

Statistical bulletin

# Disability-Free Life Expectancy by Upper Tier Local Authority- England: 2008-10

Data on the geographical distribution of disability, which the government and private sector can use to make decisions.



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Release date:  
1 May 2014

Next release:  
To be announced

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# 1. Key points

- Richmond upon Thames had the highest DFLE at birth; for males it was 70.3 years and for females 71.8 years
- Liverpool had the lowest DFLE for males at 56.0 years and for females it was Derby at 57.5 years
- Men at age 65 in Kensington and Chelsea can expect an additional 7.3 years free from a disability when compared to their inner London neighbour Newham
- Males born in Liverpool are expected to live a quarter of their shorter lives with a disability, while Richmond upon Thames males can expect to live only a seventh of their longer lives with a disability
- Females live disability-free for more years; whereas males live a larger proportion of their shorter lives disability-free

## 2. Summary

This bulletin presents estimates of Disability-Free Life Expectancy (DFLE) for Upper Tier Local Authorities (UTLAs) in England for the period 2008-10 for both genders at birth and age 65. Equivalent data for the periods 2006-08 and 2007-09 has been published in reference tables and [interactive maps](#) alongside this statistical bulletin.

Health expectancies add a quality of life dimension to estimates of longevity by dividing expected lifespan into time spent in given states of health. The Office for National Statistics (ONS) routinely publishes two types of health expectancies; Healthy Life Expectancy (HLE), which estimates lifetime spent in 'Very good' or 'Good' health based upon self-perceived general health and Disability-Free Life Expectancy (DFLE), which estimates lifetime free from a limiting persistent illness or disability based upon a self-rated functional assessment of health. Both summary measures of population health are key indicators of the well-being of society.

Such data provides information on the geographical distribution of functional health status which can provide evidence for government actions designed to address health inequalities and private sector service provision. This data can be used as evidence for funding health and social care and to inform policy about changes to the state pension age. It also has relevance for 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 markedly since the eighties, and is expected to increase further in the UK (ONS 2013c), but it is important that the number of years lived without a disabling health condition rises 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 and will put additional strain on health and social care resources.

It is for this reason health expectancies are being used to assess the proportion of life that is spent in a favourable health state. They 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 presented represent a snapshot of the mortality and health status of the entire specified population in each time period. They are not, therefore, the number of years that a member of the specified population will actually live in a given health state, because both mortality and health rates are susceptible to change and part of a specified population are likely to migrate and live in other areas.

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:

- 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

- 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

Only if a respondent answered 'Yes' to both of these questions were they classified as having a limiting persistent illness (disability). 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 the way individuals perceive their health. Measures of self-rated 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-reported general health and limiting persistent illness are linked ([ONS, 2012](#), Manor et al., 2001) and have predictive value in health care need/usage and subsequent mortality. Research evidence indicates people with poor self-rated health (both general health and limiting illness) die sooner than those who report their health more favourably (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 the evidence is more limited; studies have shown that self-rated health, measured in terms of general health or limiting illness, has some predictive value in subsequent health and social care service use in the form of increased physician visits (Miilunpalo et al., 1997), hospital admission and nursing home placement (Weinberger et al., 1986). Studies have also shown that poor self-rated health correlates well with retirement due to disability/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 health care resource allocation 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 is available on the [ONS website \(185.7 Kb Pdf\)](#) .

## 4. Regional

For the period 2008-2010 in England, Disability-Free Life Expectancy (DFLE) at birth was 63.6 years for males and 64.8 years for females. To put this into context, a male born in this period could expect to live on average 63.6 years of their expected 78.5 years (or 81.0% of their life) free from disability or a long term illness that limits their day to day activities.

Calculating DFLE at regional level allows differences within England to be assessed. The South East had the longest DFLE for both genders at 66.2 years for males and 67.3 for females. The North East had the shortest DFLE for both sexes at 60.5 years for males and 60.6 years for females. The regional inequality for males was 5.7 years and 6.7 years for females.

For both males and females a clear North-South divide was observed with the Southern regions having higher DFLE's than the England average and the Northern regions having lower DFLE's than the England average (Figures 1 and 2).

In all cases, at the regional level and in England, females had longer DFLE than males. Interestingly however, men had a greater proportion of life disability-free in each region. The reason for this is males tend to assess their health more positively than females and therefore have lower rates of self- assessed disability at a given age (ONS 2013d). Females however, have significantly longer LE and are therefore expected to live more years with a disability- but also more years than males free from a disability.

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

Region /Country Name	DFLE	Expected years with a disability	LE	Years	
				Proportion of life with a disability	%
North East	60.5	16.6	77.1		21.5
North West	61.2	15.8	77.0		20.5
Yorkshire and The Humber	61.5	16.2	77.7		20.8
West Midlands	62.2	15.7	77.9		20.1
East Midlands	62.9	15.5	78.3		19.8
London	64.2	14.7	78.8		18.6
East of England	65.2	14.3	79.5		18.0
South West	65.5	13.9	79.4		17.5
South East	66.2	13.5	79.7		16.9
England	63.6	14.9	78.5		19.0

Source: Office for National Statistics

Notes:

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

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

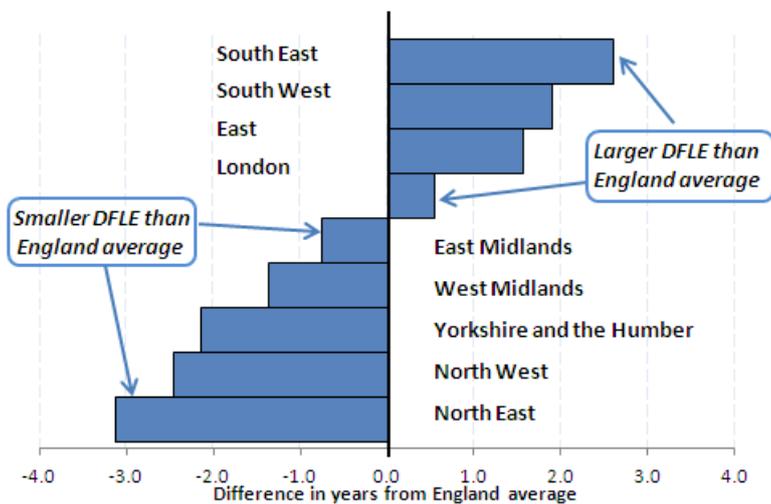
Region /Country Name	DFLE	Expected years with a disability	LE	Proportion of life with a disability %	Years
North East	60.6	20.5	81.1		25.3
North West	62.6	18.5	81.1		22.9
Yorkshire and The Humber	62.9	18.9	81.7		23.1
East Midlands	63.5	18.8	82.3		22.9
West Midlands	63.9	18.3	82.2		22.2
London	65.3	17.9	83.2		20.5
East of England	66.1	17.0	83.2		21.5
South West	67.1	16.3	83.4		19.6
South East	67.3	16.2	83.4		19.4
England	64.8	17.7	82.5		21.5

Source: Office for National Statistics

Notes:

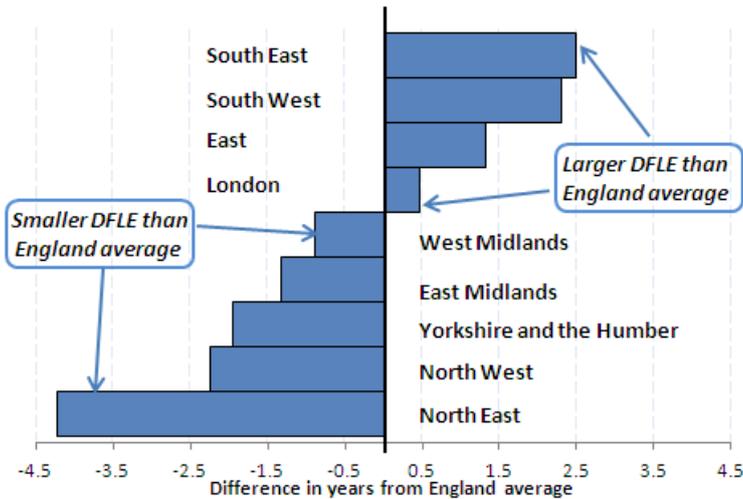
1. Regions have been ordered by descending DFLE
2. Figures may not sum due to rounding

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



Source: Annual Population Survey (APS) - Office for National Statistics

**Figure 2: Difference in DFLE estimates from the England average by region for females at birth**



**Source: Annual Population Survey (APS) - Office for National Statistics**

The picture at age 65 is similar to that at birth with the Northern and Midland regions having a lower DFLE than the England average of 10.2 years for males and 11.0 years for females. However at age 65 London is also below the England average and it is only the Southern regions that have a higher DFLE. For both men and women the North East had the lowest DFLE at 8.6 and 8.8 years respectively. The region with the highest DFLE for men was the South East at 11.6 years and for women the South West at 12.5 years.

**Table 3: DFLE, expected years with a disability, proportion of remaining life with a disability and LE by region for males at age 65**

Region /Country Name	DFLE	Expected years with a disability	LE	Years	
				Proportion of remaining life with a disability %	
North East	8.6	8.5	17.1		49.9
Yorkshire and The Humber	9.0	8.6	17.6		49.1
North West	9.2	8.0	17.2		46.4
West Midlands	9.7	8.1	17.9		45.6
East Midlands	10.0	7.9	17.9		44.0
London	10.2	8.2	18.4		44.6
East of England	11.0	7.7	18.6		41.1
South West	11.3	7.4	18.7		39.4
South East	11.6	7.2	18.8		38.5
England	10.2	7.9	18.1		43.4

Source: Office for National Statistics

Notes:

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

**Table 4: DFLE, expected years with a disability, proportion of remaining life with a disability and LE by region for females at age 65**

Region /Country Name	DFLE	Expected years with a disability	Years		
			LE	Proportion of remaining life with a disability %	
North East	8.8	10.8	19.6		55.2
North West	10.0	9.8	19.8		49.4
Yorkshire and The Humber	10.1	10.2	20.2		50.2
East Midlands	10.6	10.0	20.6		48.7
West Midlands	10.6	10.0	20.6		48.7
East of England	11.6	9.6	21.1		45.2
London	10.8	10.5	21.3		49.4
South East	12.4	9.0	21.4		42.0
South West	12.5	8.9	21.4		41.7
England	11.0	9.7	20.7		46.8

Source: Office for National Statistics

Notes:

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

## 5. Local authority at birth

### At birth

Calculating Disability-Free Life Expectancy (DFLE) at Upper Tier Local Authority (UTLA) level allows a more detailed picture of geographical inequality in health within regions and within England to be examined. For example for males, the UTLA with the longest DFLE was Richmond upon Thames with 70.3 years while the shortest DFLE was found in Liverpool at 56.0 years. Consequently at birth, males living in Richmond upon Thames could expect to live for 14.3 years longer without a disability than males in Liverpool. The inequality can be demonstrated further as males in Richmond upon Thames could expect to live one seventh of their lives (13.5%) with a disability, while males in Liverpool could expect to live a quarter of their lives (25.6%) with a disability.

**Table 5: DFLE with rank, proportion of life disability-free with rank and LE by upper tier local authorities for males at birth**

UTLA Name	DFLE	DFLE Rank	Proportion of life disability-free %	Rank proportion of life disability-free	Years
					LE
Top ten					
Richmond upon Thames	70.3 *	1	86.5	6	81.2
Kingston upon Thames	70.2 *	2	86.8	4	80.9
West Berkshire	69.9 *	3	86.8	2	80.5
Kensington and Chelsea	69.9 *	4	85.6	9	81.6
Surrey	69.8 *	5	86.3	7	80.9
Bromley	69.4 *	6	86.6	5	80.2
Oxfordshire	69.4 *	7	86.8	3	79.9
Buckinghamshire	69.4 *	8	86.2	8	80.5
Herefordshire, County of	69.2 *	9	87.5	1	79.1
Wokingham	69.0 *	10	84.9	13	81.3
Bottom ten					
Blackpool	57.6 **	141	78.1	117	73.8
Blackburn with Darwen	57.4 **	142	76.2	133	75.4
Knowsley	57.2 **	143	75.1	141	76.2
Barnsley	57.1 **	144	74.2	147	77.0
Hartlepool	57.1 **	145	75.1	142	76.1
Tameside	56.8 **	146	75.0	143	75.6
Wakefield	56.6 **	147	73.6	149	76.9
Newham	56.5 **	148	73.9	148	76.5
Manchester	56.0 **	149	76.0	135	73.7
Liverpool	56.0 **	150	74.4	146	75.2

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 females at birth**

UTLA Name	DFLE	DFLE Rank	Proportion of life disability-free %	Years	
				Rank proportion of life disability-free	LE
Top ten					
Richmond upon Thames	71.8 *	1	83.8	3	85.6
Herefordshire, County of	71.1 *	2	85.4	1	83.3
Surrey	70.7 *	3	84.0	2	84.2
West Berkshire	70.5 *	4	83.7	4	84.1
Wokingham	70.3 *	5	83.5	5	84.2
Kingston upon Thames	70.3 *	6	83.5	6	84.2
Bromley	70.2 *	7	83.4	8	84.2
Buckinghamshire	69.8 *	8	83.1	9	84.0
Somerset	69.7 *	9	83.5	7	83.5
Devon	69.6 *	10	83.1	10	83.8
Bottom ten					
Liverpool	58.6**	141	73.6	132	79.6
Sunderland	58.5**	142	72.6	141	80.6
Newham	58.5**	143	71.9	146	81.4
Salford	58.4**	144	73.1	137	79.9
Kingston upon Hull, City of	57.8**	145	72.1	144	80.2
Barnsley	57.8**	146	71.8	147	80.5
Knowsley	57.7**	147	72.3	143	79.9
County Durham	57.6**	148	71.2	149	81.0
Tameside	57.5**	149	71.7	148	80.2
Derby	57.5**	150	70.3	150	81.7

Source: Office for National Statistics

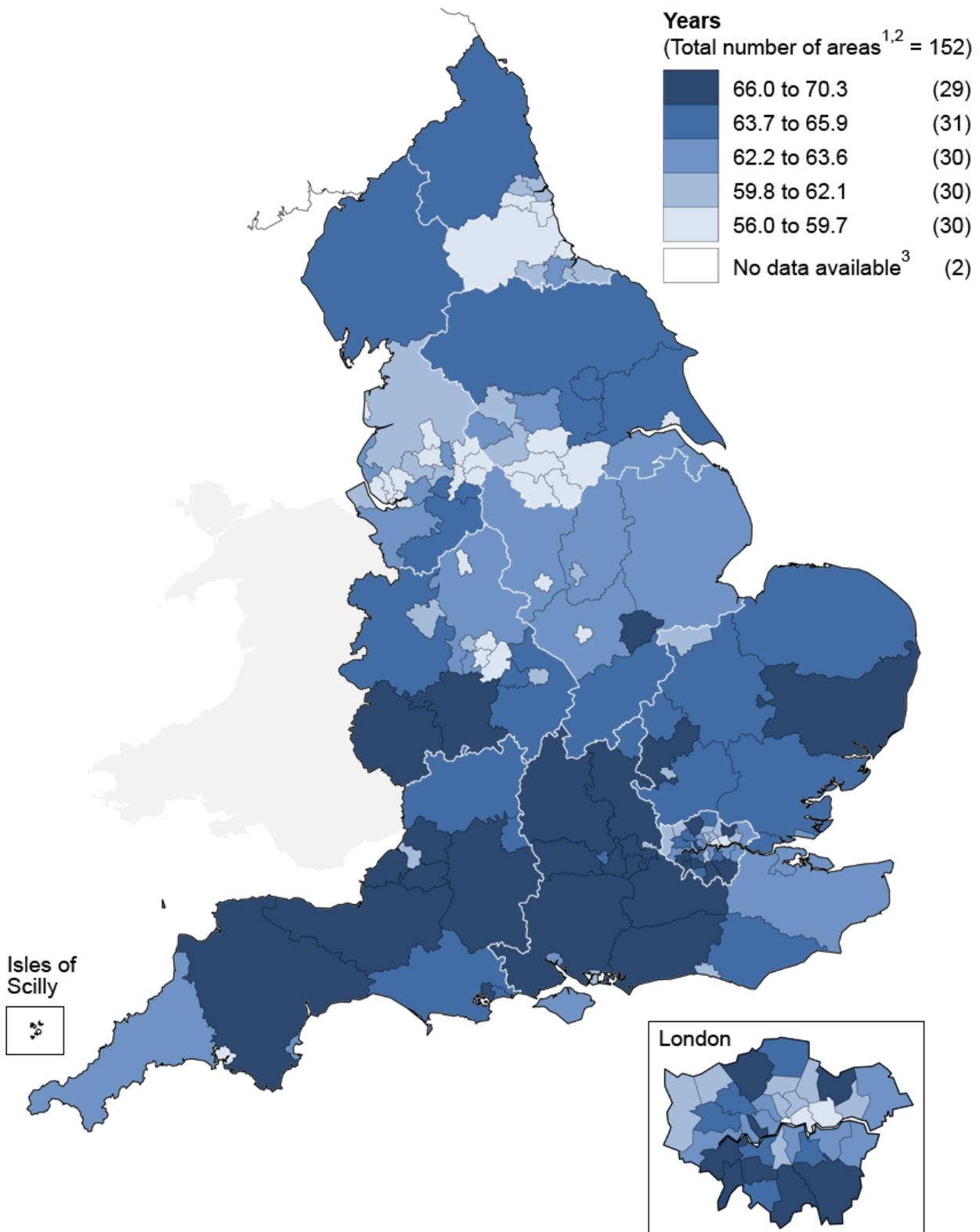
Notes:

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

For females the UTLA with the longest DFLE was again Richmond upon Thames at 71.8 years while Derby had the shortest at 57.5 years. Life Expectancy (LE) is also higher in Richmond upon Thames at 85.6 years compared to Derby at 81.7 years. A female born in Derby can expect to live 24.2 years (29.7% of life) with a disability, while a female born in Richmond upon Thames would expect to live 13.9 years (16.2% of life) with a disability or illness that limits their day to day activity.

Maps such as map 1 and 2 provide a clear visual summary of the pattern of DFLE both in England and at regional levels. The concentration of the darker blue colours (representing higher DFLE) in Southern parts of England clearly displays the North-South divide. The maps also show the considerable variation in DFLE between the London boroughs in a relatively small geographical area with all five quintiles of DFLE present.

**Map 1: Disability-free life expectancy (DFLE) for males at birth by county and unitary authority in England, 2008-10**



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

2 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

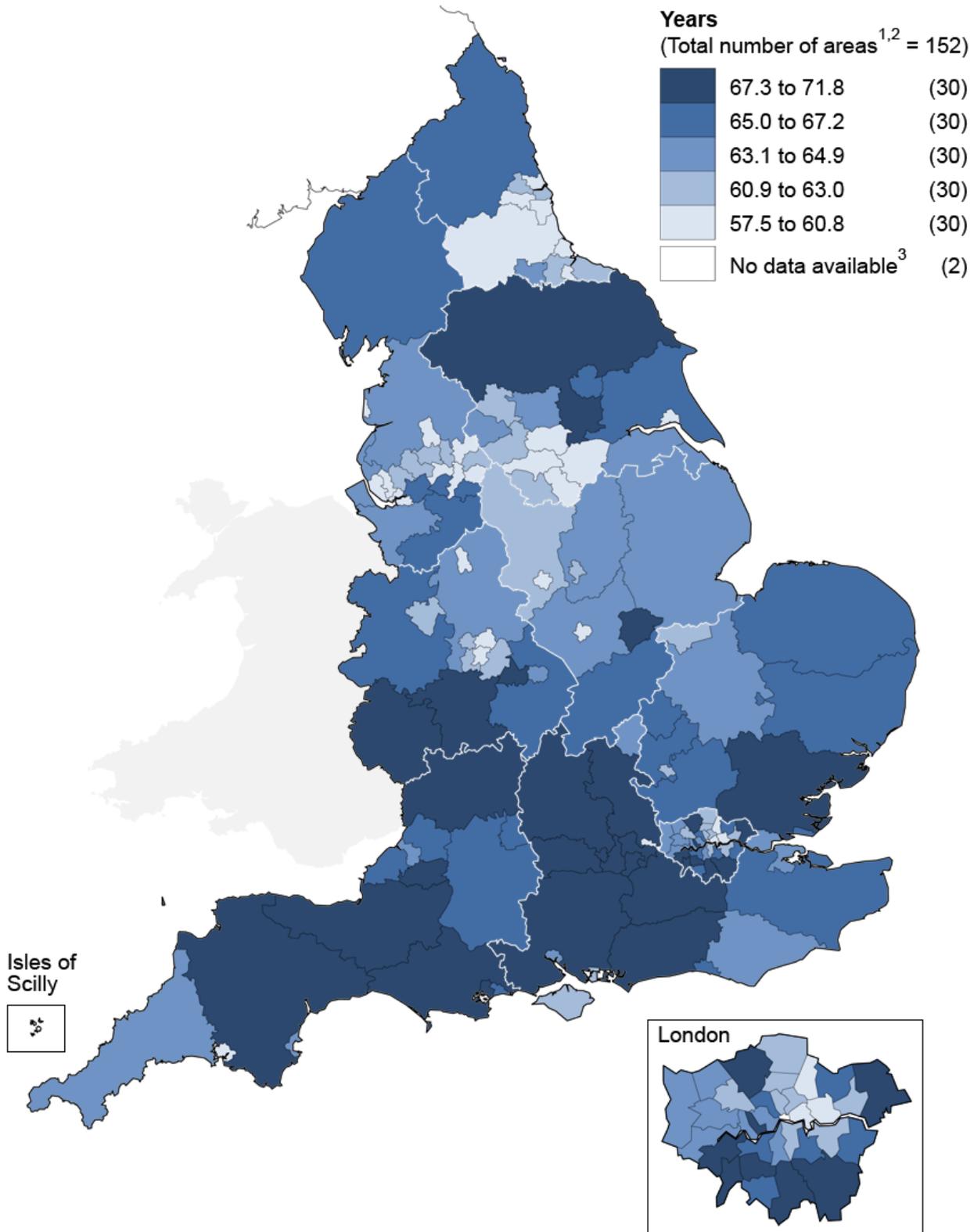
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**Notes:**

1. Excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at the parent's address
2. 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

**Map 2: Disability-free life expectancy (DFLE) for females at birth by county and unitary authority in England, 2008-10**



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

2 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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**Notes:**

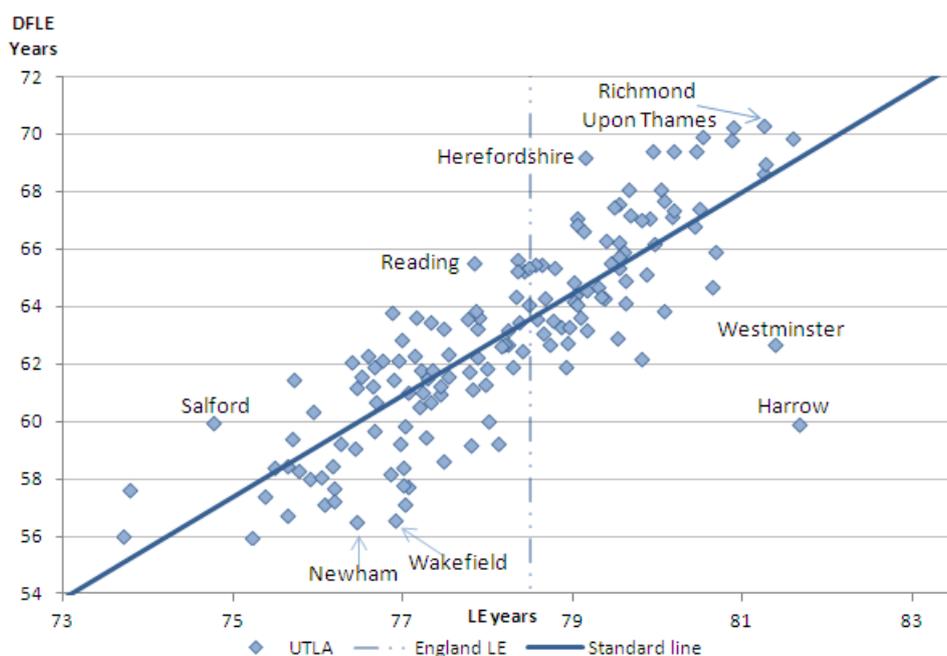
1. Excludes residents of communal establishments except NHS housing and students in halls of residence where inclusion takes place at the parent's address
2. Non-metropolitan countries, metropolitan districts, unitary authorities and London boroughs
3. Disability-free life expectancy figures are not available for Isles of Scilly and City of London because of insufficient population size

Examining the DFLE for a local authority is useful but more value is added when DFLE is compared with the figure for England, the region to which it belongs and with other local authorities. In tables 5-6 each local authority was given a rank based on their DFLE. Rank 1 was the highest DFLE and rank 150 the lowest. Tables 5 and 6 show the top ten and bottom ten ranked upper tier local authorities, for males and females at birth respectively. Richmond upon Thames, Kingston upon Thames, West Berkshire, Surrey, Bromley and Buckinghamshire all feature in the top ten for both males and females. On the other end of the scale Liverpool, Newham, Barnsley, Tameside and Knowsley all feature in the bottom ten for males and females. Those in the top ten are found in the South of England while those in the bottom ten are found in the North or in deprived, ethnically diverse parts of London.

When comparing each local authority with the England estimate, 40 UTLAs were found to be significantly higher<sup>1</sup> than England for males and 41 for females. This means there is more reassurance that they are higher than England as a whole. Conversely, 55 UTLAs were found to have significantly lower DFLE than England for males and 59 UTLAs for females showing they are lower than England as a whole.

Using the DFLE and LE estimates we can draw a line representing the average DFLE we would expect a UTLA to have knowing the life expectancy<sup>2</sup>, shown in Figure 3 for males and Figure 4 for females. If a local authority is above the diagonal line then they are doing well in terms of DFLE given their life expectancy. If a local authority is below the line then they are not doing as well as expected.

**Figure 3: DFLE vs. LE for upper tier local authorities males at birth**



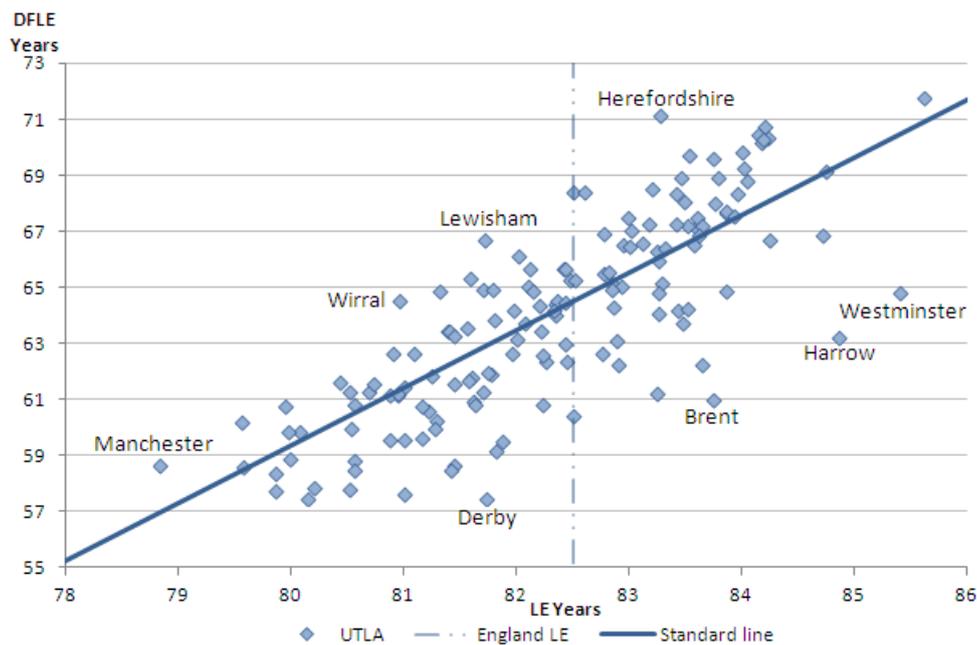
Source: Annual Population Survey (APS) - Office for National Statistics

**Notes:**

1. The line was derived from a linear least squares regression of DFLE vs. Life Expectancy for all UTLAs. The line serves as a guide to how large we would expect DFLE to be given the size of life expectancy. The further from the line the UTLA is found the more extreme the value

Examining Figure 3 showed that Harrow, Westminster, Newham and Wakefield are among the UTLAs which have a shorter DFLE than expected given their LE for males. Whereas Reading, Salford, Richmond upon Thames and the county of Herefordshire were among the UTLAs with the highest DFLEs given their respective life expectancies.

**Figure 4: DFLE vs. LE for upper tier local authorities females at birth**



**Source: Annual Population Survey (APS) - Office for National Statistics**

**Notes:**

1. The line was derived from a linear least squares regression of DFLE vs. Life Expectancy for all UTLAs. The line serves as a guide to how large we would expect DFLE to be given the size of life expectancy. The further from the line the UTLA is found the more extreme the value.

For females Figure 4 shows that Westminster, Harrow, Brent and Derby were lower in terms of DFLE than anticipated given their life expectancy. Manchester, Wirral, Lewisham and the county of Herefordshire were among the UTLAs with higher DFLEs than expected.

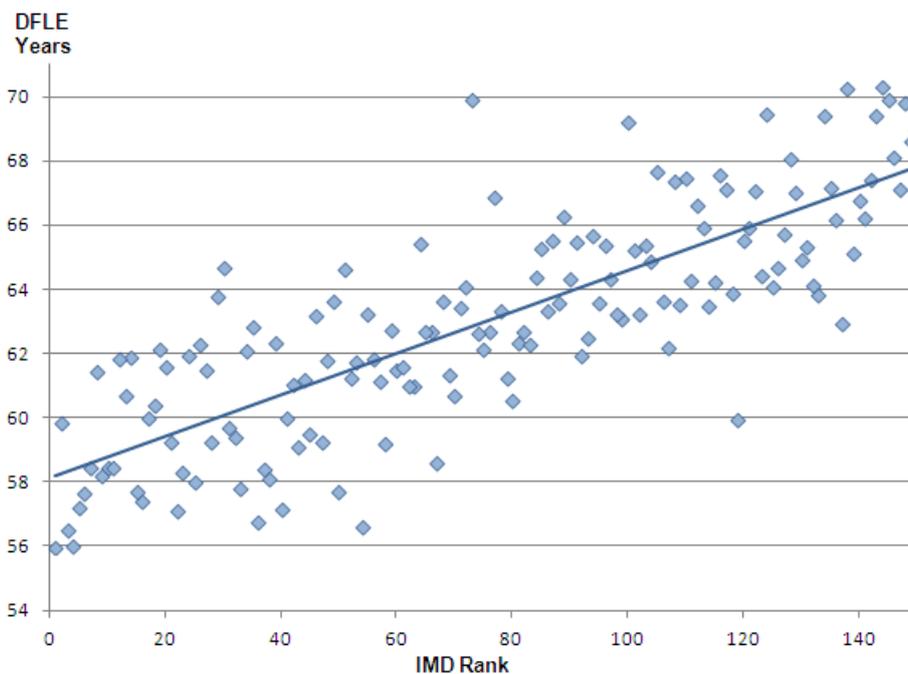
For the majority of local authorities (121 out of 150) DFLE is higher for females than males. The local authority with the largest gender gap favouring females was Havering with women expecting to live for 5.4 more years free from a disability. The local authority where males have the greatest advantage over females in terms of DFLE is Brent with males expected to live 3.7 years longer.

By comparing the expected years with a disability between males and females a more prominent inequality is revealed. In 146 out of the 150 UTLAs females are expected to live longer with a disability. The largest inequality was found in Brent with females expecting to live 8.2 more years with a disability than males. Of the 4 UTLAs where males are expected to live longer with a disability, Havering has the greatest difference at 0.7 years.

Females were also expected to live a greater proportion of life with a disability than males in 145 of 150 local authorities. Females in Brent could expect to live a further 8.8 percentage points of their life with a disability than males. However, in Havering the situation was reversed with males expecting to live a further 1.9 percentage points of their life with a disability than females.

What is driving the difference in DFLE between local authorities? Among other factors area deprivation is likely to play a part (ONS 2010). Area deprivation can be measured using a ranking system known as the [Index of Multiple Deprivation \(IMD 2010\)](#) that takes into account many aspects of deprivation. Using the average summary scores of the authority, the most deprived UTLAs are ranked 1 and least deprived ranked 150. A scatter plot (Figure 5) of the DFLE against the IMD rank, for males, shows a broad pattern of increasing DFLE with decreasing deprivation. The trend is mirrored in the female data and is consistent with what has been found in other analyses (ONS 2013b, ONS 2014) suggesting that area deprivation is an important determinant of health and, if tackled, would have an impact on reducing the inequality in health experienced between areas.

**Figure 5: DFLE vs. IMD rank for upper tier local authority at birth for males**



**Source: Annual Population Survey (APS) - Office for National Statistics**

**Notes for local authority at birth**

1. See methods section for how statistical significance is assigned
2. The line was derived from a linear least squares regression of DFLE vs. Life Expectancy for all UTLAs. The line serves as a guide to how large we would expect DFLE to be given the size of life expectancy. The further from the line the UTLA is found the more extreme the value

## 6. Local authority at age 65

The top Upper Tier Local Authority (UTLA) at age 65 for males was Kensington and Chelsea with 14.5 years disability-free while Newham was the lowest at 5.5 years. At age 65 males in Kensington and Chelsea are expected to live for a further 20.6 years; however, only 29.9%, amounting to 6.2 years of those years, will be with a disability. In Newham, Life Expectancy (LE) at age 65 is 16.7 years but males are expected to live 66.9% (11.2 years) of their remaining life with a disability. This inequality between London boroughs means that males in Newham can expect to live 5.0 more years with a disability than males in Kensington and Chelsea despite being expected to live for 4.0 fewer years.

For females West Berkshire had the highest Disability-Free Life Expectancy (DFLE) at 15.1 years while Knowsley had the lowest at 6.6 years. Again, despite Knowsley having a shorter LE than West Berkshire at 18.9 and 21.8 years respectively, females in Knowsley could expect to live 12.2 years (64.8% of life) with a disability, 5.5 years more than West Berkshire where females at age 65 could expect to live with a disability for 6.7 years.

At age 65 three London boroughs (Merton, Kingston upon Thames and Bromley) as well as Surrey and the County of Herefordshire feature in the top ten local authorities for males and females. Sunderland, Kingston upon Hull, Newham and Knowsley all feature in the bottom ten.

Kingston upon Thames, Surrey and Bromley were also in the top ten for both sexes at birth indicating that males and females enjoy relative advantage in terms of disability-free living throughout their lifetime. Knowsley and Newham feature in the bottom ten at birth and age 65 for both the sexes indicating that these areas are more vulnerable to disabling illnesses across all ages.

Of the 150 UTLAs, 30 were found to be statistically higher than the England DFLE estimate at age 65 for males while 52 were found to be lower. For females 26 were higher while 50 were significantly lower. Similar to the picture at birth the majority of those that are higher than the England average are in the South of the country, while those that have significantly lower DFLE are found in the North of England or deprived and ethnically diverse parts of London.

**Table 7: DFLE with rank, proportion of remaining life disability-free with rank and LE by upper tier local authorities for males at age 65**

UTLA Name	DFLE	DFLE Rank	Proportion of remaining life disability-free %	Rank proportion of remaining life disability-free	Years
					LE
Top ten					
Kensington and Chelsea	14.5 *	1	70.1	4	20.6
Oxfordshire	14.0 *	2	73.9	1	19.0
Merton	13.4 *	3	71.0	3	18.9
Surrey	13.4 *	4	68.7	6	19.5
Herefordshire, County of	13.2 *	5	71.2	2	18.6
Wokingham	13.1 *	6	66.8	13	19.6
Rutland	13.1 *	7	63.9	23	20.5
Kingston upon Thames	13.0 *	8	67.2	12	19.3
Buckinghamshire	13.0 *	9	67.4	11	19.2
Bromley	12.9 *	10	67.9	9	19.0
Bottom ten					
Halton	7.2 **	141	44.7	128	16.2
Leicester	7.2 **	142	43.4	137	16.6
Sunderland	7.2 **	143	43.2	138	16.6
Kingston upon Hull, City of	7.0 **	144	42.5	140	16.4
Liverpool	6.5 **	145	40.8	145	15.9
Manchester	6.3 **	146	41.0	144	15.4
Wakefield	6.3 **	147	36.7	148	17.1
Hartlepool	6.2 **	148	38.1	147	16.4
Knowsley	5.7 **	149	34.9	149	16.4
Newham	5.5 **	150	33.1	150	16.7

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 8: DFLE with rank, proportion of remaining life disability-free with rank and LE by upper tier local authorities for females at age 65**

UTLA Name	DFLE	DFLE Rank	Proportion of remaining life disability-free %	Rank proportion of remaining life disability-free	Years
					LE
Top ten					
West Berkshire	15.1 *	1	69.3	1	21.8
Bracknell Forest	14.7 *	2	66.3	5	22.2
Surrey	14.7 *	3	67.6	2	21.7
Richmond upon Thames	14.5 *	4	62.6	10	23.2
Devon	14.5 *	5	66.7	3	21.7
Herefordshire, County of	14.3 *	6	66.5	4	21.5
Kingston upon Thames	14.2 *	7	65.5	7	21.7
West Sussex	14.1 *	8	66.2	6	21.3
Bromley	14.1 *	9	64.7	8	21.7
Merton	13.4 *	10	62.6	11	21.5
Bottom ten					
Hounslow	8.1 **	141	38.2	145	21.1
Sunderland	8.0 **	142	42.2	133	19.0
Brent	7.8 **	143	35.4	147	22.0
Slough	7.7 **	144	37.4	146	20.6
Kingston upon Hull, City of	7.7 **	145	39.9	141	19.2
Salford	7.5 **	146	40.4	138	18.6
Tameside	7.4 **	147	39.2	143	18.8
Newham	7.0 **	148	35.0	149	20.0
County Durham	6.8 **	149	35.0	150	19.5
Knowsley	6.6 **	150	35.2	148	18.9

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. Conclusion

In 2008-10 large differences in DFLE existed between local authorities in England at birth and at age 65. At birth there was a large difference between the top and bottom UTLAs for both males and females at 14.3 years. At 65 the difference was 8.5 years for males and 9.0 years for females.

At birth, males living in the top UTLAs could expect to have a disability that affects their day to day activities for a seventh of their lives, but those in the bottom could expect to live a quarter of their lives with a disability. The inequality is highlighted by the fact that males in the UTLA with the lowest DFLE could expect to die 6.0 years before males in the UTLA with the highest DFLE. A similar pattern is seen for females at birth and for both sexes at age 65. Those living in UTLAs with high DFLE are having a better quality of life in terms of functional health as well as having a longer life.

The difference between UTLAs can be linked to the average level of deprivation each area experiences and the analysis shows a strong correlation between health and deprivation. Other more detailed analysis has also highlighted area deprivation as an important determinant of health (ONS 2013b, ONS 2014).

A clear North-South divide was observed at regional and local authority level with those in the South having higher DFLE and living greater proportions of their already longer lives without a disability. Area deprivation is likely to contribute to the North-South divide as there is a higher concentration of deprived areas in the Northern regions (DCLG 2011).

Females tend to have longer DFLE and this is mainly due to the fact that they are expected to live longer but males tend to have a greater proportion of their life disability-free. In the UK males have been closing the gap in terms of LE (ONS 2013c) in recent decades and therefore it will be interesting to see whether they will continue to enjoy the same proportion of life disability-free in future updates, as their life expectancy approaches that of women.

## 8. Methods

### Calculating disability-free life expectancy

This is the first 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 as well as 2008-10, 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 resident in private households in England was compared across regions and UTLAs, which include unitary authorities, London boroughs and metropolitan districts in England, but excludes the City of London and Isles of Scilly. DFLE was then calculated using the Sullivan method which combines 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 by sex ([ONS Life Table Template](#), 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 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) but 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 enable 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 1 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) if he/she experienced the specified population's age-specific mortality and disability rates for that time period throughout the rest of his/her life.

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

## 9. Feedback

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

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## 11. 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 \(216 Kb Excel sheet\)](#) . 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 2008-2010. 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.

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

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