Deprivation in Dumfries & Galloway:
The Scottish Index of Multiple Deprivation 2009 V2

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Executive Summary

This paper describes the distribution of deprivation in Dumfries and Galloway using the latest version of the Scottish Index of Multiple Deprivation, the SIMD09. Using this standard measure of deprivation we see there are now 19 datazones classified as being in the most deprived 20% of Scottish datazones, which accounts for 14,206 of our residents. There are three datazones which have moved into the most deprived quintile in this release of the SIMD; one in Stranraer and two in Dumfries.

Analysis shows that the most deprived areas now include 21.3% of income-deprived and 20.8% of employment-deprived people in the region. The large majority of income or employment-deprived people still live outwith the recognised areas of relative deprivation.

The remainder of this paper describes a range of health and social data that have been used to demonstrate gradients in health outcomes across Dumfries and Galloway.

1. Introduction

This report gives a brief overview of some of the ideas that underpin the concept of deprivation and some information about how the latest Scottish Index of Multiple Deprivation is derived and used. There follows a series of maps, tables and charts showing the current health gradients across the deprivation bands in Dumfries and Galloway.

The Scottish Index of Multiple Deprivation 2009 (SIMD09) was published by the Scottish Government in October 2009. As the methodology has been refined from the previous release (SIMD06), this report aims to highlight the changes since then and to demonstrate that inequalities still exist across most measurable health outcomes.

Due to small changes in data sources and improvements to indicators and methodology, the overall SIMD scores in most domains are not directly comparable in absolute terms with those in SIMD06, except for the Employment Domain. Therefore it is advised that comparisons between SIMD06 and SIMD09 should only relate to the relative movement of datazone ranks, for example in to and out of the 15% most deprived areas in Scotland. The only domain that is directly comparable between this version and the previous one is the Employment Domain and, as such, this domain is used by the Scottish Government for analysis of absolute change. Details on comparing individual indicators are given in the SIMD technical report.

The health and social data used to demonstrate gradients in health outcomes for Dumfries and Galloway were aggregated from data available at datazone level from Scottish Neighbourhood Statistics. This is the central source of information gathered from several agencies, including the General Register Office for Scotland (GROS) and Information Services Division (ISD). These data are updated regularly and are available from the Health Intelligence Unit or the Scottish Neighbourhood Statistics web site http://www.sns.gov.uk/.
2. About Deprivation

Deprivation and poverty have often been seen as interchangeable when it comes to providing targeted services for the health service. However, deprivation is a concept that overlaps with, but is not identical to, poverty. The work of Townsend showed that a broad range of factors contribute to deprivation, and that people can be said to be deprived if they “lack the types of diet, clothing, housing, household facilities, fuel, and environmental, educational, working and social conditions activities and facilities that are customary in society”.  

Despite the fact that absolute poverty is rare in Scotland, the most deprived sections of society are still much worse off than the rest of the general population. The latest data on life expectancy published by the General Register Office for Scotland for the period 2006 – 2008 shows that there is a difference in total life expectancy between the most deprived local authority in Scotland (Glasgow City) and the least deprived. For males life expectancy at birth was 70.7 years in Glasgow City and 78.0 years in East Dunbartonshire, a difference of 7.3 years. For women life expectancy at birth was 77.2 years in Glasgow City and 82.5 years in East Dunbartonshire, a difference of 5.3 years. 

In general, levels of deprivation in Dumfries and Galloway are lower than for many urban areas of Scotland. However, there are still pockets of deprivation and measurable differences in the levels of morbidity and mortality between the top and bottom scoring neighbourhoods, which are shown using bar charts for a range of health outcomes later in the report.

3. Measuring Deprivation

There are two ways of measuring deprivation: the first is by measures that relate to defined geographical areas, and the second is by measures relating to individuals. The individual approach tends to take a narrow focus on factors such as socio-economic class, income and education. By comparison area-based measures take a wider approach and include measures relating to a broad range of life circumstances including the physical environment and access to services.

One of the limitations of using deprivation scores to make decisions about the targeting of services is due to the way that deprivation is measured. Area-based indicators identify the neighbourhoods with the largest proportion of deprived individuals, but will overlook the many deprived individuals who are simply living in an area where they are outnumbered by their more advantaged neighbours. Individual-based indicators may allow a more focussed impact on health inequalities, but are much more difficult to measure, can seem intrusive to collect and don’t help us to plan community level regeneration and health initiatives.

When using deprivation scores it is important not to make sweeping generalisations about the people who live in deprived areas as being ‘deprived’. Not all residents of these areas demonstrate the health inequalities and lifestyle factors observed in these areas on average. Another risk is the possible tendency to stigmatise areas identified as most deprived.
4. Scottish Index of Multiple Deprivation 2009

The SIMD09 uses nationally available data at datazone level, which is the same geography used in the SIMD06. However whilst the boundaries and geographic size of each datazone have remained constant between versions, the population’s gender and age distribution may have changed over time.

The SIMD09 is made up of seven domains using 38 indicators gathered from a range of regularly collected information, such as unemployment figures, benefit uptake, emergency hospital admissions and attainment at school. These are weighted, with the greatest emphasis given to the income and employment domains. Figure 1 shows the domains in the proportions used to construct the SIMD09. There has been no change in the weighting since SIMD06. A full list of the indicators within each domain is shown in Appendix 1.

Figure 1: Pie Chart Showing Domains Used to Construct the SIMD2009

![Pie Chart Showing Domains Used to Construct the SIMD2009](image)

Source: Scottish Government

The 20% of Scottish datazones with the lowest scores are defined as being the most deprived (quintile 1) and the 20% of Scottish datazones with the highest scores are defined as being the least deprived (quintile 5). It should be noted that being in quintile 5 does not denote affluence as the indicators are not designed to measure this. The scores are relative and do not indicate the size of difference between areas. For example, a datazone with a rank of 50 is not twice as deprived as a datazone with a rank of 100.

Reports explaining in greater detail how the SIMD09 was constructed and tables for other health boards are available from the Scottish Government website. Other useful tools published with the SIMD09 tables include interactive maps and a postcode look-up table which allows individual addresses to be coded for deprivation, geography and rurality score.
5. Comparing SIMD06 with SIMD09

There are 193 datazones in Dumfries and Galloway, with a mean population size of 768. The SIMD09 calculates that Dumfries and Galloway has 19 datazones in the 20% most deprived in Scotland. This is equivalent to a 1.5% share of all the worst areas in Scotland. Using the GROS Small Area Population Estimates (SAPE) for 2007 we calculate that the number of people who live in these most deprived areas is approximately 14,206, equivalent to 9.6% of the population. By comparison, the SIMD06 had 16 datazones in the bottom 20%, with a population of 12,238 (8.3%) people. Therefore compared to 2006 nearly 1,968 more people across Dumfries and Galloway are now classified as deprived based on their home address.

Dumfries and Galloway also has 13 datazones that are ranked in the top 20% in Scotland, equivalent to a 1% share of the least deprived areas. In 2007 the number of people who live in these least deprived areas was estimated to be 10,254, equivalent to 6.9% of the population. This is a reduction of 865 people from the SIMD06.

Glasgow City still has the lion’s share of deprived datazones, with 26.8% of the worst areas falling within their boundaries (50.3% of all its datazones), slightly less than last measured. In contrast, the local authority with the most datazones classified as least deprived is Edinburgh City, with 18.8% of all the best areas falling within their boundaries. East Renfrewshire has the highest proportion of its datazones (63.3%) classified as least deprived, see Figure 2.

**Figure 2: Proportion of Datazones in Each SIMD09 Quintile for selected Local Authorities**

![Proportion of Datazones in Each SIMD09 Quintile](source)

Source: Scottish Government

The neighbourhood areas in Dumfries and Galloway that have been identified as having the most and least area-based deprivation using the SIMD09 are shown in table 1.
Table 1: Table of the Number of Most Deprived and Least Deprived Datazones by Local Health Partnership (changes in datazone numbers since SIMD06 in brackets)

<table>
<thead>
<tr>
<th>LHP</th>
<th>Most Deprived (19 datazones)</th>
<th>Least Deprived (13 datazones)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wigtownshire</td>
<td>Stranraer x 5 (+1)</td>
<td>Stranraer x 1 (+1)</td>
</tr>
<tr>
<td></td>
<td>Whithorn x 1</td>
<td></td>
</tr>
<tr>
<td>Stewartry</td>
<td>None</td>
<td>Farmland North of Dalbeattie,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Haugh of Urr x 1</td>
</tr>
<tr>
<td>Dumfries &amp; Upper</td>
<td>Dumfries x 6 North West (+1)</td>
<td>Dumfries x 2 Maxwelltown</td>
</tr>
<tr>
<td>Nithsdale</td>
<td>Dumfries x 3 Nithside, Town Centre (+1)</td>
<td>Dumfries x 5 Georgetown</td>
</tr>
<tr>
<td></td>
<td>Kirkconnel and Kelloholm x 3</td>
<td>Dumfries x 1 Marchmount</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Heathhall x 1</td>
</tr>
<tr>
<td>Annandale &amp; Eskdale</td>
<td>Annan x 1</td>
<td>Gretna x 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Annan x 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Langholm and Moffat no longer in Quintile 5)</td>
</tr>
</tbody>
</table>

The following tables show how the estimated population and number of income and employment deprived people compare from SIMD06 to SIMD09 for these areas. Note that while the number of people living in each datazone may have gone up or down, the estimated number of income deprived has gone up in almost every datazone. This is due to the inclusion of a new indicator using tax credit data to identify individuals in work with low incomes. This gives a more complete picture of income deprivation than was previously possible in the SIMD06.

Table 2: Table of Most Deprived Datazones with Comparative Populations SIMD06 vs. SIMD09

<table>
<thead>
<tr>
<th>Data Zone</th>
<th>Nearest town</th>
<th>Total Population (SAPE)</th>
<th>SIMD Rank 1 = most deprived</th>
<th>Population Income Deprived</th>
<th>Population Employment Deprived</th>
</tr>
</thead>
<tbody>
<tr>
<td>S01000899</td>
<td>Whithorn</td>
<td>838</td>
<td>830</td>
<td>747</td>
<td>983</td>
</tr>
<tr>
<td>S01000927</td>
<td>Stranraer</td>
<td>-</td>
<td>906</td>
<td>-</td>
<td>1246</td>
</tr>
<tr>
<td>S01000929</td>
<td>Stranraer</td>
<td>484</td>
<td>470</td>
<td>460</td>
<td>288</td>
</tr>
<tr>
<td>S01000930</td>
<td>Stranraer</td>
<td>803</td>
<td>772</td>
<td>90</td>
<td>225</td>
</tr>
<tr>
<td>S01000934</td>
<td>Stranraer</td>
<td>1004</td>
<td>978</td>
<td>906</td>
<td>957</td>
</tr>
<tr>
<td>S01000937</td>
<td>Stranraer</td>
<td>541</td>
<td>537</td>
<td>1008</td>
<td>1053</td>
</tr>
<tr>
<td>S01000965</td>
<td>Annan</td>
<td>683</td>
<td>642</td>
<td>751</td>
<td>650</td>
</tr>
<tr>
<td>S01000971</td>
<td>Annan</td>
<td>-</td>
<td>750</td>
<td>-</td>
<td>609</td>
</tr>
<tr>
<td>S01001014</td>
<td>Dumfries</td>
<td>819</td>
<td>823</td>
<td>553</td>
<td>371</td>
</tr>
<tr>
<td>S01001019</td>
<td>Dumfries</td>
<td>1012</td>
<td>987</td>
<td>520</td>
<td>1292</td>
</tr>
<tr>
<td>S01001028</td>
<td>Dumfries</td>
<td>-</td>
<td>776</td>
<td>-</td>
<td>493</td>
</tr>
<tr>
<td>S01001029</td>
<td>Dumfries</td>
<td>684</td>
<td>670</td>
<td>543</td>
<td>603</td>
</tr>
<tr>
<td>S01001032</td>
<td>Dumfries</td>
<td>696</td>
<td>655</td>
<td>950</td>
<td>617</td>
</tr>
<tr>
<td>S01001033</td>
<td>Dumfries</td>
<td>725</td>
<td>712</td>
<td>857</td>
<td>189</td>
</tr>
<tr>
<td>S01001034</td>
<td>Dumfries</td>
<td>869</td>
<td>925</td>
<td>182</td>
<td>978</td>
</tr>
<tr>
<td>S01001036</td>
<td>Dumfries</td>
<td>-</td>
<td>505</td>
<td>-</td>
<td>903</td>
</tr>
<tr>
<td>S01001037</td>
<td>Dumfries</td>
<td>843</td>
<td>813</td>
<td>1146</td>
<td>1210</td>
</tr>
<tr>
<td>S01001086</td>
<td>Kirkconnel</td>
<td>718</td>
<td>729</td>
<td>1190</td>
<td>1024</td>
</tr>
<tr>
<td>S01001087</td>
<td>Kirkconnel</td>
<td>511</td>
<td>507</td>
<td>1006</td>
<td>1201</td>
</tr>
<tr>
<td>S01001088</td>
<td>Kirkconnel</td>
<td>1008</td>
<td>969</td>
<td>1258</td>
<td>983</td>
</tr>
</tbody>
</table>
### Table 3: Table of Least Deprived Datazones with Comparative Populations SIMD06 vs. SIMD09

<table>
<thead>
<tr>
<th>Data Zone</th>
<th>Nearest town</th>
<th>Total Population (SAPE)</th>
<th>SIMD Rank 6505 = least deprived</th>
<th>Population Income Deprived</th>
<th>Population Employment Deprived</th>
</tr>
</thead>
<tbody>
<tr>
<td>S01000943</td>
<td>Stranraer</td>
<td>-</td>
<td>826</td>
<td>-</td>
<td>5265</td>
</tr>
<tr>
<td>S01000949</td>
<td>Dalbeattie</td>
<td>617</td>
<td>604</td>
<td>6178</td>
<td>5963</td>
</tr>
<tr>
<td>S01000953</td>
<td>Annan</td>
<td>902</td>
<td>875</td>
<td>6016</td>
<td>5469</td>
</tr>
<tr>
<td>S01000972</td>
<td>Gretna</td>
<td>987</td>
<td>932</td>
<td>6023</td>
<td>5746</td>
</tr>
<tr>
<td>S01000995</td>
<td>Dumfries</td>
<td>819</td>
<td>767</td>
<td>5689</td>
<td>5641</td>
</tr>
<tr>
<td>S01000999</td>
<td>Dumfries</td>
<td>697</td>
<td>648</td>
<td>5697</td>
<td>5832</td>
</tr>
<tr>
<td>S01001003</td>
<td>Dumfries</td>
<td>921</td>
<td>852</td>
<td>5442</td>
<td>5314</td>
</tr>
<tr>
<td>S01001004</td>
<td>Dumfries</td>
<td>695</td>
<td>690</td>
<td>5969</td>
<td>5926</td>
</tr>
<tr>
<td>S01001005</td>
<td>Dumfries</td>
<td>873</td>
<td>915</td>
<td>5846</td>
<td>5622</td>
</tr>
<tr>
<td>S01001006</td>
<td>Dumfries</td>
<td>741</td>
<td>706</td>
<td>5704</td>
<td>5989</td>
</tr>
<tr>
<td>S01001012</td>
<td>Dumfries</td>
<td>840</td>
<td>802</td>
<td>5468</td>
<td>5497</td>
</tr>
<tr>
<td>S01001030</td>
<td>Dumfries</td>
<td>722</td>
<td>750</td>
<td>5864</td>
<td>6008</td>
</tr>
<tr>
<td>S01001042</td>
<td>Locharbriggs</td>
<td>920</td>
<td>887</td>
<td>5339</td>
<td>5229</td>
</tr>
<tr>
<td>S01001064</td>
<td>Langholm</td>
<td>720</td>
<td>-</td>
<td>5678</td>
<td>-</td>
</tr>
<tr>
<td>S01001080</td>
<td>Moffat</td>
<td>665</td>
<td>-</td>
<td>5289</td>
<td>-</td>
</tr>
</tbody>
</table>

As discussed above, there is merit in measuring both individual and area deprivation. Figure 3 shows how the estimated number of income and employment deprived are distributed across the deprivation quintiles. We observe that while quintile 1 has the highest proportion of income and employment deprived individuals, those living in quintile 1 only account for 21.3% and 20.8% of the overall numbers respectively. This leads us to a point made within the analysis of the SIMD06: **the majority of our most deprived people do not live within the areas we have classified as most deprived.**

Figure 3: Number and Proportion of Income and Employment Deprived Population by SIMD09 Quintile, Dumfries and Galloway, 2007

![Figure 3: Number and Proportion of Income and Employment Deprived Population by SIMD09 Quintile, Dumfries and Galloway, 2007](source: GROS, Scottish Government)
6. Maps of Dumfries & Galloway SIMD09

The maps on the following pages demonstrate the location (and size) of the most and least deprived areas in Dumfries & Galloway, with the most deprived areas marked out in red and the least deprived areas marked in dark purple.

Figure 4: SIMD2009 Deprivation Map of Dumfries & Galloway

Figure 5: SIMD2009 Deprivation Map of Annandale & Eskdale
Figure 6: SIMD2009 Deprivation Map of Dumfries & Upper Nithsdale

Dumfries & Galloway: Dumfries & Upper Nithsdale Scottish Index of Multiple Deprivation 2009

SIMD2009 Quintiles
- Quintile 1: Most deprived
- Quintile 2
- Quintile 3
- Quintile 4
- Quintile 5: Least deprived

Figure 7: SIMD2009 Deprivation Map of the Stewartry

Dumfries & Galloway: Stewartry Scottish Index of Multiple Deprivation 2009

SIMD 2009 Quintiles
- Quintile 1: Most deprived
- Quintile 2
- Quintile 3
- Quintile 4
- Quintile 5: Least deprived
Figure 8: SIMD2009 Deprivation Map of Wigtownshire

7. Demography

Areas with different levels of deprivation tend to have different demographic characteristics. This is in part accounted for by the types of housing available, which has a knock-on effect on the social characteristics of an area. In general, more deprived areas have a higher number of single parent families, more families with dependent children and fewer car owners (based on results from the 2001 Census).

Table 4 details the number of people in each SIMD09 quintile, using 2007 SAPE population estimates. The population pyramids in figure 9 for the most and least deprived areas in Dumfries and Galloway shows that the distribution of the population is very different. In the most deprived areas there are similar numbers of people in each age band up to age 60 – 64. In the least deprived areas, there is a different distribution with fewer children, markedly fewer young adults and more middle aged and older people. It is likely that the distinct drop in numbers of young adults is due to people leaving the region to pursue higher education and career development.

Table 4: Population of Dumfries and Galloway by Age Group and SIMD09 Quintile, 2007

<table>
<thead>
<tr>
<th>SIMD quintile</th>
<th>0-15</th>
<th>16-29</th>
<th>30-44</th>
<th>44-64</th>
<th>65-74</th>
<th>75+</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 most deprived</td>
<td>3,029</td>
<td>2,652</td>
<td>2,808</td>
<td>3,434</td>
<td>1,291</td>
<td>992</td>
<td>14,206</td>
</tr>
<tr>
<td>2</td>
<td>6,246</td>
<td>5,063</td>
<td>6,643</td>
<td>9,966</td>
<td>4,048</td>
<td>3,329</td>
<td>35,295</td>
</tr>
<tr>
<td>3</td>
<td>7,808</td>
<td>5,802</td>
<td>8,587</td>
<td>14,182</td>
<td>5,662</td>
<td>4,493</td>
<td>46,534</td>
</tr>
<tr>
<td>4</td>
<td>6,684</td>
<td>5,285</td>
<td>7,867</td>
<td>13,009</td>
<td>4,847</td>
<td>4,319</td>
<td>42,011</td>
</tr>
<tr>
<td>5 least deprived</td>
<td>1,692</td>
<td>1,227</td>
<td>1,926</td>
<td>3,302</td>
<td>1,194</td>
<td>913</td>
<td>10,254</td>
</tr>
<tr>
<td>Total</td>
<td>25,459</td>
<td>20,029</td>
<td>27,831</td>
<td>43,893</td>
<td>17,042</td>
<td>14,046</td>
<td>148,300</td>
</tr>
</tbody>
</table>

Source: GROS, Scottish Government
8. Deprivation Gradients and Health Inequalities

A selection of statistics from Scottish Neighbourhood Statistics, demonstrating the effect of deprivation in Dumfries and Galloway are described below. Throughout deprivation quintile 1 = most deprived and quintile 5= least deprived. Descriptions for nationally collected data have been adopted from the ISD web pages.

8.1. Birth Rates

The number of births registered in Dumfries and Galloway has been increasing since 2001. The latest data published by the General Register Office for Scotland shows that there were 4,408 births registered between 2006 and 2008, an average of 1,469 per year.\(^8\) The birth rate is based on the number of women of childbearing age, usually defined as women aged between 15 and 44. The birth rates shown below use Small Area Population Estimates for 2007 and are calculated as a rate per 1,000 women aged 16 to 44.

Table 5: Number of Births, Birth Rate and Low Birth Weight by SIMD09 Deprivation Quintile, Dumfries and Galloway, 2006 to 2008.

<table>
<thead>
<tr>
<th>SIMD09 quintile</th>
<th>Women Aged 16 - 44</th>
<th>Average Births per year</th>
<th>Birth rate per 1,000</th>
<th>Low Birth Weight (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 most deprived</td>
<td>2820</td>
<td>230</td>
<td>81.4</td>
<td>5.7%</td>
</tr>
<tr>
<td>2</td>
<td>6042</td>
<td>389</td>
<td>64.4</td>
<td>4.4%</td>
</tr>
<tr>
<td>3</td>
<td>7336</td>
<td>429</td>
<td>58.4</td>
<td>3.3%</td>
</tr>
<tr>
<td>4</td>
<td>6513</td>
<td>347</td>
<td>53.3</td>
<td>3.7%</td>
</tr>
<tr>
<td>5 least deprived</td>
<td>1558</td>
<td>75</td>
<td>47.9</td>
<td>0.0%</td>
</tr>
<tr>
<td>Total</td>
<td>24,269</td>
<td>1,469</td>
<td>60.5</td>
<td>3.9%</td>
</tr>
</tbody>
</table>

Source: GROS, ISD Scotland
There is a clear gradient across the deprivation quintiles, with the highest birth rate in the most deprived areas. The birth rate in quintile 1 is 81.4 per 1,000 compared to 47.9 per 1,000 in quintile 5.

8.2. Babies with Low Birth Weight

Low birthweight (less than 2,500g) is a major determinant of infant mortality and morbidity. A number of factors have been shown to be associated with low birthweight and/or preterm births. These include maternal smoking, maternal age, deprivation, previous obstetric history, drug/alcohol use, hypertension and multiple births. Although the numbers are small for Dumfries and Galloway, there is a clear deprivation gradient. Children born to families from the most deprived areas are five times as likely to be of low birth weight as those born in the least deprived areas.
8.3. Breast feeding at 6-8 Weeks Visit

Encouraging and supporting breastfeeding is recognised as an important public health activity. Breastfeeding in infancy is known to have a protective effect against many childhood illnesses, including a reduced risk of ear, respiratory tract and gastro-intestinal tract infections. As part of the 2007 Scottish Government action plan 'Better Health, Better Care' a target has been set to increase the proportion of newborn children exclusively breastfed at 6-8 weeks in Scotland from 26.2% in 2006/07 to 32.7% in 2010/11, an increase of 25%.

Data for 2006-2008 shows that 23.8% of babies are exclusively breast fed at 6-8 weeks in Dumfries and Galloway. There is a clear deprivation gradient, with less than a third of mothers (9%) breastfeeding at 6-8 weeks in the most deprived areas compared to mothers in the least deprived areas (27 – 33%).

Figure 12: Exclusively Breastfeeding at 6-8 Week Review by SIMD09 Deprivation Quintile, Dumfries and Galloway, 2006 – 2008

8.4. Maternal Smoking

It is known that smoking during pregnancy is associated with increased risk of a variety of problems, including miscarriage, stillbirth, a preterm and/or low birth weight baby, and sudden infant death syndrome. Data on smoking behaviour is based on self-reported information obtained from mothers at their ante-natal booking visit in the community or at hospital. This information is not always recorded and therefore can affect the results. Additionally there is considerable pressure on women not to smoke during pregnancy, and it is anticipated that some women may not be completely truthful when describing their smoking behaviour.

Figure 13 demonstrates the clear relationship between smoking and deprivation, with smoking at booking ranging from 43% in SIMD quintile 1 to 10% in SIMD quintile 5. There is little difference in the proportion of women whose smoking status is unknown across the quintiles.
8.5. Children’s Immunisations

Children in Scotland are now protected through immunisation against many serious infectious diseases. The Scottish Government has set a national target rate of 95% uptake among children aged 24 months for completed courses of the pre-school immunisations: Diphtheria, Tetanus, Polio, Pertussis, Hib, Men C, Measles, Mumps and Rubella (MMR) and Pneumococcal Vaccine (PCV). The lowest immunisation rate in Dumfries & Galloway is for MMR, which at 95.6% is just above the national target.

Source: SMR02, ISD Scotland, Scottish Government
8.6. Emergency Admissions

There has been a steady rise in the number of emergency inpatient admissions in Scotland over the last twenty years, which has been a major source of pressure for the NHS. Emergency admissions are more common in the over 65’s and there has been shown to be a strong link with deprivation, with those living in the most deprived areas more likely to be admitted into hospital as an emergency.¹⁰

This pattern is repeated in Dumfries and Galloway, and figure 15 illustrates the clear deprivation gradient seen in emergency admissions. Those living in the most deprived quintile are almost twice as likely to be admitted as an emergency compared to those living in the least deprived quintile. For admissions in 2006 to 2008 the admission rate in SIMD quintile 1 was 11,974 per 100,000 population and 6,846 per 100,000 population in SIMD quintile 5.

Figure 15: Emergency Admission Rates by SIMD09 Deprivation Quintile, Dumfries and Galloway, 2006-2008

8.7. Hospital Admissions: Drugs and Alcohol

The number of hospital admissions involving drugs and alcohol has been increasing over time in Scotland, for both men and women. There has been an increase in the number of acute hospital admissions for alcohol related problems from 30,652 in 1997/98 to 41,651 in 2006/07, a rise of 36%. The numbers of admissions related to drug and alcohol misuse in Dumfries and Galloway is relatively small compared to more urban environments, and is therefore averaged over four years.

However, despite small numbers we still observe a strong deprivation gradient. The rate of alcohol related admissions is almost six times higher in the most deprived areas compared to the least deprived, ranging from 1,510 per 100,000 population in SIMD quintile 1 to 260 per 100,000 population in SIMD quintile 5. There is a similar pattern for drug related hospital admissions, which range from 238 per 100,000 in SIMD quintile 1 to 17 per 100,000 in SIMD quintile 5.
8.8. Hospital Admissions: Accidents

Hospital admissions for accidents include traffic accidents, falls, sports injuries and animal bites. Males are more likely to be admitted to hospital for accidents than females and males living in areas identified as most deprived are over twice as likely to be admitted as those in the least deprived areas. The accident admission rate for males living in the most deprived quintile was 2,061 per 100,000 compared to an admission rate of 838 per 100,000 in quintile 5.
8.9. Hospital Admissions: Cancer

Cancer is one of the 'big three' leading causes of death in Scotland, with 15,269 deaths in 2008. The personal lifetime risk of developing some type of cancer for residents of Scotland is approximately one in three. As Scotland’s population is becoming older the number of new cases of cancer is tending to increase each year, though earlier detection and better forms of treatment have led to increases in survival.

It has been shown that across Scotland there is a higher incidence of most cancers in more deprived areas, thought to be influenced by higher prevalence of lifestyle risk factors like smoking in these areas. Despite this the hospital admission rates in Dumfries and Galloway for cancer do not show a clear deprivation gradient. For females there is actually a reverse trend with the highest admission rates in the areas of least deprivation: 1,809 per 100,000 in SIMD quintile 1 compared to 2,505 per 100,000 in SIMD quintile 5.

Figure 18: Cancer Admission Rates by Sex and SIMD09 Deprivation Quintile, Dumfries and Galloway, 2006-2008

![Graph showing cancer admission rates by sex and deprivation quintile](image)

Source: ISD Scotland, Scottish Government

8.10. Hospital Admissions: Coronary Heart Disease

Coronary Heart Disease (CHD) is also one of the 'big three' causes of death in Scotland, with 8,841 deaths in 2008. Scotland has one of the highest death rates from CHD in the western world. This has been attributed to a number of factors including high rates of smoking, poor diet, lack of physical activity, obesity and deprivation.

In the three year period 2006 to 2008 there were 2,452 hospital discharges attributed to CHD in Dumfries and Galloway; 1,657 for males and 795 for females. There is a clear deprivation gradient for males, with people living in the three most deprived quintiles showing the highest admission rates. The admission rates for males are 863 per 100,000 in SIMD quintile 1 and 550 per 100,000 in SIMD quintile 5. By contrast for females there is no clear deprivation gradient.
8.11. Hospital Admissions: Cerebrovascular Disease (Stroke)

Cerebrovascular disease or stroke includes subarachnoid haemorrhage, stroke (non-traumatic intracerebral haemorrhage and cerebral infarction) and transient ischaemic attacks. Stroke is the third of the ‘big three’ leading causes of mortality in Scotland, with 5,367 deaths in 2008. The number of hospital admissions for stroke is relatively small in Dumfries and Galloway. There appears to be a deprivation gradient between SIMD quintile 2 and quintile 5 for both males and females. The lower admission rate in the most deprived quintile could be due to small numbers, or fewer people surviving a stroke.

Source: ISD Scotland, Scottish Government
8.12. Hospital Admissions: Respiratory Disease

Respiratory disease includes conditions such as asthma, chronic obstructive pulmonary disease, pneumonia and influenza. Respiratory illness has slowly overtaken stroke as a major cause of death. In 2008, there were 7,743 deaths attributed to respiratory disease in Scotland.\textsuperscript{11}

There is a clear deprivation gradient in Dumfries & Galloway for both males and females, with twice as many admissions for respiratory disease in the most deprived areas compared to the least deprived. For males the admission rate was 2,466 per 100,000 population in SIMD quintile 1 compared to 1,120 per 100,000 in SIMD quintile 5. The corresponding figures for females are 1,800 per 100,000 in SIMD quintile 1 and 991 per 100,000 in SIMD quintile 5.

\begin{figure}
\centering
\includegraphics[width=\textwidth]{figure21.png}
\caption{Respiratory Disease Admission Rates by Sex and SIMD09 Deprivation Quintile, Dumfries and Galloway, 2006-2008}
\end{figure}

Source: ISD Scotland, Scottish Government

8.13. Cancer Incidence Rates

The incidence rate refers to the number of new cases of cancer observed each year in a particular area. Just under 27,500 new cases of cancer were diagnosed in Scotland in 2007. For males, the most common cancers are lung, prostate and colorectal cancers accounting for 53% of cancers in men. For females, the most common cancers are breast, lung and colorectal cancers accounting for 55% of cancers in women.\textsuperscript{13}

A clear deprivation gradient is apparent for the incidence of lung cancer in Dumfries and Galloway, with nearly three times as many people developing cancer in the most deprived areas compared with the least deprived areas. The gradient is more pronounced for males; 7.1 per 1,000 in SIMD quintile 1 compared to 3.7 per 1,000 in SIMD quintile 5. For women the incidence rates are 4.0 per 1,000 in SIMD quintile 1 and 1.9 per 1,000 in SIMD quintile 5. Other cancers described here do not show a clear deprivation trend in Dumfries and Galloway.
8.14. Mortality Rates

Differences in mortality rates are an important indicator of health inequalities. As people are generally living longer, the overall mortality rate in Scotland has fallen over time, though the rate of decrease is slower than that of many other European countries. Nationally there is a clear relationship between mortality and deprivation, with a gradient in all-cause death rates evident across the deprivation quintiles. The overall mortality rate in Dumfries and Galloway for the three year period 2006 to 2008 is shown below. There is not a clear deprivation gradient, with the death rate in the most deprived quintile (1,179 per 100,000 population) lower than in quintiles 2 and 3.
8.15. Prescribed Drugs

The estimated number of people being prescribed drugs for anxiety, depression or psychosis has been increasing in Scotland. A national target has been set to reduce the annual rate of increase of defined daily dose per capita of anti-depressants to zero by 2009/10, and put in place the required support framework to achieve a 10% reduction in future years.

Figure 21 shows the estimated proportion of the population who have been prescribed anti-depressants over the five year period 2002 to 2007. There is a deprivation gradient, with those living in the most deprived areas more likely to have been prescribed anti-depressants. In SIMD quintile 1 10.6% of the population were prescribed anti-depressants compared to 8.5% of the population in SIMD quintile 4.

9. Conclusions

Area deprivation measures have been confirmed by the Scottish Government as being an appropriate way of highlighting health inequalities and to inform planning and development. The latest area deprivation measure is the SIMD2009, which has highlighted 19 datazones across Dumfries & Galloway as being on a par with some of the most disadvantaged urban areas in Scotland. The number of people who live in these most deprived areas is approximately 14,000 or 9.6% of the Dumfries and Galloway population.

There are three datazones which have moved into the most deprived quintile in this release of the SIMD; one in Stranraer and two in Dumfries. Analysis shows that these areas now include 21.3% of income-deprived and 20.8% of employment-deprived people in the region. The large majority of income or employment-deprived people still live outwith the recognised areas of relative deprivation.
Health inequalities can be observed across a gradient of deprivation in most health topics that are regularly collated by Scottish Neighbourhood Statistics. There are a number of measures of child health in Dumfries and Galloway that show such a gradient. The birth rate of women in the most deprived areas is higher than in the least deprived areas, as is the proportion of babies born with low birth rate and the rates of maternal smoking. Breastfeeding rates are also lower in mothers from the most deprived areas.

There are also a number of measures of overall morbidity where there is a deprivation gradient. In the most deprived areas in Dumfries and Galloway there are higher rates of hospital admission for emergencies, drug and alcohol misuse, accidents, coronary heart disease for men, and respiratory disease. There are also shown to be higher incidence rates of certain cancers (e.g. lung cancer) and the proportion of the population prescribed drugs for anxiety, depression or psychosis.

In conclusion inequalities have been shown across deprivation gradients in a range of health outcomes from birth to childhood and beyond into adulthood. However in demonstrating these, it must be remembered that these gradients are based on area deprivation measures. We know that many deprived individuals in Dumfries and Galloway will remain unidentified by focussing specifically on the 19 most deprived datazones since they do not live in areas recognised as deprived. Similarly not all individuals living in the most deprived areas will exhibit the health inequalities and lifestyle factors that are demonstrated in these areas as a whole.

10. Acknowledgements

Some of the caveats have been adapted from passages used in the Scottish Government Scottish Index of Multiple Deprivation 2009 reports. For a more thorough background to the Scottish Index of Multiple Deprivation 2009 please see their technical and methodology reports. Some of the descriptive passages around the health inequalities graphs have been adapted from passages used on the Information Services Division website\textsuperscript{14} and indicator descriptors published by Scottish Neighbourhood Statistics.\textsuperscript{3}
References


Appendix I: List of SIMD2009 Indicators

1. Current Income Deprivation (6 indicators) [Not directly comparable to SIMD06]
   - Number of Adults (aged 16-59) receiving Income Support (DWP Aug 2008)
   - Number of Adults (aged 60+) receiving Guaranteed Pension Credit (DWP Aug 2008)
   - Number of Children (aged 0-15) dependent on a recipient of Income Support (DWP Aug 07)
   - Number of Adults receiving (all) Job Seekers Allowance (DWP Aug 2008)
   - Number of Children (aged 0-15) dependent on a recipient of Job Seekers Allowance (all)
     (DWP Aug 2007)
   - NEW Number of Adults and Children in Tax Credit Families on low incomes (HMRC Aug 2006)

2. Employment Deprivation (4 indicators)
   - Working Age Unemployment Claimant Count averaged over 12 months (NOMIS 2008)
   - Working Age Incapacity Benefit recipients, men aged under 65 and women aged under 60
     (DWP August 2008)
   - Working Age Severe Disablement Allowance recipients (August 2008 DWP)
   - Working Age Compulsory New Deal participants – New Deal for the under 25s and New Deal
     for the 25+ not included in the unemployment claimant count (DWP August 2008)

3. Health Deprivation (7 indicators) [Not directly comparable]
   - Standardised Mortality Ratio (ISD,2004-2007)
   - Hospital episodes related to alcohol use (ISD, 2004-2007) [Minor coding changes]
   - Hospital episodes related to drug use (ISD,2004-2007) [Minor coding changes]
   - Comparative Illness Factor (DWP, 2008)
   - Emergency admissions to hospital (ISD, 2004-2007)
   - Proportion of population being prescribed drugs for anxiety or depression or psychosis
     (ISD,2007)
   - Proportion of live singleton births of low birth weight (<2,500g) (ISD 2004-2007)

4. Education, Skills and Training Deprivation (5 indicators) [Not directly comparable]
   - School pupil absences (2006/7-2007/8)
   - Pupil performance on SQA at stage 4 (2005/6-2007/8)
   - Working age people with no qualifications (2001 Census)
   - 17-21 year olds enrolling into higher education (HESA 2005/6-2007/8)
   - CHANGED People aged 16-19 not in full time education, employment or training (School
     Leavers 2006/7-2007-8, DWP 2007 and 2008)

5. Geographic Access Deprivation (9 indicators total – 6 Drive-time sub domain, 3 Public
   transport sub-domain) [Not directly comparable, ratio changed]
   - Drive time to a GP
   - Drive time to a Petrol Station
   - Drive time to a Post Office
   - Drive time to Shopping facilities
   - Drive time to a Primary School
   - Drive time to a Secondary School
   - Public transport time to a GP
   - Public transport time to a Post Office
   - Public transport time to Shopping Facilities

6. Housing Deprivation (2 indicators)
   - Persons in households which are overcrowded (2001 Census)
   - Persons in households without central heating (2001 Census)

7. Crime Deprivation (5 indicators)
   - Recorded Crimes of Violence (2007-08)
   - Recorded Domestic housebreaking (2007-08)
   - Recorded Vandalism (2007-08)
   - Recorded Drugs Offences (2007-08)
   - Recorded Minor Assault (2007-08)