commonwealth Games Legacy, the championing of The Highland Council model of a low cost, accessible leisure card scheme and further development of Health Walk schemes, including Step It Up Highland. The Homeless Active Referral Scheme has also been very successful.

Physical activity brief interventions result in net cost savings to the health service compared with no intervention.

Alcohol Brief Interventions (ABIs)

ABIs can reduce and decrease levels of misuse, and it has been reported that for every £1 spent on treatment the public sector saves £5⁵⁶.

Brief interventions are effective in reducing alcohol consumption for at least 12 months in patients who are not alcohol dependent: pooled results from clinical trials show a 24% reduction in alcohol consumption. Those who received the intervention were twice as likely to change their behaviour compared with control groups. Brief interventions have fairly low costs and have been shown to be cost-effective in 3 economic studies; using Scottish cost data the cost per life year lies in the range £1,446 - £2,628 assuming no cost savings; and if resource savings are taken into account brief interventions may provide net benefits⁵⁷.

Evidence Base for Health Improvement

It should be noted that much of the evidence-base on health improvement is US-based, making its applicability in Scotland and Highland uncertain. It is therefore important that health improvement interventions continue to be rigorously evaluated at every opportunity to build a robust evidence base on effectiveness and cost-effectiveness locally and nationally.

Where health improvement has been evaluated, it has usually been found to be cost-effective. We must therefore embrace such value for money, health-benefiting interventions because:

“the tectonic plates are shifting and we are on the threshold of witnessing the transformation of the delivery systems beyond being reactive/illness oriented medical care systems to becoming more proactive/wellness oriented health care systems”⁵⁸.

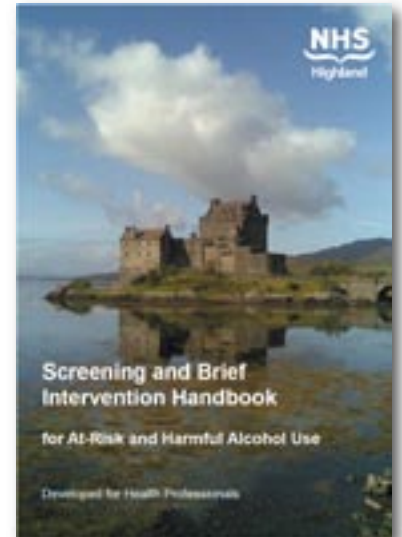
The need to build and act on the health improvement evidence-base is becoming increasingly important.

4.6 Conclusion

To manage shifts in the orientation of healthcare systems effectively and efficiently, we need to strive towards a coherent approach to the prioritisation of health improvement interventions. This will require a continual review of which interventions work, offer good value and provide the most population benefit⁵⁹. However, it must also be realised that many of the factors affecting health and well-being are influenced by action outside the NHS. Therefore, success in promoting health and well-being will be dependent upon our community planning partners working with us^{60, 61}.

To make this happen we must build on our efforts of developing cross-cutting health improvement strategies; of continuing “to create a culture of public health” within and outside of the NHS, and of integrating health improvement considerations into policy making⁵⁹.

For every £1 spent on treatment the public sector saves £5.



References

- ¹ Practice Team Information
- ² Scottish Health Survey
- ³ Professor Kenneth Rockwood, Division of Geriatric Medicine, Dalhousie University, Halifax, Nova Scotia, Canada.
- ⁴ Kerr Report
- ⁵ Magnus P and Beaglehole R (2001) The real contribution of the major risk factors to the coronary epidemics. *Archives of internal medicine*, 161 2657-2660
- ⁶ McPherson K, Britton A and Caser L (2002) CHD: Estimating the impact of changes in risk factors. London: National Heart Forum
- ⁷ Bernard S L, Lux Land Lohr KN (2009) Healthcare delivery models for prevention of cardiovascular disease (CVD). The Health Foundation
- ⁸ <http://info.cancerresearchuk.org/cancerstats/keyfacts/Allcancerscombined/index.htm> - last accessed 22nd June 2010.
- ⁹ Macdonald S, Macleod U, Campbell N, Weller D, Mitchell E. Systematic review of factors influencing patient and practitioner delay in diagnosis of upper gastrointestinal cancer. *British Journal of Cancer* 2006;94:1272-1280.
- ¹⁰ Mitchell E, Macdonald S, Campbell N, Weller D, Macleod U. Influences on pre-hospital delay of colorectal cancer: A systematic review. *British Journal of Cancer* 2008;98:60-70.
- ¹¹ [www.nhshighland.scot.nhs.uk/Publications/Documents/Leaflets/Cancer%20Warning%20Signs%20\(web%20version\)%2010610.pdf](http://www.nhshighland.scot.nhs.uk/Publications/Documents/Leaflets/Cancer%20Warning%20Signs%20(web%20version)%2010610.pdf)
- ¹² Katharine Sharpe, Information Consultant, ISD Scotland. Personal communication, May 2010.
- ¹³ Cancer in Scotland. Information Services Division, NHS National Services Scotland. December 2009.
- ¹⁴ Scottish Healthy Survey 2008, Scottish Government
- ¹⁵ Preventing Overweight and Obesity in Scotland: a route map towards healthy weight (2010), Scottish Government
- ¹⁶ Scottish Intercollegiate Guidelines Network (SIGN) 115 Management of Obesity: a national clinical guideline (2010), NHS Quality Improvement Scotland
- ¹⁷ Foresight, Tackling Obesities: future choices – project report (2007), Government Office for Science
- ¹⁸ National Institute for Health and Clinical Excellence (NICE), Behaviour change at population, community and individual levels (2007) Department of Health.
- ¹⁹ www.cabinetoffice.gov.uk/ukresilience/ccs/news/100701-flu-pandemic-review.aspx
- ²⁰ Parliamentary Advisory Council for Transport Safety www.pacts.org.uk/docs/pdf-bank/NorthReview-Report.pdf
- ²¹ ROSPA Home Accident Statistics in Scotland www.rospa.com/homesafety/aroundtheuk/scotland/statistics.aspx
- ²² Age Scotland action on falls in the NHS Highland area www.ageconcernandhelptheagedscotland.org.uk/about/news/380_action-on-falls-in-the-nhs-highland-area
- ²³ Intergovernmental panel on climate change 4th assessment report 2007 www.ipcc.ch/publications_and_data/ar4/syr/en/contents.html
- ²⁴ WHO, Climate change and health www.who.int/mediacentre/factsheets/fs266/en/
- ²⁵ Climate change, public health and health inequalities www.cieh.org/uploadedFiles/Core/Policy/Publications_and_information_services/Policy_publications/Publications/Climate_Change_Public_Health_Health_Inequalities.pdf
- ²⁶ Health effects of climate change in the UK 2008 www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_080702
- ²⁷ UKCIP www.ukcip.org.uk/
- ²⁸ Commission for Healthcare Audit and Inspection Are we choosing health? The impact of policy on the delivery of health improvement programmes and services, , London (2008)
- ²⁹ Hirst J. When less is more (obesity and smoking). *Public Finance* 2003;24:26-27
- ³⁰ World Health Organisation The Impact of Chronic Disease in the United Kingdom, Geneva, 2005.
- ³¹ Fair Society, Healthy Lives. The Marmot Review – The Marmot Review: strategic Review of Health Inequalities in England post-2010. Marmot Review. February 2010
- ³² Equally Well. Report of the ministerial Task Force on Inequalities. Scottish Government 2008
- ³³ Wanless D. Securing Our Future Health: Taking a Long-Term View... Her Majesty's Treasury London, 2002.

- ³⁴ Health England – The National Reference Group for health and well-being. Prevention and Preventative Spending. Health England Report Volume 12 (2), London, 2009
- ³⁵ Foresight. Tackling Obesities: Future Choices - Project Report (2nd edition). Government Office for Science. London, 2008
- ³⁶ Scottish Public Health Network Scottish Action Obesity Resource: A project by the Scottish Public Health Network (ScotPHN) undertaken by Nutrition Communications. Edinburgh, 2007
- ³⁷ Naidoo B, Warm D, Quigley R, Taylor L. Smoking and public health: a review of reviews of interventions to increase smoking cessation, reduce smoking initiation and prevent further uptake of smoking. Health Development Agency, London, 2004
- ³⁸ York Health Economics Consortium, University of York The Societal Cost of Alcohol Misuse in Scotland for 2007. 36(3);273-5. Scottish Government Social Research, 2010
- ³⁹ Alison Rodgers, Directorate Accountant, NHS Highland – August 2010
- ⁴⁰ Weinstein MC, Torrance G, McGuire A. QALYs: The basics. Value in Health 2009;12(Suppl1)
- ⁴¹ Mooney G. Economics, Medicine and Health Care. (3rd edition). Pearson Education Limited, London 2003
- ⁴² Smith PC. Measuring value for money in healthcare: concepts and tools. Centre for Health Economics, University of York, 2009
- ⁴³ Ockene JK, Edgerton EA, Teutsch SM. et al. Integrating Evidence-Based Clinical and Community Strategies to Improve Health. American Journal of Preventive Medicine [Agency for Healthcare Research and Quality (AHRQ), Preventive Services 2007
- ⁴⁴ Malek M. Implementing QALYs. Hayward Medical Communication, London 2003
- ⁴⁵ Phillips C, Thompson G. What is a QALY. Hayward Medical Communication, London 2003
- ⁴⁶ Walker A. An Economics Commentary. University of Glasgow. Glasgow 2005
- ⁴⁷ Kelly MP, McDaid D., Ludbrook A., Powell J. Economic appraisal of public health interventions. 2005. Health Development Agency , London 2005
- ⁴⁸ Professor Brian Ferguson. Economics and public health: the land of opportunity. NICE Conference, London 2007
- ⁴⁹ NICE. Four commonly used methods to increase physical activity: brief interventions in primary care, exercise referral schemes, pedometers and community-based exercise programmes for walking and cycling. London 2007
- ⁵⁰ NICE, Brief interventions and referral for smoking cessation in primary care and other settings. London 2006
- ⁵¹ NICE. Quality and productivity: NICE activities – Report of a technical workshop. London 2009
- ⁵² Fair Society, Healthy Lives. The Marmot Review – The Marmot Review: strategic Review of Health Inequalities in England post-2010. Marmot Review. February 2010
- ⁵³ The Early Years Framework. Scottish Government, Edinburgh 2008
- ⁵⁴ Towards a Mentally Flourishing Scotland. Scottish Government, Edinburgh 2009
- ⁵⁵ Argyll & Bute Council. Integrated children’s service plan 2009-2012
- ⁵⁶ CHaMPS Public Health Network. Invest to save – guidance for commissioning primary prevention. CHaMPS Public Health Network 2008
- ⁵⁷ Effective & Cost-Effective Measures to Reduce Alcohol Misuse in Scotland: A Literature Review
- ⁵⁸ Loeppke R. The value of health and the power of prevention. International Journal of Workplace Health Management 2008;1(2):95-108
- ⁵⁹ Health England – The National Reference Group for health and well-being. Prevention and Preventative Spending. Health England Report Volume 12 (2), London 2009
- ⁶⁰ Audit Commission. Improving health and well-being. Audit Commission, London 2009
- ⁶¹ International Union for Health Promotion and Education & Canadian Consortium for Health Promotion Research Shaping the future of health promotion: Priorities for action 2007

Key Data Sources

Section 1: The Population of NHS Highland

Population trends

The General Register Office for Scotland (GRO(S)) is the official data source for demographic information including births, deaths and migration. Population estimates and projections that help in understanding current and future population dynamics are key publications.

Mid Year Population Estimates for Health Board and Council areas are available online at the GRO(S) website and provide detail of single year of age and gender:
www.gro-scotland.gov.uk/statistics/publications-and-data/population-estimates/index.html

Small Area Population Estimates: for sub- NHS Board and Council administrative areas are published in a similar format here:
www.gro-scotland.gov.uk/statistics/publications-and-data/population-estimates/special-area/sape/index.html

Population projections for administrative areas are produced on a biennial schedule and their associated files can be found at the link below. The latest projections cover the year 2008-2033.
www.gro-scotland.gov.uk/statistics/publications-and-data/popproj/index.html

Migration has been the key driver of population growth in both Scotland and NHS Highland in recent years and the GRO(S) summary of Local Area Migration data for Highland and Argyll and Bute published in 2010 can be read here:
www.gro-scotland.gov.uk/statistics/migration/local-area-migration-reports.html

There is limited information to understand the size and composition of our ethnic minority communities out with the Census period. The pattern of migration resulting from enlargement of the European Union has been the most obvious demographic change in the years since 2001 and the NHS Highland area has attracted considerable numbers of new people from the white ethnic minorities of the Accession States. Experimental estimates of broad population groupings for Local Authority administrative areas produced by the Office of National Statistics were recently published online: www.statistics.gov.uk/statbase/Product.asp?vlnk=15381

Mortality and Life Expectancy GRO(S) is also the main source of mortality statistics in Scotland. Its vital events reporting provides access to a wide variety of mortality tables that cover specific causes of death (including suicide, MRSA and drug-related deaths), stillbirths and infant deaths. Data is published by gender, different administrative geographies and in time series.
www.gro-scotland.gov.uk/statistics/deaths/index.html

Life Expectancy estimates are published by GRO(S) for Administrative and Special Areas including Community Health Partnerships. The life table publications can be found here:
www.gro-scotland.gov.uk/statistics/publications-and-data/life-expectancy/index.html

Inequalities in Health Reporting of headline indicators for the long-term monitoring of health inequalities are available online here: www.scotland.gov.uk/Publications/2009/09/25112211/0

Further details of premature Coronary Heart Disease mortality trends in deprived areas are published by ISD and include data at NHS Board level www.isdscotland.org/isd/3090.html

The report a Social Focus on Deprived Areas provides statistical evidence of both concentration of poverty and disadvantage in deprived areas and social gradients in health outcomes.
www.scotland.gov.uk/Publications/2005/09/2792129/21311

Section 2: Health and Health Care Needs in Highland

Long Term Conditions

Healthy Life Expectancy Health Expectancies are a useful indicator of the interaction between health and mortality in a population. In-depth analysis of Scottish Healthy Life Expectancy can be found on the Scottish Public Health Observatory website. Available at: www.scotpho.org.uk/home/Populationdynamics/hle/hle_keypoints.asp

Long-term conditions: ISD Scotland provides a comprehensive summary of statistical sources on the prevalence of Long Term Conditions and links to other LTC-related sites of potential interest: www.isdscotland.org/isd/5658.html

Further information on hospital bed use and episodes of care specifically related to select long-term conditions can be found here: www.isdscotland.org/isd/4334.html

Dementia

Estimates of the prevalence of dementia differ depending upon the definition employed, assessment criterion and also the population sampled. Alzheimer Scotland produce the most widely recognised estimates of the number of people with dementia www.alzscot.org/pages/statistics.htm

Circulatory Disease

Prevalence Estimates of the prevalence of circulatory disease are an important product of the Scottish Health Survey and the survey design has a particular focus on heart disease. Surveys were undertaken in 1995, 1998, 2003, 2008 and 2009 and will now run continuously until 2012. www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey

Further indication of the burden of disease in the population can be derived from the Quality and Outcomes Framework (QOF) that collects practice 'registers' as part of the process of distributing resource equitably to General Practices. The reporting can be accessed here: www.isdscotland.org/isd/3367.html

ISD Scotland's CHD and Stroke Programme uses hospital discharge data to identify patients treated in Scottish hospitals with a CHD or Stroke diagnosis and through complex patient linkage to mortality data produces prevalence estimates with age, sex and geographic detail. Further detail can be found here: www.isdscotland.org/isd/2879.html

Mortality Deaths from Circulatory Disease are identified from death registrations by the General Register Office for Scotland (GROS) and can be accessed through vital event reporting. www.gro-scotland.gov.uk/statistics/deaths/index.html

Mortality rates for NHS Boards and Council areas are reported here for CHD: www.isdscotland.org/isd/5766.html and Stroke: www.isdscotland.org/isd/5775.html

Cancer

The ISD Scotland Cancer Information Programme is the principal statistical resource bringing together data from the Scottish Cancer Registry, mortality data from GRO(S) and data collected as part of the three national screening programmes. Cancer site specific data is available on incidence, mortality, survival, prevalence and life time risk. Comprehensive links to national reports and related publications are maintained.

www.isdscotland.org/isd/338.html

Obesity

The Scottish Health Survey provides estimates of both children and adults who are overweight and obese:

www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey

The Child Health Systems Programme collects height and weight measurements at key life stages that can be used to estimate the prevalence of overweight and underweight children.

The limited data available is published here:

www.isdscotland.org/isd/3629.html

Smoking

Prevalence Adult smoking prevalence is reported by the Scottish Household Survey:

www.scotland.gov.uk/Topics/Statistics/16002/PublicationAnnual

Additional data on smoking prevalence is reported as part of the Scottish Health Survey and this covers current smoking status, frequency and pattern of current smoking, the number of cigarettes smoked by current smokers, ex-smokers' previous smoking history and exposure to second-hand smoke.

www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey

The Scottish Schools Adolescent Lifestyle and Substance Use Survey provides information on whether children smoke, how much they smoke and where they get their cigarettes from.

www.drugmisuse.isdscotland.org/publications/abstracts/salsus.htm

Cessation The latest information on quit attempts made with the help of NHS smoking cessation services, and quit outcomes is reported here:

www.scotpho.org.uk/smokingcessationstats2009/

Section 3: Public Health Challenges Past, Present and Future

Influenza - Vaccinations

H1N1 vaccinations

Information on the vaccination campaign against the H1N1 strain of influenza is reported here:
www.isdscotland.org/isd/6368.html

Seasonal Flu Vaccinations Reports of seasonal flu vaccination uptake, the number of vaccine doses dispensed in the community and estimated patient contact rates for vaccine uptake across General Practice teams can be found here:
www.isdscotland.org/isd/3561.html

Alcohol related harm

The Alcohol Information Scotland website provides a national resource that includes statistics, research, publications, key policy documents and practice guidelines:
www.alcoholinformation.isdscotland.org/alcohol_misuse/1393.html

Key reports accessible here include Local Drugs and Alcohol Information (2010):
www.drugmisuse.isdscotland.org/publications/abstracts/localinformation2010.htm

Alcohol-related Hospital Statistics 2010-09-30

www.alcoholinformation.isdscotland.org/alcohol_misuse/files/Alcohol_related_hosp_stats2010.pdf

The Scottish Health Survey Revised Alcohol Consumption Figures by NHS Board Area are available here: www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey/AlcoholbyBoard

Accidents and Unintentional Injuries

Injury related statistics are reported across a wide range of sources including population surveys and health care and mortality datasets. Routine administrative data is also reported by partner organisation such as the Police and the Health and Safety Executive

Unintentional injury is one of the more common causes of emergency hospital admissions and ISD Scotland publishes extensive information from national data collection. Additional data on mortality is also available.

www.isdscotland.org/isd/4436.html

The latest data from the Scottish Health Survey on accidents was published in September 2010:
www.scotland.gov.uk/Topics/Statistics/Browse/Health/scottish-health-survey/Supplementary2009



Published by:
NHS Highland, Public Health Department
Assynt House, Beechwood Park
Inverness IV2 3BW
Issued - December 2010

ISBN - 978-1-901942-10-1