

# Northern Ireland Health and Social Care Inequalities Monitoring System

## Third Update Bulletin 2009

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**Northern Ireland Health and Social Care Inequalities Monitoring System**

	Page Number
<b>Executive Summary</b>	<b>v</b>
<b>Introduction and Methodology</b>	<b>1</b>
<b>Health Inequalities Between Deprived Areas and Northern Ireland</b>	<b>4</b>
<b>Summary - Health Inequalities Between Deprived Areas and Northern Ireland</b>	<b>12</b>
<b>Health Inequalities Between Rural Areas and Northern Ireland</b>	<b>14</b>
<b>Summary - Health Inequalities Between Rural Areas and Northern Ireland</b>	<b>22</b>
<b>Appendices</b>	<b>24</b>
<b>Appendix 1 - Indicator definitions and methodologies employed</b>	<b>24</b>
<b>Appendix 2 - Confidence Intervals and statistical significance</b>	<b>30</b>
<b>Appendix 3 - Data tables</b>	<b>32</b>



## Deprivation

- Health outcomes in deprived areas continue to be generally worse than in Northern Ireland as a whole.
- The most sizeable inequality gaps between deprived areas and Northern Ireland overall were evident in alcohol related deaths (121% higher), drug related deaths (113% higher), admissions for self-harm (94% higher), teenage births (80% higher), suicide (73% higher), respiratory death rates (66% higher) and lung cancer incidence (65% higher).
- Male and female life expectancy were 4.4 years and 2.6 years lower respectively in deprived areas compared to Northern Ireland overall. In proportionate terms these gaps were relatively small.
- The elective admission rate to hospitals and average ambulance response times were actually lower in deprived areas than the regional average. Although in the former case this likely represents poorer access whilst in the latter the more urban character of many of the most deprived areas.
- Comparing the change in inequality gaps between deprived areas and NI over time shows that there is a continuing health gap although there have been relative improvements across a number of indicators.
- The relative inequality gaps for infant mortality and cancer incidence more than halved over the period, whilst the lung cancer incidence gap was reduced by one fifth from the baseline position.
- There were also notable improvements in the gaps for hospital admissions (all, emergency and elective admissions as well as admissions for both respiratory and circulatory disease). While a reduction in admission rates to hospital in deprived areas relative to the regional rate might indicate improved health outcomes in deprived areas, as other health outcomes have remained relatively poorer in deprived areas, it probably indicates, to some extent, poorer access within these areas.
- The gaps for childhood immunisations have virtually disappeared (although the baseline gaps were small in proportionate terms).
- There have also been improvements in the inequality gaps for self-harm admissions, smoking during pregnancy, breastfeeding on discharge from hospital and dental registrations. Despite these improvements, the health gaps in a number of these areas still remain large.
- The inequality gap between deprived areas and NI overall has also increased in some instances but encouragingly, only for a few indicators. This was most evident in circulatory and respiratory death rates as well as suicide rates (the gap had been decreasing until 2005 but has increased sharply since then).
- For the rest of the HSCIMS indicators, there has been relatively little change in the deprived inequality gaps experienced in their respective base period.

## Rural

- Generally, health outcomes in rural areas tend to be much better than in Northern Ireland overall which was most evident for drug related deaths (49% lower in rural areas), admissions to hospital for self-harm (47% lower), alcohol related mortality (45% lower), and teenage births (41% lower).
- Life expectancy in rural areas was 1.3 and 0.6 years higher for males and females respectively than in Northern Ireland generally.

## Executive Summary

- Rural areas also had considerably lower mortality due to respiratory disease and lung cancer incidence than that experienced in the wider region as well as a lower proportion of mothers that smoked during pregnancy.
- Conversely, rural areas fared worse than NI overall for ambulance response time (which was almost double the regional average) and experienced higher elective hospital admissions and hospital admissions for circulatory disease.
- In general, while health inequalities are not as pronounced as the observed differences between deprived areas and NI, there are noticeable ongoing rural differences for many of the indicators. There has been little change in the rural gaps for many of the HSCIMS indicators.
- The gaps for all admissions to hospital and admissions for respiratory disease have all but virtually disappeared. There was also an improvement in the admission rates for circulatory diseases gap. As death rates for respiratory and circulatory diseases are lower in rural areas, this would seem to indicate worsening access in urban areas, where need would be generally greater.
- There has also been a relative narrowing of the gap for all cancer incidence rates and cancer mortality.
- Conversely, there has been a relative widening of the gap for ambulance response times, circulatory mortality rates and elective hospital admissions (which has gone from being lower in rural areas than NI overall to higher)
- The gap in the estimated proportion that suffer from mood and anxiety disorders has also increased slightly.

## Introduction and methodology

The Health and Social Care Inequalities Monitoring System (HSCIMS) comprises a basket of indicators which are monitored over time to assess area differences in mortality, morbidity, utilisation of and access to health and social care services in Northern Ireland. Inequalities between the 20% most deprived areas (defined using the NISRA 2005 Northern Ireland Multiple Deprivation Measure) and Northern Ireland as a whole are measured. Results for the most rural areas are also compared against Northern Ireland overall. The definitions for rural and urban areas are consistent with those outlined in the “Report of the Inter-Departmental Urban-Rural Definition Group” (NISRA 2005). This report is the third update of the Inequalities Monitoring System. The mortality, morbidity and utilisation data in this report are the latest available. The accessibility analysis based on proximity to key Health services/facilities is not included in this update but will be updated during 2010.

## Methodology update and likely future developments

A revision has been made to the methodology employed for calculating many of the HSCIMS indicators included in this report. This may mean that the data for earlier years contained in this report differs slightly from that published in previous HSCIMS reports and may also lead to slightly different conclusions being drawn in this report than those reached previously. The HSCIMS has been expanded to also examine health inequalities at a more localised level (a report will be published later in 2009/10). This sub-regional work should provide an informative insight for various interested parties such as health professionals and central/local government officials to both establish the extent of and address the differentials that exist in health outcomes at the more localised level. The change in methodology was necessary in order to improve the robustness of indicators at the more disaggregated sub-regional level (see also section below on Indicator stability/confidence limits). Previously, many of the indicators were calculated using a population base relating to the middle year of the period being considered. Using the total number of person years lived during that period instead (or the total of the populations in each year under consideration) reduces the confidence intervals around directly standardised rates and also life expectancy estimates. This will allow firmer conclusions to be made at the sub-regional level where confidence intervals would obviously be wider than at regional level.

**Figure 1.1 – Illustrated example of change in methodology**

<b>NI Crude Suicide rate 2004-2008</b>	
<b>Old methodology</b>	
$\frac{\text{Suicides that occurred between 2004 and 2008} \times 100,000}{2006 \text{ Population MYE}}$	5
<b>New methodology</b>	
$\frac{\text{Suicides that occurred between 2004 and 2008} \times 100,000}{\text{No. of person years lived between 2004 and 2008}^{\S}}$	
$\text{\$ } 2004 \text{ MYE} + 2005 \text{ MYE} + 2006 \text{ MYE} + 2007 \text{ MYE} + 2008 \text{ MYE}$	

As with the second update bulletin, the HSCIMS indicators are based on a reworked population due to the lack of available small area population figures other than the 2001 Census of Population. Failure to take account of the recent likely growth in population (as witnessed at regional and various sub-regional levels by successive population mid-year estimates) in deprived or rural areas could mean that for some indicators, a problem will be overstated. To overcome this, a reworked base population<sup>1</sup> is derived which updates the Census small area figures by age and gender using age-gender specific growth rates for each Local Government District (which have been established from Population MYEs). NISRA are due to publish their own official population mid-year estimates at small area from 2010 onwards – which will be used in the future for the HSCIMS.

<sup>1</sup> The methodology employed in this report to estimate small area population estimates in inter-Census years was validated against small area population estimates calculated and used in the production of the Northern Ireland Multiple Deprivation Measure (NISRA 2005).

## New indicators

All the indicators included in the last update bulletin with the exception of waiting times for inpatient admission (see note below) remain, and a number of new indicators have been added:

- New categories of Standardised Death Rates (SDR) – In addition to those SDRs included in the last bulletin, analyses of smoking related deaths, alcohol related deaths, drug related deaths and deaths amenable to healthcare have now been added.
- Breastfeeding on discharge from hospital – Information on the proportion of mothers that were breastfeeding their child on discharge from hospital extracted from the Child Health System.
- Smoking during pregnancy – Proportion of mothers that reported smoking during pregnancy (taken from the Child Health System) appears for the first time in the report.

- 
- Waiting time – This indicator has not been included in this update report. There was a change in how this data is collected. Completed inpatient waiting times are no longer collected, which means that information is only available for actual patient waiting times at a specified point in time (e.g. 31st March). This meant, at the time of writing this report, that only information for the two most recent years was available at the required geographical breakdown. The lack of trend data and the effect of strict government targets designed to bring waiting times down has meant that the results are too volatile at this current time. This indicator will be reviewed again for future publications. It should be noted that both the deprived and rural gaps in waiting times (based on completed wait information) presented in the second update bulletin were relatively small.

Further details of the definitions of all the indicators included in the HSCIMS are presented in Appendix 1.

## Indicator Stability/ Confidence limits

Due to random fluctuations in events, it is often necessary to aggregate more than one year's data for indicators in order to ensure stability. The number of years of information required to aggregate for each indicator was informed by both the number of events and also an assessment of its annual variability. A number of the indicators included in this report have been age standardised to remove the effects of differences in population structure between areas and across time. The process of standardisation, in applying the demographic structure in one year to other years, or from one area to another introduces a degree of uncertainty around resultant estimates. As a way of quantifying this uncertainty, a 95% confidence interval is calculated. More events lead to a smaller confidence interval. The move to the new sub-regional methodology will also further tighten confidence intervals around indicators (see paragraph above on Methodology update and future developments). Further discussion of confidence intervals for standardised indicators for rural and deprived areas is set out in Appendix 2. Throughout this report, differences in standardised rates that are not statistically significant in any given year will not be highlighted. Similarly unless there is a consistent observed trend<sup>2</sup> which strongly suggests a narrowing or widening of an inequality gap, no reference will be made to changes in the gap.

## Format of the report

Indirectly standardised rates (such as Standardised Mortality Ratios and Standardised Admission Ratios) are presented on a bar chart with a single y-axis throughout the report. The health inequality gap can be simply calculated by comparing the health outcome under consideration with the dotted NI line (which by definition will equal 100).

Directly standardised rates (such as Standardised Death Rates) and crude rates (suicide, teenage births) are presented in this report on a chart with a dual y-axis. The bar chart shows the health outcomes for the area being considered with the NI average. The line chart illustrates the percentage gap over time which is plotted on the secondary axis.

<sup>2</sup> Even where the difference in the first and last value in a standardised series over time is not statistically significant, the probability of having five or six successive values, each lower (or each higher if the series is increasing) than the previous value, is relatively low.

It should be noted that inequality gaps for indicators can exist in either direction. Health outcomes generally tend to be worse in deprived areas than in the region overall while the data shows that the opposite is true for rural areas. However this may not always be the case. For the purposes of this report, a positive inequality gap when comparing health outcomes in deprived areas means that the health outcomes in the most deprived areas are worse than the NI average. In this report, a positive inequality gap when comparing health outcomes in rural areas means that health outcomes in rural areas are better than the NI average.

Care should be taken in interpreting the results in this report, for example, narrowing some of the gaps in health outcomes included in this report may not always be entirely positive, especially if this occurs in isolation. For instance, a reduction in admission rates to hospital in deprived areas relative to the regional rate might be interpreted as an indication of improved health outcomes in deprived areas. However, if other health outcomes have remained relatively poorer in deprived areas, a reduction in elective admission rates might be attributed, to some degree, to reflect poorer access to hospital services within these areas.

On occasion, reference is made throughout the main body of the report to male and female inequality gaps. The figures to substantiate these analyses are set out in Appendix 3.

## Reference Year

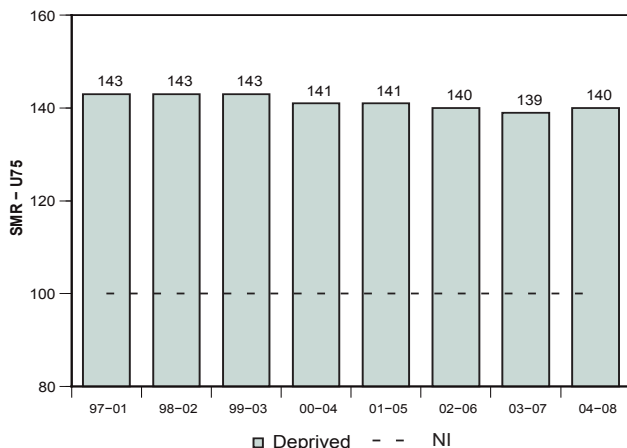
For simplicity, throughout this publication, the reference year presented for each indicator is the most recent year for the time period that it refers to. For example, the 2008 life expectancy figures will actually refer to the period 2006-08 as they are based on three year's deaths information. Similarly the Standardised Mortality Ratio is based on five year's data, therefore the 2001 SMR will refer to the period 1997-01. Table 1.2 below sets out the length of period and most recent figures available for each indicator (actual reference period is provided in brackets). At the time of publication, the 2008 deaths and births information were still provisional. Where the indicators are based on this provisional General Register Office (GRO) information, they are marked with a <sup>(P)</sup>. Similarly the Hospital Admissions data for 2008/09 was also provisional at the time of publication and therefore subject to revision. However the impact of any future revisions on indicators is likely to be minimal especially where the indicator has been aggregated over a number of years. Readers, interested in establishing the progress made since the second update bulletin, should note from the table below, the latest information that was used within that report.

**Table 1.2 Reference period for IMS indicators**

Indicator	Reference period (years)	2nd Update Bulletin	Latest figures
Standardised Mortality Ratio (U75)	Five	2006 (2002-06)	2008 (2004-08) <sup>(P)</sup>
Infant Mortality Rates			
Standardised Death Rate (U75) due to Circulatory disease			
Standardised Death Rate (U75) due to Respiratory disease			
Standardised Death Rate (U75) due to Cancer			
Suicide Rates			
Standardised Death Rate for smoking related deaths <sup>New</sup>			
Standardised Death Rate for alcohol related deaths <sup>New</sup>			
Standardised Death Rate for drug related deaths <sup>New</sup>			
Standardised Death Rate for causes amenable to healthcare <sup>New</sup>			
Life Expectancy	Three	2006 (2004-06)	2008 (2006-08) <sup>(P)</sup>
Potential Years of Life Lost			
Cancer Incidence Rates	Seven	2004 (1998-04)	2006 (2000-06)
Lung Cancer Incidence Rates			
Teenage Birth rates	One	2006	2008 <sup>(P)</sup>
Standardised Dental Registration Rates	One	2006	2009
Standardised Admission Rates	One	2006-07	2008-09 <sup>(P)</sup>
Ambulance Response Times	One	2006	2008
Respiratory and Circulatory Admissions	Three	2006-07 (2004/05-06/07)	2008-09 (2006/07-08/09) <sup>(P)</sup>
Hospital Admissions for Self-harm	Five	2006-07 (2004/05-06/07)	2008-09 (2004/05-08/09) <sup>(P)</sup>
Mood and Anxiety disorders	One	2006	2008
Childhood Obesity	One	2005-06	2007-08
Childhood Immunisations			
Smoking during pregnancy <sup>New</sup>			
Breastfeeding on discharge from hospital <sup>New</sup>			

# Health Inequalities Between Deprived Areas and Northern Ireland

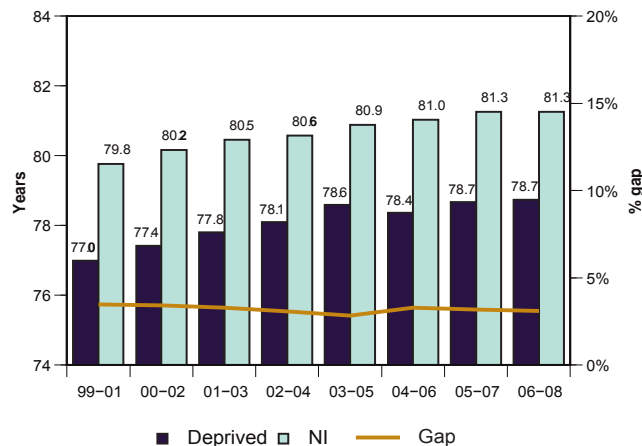
## 2.1 Standardised Mortality Ratio (SMR) – under 75



Source: General Register Office / Project Support Analysis Branch

By 2008<sup>(p)</sup>, the average SMR for persons living in the most deprived areas was 40% higher than the NI average. The small downwards trend in the SMR in deprived areas between 2001 and 2006 shows that the health inequality gap to have slightly narrowed. The most recent data might suggest that the deprived SMR has since started to level off. However, throughout the period, a person living in a deprived area remained around two-fifths more likely to die than a similar person in NI.

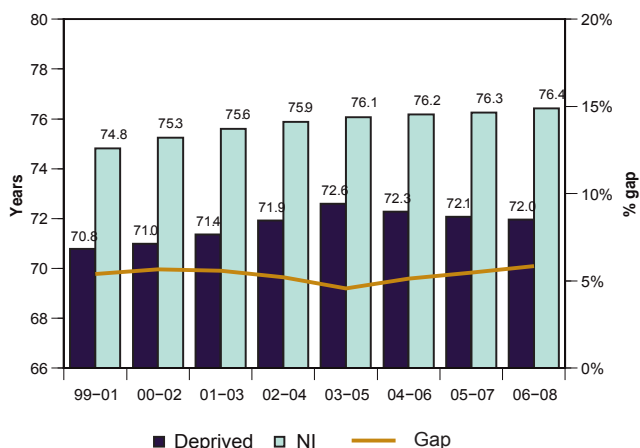
## 2.3 Life Expectancy at birth – Female<sup>3</sup>



Source: General Register Office / Project Support Analysis Branch

Female life expectancy, as with males, has increased in both deprived areas (from 77.0 to 78.7 years) and NI generally (79.8 to 81.3 years). The female life expectancy gap was 2.8 years in 2001 which compares with 2.5 years in 2008<sup>(p)</sup>. Life expectancy has remained approximately 3% higher in NI than in deprived areas across the period.

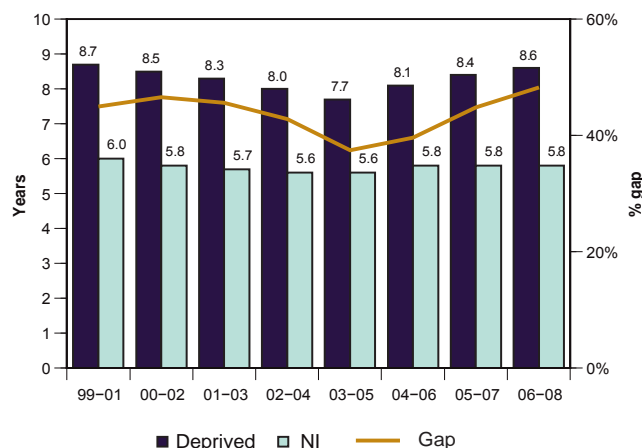
## 2.2 Life Expectancy at birth - Male<sup>3</sup>



Source: General Register Office / Project Support Analysis Branch

Life expectancy at birth is the average number of years that newborns might expect to live if current mortality conditions persist for the rest of their lives. Male life expectancy increased in both the most deprived areas (from 70.8 to 72.0 years) and NI overall (74.8 to 76.4 years). There has been little change in the male life expectancy gap which has remained around 4 years (and between 5% and 6%) across the whole period. However there appears to have been a slight downwards trend in male life expectancy in deprived areas since 2005.

## 2.4 Potential Years of Life Lost (PYLL)

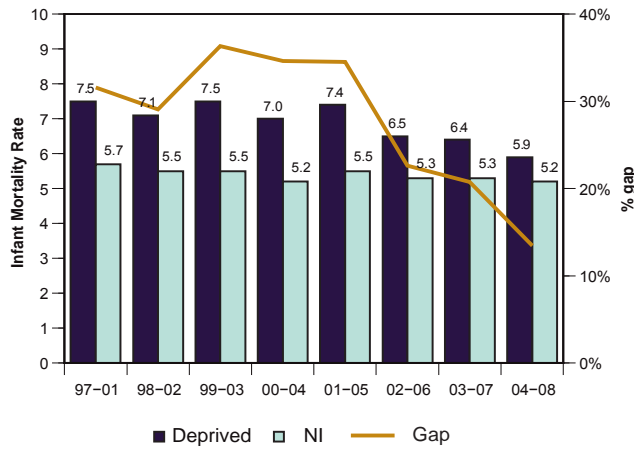


Source: General Register Office / Project Support Analysis Branch

In 2001, the average number of years lost per 100 persons in NI as a whole was 6.0 years compared with 8.7 years per 100 persons in the most deprived areas (a gap of 45%). Similarly in 2008<sup>(p)</sup>, 5.8 years were lost per 100 persons in NI and 8.6 years in deprived areas. There was a decline in the gap between 2002 and 2005, however since then the gap has increased and now is slightly larger than that experienced in 2001 (PYLL around 48% higher in deprived areas). Over the period, PYLL fell for females but increased for males in deprived areas.

<sup>3</sup> The NI figures may differ slightly to the official Government Actuary Department figures. More details are set out in the Life Expectancy section in Appendix 1.

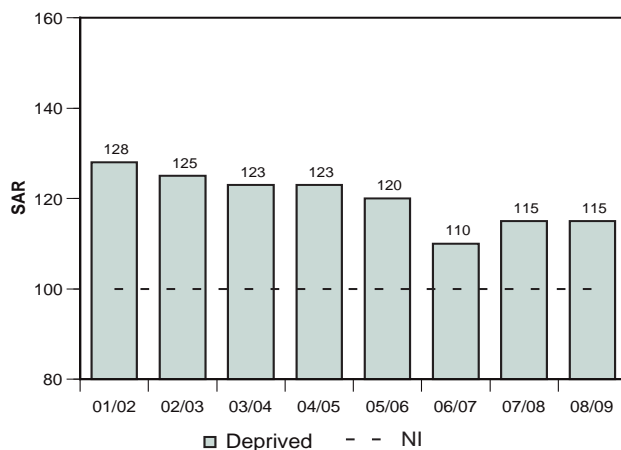
## 2.5 Infant Mortality



Source: General Register Office / Project Support Analysis Branch

Over the period, infant mortality has fluctuated to some degree in both NI and its most deprived areas. The infant mortality rate in deprived areas has declined from 7.5 infant deaths per 1,000 live births in 2001 to 5.9 in 2008<sup>(p)</sup> (a fall of 21%). In NI overall, the relative decline in the infant mortality rate has been more modest (a fall of 9%) to reach 5.2 deaths per 1,000 live births. Overall, despite some fluctuations, the gap dropped from being nearly a third higher in deprived areas in 2001 to just over 13% higher in 2008<sup>(p)</sup>.

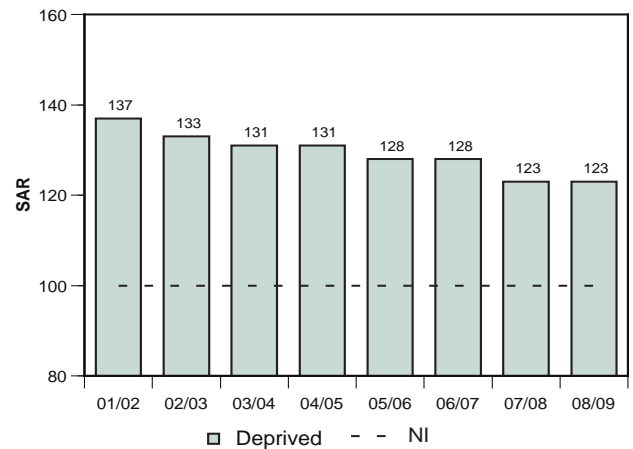
## 2.6 Standardised Admission Rates (SAR) to hospital – all admissions



Source: Hospital Inpatients System / Project Support Analysis Branch

Between 2001/02 and 2008/09<sup>(p)</sup> the number of hospital admissions increased in NI as a whole by 9% but decreased in deprived areas by 2%. Between 2001/02 and 2006/07, there was a steady relative decline in the SAR for all inpatient admissions in the most deprived areas from 28% to 10% higher than the admission rate in Northern Ireland generally. Since then, the deprived SAR has been 15% higher than the regional rate.

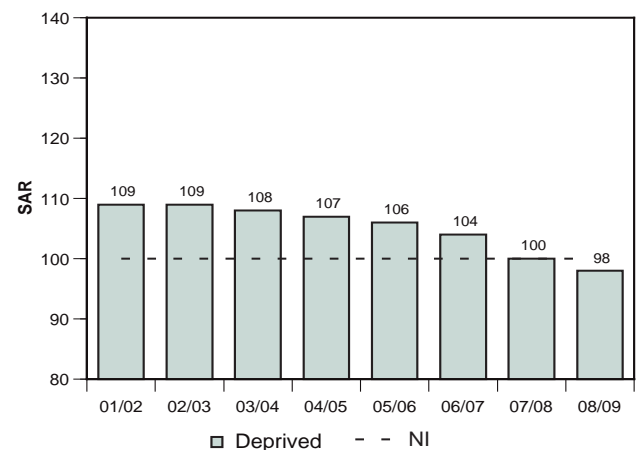
## 2.7 Standardised Admission Rates (SAR) to hospital – emergency admissions



Source: Hospital Inpatients System / Project Support Analysis Branch

Between 2001/02 and 2008/09<sup>(p)</sup>, the number of emergency admissions in deprived areas fell by 5%. In contrast, emergency admissions increased by 7% in NI generally over the same period. This caused a relative decline in the emergency admission rate in deprived areas from 37% higher than the NI average in 2001/02 to 23% higher in 2008/09<sup>(p)</sup>. The admission rates for males and females were 29% and 18% higher in deprived areas respectively.

## 2.8 Standardised Admission Rates (SAR) to hospital – elective admissions

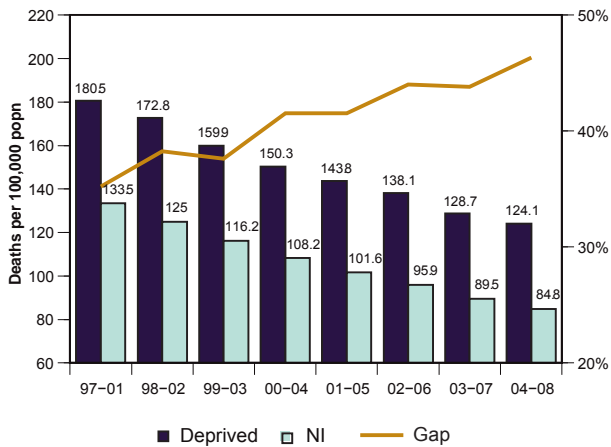


Source: Hospital Inpatients System / Project Support Analysis Branch

Over the period, the elective Standardised Admission Rate to hospital declined gradually in deprived areas from being 9% higher in 2001/02 to 2% lower in 2008/09<sup>(p)</sup> than the overall Northern Ireland rate. Given the poorer health normally observed in deprived areas, it is likely that this apparent improvement in health actually reflects decreasing access to elective care within these areas.

# Health Inequalities Between Deprived Areas and Northern Ireland

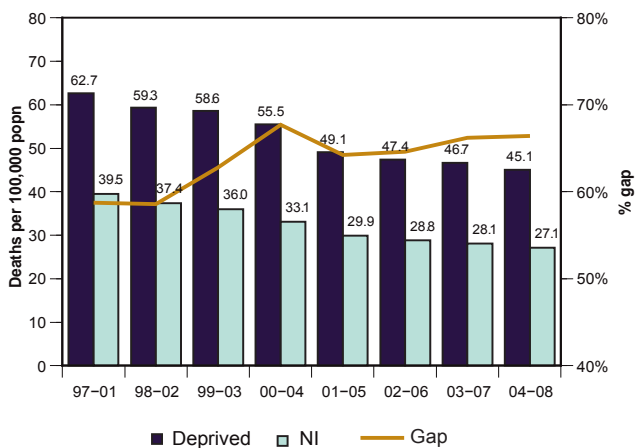
## 2.9 Standardised Death Rate (SDR) (under 75) – circulatory disease



Source: General Register Office / Project Support Analysis Branch

The standardised death rate due to circulatory diseases (for those aged under 75) in NI fell by 36% from a rate of 133.5 deaths per 100,000 population in 2001 to 84.8 by 2008<sup>(p)</sup>. The rate in the most deprived areas in NI fell over the same period by 31% to reach 124.1 deaths per 100,000 population. This led to an increase in the inequality gap from 35% in the base year to over 46% by the end of the period. The male gap increased from 38% to 47% over the period while the female gap increased from 40% to 48%.

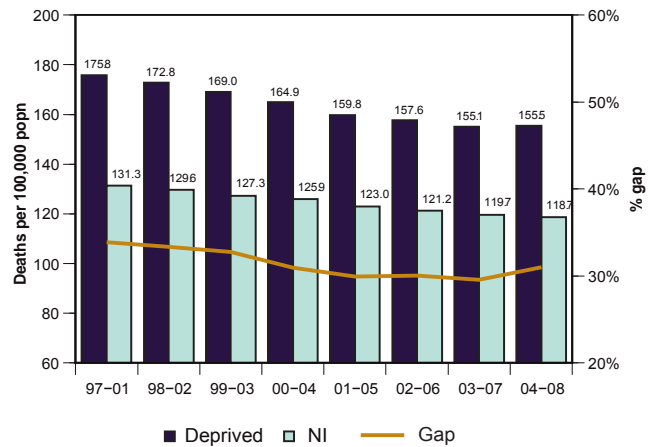
## 2.10 Standardised Death Rate (SDR) (under 75) – respiratory disease



Source: General Register Office / Project Support Analysis Branch

The standardised death rate due to respiratory diseases (for those aged under 75) fell by almost a third from a rate of 39.5 deaths per 100,000 population in 2001 to 27.1 by 2008<sup>(p)</sup>. Respiratory mortality in deprived areas fell by 28% across the same period to reach 45.1 deaths per 100,000 population. The gap between the deprived rate and NI as a whole rose from 58% to 66% (although there was some evidence to suggest a levelling off since 2005). The male and female gaps were 69% and 64% respectively in 2008<sup>(p)</sup>.

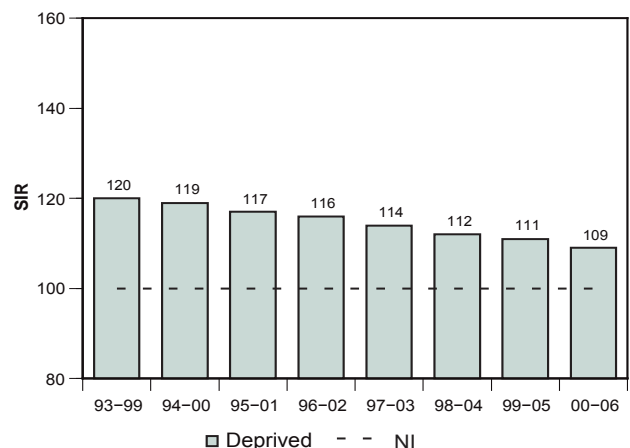
## 2.11 Standardised Death Rate (SDR) (under 75) – cancer



Source: General Register Office / Project Support Analysis Branch

The proportionate decreases between 2001 and 2008<sup>(p)</sup> in the standardised death rates due to cancer in deprived areas and NI as a whole were broadly similar which meant that the inequality gap remained around a third higher in deprived areas. The gap for males was higher (35%) than that for females (28%).

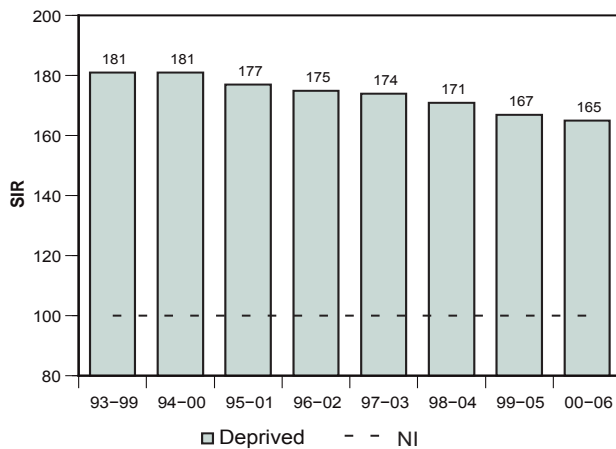
## 2.12 Cancer incidence rates



Source: Northern Ireland Cancer Registry / Project Support Analysis Branch

The standardised incidence rate for all cancers has been consistently higher in the most deprived areas than the NI average however the gap between the rates has declined from being 20% higher in 1999 to 9% higher in 2006. The male gap reduced from 22% to 7% while the female gap fell from 18% to 11% over the period.

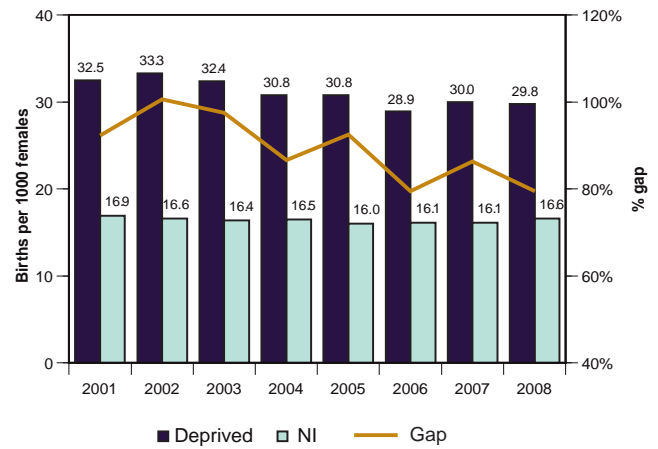
## 2.13 Lung cancer incidence rates



Source: Northern Ireland Cancer Registry / Project Support Analysis Branch

The difference in lung cancer incidence rates between deprived areas and NI as a whole has narrowed from being 81% higher in 1999 to 65% higher in 2006. The female lung cancer rate in deprived areas was 76% higher than NI. The male rate was 58% higher.

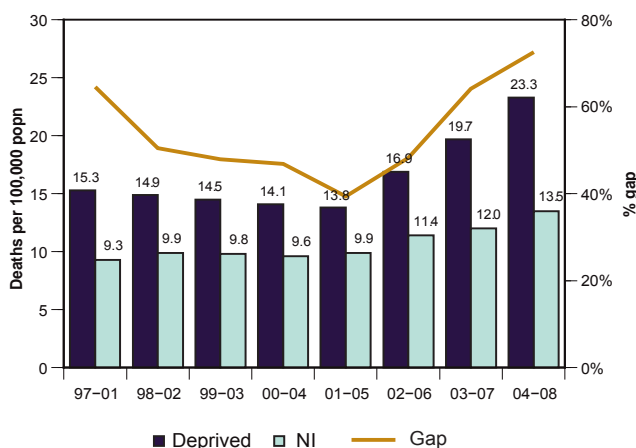
## 2.15 Teenage Births



Source: General Register Office / Project Support Analysis Branch

The teenage birth rate to girls aged under 20 dropped in both deprived areas and NI generally. The birth rate decreased faster in deprived areas (8% fall) than regionally (2% fall) which meant that the inequality gap reduced from 92% in 2001 to 80% in 2008<sup>(p)</sup>.

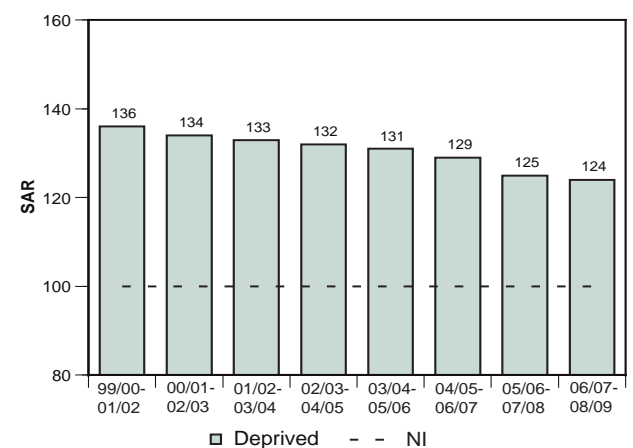
## 2.14 Suicide



Source: General Register Office / Project Support Analysis Branch

Since 2005, the number of suicides registered in NI has grown substantially which has meant that the crude suicide rates in both deprived areas and NI as a whole have risen sharply. Between 2001 and 2005, the gap between deprived areas and NI narrowed from 65% to 39%. Since then the gap has risen sharply with suicide rates in deprived areas being 73% higher than the regional rate in 2008<sup>(p)</sup>.

## 2.16 Standardised Admission Ratio to hospital – respiratory disease

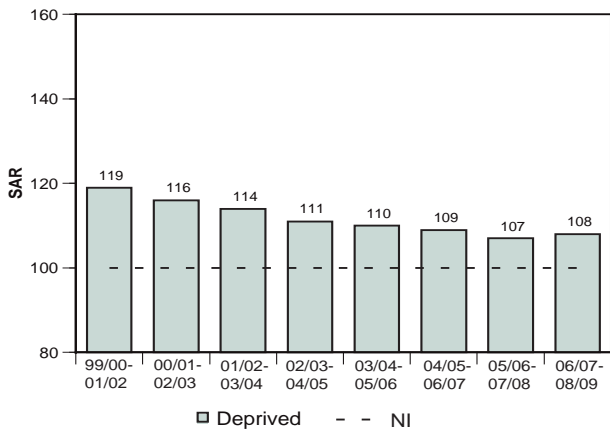


Source: Hospital Inpatients System / Project Support Analysis Branch

In 2001/02, the standardised admission rate for respiratory disease was 36% higher than that in NI as a whole. By 2008/09<sup>(p)</sup>, the gap had decreased to 24%. Over the period, admissions for respiratory disease reduced by 10% in deprived areas whilst remaining fairly constant in NI overall.

# Health Inequalities Between Deprived Areas and Northern Ireland

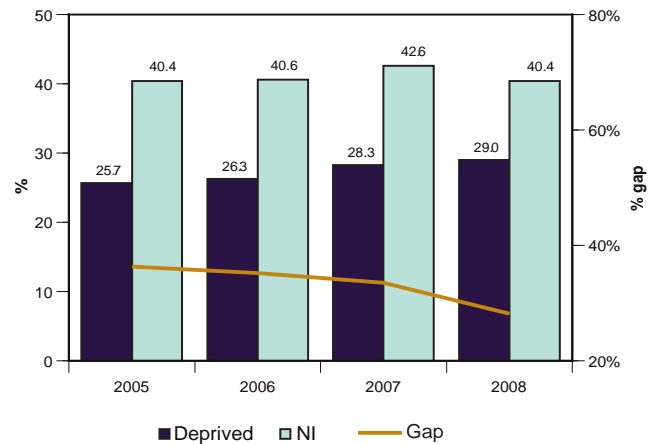
## 2.17 Standardised Admission Ratio to hospital – circulatory disease



Source: Hospital Inpatients System / Project Support Analysis Branch

Between 2001/02 and 2008/09<sup>(p)</sup>, total admissions for circulatory disease fell by a third in deprived areas and by around a quarter in NI. Standardised Admission Rate in deprived areas for circulatory diseases decreased from being around a fifth higher in 2001/02 to 8% higher in 2008/09<sup>(p)</sup> although the figures for recent years may be early signs of a period of levelling off.

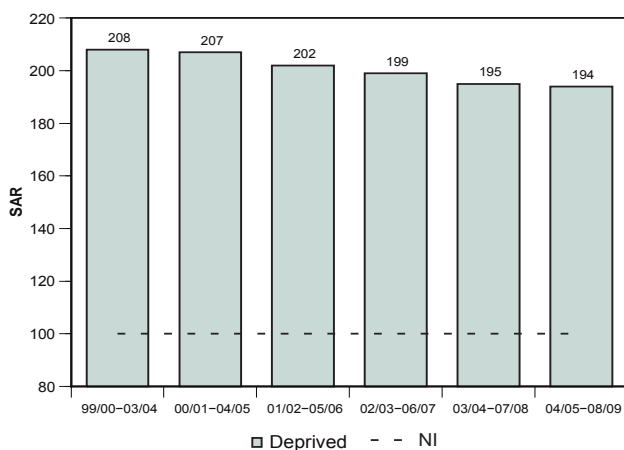
## 2.19 Breastfeeding on discharge from hospital



Source: Child Health System / Project Support Analysis Branch

The proportion of mothers that were still breastfeeding on discharge from hospital, after giving birth, improved both in deprived areas and NI as a whole over the period. In 2005, the proportion of mothers that were breastfeeding was 36% lower in the most deprived areas than in NI. By 2008, the gap had fell to 28%.

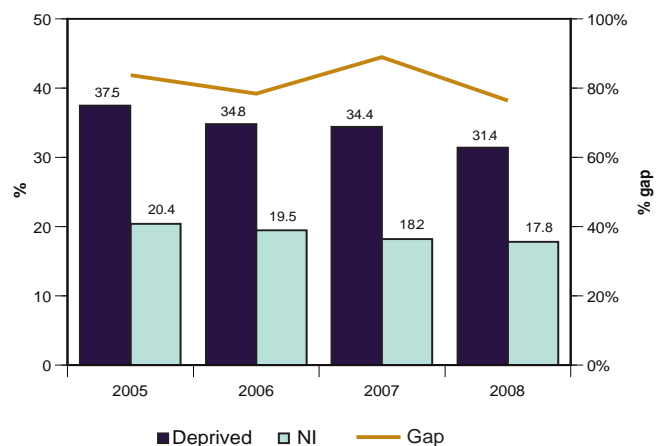
## 2.18 Admissions to hospital for self-harm



Source: Hospital Inpatients System / Project Support Analysis Branch

Since 2004/05 there was an average of more than 4,700 admissions to hospital for self-harm each year of which females account for around 54%. In deprived areas, females accounted for 52% of self-harm admissions. The Standardised Admission Rate for self-harm has improved relatively in deprived areas over recent years but still remains almost twice that in NI overall. The inequality gaps for male and female in 2008/09<sup>(p)</sup> stood at 117% and 76% respectively.

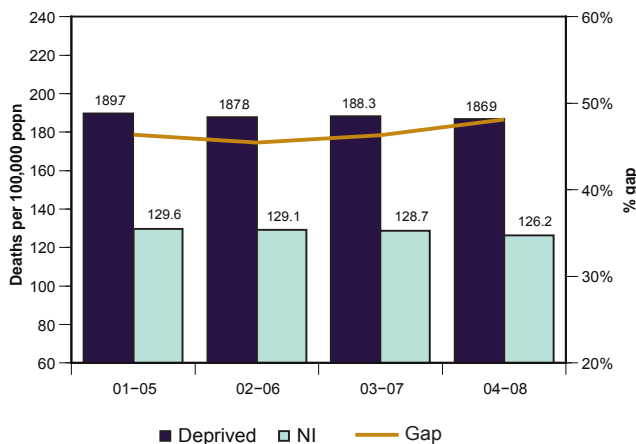
## 2.20 Smoking during pregnancy



Source: Child Health System / Project Support Analysis Branch

The proportion of mothers that smoked during their pregnancy fell in NI overall from 20% in 2005 to 18% in 2008. A similar trend was also evident in deprived areas where the proportion reduced from 37% to 31%. The inequality gap, despite some fluctuation, did decrease from 84% in 2005 to 76% in 2008.

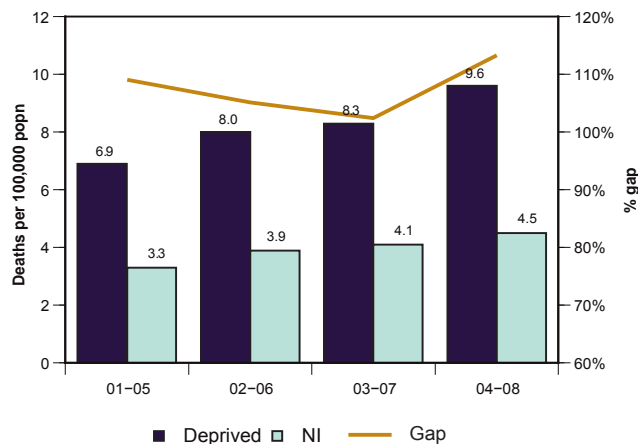
## 2.21 Smoking related deaths<sup>4</sup>



Source: General Register Office / Project Support Analysis Branch

Between 2005 and 2008<sup>(p)</sup>, there was little change in the smoking related mortality rate in the most deprived areas. This was also true in NI as a whole. As a consequence, there has been little change in the inequality gap with the death rate in deprived areas being consistently close to 50% higher than the NI rate. In 2008<sup>(p)</sup>, the male smoking related mortality rate in both deprived areas and NI overall was around two-thirds higher than the corresponding females rates.

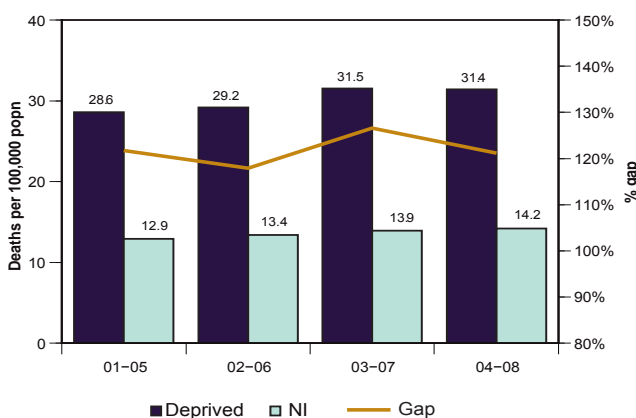
## 2.23 Drug related deaths<sup>4</sup>



Source: General Register Office / Project Support Analysis Branch

Although the number of drug related deaths in Northern Ireland are relative low, the standardised death rate due to drug related causes increased steeply (by almost 40%) in both deprived areas and NI as a whole between 2005 and 2008<sup>(p)</sup>. Drug related mortality in deprived areas was consistently more than double the NI rate throughout the period.

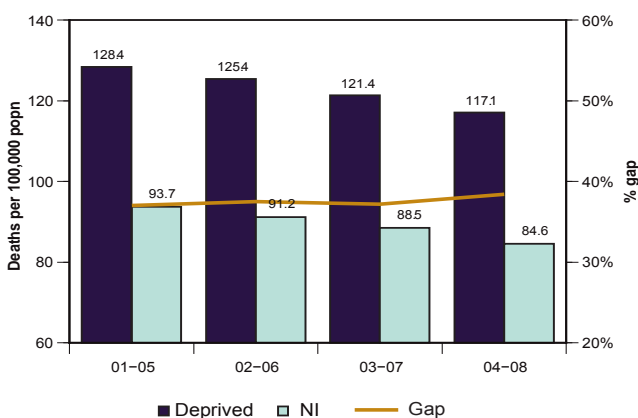
## 2.22 Alcohol related deaths<sup>4</sup>



Source: General Register Office / Project Support Analysis Branch

The alcohol related death rate rose by around 10% between 2005 and 2008<sup>(p)</sup> in both deprived areas and Northern Ireland generally. Despite some minor fluctuations in the gap across the period, the deprived death rate has remained large at around 120% higher than the NI rate.

## 2.24 Deaths amenable to healthcare<sup>4</sup>



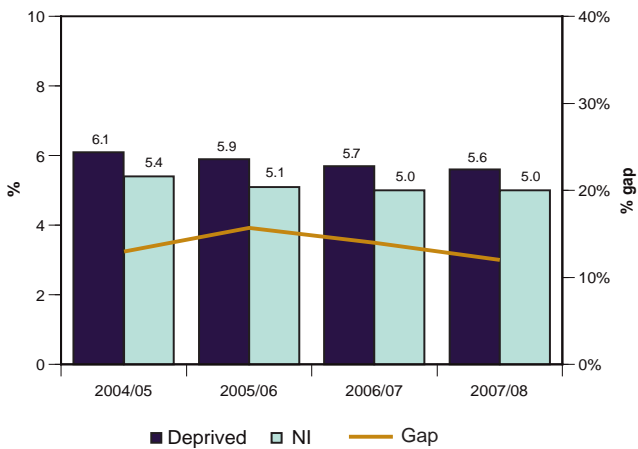
Source: General Register Office / Project Support Analysis Branch

Amenable mortality is mortality that could theoretically be averted by good health care. Standardised amenable mortality rates in the most deprived areas decreased from 128.4 to 117.1 deaths per 100,000 population between 2005 and 2008<sup>(p)</sup>. Similarly there was a decrease in the NI rate from 93.7 to 84.6 deaths per 100,000 population over the period. The inequality gap has remained fairly constant over recent years and stood at 38% in 2008.

<sup>4</sup> Further details on the definitions of amenable, smoking, alcohol and drug related deaths are set out in Appendix 1.

# Health Inequalities Between Deprived Areas and Northern Ireland

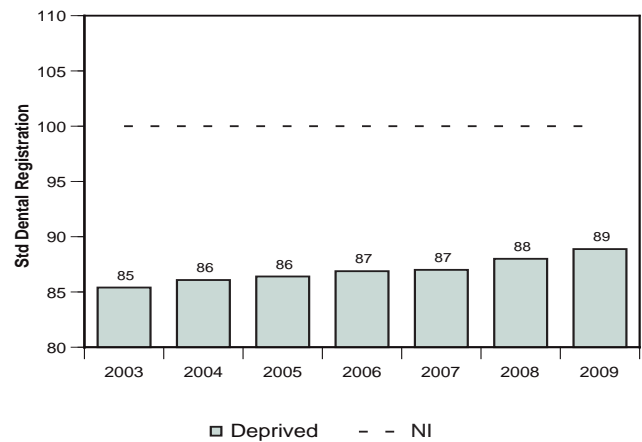
## 2.25 Childhood Obesity



Source: Child Health System / Project Support Analysis Branch

The proportion of Primary 1 children that were obese fell from 5.4% in 2004/05 to 5.0% in 2007/08. Across the period, the proportion of obese children in deprived areas was higher than that in NI as a whole. Over the period, the gap for all children remained fairly steady. The inequality gap for girls remained consistently larger than that for boys.

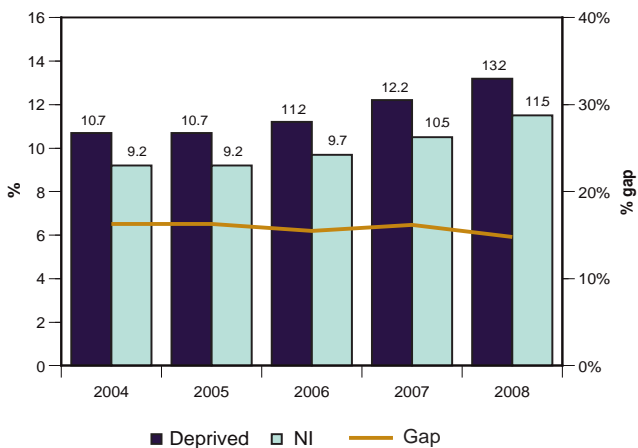
## 2.27 Dental Registrations



Source: Business Services Organisation / Project Support Analysis Branch

The indirectly standardised dental registration rate has been consistently lower in deprived area than in NI generally. However there has been a gradual relative increase in deprived areas to reduce the gap slightly over the period to 11% lower in 2009.

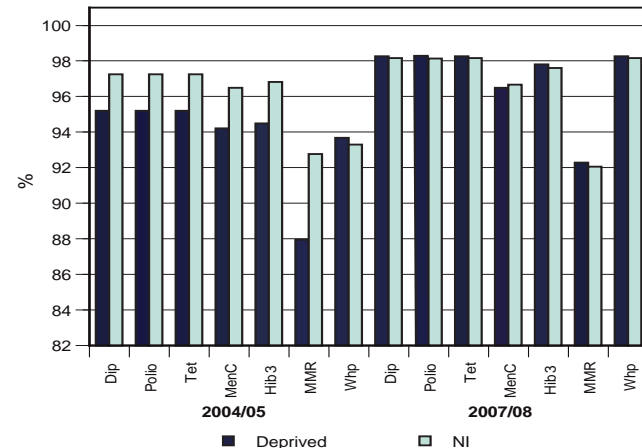
## 2.26 Mood and Anxiety disorders



Source: Business Services Organisation / Project Support Analysis Branch

The proportion of persons in Northern Ireland that suffered from a mood or anxiety disorder increased from 9.2% to 11.5% in 2008. The proportion also increased in the most deprived areas from 10.7% to 13.2%. Overall the inequality gap has remained fairly consistent with prevalence in deprived areas being just under a fifth higher.

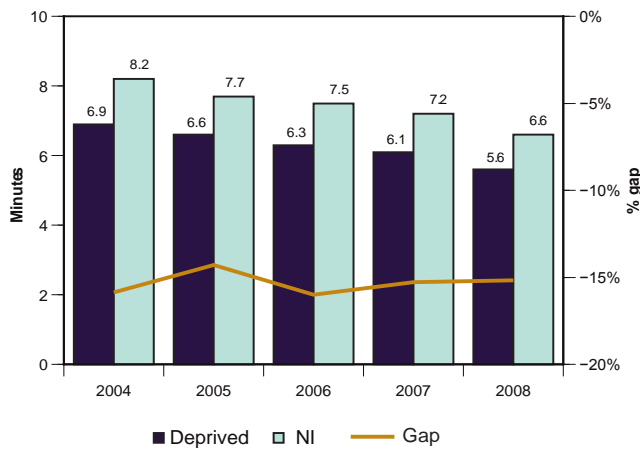
## 2.28 Childhood immunisations



Source: Child Health System / Project Support Analysis Branch

Generally, immunisation rates improved between 2004/05 and 2007/08 in both NI and deprived areas. Immunisation rates within deprived areas and NI as a whole are now broadly similar compared with the position in 2004/05. Apart from MMR, the gaps have decreased due to larger improvements in deprived areas than those experienced in NI generally. Information relating to the PCV was only available for 2007/08. Immunisation rates were again broadly similar with 79% of children in both areas getting the full course.

## 2.29 Ambulance response



Source: NI Ambulance Service / Project Support Analysis Branch

The ambulance response times in deprived area have improved from an average of 6.9 minutes in 2004 to 5.6 minutes in 2008. Similarly there was also a reduction in NI overall from 8.2 to 6.6 minutes. Response times within deprived areas are consistently better than the NI average, likely due to the high preponderance of said areas in more urban environments. The gap has remained fairly steady over the period with response times being around 15% shorter in deprived areas.

## 2.30 Inequality gaps – the relative deprived position

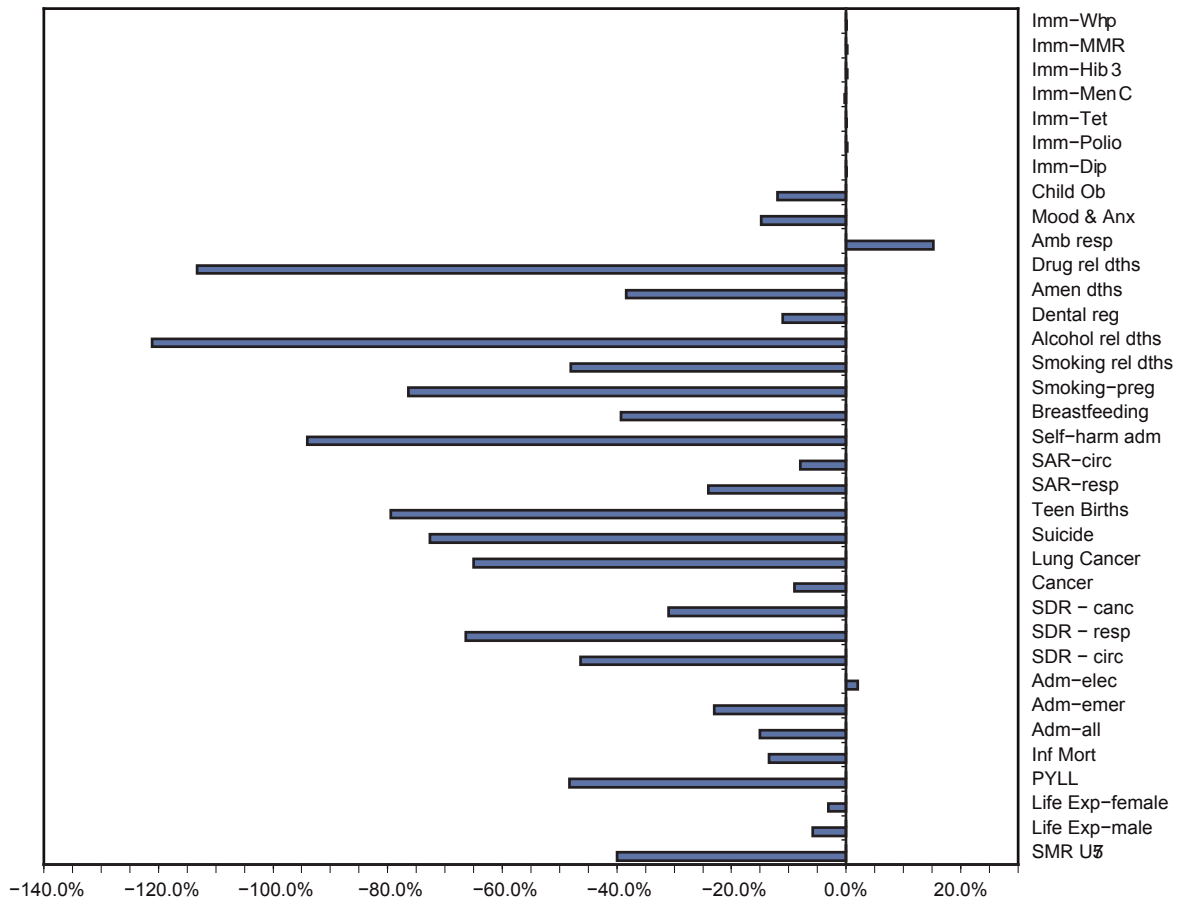
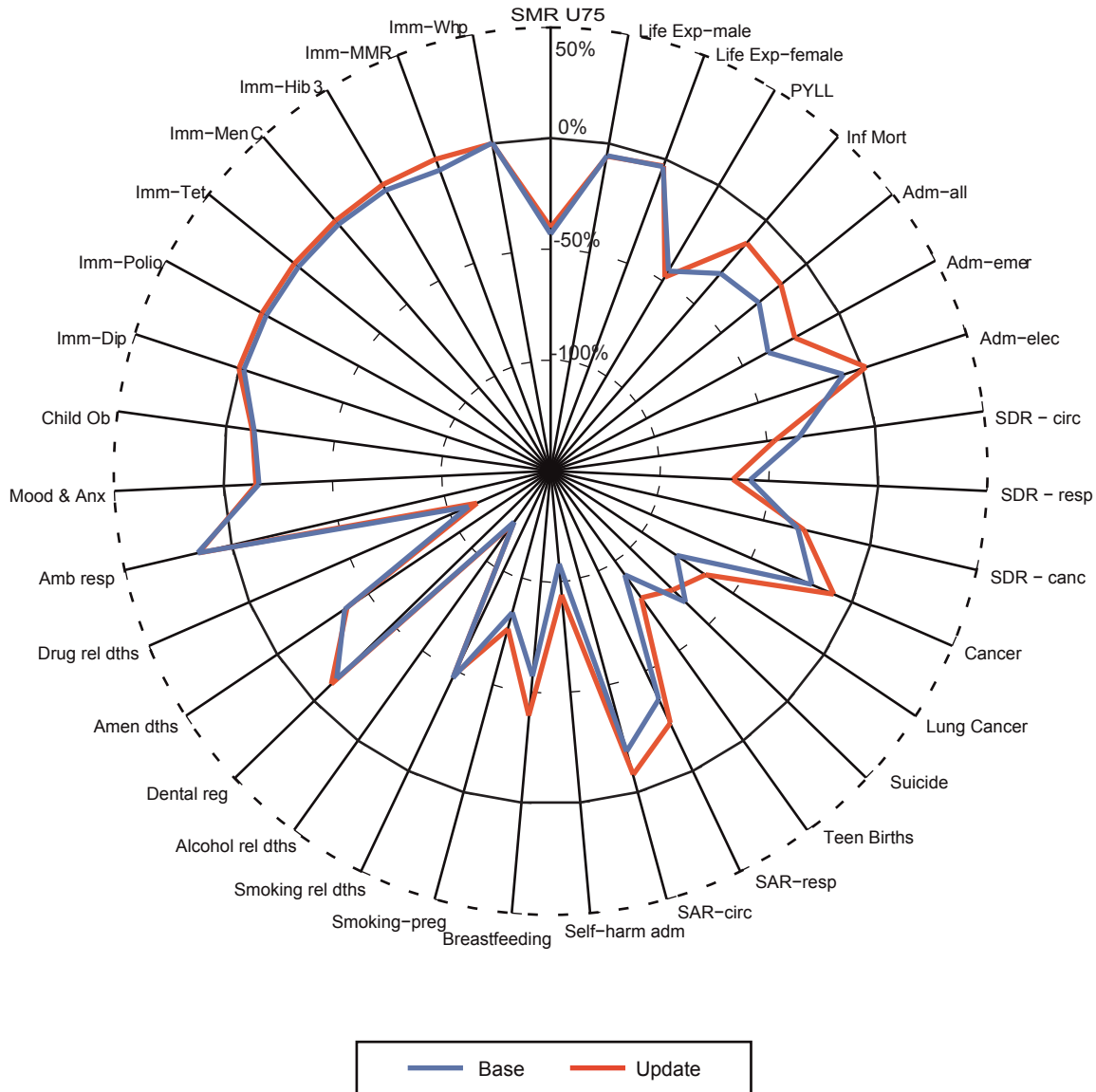


Figure 2.30 above shows that health outcomes in deprived areas were generally worse than in Northern Ireland as whole. The most sizeable inequality gaps between deprived areas and Northern Ireland overall were evident in alcohol related deaths, drug related deaths, admissions for self-harm, teenage births, suicide, respiratory death rates and lung cancer incidence. In proportionate terms, gaps for male and female life expectancy and childhood immunisations were relatively small. The elective admission rate and average ambulance response times were actually lower in deprived areas than the regional average although in the former case this likely represents poorer access whilst in the latter the more urban character of many of the most deprived areas.

Comparing the change in inequality gaps between deprived areas and NI (see figure 2.31) shows that there is a continuing health gap although there have been relative improvements across a number of indicators. The most notable improvements occurred in infant mortality, hospital admissions (all, emergency and elective) and cancer incidence (both all and lung cancer). There were also improvements in the gaps for respiratory and circulatory disease hospital admissions however, as is the case with elective hospital admissions, this may be an indication of poorer access in deprived areas especially when considered in conjunction with the gap information for circulatory and respiratory disease mortality rates (which have actually increased). The gap for childhood immunisations has virtually disappeared (although the baseline gap was small in proportionate terms). There have also been improvements in the gaps for self-harm admissions, smoking during pregnancy, breastfeeding on discharge from hospital and dental registrations. Despite these improvements, the health gaps in a number of these areas still remain large.

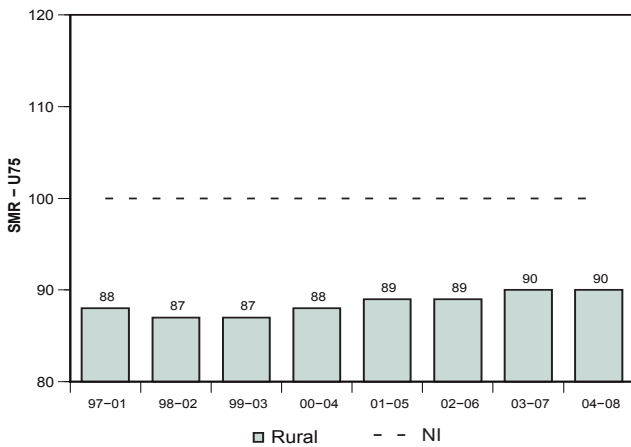
The gap has also increased in some instances but encouragingly, only for a few indicators. This was most evident in circulatory and respiratory death rates as well as suicide rates (the gap had been decreasing until 2005 but has increased sharply since then). For the rest of the HSCIMS indicators, there has been relatively little change in the inequality gaps experienced in the base period.

## 2.31 Inequality gaps – the change in the relative deprived position



# Health Inequalities Between Rural Areas and Northern Ireland

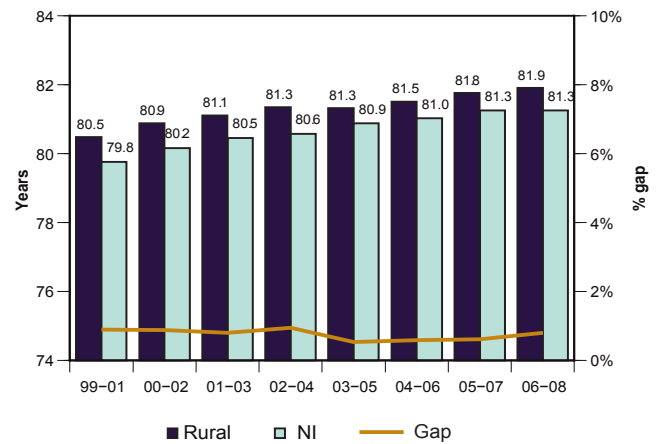
## 3.1 Standardised Mortality Ratio (SMR) – under 75



Source: General Register Office / Project Support Analysis Branch

By 2008<sup>(p)</sup>, an individual aged under 75 years living in rural areas was 10% less likely on average to die than a similar person in NI generally. Males in rural areas were 11%, and females, 9% less likely to die than their counterparts in NI as a whole. The gap remained fairly consistent across the period.

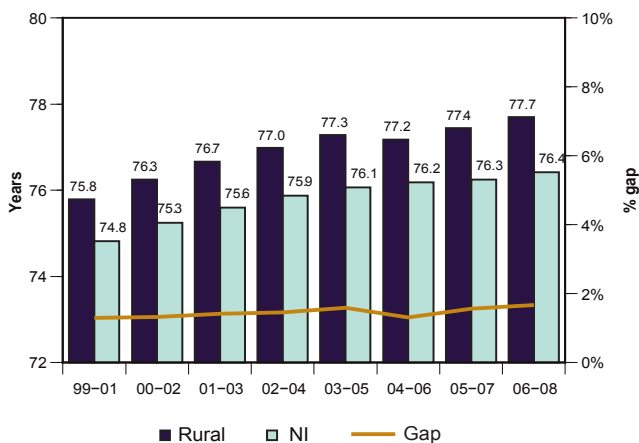
## 3.3 Life Expectancy at birth – Female<sup>5</sup>



Source: General Register Office / Project Support Analysis Branch

Across the period, female life expectancy increased by similar amounts in both rural areas and NI overall which meant that the inequality gap remained fairly consistent (0.6 years in 2008<sup>(p)</sup>). As with males, in proportionate terms the gap is relatively small.

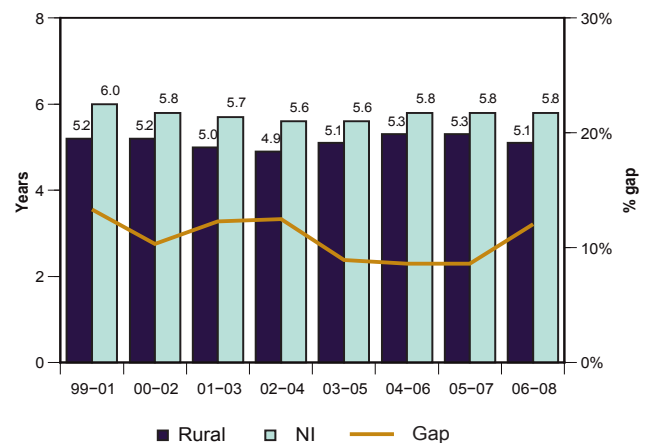
## 3.2 Life Expectancy at birth - Male<sup>5</sup>



Source: General Register Office / Project Support Analysis Branch

Between 2001 and 2008<sup>(p)</sup> life expectancy at birth for males in rural areas increased by 1.9 years to reach 77.7 years. Over the same period, male life expectancy increased by 1.6 years in NI overall. The life expectancy gap therefore increased from 1.0 years in 2001 to 1.3 years in 2008<sup>(p)</sup> although in percentage terms the gap remained reasonably constant and also quite small at less than 2%.

## 3.4 Potential Years of Life Lost (PYLL)

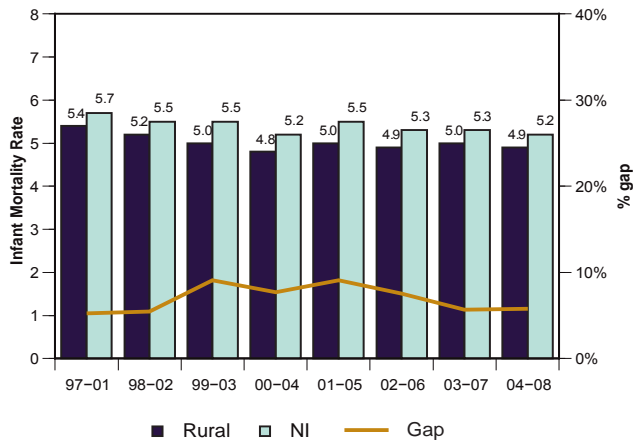


Source: General Register Office / Project Support Analysis Branch

In 2001, the potential years of life lost per 100 persons in both rural areas and NI overall were 6.0 and 5.2 respectively. By 2008<sup>(p)</sup>, the PYLL in both rural areas (5.8 years per 100 persons) and NI (5.1 years per 100 persons) were broadly similar. The gap was 14% in 2008<sup>(p)</sup> and was, despite some minor fluctuation over the period, fairly similar to the base year gap.

<sup>5</sup> The NI figures may differ slightly to the official Government Actuary Department figures. More details are set out in the Life Expectancy section in Appendix 1.

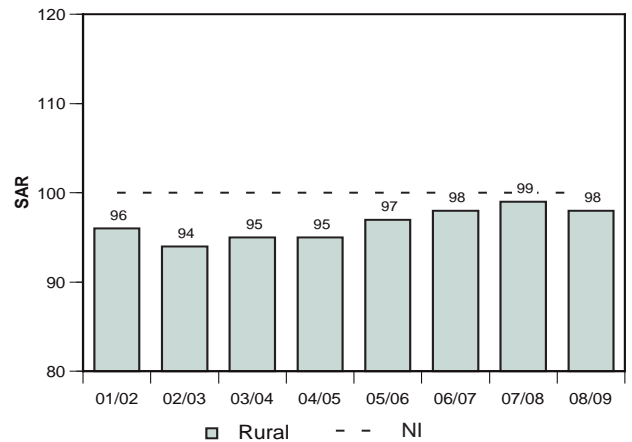
### 3.5 Infant Mortality



Source: General Register Office / Project Support Analysis Branch

In 2001, the infant mortality rate in rural areas of 5.4 deaths per 1,000 live births was slightly lower than the overall NI rate (5.7 deaths per 1,000 live births). By 2008<sup>(p)</sup>, the infant mortality rates in rural areas and NI had both improved to 4.9 and 5.2 respectively which meant that there was little change to the inequality gap.

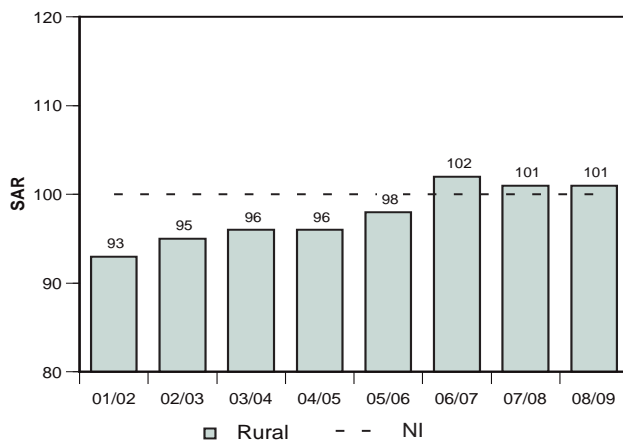
### 3.7 Standardised Admission Rates (SAR) to hospital – emergency admissions



Source: Hospital Inpatients System / Project Support Analysis Branch

In 2001/02, the emergency admission rate to hospitals was 4% lower than the relative NI admission rate. The emergency SAR continued to be better in rural areas and stood at 2% below the NI rate by 2008/09<sup>(p)</sup>.

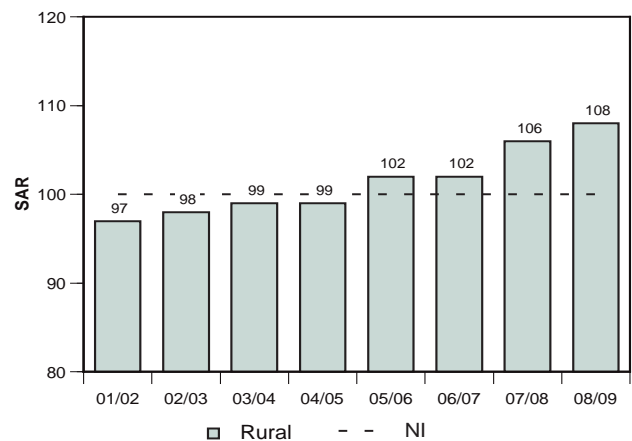
### 3.6 Standardised Admission Rates (SAR) to hospital – all admissions



Source: Hospital Inpatients System / Project Support Analysis Branch

Across the period, hospital admissions in rural areas increased at a faster rate than in urban areas. As a consequence, the Standardised Admission Rate to hospitals in rural areas rose from being 7% less than the relative NI SAR in 2001/02 to being fairly similar in 2008/09<sup>(p)</sup>.

### 3.8 Standardised Admission Rates (SAR) to hospital – elective admissions

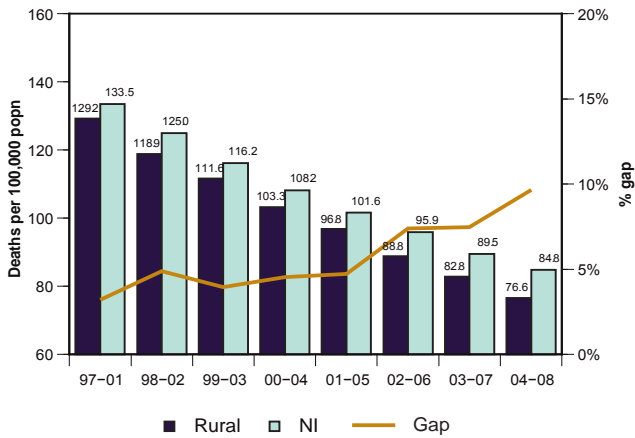


Source: Hospital Inpatients System / Project Support Analysis Branch

Over the period, elective admissions increased by 42% in rural areas compared with a 22% increase in NI overall. The elective SAR in rural areas in 2001/02 was 3% lower than the relative NI rate. By 2008/09<sup>(p)</sup> the rural SAR had shifted to being 8% higher than the overall NI rate. Given the better health normally observed in rural areas, it is likely that this relative increase in rural elective admissions actually represents decreasing access to elective care within urban areas.

# Health Inequalities Between Rural Areas and Northern Ireland

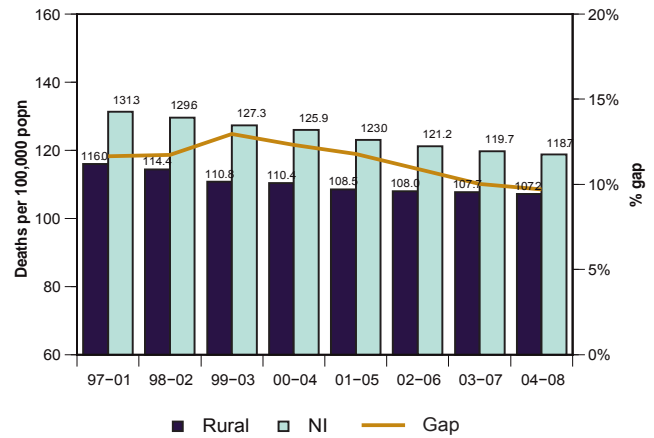
## 3.9 Standardised Death Rate (SDR) (under 75) – circulatory disease



Source: General Register Office / Project Support Analysis Branch

The standardised death rate due to circulatory diseases between 2001 and 2008<sup>(p)</sup> was consistently lower in rural areas than the overall NI rate. Over the period, the rural circulatory death rate decreased by more than two-fifths to reach 76.6 deaths per 100,000 population in 2008<sup>(p)</sup>. The NI rate fell by more than a third. The gap increased from 3% in 2001 to 11% in 2008<sup>(p)</sup>.

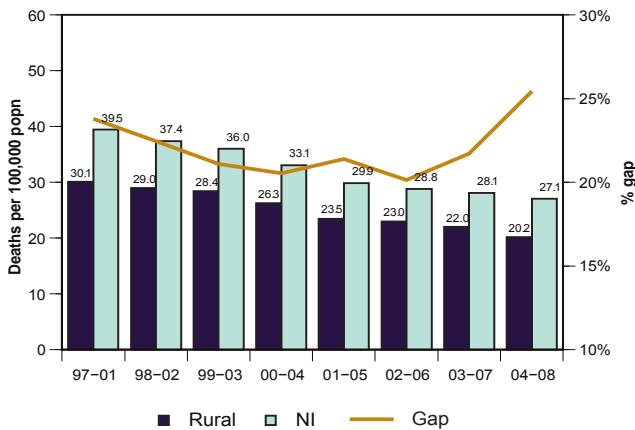
## 3.11 Standardised Death Rate (SDR) (under 75) – cancer



Source: General Register Office / Project Support Analysis Branch

Across the period, cancer mortality was consistently lower in rural areas when compared with the regional death rate. Death rates in rural areas and NI as a whole both fell over the period and as a consequence the gap remained fairly consistent.

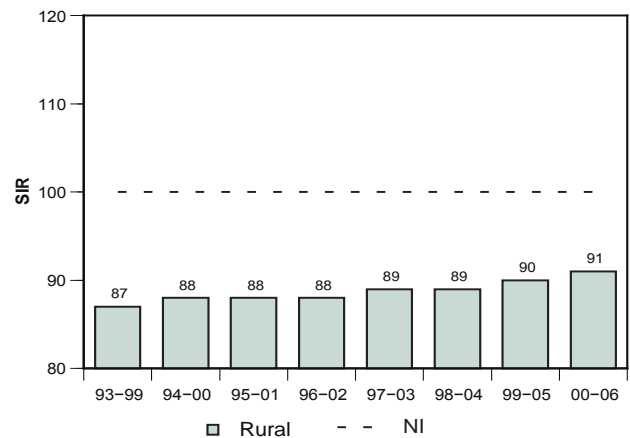
## 3.10 Standardised Death Rate (SDR) (under 75) – respiratory disease



Source: General Register Office / Project Support Analysis Branch

The standardised death rate due to respiratory diseases in rural areas fell by around a third from 30.1 in 2001 to 20.2 deaths per 100,000 population in 2008<sup>(p)</sup>. Respiratory mortality in NI overall fell from 39.5 to 27.1 deaths per 100,000 population. The inequality gap between rural areas and NI was 24% in 2001 and experienced a small gradual decline up to 2006, but had increased back to a level similar to that in the base year by 2008<sup>(p)</sup> (25%).

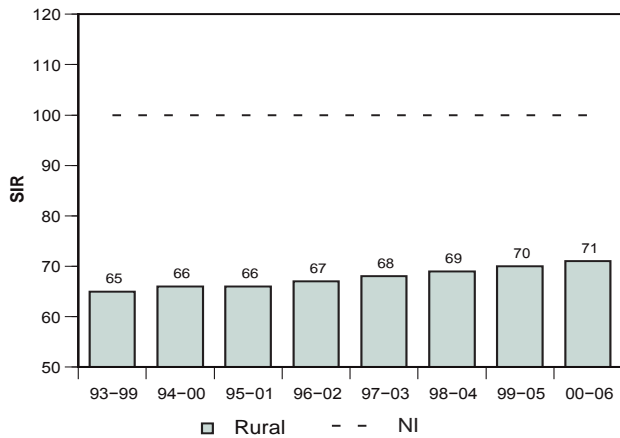
## 3.12 Cancer incidence rates



Source: Northern Ireland Cancer Registry / Project Support Analysis Branch

The standardised incidence rate for all cancers was consistently lower in rural areas. In 1999, cancer incidence was 13% lower than NI overall. The rate increased relative to the NI rate across the period and the gap stood at 9% in 2006. This was due to incidence in rural areas rising relatively faster than in NI generally.

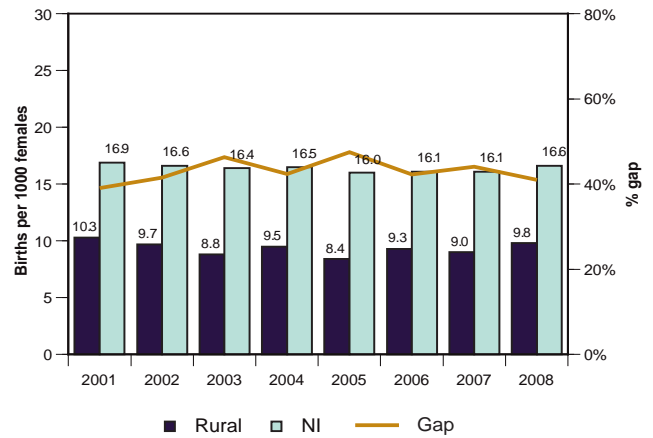
### 3.13 Lung cancer incidence rates



Source: Northern Ireland Cancer Registry / Project Support Analysis Branch

Between 1999 and 2006, lung cancer incidence rates in rural areas continued to be substantially lower than the NI rate (29% lower in 2006).

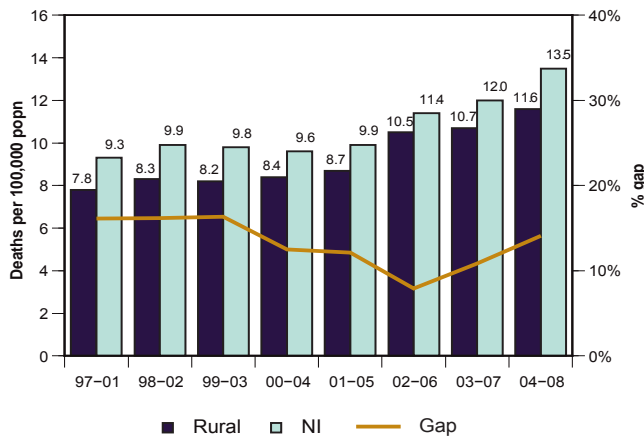
### 3.15 Teenage Births



Source: General Register Office / Project Support Analysis Branch

The birth rate to girls under 20 fell from 10.3 to 9.8 births per 1,000 females in rural areas between 2001 and 2008<sup>(p)</sup>. Over the same period, the regional rate fell slightly from 16.9 to 16.6 births per 1,000 females. The birth rate in rural areas remained around two-fifths lower across the period.

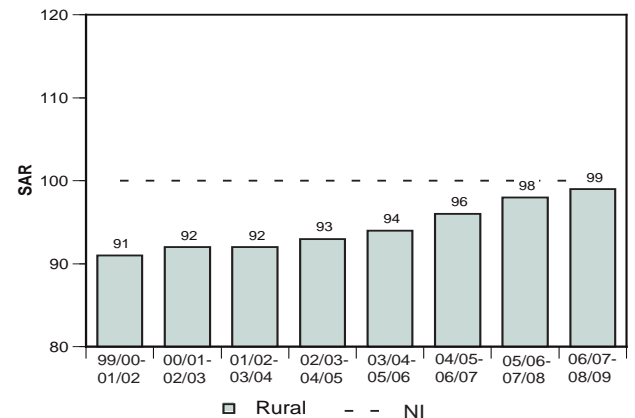
### 3.14 Suicide



Source: General Register Office / Project Support Analysis Branch

Suicide rates in rural areas increased by almost 50% from 7.8 in 2001 to 11.6 deaths per 100,000 population in 2008<sup>(p)</sup>. Similarly, the overall NI rate increased from 9.3 to 13.5 deaths per 100,000 population. There was a gradual lessening of the gap from 16% in 2001 to 8% in 2006, however by 2008<sup>(p)</sup> the gap had increased back to 14%.

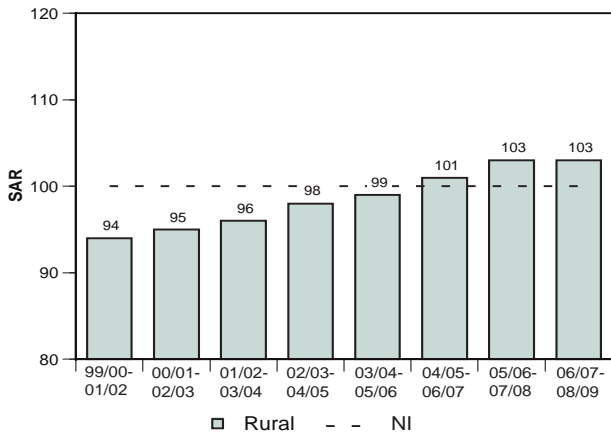
### 3.16 Standardised Admission Ratio to hospital – respiratory disease



Source: Hospital Inpatients System / Project Support Analysis Branch

In 2001/02, the admission rate for respiratory disease in rural areas was 9% lower than the NI rate, however by 2008/09<sup>(p)</sup>, the SAR was similar to the overall NI rate. Over the period, the number of admissions for respiratory disease increased in rural areas whilst they fell in urban areas. This may reflect poorer access within urban areas where need would generally be greater.

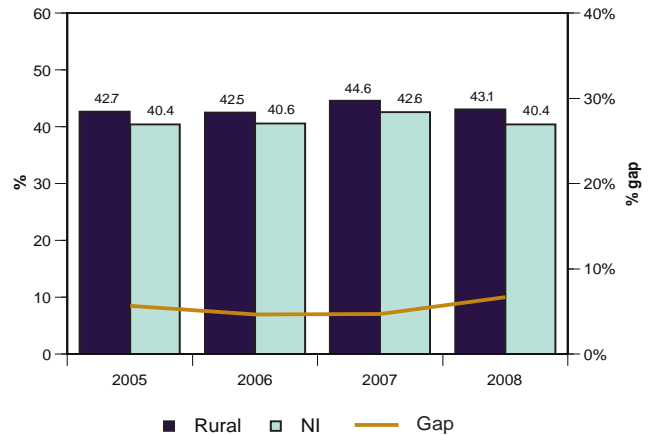
### 3.17 Standardised Admission Ratio to hospital – circulatory disease



Source: Hospital Inpatients System / Project Support Analysis Branch

Overall, total admissions for circulatory deaths fell across all areas but at a quicker rate in urban areas. This caused the Standardised Admission Rate to hospital for circulatory disease in rural areas to go from 6% below the NI rate in 2001/02 to 3% higher in 2008/09<sup>(p)</sup>. It may be that this relative shift means that the gap now reflects a poorer health outcome for rural areas. However, given the fact that the gap for circulatory death rates has remained fairly constant in the favour of rural areas, then it may be that this shift actually represents a relative decline in access for urban areas.

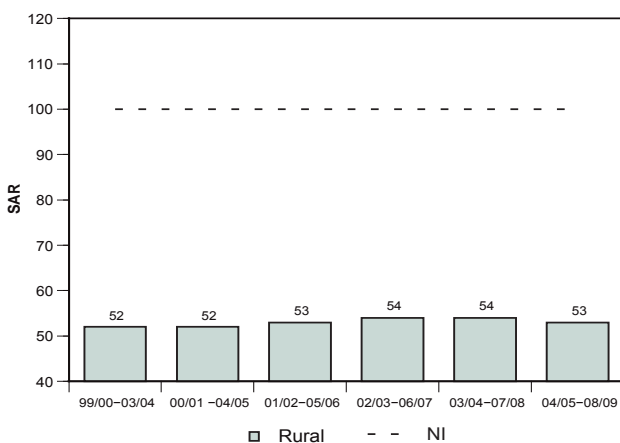
### 3.19 Breastfeeding on discharge from hospital



Source: Child Health System / Project Support Analysis Branch

Overall, despite a small rise up to 2007, the proportion of mothers, in NI as a whole, breastfeeding on discharge from hospital in 2008 was virtually identical to that in 2005. The proportion in rural areas followed a similar pattern, but had increased slightly by 2008. The rural inequality gap remained fairly consistent across the period.

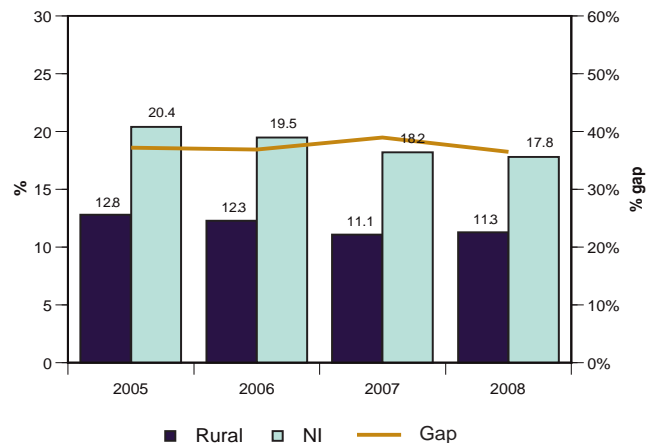
### 3.18 Admissions to hospital for self-harm



Source: Hospital Inpatients System / Project Support Analysis Branch

Between 2003/04 and 2008/09<sup>(p)</sup>, the admission rate for self-harm in rural areas was consistently almost half the regional rate. This was also true for both males and females.

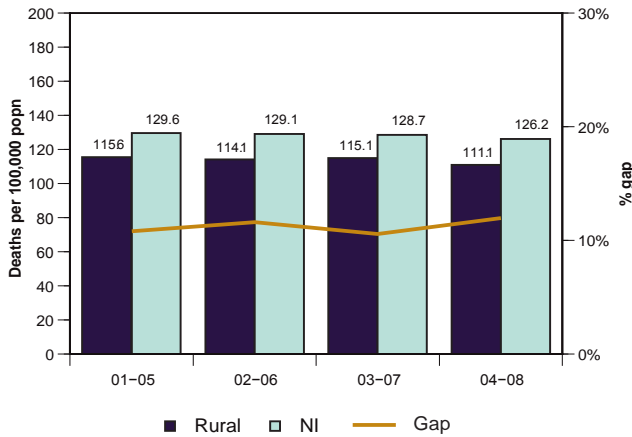
### 3.20 Smoking during pregnancy



Source: Child Health System / Project Support Analysis Branch

The proportion of mothers that stated that they had smoked during pregnancy decreased in both rural areas and NI as a whole. Over the period, the proportion in rural areas remained around 37% below that in the region generally.

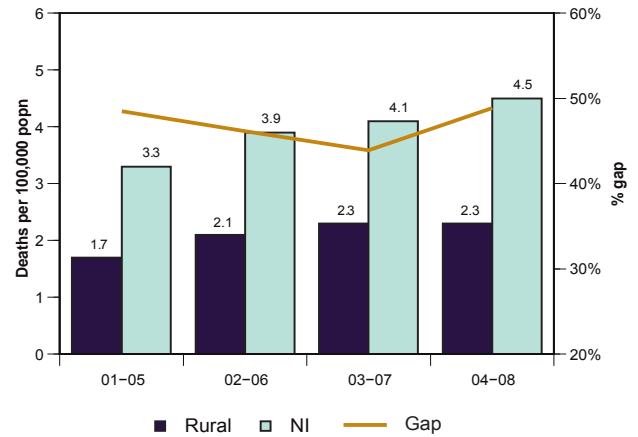
## 3.21 Smoking related deaths<sup>6</sup>



Source: General Register Office / Project Support Analysis Branch

Between 2005 and 2008<sup>(p)</sup>, there were only slight reductions in the standardised death rates for smoking related causes in both rural areas and NI as a whole. This has meant that smoking related mortality has remained around 11% to 12% lower in rural areas than in Northern Ireland generally.

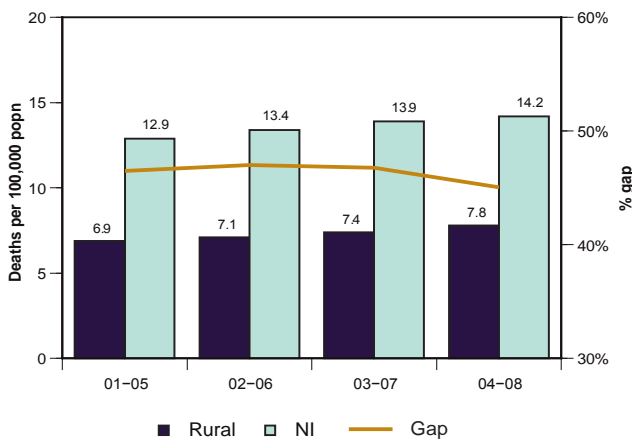
## 3.23 Drug related deaths<sup>6</sup>



Source: General Register Office / Project Support Analysis Branch

Drug related mortality in rural areas increased from 1.7 in 2005 to 2.3 deaths per 100,000 population in 2008<sup>(p)</sup>. Similarly the death rate due to drug related causes in NI generally rose from 3.3 to 4.5 deaths per 100,000 population over the same period. Drug mortality in NI overall was almost twice that in rural areas.

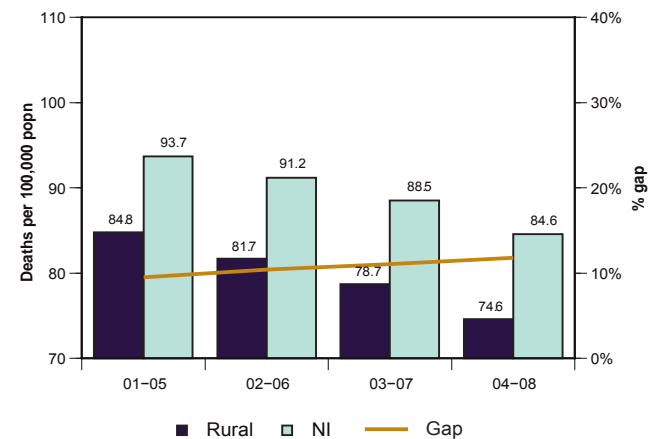
## 3.22 Alcohol related deaths<sup>6</sup>



Source: General Register Office / Project Support Analysis Branch

The alcohol related death rate increased in rural areas by 13% from 6.9 to 7.8 deaths per 100,000 population between 2005 and 2008<sup>(p)</sup>. In comparison, alcohol related mortality in NI increased from 12.9 to 14.2 deaths per 100,000 population (an increase of 10%) over the same period. The rural inequality gap remained fairly steady and stood at 45% in 2008<sup>(p)</sup>.

## 3.24 Deaths amenable to healthcare<sup>6</sup>



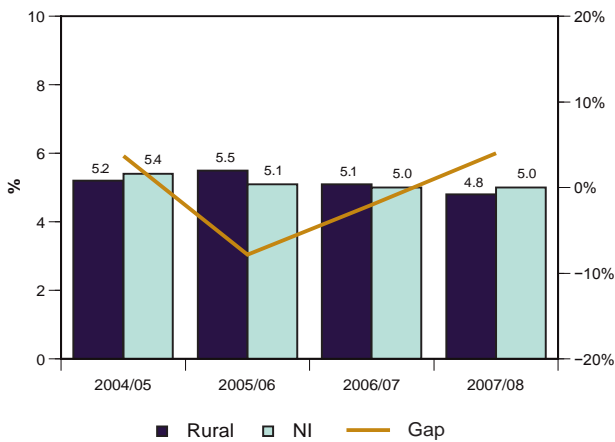
Source: General Register Office / Project Support Analysis Branch

Standardised mortality rates amenable to healthcare fell in both rural areas and NI overall between 2005 and 2008. The inequality gap remained broadly similar and stood at 12% in 2008<sup>(p)</sup>.

<sup>6</sup> Further details on the definitions of amenable, smoking, alcohol and drug related deaths are set out in Appendix 1.

# Health Inequalities Between Rural Areas and Northern Ireland

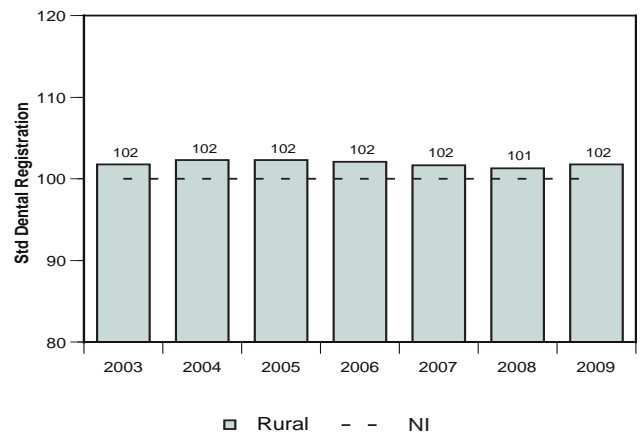
## 3.25 Childhood Obesity



Source: Child Health System / Project Support Analysis Branch

Apart from 2005/06, the obesity rates in P1 children in rural areas and NI generally were broadly similar which means that any observed gap has been negligible.

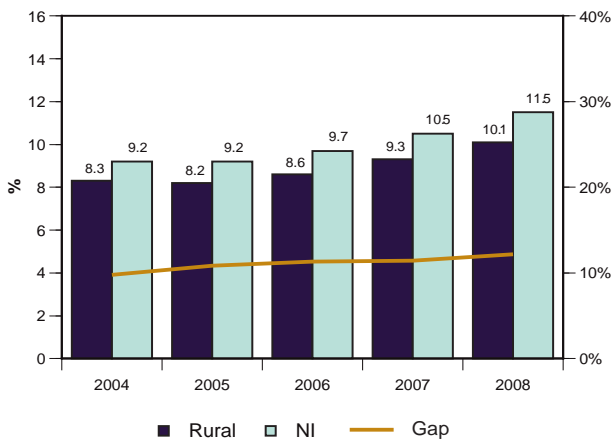
## 3.27 Dental Registrations



Source: Business Services Organisation / Project Support Analysis Branch

Dental registrations within rural areas remained slightly higher than the Northern Ireland average throughout the period 2003 to 2009.

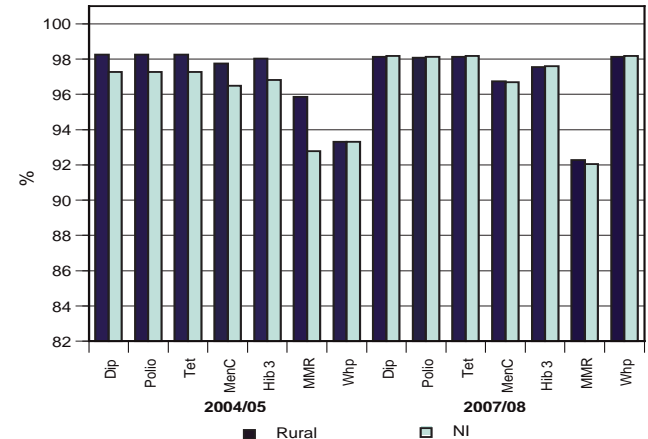
## 3.26 Mood and Anxiety disorders



Source: Business Services Organisation / Project Support Analysis Branch

The proportion of persons with a mood and anxiety disorder in rural areas increased from 8.3% in 2004 to 10.1% in 2008. The proportion in NI overall also increased over the period, however there was a slight increase in the gap from 10% to 12%.

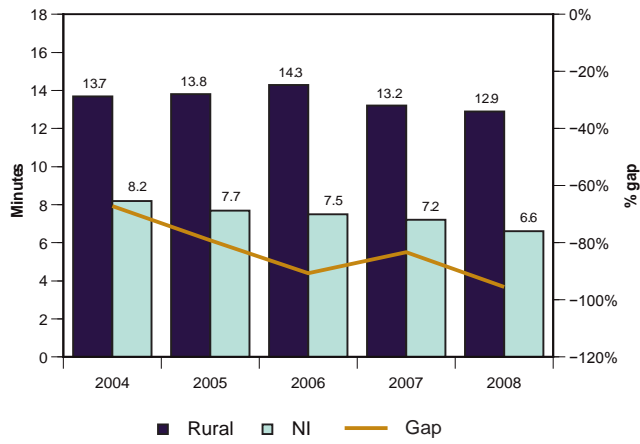
## 3.28 Childhood immunisations



Source: Child Health System / Project Support Analysis Branch

There has been a relative improvement in the gap in childhood immunisation rates between rural areas and Northern Ireland as a whole. This has mainly been due to improvements in urban areas as the rural rates have either improved or remained relatively steady. However the uptake of MMR fell over the period from 96% in 2004/06 to 92% in 2007/08. The uptake for PCV in 2007/08 was broadly similar in rural areas and NI generally.

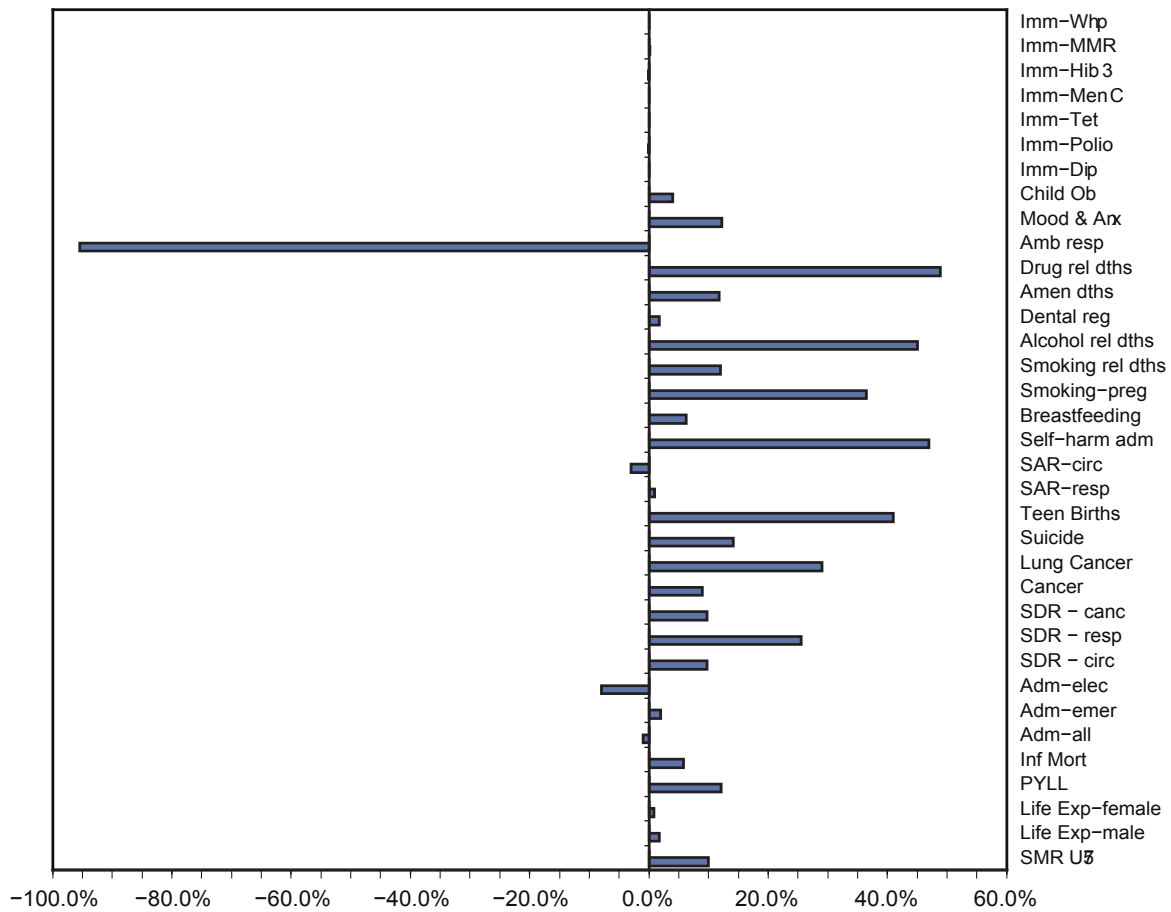
## 3.29 Ambulance response



Source: NI Ambulance Service / Project Support Analysis Branch

The improvement in ambulance response times in rural areas has been modest (6%) compared with the regional improvement (20%). This has meant that rural response times have increased relatively from being 67% higher in 2004 to 95% higher in 2008.

## 3.30 Inequality gaps – the relative rural position

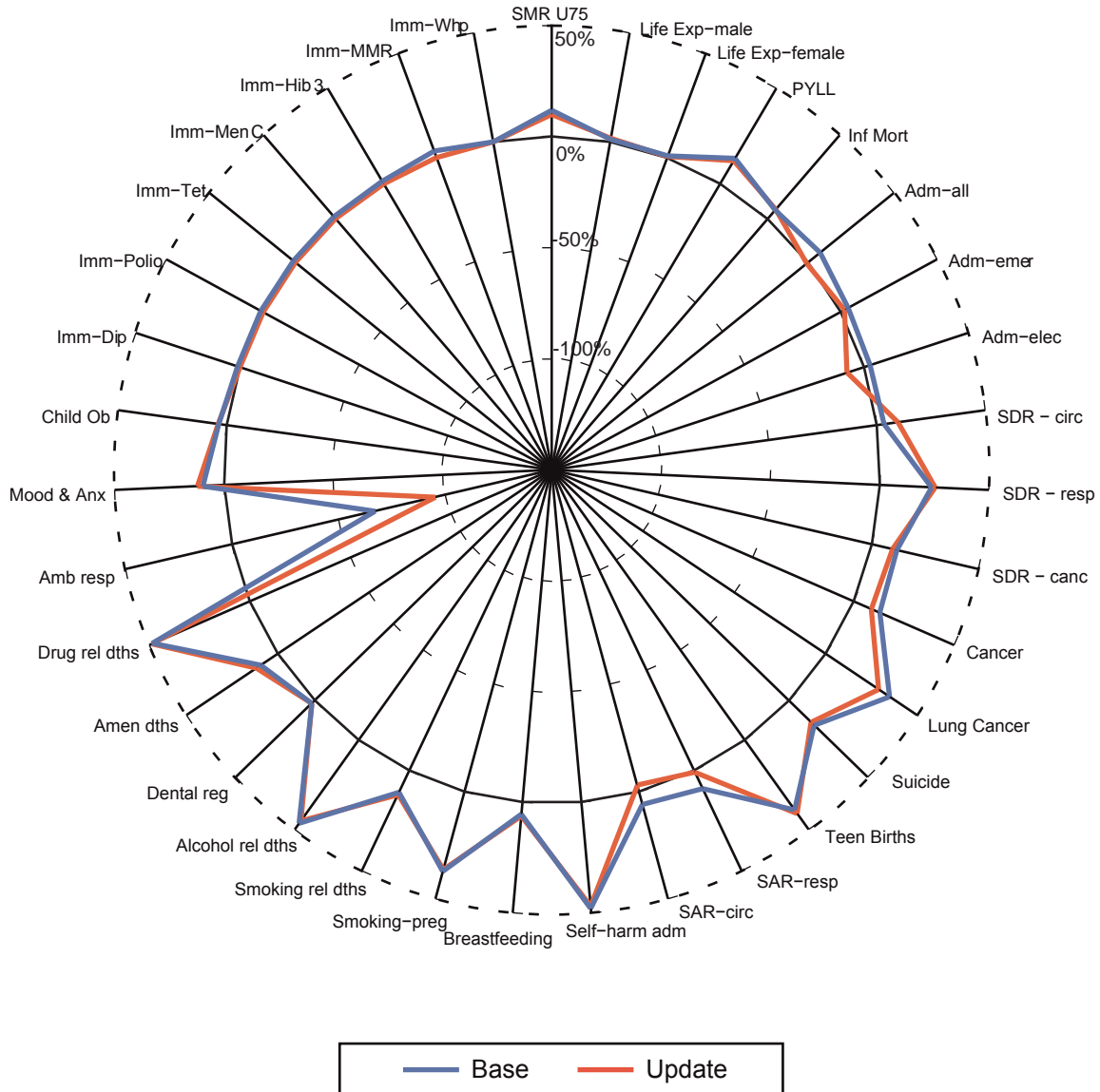


Generally, health outcomes in rural areas tend to be much better than in Northern Ireland as a whole (as illustrated in figure 3.30). This was most evident for drug related deaths, admissions to hospital for self-harm, alcohol related mortality, and teenage births. Rural areas also had considerably lower mortality due to respiratory disease and lung cancer incidence than that experienced in the wider region as well as a lower proportion of mothers that smoked during pregnancy. Conversely, rural areas fared worse than NI overall for ambulance response time (which was almost double the regional average) and experienced higher elective hospital admissions and hospital admissions for circulatory disease.

Figure 3.31 below shows the relative change in health inequalities between rural areas and NI as a whole since the baseline period. In general, while health inequalities are not as pronounced as the observed differences between deprived areas and NI (see figure 2.31), there are noticeable ongoing rural differences for many of the indicators. There has been little change in the rural gaps for many of the HSCIMS indicators. The gaps for all admissions to hospital as well as admissions for respiratory disease have all but virtually disappeared while there has been a relative narrowing of the gap for all cancer incidence rates and admission rates for circulatory diseases. In interpreting the relative increase in both circulatory and respiratory admissions in rural areas, consideration should be given to the fact that death rates for those diseases are lower in rural areas. This would seem to indicate worsening access in urban areas, where need would be generally greater.

Conversely, there has been a relative widening of the gap for ambulance response times (which has increased almost twice the regional average), circulatory mortality rates and elective hospital admissions (which has gone from being lower in rural areas than NI overall to higher). The gap in the estimated proportion that suffer from mood and anxiety disorders has also increased slightly.

## 3.31 Inequality gaps – the change in the relative rural position



## Appendix 1 - Indicator definitions and methodologies employed

A fuller outline of the overall Health and Social Care Inequalities Monitoring System (HSCIMS) is set out in the introduction to this report. Since the last update in 2007, there has been a revision in the methodology employed in the calculation of many of the indicators which was necessary in order to improve the robustness of indicators at the more disaggregated sub-regional level (new sub-regional analysis is due to be published later in 2009). Previously, many of the indicators were calculated using a population base relating to the middle year of the period being considered. Using the total number of person years lived during that period (or the total of the populations in each year under consideration) reduces the confidence intervals around directly standardised rates and also life expectancy estimates. This will allow firmer conclusions to be made at the sub-regional level where confidence intervals would obviously be wider than at regional level. The small area population used in this report follows the same methodology developed for the second update bulletin. Official small area population estimates will not be available from NISRA until early 2010.

### Standardisation methods used

Standardised death rates enable the comparison of death rates between populations with different age structures by relating them to a standard population. Many of the indicators included in this report have been standardised. This has been done using either the direct or indirect method.

**Direct Method** - A directly standardised rate is the overall death rate that would have prevailed in the standard population if it had experienced at each age the death rates of the population under study. Directly standardised rates can be used to compare disease and death rates across both areas and time. They can also be used to assess the relative burden of disease in a population. However directly standardised rates based on a small number of events may not be robust.

**Indirect Method** - This is an adjustment to the crude death rate of the standard population to account for the variation between the actual number of deaths in the population under study and the number of deaths which would have occurred if the population under study had experienced the age-specific death rates of the standard population. Unlike directly standardised rates, indirectly standardised rates give no idea of the actual burden of disease.

### Indicators

*Standardised Mortality Ratio (U75)* – A measure of how much more or less likely a person aged under 75 is to die in a geographic area compared with the Northern Ireland average, having taken account of the area's age and gender profile. The calculation of the SMR involves indirect standardisation i.e. calculating the ratio of observed deaths to expected deaths (the distribution of deaths if total number of deaths had occurred with the same age and gender distribution as in the 2001 Census).

*Life Expectancy* – The expected years of life at birth based on mortality patterns in the period in question. It is based on the average death rates over a three year period. The figures for NI quoted in this report may differ slightly (due to slight differences in the methodology involved) from the official figures calculated by the Government Actuary Department. The NI figures and life expectancy gap figures in this report should only be used for comparative purposes in conjunction with the deprived/non-deprived and rural/non-rural figures also published in this report.

*Potential Years of Life Lost* – This is a summary measure of premature mortality which provides an explicit way of weighting deaths occurring at younger ages, which are, a priori, preventable. The calculation of PYLL involves summing up deaths occurring at each age and multiplying this with the number of remaining years to live up to a selected age limit (in this case 75 years of age).

*Infant Mortality Rates* – The number of infant deaths per 1,000 live births in each area. Infant deaths relate to all deaths in the first year of life.

*Standardised Death Rate (U75) due to Circulatory disease* – This is calculated by standardising (using the direct method) the average death rate in Northern Ireland (over a five year period) due to circulatory disease to the 2001 Census.

*Standardised Death Rate (U75) due to Respiratory disease* – This was calculated using the same method as the SDR (U75) due to circulatory disease (see above).

*Standardised Death Rate (U75) due to Cancer* – This was calculated using the same method as the SDR (U75) due to circulatory disease (see above).

*Standardised Cancer Incidence Rates* – This is a measure of how much more (or less) likely an individual is to develop any cancer (or lung cancer separately) in a specific geographic area compared with the Northern Ireland average having taken into account the area's age and gender profile. This is standardised using the indirect method.

*Teenage Birth rates* – This is the number of births in an area to teenage mothers (i.e. between 13 and 19 years of age) expressed per 1,000 live births.

*Childhood Immunisation Rates* – the percentage of children receiving immunisation for Diphtheria (Dip), Polio, Tetanus (Tet), Pertussis/Whooping cough (Whp), Haemophilus Influenzae Type b (Hib 3), Meningitis C (MenC), Measles, Mumps and Rubella (MMR) and Pneumococcal (PCV) before reaching their second birthday.

*Standardised Dental Registration Rates* - This is a measure of how much more (or less) likely an individual is to be registered with a dentist in a specific geographic area compared with the Northern Ireland average having taken into account the area's age and gender profile. This is standardised using the indirect method.

*Standardised Admission Rates to hospital* - A measure of how much more (or less) likely an individual is to be admitted to an acute hospital in a geographic area compared with the Northern Ireland average having taken into account the area's age and gender profile. This is standardised using the indirect method and is calculated for all admissions, emergency admissions only and elective admissions only (it should be noted that elective admissions also include daycases but exclude regular day and night admissions).

*Respiratory and Circulatory Admissions to hospital* – This is a comparison of both the circulatory and respiratory disease admission rates in an area with Northern Ireland as a whole. This comparison takes account of the different age-sex profiles in different areas. Three years have been aggregated to provide robust results and results are standardised using the indirect method.

*Breastfeeding on discharge from hospital* – Information on the proportion of mothers that were breastfeeding their child on discharge from hospital extracted from the Child Health System. The figures include mothers that were breastfeeding their child but also using complementary feeding as well.

*Smoking during pregnancy* – This is the proportion of all live births that were to mothers that reported smoking during pregnancy (taken from the Child Health System). As this indicator is self-reported, it is likely it will be subject to a degree of under-reporting.

**Table A1.1: Causes of deaths attributable to smoking**

Cause of Death	ICD10	Men	Women
		Attributable Percentage	Attributable Percentage
<b>Cancer</b>			
Lung	C33 - C34	90%	79%
Upper Respiratory	C32, C14.0	77%	58%
Oesophagus	C15	70%	72%
Bladder	C67	49%	20%
Kidney	C64	41%	7%
Stomach	C16	35%	10%
Pancreas	C25	26%	30%
Unspecified site	C80	33%	7%
Myeloid Leukaemia	C92	19%	10%
<b>Respiratory</b>			
Chronic obstructive lung disease	J44	87%	83%
Pneumonia 35-64	J18	33%	53%
Pneumonia 65+	J18	23%	13%
<b>Circulatory</b>			
Ischaemic heart disease 35-54	120-125	55%	63%
Ischaemic heart disease 55-64	120-125	41%	36%
Ischaemic heart disease 65-74	120-125	25%	18%
Ischaemic heart disease 75+	120-125	09%	5%
Cerebrovascular disease 35-54	160-169	56%	53%
Cerebrovascular disease 55-64	160-169	33%	38%
Cerebrovascular disease 65-74	160-169	16%	31%
Cerebrovascular disease 75+	160-169	4%	2%
Aortic Aneurysm	171	64%	66%
Myocardial Degeneration	151.5	27%	18%
Atherosclerosis	170	21%	21%
<b>Digestive</b>			
Stomach/Duodenum Ulcer	K25-26	53%	59%
<b>Diseases Prevented by Smoking</b>			
Parkinson's disease	G20	-51%	-30%
Endometrial cancer	C54	NA	-16%

Source: NISRA

*Standardised Death Rate due to smoking related causes* – This was calculated using the same standardisation method as the SDR (U75) due to circulatory disease (see above). The proportion of each cause of death that can be attributed to smoking is set out in table A1.1 above e.g. it is assumed that smoking accounts for 90% of male lung cancer deaths.

*Standardised Death Rate due to alcohol related causes* – This was calculated using the same standardisation method as the SDR (U75) due to circulatory disease (see above). The causes of death that are attributable are set out in table A1.2 below.

**Table A1.2: Causes of deaths attributable to alcohol**

ICD-10 Underlying Cause Code	Description
F10	Mental and Behavioural disorders due to use of alcohol
G31.2	Degeneration of the nervous system due to alcohol
G62.1	Alcoholic polyneuropathy
I42.6	Alcoholic cardiomyopathy
K29.2	Alcoholic gastritis
K70	Alcoholic liver disease
K73	Chronic hepatitis, not elsewhere classified
K74	Fibrosis and cirrhosis of liver (Excluding K74.3-K74.5-Biliary cirrhosis)
K86.0	Alcohol induced chronic pancreatitis
X45	Accidental poisoning by and exposure to alcohol
X65	Intentional self-poisoning by and exposure to alcohol
Y15	Poisoning by and exposure to alcohol, undetermined intent

*Standardised Death Rate due to drug related causes* – This was calculated using the same standardisation method as the SDR (U75) due to circulatory disease (see above). Table A1.3 below gives further details of the causes of deaths that are considered to be drug related.

**Table A1.3: ICD10 codes relating to drug related deaths**

ICD-10 Underlying Cause Code	Description
F11-F16, F18-F19	Mental and behavioural disorders due to drug use (excluding alcohol and tobacco)
X40-X44	Accidental poisoning by drugs, medicaments and biological substances
X60-X64	Intentional self-poisoning by drugs, medicaments and biological substances
X85	Assault by drugs, medicaments and biological substances
Y10-Y14	Poisoning by drugs, medicaments and biological substances, undetermined intent

*Standardised Death Rate for death amenable to healthcare* – This was calculated using the same standardisation method as the SDR (U75) due to circulatory disease (see above). The various causes of deaths (ICD-10 classification) and associated age bands considered to be amenable to medical intervention are set out in table A1.4 below. Half of the deaths due to Ischaemic Heart Disease are assumed to be amenable to medical intervention.

**Table A1.4 Causes of death considered amenable to health care**

<b>Cause of death</b>	<b>Age</b>	<b>International Classification of diseases 10th revision</b>
Intestinal Infections	0-14	A00-9
Tuberculosis	0-74	A15-9, B90
Other Infections (diphtheria, tetanus, poliomyelitis)	0-74	A36, A35, A80
Whooping cough		A37
Septicaemia	0-74	A40-41
Measles		B05
Malignant Neoplasm of colon and rectum	0-74	C18-21
Malignant Neoplasm of skin	0-74	C44
Malignant Neoplasm of breast	0-74	C50
Malignant Neoplasm of cervix uteri	0-74	C53
Malignant Neoplasm of cervix uteri and body of uterus	0-44	C54, C55
Malignant Neoplasm of testis	0-74	C62
Hodgkin's disease	0-74	C81
Leukaemia	0-44	C91-5
Diseases of the thyroid	0-74	E00-7
Diabetes mellitus	0-49	E10-4
Epilepsy	0-74	G40-1
Chronic rheumatic heart disease	0-74	I05-9
Hypertensive disease	0-74	I10-3, I15
Cerebrovascular disease	0-74	I60-9
All respiratory diseases (excluding pneumonia and influenza)		J00-9, J20-99
Influenza	0-74	J10-11
Pneumonia	0-74	J12-8
Peptic ulcer	0-74	K25-7
Appendicitis	0-74	K35-8
Abdominal hernia	0-74	K40-6
Cholelithiasis and cholecystitis	0-74	K80-1
Nephritis and nephrosis	0-74	N00-7, N17-9, N25-7
Benign prostatic hyperplasia	0-74	N40
Maternal death	All	O00-99
Congenital cardiovascular anomalies	0-74	O20-8
Perinatal deaths, all causes, excluding stillbirths	All	P00-96, A33
Misadventures to patients during surgical and medical care	All	Y60-9, Y83-4
Ischaemic heart disease*	0-74	I20-5

Source: Nolte and McKee (2003)

\* Only 50% of IHD deaths are added to the deaths that are amenable to health care total.

*Suicide Rates* – The average five year crude suicide rate has been calculated for both the most deprived and rural areas and compared with the overall NI rate. Data for five years have been aggregated in order to provide robust results. The suicide rates are not age standardised as, previously, it was found to make little or no difference to results whilst introducing a large confidence interval.

*Standardised admission rates for self-harm* – A comparison of the admission rate for self-harm in an area to Northern Ireland as a whole. This comparison takes account of the different age-sex profiles in different areas. Data for five years have been aggregated to provide robust results. This indicator was developed to complement the suicide information. However it does not provide a complete picture of the problem of self-harm (or parasuicide) as in many instances, self-harm does not result in admission to hospital.

*Mood and Anxiety disorders* - The number of individuals suffering from mood or anxiety disorders is estimated using prescription data broken down by GP practice. From the volume of anxiolytic and anti-depressant drugs prescribed in each practice, the number of patients taking this medication can be estimated. These data are then attributed to geographical area using the practice list.

*Childhood Obesity* – This information is extracted from the Child Health System. The information currently only relates to the height and weight information of Primary 1 pupils (who were aged between 54 and 66 months at the time of measurement). The height and weight information is converted into a Body Mass Index (BMI) score for each pupil. The BMI can be categorised using International Growth Charts allowing those who are either overweight or obese to be identified. Area is dictated by the location of the school and not the home postcode of the child. Deprived areas are identified as the areas with the 20% highest free school meal entitlement in 2007/08.

*Ambulance response times* - The time taken by the first ambulance to respond to each incident is used as the basis of the analysis. The median i.e. midpoint value is reported rather than the simple average as it is unaffected by atypically long or short response times.

## Appendix 2 - Confidence Intervals and statistical significance

A number of the indicators included in this report have been age standardised to remove the effects of differences in population structure between areas and across time. The process of standardisation, in applying the demographic structure in one year to other years, or from one area to another introduces a degree of uncertainty around resultant estimates. As a way of quantifying this uncertainty, a 95% confidence interval is calculated. More events lead to a smaller confidence interval. Crude rates (i.e. not standardised) are not usually subject to statistical error, however in these instances, the effects of changes in demographic structure have not been controlled for.

**Table A2.1: Size of 95% confidence limits associated with most up-to-date results for latest indicators**

	Deprived	Rural	Northern Ireland
SMR – under 75	2.3%	2.1%	NA
Life Expectancy at birth – Male	0.6%	0.4%	0.2%
Life Expectancy at birth – Female	0.5%	0.3%	0.2%
SAR to hospital – all admissions	0.9%	0.7%	NA
SAR to hospital – emergency admissions	1.0%	0.9%	NA
SAR to hospital – elective admissions	1.6%	1.3%	NA
SDR (under 75) – circulatory disease	4.4%	4.2%	2.4%
SDR (under 75) – respiratory disease	7.1%	7.9%	4.1%
SDR (under 75) – cancer	3.9%	3.5%	1.9%
Cancer incidence rates	1.7%	1.3%	NA
Lung cancer incidence rates	4.5%	4.9%	NA
SAR to hospital – respiratory disease	1.3%	1.2%	NA
SAR to hospital – circulatory disease	1.6%	1.2%	NA
Admissions to hospital for self-harm	2.0%	3.0%	NA
Smoking related deaths	3.5%	3.3%	1.8%
Alcohol related deaths	8.6%	12.8%	5.6%
Drug related deaths	11.6%	21.7%	11.1%
Deaths amenable to healthcare	4.4%	4.0%	2.2%
Dental Registrations	0.4%	0.4%	NA
Childhood Obesity <sup>7</sup>	3.9%	4.0%	2.6%

Table A2.1 above sets out the confidence intervals around the various (directly or indirectly) standardised indicators included in this report. In this instance, they have been reported in proportionate terms due to the differences in the scales that are associated with the various indicators. The key to establishing whether an observed difference between two geographical units or a change over time in one area is real, and not perhaps due to statistical error, is to ensure that the confidence intervals around the figures being compared do not overlap. If they do overlap then the observed difference is not statistically significant and it would be assumed that there is no real difference.

<sup>7</sup> Confidence intervals for childhood obesity are calculated as there is an element of non-response in any given year which will introduce a degree of uncertainty around obesity estimates. The intervals were calculated using the Wilson Score Method with a Finite Population Correction applied.

**Worked examples**

(a) Alcohol related deaths: comparison of deprived areas with NI overall (2008)

Deprived rate: 31.4 deaths per 100,000 population

Confidence interval (%): +/- 8.6%

Confidence interval (standardised death rate): 28.7 – 34.1 deaths per 100,000 population

NI rate: 14.2 deaths per 100,000 population

Confidence interval (%): +/- 5.6%

Confidence interval (standardised death rate): 13.4 – 15.0 deaths per 100,000 population

As there is no overlap between the respective confidence intervals for deprived areas and NI, then the observed difference is statistically significant and therefore considered a real change.

(b) Standardised Mortality Ratio: comparison of SMR in rural areas over time

Rural rate (2001): 87.9

Confidence interval (%): +/- 2.0%

Confidence interval (standardised mortality ratio): 86.1 – 89.7

Rural rate (2008): 89.6

Confidence interval (%): +/- 2.1%

Confidence interval (standardised mortality ratio): 87.7 – 91.5

The respective confidence intervals in this case clearly overlap so the observed difference is not statistically significant and therefore not considered a real change.

However when considering whether a standardised indicator has either increased (or decreased if the series is declining) over time, even if the observed difference between the start and the end date is not statistically significant, the probability of having five or six successive values, each higher (or each lower if the series is decreasing) than the previous value is relatively low.

Statistical error, obviously, also has an effect when comparing inequality gaps over time. Using the upper and lower limits of the figures that are being compared, it is possible to assign a range or proxy confidence interval around gaps. For example, in worked example (a) above, the observed gap for alcohol related deaths is 121%. However if the true death rate in deprived areas was the lower confidence limit (28.7 deaths per 100,000 population) and the true NI rate was the upper confidence limit (15.0 deaths per 100,000 population) then the gap could be as low as 91%. Conversely, if the opposite were actually the case, then the gap could be as high as 154%. This method makes it possible to establish whether a change in the observed gap over time is likely to be real or not.

## Appendix 3 – Data tables

**Table A3.1: Standardised Mortality Ratios for persons aged under 75 by deprivation and rurality classification**

	2001			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	146	139	143	142	136	140
Non-deprived areas	89	90	90	90	91	90
Rural	88	88	88	89	91	90
Urban	107	106	106	106	104	105
NI	100	100	100	100	100	100

Source: General Register Office / Project Support Analysis Branch

**Table A3.2: Life expectancy (years) by deprivation and rurality classification**

	2001		2008 <sup>P</sup>	
	Male	Female	Male	Female
Deprived areas	70.8	77.0	72.0	78.7
Non-deprived areas	75.9	80.5	77.5	81.9
Rural	75.8	80.5	77.7	81.9
Urban	74.3	79.4	75.7	80.9
NI	74.8	79.8	76.4	81.3

Source: General Register Office / Project Support Analysis Branch

**Table A3.3: Potential years of life lost per 100 persons by deprivation and rurality classification**

	2001			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	11.2	6.4	8.7	11.5	5.9	8.6
Non-deprived areas	6.5	4.0	5.3	6.4	3.9	5.1
Rural	6.5	3.9	5.2	6.4	3.8	5.1
Urban	8.0	4.8	6.4	7.9	4.6	6.2
NI	7.5	4.5	6.0	7.3	4.3	5.8

Source: General Register Office / Project Support Analysis Branch

**Table A3.4: Infant mortality rates per 1,000 live births by deprivation and rurality classification**

	2001	2008 <sup>P</sup>
Deprived areas	7.5	5.9
Non-deprived areas	5.2	5.0
Rural	5.4	4.9
Urban	5.9	5.4
NI	5.7	5.2

Source: General Register Office / Project Support Analysis Branch

**Table A3.5: Age Standardised death rates per 100,000 population (under 75s) due to circulatory disease by deprivation and rurality classification**

	2001			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	237.1	128.2	180.5	162.1	87.6	124.1
Non-deprived areas	161.3	83.5	122.1	98.4	52.3	75.8
Rural	168.0	87.1	129.2	99.1	51.1	76.6
Urban	180.3	95.1	135.9	116.3	63.2	89.3
NI	175.8	92.5	133.5	110.0	59.1	84.8

Source: General Register Office / Project Support Analysis Branch

**Table A3.6: Age Standardised death rates per 100,000 population (under 75s) due to respiratory disease by deprivation and rurality classification**

	2001			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	72.2	54.1	62.7	51.7	38.5	45.1
Non-deprived areas	37.4	30.0	33.7	25.8	19.8	22.9
Rural	34.7	25.0	30.1	22.5	17.3	20.2
Urban	49.3	39.5	44.1	35.2	26.6	30.8
NI	44.2	34.9	39.5	30.6	23.5	27.1

Source: General Register Office / Project Support Analysis Branch

**Table A3.7: Age Standardised death rates per 100,000 population (under 75s) due to cancer by deprivation and rurality classification**

	2001			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	197.0	156.4	175.8	171.4	139.7	155.5
Non-deprived areas	128.7	112.3	120.4	117.3	102.2	110.2
Rural	121.4	109.6	116.0	110.9	101.6	107.2
Urban	153.1	126.8	139.2	136.7	113.3	124.9
NI	142.0	121.1	131.3	127.3	109.4	118.7

Source: General Register Office / Project Support Analysis Branch

**Table A3.8: Age standardised death rate (per 100,000 persons) for drug related causes by deprivation and rurality classification**

	2005			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	9.2	4.9	6.9	12.2	7.3	9.6
Non-deprived areas	3.0	1.9	2.5	4.1	2.7	3.3
Rural	1.8	1.6	1.7	2.6	2.0	2.3
Urban	5.4	3.0	4.2	7.2	4.4	5.7
NI	4.1	2.5	3.3	5.5	3.6	4.5

Source: General Register Office / Project Support Analysis Branch

**Table A3.9: Age standardised death rate (per 100,000 persons) for smoking related causes by deprivation and rurality classification**

	2005			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	241.2	144.1	189.7	235.8	143.0	186.9
Non-deprived areas	147.3	85.5	115.7	144.0	83.0	112.4
Rural	142.3	81.4	115.6	135.2	79.5	111.1
Urban	173.0	104.0	137.0	169.9	100.9	134.1
NI	161.9	96.7	129.6	157.3	94.0	126.2

Source: General Register Office / Project Support Analysis Branch

**Table A3.10: Age standardised death rate (per 100,000 persons) for alcohol related causes by deprivation and rurality classification**

	2005			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	42.2	16.4	28.6	46.4	17.9	31.4
Non-deprived areas	12.5	6.6	9.4	14.4	6.6	10.4
Rural	8.9	4.8	6.9	11.0	4.5	7.8
Urban	22.7	10.3	16.2	25.2	10.9	17.7
NI	17.6	8.4	12.9	19.9	8.7	14.2

Source: General Register Office / Project Support Analysis Branch

**Table A3.11: Age standardised death rate (per 100,000 persons) for amenable causes by deprivation and rurality classification**

	2005			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	143.6	114.0	128.4	133.3	101.9	117.1
Non-deprived areas	88.6	73.1	85.6	77.9	67.1	77.1
Rural	89.9	78.6	84.8	78.0	70.3	74.6
Urban	110.0	87.7	98.5	99.6	80.9	89.9
NI	102.6	84.6	93.7	91.7	77.3	84.6

Source: General Register Office / Project Support Analysis Branch

**Table A3.12: Standardised incidence rates (SIRs) of cancer by deprivation and rurality classification**

	1999			2006		
	Male	Female	All	Male	Female	All
Deprived areas	122	118	120	107	111	109
Non-deprived areas	95	95	95	98	97	98
Rural	92	82	87	95	87	91
Urban	104	113	109	103	106	104
NI	100	100	100	100	100	100

Source: Northern Ireland Cancer Registry / Project Support Analysis Branch

**Table A3.13: Standardised incidence rates (SIRs) of lung cancer by deprivation and rurality classification**

	1999			2006		
	Male	Female	All	Male	Female	All
Deprived areas	175	192	181	158	176	165
Non-deprived areas	83	79	82	87	83	86
Rural	71	55	65	77	62	71
Urban	116	124	119	112	120	115
NI	100	100	100	100	100	100

Source: Northern Ireland Cancer Registry / Project Support Analysis Branch

**Table A3.14: Birth rates to teenage mothers (births per 1,000 females aged 13-19) by deprivation and rurality classification**

	2001	2008 <sup>P</sup>
Deprived areas	32.5	29.8
Non-deprived areas	12.3	12.8
Rural	10.3	9.8
Urban	20.4	20.1
NI	16.9	16.6

Source: General Register Office / Project Support Analysis Branch

**Table A3.15(a): Immunisation take up rates (%) by deprivation and rurality classification – 2004/05**

	2004/05						
	Diphtheria	Polio	Tetanus	Pertussis	Hib	MenC	MMR
Deprived areas	95.2%	95.2%	95.2%	93.7%	94.5%	94.2%	88.0%
Non-deprived areas	97.8%	97.8%	97.8%	93.2%	97.4%	97.1%	94.0%
Rural	98.2%	98.2%	98.2%	93.3%	98.0%	97.8%	95.9%
Urban	96.6%	96.6%	96.6%	93.3%	96.0%	95.7%	90.7%
NI	97.3%	97.3%	97.3%	93.3%	96.8%	96.5%	92.8%

Source: Child Health System / Project Support Analysis Branch

**Table A3.15(b): Immunisation take up rates (%) by deprivation and rurality classification – 2007/08**

	2007/08							
	Diphtheria	Polio	Tetanus	Pertussis	Hib	MenC	MMR	PCV
Deprived areas	98.3%	98.3%	98.3%	98.3%	97.8%	96.5%	92.3%	79.2%
Non-deprived areas	98.2%	98.1%	98.2%	98.2%	97.6%	96.7%	92.0%	78.5%
Rural	98.1%	98.1%	98.1%	98.1%	97.6%	96.7%	92.3%	78.4%
Urban	98.2%	98.2%	98.2%	98.2%	97.6%	96.7%	92.0%	78.8%
NI	98.2%	98.1%	98.2%	98.2%	97.6%	96.7%	92.1%	78.7%

Source: Child Health System / Project Support Analysis Branch

**Table A3.16: Standardised dental registration rates by deprivation and rurality classification**

	June 2003			June 2009		
	Male	Female	All	Male	Female	All
Deprived areas	84	86	85	87	91	89
Non-deprived areas	104	104	104	103	102	103
Rural	101	102	102	102	102	102
Urban	99	99	99	99	99	99
NI	100	100	100	100	100	100

Source: Business Services Organisation / Project Support Analysis Branch

**Table A3.17: Standardised hospital admission rates by deprivation and rurality classification**

		2001/02			2008/09 <sup>P</sup>		
		Male	Female	All	Male	Female	All
All inpatient admissions	Deprived areas	130	126	128	119	111	115
	Non-deprived areas	93	93	93	95	97	96
	Rural	93	94	93	98	103	101
	Urban	104	103	103	101	99	100
	NI	100	100	100	100	100	100
Emergency admissions	Deprived areas	142	133	137	129	118	123
	Non-deprived areas	90	92	91	93	95	94
	Rural	90	102	96	96	100	98
	Urban	105	99	102	102	100	101
	NI	100	100	100	100	100	100
Elective admissions	Deprived areas	107	111	109	100	97	98
	Non-deprived areas	98	97	98	100	101	100
	Rural	97	98	97	106	110	108
	Urban	102	101	101	97	96	96
	NI	100	100	100	100	100	100

Source: Hospital Inpatients System / Project Support Analysis Branch

**Table A3.18: Standardised hospital admission rates for respiratory and circulatory diseases by deprivation and rurality classification**

		2001/02			2008/09 <sup>P</sup>		
		Male	Female	All	Male	Female	All
Respiratory	Deprived areas	132	141	136	125	124	124
	Non-deprived areas	92	89	91	94	94	94
	Rural	94	88	91	99	98	99
	Urban	103	106	105	100	101	101
	NI	100	100	100	100	100	100
Circulatory	Deprived areas	119	118	119	108	108	108
	Non-deprived areas	96	96	96	98	98	98
	Rural	92	96	94	101	108	103
	Urban	104	102	103	100	97	98
	NI	100	100	100	100	100	100

Source: Hospital Inpatients System / Project Support Analysis Branch

**Table A3.19: Crude suicide rate by deprivation and rurality classification**

	2001			2008 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	25.4	6.1	15.3	36.9	10.9	23.3
Non-deprived areas	12.6	3.2	7.8	17.1	5.2	11.1
Rural	12.0	3.5	7.8	18.2	4.7	11.6
Urban	16.9	4.0	10.1	22.4	7.2	14.5
NI	15.1	3.8	9.3	20.9	6.3	13.5

Source: General Register Office / Project Support Analysis Branch

**Table A3.20: Standardised hospital admission rates for self-harm by deprivation and rurality classification**

	2003/04			2008/09 <sup>P</sup>		
	Male	Female	All	Male	Female	All
Deprived areas	238	188	208	217	176	194
Non-deprived areas	68	75	72	72	79	76
Rural	51	53	52	52	55	53
Urban	126	124	125	126	123	124
NI	100	100	100	100	100	100

Source: Hospital Inpatients System / Project Support Analysis Branch

**Table A3.21: Estimated proportion of people suffering from mood or anxiety disorders based on prescribing information by deprivation and rurality classification**

	2004	2008
Deprived areas	10.7%	13.2%
Non-deprived areas	8.8%	11.0%
Rural	8.3%	10.1%
Urban	9.7%	12.2%
NI	9.2%	11.5%

Source: Business Services Organisation / Project Support Analysis Branch

**Table A3.22: Proportion of Primary 1 pupils that are either overweight or obese by deprivation and rurality classification**

		2004/05			2007/08		
		Male	Female	All	Male	Female	All
Obese	Deprived areas	4.9%	7.2%	6.0%	4.8%	6.5%	5.6%
	Non-deprived areas	4.6%	5.7%	5.1%	4.2%	5.3%	4.7%
	Rural	4.7%	5.8%	5.2%	4.2%	5.4%	4.8%
	Urban	4.7%	6.5%	5.5%	4.5%	5.7%	5.1%
	NI	4.7%	6.2%	5.4%	4.4%	5.6%	5.0%
Overweight	Deprived areas	14.7%	17.1%	15.9%	13.3%	17.0%	15.1%
	Non-deprived areas	14.2%	18.7%	16.3%	13.5%	17.6%	15.5%
	Rural	14.7%	20.0%	17.2%	14.8%	18.5%	16.7%
	Urban	14.2%	17.0%	15.5%	12.7%	16.8%	14.7%
	NI	14.4%	18.2%	16.2%	13.5%	17.4%	15.4%
Overweight or Obese	Deprived areas	19.6%	24.3%	21.9%	18.1%	23.4%	20.7%
	Non-deprived areas	18.7%	24.4%	21.5%	17.7%	22.9%	20.2%
	Rural	19.3%	25.8%	22.5%	19.0%	24.0%	21.5%
	Urban	18.9%	23.5%	21.1%	17.2%	22.5%	19.8%
	NI	19.0%	24.4%	21.6%	17.8%	23.0%	20.4%

Source: Child Health System/ Project Support Analysis Branch

**Table A3.23: Median ambulance response times (minutes) by deprivation and rurality classification**

	2004	2008
Deprived areas	6.9	5.6
Non-deprived areas	8.7	7.4
Rural	13.7	12.9
Urban	7.1	5.8
NI	8.2	6.6

Source: Northern Ireland Ambulance Service / Project Support Analysis Branch

**Table A3.24: Percentage of mothers smoking at time of birth by deprivation and rurality classification**

	2005	2008
Deprived areas	37.5%	31.4%
Non-deprived areas	15.7%	14.1%
Rural	12.8%	11.3%
Urban	24.7%	24.9%
NI	20.4%	17.8%

Source: Child Health System/ Project Support Analysis Branch

**Table A3.25: Percentage of mothers breastfeeding at time of discharge by deprivation and rurality classification**

	2005	2008
Deprived areas	25.7%	29.0%
Non-deprived areas	44.5%	43.6%
Rural	42.7%	43.1%
Urban	39.1%	38.9%
NI	40.4%	40.4%

Source: Child Health System/ Project Support Analysis Branch