



All-Ireland Health and Social Care Indicator Set

INI sPHO Data Briefing No 2008:2

All-Ireland Health and Social Care Indicator Set

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The full report is also available on the Institute's website www.publichealth.ie and INIsPHO's website www.inispho.org.

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- Northern Ireland Cancer Registry
- Northern Ireland Fire and Rescue Service
- Northern Ireland Neighbourhood Information Service
- Northern Ireland Statistics and Research Agency
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1. INIsPHO@IPH Data Briefings

Institute of Public Health in Ireland

The Institute of Public Health in Ireland (IPH) is an all-island body which combats health inequalities and influences public policy in favour of health. Its remit is to 'promote cooperation for public health between the Republic of Ireland and Northern Ireland' including the areas of monitoring and surveillance. Further information can be found at www.publichealth.ie.

Ireland and Northern Ireland's Population Health Observatory

In 2005 Ireland and Northern Ireland's Population Health Observatory (INIsPHO) was established within the Institute of Public Health in Ireland. INIsPHO supports those working to improve health and reduce health inequalities by:

- Producing, disseminating and supporting the use of health intelligence on priority health issues
- Strengthening the research and information infrastructure on the island of Ireland.

The Observatory focuses on the practical aspects of the development and translation of health intelligence into effective policy and practice. Further information can be found at www.inisphe.org.

INIsPHO eData website (www.inisphe.org/edata)

The INIsPHO eData website (www.inisphe.org/edata) brings together health-related data from a variety of sources and includes visualisation tools that allow users to aggregate, chart and map those data.

The information contained in those datasets will be of interest to:

- Public health and health promotion practitioners
- Regional and local planners and policy-makers within the health services
- Local government committees engaged in planning and development issues relating to poverty, social exclusion and regeneration
- Regional and local partnerships engaged in tackling social exclusion
- Community and voluntary groups keen to access and utilise information on the needs of the people they represent.

Other public health resources dealing with related issues can be found on the All-Ireland electronic Health Library (AleHL) (www.aiehl.org).

INIsPHO Data Briefings

When a dataset is added to the INIsPHO eData website, an INIsPHO Data Briefing will be produced using INIsPHO eData tools. These Data Briefings have two aims:

- To present highlights from the dataset to allow practitioners and policy-makers to decide if the information contained in the dataset is potentially relevant to their work.
- To provide a technical description of the dataset, and to illustrate outputs from the visualisation tools, for potential users of the INIsPHO eData website.

Those wanting to access the dataset should go to the INIsPHO eData website (www.inisphe.org/edata).

Interpretation of findings

Always interpret data findings cautiously. As a general rule, the INIsPHO eData website does not include confidence limits in its charts and maps. It aims to provide visualisation tools that allow you to explore (numerical) datasets. If you find something that you think is important, we strongly urge you to explore it more rigorously - consulting an experienced data analyst if appropriate - before taking any action based on that finding.

Technical descriptions of some of these issues are given in Appendix 1.

2. Health and Social Care Indicators

2.1 Health and Social Care Indicators

Health and social care indicators tell us about access and use of health and social care services. They are critical in tackling health and social inequalities. There is no system for monitoring local health and social care across the island of Ireland. Such a system would provide a local picture as well as highlighting health inequalities from an all-Ireland perspective.

2.2 Northern Ireland Health and Social Care Inequalities Monitoring System

The *New Targeting Social Need (New TSN)* strategy aimed to tackle social need and social exclusion by targeting efforts and available resources to people, groups and areas in greatest need. One of its actions was to develop a system to monitor its progress towards reducing inequalities between disadvantaged areas and the Northern Ireland average, and between rural and non-rural areas¹.

The Northern Ireland Health and Social Care Inequalities Monitoring System (NIHSCIMS)² was established by the Department of Health, Social Services and Public Safety. It comprises indicators which are monitored over time to assess area differences in mortality, morbidity, utilisation and access to health and social care services.

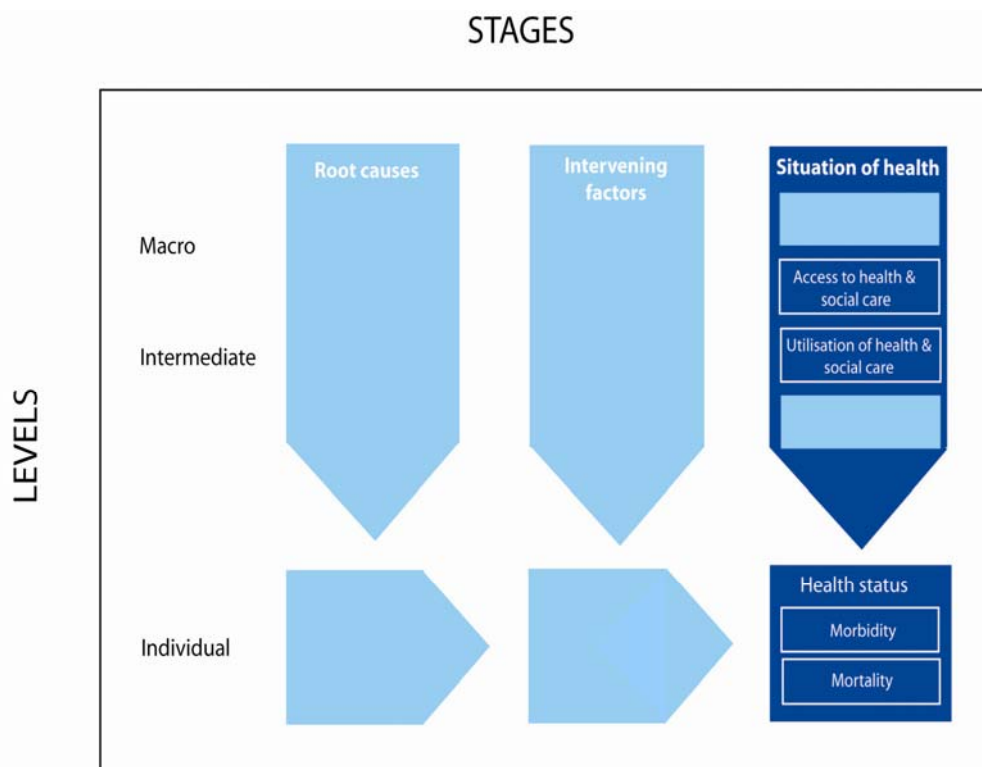
2.3 All-Ireland Health and Social Care Indicator Set

Conceptual framework

The All-Ireland Health and Social Care Indicator Set (AIHSC) extends the NIHSCIMS to the island of Ireland.

Figure 1 places the AIHSC within the conceptual framework that underpins the English Health Poverty Index (eHPI) and the Irish Health Poverty Index (iHPI)³.

Figure 1 Grouping of indicators within the conceptual framework of the eHPI/iHPI.



It should be emphasised that Figure 1 is not intended to be an explanatory ‘model’. It simply aims to place the AIHSC set in the context of other elements that are important to tackle in helping to reduce health inequalities. The directions implied by the arrows in the diagram simply show a natural way of thinking about some of the potential causal flows.

Indicators

A technical review of the policy context and the data issues for each indicator of the NIHSCIMS was undertaken in the Republic of Ireland. It became evident that not all of the indicators were available in the Republic of Ireland and it was necessary to classify the indicators according to their geographic scope:

- *All-Ireland indicators*: available in both the Republic of Ireland and Northern Ireland and which are sufficiently comparable to be combined into a measure covering the whole island
- *North/South indicators*: available in both the Republic of Ireland and Northern Ireland but which are not sufficiently comparable to be combined into a single measure
- *South (only) indicators*: available in the Republic of Ireland but not in Northern Ireland
- *North (only) indicators*: available in Northern Ireland but not in the Republic of Ireland.

Out of the 16 indicators that are included in the AIHSC there are nine *all-Ireland* indicators, three *North/South* indicators, no *South* indicators and four *North* indicators.

These indicators have been compiled for:

- Every (traditional) county in the Republic of Ireland (26 areas)
- Every Local Government District (LGD) in Northern Ireland (26 areas).

Three datasets containing three different types of data are available on the INIsPHO eData website (www.inispno.org/edata):

- The *raw dataset* contains the actual values of each indicator.
- The *scaled dataset* contains the scaled values of each indicator. The raw values are first numerically sorted (see cautionary note below) and then set onto a scale running from 0 to 1 by subtracting the smallest value and dividing by the range (largest – smallest). Zero represents the area with the best health and social care and 1 represents the area with the worst health and social care. An area's position between 0 and 1 reflects its relative position for that indicator.
- The *ranked dataset* contains the ranks of each indicator. The raw values are first ranked (see cautionary note below) and then set onto a scale running from 0 to 1 by subtracting one and then dividing by the number of areas involved. Zero represents the area with the best health and social care and 1 represents the area with the worst health and social care. An area's position between 0 and 1 reflects its relative position for that indicator.

Cautionary note:

For some indicators, larger raw values reflect poorer health and social care (eg premature deaths). For other indicators (eg life expectancy), lower raw values reflect poorer health and social care. In the latter indicators, orderings have been reversed in the scaled dataset and the ranked dataset. Irrespective of which type of indicator it is, in the scaled and ranked datasets, smaller values reflect better health and social care and larger values reflect poorer health and social care.

A full list of the indicators included in AIHSC and their geographical scope are presented in Table 1.

Table 1 AIHSC indicators and their geographical scope

Theme	Indicator	Geographical scope of indicator
Mortality	Directly standardised mortality rates for people aged under 75	All-Ireland
	Life expectancy at birth – male and female ⁱ	All-Ireland
	Infant mortality rates	All-Ireland
Morbidity	Standardised cancer incidence rates	All-Ireland
	Lung cancer incidence rates	All-Ireland
	Admissions to hospital	North-South
	Admissions for respiratory disease	North-South
	Admissions for circulatory disease	North-South
	Prevalence of mood and anxiety disorders	All-Ireland
Utilisation of health services	Teenage birth rates	All-Ireland
	Childhood immunisation rates ⁱ	All-Ireland
	Directly standardised dental registration rate ratios ⁱ	North
Accessibility to health services	Waiting times for inpatient admissions	North
	Travel time to facilities	North
	Ambulance response times	North
	Fire response times	All-Ireland

ⁱ Indicators whose order has been reversed so that large scaled values and larger ranks correspond to poorer health and social care as reflected by that indicator.

AIHSC Visualisation tool

The AIHSC visualisation tool has been incorporated into the INIsPHO eData website (www.inispno.org/edata) that allows you to present the data using tables, charts and maps.

The INIsPHO eData website allows a user to examine:

- The geographical variation in a single indicator
- The relationship between indicators (at an area level)
- Multiple indicator profiles of a single area
- Multiple indicator comparisons of different areas.

3. Highlights

Data Briefing No 2008:2 relates to the All-Ireland Health and Social Care Indicator Set. The following section presents some of the highlights from *All-Ireland* and *North/South* components that are available in this dataset (see Table 1).

Highlights relate to:

- 3.1 Life Expectancy at Birth
- 3.2 Premature Deaths
- 3.3 Cancer Incidence Rates
- 3.4 Hospital Admission Rates
- 3.5 North-South Comparisons
- 3.6 Rural-Urban Comparisons
- 3.7 Deprivation.

3.1 Life Expectancy at Birth

Description of indicator

Life expectancy at birth is the number of years a newborn can expect to live.

Technical description of indicator

Life expectancy is the average number of years of life remaining to a person at a specified age (in this case at birth), assuming current age-specific mortality rates continue to apply during the person's lifetime.

Data details

Source	Northern Ireland: General Register Office, Northern Ireland Statistics and Research Agency. Republic of Ireland: Central Statistics Office.
Year	2002-2004
Age	The expected years of life at birth.
Gender	Male and female life expectancy figures are provided for separately.

Geography	Life expectancy is presented for the 26 counties of the Republic of Ireland, the 26 Local Government Districts of Northern Ireland and all-Ireland. This is the first time that life expectancy has been calculated at county level.
North/South comparability	This is an all-Ireland component.
Other caveats	Life expectancy is based on the average deaths during the three year period 2002-2004 and uses the middle year population as the reference population. Life expectancy was calculated using life tables with single year age bands.

Public health importance

Life expectancy is a good all-age summary measure of mortality. Low infant mortality rates and an ageing population are both indicative of longer life expectancy. Life expectancy reflects the impact of health determinants across the life course and is influenced by socio-economic factors including income, education level, employment status and access to services.

Policy context

Republic of Ireland

There is no specific target set for life expectancy at birth in the Republic of Ireland. The *Strategy Adding Years to Life and Life to Years: A Health Promotion Strategy for Older People* analysed life expectancy and illness figures and lifestyle and behaviour trends among older people in Ireland. Its projections assume that, by the year 2011, men at 60 years of age will be living an extra 2.1 years and women an extra 2.5 years compared to 1991 projections⁴.

Northern Ireland

The *Investing for Health Strategy*⁵ set a target of improving life expectancy in line with those of the top EU countries. By 2012 the aim is to improve male life expectancy by at least three years and female life expectancy by at least two years.

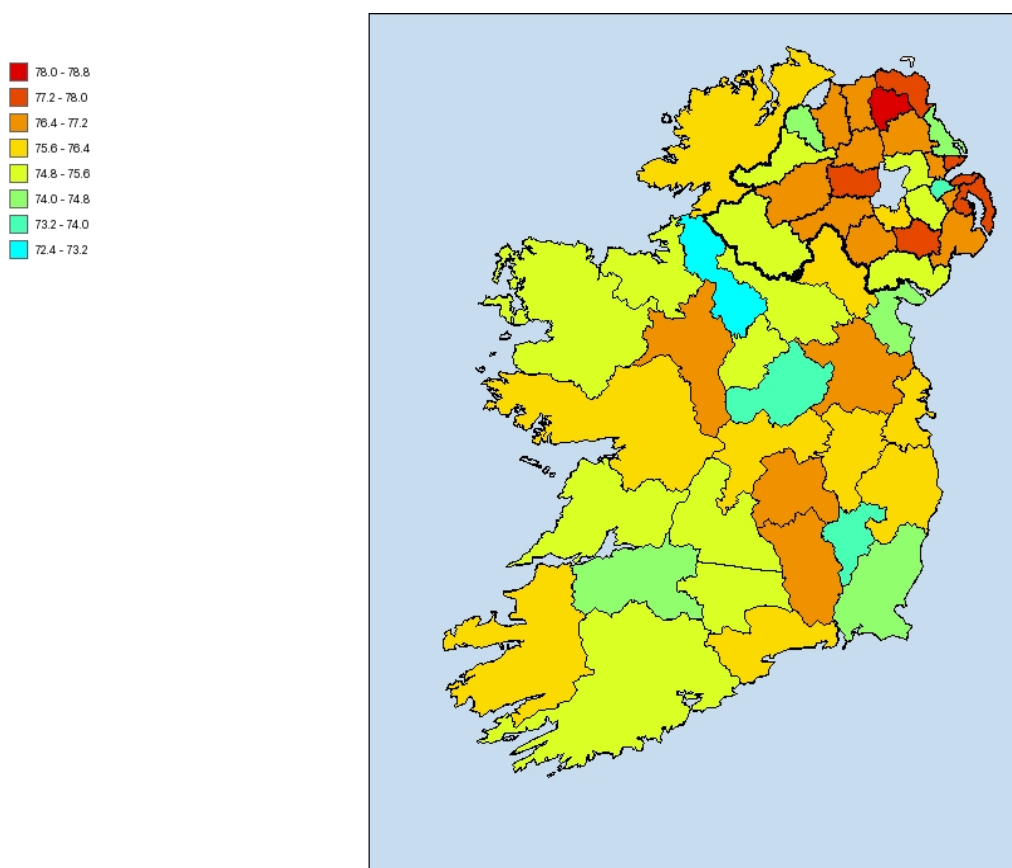
Findings

- During 2002-2004 the all-Ireland life expectancy was 75.6 years for males and 80.6 years for females.
- The overall Northern Ireland life expectancy was 75.9 years for males and 80.6 years for females.
- The overall Republic of Ireland life expectancy was 75.5 years for males and 80.6 years for females.

- Ballymoney (in Northern Ireland) had the highest life expectancy across the whole island where males can expect to live to 78.1 years and females can expect to live to 82.4 years.
- In the Republic of Ireland, Roscommon had the highest life expectancy where males can expect to live to 76.9 years and females can expect to live to 82.2 years .
- In Northern Ireland, Belfast had the lowest life expectancy for males of 73.5 years
- In the Republic of Ireland Leitrim had the lowest life expectancy for males of 72.8 years.
- Derry (in Northern Ireland) and Limerick (in the Republic of Ireland) had the lowest life expectancy for females of 79.3 years.

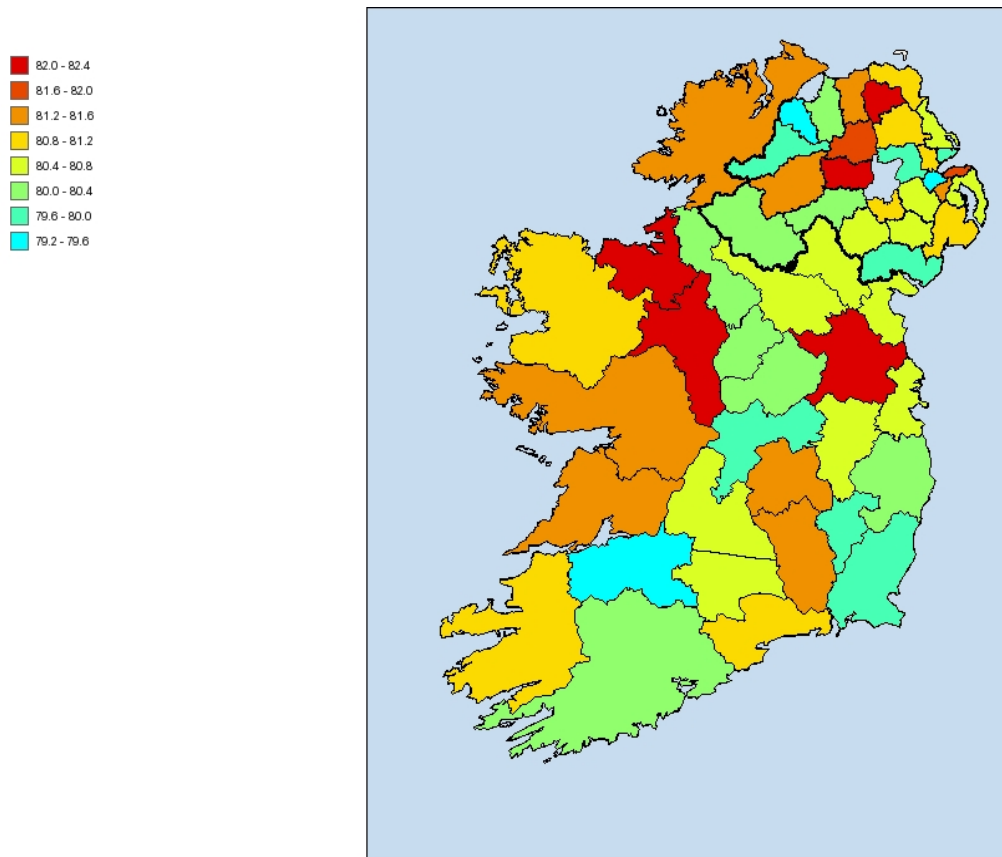
As can be seen from Figures 2 and 3, the North-South contrast during 2002-2004 was stronger for men than women. Figure 3 also suggests that females living along the Western seaboard have a higher life expectancy. These differences may be due to variations in lifestyle that persons adopt, genetic factors as well as the access they may have to quality health and social care services.

Figure 2 Life expectancy for males by county and local government district, 2002-2004



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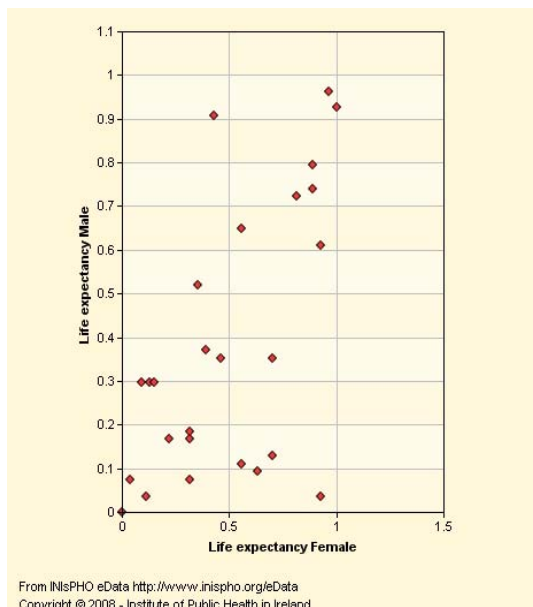
Figure 3 Life expectancy for females by county and local government district, 2002–2004



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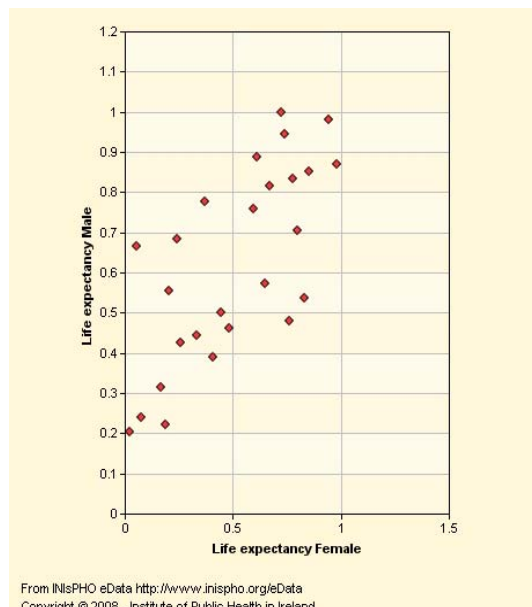
Figures 4 and 5 show the relationship between male and female life expectancy in Northern Ireland and the Republic of Ireland respectively. The geographical relationship between male and female life expectancy is stronger in the Republic of Ireland compared with Northern Ireland. There is less geographical variation in the Republic of Ireland and more extraneous geographical variation between genders within LGDs in Northern Ireland.

Figure 4 Male life expectancy versus female life expectancy, Northern Ireland, 2002-2004



Note: Data points represent LGDs in Northern Ireland. Axes represent data ranked from 0 to 1.

Figure 5 Male life expectancy versus female life expectancy, Republic of Ireland, 2002-2004



Note: Data points represent counties in the Republic of Ireland. Axes represent data ranked from 0 to 1.

European data

In 2005 the WHO reported that life expectancy at birth for males in the EU-15 countries was 76.8 years and for females was 82.6 years. In the EU-27 countries life expectancy was 75.4 years for males and 81.6 years for females⁶.

What can these data tell us?

The geographical relationship between male and female life expectancy is stronger in the Republic of Ireland compared with Northern Ireland. There is more extraneous geographical variation in Northern Ireland. Such variation may be due to different lifestyle factors between genders as well as different access to health and social care services between LGDs. Further analysis of the data is required to examine why such variation between and within counties and LGDs exists.

3.2 Premature Deaths

Description of indicator

Premature death is defined as death occurring at a younger age than would be expected according to known mortality statistics. In this dataset premature death refers to deaths occurring amongst persons aged less than 75 years in 2004.

Technical description of indicator

Directly standardised death rates (standardised to the European population) enable comparisons between populations with different age structures by relating them to a standard population.

Data details

Source	Northern Ireland: General Register Office, Northern Ireland Statistics and Research Agency. Republic of Ireland: Information Unit, Department of Health and Children.
Year	2004
Age and Gender	Premature deaths among persons aged less than 75 years. Directly age and gender standardised mortality rates per 100,000 European Standard Population.
Geography	Rates are presented for the 26 counties of the Republic of Ireland, the 26 Local Government Districts of Northern Ireland, and all-Ireland.
North/South comparability	This is an all-Ireland indicator.
Other caveats	Care must be taken when making comparisons with standardised rates from other countries as comparability may be affected by differences in definitions, data collection, statistical methods, as well as standardising to different populations.

Public health importance

Mortality datasets are important in measuring disease and health for the planning of public health care. Studying trends in mortality helps to understand how the health status of the population is changing and assists in the evaluation of the health and social care system. Standardised death rates provide a suitable measure for assessing absolute changes over time.

Cancer, obesity and smoking are frequent causes of premature deaths resulting in increased burden on the health services. Health promotion and early interventions can help tackle the causes of premature deaths at an early stage through environmental change and multifaceted support systems.

Policy context

Republic of Ireland

The Working Group on National Anti-Poverty Strategy (NAPS) and Health set four targets; one of which related to the gap in premature mortality between the highest and lowest socio-economic groups. Certain diseases are targeted within individual strategies eg the cancer strategy, the cardiovascular strategy.

The main aims of the *Cardiovascular Health Strategy – Building Healthier Hearts*⁷ are:

- to reduce the risk factor profile in the general population
- to detect those at high risk
- to deal effectively with those who have clinical disease
- to ensure the best survival and quality of life outcome for those who recover from an acute attack.

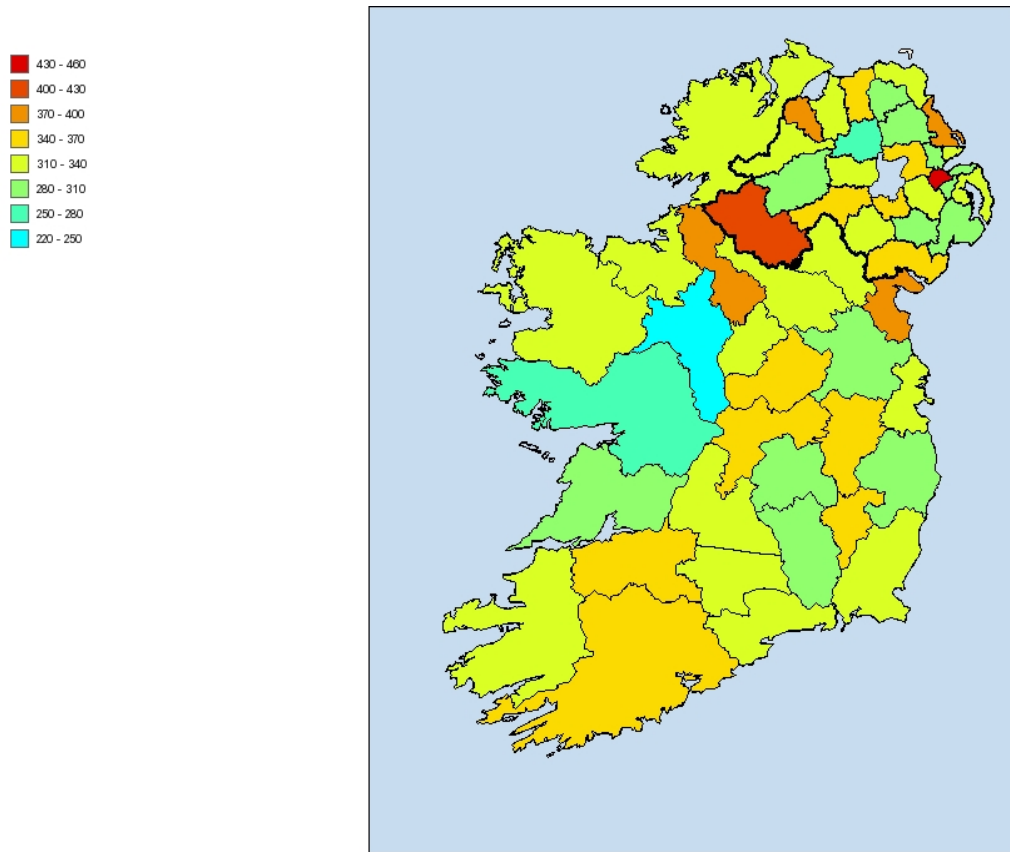
Northern Ireland

The *Investing for Health Strategy*⁵ recognises that to achieve its overarching aims, the main causes of premature death and preventable ill health must be tackled by addressing the wider determinants of health.

Findings

- Compared with the average for the whole island the standardised death rate in 2004 was 4.7% higher in Northern Ireland and 2.1% lower in the Republic of Ireland.
- The standardised death rate in the Republic of Ireland and in Northern Ireland was 324.9 and 347.6 per 100,000 persons respectively.
- Compared with the average for the whole island the standardised death rate was 32% higher in Belfast and 27% lower in Roscommon.
- The highest standardised death rate in the Republic of Ireland was in Louth of 379.3 per 100,000 persons.
- The lowest standardised death rate in Northern Ireland was in Magherafelt of 274.5 per 100,000 persons.

Figure 6 Directly age standardised rates for persons aged less than 75 years, 2004



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European data

In 2005 the WHO reported that the standardised death rate for all persons aged less than 65 years in the EU-15 countries was 191.5 per 100,000 persons and in the EU-27 countries was 228.4 per 100,000 persons. The standardised death rate for all persons of all ages in the EU-15 countries was 606.17 per 100,000 persons and in the EU-27 countries was 678.1 per 100,000 persons⁶.

3.3 Cancer Incidence Rates

Description of indicator

Incidence is concerned with quantifying the frequency of occurrence of new cases of cancer in a defined population.

Data details

Source	Northern Ireland: Northern Ireland Cancer Registry. Republic of Ireland: National Cancer Registry Ireland.
Year	1998-2000
Age	All ages. Rates are standardised to the European population.
Geography	Rates are presented for the 26 counties of the Republic of Ireland, the 26 Local Government Districts of Northern Ireland, and all-Ireland.
North/South comparability	In Northern Ireland the ICD-10 codes C00-C97 were used. In the Republic of Ireland the ICD-9 codes 140-208 were used. Despite this difference in coding the indicator is sufficiently comparable to be an all-Ireland indicator.

Public health importance

Cancer is the most frequent cause of premature death in Ireland, with approximately 7,400 cancer deaths occurring on an annual basis¹⁰. Public awareness and attitudes regarding opportunities for preventing cancer, or for detecting it in the early stages, is an important starting point on the road to preventing cancer. Cancer incidence may increase due to an ageing population, as well as environmental and lifestyle factors. Properly structured and resourced services clearly need to be in place to deal with the burden of this disease.

Policy context

Republic of Ireland

The medium term target for cancer in the *1996 National Cancer Strategy* was to reduce the death rate from cancer in those aged less than 65 years by 15% in the ten year period from 1994⁹.

The focus of the *2006 National Strategy for Cancer Control*¹⁰ is on consolidating the rapid growth of changing technology and demography with the development of a culture of

quality, measurement, outcomes, education and research. Its key action is to create a single, focused, integrated cancer control programme in Ireland. There is a strong emphasis in the strategy on health promotion, and on addressing inequalities and quality assurance.

Northern Ireland

The *Regional Cancer Framework: A Cancer Control Plan for Northern Ireland*¹¹ sets out a clear and comprehensive plan detailing how to reduce the burden of cancer in Northern Ireland. Some of the overall recommendations in the report include:

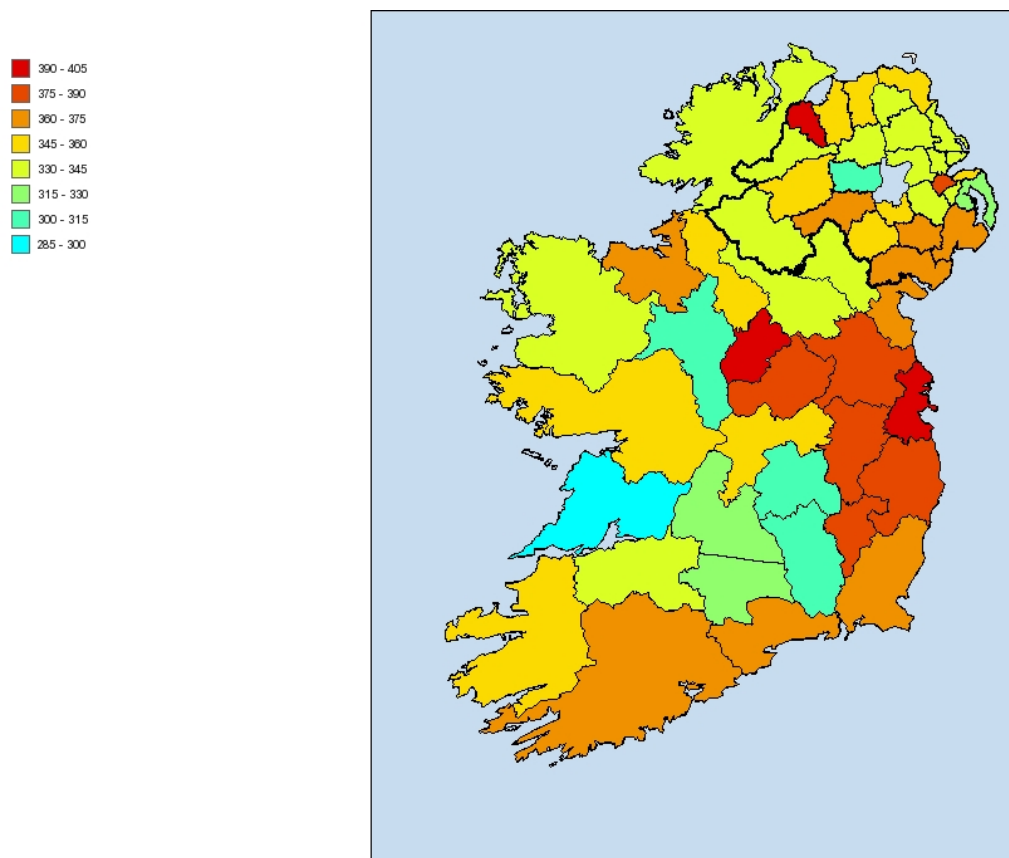
- Prevention, early detection and screening
- Improving the experience of people affected by cancer
- Improving access to diagnosis and treatment
- Research, information and audit.

Findings

- During 1998-2000 the standardised cancer incidence rate for the whole island was 360.1 per 100,000 persons.
- Across the whole island Derry had the highest incidence of 400.9 per 100,000 persons.
- Across the whole island Clare had the lowest incidence of 286.3 per 100,000 persons
- In the Republic of Ireland Dublin had the highest incidence of 399.7 per 100,000 persons.
- In Northern Ireland Cookstown had the lowest incidence of 305.0 per 100,000 persons.

Figure 7 shows an East-West gradient for cancer incidence whereby rates appear to be higher in the East and along some of the Southern coastal counties of the Republic of Ireland. This may be due to certain factors such as socio-economic circumstances, differences in diet and lifestyle, or access to health and social care services. Cancer incidence in Northern Ireland appears to be similar amongst clusters of LGDs.

Figure 7 Cancer incidence rates, 1998-2000



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European data

The WHO reported that in the EU-15 countries in 2003, the cancer incidence rate was 474.7 per 100,000 persons. In the EU-27 countries the rate was 457.2 per 100,000 persons⁶.

What can these data tell us?

Striking variations amongst regions are evident within and between the Republic of Ireland and Northern Ireland. Counties within Leinster appear to have significantly more cases compared with the rest of the Republic of Ireland. The counties and LGDs running along the border also appear to have similar incident rates. Further investigation to understand why such regional variations exist. Targeting efforts to these high risk regions and populations should be a public health priority.

In the Republic of Ireland an evaluation of the 1996 National Cancer Strategy¹² found that the targets set to reduce the death rate from cancer in those aged less than 65 years by 15% in the ten year period from 1994, was achieved by 2001.

3.4 Hospital Admission Rates

Description of indicator

Hospital admission rates represent the number of patients per 100,000 population admitted to acute hospitals during 2005.

Technical description of indicator

Hospital admission rates are standardised to the European standard population and represent the total number of patients admitted per 100,000 population.

Source	Northern Ireland: Hospital Inpatient System. Republic of Ireland: Hospital Inpatient Enquiry Scheme, Economic and Social Research Institute.
Year	2005
Age	All ages.
Geography	Rates are presented for the 26 counties of the Republic of Ireland, the 26 Local Government Districts of Northern Ireland, and all-Ireland.
North/South comparability	Admission rates are not directly comparable between the Republic of Ireland and Northern Ireland due to different means of data collection and coding.
Other caveats	The data includes both primary and secondary diagnoses as well as daycases.

Data details

Public health importance

Admission rates are an important measure of hospital activity. Demand for hospitalisation may grow as a population ages. The development of new technology and advanced procedures may bring about a shift from overnight to same day procedures hence reducing length of stays and increasing the number of procedures being carried out.

Policy context

Republic of Ireland

There are currently no specific targets set relevant to reducing hospital admission rates.

However, the Primary Care Strategy, *Primary Care: A New Direction*¹³ acknowledges the central role of primary care in the future development of the health services. The strategy will enable primary care to develop the capacity to meet the challenges with which it is faced such as ageing of the population, earlier hospital discharge, the need for care in appropriate settings as well as the opportunities afforded through modern information and communications technology.

Northern Ireland

There are currently no specific targets set relevant to reducing hospital admission rates. However, the *Investing for Health* strategy recognises that the treatment of ill health has a major impact on hospitals and on health budgets and the costs of ill health are a huge burden on the economy. If resources are applied in ways that secure positive health and wellbeing, then this in turn brings about social and economic benefits for the whole of society⁵.

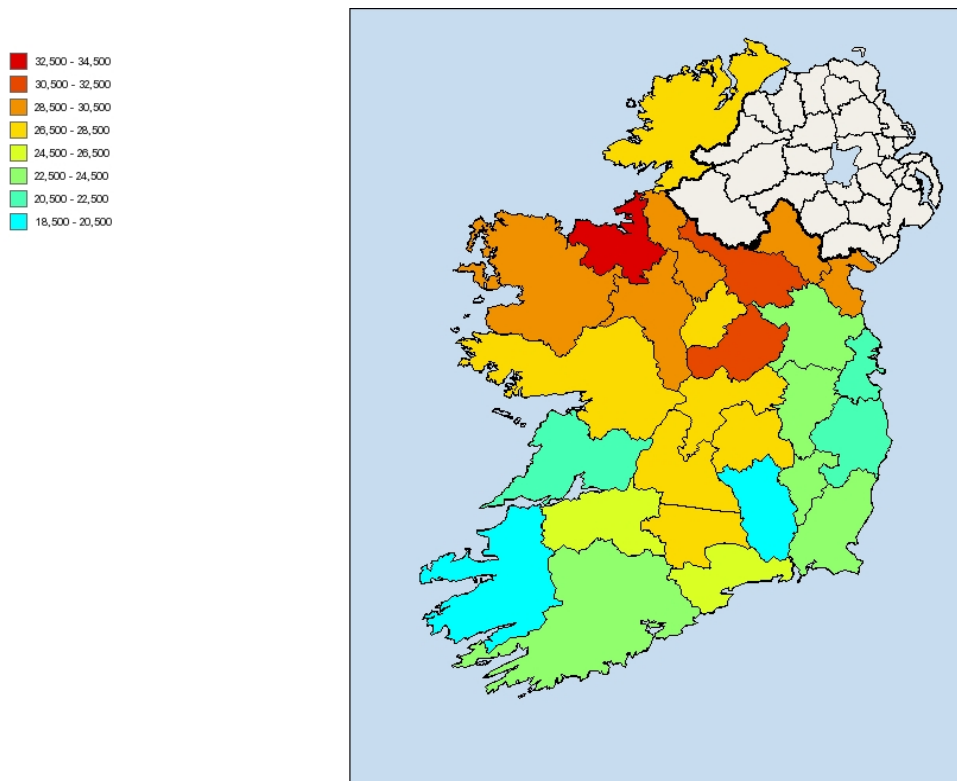
Findings

- During 2005, the overall hospital admission rate for the Republic of Ireland was 24,460 per 100,000 persons.
- The overall hospital admission rate for Northern Ireland was 23,350 per 100,000 persons.
- In the Republic of Ireland, Sligo had the highest hospital admission rate of 32,680 per 100,000 persons and Kerry had the lowest hospital admission rate of 20,120 per 100,000 persons.
- In Northern Ireland, Cookstown had the highest hospital admission rate of 26,040 per 100,000 persons and Banbridge had the lowest hospital admission rate of 20,730 per 100,000 persons.

Figure 8 shows hospital admission rates in the Republic of Ireland in 2005. A gradient exists between the Eastern and Southern half of the country compared with the rest of the country where rates are higher. This may reflect contrasting styles of healthcare delivery, possibly indicating a greater reliance on hospitalisation rather than community based services.

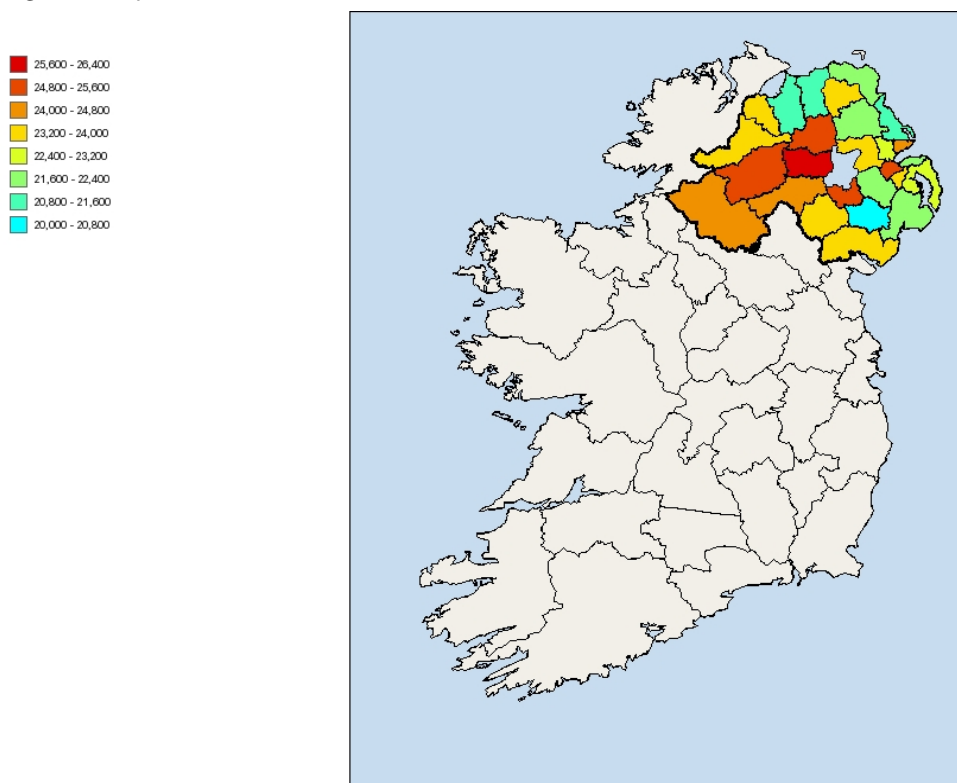
Figure 9 shows hospital admission rates in Northern Ireland in 2005. Rates appear to be higher in LGDs along the border as well as towards the centre of the province and lowest in LGDs along the coast. This may be due to varying degrees of access to health and social care services.

Figure 8 Hospital admission rates in the Republic of Ireland, 2005



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Figure 9 Hospital admission rates in Northern Ireland, 2005



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European data

Due to variations in the way admissions data is collected and coded between countries admissions data from the combined EU-15 or EU-27 countries is not available. Some countries include daycases as well as inpatients while others report transfers across hospital units.

Hospital admission rates have gone up in most OECD countries over recent decades but the average length of stay has reduced reflecting both the development of new medical technologies as well as pressures for cost containment¹⁴.

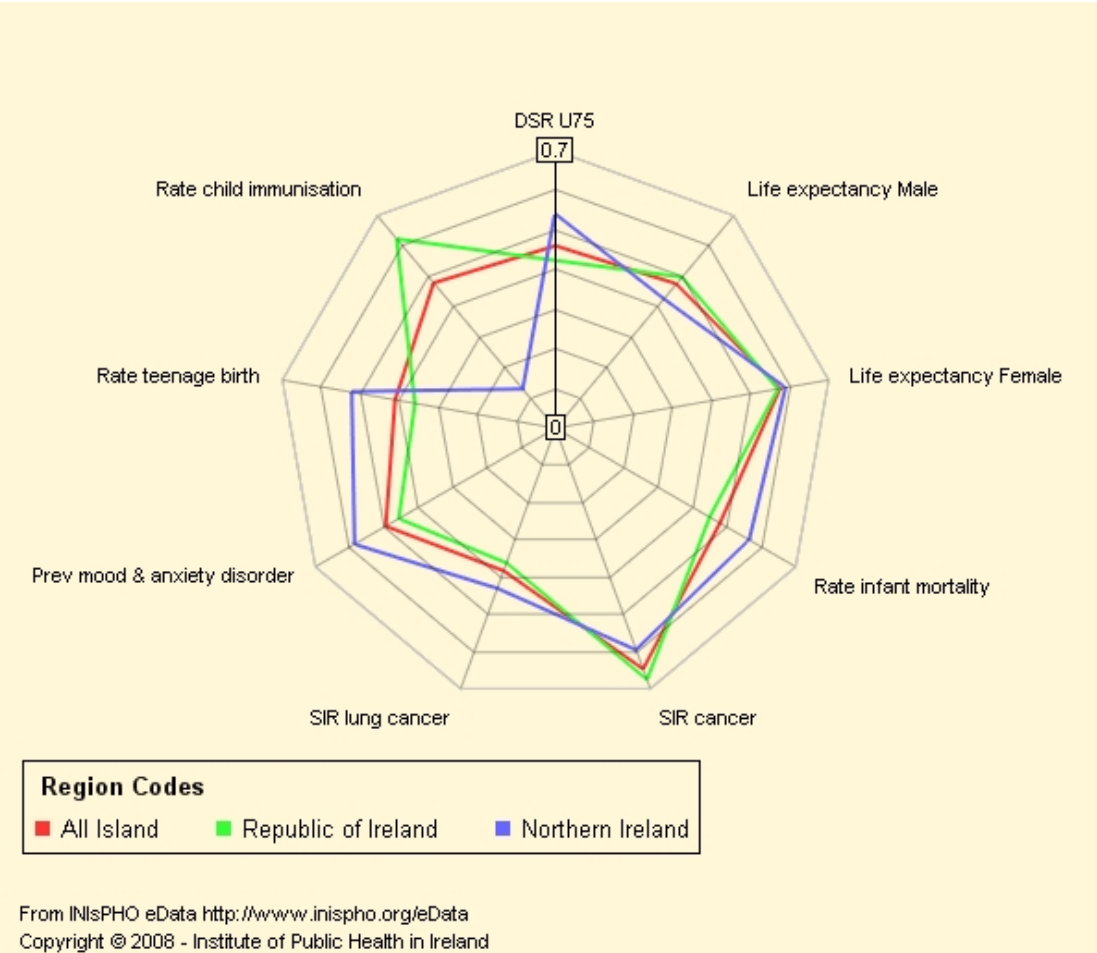
3.5 North-South comparisons

Figure 10 compares multiple indicators between the two jurisdictions as well as looking at the all-Ireland average using scaled data. Life expectancy for females is similar both North and South, however it is marginally higher for men in Northern Ireland compared with the Republic of Ireland.

For the remaining indicators the figure suggests that the Republic of Ireland has poorer quality of health (ie closer to one) for cancer incidence and child immunisation.

Teenage birth rates (defined as number of births per 1,000 female population aged between 13 and 19 years) are higher in Northern Ireland compared with the Republic of Ireland. Teenage birth rates have been pretty stable in the Republic of Ireland over the past 30 years¹⁵. Reducing teenage birth rates is a public health priority in Northern Ireland since teenage pregnancy rates are among the highest in Europe¹⁶.

Figure 10 Comparison of selected health and social care indicators between the Republic of Ireland and Northern Ireland and the all-Ireland average



3.6 Rural-Urban Comparisons

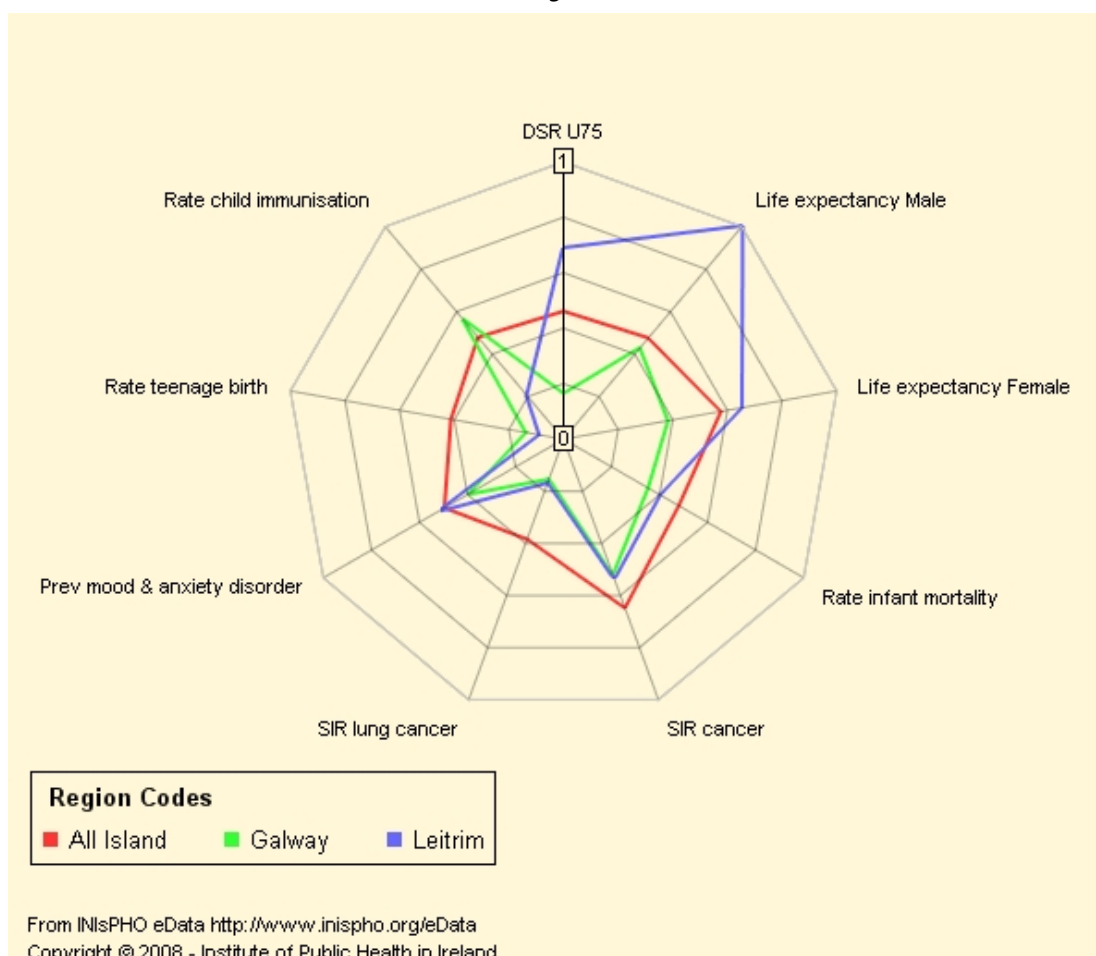
Figure 11 compares a selection of indicators between Counties Leitrim and Galway, a rural county and a county with a main urban centre respectively in the West of Ireland as well as looking at the all-Ireland average.

Both men and women living in Galway can expect to live longer compared with Leitrim. Cancer incidence and lung cancer incidence are similar in both Leitrim and Galway and are lower compared with the all-Ireland average.

Premature death, infant mortality rates and prevalence of mood and anxiety disorders are higher in Leitrim compared with Galway suggesting poorer quality health and social care. Teenage birth rates and child immunisation rates are better (closer to zero) in Leitrim compared with Galway suggesting better quality health and social care with respect to these indicators.

All these factors could reflect possible differences in lifestyle factors between urban and rural areas as well as access to health and social care services. Urban living may be attributed to a variety of lifestyle factors that may point towards poorer quality health and social care.

Figure 11 Comparison of selected health and social care indicators between an urban area (Galway) and a rural area (Leitrim) and the all-Ireland average



3.7 Deprivation

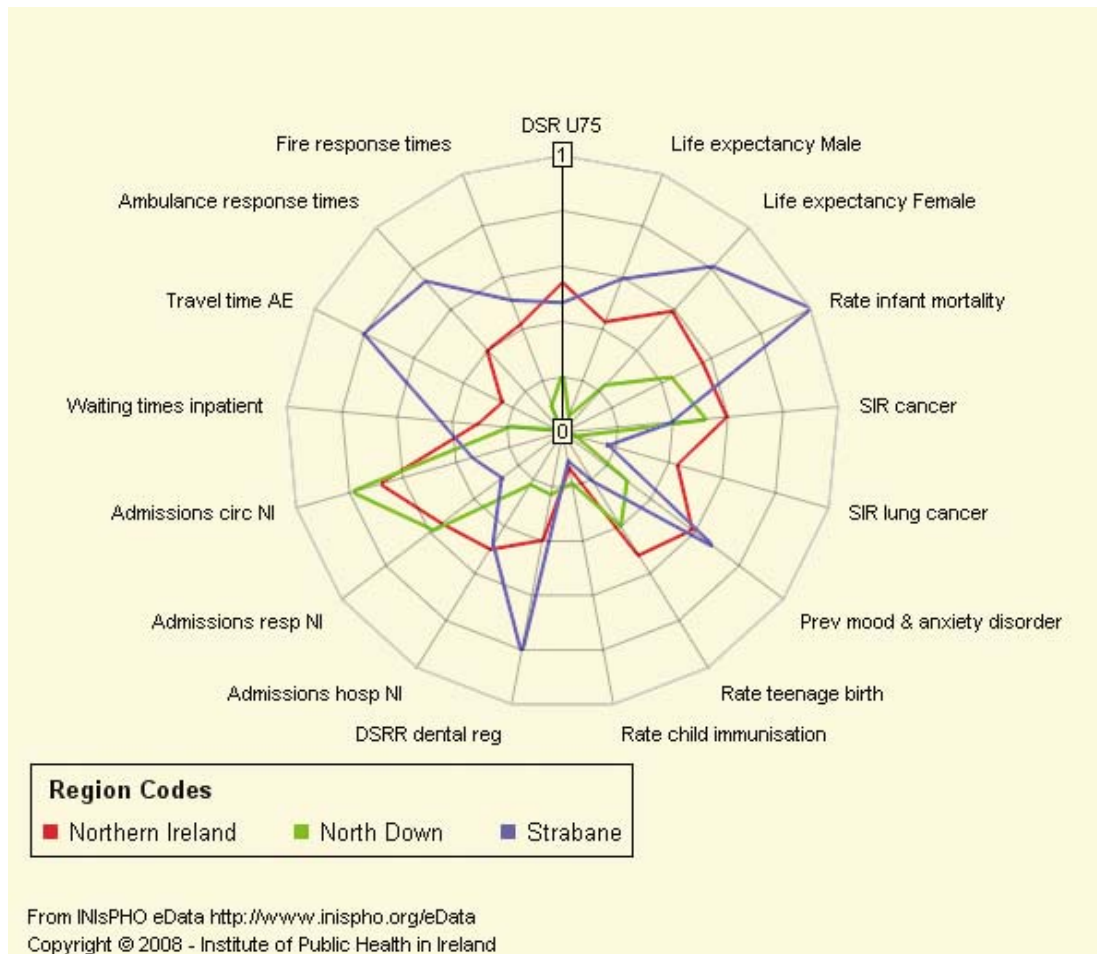
Figure 12 compares multiple indicators for different levels of deprivation in the most affluent LGD (North Down) and the least affluent LGD (Strabane) in Northern Ireland. The figure shows differences in quality of health and social care between the most affluent and the least affluent area and Northern Ireland overall. North Down shows better quality health and social care for all of the mentioned indicators apart from cancer incidence, child immunisation rates and admissions to hospital for circulatory and respiratory diseases.

Infant mortality rates are lower in North Down compared with Strabane. One of the major determinants of infant mortality is social and economic circumstances. Infant mortality is generally associated with higher levels of deprivation hence this may be a possible reason for the difference.

The proportion of persons affected by mood and anxiety disorders in North Down is lower compared with Strabane. Persons who live in areas with higher deprivation may have lower education levels and unemployment may be high causing low self-esteem resulting in low mood and anxiety.

Access to services including ambulance and fire response times, and travel time to accident & emergency departments are better in North Down compared with Strabane thereby reflecting better quality health and social care. This may be associated with parts of Strabane being more rurally isolated, hence it takes longer to reach health services.

Figure 12 Comparison of selected health and social care indicators in the most affluent area (North Down LGD) and the least affluent area (Strabane LGD) and the Northern Ireland average



Note: Deprivation is classified using NISRA Multiple Deprivation Measures 2005¹⁷

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Appendix 1. Interpretation of Findings

Technical descriptions of some of the issues associated with interpreting findings are given below.

1. Statistical precision

Indicator values are prone to statistical error (the difference between an estimated value and the true value). The statistical error associated with an indicator depends on the population subgroup (eg the population of a county or LGD) that it refers to. Such differences in levels of statistical error can distort what we see in maps and charts. They can make some relationships involving indicators and attributes appear 'real' (practically meaningful or statistically significant) when they are in fact spurious; other relationships that are 'real' can be masked. These differences in statistical error can even distort the shape of plots or the colour patterns we see in maps. For example:

- Many indicator value estimates are derived from sample surveys, and different sample sizes from different population subgroups will lead to different levels of precision in the indicator values for these subgroups.
- Different population subgroups have different population sizes which means that rate estimates for these subgroups will also have different confidence limits.
- The true value of a percentage or a rate can influence the level of statistical error of any estimate.

2. Scales and legends

The scales used on chart axis and in maps can also distort our perceptions:

- The range of values allowed on chart axis can accentuate relationships making them appear more 'real' than they actually are.
- The radial arms of spider plots of scaled data show the position of the value (in a population subgroup) relative to the minimum and maximum values of that indicator. Because these minimum and maximum depend on the indicator, relative positions of different population subgroups on different radial arms are not directly comparable.
- The cut-off values used to determine the shading colours of a map are default selections and do not necessarily represent meaningful values of the indicator. Areas with very similar data values can be shown with different shades. You should always note the actual values.





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