



# POPULATION: NATURAL CHANGE

## 2009

March 2011  
Ref: SP11/1

By  
Nicola Crosby  
John Horne  
Carol Burdis  
Kadhem Jallab

**TWRI**  
1<sup>st</sup> Floor Provincial House  
Northumberland Street  
Newcastle upon Tyne  
NE1 7DQ  
Tel: (0191) 277 1912  
Fax: (0191) 277 1911  
E-MAIL: [twri@twri.org.uk](mailto:twri@twri.org.uk)  
Web: [www.twri.org.uk](http://www.twri.org.uk)



## CONTENTS

KEY MESSAGES .....	i
<b>1 INTRODUCTION .....</b>	<b>1</b>
<b>2 POPULATION (MID-YEAR ESTIMATES) .....</b>	<b>2</b>
<b>3 TOTAL FERTILITY RATES (TFRs) .....</b>	<b>4</b>
<b>4 GENERAL FERTILITY RATES (GFRs) .....</b>	<b>6</b>
<b>5 LIVE BIRTHS (INCLUDING BY AGE OF MOTHER) .....</b>	<b>8</b>
5.1 Live Births (Mothers aged 15-44 years) .....	8
5.2 Mothers Aged 18-34 years .....	9
5.3 Mothers Aged 35+ years .....	11
5.4 Mothers Aged Under 18 years .....	12
<b>6 DEATHS .....</b>	<b>14</b>
6.1 Deaths by Cause .....	15
<b>7 MORTALITY RATIOS .....</b>	<b>17</b>
7.1 Standardised Mortality Ratios (SMRs) .....	17
7.2 Directly Standardised Mortality Rates (DSRs) .....	18
7.3 Linking Mortality and Health .....	19
<b>8 NATURAL CHANGE .....</b>	<b>22</b>
<b>Appendices .....</b>	<b>23</b>
Appendix 1: Total Population 1981-2009 .....	24
Appendix 2: Total Fertility Rates 1984-1994 .....	25
Appendix 3: Live Births, Deaths, Natural Change 1983-2009 .....	26
Appendix 4: Live Births and Deaths by Ward .....	29
Appendix 5: Live Births by Marital Status .....	35
Appendix 6: Standardised Mortality Ratios (SMRs) in England .....	36
Appendix 7: Regional Variations in Health Profiles .....	37
Appendix 8: Local Variations in Health Profiles .....	38

## FIGURES

3.1 Total Fertility Rates (TFRs) (1995-2009) .....	4
3.2 Total Fertility Rates (TFRs) Tyne and Wear Districts (1995-2009) .....	5
4.1 General Fertility Rates (GFRs): TW, NE and England & Wales (2000-2009) .....	6
5.1 Fertility Rates: Mothers aged 15-44 years .....	9
5.2 Fertility Rates: Mothers aged 18-34 years .....	10
5.3 Fertility Rates: Mother aged 35+ years .....	12
5.4 Fertility Rates: Mothers aged 18 years and under .....	13
6.1 Deaths: Tyne and Wear Districts (2000-2009) .....	14

7.1	Standardised Mortality Ratios (SMRs): TW (2000-2009) .....	17
7.2	Standardised Mortality Ratios (SMRs): Tyne and Wear Districts (2000-2009) .....	18
7.3	Directly Age-Standardised Mortality Rates (DSRs): TW, NE and Eng (1995-2008).....	19
8.1	Natural Change: Tyne and Wear Districts (2000-2009) .....	22

**TABLES**

2.1	Total Population (2000-2009) .....	2
2.2	Women Aged 15-44 (2000-2009) .....	3
3.1	Total Fertility Rates (TFRs) (2000-2009) .....	4
4.1	General Fertility Rates (GFRs) (2000-2009) .....	7
5.1	Live Births (Mothers aged 15-44) (2000-2009) .....	8
5.2	Live Births (Mothers Aged 18-34) (2000-2009) .....	9
5.3	Live Births (Mothers Aged 35+) (2000-2009) .....	11
5.4	Live Births (Mothers Aged under 18) (2000-2009) .....	12
6.1	Deaths (2000-2009) .....	14
6.2	Deaths by Cause, 2009 .....	15
7.1	Standardised Mortality Rates (SMRs) (2000-2009) .....	17
7.2	Smoking Prevalence (%) in the North East & England .....	20
7.3	Adult Participation in Sport .....	21
8.1	Natural Change (2000-2009) .....	22

**APPENDICES (Tables)**

A1	Total Population (1981-2009) .....	24
A2	Total Fertility Rates (1984-1994) .....	25
A3a	Live Births (1983-2009) .....	26
A3b	Deaths (1983-2009) .....	27
A3c	Natural Change (1983-2009) .....	28
A4a	Births by Ward (Gateshead) .....	29
A4b	Births by Ward (Newcastle) .....	29
A4c	Births by Ward (North Tyneside) .....	30
A4d	Births by Ward (South Tyneside) .....	30
A4e	Births by Ward (Sunderland) .....	31
A4f	Deaths by Ward (Gateshead) .....	32
A4g	Deaths by Ward (Newcastle) .....	32
A4h	Deaths by Ward (North Tyneside) .....	33
A4i	Deaths by Ward (South Tyneside) .....	33
A4j	Deaths by Ward (Sunderland) .....	34
A5.1	Percentage of Live Births Within Marriage .....	35
A5.2	Percentage of Live Births Outside of Marriage .....	35
A7	Regional Variations in Health Profiles .....	37
A8	Local Variations in Health Profiles in the North East .....	38

# KEY MESSAGES

## Introduction

- The report presents official (ONS) information on population growth and long-term trends in fertility and mortality in Tyne and Wear and its constituent Districts. [Migration is covered in more depth in a separate report by TWRI.]
- This report mainly analyses a ten-year data series (2000-2009, inclusive) and covers:
  - Fertility - amongst women of all ages
    - those aged under 18 years
    - those aged 18-34 and
    - those aged 35+
  - It also gives the share of live births within and outside of marriage
  - Mortality rates
  - Natural change (i.e. population change arising from live births minus deaths)

Patterns in Tyne and Wear are compared with regional and national trends (§1).

## Mid-year estimates of population

- Tyne and Wear's population grew by 1.6% (+17,200) between 2000 and 2009. This shows a reversal of an earlier trend of population decline in the previous decade. (§2 and Appendix 1).
- Over the last ten years, population declined in three Tyne and Wear Districts, South Tyneside (-700, -0.5%), Gateshead (-1,100, -0.6%) and Sunderland (-4,000, -1.4%). The population rose in Newcastle (+16,700, +6.2%) and in North Tyneside (+6,500, +3.4%).

## Fertility

- Since 1992, fertility in Tyne and Wear and its constituent Districts has been consistently low, relative to the region and England & Wales, [averaging 1.63 over the 10 year period 2000-2009, compared to 1.71 in the NE and 1.80 in E&W]. Indeed, since 2001, the gap between the Tyne and Wear average and the North East and England & Wales averages has widened (§3; Table 3.1).

## Live Births<sup>1</sup>

- Since 2001, the number of births in Tyne and Wear has been increasing, up 16% by 2009 (+1,765). This is a reversal of the longer-term trend whereby, in the 17-year period from 1985 to 2001, births in Tyne and Wear fell by 27% (-4,201).
- In 2009, the majority of births (84%) were to women aged 18-34. Between 2000 and 2009, fertility rates for women aged 35+ rose in Tyne and Wear by 55%.

## Deaths

- Between 2000 and 2009, deaths in Tyne & Wear fell by 12.9% (-1,643), faster than the fall nationally (-8.6%, -46,280). [Caution: affected by much faster population growth nationally.] The fall in the number of deaths was fastest in Newcastle (-15.6%) (§6).
- Mortality ratios for both Tyne & Wear and the North East are high, compared to the national average. Between 2000 and 2009, Standardised Mortality Ratios (SMRs) in Tyne & Wear have fluctuated, averaging 114 (E&W = 100) (§7)
- 

<sup>1</sup> These changes should be treated with some caution, as numbers of births and deaths are closely related to population size.



## Introduction

---

**Coverage:** This report presents information on long-term trends in fertility and mortality in Tyne and Wear and its constituent Districts. It analyses a ten-year data series (2000-2009) and covers;

- fertility amongst women of all ages, those aged under 18 years, 18-34 and 35+
- percentage of live births within and outside of marriage
- mortality rates
- natural change (i.e. population change arising from live births minus deaths)
- patterns in Tyne and Wear, compared with regional and national trends.

**Sources:** The source of the data is births and deaths registrations, published annually by the Office for National Statistics (ONS) for Wards, Local Authorities, Health Authorities, Government Office Regions and England & Wales. The data are useful analytically, insofar as they are statistically reliable and a long time-series is available. The Vital Statistics data used in this report are not the only source of information on health. Additional health datasets are available from ONS, the Department for Health and the Health & Safety Executive.

**Definitions:** Total Fertility Rates (TFRs) and General Fertility Rates (GFRs) are reported as key indicators of fertility:

- TFRs estimate the average number of children women will bear if they experience age-specific fertility rates throughout their childbearing years (aged 15-44 years). TFRs are the most statistically robust measure of fertility as they take into account the age-structure of the female population in reproductive years.
- GFRs estimate the number of live births per thousand females of childbearing age (aged 15-44 years). These rates take no account of the female population age-structure.

Standardised Mortality Ratios (SMRs) are the standard measure of mortality.

- SMRs show how mortality in a given area compares to the national-level, taking into account differences in age- and sex-structure; for example, an SMR of 115 is 15% above the national average. SMRs have value in that they are age- and sex-specific<sup>2</sup>. For example, North Tyneside might have a relatively elderly age-structure. The SMR for the area takes this into account.

Raw data for live births and deaths by Ward<sup>3</sup> in Tyne and Wear are tabled in the Appendices. These data should be treated with some caution, as numbers of births and deaths are closely related to population size. (Wards differ in population size, notably through time.)

Caution on all rates in relation to population:

All rates in relation to population are based on the latest revised population estimates<sup>4</sup>. Rates will therefore differ from those reported in previous editions of the report.

---

<sup>2</sup> For a more detailed account of the TFR and SMR methodologies, refer to 'Key Population and Vital Statistics', Office for National Statistics, Crown Copyright, [www.statistics.gov.uk](http://www.statistics.gov.uk)

<sup>3</sup> From 2004, data relates to new ward boundaries adopted in June 2004, introducing a discontinuity into the series

<sup>4</sup> The dates of issue of revised population estimates were: 1991-2000 (7/10/04), 2001 (9/9/04) and 2002-2008 (11/08/10).

## 2. Population (Mid-year estimates)<sup>5</sup>

Tyne and Wear's population grew between 2004 and 2009 (to levels seen in 1998) (Table 2.1). [See Appendix 1 for longer time series (1981-1999).]

Within the Tyne and Wear Districts, Sunderland (ten-year average 282,520) and Newcastle (ten-year average 272,360) have the largest populations. North Tyneside (ten-year average 193,580) and Gateshead (ten-year average 190,510) have smaller populations. South Tyneside has the smallest population in Tyne and Wear (ten-year average 151,720).

Over the nine years 2000-2009, the population of Tyne and Wear is estimated to have risen by 17,200 (+1.6%). Population fell in three Tyne and Wear Districts between 2000 and 2009; by 700 (-0.5%) in South Tyneside, 1,100 (-0.6%) in Gateshead, and by -4,000 (-1.4%) in Sunderland. The population in Newcastle rose by 16,700 (+6.2%) and in North Tyneside by 6,500 (+3.4%).

Caution: these ONS estimates may flatter Newcastle due to possible over-statement of international migration inflows (which may actually be spread across Tyne and Wear).

From 2004, the population of Tyne and Wear has grown, following a period of year-on-year decline. Over the five-year period, the fastest growth was in 2009 (0.9%) and in 2008 (0.4%). The growth in 2009, has taken place primarily in Newcastle (+6,500, +2.3%).

Table 2.1 Total Population, 2000-2009

	2000	2001	2002	2003	2004	
Gateshead	191,900	191,200	190,900	190,700	190,200	
Newcastle	267,600	266,200	267,800	268,300	269,200	
North Tyneside	190,700	192,000	192,500	192,600	192,500	
South Tyneside	153,100	152,800	152,500	151,800	151,200	
Sunderland	285,700	284,600	283,600	282,700	282,000	
Tyne and Wear	1,089,100	1,086,800	1,087,200	1,086,100	1,085,000	
North East	2,543,400	2,540,100	2,540,400	2,540,400	2,540,900	
England and Wales	52,140,200	52,360,000	52,567,300	52,792,200	53,053,200	
						<b>Average</b>
	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2000-2009</b>
Gateshead	190,100	189,700	189,700	189,900	190,800	190,510
Newcastle	272,600	274,200	275,600	277,800	284,300	272,360
North Tyneside	193,300	194,200	194,800	196,000	197,200	193,580
South Tyneside	150,800	150,600	150,600	151,400	152,400	151,720
Sunderland	281,700	281,300	281,000	280,900	281,700	282,520
Tyne and Wear	1,088,400	1,090,000	1,091,800	1,096,100	1,106,300	1,090,680
North East	2,547,900	2,552,700	2,560,400	2,570,600	2,584,300	2,552,110
England and Wales	53,416,300	53,725,800	54,082,300	54,454,700	54,809,100	53,340,110

Source: ONS Crown Copyright Reserved [from Nomis on 29 November 2010]

<sup>5</sup> The Office for National Statistics' Mid-Year Estimates, updated year on year, are used as the base for fertility and mortality rates.

In Tyne and Wear, the population of women aged 15-44 was the same in 2000 and 2009, despite fluctuations in the intervening years; the fluctuations ranged from a high of 230,600 in 2005 to a low of 228,400 in 2007 (Table 2.2). On average, women aged 15-44 were mainly in Newcastle and Sunderland. South Tyneside had the smallest ten-year average population of 30,180.

The childbearing population, women aged 15-44, between 2000 and 2009, fell in three of the five Tyne and Wear Districts; in Sunderland by -5.6%, in Gateshead by -5.1% and in South Tyneside by -3.9%. In Newcastle the child-bearing population rose by 9.9% and in North Tyneside by 1.0%.

**Table 2.2 Women Aged 15-44, 2000-2009**

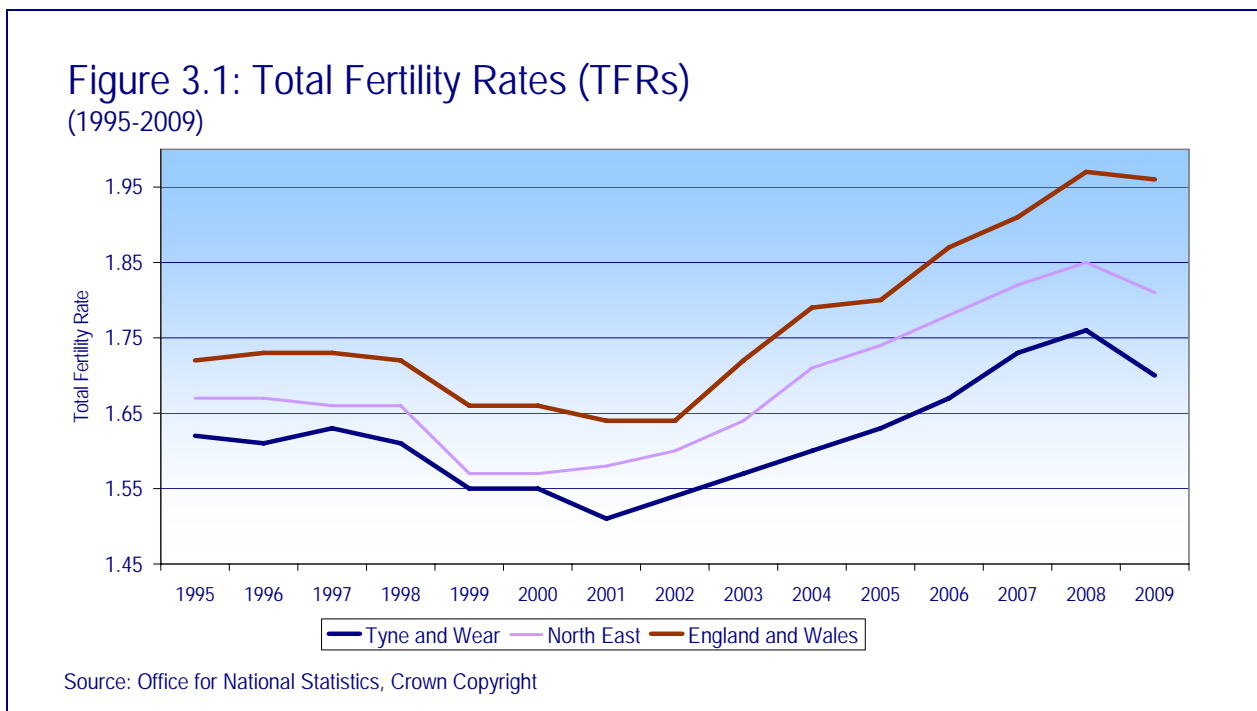
	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	
Gateshead	39,300	39,000	38,800	38,600	38,400	
Newcastle	60,900	60,700	61,800	62,700	63,500	
North Tyneside	38,300	38,700	38,700	38,700	38,600	
South Tyneside	30,800	30,700	30,800	30,500	30,300	
Sunderland	60,600	60,400	60,100	59,600	59,100	
Tyne and Wear	229,800	229,500	230,100	230,200	230,000	
North East	523,400	522,400	521,700	520,500	518,800	
England and Wales	10,820,800	10,869,500	10,900,200	10,941,500	10,992,700	
						<b>Average</b>
	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>	<b>2000-2009</b>
Gateshead	38,400	38,000	37,800	37,500	37,300	38,310
Newcastle	64,600	64,400	64,500	65,400	66,900	63,540
North Tyneside	38,600	38,800	38,700	38,800	38,700	38,660
South Tyneside	30,100	29,800	29,600	29,600	29,600	30,180
Sunderland	58,900	58,300	57,900	57,500	57,200	58,960
Tyne and Wear	230,600	229,400	228,400	228,700	229,800	229,650
North East	518,800	515,700	513,400	512,400	511,000	517,810
England and Wales	11,079,500	11,117,400	11,132,500	11,116,400	11,083,400	11,005,390

Source: ONS Crown Copyright Reserved [from Nomis on 29 November 2010]

### 3. Total Fertility Rates (TFRs)

Total Fertility Rates (TFRs) are a standard measure of fertility. TFRs represent the average number of live births a woman will bear throughout her lifetime. They are the most statistically meaningful measure of fertility, as they take into account the population age-structure of women in their reproductive years. [See Appendix 2 for longer time series (1984-1994).]

TFRs, in Tyne and Wear, rose 17% from a low of 1.51 in 2001 to a high of 1.76 in 2008, before falling slightly to 1.70 in 2009. [Note the huge rise in fertility rates for women aged 35+ between 2001 and 2007. There was also a 135% rise in new National Insurance numbers issued to non-UK nationals in Tyne and Wear between 2002/03 and 2007/08.] TFRs between 1995 and 2009 were persistently low for Tyne and Wear, compared to England & Wales (Fig 3.1). TFRs averaged 1.62 between 1995 and 2009, 0.15 (9%) below England & Wales (average 1.77). Fertility in Tyne and Wear has also been persistently lower than in the region. This gap, however, narrowed sharply in 1999 and 2000, but has widened further since 2001.



Between 2000 and 2009, TFRs in Tyne and Wear rose by 9.7%, over 5pp slower than the 15.3% increase in the region and 8pp slower than the 18.1% increase nationally (Table 3.1).

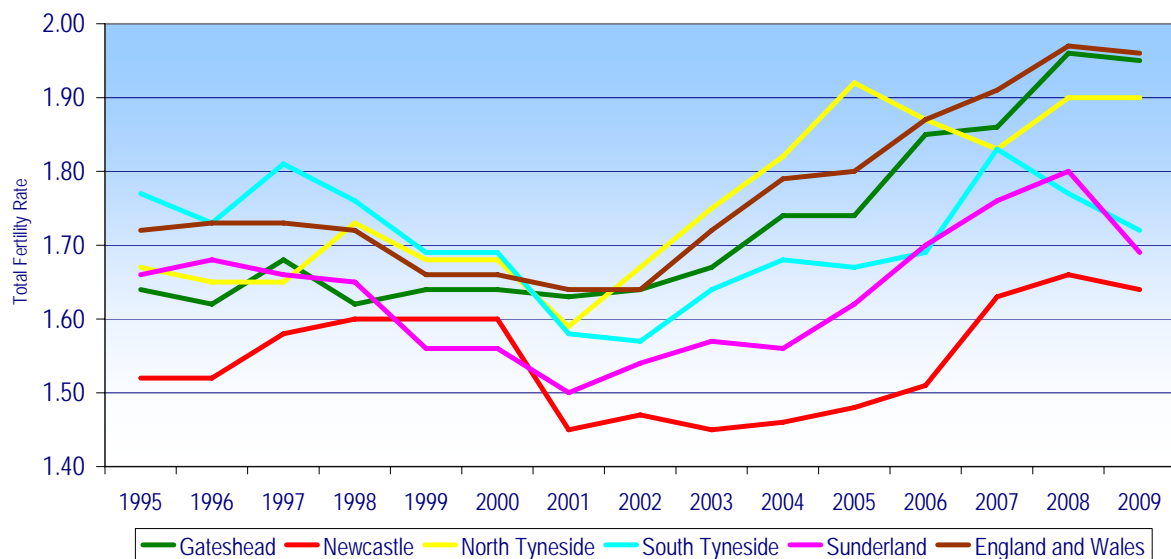
Table 3.1: Total Fertility Rates (TFRs); 2000-2009

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average 2000-2009
Gateshead	1.64	1.63	1.64	1.67	1.74	1.74	1.85	1.86	1.96	1.95	1.77
Newcastle	1.60	1.45	1.47	1.45	1.46	1.48	1.51	1.63	1.66	1.64	1.54
North Tyneside	1.68	1.59	1.67	1.75	1.82	1.92	1.87	1.83	1.90	1.90	1.79
South Tyneside	1.69	1.58	1.57	1.64	1.68	1.67	1.69	1.83	1.77	1.72	1.68
Sunderland	1.56	1.50	1.54	1.57	1.56	1.62	1.70	1.76	1.80	1.69	1.63
Tyne and Wear	1.55	1.51	1.54	1.57	1.60	1.63	1.67	1.73	1.76	1.70	1.63
North East	1.57	1.58	1.60	1.64	1.71	1.74	1.78	1.82	1.85	1.81	1.71
England and Wales	1.66	1.64	1.64	1.72	1.79	1.80	1.87	1.91	1.97	1.96	1.80

Source: Office for National Statistics, Crown Copyright

Since 2000, (TFR) fertility rates in Gateshead have tended to converge towards the England & Wales rate (Fig 3.2). In South Tyneside, the rate shifted down markedly from 2000-2001 to below the E&W rate. In 2006, fertility in North Tyneside fell below the England & Wales rate, for the first time since 2001. By contrast, in Sunderland, fertility remained well below the England and Wales rate (Average TFRs E&W 1.80, and 1.63 in Sunderland). In Newcastle, fertility remained the lowest, averaging 1.54, or (a large) 0.26 below the E&W TFR.

Figure 3.2: Total Fertility Rates (TFRs) Tyne and Wear Districts (1995-2009)



Source: Office for National Statistics, Crown Copyright

Between 2000 and 2009, TFRs rose in all five Tyne and Wear districts; up by 18.9% in Gateshead, 13.1% in North Tyneside, 8.3% in Sunderland, 2.5% in Newcastle and by 1.8% in South Tyneside.

The population of young adults aged 18-29 in Tyne and Wear, rose 23.6% (+40,200) between 2001 and 2009. This was higher than the rise regionally (up 17.8%) and in E&W (up 12.9%). These figures contrast to the fall in the population of young adults experienced between 1991 and 2001 (TW -20.5%, NE -21.3%, E&W -16.7%).

Table A2 in Appendix 2 shows TFRs between 1984 and 1994. This includes data for the period of recession years between 1990-1993. During this period, fertility in Tyne and Wear fell from 1.79 to 1.65 (down 7.8%). This was 1.8x the fall for England & Wales (down 4.3%) and 3.5x the fall regionally (down 2.2%). Among the districts, the fall was greatest in Newcastle (down 14.6%).

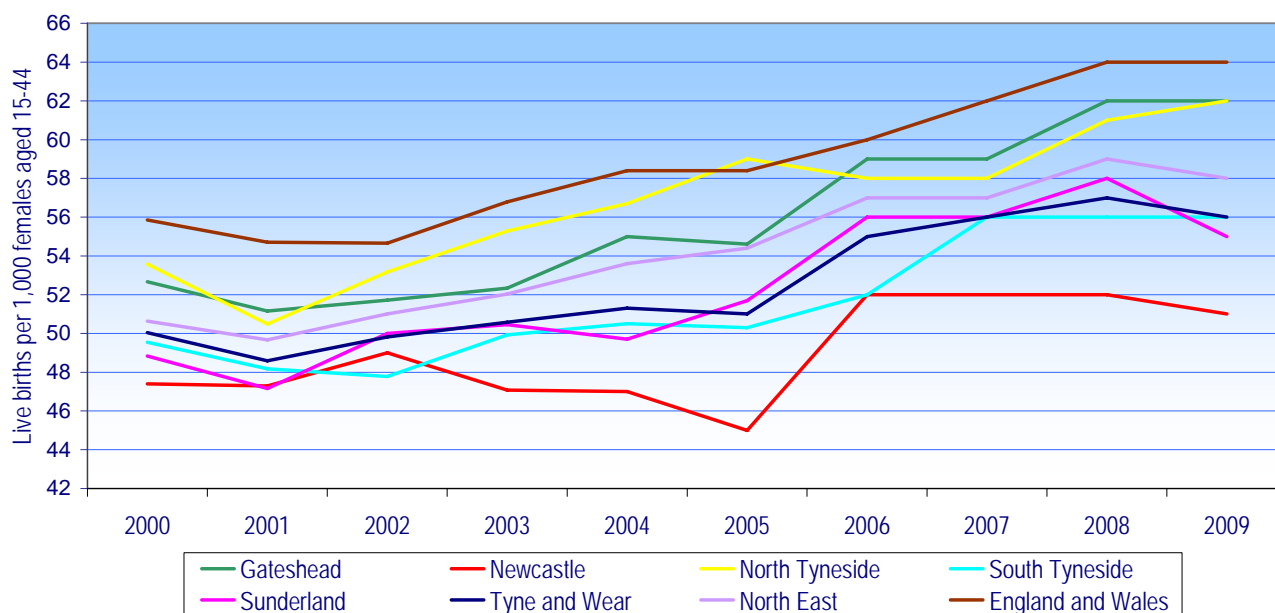
## 4. General Fertility Rates (GFRs)

General Fertility Rates (GFRs) are another standard measure of fertility. These rates are the number of live births in a single year per thousand women of childbearing age (15-44). They are simpler but less meaningful than TFRs, as they fail to take age-structure into account.

Similar to TFRs, GFRs show fertility in Tyne and Wear to be below national and regional rates (Fig 4.1 and Table 4.1). Between 2000 and 2009, the average GFR in Tyne and Wear was 53 (per 1,000 women aged 15-44), 6 below England & Wales (59) and 1 below the North East (54).

Moreover, between 2000 and 2009 the increase in GFRs in Tyne and Wear (11.9%) was slower than that experienced nationally (14.6%). GFRs in TW, NE and E&W dipped between 2000 and 2001 before rising steadily to 2008. In 2009, Tyne and Wear's GFR fell (-1.8%). This was driven largely by falls in Sunderland (-5.2%) and Newcastle (-1.9%).

Figure 4.1: General Fertility Rates (GFRs), T&W, NE and England & Wales (2000-2009)



Source: Office for National Statistics, Crown Copyright

At District level, GFRs were lower in all Tyne and Wear Districts than the national rate in 2009 (Figure 4.1 and Table 4.1). The GFR was particularly low in Newcastle (ten-year averages of 49, compared to 59 in England & Wales). Although the ten-year average GFRs for South Tyneside (52), Sunderland (52), Gateshead (56) and North Tyneside (57) were higher, they remained below the national rate.

Between 2000 and 2009 GFRs in all Districts rose. The rate of increase in all Districts (except Newcastle, up 7.6%) exceeded the Tyne and Wear rate of increase (11.9%). Gateshead's rate of increase was fastest (17.7%), followed by North Tyneside (15.7%), South Tyneside (13.0%) and Sunderland (12.6%).

**Table 4.1: General Fertility Rates (GFRs); 2000-2009**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average 2000-2009
Gateshead	53	51	52	52	55	55	59	59	62	62	56
Newcastle	47	47	49	47	47	45	52	52	52	51	49
North Tyneside	54	50	53	55	57	59	58	58	61	62	57
South Tyneside	50	48	48	50	51	50	52	56	56	56	52
Sunderland	49	47	50	50	50	52	56	56	58	55	52
Tyne and Wear	50	49	50	51	51	51	55	56	57	56	53
North East	51	50	51	52	54	54	57	57	59	58	54
England and Wales	56	55	55	57	58	58	60	62	64	64	59

Note: GFRs are rounded to the nearest whole number

Source: Office for National Statistics, Crown Copyright

## 5. Live Births (Including by age of mother)

This section looks at births, in a single year, in relation to the number of women of childbearing age. Section 3 looked at births expressed as the number to be expected over *the reproductive lifetime* of a woman.

### 5.1 Live Births (Mothers Aged 15-44 years)

In 2009, there were 12,916 live births in Tyne and Wear (Table 5.1 and Figure 5.1). This was 7% higher than the 10-year average of 12,042 per annum, and a rise of 12% from 2000. The ten-year average rate was highest in North Tyneside (56.6) which is 4.2 above the Tyne and Wear ten-year average (52.4). Gateshead's ten-year average rate (56.2) was also above Tyne and Wear's. [See Appendix 3 for a longer time series on live births, deaths and natural change (1983-2009).]

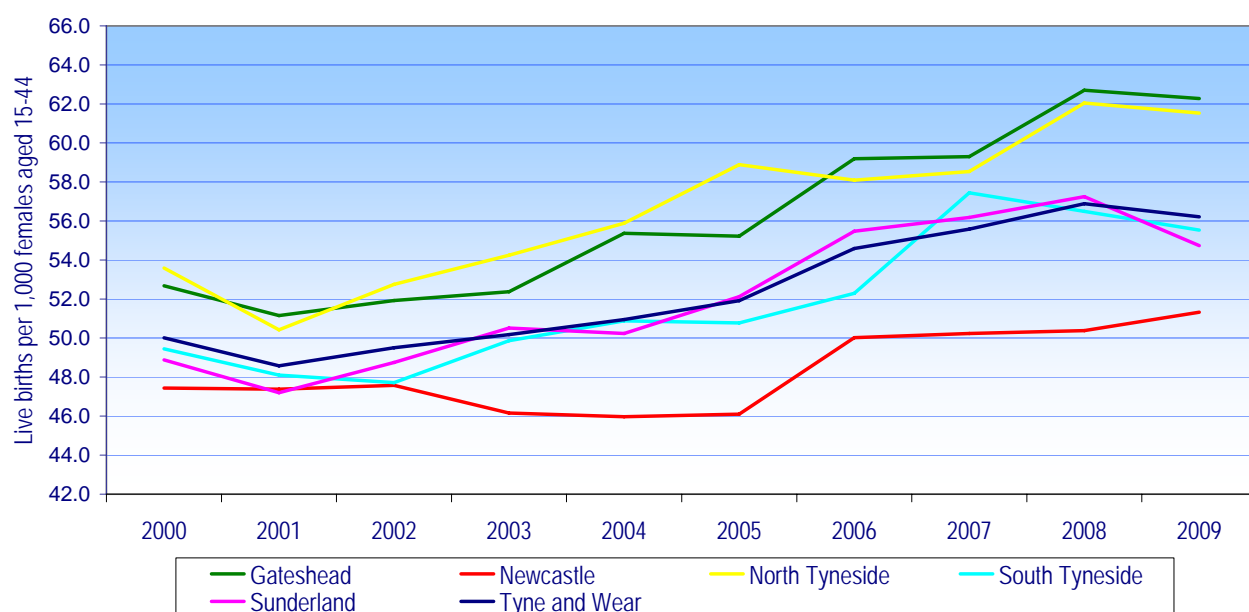
<b>Numbers</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Gateshead	2,070	1,995	2,012	2,020	2,128	2,118	2,251	2,241	2,352	2,326
Newcastle	2,887	2,875	2,941	2,895	2,918	2,979	3,221	3,238	3,293	3,434
North Tyneside	2,052	1,949	2,042	2,101	2,160	2,274	2,256	2,268	2,406	2,381
South Tyneside	1,521	1,479	1,467	1,523	1,540	1,529	1,560	1,698	1,670	1,644
Sunderland	2,960	2,853	2,930	3,012	2,971	3,068	3,236	3,251	3,289	3,131
Tyne and Wear	11,490	11,151	11,392	11,551	11,717	11,968	12,524	12,696	13,010	12,916
North East	26,499	25,949	26,271	27,005	27,815	28,249	29,184	29,582	30,184	29,776
England and Wales	604,130	594,360	595,914	621,251	639,509	645,621	669,376	689,771	707,033	705,995
<b>Rates*</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Gateshead	52.7	51.2	51.9	52.4	55.4	55.2	59.2	59.3	62.7	62.3
Newcastle	47.4	47.4	47.6	46.2	46.0	46.1	50.0	50.2	50.4	51.3
North Tyneside	53.6	50.4	52.8	54.2	55.9	58.9	58.1	58.5	62.0	61.5
South Tyneside	49.4	48.1	47.7	49.9	50.9	50.8	52.3	57.4	56.5	55.5
Sunderland	48.9	47.2	48.7	50.5	50.2	52.1	55.5	56.2	57.2	54.7
Tyne and Wear	50.0	48.6	49.5	50.2	50.9	51.9	54.6	55.6	56.9	56.2
North East	50.6	49.7	50.4	51.9	53.6	54.5	56.6	57.6	58.9	58.3
England and Wales	55.8	54.7	54.7	56.8	58.2	58.3	60.2	62.0	63.6	63.7

Source: Office for National Statistics, Crown Copyright. TWRI calculations  
 \*The rate is calculated as the number of live births per 1,000 females aged 15-44 years  
 The figures include a small number of births to mothers under the age of 15 and over the age of 44.

Between 2000 and 2009, fertility rates for women aged 15-44 years rose by 12.4% in Tyne and Wear, with the fastest rise being in Gateshead (18.2%) and followed by North Tyneside (14.8%). The increase was slowest in Newcastle, at 8.2%.

Figure 5.1: Fertility Rates

Mothers aged 15-44 years



Source: Office for National Statistics, Crown Copyright. TWRI

Live births by age of mother cover three standard age groups: Under 18 years (15-17 years), 18-34 years and 35+ years old.

## 5.2 Mothers Aged 18-34 years

The vast majority of births (84%) in 2009 were to women aged 18-34. In Tyne and Wear, births to this age group averaged 9,923 per year between 2000 and 2009 (Table 5.2). From 2000 births to these mothers rose 13.4%, up almost 1,300.

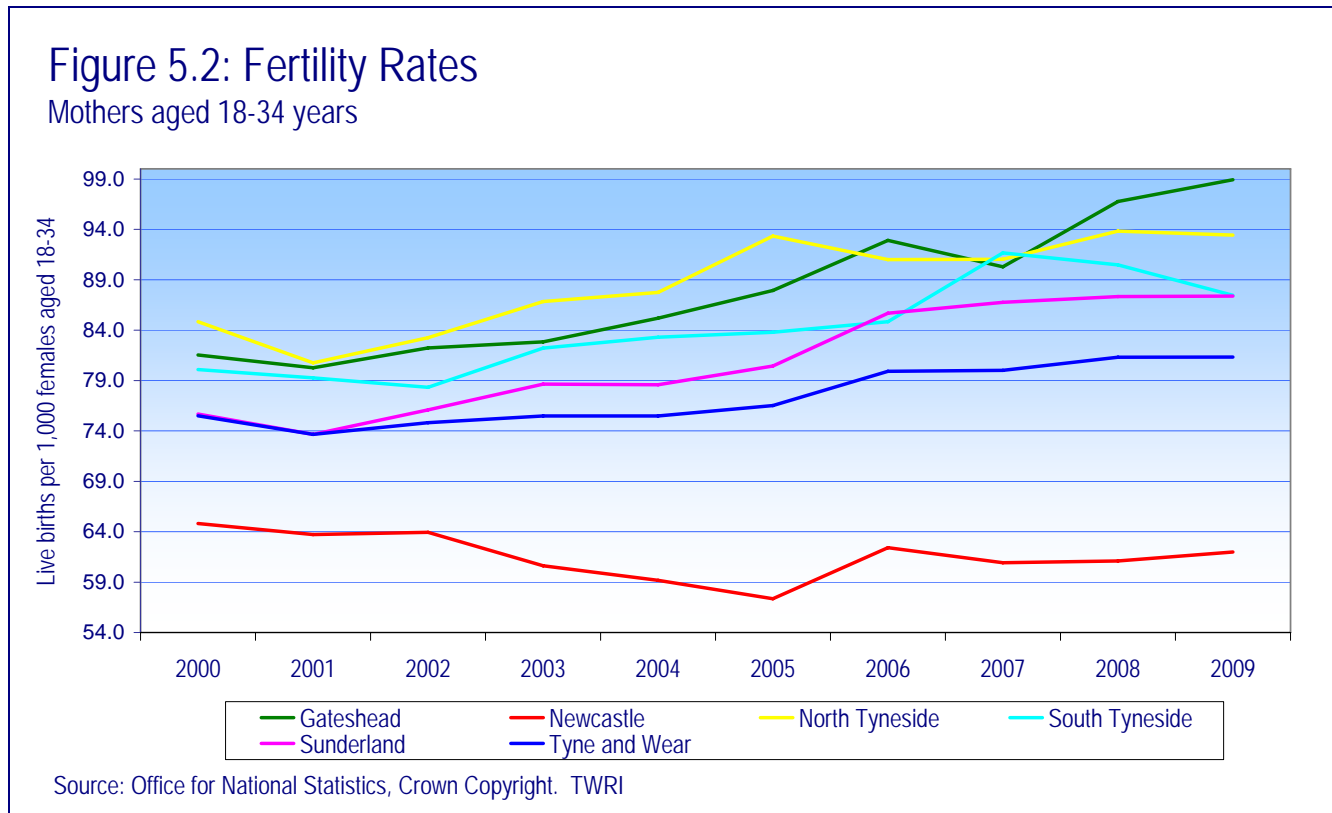
Table 5.2 Live Births (to Mothers Aged 18-34 years), 2000-2009

Numbers	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Gateshead	1,715	1,643	1,652	1,653	1,690	1,740	1,820	1,766	1,910	1,974
Newcastle	2,386	2,339	2,416	2,357	2,363	2,379	2,617	2,590	2,689	2,849
North Tyneside	1,701	1,628	1,665	1,734	1,741	1,856	1,825	1,830	1,916	1,927
South Tyneside	1,269	1,230	1,201	1,247	1,259	1,282	1,297	1,405	1,419	1,407
Sunderland	2,532	2,437	2,477	2,531	2,500	2,551	2,689	2,688	2,703	2,735
Tyne and Wear	9,603	9,277	9,411	9,522	9,553	9,808	10,248	10,279	10,637	10,892
North East	22,124	21,619	21,701	22,346	22,719	23,148	23,891	24,037	24,718	25,342
England and Wales	489,960	477,944	474,647	491,297	502,719	505,931	521,992	536,407	553,247	564,798
Rates*	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Gateshead	81.5	80.2	82.2	82.8	85.2	87.9	92.9	90.3	96.8	98.9
Newcastle	64.8	63.7	63.9	60.6	59.2	57.4	62.4	60.9	61.1	62.0
North Tyneside	84.8	80.8	83.2	86.8	87.7	93.3	91.0	91.0	93.8	93.4
South Tyneside	80.1	79.3	78.3	82.2	83.3	83.8	84.8	91.7	90.5	87.5
Sunderland	75.7	73.6	76.1	78.6	78.6	80.4	85.7	86.8	87.3	87.4
Tyne and Wear	75.5	73.7	74.8	75.5	75.5	76.5	79.9	80.0	81.3	81.3
North East	78.3	77.7	78.7	81.3	82.9	84.1	87.2	87.8	89.1	89.8
England and Wales	81.4	80.0	80.2	83.4	85.4	85.2	87.6	89.8	92.0	93.3

Source: Office for National Statistics, Crown Copyright. TWRI calculations

\*The rate is calculated as the number of live births per 1,000 females aged 18-34 years

Between 2000 and 2009 fertility rates for women aged 18-34 were highest in North Tyneside (ten-year average annual rate of 89 live births per 1,000 women aged 18-34) (Figure 5.2). Gateshead, South Tyneside and Sunderland had slightly lower average rates of 88, 84 and 81 (live births per 1,000 women aged 18-34). Fertility in Newcastle was substantially lower, averaging 62 live births per 1,000 women aged 18-34. This could be the result of women choosing to focus on their careers and delay childbearing till later. It could also be due to the expansion of the universities or out-migration to start and/or expand families.



Fertility rates rose between 2000 and 2009 for women aged 18-34 by 7.7% in Tyne and Wear. The rise in Gateshead was nearly three-times the Tyne and Wear rise (+21.3%), whilst in Sunderland the rise was nearly two-times (+15.4%). Rises in North Tyneside (+10.1%) and South Tyneside (+9.2%) were more modest. There was a fall in the fertility rate of -4.4% in Newcastle over the same period.

The overall rise in fertility from 2000-09 is a reversal of the earlier trend of declining fertility rates. This earlier trend was attributed to the effect of a large number of women choosing to have fewer children, or choosing not to raise families, possibly in order to pursue careers. This could remain a factor in relation to trends in Newcastle. (Perhaps Newcastle's proportions of women who have jobs in the upper occupational groups has risen significantly faster than in other Districts. Also, if students have a significantly lower birth-rate and their share of the 18-34 population has risen, this will depress the fertility rate for 18-34s.) As Section 5.3 indicates, a fall in fertility rates in women aged 18-34 in Newcastle could be the displacement effect of more women choosing to have children later in life.

Within this age group, there has been a trend towards later childbearing. Because fertility is currently rising faster among women over 30 than among younger women, the average age at childbearing has continued to increase slowly. The mean age for giving birth in the UK was 29.5 years in 2009, up 0.4 years from 29.1 years in 2000.

### 5.3 Mothers Aged 35+ years

Live births by mothers aged 35 or over accounted for 15.7% of all births in 2009 in Tyne and Wear (a rate of 27 live births per 1,000 women aged 35-44). Between 2000 and 2009, Newcastle had relatively high fertility rates for women aged 35-44, averaging 26 live births per 1,000 (Table 5.3 and Figure 5.3) reaching over 35 live births per 1,000 by 2009. This could be a time-shift effect of Newcastle women aged 18-34 choosing to postpone childbearing<sup>6</sup>. By contrast, Sunderland and South Tyneside (both 18) had low 35+ fertility rates. North Tyneside (23) and Gateshead (23) had average fertility rates slightly below Newcastle, but above the Tyne and Wear average rate (22).

Table 5.3 Live Births (to Mothers Aged 35 or Over), 2000-2009

<b>Numbers</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Gateshead	278	275	298	310	386	332	367	409	380	352
Newcastle	394	433	426	444	460	503	510	555	516	585
North Tyneside	288	258	299	303	361	350	370	372	444	454
South Tyneside	189	186	207	217	228	213	209	245	206	237
Sunderland	296	317	330	365	369	397	439	441	467	396
Tyne and Wear	1,445	1,469	1,560	1,639	1,804	1,795	1,895	2,022	2,013	2,024
North East	3,373	3,390	3,621	3,783	4,229	4,209	4,396	4,662	4,660	4,434
England and Wales	99,963	102,698	107,733	116,410	123,120	126,308	134,153	140,657	142,565	141,197
<b>Rates*</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Gateshead	18.9	18.4	19.7	20.6	25.7	22.2	24.8	28.0	26.7	25.2
Newcastle	20.3	22.3	22.1	23.3	24.5	27.3	28.5	31.9	30.7	35.4
North Tyneside	19.5	17.3	19.8	20.0	23.8	23.2	24.4	24.7	30.0	31.1
South Tyneside	15.8	15.4	17.0	17.9	19.0	18.1	18.2	21.7	18.7	22.1
Sunderland	13.8	14.7	15.2	16.8	17.0	18.4	20.4	20.6	22.2	19.4
Tyne and Wear	17.2	17.7	18.7	19.8	21.8	21.9	23.4	25.4	25.9	26.5
North East	17.5	17.4	18.5	19.3	21.7	21.7	22.8	24.5	25.0	24.4
England and Wales	25.9	26.1	26.9	28.7	30.0	30.6	32.5	34.0	34.9	35.0

Source: Office for National Statistics, Crown Copyright. TWRI calculations

\*The rate is calculated as the number of live births per 1,000 females aged 35-44 years

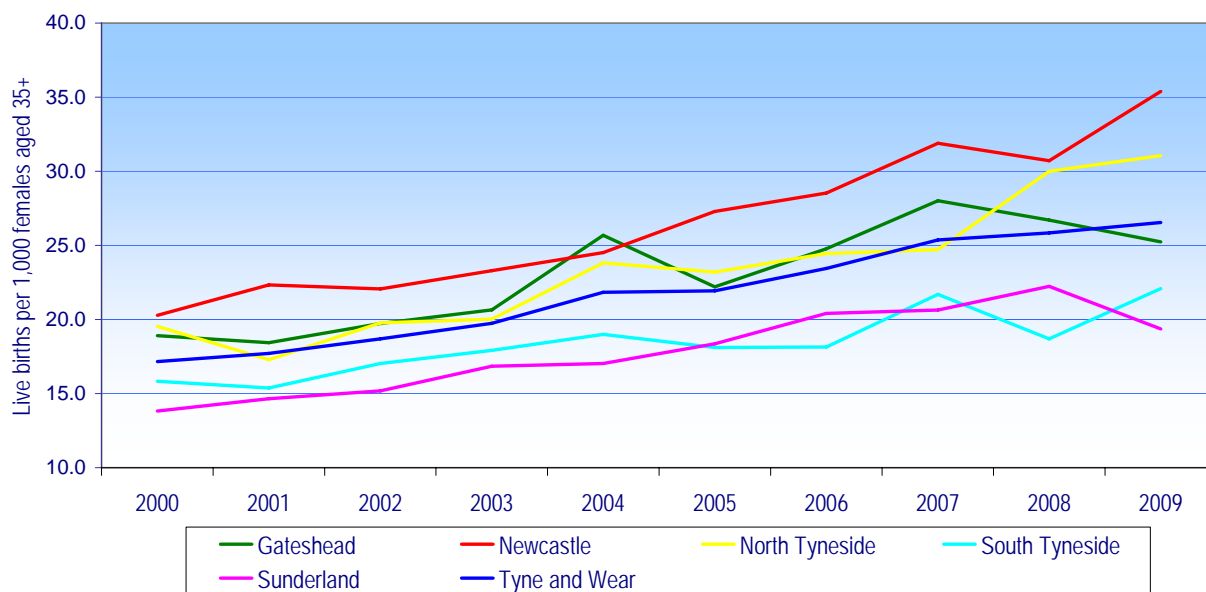
Between 2000 and 2009, fertility rates for women aged 35+ rose in Tyne and Wear by (a huge) 55% (with the numbers of births up 40% or by 580). Fertility rates rose in all Districts, with Newcastle having the largest rise (74%). Gateshead had the smallest rise in fertility, up 33% (74 births).

Rises in fertility for this age group are most likely the effect of women delaying childbearing until they have established careers and of childbearing in subsequent relationships. At a national level, changing fertility patterns in the UK have been characterised by rising mean age at first birth and of higher levels of childlessness (nearly one in five women in their mid-forties in 2009 were childless)<sup>7</sup>.

<sup>6</sup> Possibly linked to Newcastle's relatively high proportions of women working in the highest standard occupational groups (mainly the professional group, but also managers).

<sup>7</sup> ONS News Release, 25<sup>th</sup> June 2009, available at <http://www.statistics.gov.uk/pdfdir/popt0609.pdf>

**Figure 5.3: Fertility Rates**  
Mothers aged 35+ years



Source: Office for National Statistics, Crown Copyright. TWRI

## 5.4 Mothers Aged under 18 years

Young mothers (under age 18) accounted for 2.6% of births in 2009 in Tyne and Wear, averaging 385 pa from 2000-2009 (Table 5.4). In Newcastle and Sunderland, the ten-year average rate of 20 live births per 1,000 females aged under 18 years (15-17 years) was the highest of the Tyne and Wear Districts. Gateshead and South Tyneside had average fertility rates of 18, whilst North Tyneside had a rate of 17, all of which were below the Tyne and Wear average rate of 19 live births per 1,000 females aged under 18 years.

Table 5.4 Live Births (to Mothers Aged Under 18), 2000-2009

Numbers	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Gateshead	77	77	62	57	52	46	64	66	62	64
Newcastle	107	103	99	94	95	97	94	93	88	71
North Tyneside	63	63	78	64	58	68	61	66	46	49
South Tyneside	63	63	59	59	53	34	54	48	45	56
Sunderland	132	99	123	116	102	120	108	122	119	92
Tyne and Wear	442	405	421	390	360	365	381	395	360	332
North East	1,002	940	949	876	867	892	897	883	839	784
England and Wales	14,207	13,718	13,534	13,544	13,670	13,385	13,231	12,707	12,618	11,954
<b>Rates*</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Gateshead	21.6	21.4	17.4	15.8	14.6	12.7	17.6	18.2	17.5	18.6
Newcastle	23.1	22.4	21.0	19.7	19.8	20.6	20.5	20.5	19.3	16.1
North Tyneside	18.0	17.6	21.8	17.6	15.9	18.7	16.7	18.3	12.9	14.2
South Tyneside	21.1	20.1	18.1	18.1	16.8	11.2	17.8	16.3	15.7	20.1
Sunderland	23.2	17.3	21.1	20.1	18.0	21.7	19.9	22.1	21.6	16.9
Tyne and Wear	21.7	19.6	20.1	18.5	17.3	17.8	18.7	19.5	18.0	17.0
North East	20.6	19.0	19.0	17.5	17.5	18.1	18.4	18.0	17.2	16.5
England and Wales	15.1	14.3	13.8	13.6	13.5	13.1	13.0	12.4	12.4	12.0
										-13.0

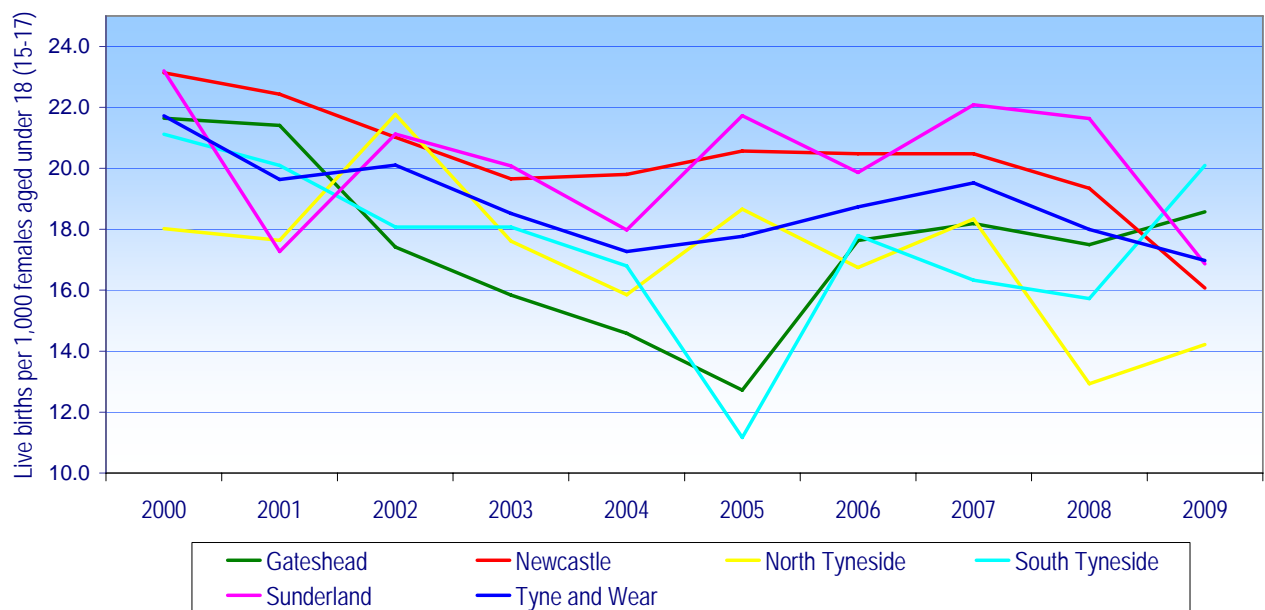
Source: Office for National Statistics, Crown Copyright. TWRI calculations

\*The rate is calculated as the number of live births per 1,000 females aged 15-17 years. There may be some births to mothers below the age of 15.

Fertility rates for females aged under 18 years fell ('improved') between 2008 and 2009 in Newcastle and Sunderland (Figure 5.4), but rose in Gateshead, South Tyneside and North Tyneside. In North Tyneside the rise between 2008 and 2009 followed a considerable 'improvement' (fall) between 2007 and 2008. In 2009, South Tyneside had the highest rate (20.1) and North Tyneside the lowest (14.2).

Figure 5.4: Fertility Rates

Mothers aged under 18 years



Source: Office for National Statistics, Crown Copyright. TWRI

Since 2000, in Tyne and Wear, the overall youth (11-17 years) fertility rate trend has been downward to 2004, then upwards, rising 13% by 2007 (from 2004). Since 2007 the fertility rate in under 18s has once again fallen, by -13%. Between 2000 and 2009, youth fertility rates fell most substantially in Newcastle (-31%, down 36), followed by a fall in Sunderland (-27%). Fertility rates in this age-group also fell in North Tyneside (-21%), Gateshead (-14%) and South Tyneside (-5%).

## 6. Deaths<sup>8</sup>

In 2009, there were 11,067 deaths in Tyne and Wear (Table 6.1 and Figure 6.1). This was 8.0% lower than the 10-year average of 11,989 per annum. This fall was faster than the fall regionally (-5.9%) and nationally (-5.1%) [Caution: population growth was faster nationally.] Among the districts, Newcastle had the fastest fall, at -10.0% and Gateshead the slowest fall, at -4.3% (the closest to the national average). [See Appendix 3 for a longer time series on live births, deaths and natural change (1983-2009).]

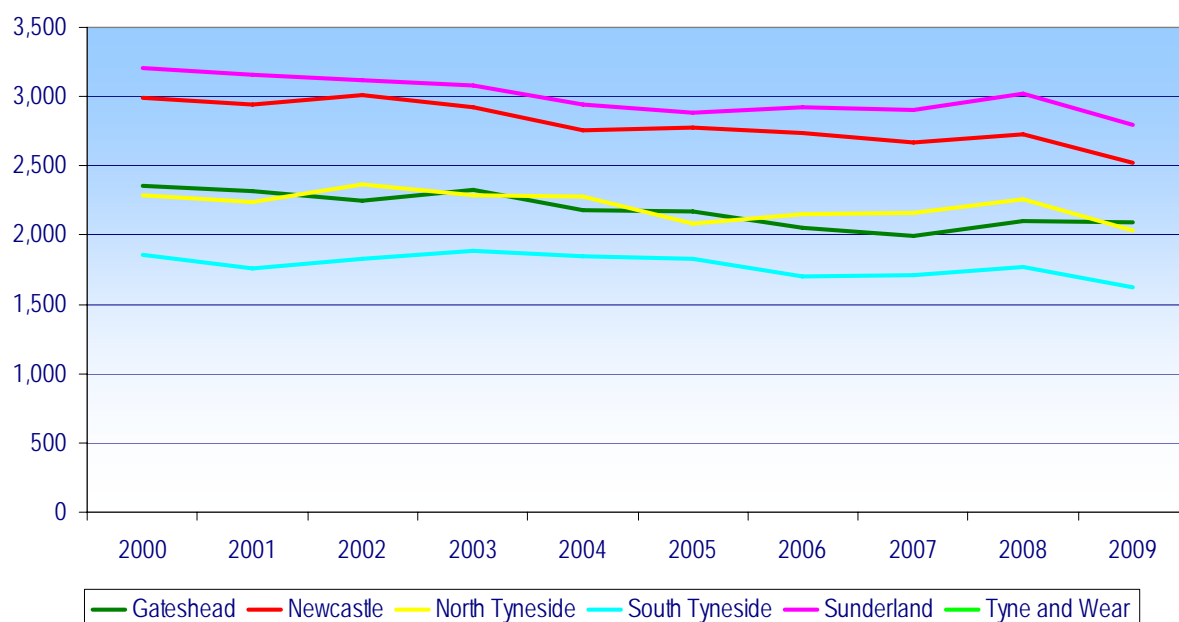
Table 6.1 Deaths 2000 - 2009

Numbers	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average 2000-2009
Gateshead	2,359	2,318	2,248	2,322	2,179	2,168	2,052	1,991	2,105	2,090	2,183
Newcastle	2,993	2,940	3,016	2,923	2,760	2,778	2,739	2,665	2,730	2,527	2,807
North Tyneside	2,290	2,241	2,370	2,286	2,277	2,080	2,149	2,160	2,259	2,036	2,215
South Tyneside	1,857	1,756	1,830	1,890	1,844	1,827	1,699	1,713	1,768	1,620	1,780
Sunderland	3,211	3,161	3,118	3,082	2,946	2,882	2,924	2,902	3,017	2,794	3,004
Tyne and Wear	12,710	12,416	12,582	12,503	12,006	11,735	11,563	11,431	11,879	11,067	11,989
North East	28,532	28,391	28,519	28,690	27,857	27,449	26,870	26,733	27,386	26,011	27,644
England and Wales	536,527	531,127	534,106	537,937	513,034	511,840	501,409	502,869	509,090	490,247	516,819

Source: Office for National Statistics, Crown Copyright.

Between 2000 and 2009, the number of deaths fell by 12.9% (-1,643) in Tyne and Wear. The number of deaths fell in each Tyne and Wear district, with Newcastle showing the largest percentage fall, at -15.6% and North Tyneside the smallest, at -11.1%.

Figure 6.1: Deaths Tyne and Wear Districts (2000-2009)



Source: Office for National Statistics, Crown Copyright.

<sup>8</sup> These data should be treated with some caution as numbers of births and deaths are closely related to population size.

## 6.1 Deaths by Cause

Between 2000 and 2009, the number of deaths (by all causes) fell by 13% (-1,643) in Tyne & Wear. The total number of deaths, from all causes, in 2000 was 12,710.

In 2009, cancers, circulatory disease, respiratory disease, diseases of the digestive system, and diseases of the nervous system were the five largest causes of death in Tyne & Wear. These five causes accounted for 84.8% of all deaths in 2009, the same as in the North East but slightly higher than in E&W (83.5%). Among the Districts, these five diseases accounted for the highest proportion of deaths in Gateshead (86.6%) and the lowest in North Tyneside, at 83.0%.

Table 6.2: Main Causes of Death, 2009

	Cancers		Circulatory Disease		Respiratory Disease		Diseases of the Digestive System		Diseases of the Nervous System	
	Number	%	Number	%	Number	%	Number	%	Number	%
Gateshead	627	30.0%	661	31.6%	305	14.6%	126	6.0%	90	4.3%
Newcastle	764	30.2%	741	29.3%	366	14.5%	138	5.5%	122	4.8%
North Tyneside	582	28.6%	597	29.3%	277	13.6%	144	7.1%	89	4.4%
South Tyneside	521	32.2%	493	30.4%	214	13.2%	102	6.3%	68	4.2%
Sunderland	904	32.4%	822	29.4%	384	13.7%	143	5.1%	106	3.8%
Tyne and Wear	3,398	30.7%	3,314	29.9%	1,546	14.0%	653	5.9%	475	4.3%
North East	7,936	30.5%	7,960	30.6%	3,645	14.0%	1,493	5.7%	1,036	4.0%
England and Wales	140,176	28.6%	159,372	32.5%	67,489	13.8%	25,166	5.1%	17,398	3.5%

Source: Office for National Statistics, Crown Copyright.

### Cancers

In 2009, cancers accounted for the highest proportion of deaths in Tyne & Wear (30.7%). This was slightly higher than the proportion regionally (30.5%) and nationally (28.6%).

Among the Districts, the proportion of deaths from cancers was highest in Sunderland (32.4%) and lowest in North Tyneside (28.6%), the same as the proportion nationally. The proportion of deaths from cancers was higher than the national average in all other four Districts.

### Circulatory Disease

In Tyne & Wear, circulatory disease (failure of the heart and blood vessels) accounted for the second highest proportion of deaths in 2009 at 29.9%. This is lower than the proportion in the North East (30.6%), and nationally (32.5%).

Within Tyne & Wear, Gateshead had the highest proportion of deaths from circulatory disease, at 31.6%, while Newcastle and North Tyneside were lowest, at 29.3%. The proportion of deaths from circulatory disease was lower than the proportion nationally in all of the five Tyne & Wear Districts.

### **Respiratory Disease**

Respiratory disease (for example, pneumonia, bronchitis and emphysema), accounted for 14.0% of deaths in Tyne & Wear in 2009. This was the same as in the North East and only slightly higher than the proportion nationally (13.8%).

Among the Tyne & Wear Districts, only Gateshead (14.6%) and Newcastle (14.5%) had higher proportions of deaths from respiratory disease than the proportion nationally.

### **Diseases of the Digestive System**

In Tyne & Wear, 5.9% of deaths were the result of diseases of the digestive system (e.g., ulcer of stomach & duodenum and chronic liver disease & cirrhosis) in 2009. This was higher than the proportion both regionally (5.7%) and nationally (5.1%). An important causal factor may well be heavy alcohol consumption (see §7 for more details).

Among the Districts, North Tyneside had the highest proportion, at 7.1%, while Sunderland had the lowest, at 5.1% (the same as the proportion nationally).

### **Diseases of the Nervous System**

4.3% of deaths in Tyne & Wear in 2009 were due to diseases of the nervous system, higher than the proportion in the North East (4.0%) and in England & Wales (3.5%). (Diseases of the nervous system include; meningitis, motor neuron disease, Parkinson's disease, Alzheimer's disease, multiple sclerosis, and epilepsy.)

The proportion of deaths from diseases of the nervous system was higher in all five Tyne & Wear Districts than the proportion nationally. In Newcastle, the proportion of deaths was highest, at 4.8%. Sunderland had the lowest proportion, at 3.8%.

## 7 Mortality Ratios

### 7.1 Standardised Mortality Ratios (SMRs)

Standardised Mortality Ratios (SMRs) are defined as 'observed deaths expressed as a percentage of expected deaths, where expected deaths is the number that would occur if the population of the area experienced the sex and age mortality rates of England and Wales<sup>9</sup>'.

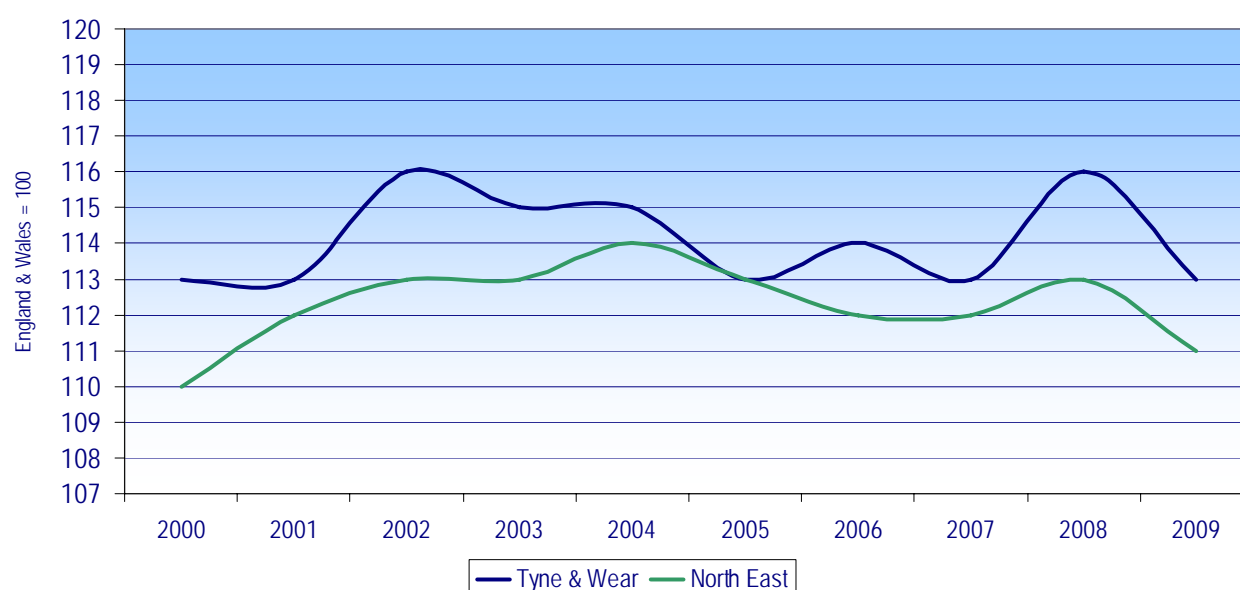
Both Tyne and Wear and the North East, relative to England & Wales, have extremely high mortality ratios (Table 7.1 and Figure 7.1). Since 2000, in Tyne and Wear, SMRs have fluctuated, averaging 114 and peaking at 116 in 2002 and 2008. SMRs in the North East peaked in 2004, at 114 (see Appendix 6 for details of SMRs in other regions/districts in England).

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average 2000-2009
Gateshead	118	119	114	117	115	116	113	109	115	120	116
Newcastle	111	111	116	113	109	111	112	110	113	109	112
North Tyneside	102	105	113	109	114	104	110	111	116	109	109
South Tyneside	112	109	113	117	119	118	112	113	115	110	114
Sunderland	119	120	121	120	120	117	121	119	122	117	120
Tyne & Wear	113	113	116	115	115	113	114	113	116	113	114
North East	110	112	113	113	114	113	112	112	113	111	112
England, Wales & Elsewhere*	100	100	100	100	100	100	100	100	100	100	100

\* includes figures for 'Elsewhere', defined as those people who are not residents of England & Wales, but unfortunately died whilst visiting E&W  
Source: Office for National Statistics, Crown Copyright

Figure 7.1: Standardised Mortality Ratio (SMR)

Tyne & Wear and North East (2000-2009)

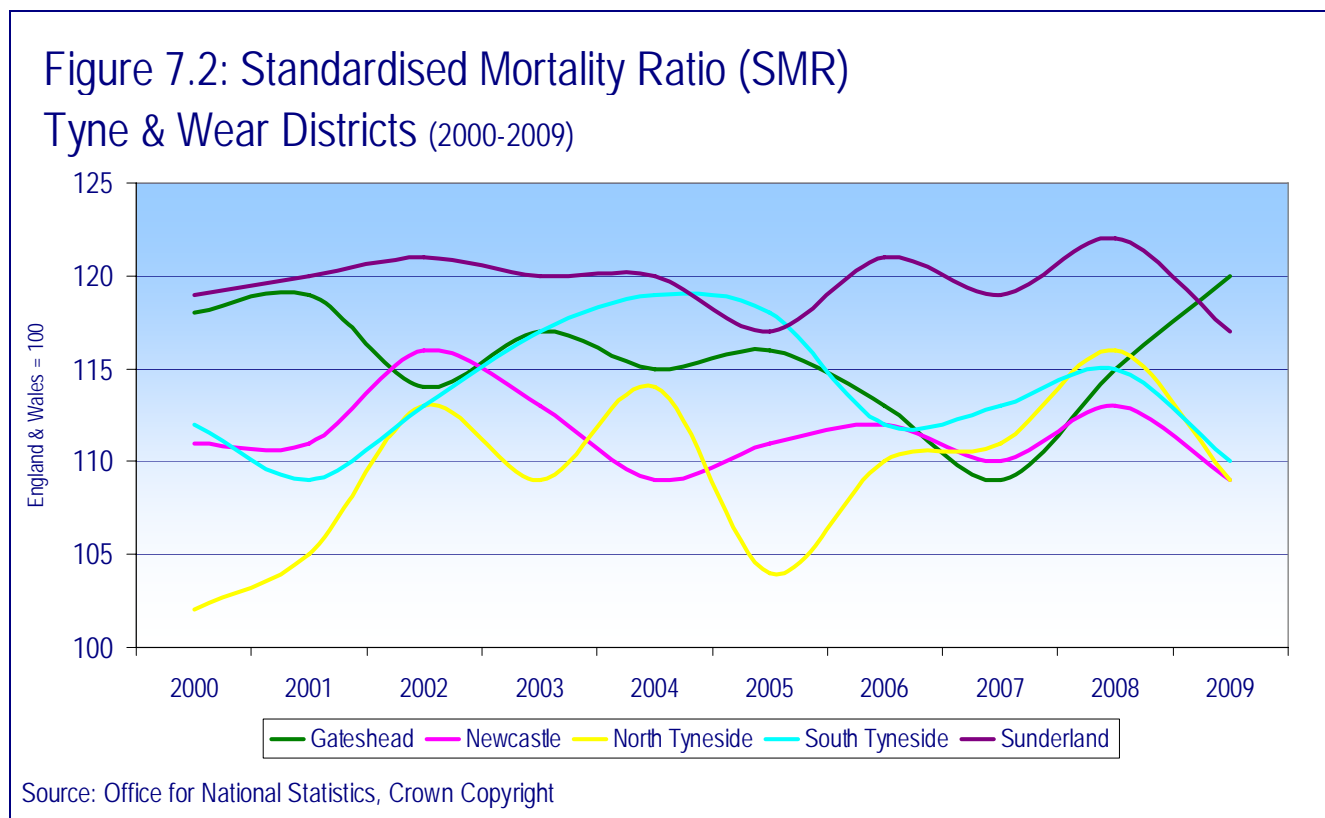


<sup>9</sup> As defined in 'Key Population and Vital Statistics', Office for National Statistics, Crown Copyright. See also Introduction within this report (§1).

Within Tyne and Wear, between 2000 and 2009, the average SMR was nearest 100 in North Tyneside at 109 (9 points above the national average) (Table 7.1 and Figure 7.2). The ten-year average SMRs in Newcastle and South Tyneside were 112 and 114 respectively. The average SMRs were high in Gateshead and Sunderland, at 116 and 120 respectively.

Between 2000 and 2009, SMRs rose (deteriorated) in only two Tyne and Wear Districts; Gateshead and North Tyneside. [North Tyneside's worsening SMR might have been partly due to in-migration, especially from Newcastle.]

SMRs improved (fell) over the decade to 2009 in Newcastle, South Tyneside, and Sunderland.



## 7.2 Directly Standardised Mortality Rates (DSRs)<sup>10</sup> [Age-Standardised Mortality Rates]

Directly standardised mortality rate is calculated by dividing the number of deaths by the actual local population in a particular age group multiplied by the standard population for that particular age group and summing across the relevant age groups. The rate is usually expressed per 100,000.

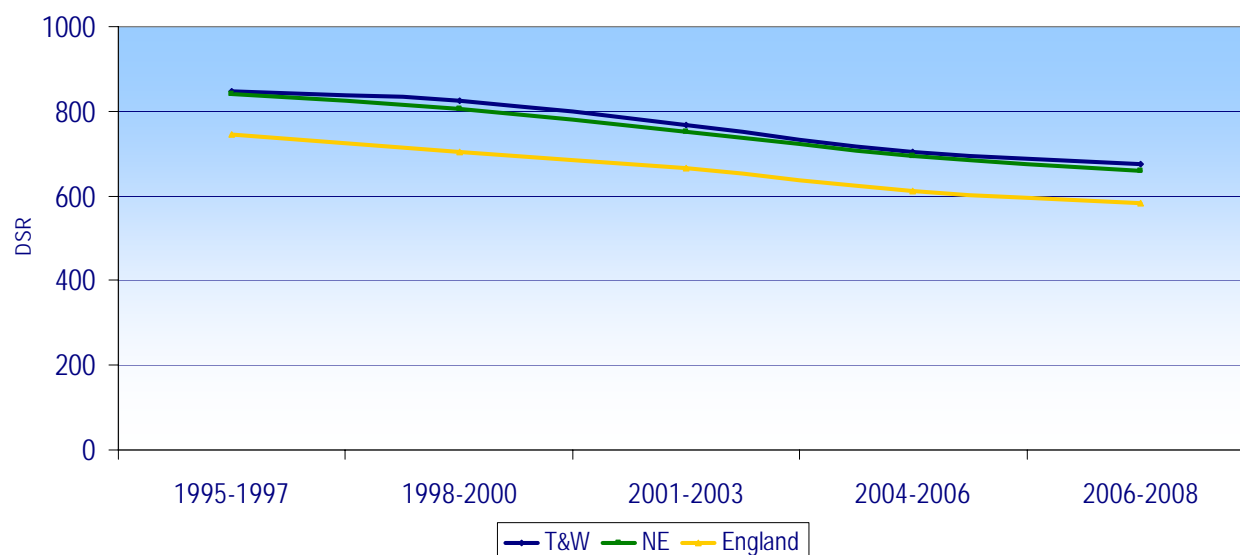
The age-standardised rate for an area is the number of deaths, per 100,000 population, that would occur in that area if it had the same age structure as the standard population and the local age-specific rates of the area applied.

Between 2006 and 2008, there were 675.83 deaths for every 100,000 people in Tyne and Wear, compared to 659.99 in the North East and 581.94 in England (Figure 7.3). DSRs have

<sup>10</sup> Data on DSRs obtained by TWRI from the National Centre for Health Outcomes Development (NCHOD)

fallen in all three areas since 1995. Tyne and Wear has a slightly higher DSR than the North East, both of which have on average, nearly 100 deaths (about 15%) more per hundred thousand than in England.

Figure 7.3: Directly Age-Standardised Mortality Rates (DSR) in T&W, NE and England, 1995-2008



Source: NCHOD (data for all persons, rates per 100,000 European Standard population, mortality from all causes, data based on averages for three-year periods as indicated)

### 7.3 Linking Mortality and Health

There are a number of public health factors which could negatively impact upon mortality rates in Tyne and Wear and the North East, including (higher levels of) smoking, drinking and less exercise. Some of these issues are discussed below.

The North East Health Profile 2010<sup>11</sup>, shows how the North East compares to the England average for a range of indicators used in the local Health Profiles. [See Appendix 7 for regional variations and Appendix 8 for local variations in health profiles.] This shows, among other things, that the North East is significantly worse than the England average on the following indicators;

- Adults who smoke (NE 27.9 [highest among GORs], Eng 22.2) [rate 26% above England]
- Deaths from smoking (NE 276.1 [highest among GORs], Eng 206.8) [rate 33% above England]
- Binge drinking adults (NE 30.1 [highest among GORs], Eng 20.1) [rate 50% above England]
- Hospital stays relating to alcohol (NE 2250 [highest among GORs], Eng 1580) [rate 42% above England].

The prevalence of smoking in the North East is discussed in a recent paper published by the North East Public Health Observatory (NEPHO)<sup>12</sup>. 2009 data show smoking prevalence in

<sup>11</sup> <https://www.apho.org.uk/>

<sup>12</sup> North East Public Health Observatory Occasional Paper No.30 May 2008 'The Prevalence of Smoking in the North East'

the North East of about 22% (20% in both men and 23% in women) compared to 21% in England (22% in men and 20% in women) (Table 7.2).

	Percentage smoking cigarettes (Persons aged 16 and over)										
	1998	2000	2001	2002	2003	2004	2005 <sup>1</sup>	2006 <sup>2</sup>	2007 <sup>2</sup>	2008 <sup>2</sup>	2009 <sup>2</sup>
<b>North East</b>											
Males	28	27	33	24	30	28	28	25	21	17	20
Females	30	28	26	29	27	30	30	25	22	23	23
Total	29	27	29	27	28	29	29	25	22	21	22
<b>England</b>											
Males	29	29	28	27	27	26	25	23	22	21	22
Females	26	25	25	25	24	23	22	21	19	20	20
Total	28	27	27	26	25	25	24	22	21	21	21

<sup>1</sup> 2005 data includes last quarter of 2004/5 data due to survey change from financial year to calendar year.  
<sup>2</sup> Results from 2006 include longitudinal data  
Source: The General LiFestyle Survey (GLF) 2010 (formerly the General Household Survey)

In Tyne and Wear; Gateshead is estimated to have the highest smoking prevalence at 33.4%, followed by Sunderland (29.4%), Newcastle (28.6%) and South Tyneside (28.0%). North Tyneside has the lowest level at 27.5%<sup>13</sup>.

The relationship between deprivation and mortality is long established. In a study reporting on recent patterns of mortality and deprivation, people living in more deprived areas were found to have higher mortality rates than those living in less deprived areas in England & Wales between 1999 and 2003<sup>14</sup> (ONS, 2006). Key findings included:

- The death rate for males (all ages) in the most deprived wards in England & Wales was 1.7 times higher, and for females 1.5 times higher than in the least deprived wards.
- Mortality rates for both sexes increased with deprivation for all circulatory diseases, ischemic heart disease, stroke, all cancers, lung cancer, respiratory diseases and accidents.
- Death rates for those living in the most deprived fifth of wards were generally highest in the North East and North West. These areas were found to have the biggest differences in mortality rates between the least and most deprived wards.

Data on physical activity are available through Sport England's 'Active People Survey'<sup>15</sup>. This shows that regionally, participation figures generally reflect the national average, at around 16.5% in the latest Survey (Oct 2009-Oct 2010). However, within Tyne & Wear there are wider variations between the Districts. The latest Survey shows North Tyneside to have the highest participation level (at 18.3%) and Gateshead the lowest (at 14.4%).

<sup>13</sup> Modelled estimates using Health Survey for England 2006-2008. Source: APHO and Department of Health. © Crown Copyright 2010

<sup>14</sup> 'Mortality by deprivation and cause of death in England & Wales, 1999-2003' (ONS Health Statistics Quarterly, v. 32, pp. 19-34)

<sup>15</sup> 'Active People Survey' published by Sport England, December 2010. Available at:  
[http://www.sportengland.org/research/active\\_people\\_survey/active\\_people\\_survey\\_4.aspx](http://www.sportengland.org/research/active_people_survey/active_people_survey_4.aspx)

	APS2 (Oct 2007- Oct 2008)		APS3 (Oct 2008- Oct 2009)		APS4 (Oct 2009- Oct 2010)	
	%	Base	%	Base	%	Base
[3 sessions a week (at least 12 sessions of at least moderate intensity for at least 30 minutes in the previous 28 days)*]						
England	16.4%	191,324	16.6%	193,947	16.5%	188,354
North East	16.3%	12,656	16.2%	12,063	16.4%	12,644
Gateshead	18.1%	506	14.7%	1,001	14.4%	1,009
Newcastle upon Tyne	17.6%	506	15.3%	500	14.8%	1,012
North Tyneside	16.1%	500	19.6%	501	18.3%	501
South Tyneside	16.4%	518	17.0%	502	16.6%	503
Sunderland	13.5%	504	16.3%	506	16.9%	517

\* This table highlights data for 3x30 participation in sport (three sessions a week, moderate intensity, 30 minutes). This is a different measure of participation from the Local Area Estimate (formerly NI8) or KPI1 participation indicators, which are 3x30 sport and active recreation (three days a week, moderate intensity, 30 minutes).  
Source: Sport England's Active People Survey

## 8. Natural Change

'Natural change' is population change resulting from live births minus deaths (Table 8.1 and Figure 8.1). It excludes population change occurring as a result of net migration.

Natural change now provides a positive contribution to population growth in Tyne and Wear (in each of the five latest years to 2009). Population also increased due to natural change between 2000 and 2009 in the North East (ten-year average of 408pa) and nationally (ten-year average of +130,477). In 2005, Tyne and Wear's population grew due to natural change for the first time in twelve years (by +233). In 2009, this annual population growth due to natural change had accelerated dramatically to +1,849. The main cause of population decline in Tyne and Wear up to 2004 remained out-migration rather than natural change<sup>16</sup>.

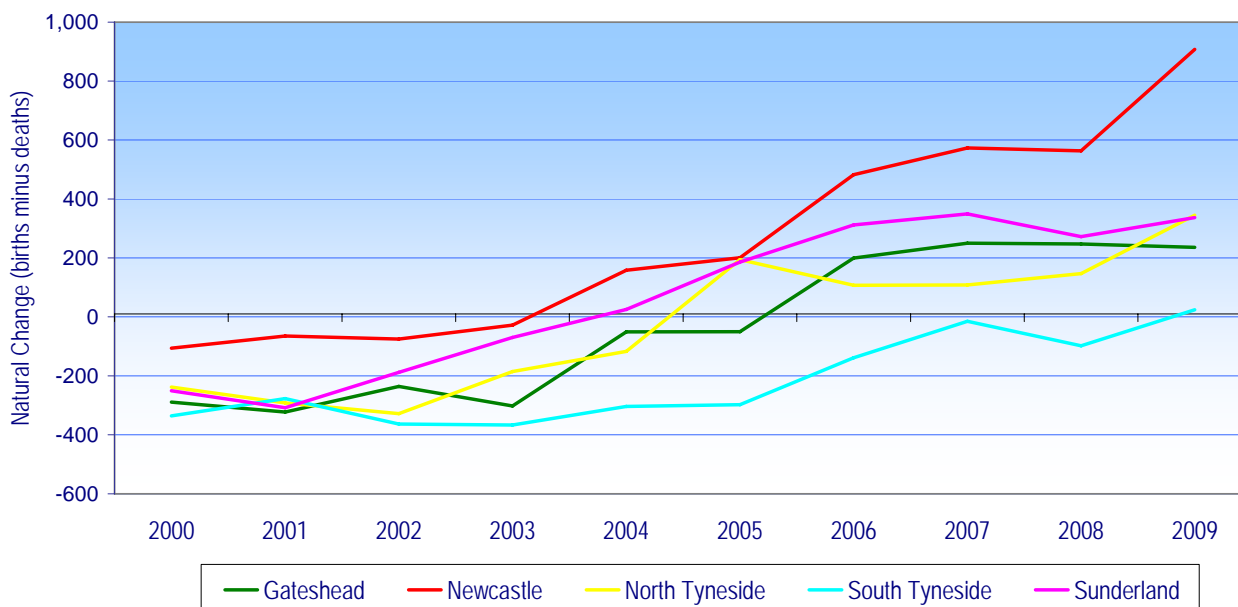
**Table 8.1: Natural Change, 2000-2009**

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	Average 2000-2009
Gateshead	-289	-323	-236	-302	-51	-50	199	250	247	236	-32
Newcastle	-106	-65	-75	-28	158	201	482	573	563	907	261
North Tyneside	-238	-292	-328	-185	-117	194	107	108	147	345	-26
South Tyneside	-336	-277	-363	-367	-304	-298	-139	-15	-98	24	-217
Sunderland	-251	-308	-188	-70	25	186	312	349	272	337	66
Tyne & Wear	-1,220	-1,265	-1,190	-952	-289	233	961	1,265	1,131	1,849	52
North East	-2,033	-2,442	-2,248	-1,685	-42	800	2,314	2,849	2,798	3,765	408
England, Wales	67,603	63,233	61,808	83,314	126,475	133,781	167,967	186,902	197,943	215,748	130,477

Source: Office for National Statistics, TWRI calculations

**Figure 8.1: Natural Change, Tyne and Wear Districts**

2000-2009



Source: Office for National Statistics, Crown Copyright. TWRI

<sup>16</sup> Between 2003 and 2004, domestic net out-migration fell from -2,100 to -1,800 (by 14%) due to a rise in in-migrants and a fall in out-migrants (PRDS data).

Between 2000 and 2009, South Tyneside lost on average the most people per annum as a result of natural change (-217pa). Gateshead lost on average -32pa and North Tyneside -26pa. Newcastle gained +261pa, whilst Sunderland gained +66pa.

In 2009, there were more live births than deaths in all five Tyne and Wear Districts; in Newcastle (+907), North Tyneside (+345), Sunderland (+337), Gateshead (+236) and for the first time since 1991 in South Tyneside (+24) (see Appendix 3).

## Appendix 1: Total Population

<b>Table A1: Total Population, 1981-2009 Mid-Year Estimates</b>										
	<b>1981</b>	<b>1982</b>	<b>1983</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>	
Gateshead	213,400	211,400	209,600	208,700	206,900	205,800	205,000	204,000	203,200	
Newcastle	284,200	281,000	281,100	280,900	281,900	280,900	281,900	278,700	276,300	
North Tyneside	198,700	197,400	195,700	195,100	194,600	194,000	194,900	195,200	195,400	
South Tyneside	161,900	160,500	159,400	158,300	157,500	156,800	156,200	155,800	155,900	
Sunderland	298,100	300,200	300,100	299,900	299,200	298,000	297,200	296,100	296,200	
Tyne & Wear	1,156,300	1,150,500	1,145,900	1,142,900	1,140,100	1,135,500	1,135,300	1,129,800	1,127,000	
North East	2,636,200	2,624,200	2,616,900	2,609,400	2,601,700	2,594,200	2,589,800	2,582,300	2,582,100	
England & Wales	49,634,300	49,581,600	49,617,000	49,713,100	49,860,700	49,998,600	50,123,000	50,253,600	50,407,800	
	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
Gateshead	202,000	201,700	201,300	200,700	199,600	198,500	197,200	195,900	194,300	193,300
Newcastle	276,200	275,000	278,700	282,700	281,200	281,300	280,900	278,200	274,500	271,000
North Tyneside	194,800	194,600	194,000	193,400	192,200	191,800	191,200	190,500	191,000	190,100
South Tyneside	156,200	156,700	156,700	156,600	156,100	155,800	155,600	155,100	154,400	153,600
Sunderland	296,000	295,900	296,300	296,900	295,300	293,900	292,300	290,800	289,700	287,500
Tyne & Wear	1,125,100	1,123,800	1,127,100	1,130,300	1,124,400	1,121,200	1,117,100	1,110,500	1,103,900	1,095,500
North East	2,584,300	2,587,000	2,591,300	2,593,900	2,588,700	2,582,700	2,576,500	2,568,100	2,560,900	2,550,300
England & Wales	50,560,600	50,748,000	50,875,600	50,985,900	51,116,200	51,272,000	51,410,400	51,559,600	51,720,100	51,933,500
	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Gateshead	191,900	191,200	190,900	190,700	190,200	190,100	189,700	189,700	189,900	190,800
Newcastle	267,600	266,200	267,800	268,300	269,200	272,600	274,200	275,600	277,800	284,300
North Tyneside	190,700	192,000	192,500	192,600	192,500	193,300	194,200	194,800	196,000	197,200
South Tyneside	153,100	152,800	152,500	151,800	151,200	150,800	150,600	150,600	151,400	152,400
Sunderland	285,700	284,600	283,600	282,700	282,000	281,700	281,300	281,000	280,900	281,700
Tyne & Wear	1,089,100	1,086,800	1,087,200	1,086,100	1,085,000	1,088,400	1,090,000	1,091,800	1,096,100	1,106,300
North East	2,543,400	2,540,100	2,540,400	2,540,400	2,540,900	2,547,900	2,552,700	2,560,400	2,570,600	2,584,300
England & Wales	52,140,200	52,360,000	52,567,300	52,792,200	53,053,200	53,416,300	53,725,800	54,082,300	54,454,700	54,809,100

Source: ONS Crown Copyright Reserved [from Nomis on 29 November 2010]

## Appendix 2: Total Fertility Rates 1984-1994

**Table A2: Total Fertility Rates (TFRs); 1984-1994**

	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
Gateshead	1.73	1.78	1.72	1.73	1.72	1.71	1.71	1.81	1.70	1.69	1.65
Newcastle	1.61	1.70	1.71	1.74	1.70	1.64	1.78	1.69	1.54	1.52	1.51
North Tyneside	1.72	1.83	1.77	1.81	1.75	1.72	1.80	1.77	1.78	1.70	1.61
South Tyneside	1.74	1.93	2.03	1.90	1.87	1.85	1.89	1.84	1.83	1.78	1.73
Sunderland	1.77	1.87	1.80	1.78	1.79	1.74	1.81	1.86	1.82	1.70	1.67
Tyne & Wear	1.71	1.81	1.79	1.78	1.76	1.72	1.79	1.78	1.71	1.65	1.62
North*/North East	1.74	1.80	1.76	1.76	1.75	1.71	1.78	1.83	1.79	1.74	1.69
England & Wales	1.75	1.78	1.77	1.81	1.82	1.80	1.84	1.82	1.80	1.76	1.75

Note: \* Government Office Regions (GORs), replaced Standard Statistical Regions (SSRs) in 1996. The North East GOR excludes Cumbria.

Source: Office for National Statistics, Crown Copyright

## Appendix 3: Live Births, Deaths, Natural Change, 1983-2009

<b>Table A3a: Live Births, 1983- 2009</b>										
	<b>1983</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>			
<b>Gateshead</b>	2,446	2,584	2,673	2,594	2,621	2,601	2,581			
<b>Newcastle</b>	3,450	3,460	3,718	3,752	3,849	3,667	3,486			
<b>North Tyneside</b>	2,248	2,286	2,450	2,388	2,480	2,404	2,369			
<b>South Tyneside</b>	1,838	1,922	2,146	2,267	2,101	2,066	2,031			
<b>Sunderland</b>	4,213	4,106	4,365	4,199	4,153	4,159	4,022			
<b>Tyne &amp; Wear</b>	14,195	14,358	15,352	15,200	15,204	14,897	14,489			
<b>North/North East*</b>	39,117	39,248	40,878	40,239	40,404	40,105	39,097			
<b>E&amp;W</b>	629,134	636,818	656,417	661,018	681,511	693,577	687,725			
*Figs for 1983-1996 are for the North										
	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>Gateshead</b>	2,566	2,690	2,514	2,463	2,415	2,359	2,300	2,327	2,162	2,109
<b>Newcastle</b>	3,769	3,733	3,567	3,545	3,424	3,360	3,249	3,188	3,034	2,879
<b>North Tyneside</b>	2,451	2,456	2,450	2,310	2,161	2,236	2,179	2,145	2,171	2,006
<b>South Tyneside</b>	2,070	2,075	2,030	1,951	1,859	1,864	1,761	1,763	1,653	1,643
<b>Sunderland</b>	4,154	4,201	4,057	3,765	3,612	3,500	3,448	3,311	3,223	3,111
<b>Tyne &amp; Wear</b>	15,010	15,155	14,618	14,034	13,471	13,319	12,937	12,734	12,243	11,748
<b>North/North East*</b>	40,656	41,128	40,003	38,597	37,028	35,940	35,535	29,404	28,720	27,739
<b>E&amp;W</b>	706,140	699,217	689,656	673,051	664,322	647,734	649,078	642,722	635,549	621,579
*Figs for 1983-1996 are for the North										
	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Gateshead</b>	2,070	1,995	2,012	2,020	2,128	2,118	2,251	2,241	2,352	2,326
<b>Newcastle</b>	2,887	2,875	2,941	2,895	2,918	2,979	3,221	3,238	3,293	3,434
<b>North Tyneside</b>	2,052	1,949	2,042	2,101	2,160	2,274	2,256	2,268	2,406	2,381
<b>South Tyneside</b>	1,521	1,479	1,467	1,523	1,540	1,529	1,560	1,698	1,670	1,644
<b>Sunderland</b>	2,960	2,853	2,930	3,012	2,971	3,068	3,236	3,251	3,289	3,131
<b>Tyne &amp; Wear</b>	11,490	11,151	11,392	11,551	11,717	11,968	12,524	12,696	13,010	12,916
<b>North/North East*</b>	26,499	25,949	26,271	27,005	27,815	28,249	29,184	29,582	30,184	29,776
<b>E&amp;W</b>	604,130	594,360	595,914	621,251	639,509	645,621	669,376	689,771	707,033	705,995

Source: Office for National Statistics, Crown Copyright

**Table A3b: Deaths, 1983-2009**

	<b>1983</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>
<b>Gateshead</b>	2,741	2,683	2,660	2,646	2,690	2,719	2,767
<b>Newcastle</b>	3,766	3,696	3,893	3,718	3,474	3,634	3,735
<b>North Tyneside</b>	2,531	2,545	2,680	2,524	2,509	2,504	2,534
<b>South Tyneside</b>	2,117	2,130	2,185	2,223	2,036	2,173	2,193
<b>Sunderland</b>	3,315	3,594	3,560	3,302	3,356	3,350	3,473

<b>Tyne &amp; Wear</b>	14,470	14,648	14,978	14,413	14,065	14,380	14,702
<b>North/North East*</b>	37,979	37,900	39,149	38,038	37,431	37,890	38,307
<b>E&amp;W</b>	579,608	566,881	590,734	581,203	566,994	571,408	576,872

\*Figs for 1983-1996 are for the North

	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>Gateshead</b>	2,518	2,686	2,480	2,722	2,507	2,524	2,486	2,445	2,565	2,348
<b>Newcastle</b>	3,609	3,558	3,548	3,502	3,393	3,339	3,343	3,230	3,308	3,114
<b>North Tyneside</b>	2,572	2,581	2,490	2,560	2,356	2,352	2,452	2,393	2,449	2,270
<b>South Tyneside</b>	1,988	2,012	2,055	2,011	1,881	1,881	1,883	2,024	1,956	1,909
<b>Sunderland</b>	3,351	3,473	3,387	3,456	3,337	3,274	3,295	3,132	3,368	3,282

<b>Tyne &amp; Wear</b>	14,038	14,310	13,960	14,251	13,474	13,370	13,459	13,224	13,646	12,923
<b>North/North East*</b>	37,480	37,970	37,072	37,966	36,064	36,247	36,312	29,797	30,550	29,364
<b>E&amp;W</b>	564,846	570,044	558,313	576,730	551,534	564,344	561,452	556,484	551,994	552,048

\*Figs for 1983-1996 are for the North

	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Gateshead</b>	2,359	2,318	2,248	2,322	2,179	2,168	2,052	1,991	2,105	2,090
<b>Newcastle</b>	2,993	2,940	3,016	2,923	2,760	2,778	2,739	2,665	2,730	2,527
<b>North Tyneside</b>	2,290	2,241	2,370	2,286	2,277	2,080	2,149	2,160	2,259	2,036
<b>South Tyneside</b>	1,857	1,756	1,830	1,890	1,844	1,827	1,699	1,713	1,768	1,620
<b>Sunderland</b>	3,211	3,161	3,118	3,082	2,946	2,882	2,924	2,902	3,017	2,794

<b>Tyne &amp; Wear</b>	12,710	12,416	12,582	12,503	12,006	11,735	11,563	11,431	11,879	11,067
<b>North/North East*</b>	28,532	28,391	28,519	28,690	27,857	27,449	26,870	26,733	27,386	26,011
<b>E&amp;W</b>	536,527	531,127	534,106	537,937	513,034	511,840	501,409	502,869	509,090	490,247

Source: Office for National Statistics, Crown Copyright

<b>Table A3c: Natural Change, 1983-2009</b>										
	<b>1983</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>			
<b>Gateshead</b>	-295	-99	13	-52	-69	-118	-186			
<b>Newcastle</b>	-316	-236	-175	34	375	33	-249			
<b>North Tyneside</b>	-283	-259	-230	-136	-29	-100	-165			
<b>South Tyneside</b>	-279	-208	-39	44	65	-107	-162			
<b>Sunderland</b>	898	512	805	897	797	809	549			
<b>Tyne &amp; Wear</b>	-275	-290	374	787	1,139	517	-213			
<b>North/North East*</b>	1,138	1,348	1,729	2,201	2,973	2,215	790			
<b>E&amp;W</b>	49,526	69,937	65,683	79,815	114,517	122,169	110,853			
*Figs for 1983-1996 are for the North										
	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>Gateshead</b>	48	4	34	-259	-92	-165	-186	-118	-403	-239
<b>Newcastle</b>	160	175	19	43	31	21	-94	-42	-274	-235
<b>North Tyneside</b>	-121	-125	-40	-250	-195	-116	-273	-248	-278	-264
<b>South Tyneside</b>	82	63	-25	-60	-22	-17	-122	-261	-303	-266
<b>Sunderland</b>	803	728	670	309	275	226	153	179	-145	-171
<b>Tyne &amp; Wear</b>	972	845	658	-217	-3	-51	-522	-490	-1,403	-1,175
<b>North/North East*</b>	3,176	3,158	2,931	631	964	-307	-777	-393	-1,830	-1,625
<b>E&amp;W</b>	141,294	129,173	131,343	96,321	112,788	83,390	87,626	86,238	83,555	69,531
*Figs for 1983-1996 are for the North										
	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>Gateshead</b>	-289	-323	-236	-302	-51	-50	199	250	247	236
<b>Newcastle</b>	-106	-65	-75	-28	158	201	482	573	563	907
<b>North Tyneside</b>	-238	-292	-328	-185	-117	194	107	108	147	345
<b>South Tyneside</b>	-336	-277	-363	-367	-304	-298	-139	-15	-98	24
<b>Sunderland</b>	-251	-308	-188	-70	25	186	312	349	272	337
<b>Tyne &amp; Wear</b>	-1,220	-1,265	-1,190	-952	-289	233	961	1,265	1,131	1,849
<b>North/North East*</b>	-2,033	-2,442	-2,248	-1,685	-42	800	2,314	2,849	2,798	3,765
<b>E&amp;W</b>	67,603	63,233	61,808	83,314	126,475	133,781	167,967	186,902	197,943	215,748
Source: Office for National Statistics, Crown Copyright. TWRI calculations										

## Appendix 4: Live Births and Deaths by Ward

	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Birtley	79	86	87	94	87	85
Blaydon	110	122	124	116	116	136
Bridges	99	120	117	105	141	121
Chopwell & Rowlands Gill	97	85	95	111	110	111
Chowdene	72	79	77	64	75	87
Crawcrook & Greenside	85	84	85	91	89	95
Deckham	121	143	132	109	123	139
Dunston & Teams	105	108	147	132	128	154
Dunston Hill & Whickham East	66	71	78	84	76	86
Felling	117	113	115	84	117	122
High Fell	107	122	98	121	127	111
Lamesley	105	75	95	90	84	90
Lobley Hill & Bensham	128	110	146	131	138	137
Low Fell	104	95	99	95	117	91
Pelaw & Heworth	74	71	97	98	103	104
Ryton, Crookhill & Stella	72	70	73	71	89	87
Saltwell	173	178	161	190	191	167
Wardley & Leam Lane	89	102	96	92	90	91
Whickham North	73	61	80	102	100	96
Whickham South & Sunniside	80	63	71	80	84	56
Windy Nook & Whitehills	104	95	110	107	104	94
Winlaton & High Spen	68	65	68	74	63	66
Total	2,128	2,118	2,251	2,241	2,352	2,326

Source: Office for National Statistics, Crown Copyright

	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Benwell & Scotswood	211	170	169	187	190	194
Blakelaw	140	143	170	162	143	151
Byker	155	161	183	168	193	204
Castle	114	91	93	119	115	100
Dene	94	112	100	96	96	114
Denton	108	108	121	125	110	112
East Gosforth	97	105	101	116	100	126
Elswick	234	247	285	300	293	306
Fawdon	109	104	140	121	124	128
Fenham	127	130	133	147	126	157
Kenton	140	132	177	181	178	208
Lemington	126	121	118	119	142	124
Newburn	92	95	105	107	112	108
North Heaton	89	82	103	72	96	93
North Jesmond	40	40	38	28	32	37
Ouseburn	47	56	57	63	60	80
Parklands	94	111	122	114	124	125
South Heaton	59	72	69	68	84	67
South Jesmond	40	40	40	38	43	35
Walker	180	196	192	203	186	187
Walkergate	72	82	105	104	113	103
Westerhope	55	69	59	64	66	78
Westgate	85	89	93	105	95	102
West Gosforth	102	97	112	92	119	111
Wingrove	192	183	223	201	212	245
Woolsington	116	143	113	138	141	139
Total	2,918	2,979	3,221	3,238	3,293	3,434

Source: Office for National Statistics, Crown Copyright

**Table A4c: Live Births by Ward (North Tyneside)**

	2004	2005	2006	2007	2008	2009
Battle Hill	112	115	123	119	122	112
Benton	99	92	102	86	121	97
Camperdown	139	151	147	142	139	140
Chirton	157	185	157	136	215	205
Collingwood	106	111	101	109	139	129
Cullercoats	71	65	62	75	71	57
Howdon	138	143	158	147	147	131
Killingworth	102	119	119	107	103	125
Longbenton	99	110	116	122	134	127
Monkseaton North	90	73	99	81	90	94
Monkseaton South	105	110	99	105	105	113
Northumberland	85	90	78	82	83	77
Preston	76	75	111	91	82	101
Riverside	143	175	158	190	182	185
St Mary's	40	63	49	44	45	52
Tynemouth	106	102	97	125	104	120
Valley	155	125	150	144	167	165
Wallsend	126	142	137	150	139	152
Weetslade	102	96	87	112	91	86
Whitley Bay	109	132	106	101	127	113
Total	2,160	2,274	2,256	2,268	2,406	2,381

Source: Office for National Statistics, Crown Copyright

**Table A4d: Live Births by Ward (South Tyneside)**

	2004	2005	2006	2007	2008	2009
Beacon & Bents	130	106	133	127	118	129
Bede	79	87	93	89	108	92
Biddick & All Saints	117	127	134	128	112	144
Boldon Colliery	87	98	97	111	116	98
Cleadon & East Boldon	58	59	61	62	50	48
Cleadon Park	70	71	50	64	67	56
Fellgate & Hedworth	87	74	96	86	103	81
Harton	74	73	70	75	77	68
Hebbum North	87	108	91	109	121	126
Hebbum South	68	64	62	78	85	73
Horsley Hill	67	77	86	86	94	94
Monkton	76	82	83	97	89	84
Primrose	79	78	91	105	94	108
Simonside & Rekendyke	136	138	129	131	122	116
Westoe	99	66	78	97	80	82
West Park	90	88	85	109	73	101
Whitburn & Marsden	61	70	58	66	68	65
Whiteleas	75	63	63	78	93	79
Total	1,540	1,529	1,560	1,698	1,670	1,644

Source: Office for National Statistics, Crown Copyright

	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Barnes	98	116	129	117	152	123
Castle	141	131	145	156	134	151
Copt Hill	125	127	135	135	131	133
Doxford	98	94	90	108	94	94
Fulwell	82	94	94	71	79	68
Hendon	136	171	167	187	210	169
Hetton	113	115	129	112	115	126
Houghton	109	144	136	112	127	124
Millfield	126	127	149	141	143	160
Pallion	143	131	130	140	128	125
Redhill	139	159	140	160	176	168
Ryhope	101	130	115	127	120	118
St Anne's	117	113	161	148	165	153
St Chad's	82	98	98	92	100	81
St Michael's	77	92	95	89	108	91
St Peter's	88	100	97	113	97	113
Sandhill	136	135	122	142	128	148
Shiney Row	164	153	173	164	151	170
Silksworth	118	116	132	134	135	110
Southwick	134	126	137	138	125	136
Washington Central	125	93	118	117	117	111
Washington East	121	105	153	123	133	98
Washington North	161	169	160	207	165	150
Washington South	99	105	103	110	125	101
Washington West	138	124	128	108	131	110
<b>Total</b>	<b>2,971</b>	<b>3,068</b>	<b>3,236</b>	<b>3,251</b>	<b>3,289</b>	<b>3,131</b>

Source: Office for National Statistics, Crown Copyright

**Table A4f: Deaths by Ward (Gateshead)**

	2004	2005	2006	2007	2008	2009
Birtley	114	107	97	86	98	91
Blaydon	79	88	83	90	101	89
Bridges	115	98	90	91	87	94
Chopwell & Rowlands Gill	89	94	86	91	108	93
Chowdene	93	113	124	115	123	100
Crawcrook & Greenside	87	98	80	72	81	85
Deckham	115	106	95	123	108	104
Dunston & Teams	104	113	82	90	103	72
Dunston Hill & Whickham East	115	86	83	66	87	107
Felling	100	111	120	95	98	123
High Fell	113	128	109	111	93	104
Lamesley	91	86	93	88	103	109
Lobley Hill & Bensham	126	126	90	119	143	134
Low Fell	102	105	100	94	91	106
Pelaw & Heworth	103	95	78	75	88	82
Ryton, Crookhill & Stella	78	76	83	69	72	76
Saltwell	69	89	72	77	66	74
Wardley & Leam Lane	85	71	87	75	75	71
Whickham North	88	98	97	78	87	101
Whickham South & Sunnyside	66	62	71	63	60	65
Windy Nook & Whitehills	103	99	105	100	105	84
Winlaton & High Spen	144	119	127	123	128	126
Total	2,179	2,168	2,052	1,991	2,105	2,090

**Table A4g: Deaths by Ward (Newcastle)**

	2004	2005	2006	2007	2008	2009
Benwell & Scotswood	181	147	168	148	149	154
Blakelaw	109	92	131	120	141	100
Byker	165	197	154	162	157	151
Castle	73	76	70	79	87	74
Dene	85	81	76	76	85	58
Denton	101	121	109	115	117	108
East Gosforth	112	103	89	89	101	96
Elswick	196	193	187	165	159	155
Fawdon	143	147	136	156	160	144
Fenham	108	102	100	94	102	106
Kenton	129	120	138	150	121	107
Lemington	95	119	93	85	113	88
Newburn	112	111	99	107	98	97
North Heaton	83	64	85	72	87	66
North Jesmond	48	53	40	43	50	37
Ouseburn	65	62	53	58	54	47
Parklands	70	68	74	73	58	76
South Heaton	72	74	79	83	74	76
South Jesmond	67	70	58	60	79	60
Walker	167	179	185	178	155	175
Walkergate	128	101	108	83	91	104
Westerhope	111	110	121	108	122	104
Westgate	76	76	57	54	73	58
West Gosforth	74	91	111	107	89	98
Wingrove	78	83	85	78	86	59
Woolsington	112	138	133	122	122	129
Total	2,760	2,778	2,739	2,665	2,730	2,527

Source: Office for National Statistics, Crown Copyright

**Table A4h: Deaths by Ward (North Tyneside)**

	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Battle Hill	98	86	78	86	100	88
Benton	121	109	116	122	127	110
Camperdown	84	72	97	99	104	71
Chirton	122	82	124	104	107	112
Collingwood	99	80	81	94	115	84
Cullercoats	117	131	122	144	119	120
Howdon	148	134	139	113	130	134
Killingworth	89	88	66	82	109	75
Longbenton	119	131	100	134	118	114
Monkseaton North	85	75	82	80	80	69
Monkseaton South	103	97	94	97	131	98
Northumberland	89	69	88	70	64	76
Preston	149	137	127	134	147	117
Riverside	177	141	175	176	151	151
St Mary's	74	81	88	90	79	70
Tynemouth	138	125	133	126	131	142
Valley	87	89	99	80	111	84
Wallsend	125	123	127	113	124	108
Weetslade	102	104	117	102	86	101
Whitley Bay	151	126	96	114	126	112
<b>Total</b>	<b>2,277</b>	<b>2,080</b>	<b>2,149</b>	<b>2,160</b>	<b>2,259</b>	<b>2,036</b>

Source: Office for National Statistics, Crown Copyright

**Table A4i: Deaths by Ward (South Tyneside)**

	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Beacon & Bents	116	104	88	113	96	105
Bede	106	87	90	89	80	79
Biddick & All Saints	110	125	112	129	110	75
Boldon Colliery	84	101	102	86	110	63
Cleadon & East Boldon	77	83	72	79	77	76
Cleadon Park	93	83	93	55	69	65
Fellgate & Hedworth	73	66	61	56	71	65
Harton	141	131	130	121	122	128
Hebburn North	103	99	99	87	102	97
Hebburn South	112	105	75	110	114	94
Horsley Hill	109	100	87	95	97	74
Monkton	126	136	118	112	104	119
Primrose	117	118	120	131	127	122
Simonside & Rekendyke	87	101	106	90	90	74
Westoe	128	103	105	100	121	129
West Park	79	82	69	61	92	71
Whitburn & Marsden	79	66	88	76	78	75
Whiteleas	104	137	84	123	108	109
<b>Total</b>	<b>1,844</b>	<b>1,827</b>	<b>1,699</b>	<b>1,713</b>	<b>1,768</b>	<b>1,620</b>

Source: Office for National Statistics, Crown Copyright

**Table A4j: Deaths by Ward (Sunderland)**

	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
Barnes	142	123	135	144	142	124
Castle	109	140	129	135	141	127
Copt Hill	159	135	159	168	182	157
Doxford	83	71	68	75	75	60
Fulwell	104	98	92	109	105	96
Hendon	135	123	167	146	147	127
Hetton	132	138	112	136	110	113
Houghton	148	129	94	119	126	119
Milfield	110	111	117	126	116	115
Pallion	107	104	120	107	93	106
Redhill	120	147	144	108	141	124
Ryhope	129	102	120	96	94	113
St Anne's	87	103	116	95	119	105
St Chad's	121	125	153	117	141	125
St Michael's	114	115	108	127	113	103
St Peter's	149	147	153	142	159	135
Sandhill	116	100	106	123	155	127
Shiney Row	154	134	148	126	131	147
Silksworth	108	109	102	115	107	106
Southwick	171	162	139	156	165	141
Washington Central	104	102	89	93	84	85
Washington East	95	104	89	105	100	78
Washington North	86	83	75	81	100	93
Washington South	52	56	65	50	45	50
Washington West	111	121	124	103	126	118
Total	2,946	2,882	2,924	2,902	3,017	2,794

Source: Office for National Statistics, Crown Copyright

## Appendix 5: Live Births By Marital Status

**Table A5.1: Percentage of Live Births Within Marriage**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Gateshead	53	51	51	50	48	47	45	47	47	47	46	45	42
Newcastle	54	53	52	50	52	51	50	50	50	48	49	48	49
North Tyneside	55	55	53	53	53	50	49	49	47	49	47	46	49
South Tyneside	50	48	47	46	45	43	44	44	41	41	41	39	36
Sunderland	49	45	47	44	43	41	41	41	41	41	38	38	36
Tyne & Wear	52	50	50	48	48	46	46	46	45	45	44	43	43
North East	54	52	51	49	49	47	46	46	45	45	44	43	42
England & Wales	63	62	61	61	60	59	59	58	57	56	56	55	54

Source: Office for National Statistics, Crown Copyright

**Table A5.2: Percentage of Live Births Outside of Marriage**

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Gateshead	47	49	49	50	52	53	55	53	53	53	54	55	58
Newcastle	46	47	48	50	48	49	50	50	50	52	51	52	51
North Tyneside	45	45	47	47	47	50	51	51	53	51	53	54	51
South Tyneside	50	52	53	54	55	57	56	56	59	59	59	61	64
Sunderland	51	55	53	56	57	59	59	59	59	59	62	62	64
Tyne & Wear	48	50	50	52	52	54	54	54	55	55	56	57	57
North East	46	48	49	51	51	53	54	54	55	55	56	57	58
England & Wales	37	38	39	39	40	41	41	42	43	44	44	45	46

Source: Office for National Statistics, Crown Copyright

## Appendix 6: Standardised Mortality Ratios (SMRs) in England<sup>17</sup>

Note: In the report 'Death registrations in England & Wales, 2007'; ONS state in their explanatory note on SMRs that "direct comparisons between areas or between sexes can be misleading" (p.106) however they go on to make a number of key observations where such comparisons are made. TWRI note that SMRs should only be used to enable comparisons with a national average.

The following two paragraphs on SMRs for other areas are presented for completeness. The first paragraph presents data from 'Death registrations in England & Wales, 2009'. The second paragraph updates a section of commentary included in TWRI's 'Health and Population Change Report, 2004' [For comparisons between areas, see Section 7.2 on Directly Standardised Mortality Rates (DSRs)].

### 1) ONS Observations on SMRs

Among Government Office Regions (GORs), the North West (112) and North East (111) had the highest SMRs in 2009, while the lowest level was in the South East (92) and South West (93). At District level, the highest SMRs were in Blackburn and Darwen UA (134), Rossendale (131), then Liverpool (129), Manchester (128), and, Halton UA, and Salford (both 127), all located in the North West GOR, and Wear Valley (127), in the North East GOR. The lowest SMRs were in the London Borough of Kensington & Chelsea (61), followed by Westminster (69), and East Dorset (76), in the South West GOR.

### 2) TWRI Observations on SMRs

Compared to other urban/industrialised areas of England, Tyne and Wear had a typical SMR (113). Areas such as Greater Manchester Met County (116) and Merseyside Met County (117) had higher SMRs than Tyne and Wear, whilst areas such as Birmingham (106), Nottinghamshire (103) and Sheffield (106) had significantly lower SMRs. It is striking, and odd, that areas with more widespread experience of coal-mining, such as Nottinghamshire, or a history of heavy industry (Sheffield) had much better SMRs than Tyne and Wear. This might suggest other major public health factors which are negative in Tyne and Wear. Possibilities include; (higher levels of) smoking, drinking and less exercise. These issues are discussed in Section 7.3 of this report.

Appendix 7 and 8 show regional and local variations in health profiles. The North East stands out on a number of indicators, including; adults who smoke, at 27.9% - the highest among the GORs and 26% above the England rate of 22.2%. The North East also has the highest rate of deaths from smoking at 276.1; this is 33.5% higher than the England rate of 206.8. Similarly, the North East has a high rate of binge drinking adults, at 30.1% - again the highest among the GORs and 50% above the England rate of 20.1%.

In 2008, the North East had similar levels of obese adults to the England average. In 2010, at 27.8%, the North East was 15% higher than the England average of 24.2%. The rate of obese children in the region, at 10.2%, is 6% higher than the England rate of 9.6%.

The North East is more similar to the England average in relation to physically active adults (NE 11.3%, Eng 11.2%) and has the highest level of physically active children (51.1%, 3% higher than the England average of 49.6%). The North East also has one of the lowest levels of violent crime (14.5<sup>18</sup>, 11.6% lower than the England average of 16.4).

<sup>17</sup> As reported in the article 'Death registrations in England & Wales, 2007: area of residence' in 'Population Trends' Volume 133, Autumn 2008, pp. 106-116.

<sup>18</sup> Recorded violence against the person crimes, crude rate per 1,000 population 2008/09.

## Appendix 7: Regional Variations in Health Profiles

Regional variations  
National Context

This table shows how each region compares to the England average for the range of indicators used in the local Health Profiles. Areas are sorted by a summary score of red, amber and green indicators so that areas with more indicators which are better than the England average appear at the left and those which are worse appear at the right. A green box may still indicate an important public health problem.

Domain	Indicator	England	South West	East of England	South East	East Midlands	London	North West	North East	Yorkshire and the Humber	West Midlands
Our communities	1 Deprivation	19.9	9.2	6.2	5.9	16.6	28.5	31.8	33.7	27.2	27.4
	2 Children in poverty	22.4	16.9	16.9	15.4	19.5	33.9	25.0	26.0	23.0	24.8
	3 Statutory homelessness	2.48	1.65	2.13	1.37	1.98	4.02	1.87	2.83	2.87	3.88
	4 GCSE achieved (5A*-C inc. Eng & Maths)	50.9	51.8	51.9	53.8	49.9	53.9	49.9	48.1	47.3	48.5
	5 Violent crime	16.4	14.4	12.2	16.1	16.1	23.0	15.9	14.5	15.7	16.5
	6 Carbon emissions	6.8	6.9	7.0	6.6	7.3	5.9	6.8	7.9	7.3	6.8
Children's and young people's health	7 Smoking in pregnancy	14.6	14.8	14.9	12.8	18.0	7.5	19.0	22.8	18.4	15.3
	8 Breast feeding initiation	72.5	77.5	72.4	78.4	71.4	86.3	62.7	54.5	67.7	65.2
	9 Physically active children	49.6	52.4	50.1	47.6	50.2	49.3	51.6	51.1	47.6	48.4
	10 Obese children	9.6	8.9	8.7	8.7	9.1	11.2	9.6	10.2	9.6	10.1
	11 Tooth decay in children aged 5 years	1.1	1.0	0.8	0.9	1.0	1.3	1.5	1.5	1.5	1.0
	12 Teenage pregnancy (under 18)	40.9	34.6	32.6	33.0	39.9	45.3	45.7	50.3	47.2	46.2
Adults' health and lifestyle	13 Adults who smoke	22.2	21.4	20.9	19.8	24.0	20.8	23.6	27.9	24.0	21.6
	14 Binge drinking adults	20.1	20.7	18.2	18.1	20.1	14.3	23.3	30.1	24.5	18.8
	15 Healthy eating adults	28.7	29.6	30.3	29.2	28.6	36.4	26.2	21.5	24.5	25.7
	16 Physically active adults	11.2	12.7	10.9	11.9	11.8	10.2	10.8	11.3	12.1	10.1
	17 Obese adults	24.2	24.7	23.6	23.7	24.3	20.7	23.4	27.8	26.3	26.4
Disease and poor health	18 Incidence of malignant melanoma	12.6	17.7	12.1	15.2	12.2	7.3	12.7	10.7	13.6	11.2
	19 Incapacity benefits for mental illness	27.6	26.8	20.9	19.9	25.1	26.7	40.0	38.5	28.1	28.9
	20 Hospital stays for alcohol related harm	1580	1490	1300	1240	1560	1490	2080	2250	1520	1660
	21 Drug misuse										
	22 People diagnosed with diabetes	4.30	4.07	4.01	3.90	4.55	4.43	4.56	4.35	4.33	4.70
	23 New cases of tuberculosis	15	5	8	8	13	44	11	7	13	18
	24 Hip fracture in over-65s	479.2	465.7	467.5	473.0	484.2	436.6	498.8	530.6	485.5	499.3
Life expectancy and causes of death	25 Excess winter deaths	15.6	16.6	16.6	15.7	14.5	15.3	14.5	16.1	14.5	16.7
	26 Life expectancy - male	77.9	79.0	78.9	79.2	77.8	78.2	76.3	76.5	77.1	77.2
	27 Life expectancy - female	82.0	83.1	82.8	83.0	81.6	82.7	80.6	80.6	81.3	81.6
	28 Infant deaths	4.84	4.07	4.26	4.02	5.20	4.57	5.26	4.76	5.58	6.28
	29 Deaths from smoking	206.8	171.7	180.7	174.9	204.1	200.4	254.4	276.1	234.9	211.1
	30 Early deaths: heart disease & stroke	74.8	62.4	64.1	62.5	74.3	79.4	91.3	87.2	82.8	79.3
	31 Early deaths: cancer	114.0	104.7	105.9	106.3	113.4	109.8	127.1	134.0	120.2	116.8
	32 Road injuries and deaths	51.3	46.2	54.8	52.3	56.4	49.7	50.8	41.2	60.3	46.0

Significantly worse than England average  
Significantly better than England average

Not significantly different from England average  
No significance can be calculated, or data unavailable

North East

www.healthprofiles.info

© Crown Copyright 2010

## Appendix 8: Local Variations in Health Profiles

### Local variations National Context

This table shows how each local authority and county within this region compares to the England average, for the range of indicators used in the local Health Profiles. Indicators and areas are sorted from top to bottom and from left to right so that the better overall results appear at the top left and worse overall results at the bottom right of the table. A green box may still indicate an important public health problem.

	New cases of tuberculosis	Road injuries and deaths	Violent crime	Incidence of malignant melanoma	Physically active adults	Physically active children	Statutory homelessness	Infant deaths	People diagnosed with diabetes	Excess winter deaths	Obese children	Hip fracture in over-65s	GCSE achieved (5A*-C inc. Eng & Maths)	Tooth decay in children aged 5 years	Children in poverty	Obese adults	Adults who smoke	Deprivation	Early deaths: cancer	Teenage pregnancy (under 18)	Early deaths: heart disease & stroke	Incapacity benefits for mental illness	Life expectancy - male	Binge drinking adults	Breast feeding initiation	Deaths from smoking	Healthy eating adults	Hospital stays for alcohol related harm	Life expectancy - female	Smoking in pregnancy	Carbon emissions	Drug misuse		
Northumberland UA																																		
Redcar and Cleveland UA																																		
Stockton-on-Tees UA																																		
Hartlepool UA																																		
North Tyneside MCD																																		
South Tyneside MCD																																		
Sunderland MCD																																		
County Durham UA																																		
Darlington UA																																		
Gateshead MCD																																		
Newcastle upon Tyne MCD																																		
Middlesbrough UA																																		

■ Significantly worse than England average      ■ Not significantly different from England average  
■ Significantly better than England average      ■ No significance can be calculated, or data unavailable or suppressed due to small numbers