

Mortality Monitoring Bulletin

Life expectancy, all-age-all-cause mortality, and mortality from selected causes, overall and inequalities

Update to include data for 2010

Published 27 October 2011

Key findings:

Life Expectancy at birth

- Life expectancy at birth in England has continued to increase for both males and females, reaching 78.4 and 82.4 years respectively in 2008-10

Mortality from selected causes of death

- **Cancer:** The mortality rate from cancer at ages under 75 in England has continued to decline, at 110 deaths per 100,000 population in 2008-10, a decrease of 14% since 1999-01.
- **Circulatory diseases:** The mortality rate from circulatory diseases at ages under 75 in England has continued to decline, at 67 deaths per 100,000 population in 2008-10, a decrease of 41% since 1999-01.
- **Suicide:** The mortality rate from suicide and injury of undetermined intent in England was 7.9 deaths per 100,000 population in 2008-10, a fall of 15% since 1999-01, but having remained around 7.9 since 2005-07.
- **Accidents:** There has been little change in the England mortality rate from accidents since 1999-01; however, in 2008-10 the rate fell by 2.8% compared with 2007-09, from 15.7 to 15.2 deaths per 100,000 population – this was mainly due to a fall in the rate for males.

Inequalities in life expectancy and mortality

- Although life expectancy is improving in the areas which had the worst health and deprivation (the former Spearhead Group), both the absolute and relative gaps in female life expectancy between these areas and England as a whole increased between 1999-01 and 2008-10. For male life expectancy, the absolute and relative gaps were broadly unchanged over the same period, although the relative gap widened slightly between 2004-06 and 2007-09.
- For mortality rates from cancer and circulatory diseases at ages under 75, the absolute gap between the areas which had the worst health and deprivation (the former Spearhead Group) and England narrowed between 1999-01 and 2008-10, but the relative gap widened.

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Introduction

This statistical release updates previously published figures on life expectancy and mortality to include the latest available three-year average figures (for 2008-10). It updates the data reported in 2010 in the bulletin:

- 'Mortality Monitoring Bulletin (Life expectancy, all-age-all-cause mortality, and mortality from selected causes, overall and inequalities): Update to include data for 2009'¹

Three-year average figures are presented for:

- life expectancy
- all-age-all-cause mortality rates
- mortality rates for selected specific causes of death
 - cancer (ages under 75)
 - all circulatory diseases (ages under 75)
 - suicide and injury of undetermined intent (all ages)
 - accidents (all ages)

For each measure, the ten most recent three-year averages are shown (i.e showing a ten year trend) for England, alongside calculations of the progress made since the start of this period. Figures for 1995-97* are also shown.

Figures on area-based inequalities are also presented for life expectancy, all-age-all-cause mortality, and cancer and circulatory diseases mortality. As in previous editions of this bulletin, this is based on comparison of figures for England with figures for a group of local authorities identified as having had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. (For further details see section A4i of the technical notes in Annex A). This group of local authorities (formerly known as the Spearhead Group) is referred to throughout this document as the "areas which had the worst health and deprivation".

This update follows the release by the Office for National Statistics (ONS) of life expectancy at birth figures for 2008-10 at national level and for local authorities². The mortality rates included in this mortality monitoring bulletin have been calculated from death registrations and mid-year population estimates released by the Office for National Statistics (ONS), following the publication of figures for 2010^{3,4}.

This document is the latest in a series of mortality monitoring bulletins published since 2007, initially to present data related to former government mortality targets (see Annex B), and the selection of indicators presented (including the presentation of data on inequalities) reflects this. We plan to review the format and content of this bulletin before the next annual update in the light of the indicators in the Transparency section of the Department of Health Business Plan 2011-15⁵, and the forthcoming Public Health Outcomes Framework⁶. We would welcome feedback on this bulletin – please send any comments to mortalitymonitoring@dh.gsi.gov.uk.

* 1995-97 was the baseline period for former government mortality targets associated with the data presented in this bulletin (see Annex B for further details).

Life Expectancy at birth

Table 1 presents the latest ten year trend (based on ten rolling three-year periods) in life expectancy at birth for both males and females for England and the areas which had the worst health and deprivation*. Figures for 1995-97 are also presented.

Two sets of figures are shown for life expectancy in England, based on:

1. The Interim Life Tables (based on complete life tables)²
2. Sub-national (abridged) life tables²

The Interim Life Tables contain the definitive estimates of life expectancy at national level. The second set of figures is calculated using a slightly different methodology, which allows comparisons between the life expectancies for England and the areas which had the worst health and deprivation to be made on a consistent basis. See section A2 of the technical notes (Annex A) for further information.

The latest data for 2008-10 from the Interim Life Tables show an improvement in life expectancy at birth in England for both males and females, continuing the previous trend. In 2008-10, England life expectancy was 78.4 years for males, an increase of 2.8 years since 1999-01. For females, England life expectancy was 82.4 years in 2008-10, an increase of 2.0 years over the same period. Life expectancy is higher for females than for males, although the improvement over the ten years to 2008-10 was greater for males than females, so the gender difference has narrowed.

Life expectancy is lower for the areas which had the worst health and deprivation* than for England as a whole, but is also increasing for both males and females. In 2008-10, life expectancy for the areas which had the worst health and deprivation was 76.5 years for males, an increase of 2.8 years since 1999-01. For females, life expectancy for the areas which had the worst health and deprivation was 80.9 years in 2008-10, an increase of 2.0 years over the same period.

Based on comparison with England data from the sub-national (abridged) life tables, the absolute gap - i.e. difference - in life expectancy between England and the areas which had the worst health and deprivation* in 2008-10 was slightly wider than in 1999-01 for females, but since 1999-01 has been broadly unchanged for males.

For males the relative gap – i.e. percentage difference – in life expectancy between England and the areas which had the worst health and deprivation* was broadly unchanged between 1999-01 and 2008-10, apart from a period between 2004-06 and 2007-09 when it widened slightly.

For females, the relative gap widened over the ten years to 2008-10, and in 2008-10 was 0.23 percentage points, or 12.9% higher than in 1995-97.

* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

Measure

Period life expectancy at birth (years): an estimate of the average number of years a new-born baby would survive if he or she experienced the age-specific mortality rates for a particular time period and area throughout his or her life - no allowance is made for actual or projected future changes in mortality. Figures are three-year averages, produced by aggregating deaths and population estimates across each three-year period.

Inequality measures

Absolute and relative gaps in life expectancy between England and the areas which had the worst health and deprivation. Both absolute and relative gaps are important measures of inequality, and should be used in combination to understand the extent of inequalities. Data are presented for both measures in the table, and the absolute gap is illustrated in the chart.

Table 1: Life expectancy at birth for males and females, England and the areas which had the worst health and deprivation^a, 1995-97 and 1999-01 to 2008-10

Life expectancy at birth (LE) (years) – Males

Time period	Based on Interim Life Tables ^b	Based on sub-national (abridged) life tables ^b			
	England LE	England LE	LE for areas which had the worst health and deprivation ^a	Absolute gap ^c	Relative gap ^d
1995-97	74.5	74.6	72.7	1.9	2.57%
1999-01	75.6	75.7	73.7	2.0	2.62%
2000-02	75.9	76.0	74.1	1.9	2.55%
2001-03	76.1	76.2	74.2	2.0	2.61%
2002-04	76.5	76.5	74.5	2.0	2.60%
2003-05	76.8	76.9	74.9	2.0	2.61%
2004-06	77.2	77.3	75.3	2.0	2.63%
2005-07	77.5	77.7	75.6	2.1	2.68%
2006-08	77.7	77.9	75.8	2.2	2.76%
2007-09	78.0	78.3	76.1	2.2	2.75%
2008-10	78.4	78.6	76.5	2.1	2.61%
<i>Change since 1995-97</i>	<i>+3.9</i>	<i>+4.0</i>	<i>+3.8</i>	<i>+0.1</i>	<i>+0.04^e</i>
<i>Percentage change since 1995-97</i>	<i>+5.2%</i>	<i>+5.3%</i>	<i>+5.3%</i>	<i>+6.8%</i>	<i>+1.4%</i>
<i>Change since 1999-01</i>	<i>+2.8</i>	<i>+2.9</i>	<i>+2.8</i>	<i>+0.1</i>	<i>-0.01^e</i>
<i>Percentage change since 1999-01</i>	<i>+3.6%</i>	<i>+3.8%</i>	<i>+3.8%</i>	<i>+3.5%</i>	<i>-0.2%</i>

Life expectancy at birth (LE) (years) – Females

Time period	Based on Interim Life Tables ^b	Based on sub-national (abridged) life tables ^b			
	England LE	England LE	LE for areas which had the worst health and deprivation ^a	Absolute gap ^c	Relative gap ^d
1995-97	79.6	79.7	78.3	1.4	1.77%
1999-01	80.3	80.4	78.9	1.5	1.85%
2000-02	80.6	80.7	79.2	1.5	1.85%
2001-03	80.7	80.7	79.2	1.5	1.87%
2002-04	80.9	80.9	79.4	1.5	1.90%
2003-05	81.1	81.1	79.6	1.6	1.92%
2004-06	81.5	81.6	79.9	1.6	1.97%
2005-07	81.7	81.8	80.2	1.6	1.98%
2006-08	81.9	82.0	80.4	1.7	2.05%
2007-09	82.1	82.3	80.7	1.6	1.99%
2008-10	82.4	82.6	80.9	1.7	2.00%
<i>Change since 1995-97</i>	<i>+2.8</i>	<i>+2.9</i>	<i>+2.6</i>	<i>+0.2</i>	<i>+0.23^e</i>
<i>Percentage change since 1995-97</i>	<i>+3.5%</i>	<i>+3.6%</i>	<i>+3.4%</i>	<i>+17.0%</i>	<i>+12.9%</i>
<i>Change since 1999-01</i>	<i>+2.0</i>	<i>+2.2</i>	<i>+2.0</i>	<i>+0.2</i>	<i>+0.15^e</i>
<i>Percentage change since 1999-01</i>	<i>+2.5%</i>	<i>+2.7%</i>	<i>+2.5%</i>	<i>+10.7%</i>	<i>+7.9%</i>

Note: Gap and change figures are calculated based on life expectancy figures rounded to 2dp.

a. Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

b. Interim Life Tables provide the definitive life expectancy figures for England. Sub-national life expectancy data are produced using a slightly different methodology (see section A2 of the technical notes in Annex A for further details), so England figures based on the sub-national life tables are used to enable comparison with figures for the areas with the worst health and deprivation on a consistent basis. The two sets of figures for England may differ very slightly (normally by less than 0.1 years).

c. Difference in life expectancy between England and the areas which had the worst health and deprivation.

d. Difference in life expectancy between England and the areas which had the worst health and deprivation as a percentage of the England life expectancy.

e. Percentage point difference.

Data source: ONS (life expectancy data based on death registrations and mid-year population estimates)

Chart 1.1: Life Expectancy (Males)

Three year average Life Expectancy at birth in England 1999-01 to 2008-10, males

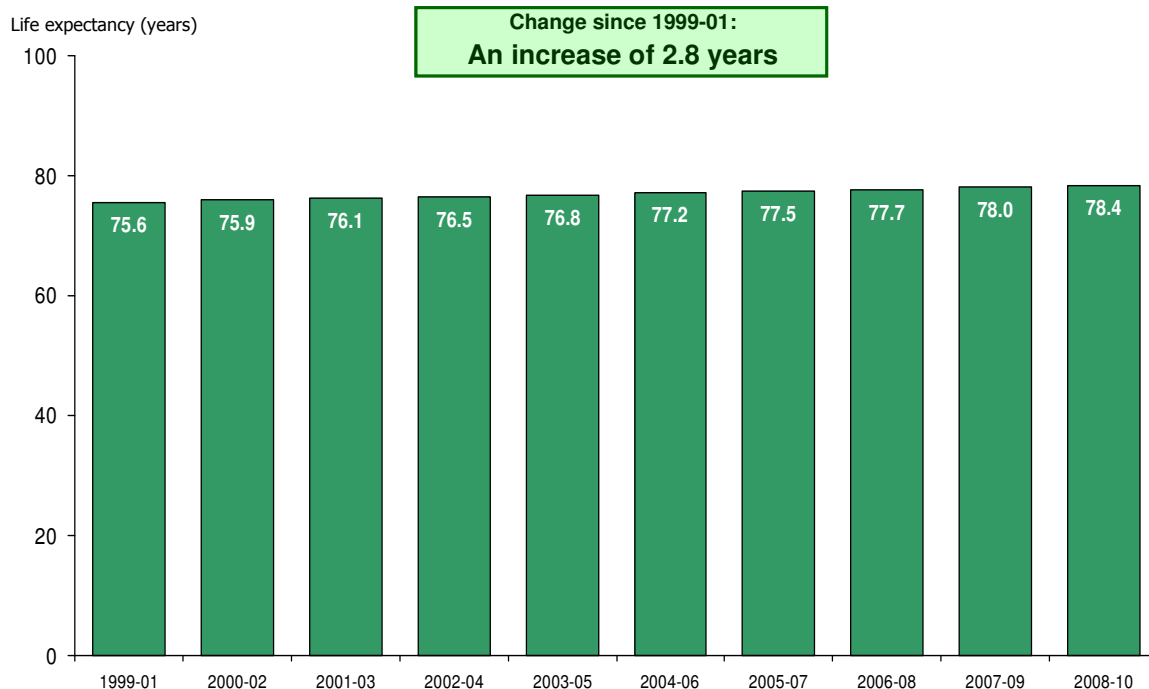
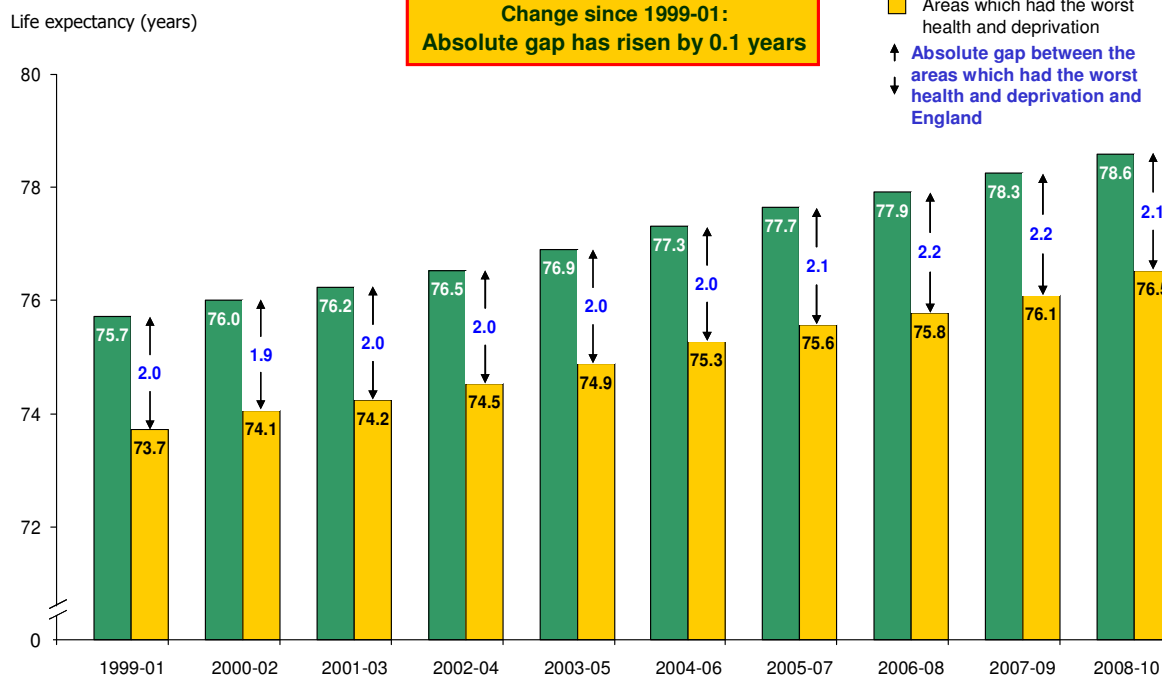


Chart 1.2: Life Expectancy— areas which had the worst health and deprivation* and England (Males)

Three year average Life Expectancy at birth 1999-01 to 2008-10 for males, comparing England and the areas which had the worst health and deprivation*



* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

a. England figures in Chart 1.1 are from Interim Life Tables; England figures in Chart 1.2 are from sub-national (abridged) life tables.

b. Change since 1999-01 and gap figures are calculated based on life expectancy figures rounded to 2 decimal places.

Source: ONS

Chart 1.3: Life Expectancy (Females)

Three year average Life Expectancy at birth in England 1999-01 to 2008-10, females

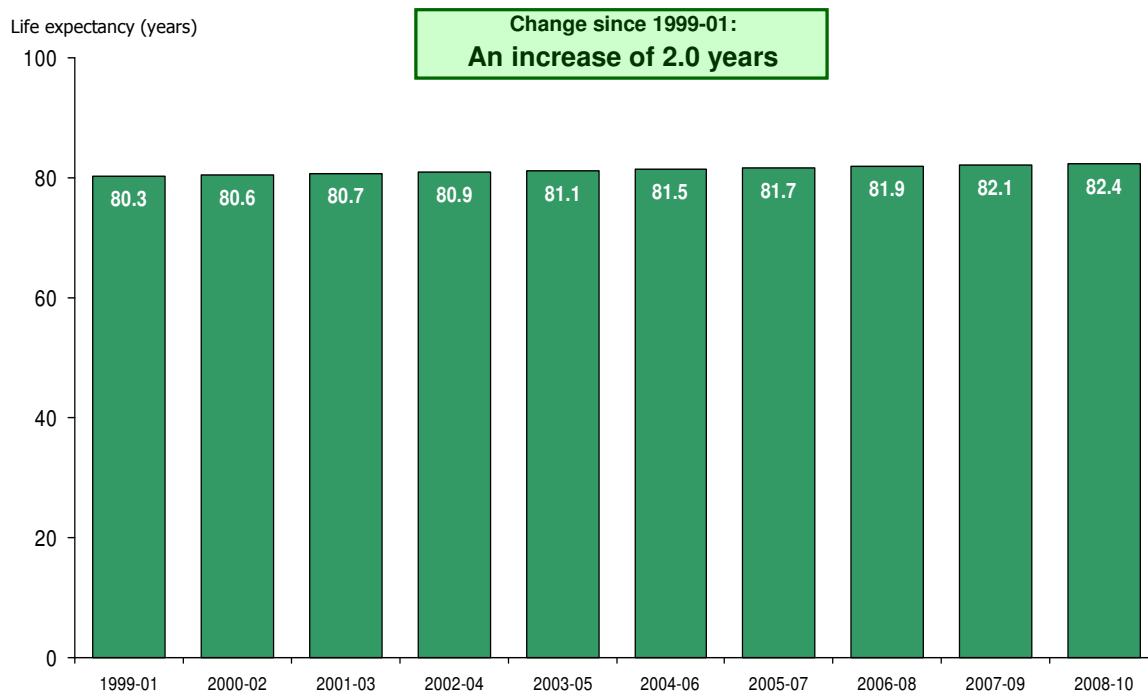
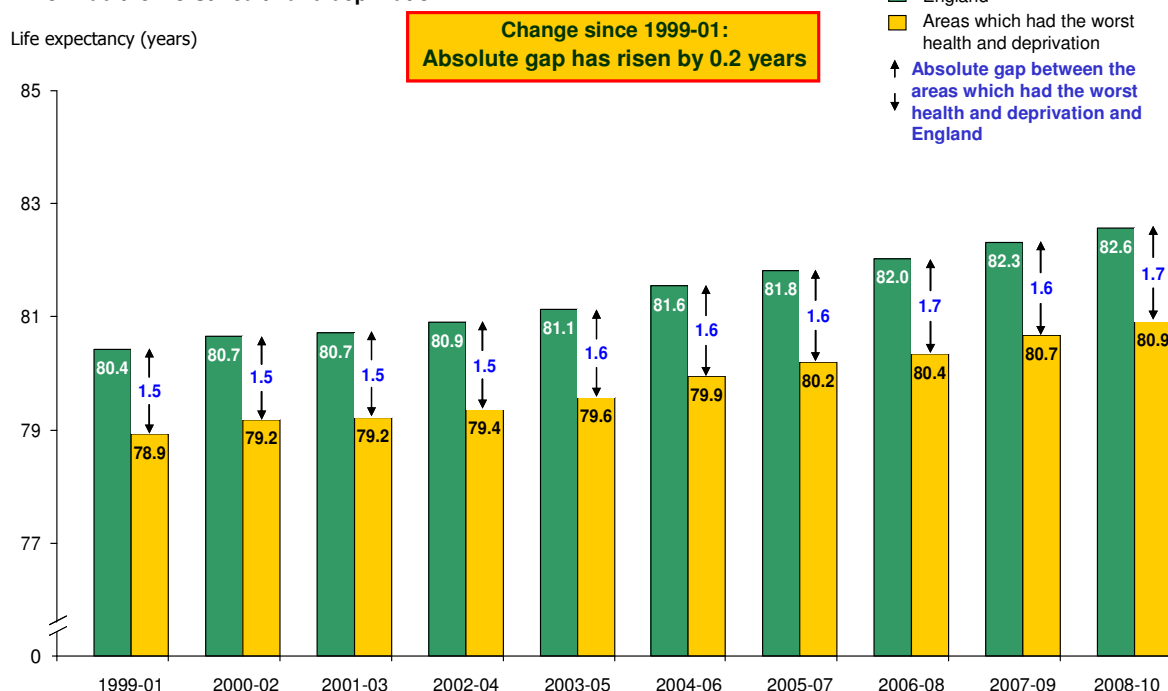


Chart 1.4: Life Expectancy – areas which had the worst health and deprivation* and England (Females)

Three year average Life Expectancy at birth 1999-01 to 2008-10 for females, comparing England and the areas which had the worst health and deprivation*



* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

a. England figures in Chart 1.3 are from Interim Life Tables; England figures in Chart 1.4 are from sub-national (abridged) life tables.

b. Change since 1999-01 and gap figures are calculated based on life expectancy figures rounded to 2 decimal places.

Source: ONS

All-Age-All-Cause Mortality (AAACM)

Table 2 presents the latest ten year trend (based on ten rolling three-year periods) in the AAACM rate for both males and females for England and the areas which had the worst health and deprivation*. Figures for 1995-97 are also presented.

The latest data for 2008-10 show an improvement in the AAACM rate for England for both males and females, continuing the previous trend. In 2008-10, the England AAACM rate was 656.0 deaths per 100,000 population for males, a decrease of 22.3% since 1999-01. For females, the England rate was 467.0 deaths per 100,000 in 2008-10, a decrease of 17.8% over the same period. The AAACM rate is lower for females than for males; however, the improvement in the mortality rate over the ten years to 2008-10 was greater for males than for females.

The AAACM rate for the areas which had the worst health and deprivation* is higher than the England rate, but is also decreasing for both males and females. In 2008-10, the rate for the areas which had the worst health and deprivation was 771.2 deaths per 100,000 population for males, a decrease of 21.2% since 1999-01. For females, the rate for the areas which had the worst health and deprivation was 541.5 deaths per 100,000 population in 2008-10, a decrease of 15.7% over the same period.

The absolute gap – i.e. difference - in AAACM rates between England and the areas which had the worst health and deprivation* narrowed for males between 1999-01 and 2008-10. For females, the absolute gap remained broadly unchanged over the ten years to 2008-10. The relative gap – i.e. percentage difference – in AAACM rates between England and the areas which had the worst health and deprivation widened over the same period for both males and females, although the gap was lower in 2008-10 than in 2007-09 for males.

Measure

Directly age-standardised mortality rates from all causes at all ages, per 100,000 population - based on deaths registered in each calendar year. Figures are three year average rates (produced by taking the average of single year rates across each three-year period), age-standardised using the European Standard Population to adjust for differences in the age distribution of the population.

Inequality measures

Absolute and relative gaps in mortality rates between England and the areas which had the worst health and deprivation. Both absolute and relative gaps are important measures of inequality, and should be used in combination to understand the extent of inequalities. Data are presented for both measures in the table, and the absolute gap is illustrated in the chart.

* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

Table 2: All-Age-All-Cause Mortality rates for males and females, England and the areas which had the worst health and deprivation^a, 1995-97 and 1999-01 to 2008-10

All-Age-All-Cause Mortality (AAACM) – Males

Time period	Three-year average mortality rate per 100,000 ^b		Absolute gap ^c	Relative gap ^d
	England	Areas which had the worst health and deprivation ^a		
1995-97	931.1	1073.4	142.3	15.3%
1999-01	844.8	978.5	133.8	15.8%
2000-02	822.4	951.4	129.1	15.7%
2001-03	807.3	938.1	130.8	16.2%
2002-04	786.4	915.1	128.7	16.4%
2003-05	761.5	888.2	126.7	16.6%
2004-06	732.0	856.5	124.5	17.0%
2005-07	710.0	835.1	125.0	17.6%
2006-08	692.1	819.4	127.3	18.4%
2007-09	673.5	797.3	123.8	18.4%
2008-10	656.0	771.2	115.2	17.6%
<i>Change since 1995-97</i>	<i>-275.2</i>	<i>-302.2</i>	<i>-27.1</i>	<i>+2.3^e</i>
<i>Percentage change since 1995-97</i>	<i>-29.6%</i>	<i>-28.2%</i>	<i>-19.0%</i>	<i>+15.0%</i>
<i>Change since 1999-01</i>	<i>-188.8</i>	<i>-207.3</i>	<i>-18.6</i>	<i>+1.7^e</i>
<i>Percentage change since 1999-01</i>	<i>-22.3%</i>	<i>-21.2%</i>	<i>-13.9%</i>	<i>+10.9%</i>

All-Age-All-Cause Mortality (AAACM) – Females

Time period	Three-year average mortality rate per 100,000 ^b		Absolute gap ^c	Relative gap ^d
	England	Areas which had the worst health and deprivation ^a		
1995-97	606.4	681.9	75.5	12.4%
1999-01	567.9	642.4	74.5	13.1%
2000-02	556.0	629.8	73.8	13.3%
2001-03	552.9	628.7	75.8	13.7%
2002-04	543.5	620.5	77.0	14.2%
2003-05	531.9	609.2	77.3	14.5%
2004-06	512.2	589.8	77.6	15.2%
2005-07	500.2	576.6	76.5	15.3%
2006-08	490.5	568.6	78.1	15.9%
2007-09	478.3	553.4	75.1	15.7%
2008-10	467.0	541.5	74.4	15.9%
<i>Change since 1995-97</i>	<i>-139.3</i>	<i>-140.4</i>	<i>-1.0</i>	<i>+3.5^e</i>
<i>Percentage change since 1995-97</i>	<i>-23.0%</i>	<i>-20.6%</i>	<i>-1.4%</i>	<i>28.0%</i>
<i>Change since 1999-01</i>	<i>-100.9</i>	<i>-100.9</i>	<i>-0.0</i>	<i>+2.8^e</i>
<i>Percentage change since 1999-01</i>	<i>-17.8%</i>	<i>-15.7%</i>	<i>-0.1%</i>	<i>+21.5%</i>

Note: Gap and change figures are calculated based on unrounded mortality rates.

a. Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

b. Directly age-standardised mortality rate, based on European Standard Population.

c. Difference in rates between England and the areas which had the worst health and deprivation.

d. Difference in rates between England and the areas which had the worst health and deprivation as a percentage of the England rate.

e. Percentage point difference.

Data source: ONS (death registrations and mid-year population estimates)

Chart 2.1: All-Age-All-Cause Mortality (Males)

Three year average death rates from All Causes in England 1999-01 to 2008-10, males

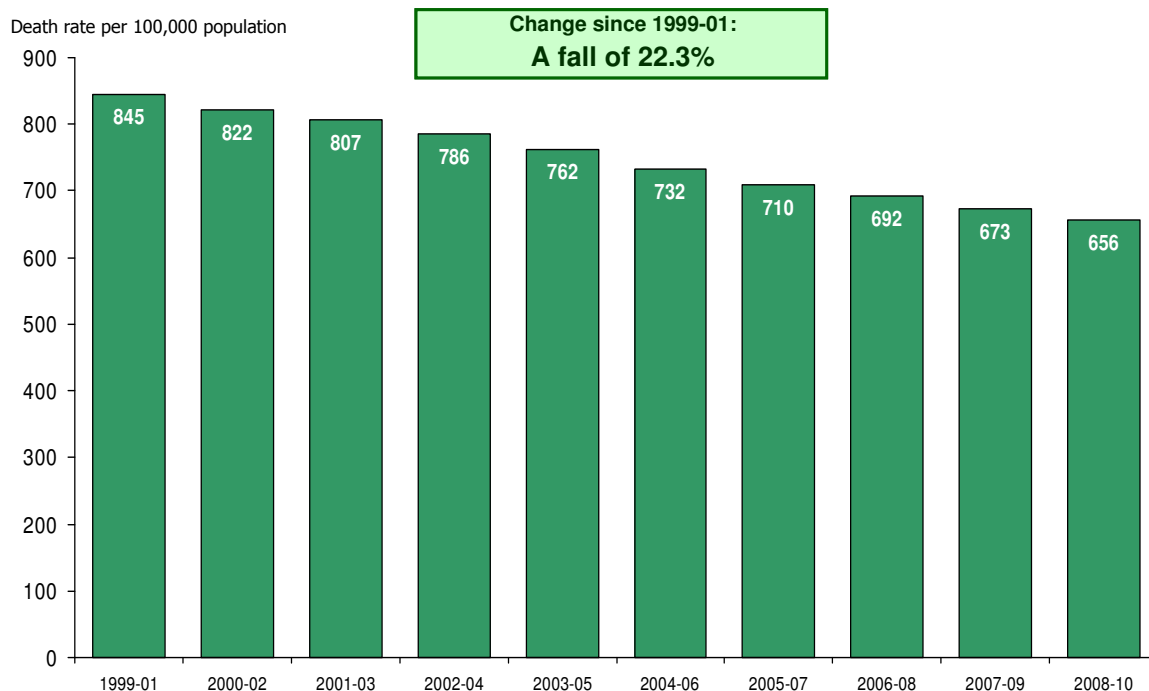
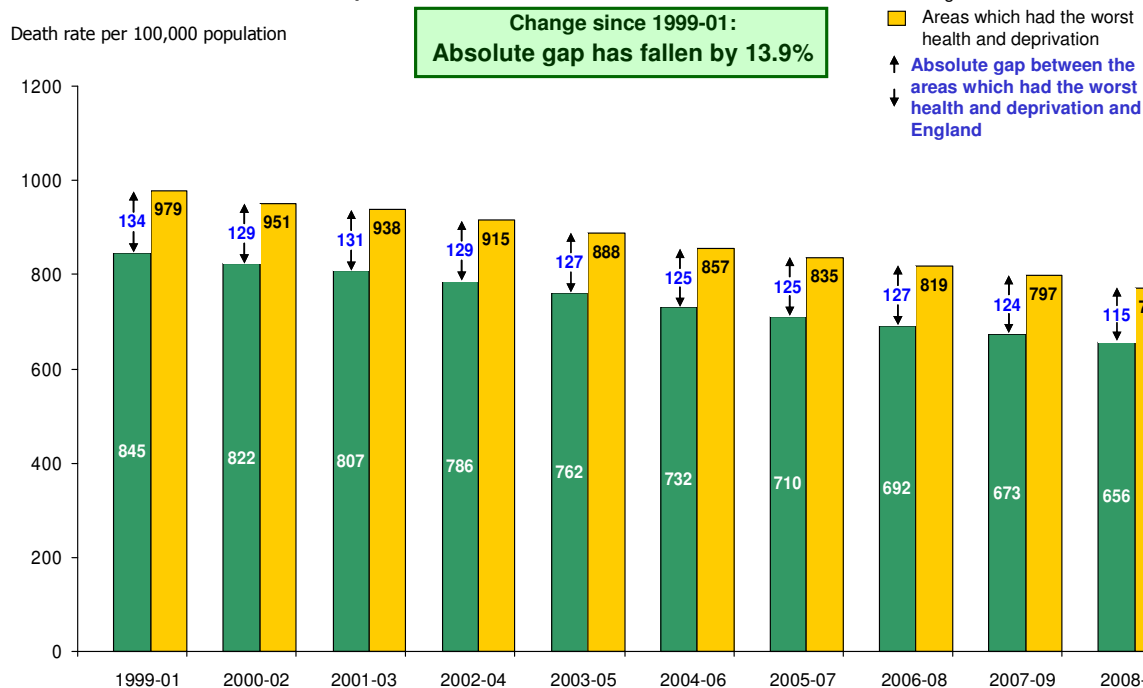


Chart 2.2: All-Age-All-Cause Mortality – areas which had the worst health and deprivation* and England (Males)

Three year average death rates from All-Causes 1999-01 to 2008-10 for males, comparing England and the areas which had the worst health and deprivation*



* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

a. Rates are calculated using the European Standard Population to take account of differences in age structure.

b. Percentage change since 1999-01 is calculated based on unrounded rates.

c. Figures in charts are rounded to the nearest integer.

Source: ONS

Chart 2.3: All-Age-All-Cause Mortality (Females)

Three year average death rates from All Causes in England 1999-01 to 2008-10, females

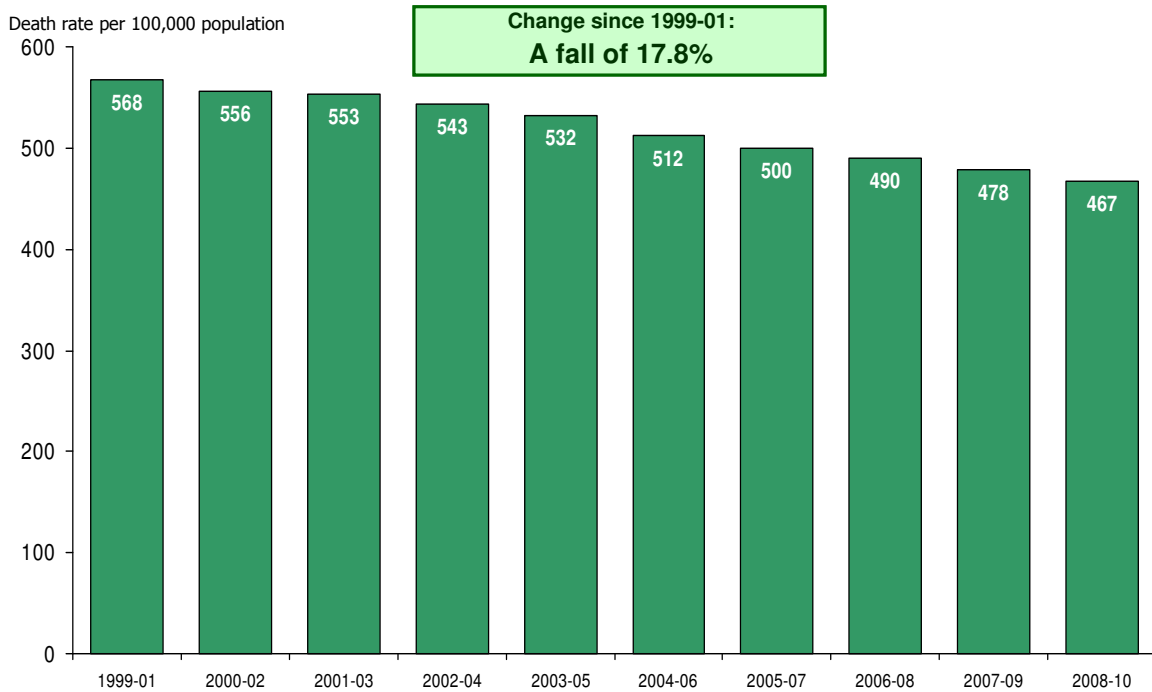
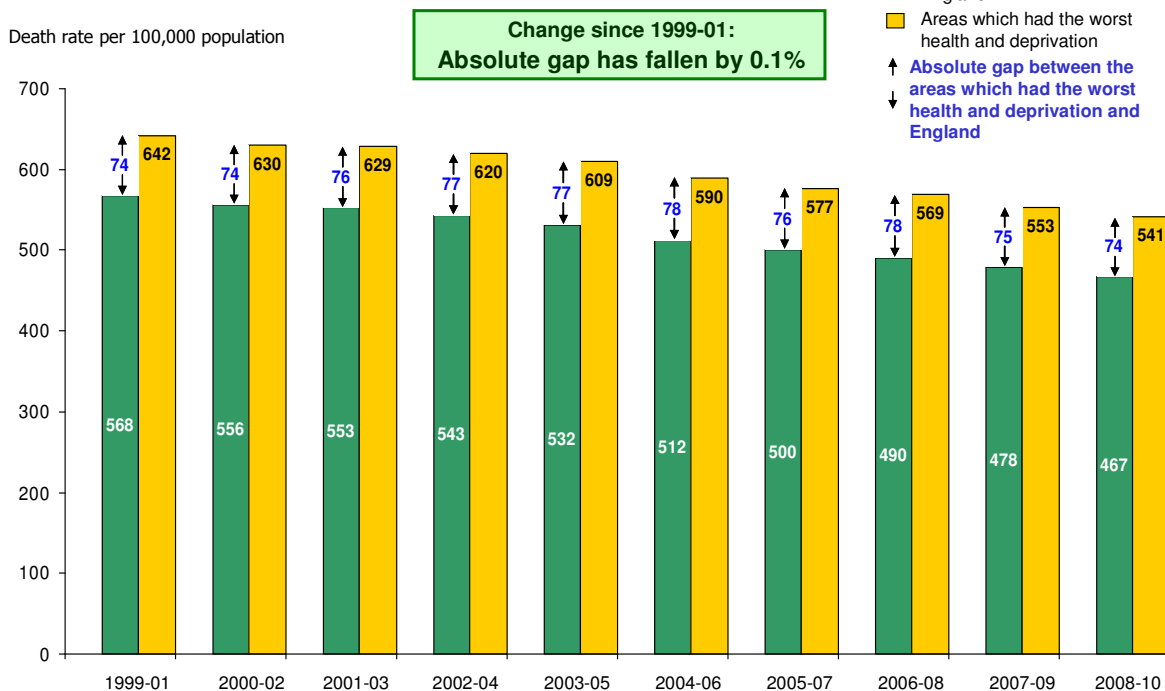


Chart 2.4: All-Age-All-Cause Mortality – areas which had the worst health and deprivation* and England (Females)

Three year average death rates from All-Causes 1999-01 to 2008-10 for females, comparing England and the areas which had the worst health and deprivation*



* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

a. Rates are calculated using the European Standard Population to take account of differences in age structure.

b. Percentage change since 1999-01 is calculated based on unrounded rates.

c. Figures in charts are rounded to the nearest integer.

Source: ONS

Cancer

Table 3 presents the latest ten year trend (based on ten rolling three-year periods) in the mortality rate from cancer at ages under 75 for males, females and persons for England. A comparison between mortality rates for England and the areas which had the worst health and deprivation* is shown for persons. Figures for 1995-97 are also presented.

The latest data for 2008-10 show an improvement in the cancer mortality rate (ages under 75) for England, continuing the previous trend. The cancer mortality rate (ages under 75) was 110.1 deaths per 100,000 population in 2008-10, a decrease of 14.5% since 1999-01 and 22.0% since 1995-97.

The cancer mortality rate is lower for females than for males (99.3 deaths per 100,000 for females compared with 121.9 deaths per 100,000 for males in 2008-10). However, the improvement in the mortality rate over the ten years to 2008-10 was greater for males than for females (a decrease of 15.7% since 1999-01 for males compared with 13.5% for females).

The cancer mortality rate for the areas which had the worst health and deprivation* is higher than the England rate, but is also decreasing. In 2008-10, the rate for the areas which had the worst health and deprivation was 128.4 deaths per 100,000 population, a decrease of 13.6% since 1999-01 and 20.7% since 1995-97.

Based on 2008-10 data, the absolute gap - i.e. difference - in cancer mortality rates between England and the areas which had the worst health and deprivation* has narrowed by 7.7% since 1999-01 and by 11.6% since 1995-97; although since 2003-05 the gap has remained broadly unchanged. The relative gap – i.e. percentage difference – in cancer mortality rates between England and the areas which had the worst health and deprivation was broadly constant between 1999-01 and 2003-05 but has widened since then.

Measure

Directly age-standardised mortality rates from cancer at ages under 75, per 100,000 population - based on deaths registered in each calendar year where cancer was the 'original' underlying cause of death, as defined by the International Classification of Diseases, Ninth Revision (ICD9) codes 140-208 up to 1998 and for 2000, and Tenth Revision (ICD10) codes C00-C97 for 1999 and 2001 onwards. Data for 2000 and years prior to 1999 have been adjusted for comparability with ICD10 using ratios published by ONS. Figures are three year average rates (produced by taking the average of single year rates across each three-year period), age-standardised using the European Standard Population to adjust for differences in the age distribution of the population.

Inequality measures

Absolute and relative gaps in mortality rates between England and the areas which had the worst health and deprivation. Both absolute and relative gaps are important measures of inequality, and should be used in combination to understand the extent of inequalities. Data are presented for both measures in the table, and the absolute gap is illustrated in the chart.

* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

Table 3: Cancer mortality, ages under 75, for males, females and persons, England and the areas which had the worst health and deprivation^a, 1995-97 and 1999-01 to 2008-10

Cancer Mortality, ages under 75 – Males, Females, Persons

Time period	Three-year average mortality rate per 100,000 ^b		
	Males	Females	Persons
1995-97	160.8	124.5	141.2
1999-01	144.7	114.7	128.7
2000-02	142.1	112.7	126.5
2001-03	139.5	110.3	124.1
2002-04	136.5	108.3	121.6
2003-05	132.9	106.5	119.0
2004-06	130.4	105.1	117.1
2005-07	128.2	103.9	115.5
2006-08	126.3	102.7	113.9
2007-09	124.0	101.2	112.1
2008-10	121.9	99.3	110.1
<i>Change since 1995-97</i>	<i>-38.8</i>	<i>-25.3</i>	<i>-31.1</i>
<i>Percentage change since 1995-97</i>	<i>-24.1%</i>	<i>-20.3%</i>	<i>-22.0%</i>
<i>Change since 1999-01</i>	<i>-22.8</i>	<i>-15.5</i>	<i>-18.7</i>
<i>Percentage change since 1999-01</i>	<i>-15.7%</i>	<i>-13.5%</i>	<i>-14.5%</i>

Cancer Mortality, ages under 75, Persons – England vs the areas which had the worst health and deprivation^a

Time period	Three-year average mortality rate per 100,000 ^b			
	England	Areas which had the worst health and deprivation ^a	Absolute gap ^c	Relative gap ^d
1995-97	141.2	161.9	20.7	14.7%
1999-01	128.7	148.6	19.9	15.4%
2000-02	126.5	146.1	19.6	15.5%
2001-03	124.1	143.2	19.1	15.4%
2002-04	121.6	140.5	18.9	15.5%
2003-05	119.0	137.2	18.2	15.3%
2004-06	117.1	135.6	18.6	15.9%
2005-07	115.5	133.7	18.2	15.8%
2006-08	113.9	132.7	18.8	16.5%
2007-09	112.1	130.4	18.3	16.4%
2008-10	110.1	128.4	18.3	16.7%
<i>Change since 1995-97</i>	<i>-31.1</i>	<i>-33.5</i>	<i>-2.4</i>	<i>+2.0^e</i>
<i>Percentage change since 1995-97</i>	<i>-22.0%</i>	<i>-20.7%</i>	<i>-11.6%</i>	<i>+13.4%</i>
<i>Change since 1999-01</i>	<i>-18.7</i>	<i>-20.2</i>	<i>-1.5</i>	<i>+1.2^e</i>
<i>Percentage change since 1999-01</i>	<i>-14.5%</i>	<i>-13.6%</i>	<i>-7.7%</i>	<i>+7.9%</i>

Note: Gap and change figures are calculated based on unrounded mortality rates.

a. Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

b. Directly age-standardised mortality rate, based on European Standard Population.

c. Difference in rates between England and the areas which had the worst health and deprivation.

d. Difference in rates between England and the areas which had the worst health and deprivation as a percentage of the England rate.

e. Percentage point difference.

Data source: ONS (death registrations for ICD9 140-208, ICD10 C00-C97; and mid-year population estimates)

Chart 3.1: Cancer Mortality (ages under 75)

Three year average death rates from Cancer in England 1999-01 to 2008-10 for persons under 75

Death rate per 100,000 population

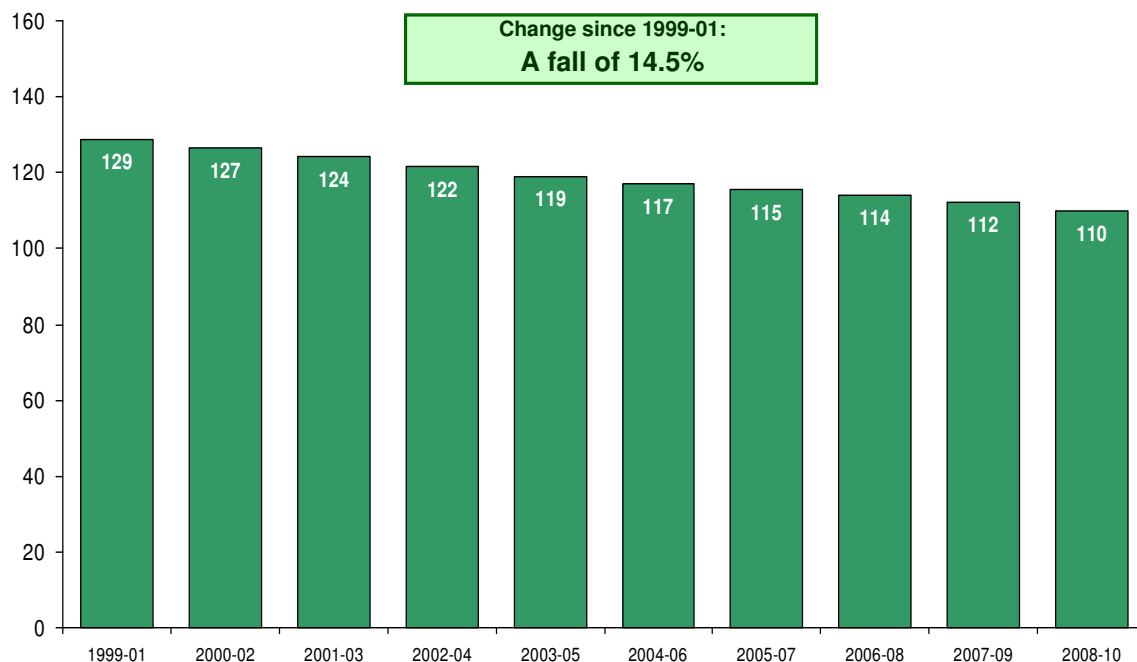
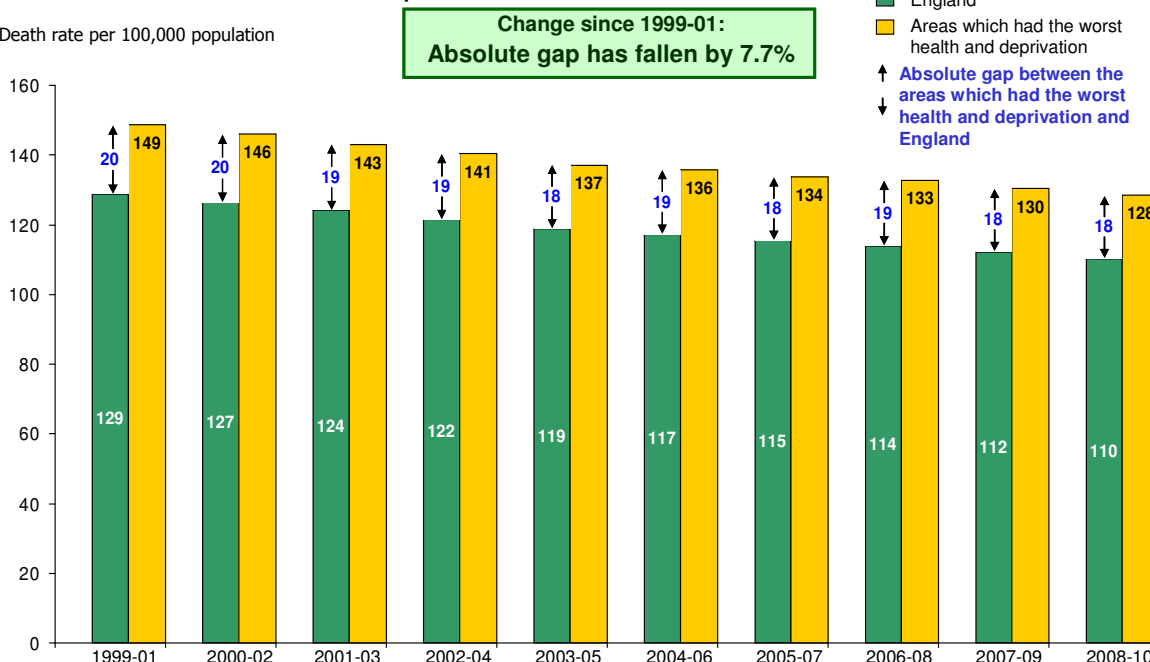


Chart 3.2: Cancer Mortality (ages under 75) – areas which had the worst health and deprivation* and England

Three year average death rates from Cancer 1999-01 to 2008-10 for persons under 75, comparing England and the areas which had the worst health and deprivation*

Death rate per 100,000 population



* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

- a. Rates are calculated using the European Standard Population to take account of differences in age structure.
- b. ICD9 data for 2000 have been adjusted to be comparable with ICD10 data for 1999 and 2001 onwards.
- c. Percentage change since 1999-01 is calculated based on unrounded rates.
- d. Figures in the chart are rounded to the nearest integer.

Source: ONS (ICD9 140-208; ICD10 C00-C97)

Circulatory Diseases

Table 4 presents the latest ten year trend (based on ten rolling three-year periods) in the mortality rate from circulatory diseases at ages under 75 for males, females and persons for England. A comparison between mortality rates for England and the areas which had the worst health and deprivation* is shown for persons. Figures for 1995-97 are also presented.

The latest data for 2008-10 show an improvement in the circulatory diseases mortality rate (ages under 75) for England, continuing the previous trend. The circulatory diseases mortality rate (ages under 75) was 67.3 deaths per 100,000 population in 2008-10, a decrease of 41.3% since 1999-01 and 52.4% since 1995-97.

The circulatory diseases mortality rate is much lower for females than for males - the females rate was consistently less than half the rate for males over the ten year period to 2008-10, but rates for both males and females have shown a large decrease over this period. In 2008-10, the England rate was 95.2 deaths per 100,000 population for males, a decrease of 40.6% since 1999-01. For females, the England rate was 40.9 deaths per 100,000 in 2008-10, a decrease of 43.5% over the same period.

The circulatory diseases mortality rate for the areas which had the worst health and deprivation* is higher than the England rate, but is also decreasing. In 2008-10, rate for the areas which had the worst health and deprivation was 87.4 deaths per 100,000 population, a decrease of 39.9% since 1999-01 and 50.9% since 1995-97.

Based on 2008-10 data, the absolute gap - i.e. difference - in circulatory diseases mortality rates between England and the areas which had the worst health and deprivation* has narrowed by 34.7% since 1999-01 and by 45.2% since 1995-97. The relative gap - i.e. percentage difference - in circulatory diseases mortality rates between England and the areas which had the worst health and deprivation increased over the same period.

Measure

Directly age-standardised mortality rates from all circulatory diseases at ages under 75, per 100,000 population - based on deaths registered in each calendar year where circulatory diseases were the 'original' underlying cause of death, as defined by ICD9 codes 390-459 up to 1998 and for 2000, and ICD10 codes I00-I99 for 1999 and 2001 onwards. Data for 2000 and years prior to 1999 have been adjusted for comparability with ICD10 using ratios published by ONS. Figures are three year average rates (produced by taking the average of single year rates across each three-year period), age-standardised using the European Standard Population to adjust for differences in the age distribution of the population.

Inequality measures

Absolute and relative gaps in mortality rates between England and the areas which had the worst health and deprivation. Both absolute and relative gaps are important measures of inequality, and should be used in combination to understand the extent of inequalities. Data are presented for both measures in the table, and the absolute gap is illustrated in the chart.

* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

Table 4: Circulatory Diseases Mortality, ages under 75, for males, females and persons, England and the areas which had the worst health and deprivation^a, 1995-97 and 1999-01 to 2008-10

Circulatory Diseases Mortality, ages under 75 – Males, Females, Persons

Time period	Three-year average mortality rate per 100,000 ^b		
	Males	Females	Persons
1995-97	198.3	89.6	141.3
1999-01	160.1	72.5	114.5
2000-02	151.4	68.3	108.2
2001-03	143.7	64.8	102.8
2002-04	135.6	60.6	96.7
2003-05	127.1	56.4	90.5
2004-06	118.4	52.2	84.2
2005-07	111.2	49.0	79.1
2006-08	105.1	46.3	74.8
2007-09	99.4	43.2	70.5
2008-10	95.2	40.9	67.3
<i>Change since 1995-97</i>	<i>-103.2</i>	<i>-48.6</i>	<i>-74.1</i>
<i>Percentage change since 1995-97</i>	<i>-52.0%</i>	<i>-54.3%</i>	<i>-52.4%</i>
<i>Change since 1999-01</i>	<i>-65.0</i>	<i>-31.5</i>	<i>-47.3</i>
<i>Percentage change since 1999-01</i>	<i>-40.6%</i>	<i>-43.5%</i>	<i>-41.3%</i>

Circulatory Diseases Mortality, ages under 75, Persons – England vs the areas which had the worst health and deprivation^a

Time period	Three-year average mortality rate per 100,000 ^b			
	England	Areas which had the worst health and deprivation ^a	Absolute gap ^c	Relative gap ^d
1995-97	141.3	178.0	36.7	25.9%
1999-01	114.5	145.3	30.8	26.9%
2000-02	108.2	137.3	29.1	26.8%
2001-03	102.8	131.5	28.7	27.9%
2002-04	96.7	124.4	27.7	28.6%
2003-05	90.5	117.0	26.6	29.3%
2004-06	84.2	109.2	25.0	29.7%
2005-07	79.1	102.8	23.7	29.9%
2006-08	74.8	97.5	22.7	30.4%
2007-09	70.5	92.1	21.6	30.6%
2008-10	67.3	87.4	20.1	29.9%
<i>Change since 1995-97</i>	<i>-74.1</i>	<i>-90.6</i>	<i>-16.6</i>	<i>+4.0^e</i>
<i>Percentage change since 1995-97</i>	<i>-52.4%</i>	<i>-50.9%</i>	<i>-45.2%</i>	<i>+15.2%</i>
<i>Change since 1999-01</i>	<i>-47.3</i>	<i>-58.0</i>	<i>-10.7</i>	<i>+3.0^e</i>
<i>Percentage change since 1999-01</i>	<i>-41.3%</i>	<i>-39.9%</i>	<i>-34.7%</i>	<i>+11.2%</i>

Note: Gap and change figures are calculated based on unrounded mortality rates.

a. Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

b. Directly age-standardised mortality rate, based on European Standard Population.

c. Difference in rates between England and the areas which had the worst health and deprivation.

d. Difference in rates between England and the areas which had the worst health and deprivation as a percentage of the England rate.

e. Percentage point difference.

Data source: ONS (death registrations for ICD9 390-459, ICD10 I00-I99; and mid-year population estimates)

Chart 4.1: Circulatory Diseases Mortality (ages under 75)

Three year average death rates from Circulatory Diseases in England 1999-01 to 2008-10 for persons under 75

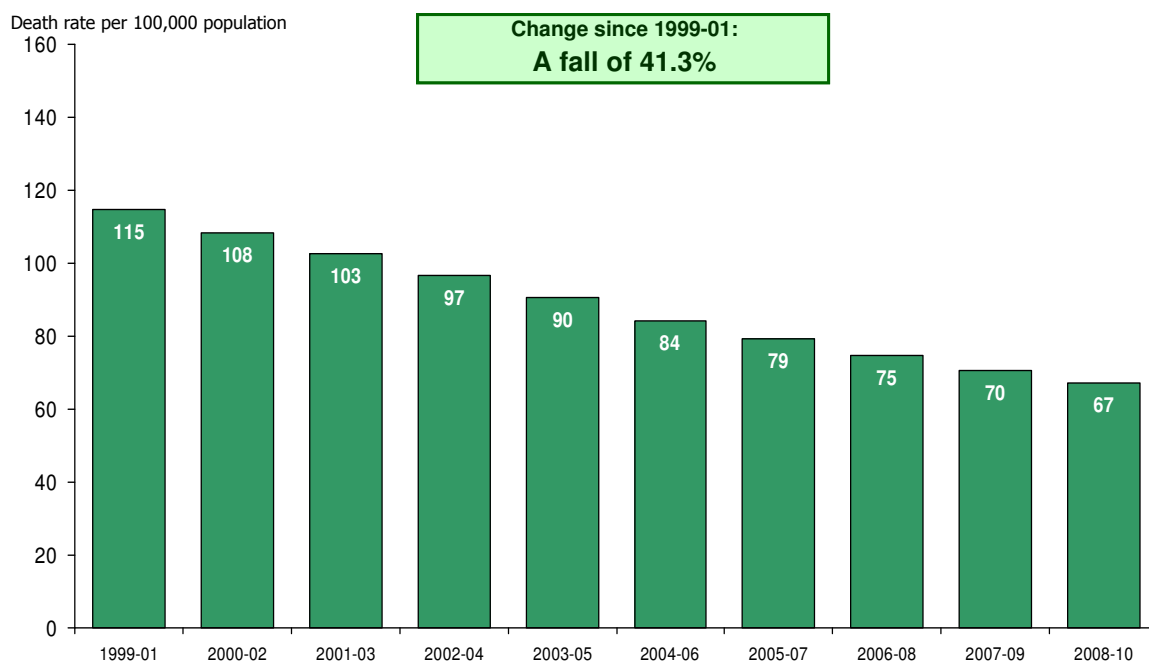
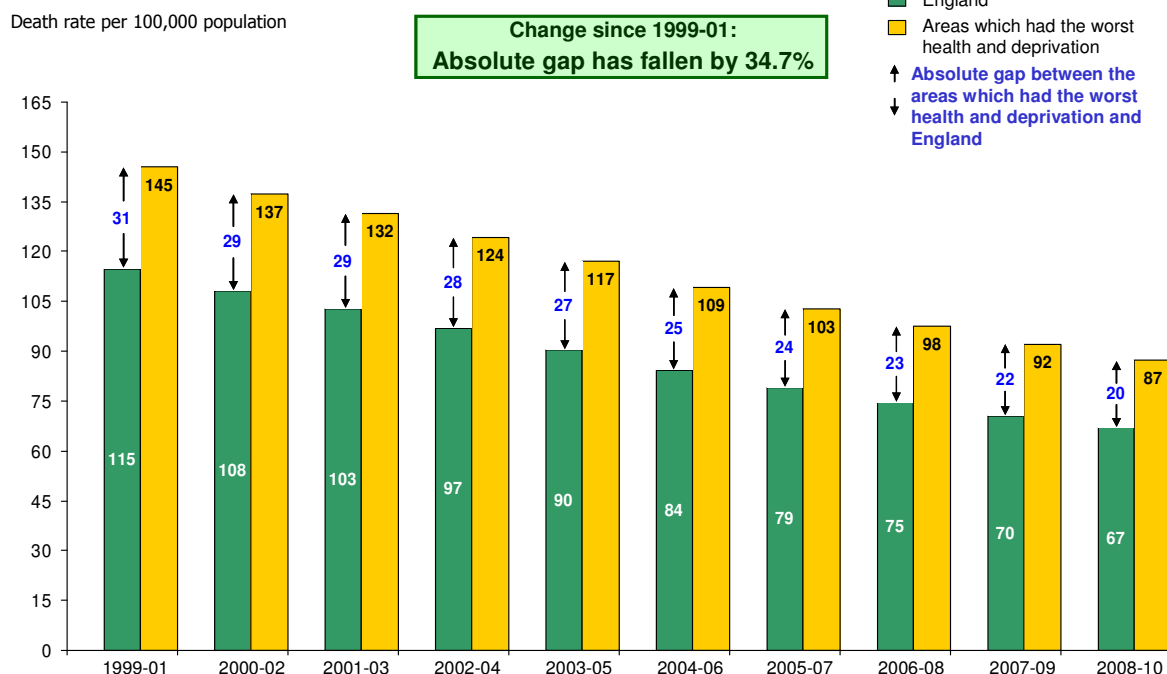


Chart 4.2: Circulatory Diseases Mortality (ages under 75) – areas which had the worst health and deprivation* and England

Three year average death rates from Circulatory Diseases 1999-01 to 2008-10 for persons under 75, comparing England and the areas which had the worst health and deprivation*



* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. See section A4i of the technical notes (Annex A) for further information.

- a. Rates are calculated using the European Standard Population to take account of differences in age structure.
- b. ICD9 data for 2000 have been adjusted to be comparable with ICD10 data for 1999 and 2001 onwards.
- c. Percentage change since 1999-01 is calculated based on unrounded rates.
- d. Figures in the chart are rounded to the nearest integer.

Source: ONS (ICD9 390-459; ICD10 I00-I99)

Suicide and Injury of Undetermined Intent

Table 5 presents the latest ten year trend (based on ten rolling three-year periods) in the mortality rate from suicide (intentional self-harm) and injury of undetermined intent for males, females and persons for England. Figures for 1995-97 are also presented.

The suicide and undetermined injury mortality rate for England was 7.9 deaths per 100,000 population in 2008-10, broadly unchanged since 2005-07, but 14.7% lower than the rate in 1999-01 (9.3 deaths per 100,000) and 13.4% lower than the rate in 1995-97 (9.2 deaths per 100,000). Following 1995-97, the mortality rate increased to a peak of 9.7 deaths per 100,000 population in 1998-00*, before decreasing until 2005-07.

The suicide and undetermined injury mortality rate for England is much lower for females than for males (the males rate was consistently at least three times the rate for females over the ten years to 2008-10). Rates for both males and females have shown a similar trend over the ten years to 2008-10, initially decreasing but remaining broadly unchanged over the last three years. In 2008-10, the England suicide and undetermined injury mortality rate was 12.2 deaths per 100,000 population for males, 14.8% lower than in 1999-01. For females, the England rate was 3.7 deaths per 100,000 in 2008-10, 16.3% lower than 1999-01.

Suicide mortality rates for recent years may be affected by the increase in the use of narrative verdicts by coroners. This may lead to some deaths being classified as accidental when they are more likely to be intentional, resulting in underestimation of the suicide rate. However, a review by ONS concluded that the impact on the England and Wales suicide rate up to 2009 had not been statistically significant. (See section A5iii of the technical notes in Annex A for further details).

Measure

Directly age-standardised mortality rates from suicide and injury of undetermined intent at all ages, per 100,000 population - based on deaths registered in each calendar year where suicide and injury of undetermined intent (excluding verdict pending cases) was the 'original' underlying cause of death, as defined by ICD9 codes E950-E959 and E980-E989 excluding E988.8 up to 1998 and for 2000, and ICD10 codes X60-X84 and Y10-Y34 (excluding Y33.9 until 2006) for 1999 and 2001 onwards. Figures are three year average rates (produced by taking the average of single year rates across each three-year period), age-standardised using the European Standard Population to adjust for differences in the age distribution of the population.

* Figures for 1998-00 are not presented in table 5, but are shown in previous editions of this bulletin.

Table 5: Mortality from suicide and injury of undetermined intent for males, females and persons, 1995-97 and 1999-01 to 2008-10

Mortality from suicide and injury from undetermined intent – Males, Females, Persons

Time period	Three-year average mortality rate per 100,000 ^a		
	Males	Females	Persons
1995-97	14.1	4.5	9.2
1999-01	14.4	4.5	9.3
2000-02	13.7	4.3	8.9
2001-03	13.3	4.2	8.6
2002-04	13.0	4.3	8.6
2003-05	12.9	4.3	8.5
2004-06	12.5	4.2	8.3
2005-07	12.1	3.8	7.9
2006-08	12.0	3.7	7.8
2007-09	12.2	3.6	7.9
2008-10	12.2	3.7	7.9
<i>Change since 1995-97</i>	<i>-1.9</i>	<i>-0.7</i>	<i>-1.2</i>
<i>Percentage change since 1995-97</i>	<i>-13.2%</i>	<i>-16.6%</i>	<i>-13.4%</i>
<i>Change since 1999-01</i>	<i>-2.1</i>	<i>-0.7</i>	<i>-1.4</i>
<i>Percentage change since 1999-01</i>	<i>-14.8%</i>	<i>-16.3%</i>	<i>-14.7%</i>

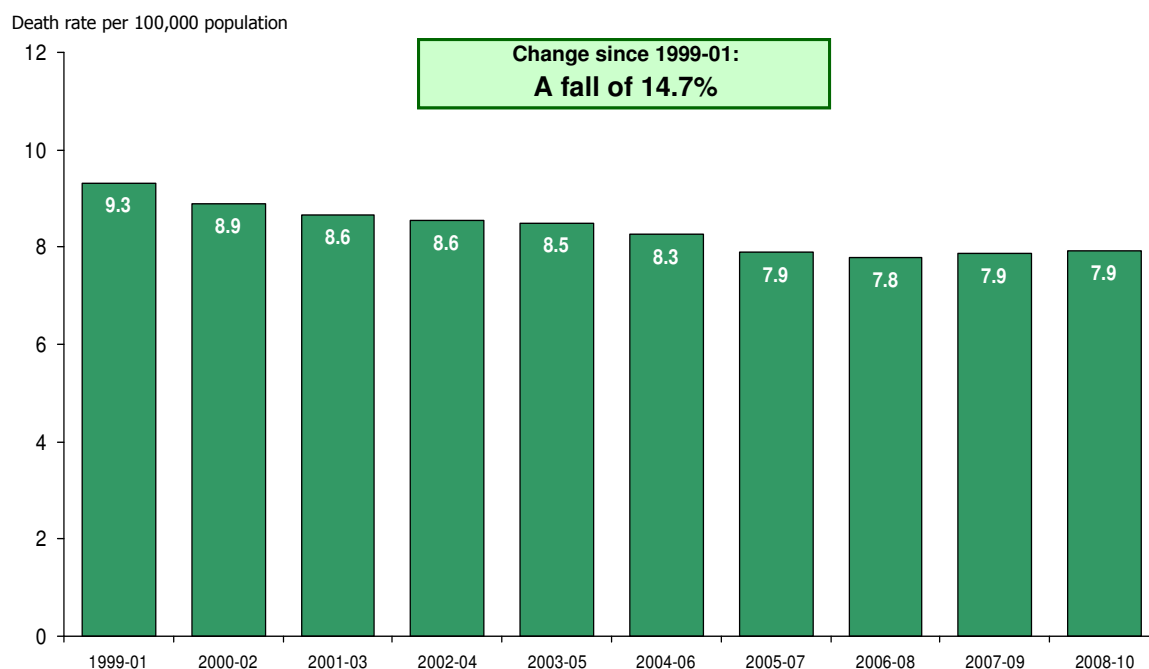
Note: Change figures are calculated based on unrounded mortality rates.

a. Directly age-standardised mortality rate, based on European Standard Population.

Data source: ONS (death registrations for ICD9 E950-E959, plus E980-E989, excluding E988.8, ICD10 X60-X84, Y10-Y34 (Y33.9 is excluded until 2006); and mid-year population estimates)

Chart 5.1: Mortality from Suicide and injury of undetermined intent

Three year average death rates from Suicide and injury of undetermined intent excluding 'verdict pending' in England 1999-01 to 2008-10, persons of all ages



a. Rates are calculated using the European Standard Population to take account of differences in age structure.

b. Percentage change since 1999-01 is calculated based on unrounded rates.

Source: ONS (ICD9 E950-E959, plus E980-E989, excluding E988.8 ; ICD10 X60-X84, Y10-Y34 (Y33.9 is excluded until 2006))

Accidents

Table 6 presents the latest ten year trend (based on ten rolling three-year periods) in the mortality rate from accidental injury for males, females and persons for England. Figures for 1995-97 are also presented.

The latest data for 2008-10 show that the accident mortality rate for England fell by 2.8% compared with 2007-09, from 15.7 to 15.2 deaths per 100,000 population – this was mainly due to a fall in the rate for males. Between 1995-97 and 2007-09 the rate had shown little change, remaining at around 15.9 deaths per 100,000. The decrease in the most recent period means the 2008-10 rate was 3.5% below the rate in 1995-97 (15.8 deaths per 100,000).

The accident mortality rate for England is lower for females than for males - the females rate was consistently less than half the rate for males over the ten years to 2008-10. In 2008-10 the rates were 20.4 deaths per 100,000 population for males and 10.1 deaths per 100,000 for females.

Accident mortality rates for recent years may be affected by the increase in the use of narrative verdicts by coroners. This may lead to some deaths being classified as accidental when they are more likely to be intentional, resulting in overestimation of the accident mortality rate. (See section A5iii of the technical notes in Annex A for further details).

Measure

Directly age-standardised mortality rates from accidental injury at all ages, per 100,000 population - based on deaths registered in each calendar year where accidental injury was the 'original' underlying cause of death, as defined by ICD9 codes E800-E949 excluding E870-E879 up to 1998 and for 2000, and ICD10 codes V01-X59 for 1999 and 2001 onwards. Figures are three year average rates (produced by taking the average of single year rates across each three-year period), age-standardised using the European Standard Population to adjust for differences in the age distribution of the population.

Table 6: Mortality from accidents for males, females and persons, 1995-97 and 1999-01 to 2008-10

Mortality from accidents – Males, Females, Persons

Time period	Three-year average mortality rate per 100,000 ^a		
	Males	Females	Persons
1995-97	21.7	9.9	15.8
1999-01	21.9	10.1	15.9
2000-02	21.9	10.1	15.9
2001-03	21.7	10.3	15.9
2002-04	21.5	10.4	15.9
2003-05	21.5	10.6	16.0
2004-06	21.4	10.5	15.9
2005-07	21.4	10.3	15.8
2006-08	21.4	10.4	15.9
2007-09	21.2	10.2	15.7
2008-10	20.4	10.1	15.2
<i>Change since 1995-97</i>	<i>-1.3</i>	<i>+0.2</i>	<i>-0.6</i>
<i>Percentage change since 1995-97</i>	<i>-6.0%</i>	<i>+1.6%</i>	<i>-3.5%</i>
<i>Change since 1999-01</i>	<i>-1.5</i>	<i>-0.0</i>	<i>-0.7</i>
<i>Percentage change since 1999-01</i>	<i>-6.7%</i>	<i>-0.3%</i>	<i>-4.4%</i>

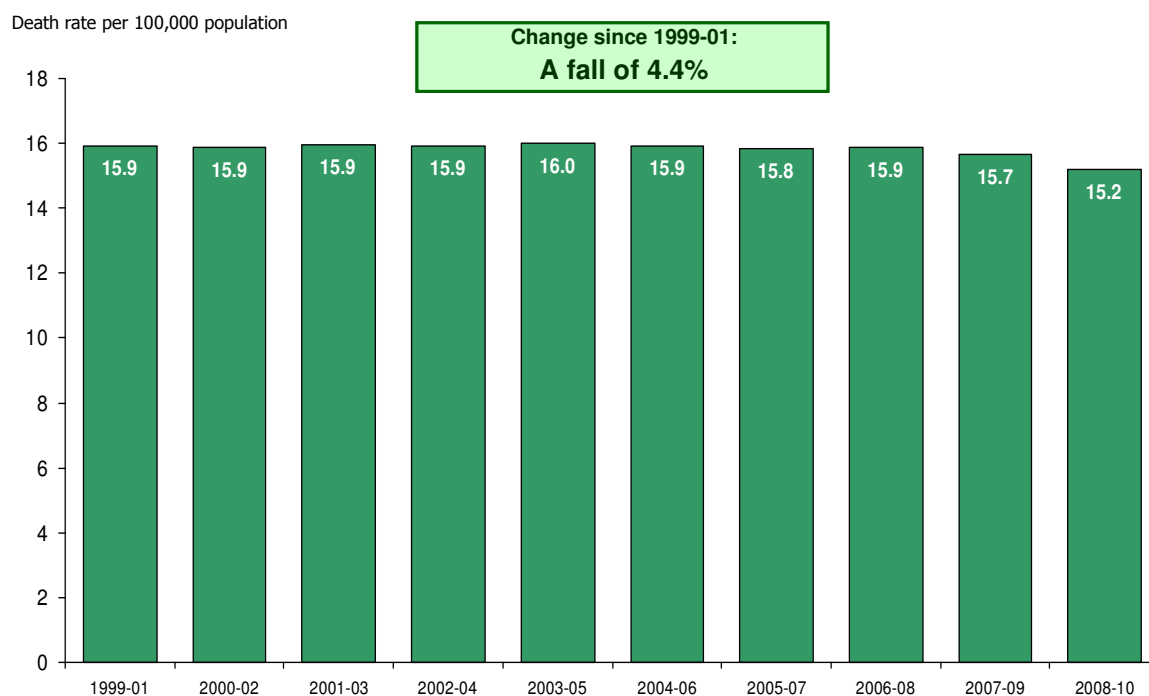
Note: Change figures are calculated based on unrounded mortality rates.

a. Directly age-standardised mortality rate, based on European Standard Population.

Data source: ONS (death registrations for ICD9 E800-E949 excluding E870-E879, ICD10 V01-X59; and mid-year population estimates)

Chart 6.1: Mortality from Accidents

Three year average death rate from Accidents in England 1999-01 to 2008-10, for persons of all ages



a. Rates are calculated using the European Standard Population to take account of differences in age structure.

b. Percentage change since 1999-01 is calculated based on unrounded rates.

Source: ONS (ICD9 E800-E949 excluding E870-E879; ICD10 V01-X59)

Annex A: Technical Notes

These technical notes cover the following topics:

- A1) Monitoring methodology
- A2) National life expectancy at birth data
- A3) Interpretation of life expectancy at birth
- A4) The basis of the inequalities data presented
 - Identification of “areas which had the worst health and deprivation”
 - Explanation of absolute and relative inequality gaps
- A5) Coding of cause of death
 - The effect of the change from the 9th revision of the International Classification of Diseases (ICD9) to the 10th revision (ICD10)
 - The definition of suicide and injury of undetermined intent
 - The impact of coroner narrative verdicts on suicide and accident mortality data
 - ‘Original’ and ‘Final’ cause of death
- A6) The effect of revisions to population estimates

A1) Monitoring methodology

This statistical bulletin shows time-series for life expectancy and selected mortality data, for the population as a whole (the England average) and the areas which had the worst health and deprivation. The information presented in this statistical bulletin has been derived from statistical products produced outside the Department of Health (DH) - these products and subsequent analyses are described in the table below.

Indicator	Source and subsequent analysis
Life expectancy	Life expectancy figures are calculated by the Office for National Statistics (ONS) - this includes figures from the Interim Life Tables, and the Sub-National life expectancy estimates (i.e. based on abridged life tables). These figures are presented as three year averages in a time series in this bulletin. For more information about life expectancy data please see the section below on ‘national life expectancy at birth data’ and ‘interpretation of life expectancy at birth’.
All-Age-All-Cause Mortality (AAACM) Cancer mortality Circulatory diseases mortality	Numbers of deaths and population estimates at national and local authority level are provided by the NHS Information Centre (NHS IC) (sourced from ONS). Directly age standardised rates are calculated by analysts in DH for the England average and the areas which had the worst health and deprivation. These analyses are presented as three year averages in a time series in this bulletin.
Mortality from suicide and injury of undetermined intent Accident mortality	Numbers of deaths and population estimates at national level are provided by the NHS IC (sourced from ONS). Directly age standardised rates are calculated by analysts in DH for the England average. These analyses are presented as three year averages in a time series in this bulletin.

General points about treatment of the data:

- Mortality rates are directly age-standardised to allow for changes in the age structure of the population (using the European Standard Population as defined by the World Health Organisation)
- Three-year rolling averages are generally used for monitoring purposes in preference to single year figures. This is in order to produce a smoothed trend from the data and to ensure the underlying trend is captured rather than year-on-year fluctuations.

A2) National life expectancy at birth data

The ONS publish two sets of national life expectancy figures for the UK and constituent countries, including England: (1) figures published in the Interim Life Tables and (2) figures published as part of the sub-national life expectancy data release².

The Interim Life Tables are the definitive life expectancy figures for the entire UK and constituent countries. However, to provide comparisons for local areas and regional figures (including the areas which had the worst health and deprivation), the ONS also calculate national life expectancy results produced using the same methods as the sub-national results. England figures based on the sub-national life tables are used to enable comparison with figures for the areas which had the worst health and deprivation on a consistent basis. The two sets of figures for England may differ very slightly (normally by less than 0.1 years), due to the slight differences in methodology set out below.

The Interim Life Tables are calculated using *complete* life tables (based on single years of age). The sub-national life expectancy results and accompanying national figures are calculated using *abridged* life tables in which deaths and populations are aggregated into age groups (this to provide more robust estimates at local level). Figures for England will also differ slightly because of a difference in the handling of deaths of non-residents. Deaths of non-residents of England and Wales are included in the England mortality data in the Interim Life Tables method. These deaths are excluded at the constituent country level in the figures accompanying the sub-national results.

A3) Interpretation of life expectancy at birth

All the life expectancies presented in this document are *period* life expectancies. Period life expectancy at birth for an area in a given time period is an estimate of the average number of years a new-born baby would survive if he or she experienced the particular area's *contemporary* age-specific mortality rates throughout his or her life (i.e. it makes no allowance for actual or projected future changes in mortality). The life expectancy figure reflects mortality among those living in the area in each time period, rather than mortality among those born in each area. It is not, therefore, the number of years a baby born in the area in each time period could actually expect to live, both because the death rates of the area are likely to change in the future and because many of those in the area will live elsewhere for at least some part of their lives.

A4) The basis of the inequalities data presented

(i) Identification of “areas which had the worst health and deprivation”

This document updates the inequality monitoring data published in previous editions of this series of bulletins, based on a group of local authorities identified as having had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation. This group of local authorities was formerly known as the Spearhead Group, and was defined in 2004 for use with associated mortality targets included in the former Public Service Agreement (PSA) published as part of the 2004 Spending Review. Note that these targets are no longer in place.

These “areas which had the worst health and deprivation” were defined as the 70 local authority (single-tier and district council) areas (based on boundaries prior to the 1 April 2009 local government reorganisation) that were in the bottom fifth nationally for 3 or more of the following 5 factors:

- Male life expectancy at birth;
- Female life expectancy at birth;
- Cancer mortality rate in under 75s;
- Cardiovascular disease mortality rate in under 75s; and
- Index of Multiple Deprivation 2004 (Local Authority Summary), average score.

For life expectancy, the ‘bottom’ fifth means those with the lowest figures; for mortality rates and deprivation scores, it means those with the highest figures. Life expectancy and mortality rates were assessed against their positions in 1995-97 (the baseline period for the former Public Service Agreement inequalities targets that are based on the former Spearhead Group), while the 2004 version of the Index of Deprivation was used.

The 70 local authorities are listed at the end of this Annex.

(ii) Explanation of absolute and relative inequality gaps

For monitoring of inequalities, both the *absolute* gap and the *relative* gap between the areas with the worst health and deprivation and England are shown. Taking the life expectancy measure as an example, the absolute gap is the numerical *difference* between the life expectancy at birth for the areas with the worst health and deprivation and England. The relative gap is the *percentage difference* between the life expectancy at birth for the areas with the worst health and deprivation and England (i.e. the difference in life expectancy as a percentage of the England life expectancy).

Both the absolute and relative gaps are important measures of inequality, and should be used in combination to understand the extent of the inequalities. The absolute gap measures the impact of unequal health experience in absolute terms, e.g. how many more cancer deaths (per 100,000 population) occur in a disadvantaged group than the national average. The relative gap measures how unequal the health experience between groups is, i.e. how

much more likely someone from a disadvantaged group is to experience poor health (e.g. death from cancer) than the national average.

It is important to consider both absolute and relative measures and to interpret these carefully when assessing the extent of inequality. For example, a large social class gradient in a rare cause of death may be less important in public health terms than a smaller social class gradient in a common cause of death (for which absolute differences between social classes, and so the overall impact of the inequalities, are higher).

It is also important to assess trends in both absolute and relative measures of inequality when interpreting changes over time. For example, where indicator values are decreasing for England (as in the case for mortality rates), it is possible for a narrowing in the absolute gap with the areas with the worst health and deprivation to be accompanied by a static or increasing relative gap. Similarly, where indicator values are increasing for England (as is the case for life expectancy), it is possible for a narrowing in the relative gap to be accompanied by a static or increasing absolute gap.

Where this bulletin monitors the inequalities in life expectancy and mortality, both the absolute and relative gaps have been calculated and presented in statistical tables. The absolute gap is additionally shown in the charts which show the trends over time.

A5) Coding of cause of death

(i) The effect of the change from the 9th revision of the International Classification of Diseases (ICD9) to the 10th revision (ICD10)

The Office for National Statistics (ONS) uses the World Health Organisation's International Classification of Diseases to code death registrations for cause of death. In 2001 the ninth revision of the International Classification of Diseases (ICD9) was superseded by the tenth revision (ICD10) for coding of death registrations by ONS, and data for 1999 were re-coded using ICD10 to provide a "bridge" for comparisons between ICD-9 and ICD-10.

Further guidance on how to compare ICD-10 outputs with those published previously and the broader implications of the move from ICD-9 to ICD-10 can be accessed through the ONS website at: <http://www.ons.gov.uk/ons/guide-method/classifications/international-standard-classifications/icd-10-for-mortality/index.html>.

For the underlying data used to produce the figures in this document, death registrations for single years 1999 and 2001 onwards are coded using ICD10. Deaths registrations for other years are coded using ICD9, with an adjustment factor applied where necessary for comparability with ICD10. The change from ICD-9 to ICD-10 impacted on each cause of death as follows:

- **Cancer** - ICD10 codes used for monitoring the cancer indicator are C00-C97, 'All malignant neoplasms' (the ICD9 equivalent is 140-208). For all malignant neoplasms there was a small but statistically significant increase from ICD9 to ICD10. The original ICD9 coded deaths (for ages under 75)

have been adjusted by a factor of 1.013 for males and 1.009 for females in order to produce a trend comparable with ICD10 data.

- **All Circulatory Diseases** - ICD10 codes used for monitoring the circulatory diseases indicator are I00-I99 'All circulatory diseases' (the ICD9 equivalent is 390-459). For all circulatory diseases there was a small, but statistically significant, increase from ICD-9 to ICD-10. The original ICD9 coded deaths (for ages under 75) have been adjusted by a factor of 1.012 for males and 1.015 for females in order to produce a trend comparable with ICD10 data.
- **Intentional Self-harm (Suicide) and Injury of Undetermined Intent** - ICD10 Codes used for monitoring the suicide and undetermined injury indicator are X60-X84, Y10-Y34 (excluding Y33.9 up to 2006) 'Intentional self-harm and injury of undetermined intent excluding verdict pending' (the ICD9 equivalent is E950-E959, plus E980-E989 excluding E988.8). For suicide and injury of undetermined intent the change from ICD9 to ICD10 was not statistically significant and no adjustment factor has been applied to ICD9 data.
- **Accidents** - ICD10 Codes used for monitoring the accidents indicator are V01-X59 'Accidents' (the ICD9 equivalent is E800-E949 excluding E870-E879). For accidents the change from ICD9 to ICD10 was not statistically significant and no adjustment factor has been applied to ICD9 data.

(ii) The definition of suicide and injury of undetermined intent

Official suicides are those in which the coroner or official recorder has decided there is clear evidence that the injury was self-inflicted and the deceased intended to kill him or herself. Unofficial suicides or open verdicts are those where there may be doubt about the deceased's intentions. Research studies show that most open verdicts are in fact suicides. For the purposes of comparisons with other countries, the figures quoted are for official suicides only, but for the purpose of measuring overall suicides in England, official suicides and open verdicts are combined – these are the figures shown in this statistical bulletin.

A coroner's inquest may be adjourned because of further investigations or criminal proceedings connected with the death. The death may be registered at this stage as an "accelerated registration", with the result of proceedings notified at a later date. When the results of proceedings are known, the death is re-assigned to the correct code. The majority of "accelerated registrations" (or "verdict pending cases") are eventually reassigned as homicides, and are excluded from the suicide figures included in this bulletin.

Up to 2006 (single year data) "accelerated registrations" were initially assigned to Y33.9, so all deaths from this code were excluded from suicide mortality rates. From 2007, "accelerated registrations" are initially assigned code U50.9. The remaining small number of deaths coded to Y33.9 are therefore included in suicide mortality rates from 2007, as these do not relate to "verdict pending cases". This has a minimal effect on the mortality rates included in this bulletin.

(iii) The impact of coroner narrative verdicts on suicide and accident mortality data

Coroners are responsible for investigating violent, unnatural deaths or sudden deaths of unknown cause that are reported to them. Annually, there are around 30,000 coroner's inquests held in England and Wales that conclude with a verdict. The majority of verdicts following an inquest are returned in 'short-form' format, fitting into one of a series of established categories, such as accident or misadventure; natural causes; suicide; homicide. Alternatively, a narrative verdict can be returned by the coroner or jury. Narrative verdicts record the facts surrounding the death in more detail, but do not use a standard verdict to express their conclusions as to the cause of death.

Since 2001, narrative verdicts have been more widely used. In 2009 over 3,000 narrative verdicts were returned in England and Wales, compared with just over 100 in 2001. In some cases, it can be difficult to code the underlying cause of death from the information provided by the coroner in the narrative verdict.

If the narrative verdict does not contain sufficient detail about who caused the initial event leading to the death, or their intention at the time of the action, then deaths from injury or poisoning must be coded as accidents in accordance with international coding rules. This means that some deaths may be classified as accidental, when they are more likely to be intentional, and the effect of the increase in narrative verdicts may have been to inflate the number of deaths classified as accidents and decrease the number classified as intentional self-harm.

Based on an analysis of the impact of narrative verdicts on mortality statistics in England and Wales from 2001 to 2009, ONS concluded that the increase in the use of narrative verdicts by coroners has not had a statistically significant impact on published suicide rates. However, if the rise in narrative verdicts continues at the same rate, the accurate reporting of injury and poisoning deaths, including suicides, is likely to be affected in the future. Further details are available in the review published by ONS⁷.

(iv) "Original" and "Final" cause of death

The data presented in this document are based on the "original" cause of death. ONS code the underlying cause of death based on the conditions mentioned on the death certificate. This is the "original" cause of death. In some cases, however, more information on causes of death may become available at a later stage, such that the underlying cause may be subsequently amended. This is the "final" cause of death.

Due to the introduction of new guidelines on data protection and confidentiality, from 2004 ONS have provided only the original causes of death as recorded on the death certificate (rather than the final causes as previously). The reason for this change is that whilst the original causes of death are part of the public record, the final amended causes are not. In order to maintain a consistent monitoring trend, rates were revised to original cause mortality coding. The effect of this change was minor (not more than 0.1 death

per 100,000), but rates presented in this document may differ slightly from mortality monitoring data published elsewhere prior to 2005.

A6) The effect of revisions to population estimates

The life expectancy figures and mortality rates presented in this document are based on the most up to date series of population estimates released by the ONS, and incorporate the following recent revisions made to population estimates.

- (a) Following the 2001 Population Census, estimates of the structure of the population of the United Kingdom and its component areas were revised. The revision affected population estimates from 1982 until 2000. Although the revision affected age groups and areas differently, overall the estimate of the population was smaller following the revision.
- (b) In 2004 ONS concluded the Local Authority Population Studies (LAPS), a series of studies designed to improve population estimates in the areas that proved hardest to count in the 2001 Census. The results of this work by ONS, involving experts from local government and other bodies, confirmed the analysis contained in reports by the Statistics Commission and the Local Government Association that the One Number Census (ONC) worked well in most areas but that there were a few cases where it was not able sufficiently to adjust for exceptional circumstances.

The results from the LAPS analysis showed that there was a need for further revisions to the 2001 Census based population figures. The revisions were confined to 15 local authorities (LAs). Manchester and Westminster were the authorities with the largest changes, while there were much smaller revisions to 13 other LAs. The net result was to increase the estimate of the national population by 0.1 percent.

- (c) In 2007 ONS published revised mid-year population estimates for 2002 to 2005 resulting from improvements to the recording of international migration. This primarily affected the distribution of population between sub-national areas. Generally, urban areas experienced the largest changes, mostly increases to population. Whilst the group of areas with the worst health and deprivation contains many urban areas, the two largest increases occurred in areas not in this group (Kensington and Chelsea, and Westminster). The impact on life expectancy figures and mortality rates for England and the areas with the worst health and deprivation was minimal.
- (d) In 2010 ONS published revised mid-year population estimates for 2002 to 2008 resulting from further improvements to the handling of the impact of migration on population estimates. The effect of these revisions is minor, but life expectancy and mortality figures included in this document may differ to those published in previous years because of these revisions.

Local authorities (single-tier and district council) in the “areas with the worst health and deprivation”*

Local authorities are based on boundaries prior to the 1 April 2009 local government reorganisation, and are shown in alphabetical order.

Barking and Dagenham	Oldham
Barnsley	Pendle
Barrow-in-Furness	Preston
Birmingham	Redcar and Cleveland
Blackburn with Darwen	Rochdale
Blackpool	Rossendale
Blyth Valley ^a	Rotherham
Bolsover	Salford
Bolton	Sandwell
Bradford	Sedgefield ^b
Burnley	South Tyneside
Bury	Southwark
Carlisle	St. Helens
Chester-le-Street ^b	Stockton-on-Tees
Corby	Stoke-on-Trent
Coventry	Sunderland
Derwentside ^b	Tameside
Doncaster	Tamworth
Easington ^b	Tower Hamlets
Gateshead	Wakefield
Greenwich	Walsall
Hackney	Wansbeck ^a
Halton	Warrington
Hammersmith and Fulham	Wear Valley ^b
Haringey	Wigan
Hartlepool	Wirral
Hyndburn	Wolverhampton
Islington	
Kingston upon Hull, City of	
Knowsley	
Lambeth	
Leicester	
Lewisham	
Lincoln	
Liverpool	
Manchester	
Middlesbrough	
Newcastle upon Tyne	
Newham	
North East Lincolnshire	
North Tyneside	
Nottingham	
Nuneaton and Bedworth	

a. Following the 1 April 2009 local government reorganisation, these districts form part of Northumberland Unitary Authority

b. Following the 1 April 2009 local government reorganisation, these districts form part of County Durham Unitary Authority

* Local authorities which had the worst health and deprivation, based on life expectancy and mortality data for 1995-97 and the 2004 Index of Multiple Deprivation.

Annex B: Former government mortality targets

This document is the latest update in a series of mortality monitoring bulletins published since 2007, initially established to present data related to mortality targets included in the former Public Service Agreements (PSAs) published as part of the 2004 and 2007 Spending Reviews. These targets are no longer in place, and we plan to review the format and content of this bulletin before the next annual update in the light of the indicators in the Transparency section of the Department of Health Business Plan 2011-15⁵ (published following the 2010 Spending Review), and the forthcoming Public Health Outcomes Framework⁶.

The former mortality targets associated with the indicators presented in this bulletin are listed below. For each of these the target date was 2010 (assessed using data for 2009-11), with progress assessed against a baseline period of 1995-97.

Life expectancy – overall:

- increase the average life expectancy at birth in England to 78.6 years for men and to 82.5 years for women

Life expectancy – inequalities:

- reduce the relative gap in life expectancy at birth between the fifth of local authorities with the worst health and deprivation indicators (formerly known as 'the Spearhead Group') and the England average, by at least 10%

Cancer mortality for persons under 75 – overall and inequalities:

- reduce the cancer mortality rate by at least 20%
- reduce the absolute gap in the cancer mortality rate between the former Spearhead Group and the England average, by at least 6%

Circulatory diseases mortality in persons under 75 – overall and inequalities:

- reduce the mortality rate from all circulatory diseases by at least 40%
- reduce the absolute gap in the circulatory diseases mortality rate between the former Spearhead Group and the England average, by 40%

Suicide and undetermined injury mortality – overall:

- reduce the mortality rate from suicide and undetermined injury by at least 20%

Accident mortality – overall:

- reduce the mortality rate from accidents by at least 20%

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