

POPULATION HEALTH OVERVIEW

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Strategic Intelligence Team

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POPULATION HEALTH OVERVIEW

This section contains a selection of information relating to the resident population of Herefordshire. Commentary boxes are included under some of the tables to highlight key points.

Unless otherwise stated the source of these statistics is the NHS Information Centre Indicator Portal as at February 2012. The data from this source generally concerns events over the period 2008-2010. Other statistics from this source can be obtained from the Interim Director of Public Health's office.

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Abbreviations used in the tables

- E&W England & Wales
- WMR West Midlands Region
- ICD-10 International Classification of Diseases, tenth revision – see "technical notes" on next page
- 95% CI 95% confidence interval. Confidence intervals assess the level of uncertainty caused by chance variation. Rates based on small numbers of observations (events) have wider confidence intervals than rates based on larger numbers of observations. Essentially, the 95% CI shows the range of values within which we are 95% certain that the true rate would lie if we were basing the calculated rate upon observations from an infinitely large sized population. If the local area's confidence intervals do not overlap with the national rate, it is likely that their indicator value is genuinely different from the national rate. (see also "technical notes" on next page.)
- LL-UL Lower limit/upper limit (of a confidence interval range)

TECHNICAL NOTES

- International Classification of Diseases: From January 2001 information on cause of death has been coded to IDC10, the tenth revision of this classification system. Standardised mortality ratios, directly age-standardised rates and years of life lost are usually presented

as the pooled average of the last three years for which data are available. In this report these are the years 2008, 2009 and 2010.

- Age-standardised rates: Age standardisation facilitates comparisons between different geographical areas by controlling for differences in the age structure of the populations. A standardised rate is calculated either by applying the age-specific death rates for the population of interest to a standard population model (direct standardisation) or by applying the age-specific death rates for a standard population to the population structure of interest (indirect standardisation). In all statistics from the National Centre for Health Outcomes Development website, directly age-standardised rates are standardised to the European Standard population; while for indirectly standardised rates (standardised mortality ratios or SMRs), the reference population is that of England & Wales.
- Standardised Mortality Ratio (SMR): The ratio of the actual number of deaths in an area to the “expected” number of deaths if the age-standardised mortality rates for England were applied to the area's population, multiplied by 100. Therefore, the SMR for England as a whole is 100: higher figures indicate higher mortality and lower figures indicate lower mortality than England as a whole.
- Use of confidence intervals around population-based rates: Most health professionals are aware that estimates based on a random sample of a population are subject to error due to sampling variability, and that confidence intervals can be used to describe the uncertainty in an estimate derived from a sample. However, we have sometimes been asked why confidence intervals are also used around population-based rates, such as death rates, because these are based on actual counts relating to the whole population (and not on samples of the population). This is because rates and percentages based on a full population count can also be considered as estimates subject to error. For example, a rate observed in a single year can be considered as a sample or estimate of a true or underlying rate. Random error may be particularly important when the rate or percentage is based on a small number of events in the numerator. The larger the numerator, the better the observed rate will estimate the underlying rate. Obviously, the rate observed in any one year does describe what actually happened in that year, but there is a danger of misinterpreting comparisons or trends. We would want to try to base health policy decisions on the underlying rate, rather than on annual rates which may be subject to random fluctuation, and the use of confidence intervals can help us to interpret when changes or differences in rates are meaningful.
- Use of “comparator authorities”: We have included a comparison with **CCGs** of a similar socio-economic profile to Herefordshire, as well as a comparison with the West Midlands Region and England. To assess similarity of authorities the Squared Euclidean Distance (SED) is used as a means of comparison. It is based on six main census dimensions: demographic, household composition, housing, socio-economic, employment and industry sector. Two local authorities are said to be similar if the “distance” between them based on these Census characteristics is small. Two local authority areas are considered to be:
 - **Extremely similar** if the SED is less than 2.66646 ie within 1% of the total range.
 - **Very similar** if they have an SED of less than 2.5% of the range.
 - **Similar** if they have an SED of less than 5% of the range.
 - **Somewhat similar** if they have an SED of less than 10% of the range.
 - **Not similar** if they are more than 10% of the total range apart.

Using these definitions, the CCGs which are currently most similar to Herefordshire are NHS Hambleton, Richmondshire and Whitby CCG; NHS West Suffolk CCG, NHS West Norfolk CCG and NHS Shropshire CCG. An average was calculated from the health data from these four areas and is shown in the "comparator CCGs" column where possible. Using the CIPFA tool (<http://www.cipfastats.net/resources/nearestneighbours>) of Nearest Neighbouring Model, Shropshire, Bath & North East Somerset, Cheshire East and North Somerset where the most similar unitary authorities to Herefordshire.

DEMOGRAPHY

The total population of Herefordshire has grown by 8% between 2001 and 2015, which is less than the national England and Wales rate (11%). This growth has been entirely due to net in-migration (largely immigration). Annual growth has been gradually declining over the last 4 years, but remains higher than seen between mid-2008 and mid-2011; and lower than during the 3 years immediately following the eastward expansion of the European Union (EU) in 2004. Population change has been in the same direction as the national trend but with a greater magnitude such as a decline of numbers in the age groups 5-14 and 35-44, and a growth in the numbers of the elderly population.

The number of children aged 5-14 years olds fell by around 11.2% (2,500 children) in Herefordshire over the period, compared to an increase of 0.6% nationally. Numbers of people in the older age groups have grown much more rapidly in Herefordshire than in England and Wales as a whole. In 2015, 23% of the population were aged 65+ (43,900 people), compared to 18% nationally. There were 30% more people aged 65+ than there were in 2001, compared with a 24% increase nationally. The most notable increase locally was in those aged 85+ years old (48%) – although relatively small numbers comprise this age group (5,928 in 2015).

Major differences exist in the structure of Herefordshire's population relative to that of England & Wales. Generally Herefordshire is over-represented in the age groups above 45 years and under-represented in terms of young children and young adults.

Since 1991 the annual numbers of deaths in Herefordshire has remained fairly constant at around 1,900 to 2,000 a year (Figure 2). Consequently, any inter-annual variations in 'natural change' (i.e. births minus deaths) are dependent on numbers of births each.

Table 1: Resident population of Herefordshire, 2015 mid-year estimates

Age Group	Males	Females	Persons	% Population	WMR (%)	E&W (%)
0-4	5,100	4,700	9,900	5.3	6.4	6.2
5-14	10,200	9,600	19,800	10.6	12.0	11.6
15-24	10,100	9,400	19,400	10.3	13.0	12.4
25-44	21,500	20,700	42,000	22.3	25.4	26.5
45-64	26,000	27,000	53,100	28.2	25.1	25.4
65-74	11,700	12,300	23,900	12.7	9.9	9.7
75-84	6,500	7,500	14,100	7.5	5.9	5.8
85+	2,100	3,800	5,900	3.1	2.4	2.4
All ages	93,200	95,000	188,100	100	100	100

Figure 1: Age structure of Herefordshire population, 2015 mid-year estimates

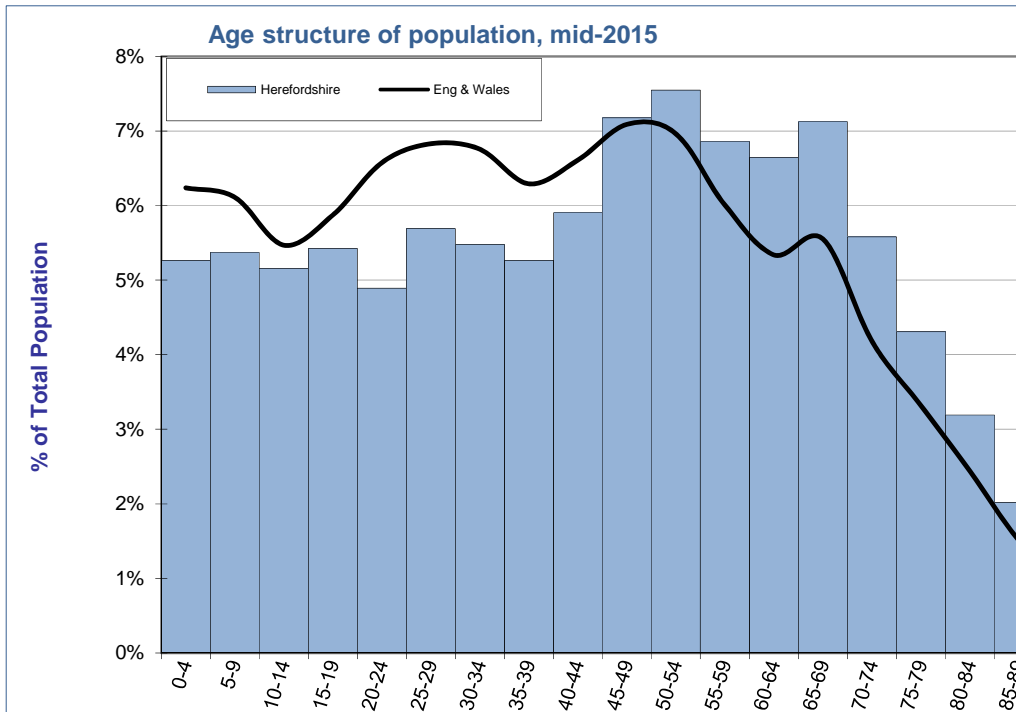
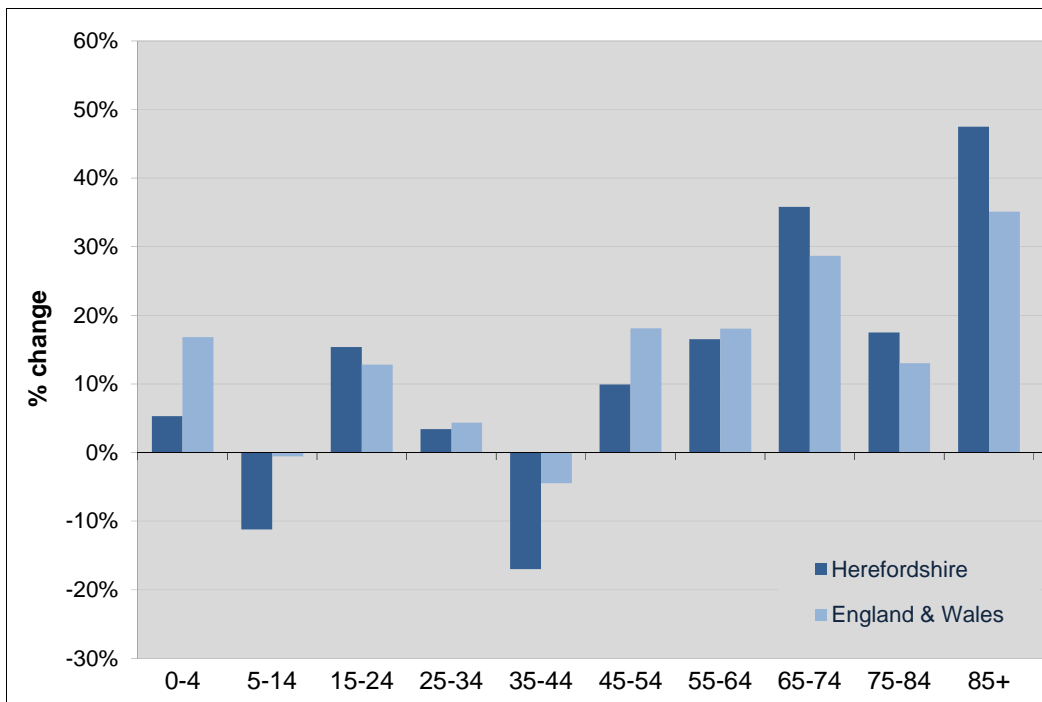
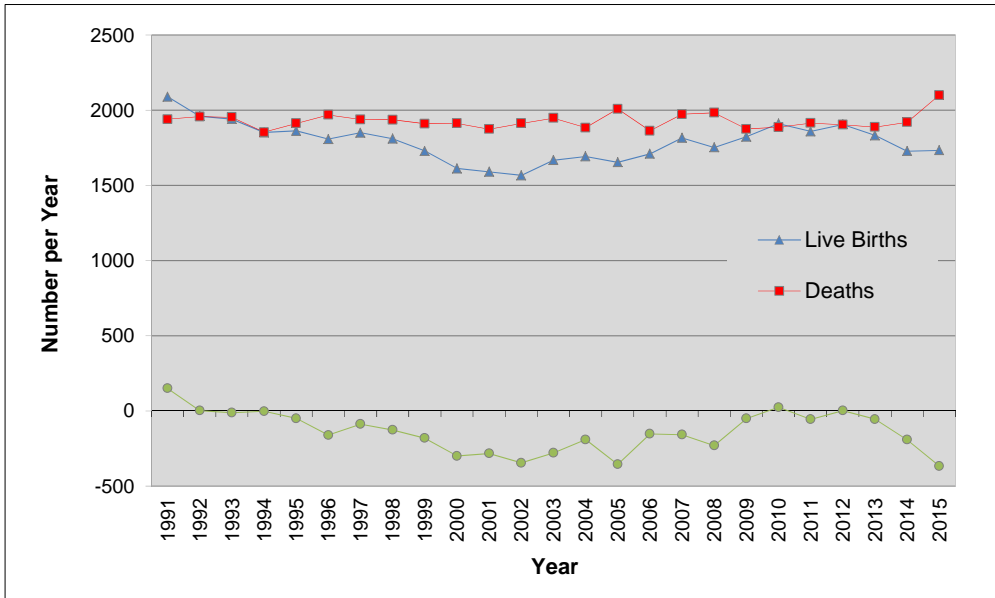


Figure 2: Population change by age group in Herefordshire mid-2001 to mid-2015



Source: ONS mid-year estimates © Crown copyright.

Figure 3: Births, deaths and natural change in Herefordshire's population, 1991 to 2015.



Source: ONS Birth Summary Tables / Area of usual residence tables © Crown copyright.

FERTILITY AND BIRTH STATISTICS

Births in Herefordshire fell throughout the 1990s, mirroring the national trend of declining fertility rates (Figure 3). However, this was followed by a period of increasing births after 2002. More recent increase were driven by a rise in the number of women of child-bearing age living in the county, particularly the growing numbers of babies being born to Polish and Lithuanian mothers.

In 2015 in Herefordshire the highest proportion of children were born to mothers aged between 25 and 34 with 60 per cent of all births being within that age group; similar patterns were observed both regionally and nationally (Table 2). When considering the 2015 birth rate in Herefordshire the overall rate was lower than those recorded for England and Wales, the West Midlands and also the comparator group. A slightly larger proportion of births to Herefordshire mothers occur at later maternal ages (40-44 years) than nationally or regionally. The local overall fertility rate was lower than those recorded for England and Wales, the West Midlands and also the comparator group. Local stillbirth rates were significantly higher locally compared to national and regional figures.

Table 2: Birth data, 2015

	Herefordshire	Comparator LAs*	WMR	E&W
Number of live births in 2015	1,733	-	69,806	697,678
Birth rate per 1,000 women	58	59	64	62
% live births by maternal age in 2014:				
Under 18	0.9	0.7	1.0	0.9
Under 20	3.5	2.3	4.1	3.4
20-24	17.3	15.0	17.9	15.5
25-29	30.0	26.4	30.4	28.4
30-34	29.9	32.7	29.5	31.2
35-39	14.5	18.9	14.6	17.3
40-44	4.5	4.0	3.2	3.9
45+	0.3	0.4	0.2	0.3
No. of stillbirths(fetal deaths after 24 weeks' gestation)	14	11.25	350	3224
Stillbirth rate 2012-2014 (per 1,000 total births)	6.9	2.1	4.8	4.7
95% CI	5.0 – 9.5	-	4.5 – 5.1	4.6 -4.8
Percent of births 2014 (live & still) under 2500 grams	3.0	2.1	3.4	2.9
95% CI	2.2-3.9	1.65-2.7	3.3-3.5	Couldn't find
General fertility rate in 2010 (Live births per 1,000 women aged 15-44)	57.7	57.9	63.9	England 61.7 Wales 62.5 Mean = 60.8
<i>Source: ONS: Birth Summary Tables / Area of usual residence tables © Crown copyright / NHS Digital Indicators Portal / Fingertips, www. fingertips.phe.org.uk</i>				

In 2015 the Herefordshire abortion rate was 13.4 per 1,000 females which corresponds to a total of 404 abortions (Table 3). The local rate was consistently significantly lower than the national and regional figures, while broadly similar to the comparator group. When considering the age at which abortions were performed in 2015 Herefordshire in 47 per cent were performed on women in their 20s, while nationally and in the comparator group the proportions were 52 and 51 per cent respectively.

Table 3: Abortion rates, 2015

	Herefordshire		Comparator CCGs	WMR	E&W
	No.	Rate	Rate	Rate	Rate
Crude abortion rate per 1,000 females (and number of abortions) by maternal age 2014					
<18 yrs	45	-	7.12	11	10
18-19	56	-	17.8	27	24
<20	-	-	-	-	-
20-24	129	23.9	22.8	31	28
25-29	78	17.9	15.2	26	23
30-34	53	15.1	12.4	20	17
35+	63	6.7	5.8	8	8
Total rate per 1000 female population 2015 (all ages)	404	13.4 (12.1 – 14.8)	11.5	18.5 (18.3 – 18.8)	16.2 (16.1-16.2)
Percent of abortions by gestational age in 2015	No.	%	%	%	%
Gestation (weeks): 3-9	286	71	74.5	79	80.4
10-12	73	18	15.3	12	11.2
13+	44	11	10.2	9	8.3
Proportion of abortions carried out under NHS (directly or via agency) and privately in 2015	No.	%		%	%
NHS	392	97	96.8	99	98.3
Non-NHS	12	3	3.3	1	1.8
Total abortion rates are lower in Herefordshire (across all ages) than the most similar comparator CCGs but significantly lower than national rates.					

In 2014 there were 65 under 18 conceptions (Table 4). This equates to a local rate 20.4 per 1,000 girls which is lower than the rate for the West Midlands, although higher than that in the comparator group. Herefordshire under 16 conception rates have followed the national and regional declining trend from 2009 to 2014. The latest Herefordshire under 16 conception rates are lower than England & Wales and regional rates (Figure 3a). Herefordshire under 16 conception rates have generally followed the national and regional declining trend from 2009 to 2014 except for in 2013 where it increased above national, regional and comparator rates. The latest (2014) Herefordshire under 18 conception rates are lower than England & Wales and regional rates but still higher than comparator rates (Figure 3b).

Over a half of conceptions for under 18s in Herefordshire result in a termination which is broadly similar to both regional and comparator group figures. The under 18 birth rate in Herefordshire has shown a general decrease since 2009 following national and comparator temporal patterns with the local rate being similar to elsewhere.

Table 4: Teenage conception rates: 2014

	No. of conceptions 2014	Rate (per 1,000 girls in age group)	% Leading to abortion
Herefordshire			
Under 16	10	3.3	70.0
Under 18	65	20.4	53.8
Comparator LAs*			
Under 16	14.75	3.4	76.0
Under 18	76	16.1	55.4
West Midlands			
Under 16	506	5.2	64.8
Under 18	2,725	26.5	49.7

Source: ONS & *Fingertips*, www.fingertips.phe.org.uk

Figure 3a: Under 16 conception rate trends 2009 to 2014

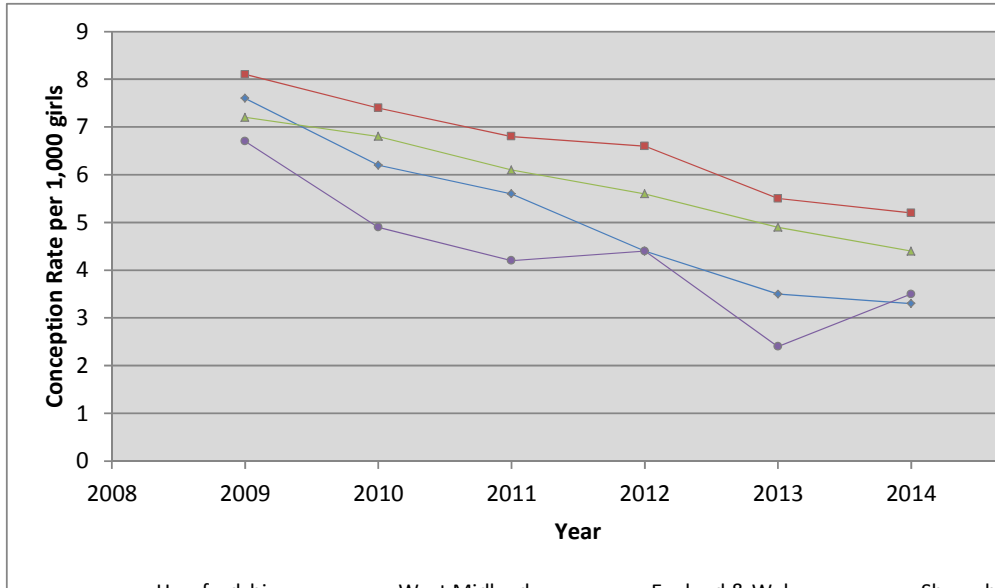
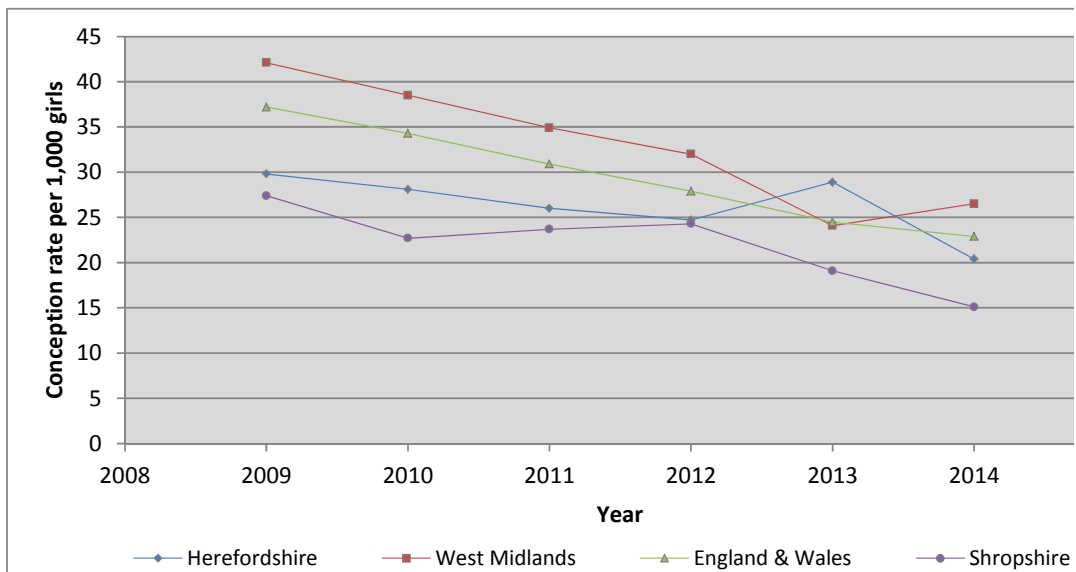


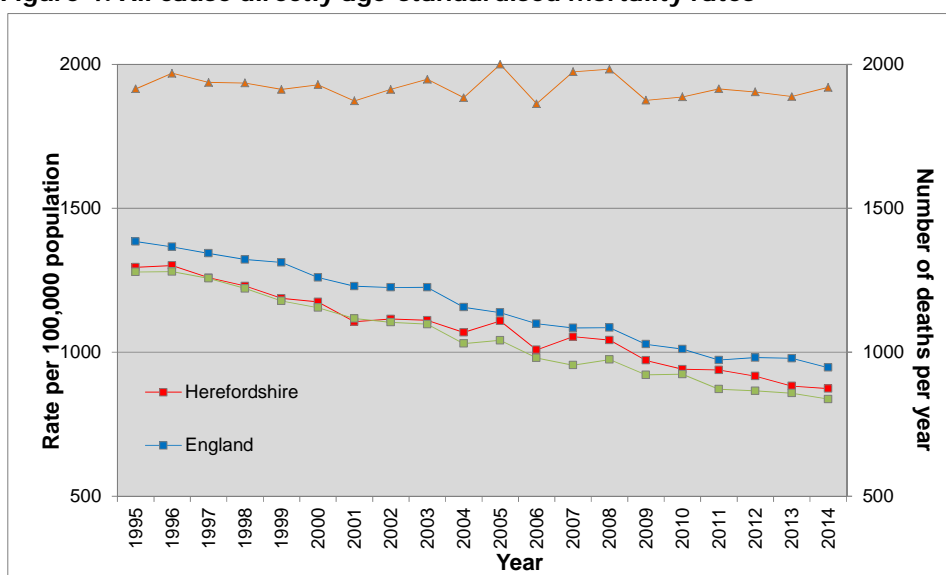
Figure 3b: Under 18 conception rate trends 2014 to 2009



MORTALITY

Since 1995 the number of deaths recorded annually in Herefordshire has remained relatively constant ranging between 1,860 and 2,010 per year in 2005 and 2006 respectively; the number of deaths in Herefordshire in 2014 was 1,920 (Figure 4). As the county population has increased from 165,800 to 186,100 over this 20 year period the county mortality rate has fallen with the directly standardised all age, all-cause mortality rate showing a steady downward trend falling from 1,300 to 870 per 100,000 population over this period; similar downward trends are evident in both the national rate and the mean rate for the comparator group. When considering the pooled mortality data for the period 2012-14 it is evident that the female mortality rate in Herefordshire is appreciably lower than that for males; similar patterns are evident nationally and in the comparator group (Table 5).

Figure 4: All cause directly age-standardised mortality rates



Source: NHS Digital Indicator Portal

Table 5: Total death rates, 2012-14

		Herefordshire	Comparator LAs	WMR	E&W
Directly age-standardised death rates (per 100,000 population) and observed number of deaths from all causes, 2012-2014 pooled					
Males	Rate	1049.15	1056.69	1185.39	1143.26
	(95% CI LL-UL)	(1,008.88 – 1,090.57)	(1021.5- 1092.78)	(1176.70– 1194.13)	(1140.57- 1145.97)
	No. of deaths	2,737	3798	76,218	729,023
Females	Rate	769.82	778	852.76	841.74

	(95% CI LL-UL)	(741.93– 798.48)	753.34 – 803.38)	(846.76 – 858.80)	(839.85 – 843.64)
	No. of deaths	2,975	4164.75	78,646.00	775,262
Persons	Rate (95% CI LL-UL)	890.61 (867.53– 914.15)	899.23 (878.75 – 920.04)	997.49 (992.51 – 1002.49)	973.06 (971.5 – 974.62)
	No. of deaths	5,712	7963	154,864.00	1,504,285
<i>Source: Compendium of Population Health Indicators by HSCIC</i>					

Between 2012 and 2014 the most common underlying causes of death in Herefordshire were diseases of the circulatory system and cancer, which between them accounted for over 60 per cent of all mortality in the county. Other causes of note were respiratory disease and accidents/falls (Table 6).

Between 1995 and 2014 the proportion of all deaths represented by diseases of the circulatory system has shown a general decline from 44 per cent in 1995 to 31 per cent in 2014 representing a proportional fall of 28 per cent. Over the same period the proportion of deaths represented by cancers showed a general increase with the 2014 figure (28 per cent) being 17 per cent higher than the 1995 figure (24 per cent).

Table 6: Total deaths in Herefordshire by selected causes: 2012-2014

	2012	2013	2014
All malignant neoplasms	514	527	537
Lung cancer	93	87	80
Malignant melanoma of skin	13	10	10
Other malignant neoplasm of skin	3	4	0
Breast cancer	30	37	39
Cervical cancer	0	2	5
All circulatory disease	648	618	610
Coronary heart disease	282	285	257
Stroke	187	157	169
Accidents	39	45	51
Land transport accidents	8	7	6
Suicide and injury undetermined	18	17	13
Suicide and self inflicted injury	9	13	11
All causes, aged 0-14	9	7	11
All causes, aged 15-64	234	238	216
All causes, aged 65-74	274	291	303
All causes, all ages	1,904	1,888	1,920
<i>Source: Compendium of Population Health Indicators by HSCIC</i>			

SMR's indicate higher or lower mortality than in England as a whole eg an SMR of 90 indicates 10% lower mortality than nationally; an SMR of 110 indicates 10% higher mortality. Local rates are significantly lower than national and regional rates for lung, skin, breast, cervical cancers and suicide. Rates are significantly higher in Herefordshire than nationally for strokes, coronary heart disease and accidents (including land transport accidents).

Table 7: SMRs for selected causes of death: 2012-2014 pooled

	Herefordshire PCT		Comparator LAs	WMR		England
	SMR	95% CI	SMR	SMR	95% CI	SMR
All malignant neoplasms (ICD10 C00-C97)						
Males	92	86-98	93	104	102-105	100
Females	87	80-93	93	101	100-103	100
Persons	89	85-94	89	103	102-104	100
Lung cancer (ICD10 C33-C34)						
Males	74	63-87	73	103	100-106	100
Females	57	46-70	73	94	91-97	100
Persons	67	59-76	77	99	97-101	100
Malignant melanoma of skin (ICD10 C43)						
Males	151	94-228	105	96	86-106	100
Females	106	53-189	116	89	78-102	100
Persons	132	91-185	110	93	86-101	100
Other malignant neoplasm of skin (ICD10 C44)						
Males	73	15-213	93	86	69-107	100
Females	129	25-350	112	91	69-120	100
Persons	94	33-197	100	88	74-104	100
Breast cancer (ICD10 C50)						
Females	87	71-105	97	102	98-106	100
Cervical cancer (ICD10 C53)						
Females	79	31-157	94	111	98-125	100
Coronary Heart Disease (ICD10 I20-I25)						
Males	105	96-115	87	105	103-107	
Females	108	97-120	92	97	95-99	100
Persons	106	99-114	89	94	92-95	100
Stroke (ICD10 I60-I69)						
Males	110	95-127	99	105	101-108	100
Females	121	108-135	104	104	101-106	100
Persons	116	107-127	102	104	102-106	100
Accidents (ICD10 V01-X59)						
Males	97	76-123	95	117	112-122	100
Females	103	79-131	76	113	108-118	99
Persons	100	84-118	86	115	112-119	100
Land Transport accidents (ICD10 V01-V89)						

Males	159	94-251	116	126	115-139	100
Females	76	16-223	125	100	82-120	100
Persons	138	85-210	119	120	110-130	100
Suicide, self-inflicted injury & injury undetermined (ICD10 X60-X84, Y10-Y34, excl. Y33.9)						
Males	86	58-123	103	105	99-112	100
Females	120	62-210	117	95	84-107	100
Persons	94	68-127	106	103	98-109	100
All causes (ages 0-14) (ICD10 A00-Y99)						
Males	85	80-91	86	107	106-108	100
Females	85	78-92	88	105	103-106	100
Persons	85	81-89	87	106	105-107	100
All causes (ages 15-64) (ICD10 A00-Y99)						
Males	84	75-92	88	108	106-110	100
Females	89	79-100	91	104	102-106	100
Persons	86	80-92	89	107	105-108	100
All causes (ages 65-74) (ICD10 A00-Y99)						
Males	86	79-94	85	104	103-106	100
Females	82	73-91	86	104	102-106	100
Persons	84	79-90	85	104	103-106	100
All causes (all ages) (ICD10 A00-Y99)						
Males	91	88-94	92	105	104-105	100
Females	93	90-96	94	102	101-102	100
Persons	92	90-94	93	103	103-104	100

In 2012-14 the number of years lost to life (YLL) in Herefordshire was 19,691 which corresponded to a directly standardised rate of 385 per 10,000 population (Table 8). The local rate is significantly lower than those reported both nationally and regionally, while it is broadly similar to that for the comparator group. Between 2012 and 2014 the greatest proportions of YLL was associated with cancer (36 per cent), while circulatory disease accounted for 20.0 per cent (Figure 5). There were on average 12.6 YLL for all causes of premature mortality in Herefordshire between 2012 and 2014. Although there was little difference between the male and female all cause figures of 12.7 and 12.5.

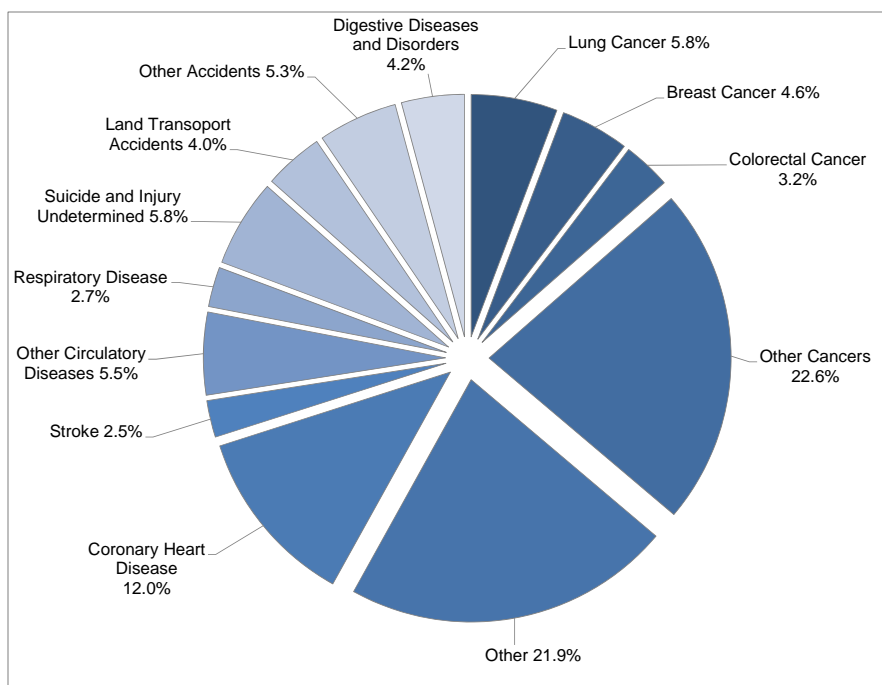
Table 8: Years of life lost by selected causes of death

Years of life lost up to age 75 (YLL), and directly standardised average annual YLL rates per 10,000 European Standard population aged under 75 (standardised rate), 2012-2014 pooled						
	Herefordshire LAs		Comparator LAs	WMR	E&W	
	YLL	% of total YLL	rate	rate	rate	
All causes (ICD10 A00-Y99)	19,691	100	385.23	382.31	454.75	428.02

All malignant neoplasms (ICD10 C00-C97)	7,122	36.17	134.51	142.23	163.76	157.54
Lung cancer (ICD10 C33-C34)	1,135	5.76	20.92	24.41	31.34	31.47
All circulatory diseases (ICD10 I00-I99)	3,932	19.97	76.05	71.84	89.48	83.85
Stroke (ICD10 I60-I69)	484	2.45	9.60	12.54	15.28	14.89
Coronary heart disease (ICD10 I20-I25)	2,364	12.01	44.79	36.41	47.93	44.21
Accidents (ICD10 V01-X59)	1,825	9.27	38.85	33.81	35.43	32.70
Land transport accidents (ICD10 V01-V89)	781	3.97	16.58	10.57	10.13	8.47
Suicide and injury undetermined (ICD10 X60-X84, Y10-Y34 excl. Y33.9)	1,151	5.85	29.04	35.53	33.00	32.76

- Years of life lost measure the impact of 'premature mortality' ie the number of years lost when a person dies under the age of 75 years, an age that a person might currently reasonably expect to live. Looking at mortality data in this way gives more weight to deaths that occur at younger ages.

Figure 5: Years of life lost by selected causes of death in Herefordshire



INFANT AND CHILDHOOD MORTALITY

Perinatal mortality rates in Herefordshire were significantly higher than national rates, and higher than regional rates in the latest three-year period 2012-2014 (Table 9).

Infant mortality rates in Herefordshire were similar to regional rates and lower than national rates in the latest three-year period 2012-14 (Table 10).

The herefordshire child mortality rate is similar to the national, regional and comparator group rates. However, as these calculated rates for Herefordshire are based on relatively small and fluctuating numbers of events, the confidence intervals around the rates can accordingly be wide (Table 11).

Table 9: Perinatal mortality rate

(Still births and deaths under 7 days old per 1000 live births 2012-2014 pooled)

	No. deaths	Rate	95% CI
Herefordshire	46	8.6	6.3-11.1
Comparator LAs	47.5	5.7	4.3-7.6
West Midlands	1717	7.9	7.6-8.3
E&W	14486	6.8	6.7-6.9

Table 10: Number of infant deaths and mortality rates in infancy

(per 1000 live births 2012-2014 pooled)

	Aged under 1 year (Infant mortality rate)			Aged under 28 days (Neonatal mortality rate)			Aged under 7 days (Early neonatal mortality rate)		
	No.	Rate	95% CI	No.	Rate	95% CI	No.	Rate	95% CI
Herefordshire	19	3.5	2.2 – 5.4	13	2.4	1.4 – 4.1	8	1.5	0.7-2.9
Comparator LAs	27	3.1	2.3-4.7	17.5	2.02	1.3-3.3	13.5	1.5	0.9-2.7
WMR	1178	5.5	5.2-5.8	861	4.0	3.7-4.3	688	3.2	3.0 – 3.4
E&W	8420	4.0	3.9 – 4.1	5564	2.8	2.7-2.8	4468	2.1	2.0 – 2.2

Table 11: Number of child deaths and mortality rates in childhood 1-17 years

(per 100,000 population 2008-2010 pooled)

	No.	Rate	CI
Herefordshire	12	11.3	12.0 – 19.3
Comparator PCTs	16	10.22	5.6- 17.0
West Midlands	-	13.4	12.2-14.6
England	-	12.0	11.6-12.3

**Strategic Intelligence Team
Herefordshire Council
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