

Statistical bulletin

# Disability-Free Life Expectancy by Upper Tier Local Authority: England: 2009-11 and comparison with 2006-08

Comparison of disability-free life expectancy estimates between local authorities in 2009-11 with regional breakdowns. Change over time between 2006-08 and 2009-11 is discussed for both regions and upper tier local authorities.



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# 1. Key points

- Females at birth in 2009-11 in England can expect to live a further 1.0 year with a disability than in 2006-08. For males it was a further 0.4 years.
- Women at age 65 in England in 2009-11 can expect to live a further 0.6 years without a disability. For men it was an extra 0.5 years without a disability.
- Females at birth in Herefordshire in 2009-11 have a Disability-Free Life Expectancy (DFLE) of 71.7 years. This is 16.1 years longer than females in Tower Hamlets, where DFLE was 55.6 years.
- Males at birth in Richmond upon Thames in 2009-11 have a DFLE of 69.9 years. This is 13.5 years longer than males in Liverpool, where DFLE was 56.4 years
- For males at birth, four out of the nine local authorities located in the North East had significant improvements in DFLE between 2006-08 and 2009-11. However none of these local authorities had a higher DFLE than the England average.

## 2. Summary

Health expectancies add a quality of life dimension to estimates of longevity by dividing expected lifespan into time spent in different states of health. The Office for National Statistics (ONS) routinely publishes two types of health expectancies. The first is Healthy Life Expectancy (HLE), which estimates lifetime spent in 'Very good' or 'Good' health based upon how individuals perceive their general health. The second is Disability-Free Life Expectancy (DFLE), which estimates lifetime free from a limiting persistent illness or disability. This is based upon a self-rated assessment of how health limits an individual's ability to carry out day-to-day activities. Both health expectancies are summary measures of population health and key indicators of the well-being of society.

This bulletin presents estimates of Disability-Free Life Expectancy (DFLE) for Upper Tier Local Authorities (UTLAs) in England for the period 2009-11. The estimates are for each gender, at birth and at age 65. It also compares the most recent period with 2006-08 estimates to analyse the direction of change in DFLE, both nationally and sub-nationally.

Calculating DFLE at sub national level generates information on the geographical distribution of disability and provides evidence that both the government and private sector can use to make decisions. The data can be used as evidence for funding health and social care and to determine the feasibility of increases to the state pension age. It also has use in private sector pensions and provides the general public with information on how their local area's health compares with neighbouring areas and with England as a whole.

## 3. Background

### What are health expectancies?

Life Expectancy (LE) has increased considerably since the eighties, and is expected to increase further in the UK (ONS 2013c). However, it is important that the number of years lived without a disabling health condition rises either faster or at the same rate. If this is not the case, then these additional years of life are being spent in poor health and greater dependency, putting additional strain on health and social care resources.

It is for this reason health expectancies are being used to assess the proportion of life spent in favourable health. These are summary measures of population health, which estimate the average number of years a person would live in a given health state if he/she experienced the specified population's particular age-specific mortality and health status for that time period throughout the rest of his/her life.

The DFLE figures represent a snapshot of the mortality and health status of the whole population of a specified area in each three year time period. They are not, therefore, the number of years that a person will actually expect to live in the area in a given health state. This is because both mortality and health rates are susceptible to change in the future, and because of population movement into and out of the area.

DFLE estimates are, in part, subjective and based upon the following survey question to determine whether the survey respondent has a limiting persistent illness or disability, or not<sup>1</sup>:

- Do you have any health problems or disabilities that you expect will last for more than a year?

Yes/No

If 'Yes' the respondent is then asked the following question:

- Do these health problems or disabilities, when taken singly or together, substantially limit your ability to carry out normal day-to-day activities? If you are receiving medication or treatment, please consider what the situation would be without the medication or treatment.

Yes/No

Respondents are classified as having a limiting persistent illness (disability) only if they answered yes to both questions. In terms of the questions, [problems with mobility, dexterity, sight, speech and hearing, physical coordination, memory and the ability to concentrate](#) may limit day-to-day activities.

The subjective nature of these questions means that responses are influenced by how respondents perceive their health. Measures of self-assessed health, including general health and the more functional assessment of limiting persistent illness, are influenced by an individual's expectations with clear differences observed across socio-demographic factors such as age, sex, socio-economic position and area deprivation.

Self-assessed general health and limiting persistent illness (ONS, 2012, Manor et al., 2001) are linked to more objective measures of health, and have been shown to have value in predicting health care need/usage and subsequent mortality. Research evidence indicates people with poor self-assessed health (both general health and limiting persistent illness) die sooner than those who report their health more positively (Mossey and Shapiro, 1982; Idler and Benyamini, 1997; Miilunpalo et al., 1997; DeSalvo et al., 2006; Bopp et al., 2012; Ng et al., 2012).

In terms of morbidity (disability or poor health) the evidence is more limited. Studies have shown that self-assessed health, measured in terms of general health or limiting illness has some predictive value in the subsequent use of health and social care services. This is shown in increased physician visits (Miilunpalo et al., 1997), hospital admission and nursing home placement (Weinberger et al., 1986). Studies have also shown that poor self-assessed health correlates well with retirement due to disability or poor health (Pietilainen et al., 2011; Dwyer and Mitchell, 1999) and poor health outcomes (Lee, 2000).

Survey measurements of general health and limiting persistent illness are used globally to identify health inequality between administrative areas, inform health and social care service needs, indicate unmet care needs, and target and monitor the allocation of health care resources amongst population groups ([Marmot, 2010](#)). International organisations and networks such as the [World Health Organisation](#), [Eurostat](#) and the [Reves Network on Health Expectancy](#) use this information to compare morbidity across countries, and to monitor trends over time.

[Quality information about ONS health expectancies \(185.7 Kb Pdf\)](#) is available on the ONS website.

## Notes for background

1. Please see background note 3 for details of questionnaire changes relating to the disability questions (from 2010 onwards), and how they might affect the DFLE estimates presented.

## 4. England

### At birth

In 2009-11, Disability-Free Life Expectancy (DFLE) for males at birth was 63.9 years, for females it was longer at 64.4 years. Despite having shorter DFLE, males expect to spend a greater proportion of their lives (81.0%) free from disability, compared to females (77.8%).

When comparing the 2009-11 data with the nearest time period 2006-08, where no years overlap, the estimate for males has increased significantly by 0.6 years, from 63.3 years to 63.9 years. For females the DFLE estimate decreased by 0.1 of a year, from 64.5 years to 64.4 years.

DFLE has significantly increased for males at birth between 2006-08 and 2009-11. However, although DFLE increased it did not keep pace with the increase in life expectancy. The result of this is that males in 2009-11 can expect to live a further 0.4 years or a further 0.3 percentage points of their lives with a disability than in 2006-08. Females at birth in England can expect to live an additional year with a disability, or a further 1.0 percentage point of their lives with a disability.

### At age 65

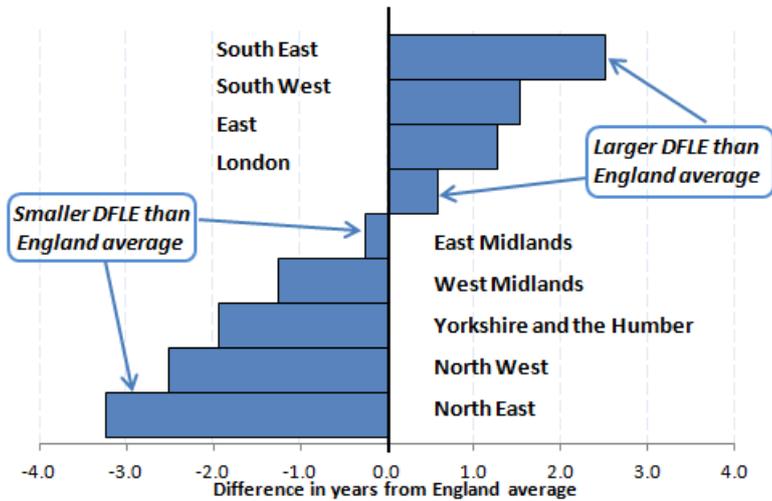
DFLE for both men and women at age 65 increased significantly between 2006-08 and 2009-11. For men the increase was 0.5 years to 10.5 years, and for women the increase was 0.6 years to 11.2 years. Most importantly, the number of years expected to live with a disability increased by 0.2 years for males and 0.1 years for women. Compared with 2006-08 men can expect to live an additional 0.6 percentage points of their remaining lives without a disability, for women it was an increase of 1.1 percentage points without a disability.

## 5. Regions

### At birth

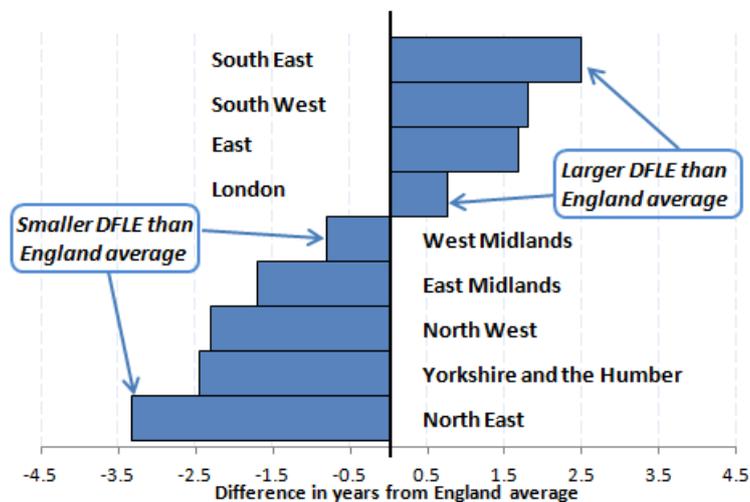
In 2009-11, as at previous time points, there was considerable variation between the DFLE of different regions. There was a clear North-South divide, with the southern regions having higher DFLE. Figure 1 and 2 show how the regions differ from the England estimate.

**Figure 1: Difference in DFLE estimates from the England average by region for males at birth, 2009-11**



Source: Office for National Statistics

**Figure 2: Difference in DFLE Estimates from the England average by Region for females at birth, 2009-11**



Source: Office for National Statistics

At birth, for both males and females, the South East had the longest DFLE at 66.4 and 66.9 years respectively. The North East had the shortest DFLE at 60.7 years for males and 61.1 years for females. Females in the North East can expect to live a quarter of their shorter lives with a disability while in the South East females can only expect to live one fifth of their longer lives with a disability.

**Table 1: DFLE, expected years with a disability, LE and proportion of life with a disability by region for males at birth, 2009-11**

Region /Country Name	DFLE	Expected years with a disability	Years	
			LE	Proportion of life with a disability %
North East	60.7	16.8	77.5	21.7
North West	61.4	16.0	77.4	20.7
Yorkshire and The Humber	62.0	16.1	78.1	20.6
West Midlands	62.7	15.8	78.4	20.1
East Midlands	63.7	15.1	78.7	19.2
London	64.5	14.8	79.3	18.7
East of England	65.2	14.7	79.9	18.4
South West	65.4	14.3	79.8	18.0
South East	66.4	13.6	80.0	17.0
<b>England</b>	<b>63.9</b>	<b>15.0</b>	<b>78.9</b>	<b>19.0</b>

Table source: Office for National Statistics

**Notes:**

1. Regions have been ordered by DFLE.
2. Figures may not sum due to rounding.

**Table 2: DFLE, expected years with a disability, LE and proportion of life with a disability by region for females at birth, 2009-11**

Region /Country Name	DFLE	Expected years with a disability	LE	Proportion of life with a disability %
North East	61.1	20.4	81.5	25.0
Yorkshire and The Humber	62.0	20.0	82.0	24.4
North West	62.1	19.4	81.5	23.8
East Midlands	62.8	20.0	82.8	24.2
West Midlands	63.6	19.0	82.6	23.0
London	65.2	18.4	83.6	22.0
East of England	66.1	17.4	83.6	20.9
South West	66.3	17.5	83.7	20.9
South East	66.9	16.8	83.8	20.1
<b>England</b>	<b>64.4</b>	<b>18.4</b>	<b>82.9</b>	<b>22.2</b>

Table source: Office for National Statistics

**Notes:**

1. Regions have been ordered by DFLE.
2. Figures may not sum due to rounding.

**At age 65**

Regional data for those aged 65 can be found in the [data section](#) of this release. At age 65 the North-South divide is also present, as well as men having shorter DFLE but a higher proportion of their lives without a disability, compared to women.

**6. Local authorities at birth**

In 2009-11 there was considerable variation in the DFLE estimates between the 150 Upper Tier Local Authorities (UTLAs) included in this analysis. Males at birth in Richmond upon Thames and in Surrey had a DFLE of 69.9 years, while males in Wakefield had a DFLE of 55.6 years. This means a male born in Surrey could expect to live for 13.8% of his life with a disability, while in Wakefield it was 14.4 percentage points higher at 28.2%.

For females the longest DFLE was in Herefordshire at 71.7 years while Tower Hamlets had the shortest DFLE at 55.6 years. Females living in Tower Hamlets could expect to live almost a third (32.1%) of their lives with a disability, while those in Herefordshire could expect to live only a seventh (14.2%) of their lives with a disability. This means females in Tower Hamlets are expected to live twice the proportion of their lives with a disability compared to those in Herefordshire.

Surrey, Wokingham and West Berkshire in the South East, the London Boroughs of Richmond upon Thames and Bromley, and Herefordshire in the West Midlands feature in the top 10 local authorities with the longest DFLEs for both sexes. On the other end of the scale, the following UTLAs were in the bottom 10 for both sexes: Liverpool, Knowsley and Tameside in the North West, Barnsley and Wakefield in Yorkshire and The Humber, and Leicester and Stoke-on-Trent in the East and West Midlands respectively.

For males and females the Northern regions were not represented in the 10 local authorities with the longest DFLEs for both sexes. However the Northern regions were well represented in the bottom 10 local authorities for both sexes. Using our [interactive maps](#) the North-South divide can clearly be seen for both sexes, along with pockets in the North and South where DFLE was higher or lower than the general regional picture.

It is useful for local authorities to benchmark their DFLE estimates against those for England, their respective regions or neighbouring local authorities. In this bulletin we tested whether the UTLA DFLE figures are different from the specific England DFLE estimate using statistical tests. For males at birth, 40 of the 150 local authorities were significantly higher than the England DFLE estimate, while 56 were significantly lower. For females 41 local authorities were higher than the England DFLE estimate and 63 were lower. Interestingly, when looking at the UTLA estimates within regions, there are no UTLAs in the North East where DFLE was significantly higher than the England estimate. However in the South East, for males and females, half of all the UTLAs had higher DFLE estimates than England, further highlighting the North-South divide.

**Table 3: DFLE with rank, proportion of life disability-free with rank and LE by upper tier local authorities for males at birth, 2009-11**

UTLA Name	DFLE	DFLE Rank	Proportion of life disability-free %	Rank proportion of life disability-free	Years
<b>Top 10</b>					
Richmond upon Thames	69.9 *	1	85.8		5 81.5
Surrey	69.9 *	2	86.2		3 81.1
Buckinghamshire	69.7 *	3	86.5		2 80.6
West Berkshire	69.4 *	4	86.0		4 80.7
Kensington and Chelsea	69.0 *	5	84.6		9 81.6
Herefordshire, County of	68.8 *	6	86.6		1 79.4
Wokingham	68.4 *	7	83.9		16 81.5
Wiltshire	68.0 *	8	84.9		7 80.1
West Sussex	67.9 *	9	84.7		8 80.2
Bromley	67.9 *	10	84.2		13 80.7
<b>Bottom 10</b>					
Blackburn with Darwen	57.8 **	141	76.3		134 75.7
Leicester	57.7 **	142	75.7		139 76.3
Stoke-on-Trent	57.6 **	143	75.2		144 76.5
Hartlepool	57.5 **	144	75.0		145 76.6
Blackpool	57.3 **	145	77.7		125 73.8
Tameside	57.1 **	146	75.3		143 75.9
Barnsley	56.5 **	147	73.0		149 77.4
Liverpool	56.4 **	148	74.5		146 75.7
Knowsley	56.0 **	149	73.4		148 76.4
Wakefield	55.6 **	150	71.8		150 77.5

Table source: Office for National Statistics

**Notes:**

1. \* Denotes significantly higher than England estimate.
2. \*\* Denotes significantly lower than England estimate.
3. Significance was assigned by a Z-test as detailed in (Jagger 2007 et al).
4. Figures may not sum due to rounding.

**Table 4: DFLE with rank, proportion of life disability-free with rank and LE by upper tier local authorities for females at birth, 2009-11**

UTLA Name	DFLE	DFLE Rank	Proportion of life disability-free %	Rank proportion of life disability-free	LE Years
<b>Top 10</b>					
Herefordshire, County of	71.7*	1	85.8		1 83.6
Bromley	71.6*	2	84.8		2 84.5
Richmond upon Thames	70.3*	3	81.8		13 86.0
Surrey	69.7*	4	82.5		6 84.5
Bath and North East Somerset	69.7*	5	82.7		4 84.3
Windsor and Maidenhead	69.7*	6	82.7		3 84.3
West Berkshire	69.6*	7	82.4		7 84.5
Wokingham	69.4*	8	82.2		9 84.4
Kingston upon Thames	69.4*	9	82.1		10 84.5
Bracknell Forest	69.3*	10	82.6		5 84.0
<b>Bottom 10</b>					
Leicester	58.5**	141	72.0		141 81.3
Tameside	58.4**	142	72.5		136 80.5
Liverpool	58.2**	143	72.7		135 80.1
Stoke-on-Trent	58.1**	144	72.2		138 80.5
Knowsley	57.9**	145	71.7		142 80.8
Wakefield	57.6**	146	70.8		148 81.5
Barnsley	57.4**	147	70.9		146 80.9
Kingston upon Hull, City of	57.1**	148	71.0		145 80.4
Newham	56.4**	149	68.8		149 82.0
Tower Hamlets	55.6**	150	67.9		150 81.9

Table source: Office for National Statistics

**Notes:**

1. \* Denotes significantly higher than England estimate.
2. \*\* Denotes significantly lower than England estimate.
3. Significance was assigned by a Z-test as detailed in (Jagger 2007 et al).
4. Figures may not sum due to rounding.

## 7. Local authorities at age 65

DFLE at age 65 can give an indication of the disabling health problems that people at the point of retirement age can expect. It can also highlight the inequality between populations in different locations. For example, in Kensington and Chelsea, which had the longest DFLE for men, less than a third of men's remaining lives are expected to be lived with a disability (31.8%). In Newham, which had the shortest DFLE for men, over two thirds of men's remaining lives are expected to be lived with a disability (67.8%). The fact that men age 65 in Kensington and Chelsea spend less than half the proportion of their lives with a disability compared to Newham shows that inequality is still present beyond the state pension age.

A similar pattern is seen for women at age 65, with those in Bracknell Forest expected to live less than a third (30.0%) of their remaining lives with a disability. However, those in Tower Hamlets are expected to live for more than two thirds of their remaining lives with a disability (69.7%).

The inequality can be demonstrated further as women in Bracknell Forest at age 65 can expect to live for a further 22.0 years, 15.4 of those free from disability. Those in Tower Hamlets are only expected to live for a further 20.2 years, 6.1 of those free from disability. These differences in DFLE mean that women aged 65 in Bracknell Forest can expect to live almost three times as many years disability-free than women in Tower Hamlets.

The Upper Tier Local Authority (UTLA) estimates at age 65 were again compared to the England estimate. For men at age 65, DFLE was significantly higher than England in 30 UTLAs, while in 48 UTLAs it was significantly lower. For women, there were 24 local authorities where DFLE was higher than the England estimate, while 45 were significantly lower. Similar to the estimates at birth, there were no UTLAs in the North East that had a higher DFLE than the England estimate. However in the South East, over a third (42.1%) of UTLAs had higher DFLE estimates than England.

**Table 5: DFLE with rank, proportion of life disability-free with rank and LE by upper tier local authorities for men at age 65, 2009-11**

UTLA Name	DFLE	DFLE Rank	Proportion of life disability-free %	Years	
				Rank proportion of life disability-free	LE
<b>Top 10</b>					
Kensington and Chelsea	14.1 *	1	68.2	8	20.7
Richmond upon Thames	13.8 *	2	69.8	3	19.8
Herefordshire, County of	13.5 *	3	71.6	2	18.8
Devon	13.3 *	4	68.4	7	19.4
Wokingham	13.2 *	5	66.4	12	20.0
Surrey	13.2 *	6	67.5	9	19.6
Oxfordshire	13.2 *	7	68.8	6	19.2
Westminster	13.1 *	8	63.3	20	20.7
Bedford	13.0 *	9	69.3	4	18.8
Buckinghamshire	12.9 *	10	66.9	10	19.3
<b>Bottom 10</b>					
Kingston upon Hull, City of	7.5 **	141	45.3	134	16.5
Wakefield	7.4 **	142	42.6	142	17.4
Tower Hamlets	7.4 **	143	43.5	140	16.9
Hartlepool	7.1 **	144	41.3	144	17.1
Rotherham	7.0 **	145	41.0	145	17.2
Greenwich	6.9 **	146	39.6	146	17.4
Islington	6.5 **	147	36.8	148	17.6
Liverpool	6.1 **	148	37.1	147	16.4
Knowsley	6.0 **	149	35.5	149	16.8
Newham	5.6 **	150	32.2	150	17.5

Table source: Office for National Statistics

**Notes:**

1. \* Denotes significantly higher than England estimate.
2. \*\* Denotes significantly lower than England estimate.
3. Significance was assigned by a Z-test as detailed in (Jagger 2007 et al).
4. Figures may not sum due to rounding.

**Table 6: DFLE with rank, proportion of life disability-free with rank and LE by upper tier local authorities for women at age 65, 2009-11**

UTLA Name	DFLE	DFLE Rank	Proportion of life disability-free %	Years	
				Rank proportion of life disability-free	LE
<b>Top 10</b>					
Bracknell Forest	15.4*	1	70.0	1	22.0
Herefordshire, County of	14.8*	2	67.9	2	21.8
Bromley	14.4*	3	65.6	4	22.0
Richmond upon Thames	14.4*	4	61.3	12	23.4
Bath and North East Somerset	14.3*	5	65.7	3	21.8
West Sussex	14.2*	6	65.6	5	21.6
Surrey	14.1*	7	64.1	7	22.1
Devon	14.0*	8	63.8	8	21.9
West Berkshire	14.0*	9	62.7	11	22.3
Worcestershire	13.8*	10	64.7	6	21.3
<b>Bottom 10</b>					
Doncaster	8.2**	141	40.2	142	20.5
Liverpool	8.1**	142	42.8	135	19.0
Hounslow	8.1**	143	37.8	147	21.5
Oldham	8.1**	144	41.3	140	19.6
Stoke-on-Trent	7.7**	145	39.4	143	19.6
Knowsley	7.6**	146	39.3	144	19.3
Wakefield	7.6**	147	37.9	146	20.0
Brent	7.3**	148	32.4	148	22.5
Newham	6.2**	149	30.2	150	20.5
Tower Hamlets	6.1**	150	30.3	149	20.2

Table source: Office for National Statistics

**Notes:**

1. \* Denotes significantly higher than England estimate.
2. \*\* Denotes significantly lower than England estimate.
3. Significance was assigned by a Z-test as detailed in (Jagger 2007 et al).
4. Figures may not sum due to rounding.

## 8. Local authority comparison of 2009-11 data with 2006-08

To be confident about the conclusions drawn about changes in DFLE estimates over time, statistical significance tests are performed. Please see [methods section](#) for more detail.

### Change in DFLE at Birth, 2006-08 to 2009-11

To find out whether or not there has been significant change over time two time periods are compared. This is possible and valid using 2006-08 and 2009-11 data as none of the years in each time period overlap. For males at birth, the England estimate had increased significantly from 63.3 years in 2006-08 to 63.9 years in 2009-11. At the regional level, the North East, East Midlands, Yorkshire and The Humber, South East and London have all had significant DFLE increases between these periods. These range between 0.7 to 1.9 years.

For females at birth there was no significant change at the England level. At the regional level, the North East had a significant DFLE increase by 1.6 years to 61.1 years. However, in Yorkshire and The Humber, and the East Midlands, there were significant decreases in DFLE of 0.8 and 1.4 years respectively. All other regions did not change significantly between the two time periods.

At the local authority level for males at birth, 12 had significant increases in their DFLE estimates. The greatest increase was for Southend-on-Sea with an increase of 6.5 years. However, because of random variation in the survey data, this real increase could be smaller than the estimate suggests. Richmond upon Thames and Wandsworth also saw significant increases of more than five years. The following four UTLAs in the North East had a significant rise in their DFLE estimates: Newcastle upon Tyne, Sunderland, Darlington and Gateshead. This is a positive improvement for a region that has traditionally had the lowest DFLE and contains some of the most deprived populations in England.

For males at birth, six local authorities had significant decreases in their DFLE estimates of between 2.8 and 4.2 years. The following three of the six are located in the West Midlands: Coventry, Wolverhampton and Telford and Wrekin.

For females at birth, three UTLAs had a significant increase in DFLE estimates between 2006-08 and 2009-11 of between 2.9 and 5.6 years. Conversely there were eight local authorities that had significant decreases in DFLE estimates of between 2.4 and 4.2 years.

The static maps below show the geographical distribution of UTLAs that had a significant increase or decrease in their DFLE estimates between 2006-08 and 2009-11.

**Map 1: Significant change in Disability-Free Life Expectancy (DFLE) for males at birth by upper tier local authority, England, 2006-08 to 2009-11**

Change in DFLE (years)

Three largest increases

- A. Southend-on-Sea 6.5
- B. Richmond upon Thames 5.6
- C. Wandsworth 5.1

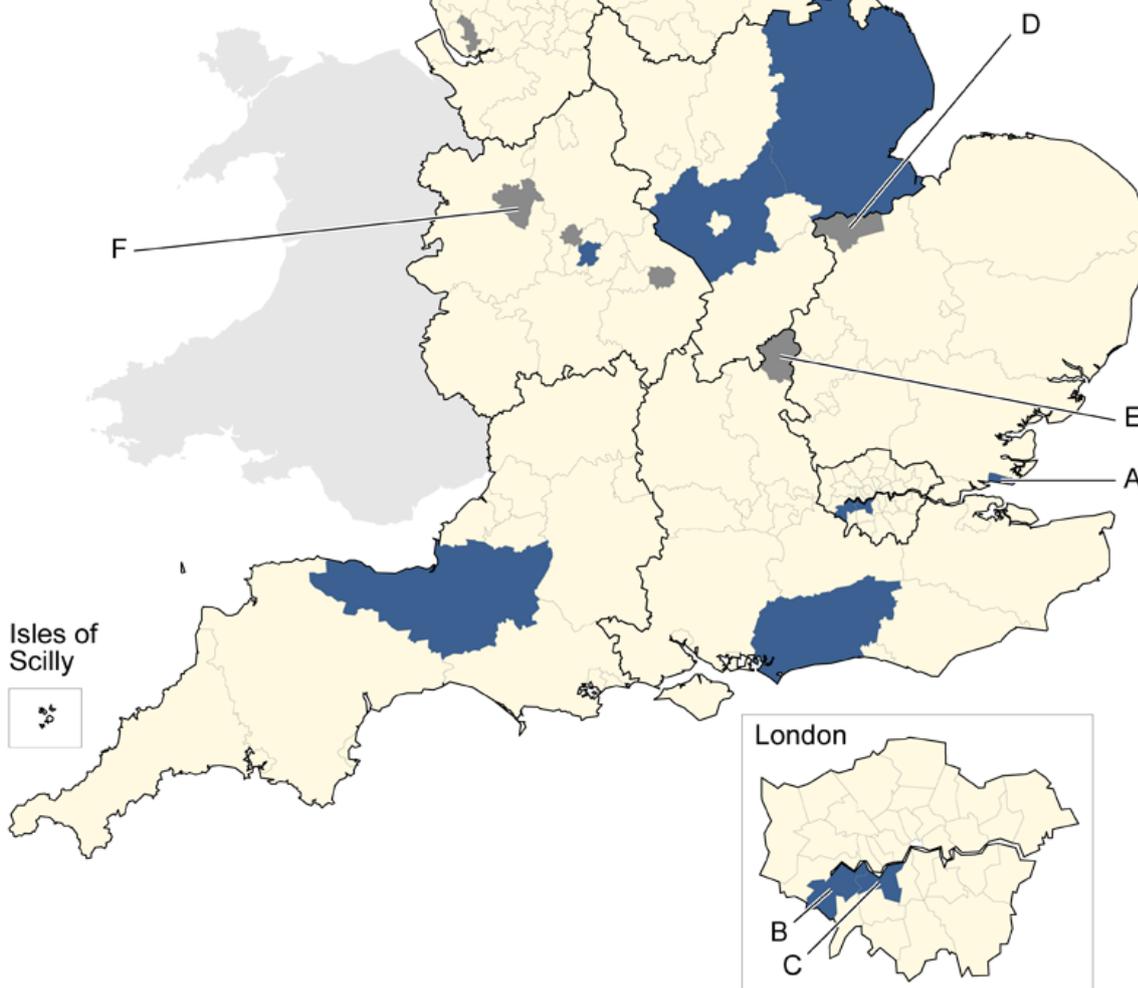
Change<sup>1,2</sup>  
(Total number of areas = 152)

- Significant increase (12)
- No significant change (132)
- Significant decrease (6)
- No data available<sup>3</sup> (2)

Change in DFLE (years)

Three largest decreases

- D. Peterborough -4.2
- E. Milton Keynes -4.0
- F. Telford and Wrekin -3.3



1 Excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at their parents' address.  
 2 Upper tier local authorities include non-metropolitan counties, metropolitan districts, unitary authorities and London boroughs.  
 3 Disability-free life expectancy figures are not available for Isles of Scilly and City of London because of insufficient population size.  
 Source: Office for National Statistics  
 Contains National Statistics data © Crown copyright and database right 2014  
 Contains Ordnance Survey data © Crown copyright and database right 2014



**Map 2: Significant change in Disability-Free Life Expectancy (DFLE) for females at birth by upper tier local authority , England, 2006-08 to 2009-11**

Change in DFLE (years)

Three largest increases

- A. Hammersmith and Fulham 5.6
- B. South Tyneside 3.5
- C. Blackpool 2.9

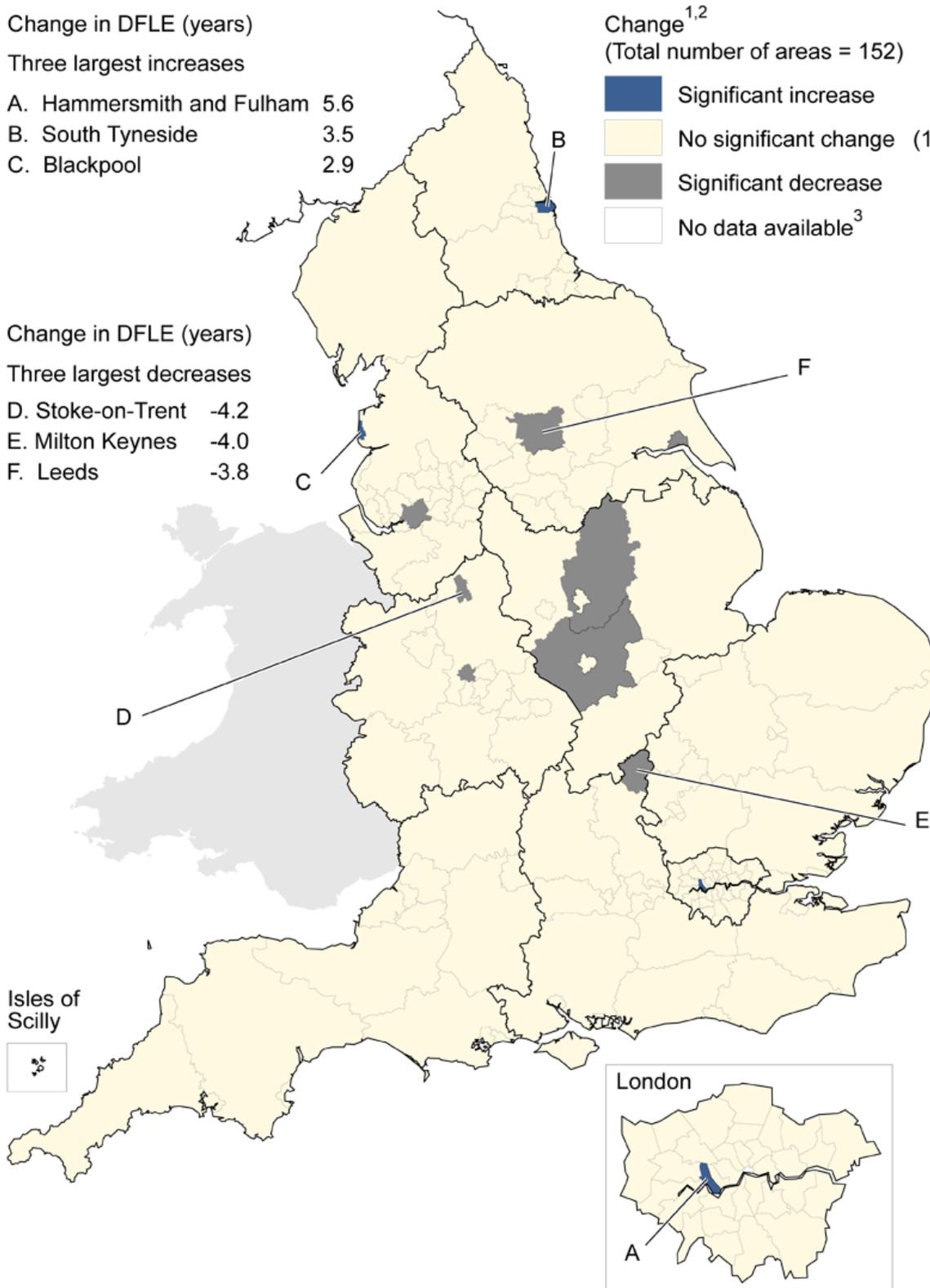
Change<sup>1,2</sup>  
(Total number of areas = 152)

- Significant increase (3)
- No significant change (139)
- Significant decrease (8)
- No data available<sup>3</sup> (2)

Change in DFLE (years)

Three largest decreases

- D. Stoke-on-Trent -4.2
- E. Milton Keynes -4.0
- F. Leeds -3.8



Isles of Scilly



London



1 Excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at their parents' address.

2 Upper tier local authorities include non-metropolitan counties, metropolitan districts, unitary authorities and London boroughs.

3 Disability-free life expectancy figures are not available for Isles of Scilly and City of London because of insufficient population size.

Source: Office for National Statistics

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## Change in DFLE at Age 65, 2006-08 to 2009-11

Men and women at age 65 had significant improvements in DFLE both at the England and regional levels. For men the East Midlands, South East, North East and Yorkshire and The Humber had improvements in the range of 0.5 and 1.2 years. Women in the East of England, North East, North West, South East and South West had significant increases of between 0.7 and 1.3 years.

For men at age 65, eight local authorities had a significant improvement in DFLE; for women at age 65, ten local authorities had significantly improved. The greatest increase for both men and women between 2006-08 and 2009-11 was in Richmond upon Thames, at 5.9 and 4.2 years respectively.

For men at age 65, Greenwich was the only local authority that had a significant decrease in its DFLE estimate. In fact, the decrease from 10.7 to 6.9 years meant that DFLE had fallen by over a third. Although this decrease was large, because of random variation the decrease may have been smaller than the estimates suggest. For women at age 65, Leeds also had a significant decrease of 1.9 years.

At both birth and age 65, there is a general picture of improving DFLE. However the DFLE estimates of females at birth, at both regional and UTLA level, show more significant falls in DFLE than improvements. At birth, for males there were increases in 12 UTLAs, and only in three UTLAs for females, suggesting a more rapid improvement for males. At age 65 the average size of the significant improvements in UTLAs is 3.4 years for men and 2.7 years for women. The greater size and number of significant improvements for males overall indicates that males are closing the gender gap with females in terms of DFLE.

## 9. Conclusions

At the England level, men and women at age 65 have seen an increase in their DFLE, and the proportion of their remaining lives they can expect to live disability-free. This means those above age 65 are living longer and for a greater proportion of their lives without health conditions that disable them.

The improvements at age 65 are not reflected in the figures at birth. Although DFLE has significantly increased for males and has remained broadly stable for females, the proportion of expected life with a disability has increased. This increase in the proportion of life with disability is driven by faster increases in Life Expectancy than in DFLE. Taking England as a whole, males and females at birth in 2009-11 can expect to live more years with a disability than in 2006-08.

It is interesting that, while Life Expectancy has increased both at birth and at age 65 for males and females, it is only at birth that the proportion of life spent with a disability has increased. Therefore the increase in the proportion of life with disability at birth is largely down to an increase in disability rates among those under 65. So why did the health of those under 65 not increase in line with those over 65? One explanation, of many possible, is that the period 2009-11 falls entirely in a time of recession and slow recovery. 2009-11 was economically less favourable than 2006-08 (the data was collected largely before the effects of the banking crisis). It is feasible that the functional health (including conditions such as anxiety and depression) of those under 65 may have been more affected by pressures on individuals and households. These pressures were due to the weakening economy and a fall in living standards brought about by wage restraint. Those over 65 are more likely to be pensioners, not economically active and therefore less affected by the struggling economy. Data from a recent release on the effects of taxes and benefits on household income shows the income of pensioners has been largely protected compared to those of working age (ONS, 2014a).

A North-South divide was observed at birth and at age 65 for both sexes, with the North having lower rates of DFLE. The North East as a region has had the lowest rates of DFLE but encouragingly, for males at birth, four out of the nine UTLAs located in the North East had significant improvements between 2006-08 and 2009-11. However, despite this all nine UTLAs in the North East did not have a significantly higher DFLE than the England estimate for both sexes in 2009-11. In the South East, where DFLE estimates are amongst the highest in the country, almost half of all UTLAs had DFLEs that were significantly higher than the England estimate for both sexes.

A feature of the local authorities that have the lowest or highest DFLE is their link with measures of deprivation; those experiencing higher levels of deprivation (ONS, 2014b) have lower DFLE and vice versa. A consistent pattern of longer lives and smaller proportions of life spent in less favourable health states are associated with decreasing exposure to deprivation (ONS 2010, ONS 2013b). Health agencies place importance on deprivation as a measure of health, shown by its high prominence in health strategy documents such as the [Public Health Outcomes Framework](#). Tackling deprivation is therefore a key goal in reducing the health divide between the least and most advantaged areas, while continuing to bring about health improvement for all.

## 10. Methods

### Calculating Disability-Free Life Expectancy

This is the second release of sub-national DFLE using revised mid-year population estimates based on the 2011 Census. Reference tables for the aggregate data 2006-08, 2007-09, 2008-10 and 2009-11, using revised mid-year population estimates, have been published alongside this report.

The data used in calculating the prevalence of disability was obtained from the Annual Population Survey (APS) and aggregated over a three-year period to achieve sufficiently large sample sizes to enable meaningful statistical comparison.

The prevalence of disability among males and females in private households in England was compared across regions and UTLAs. UTLAs include unitary authorities, London boroughs and metropolitan districts in England. This analysis excludes the City of London and the Isles of Scilly. DFLE was calculated using the Sullivan method. This method combines disability prevalence data with mortality and mid-year population estimates (MYPE) over the same period and geographical coverage to calculate estimates of LE and DFLE at birth and age 65 by sex ( [ONS Life Table Template \(192.5 Kb Excel sheet\)](#) , Jagger et al, 2007). [The MYPEs used to estimate DFLE for this bulletin are the revised backdated estimates based on the 2011 Census.](#)

The APS provides disability prevalence information for those over the age of 16. We are able to estimate DFLE at birth by directly imputing disability prevalence at age 16-19 for those under 16 (ONS, 2013a). The age band structure used for calculating DFLE is not that outlined in the update to the methodology to calculate health expectancies (ONS, 2013a). It is the age band structure of <1, 1-4, 5-9, 10-14, 15-19...85+.

Results are presented with 95% confidence intervals in reference tables to aid interpretation. Confidence intervals in this bulletin indicate the uncertainty surrounding DFLE estimates and allow more meaningful comparisons between areas. When comparing the estimates of two areas, non-overlapping confidence intervals are indicative of statistical significance but to confirm this, a test of significance should be carried out. When the statistical significance is noted in the text, this is based on a statistical test of the differences (Jagger et al, 2007). All differences noted in the text have been calculated to more than one decimal place.

### Interpretation of DFLE

DFLE at a given age for a specific period and population, such as at birth among those residing in private households in UTLAs in 2008-10, is an estimate of the average number of years a person would live without a limiting illness (i.e. disability). This is only if they experienced the specified population's age-specific mortality and disability rates for that time period throughout the rest of their life.

The figures reflect the mortality and health status of a population in a given time period residing in that area, rather than only those born in the area. It is not therefore the number of years that a person will actually expect to live free from disability. This is because both the death rates and health status of the specified population will change in the future, due to changing attitudes to health, availability of treatments, healthcare and people moving in and out of the area.

Results are comparable by age, sex and between specified populations as health expectancies take into account differences in the age structures of populations.

## **11. Feedback**

If you have any comments or suggestions, we'd like to hear them. Please email us at [hle@ons.gsi.gov.uk](mailto:hle@ons.gsi.gov.uk).

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## 13. Background notes

1. Figures in the text may not sum due to rounding.
2. The significance test refers to a one tailed Z-test of the difference of the estimates as detailed in Jagger et al., 2007.
3. In Q1 2010 of the APS the disability module included a new introduction which increased the rates of disability reported by economically active people. The results from 2010 are robust and can be considered a more complete measure of disability than earlier estimates. The pre-2010 estimates are still considered as the best estimates for those periods. The data in this article is for the aggregate period 2009-2011. The increase in the disability rates from Q1 2010 is likely to reduce the size of DFLE, compared with estimates of DFLE produced from the years previous to 2010. However the magnitude of any reduction in DFLE is difficult to ascertain.

4. Enquiries relating to these statistics should be made to:

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