Report:

Death registrations in England and Wales, 2008, causes

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Key findings

- There were 509,090 deaths registered in England and Wales in 2008, compared with 504,052 in 2007, an increase of 1.0 per cent
- The provisional 2008 age-standardised mortality rates for both males and females were the lowest ever recorded in England and Wales at 6,860 per million population for males and 4,910 per million for females
- The infant mortality rate (deaths under 1 year of age) was 4.8 per 1,000 live births in 2008. This rate is unchanged from 2007 and remains the lowest ever recorded in England and Wales
- Among males, the highest age-standardised mortality rate was for circulatory diseases (2,216 per million population), despite a fall of 40 per cent in the rate between 1998 and 2008
- The female age-standardised mortality rate for circulatory disease fell by 38 per cent between 1998 and 2008 to 1,422 per million population, and since 2006 has been lower than the female death rate for cancer

This report presents provisional numbers of deaths registered in England and Wales in 2008 by age, sex and selected underlying causes of death. It also compares mortality rates in 2008 with those for previous years. In addition, causes of death have been ranked to provide a summary of the ten leading causes of death for both males and females.

Deaths by sex and age

There were 509,090 deaths registered in England and Wales in 2008, compared with 504,052 in 2007, an increase of 1.0 per cent. The total number of deaths in 2008 comprised 243,014 male and 260,076 female deaths. This compares with 240,787 male and 263,265 female deaths registered in 2007.

In 2008, there were 3,370 infant deaths (under 1 year of age) registered, giving a rate of 4.8 per 1,000 live births. This rate is unchanged from 2007 and remains the lowest infant mortality rate ever recorded in England and Wales.

Table 1 Death rates by sex and age, 1998, 2007 and 2008

England and Wales

Age group	1998 ¹		2007 ¹		2008 ²		Percentage change 1998–2008	
	Males	Females	Males	Females	Males	Females	Males	Females
Age-standardised mortality rate, ³ all ages, all causes, per million population	8,967	5,928	6,949	4,921	6,860	4,910	-23.5	-17.2
Age-specific mortality rates per 1,000 population								
Under 1 ⁴	6.3	5.0	5.3	4.3	5.3	4.2	-16.2	-16.0
1–4	0.3	0.2	0.3	0.2	0.2	0.2	-31.6	-11.1
5–9	0.1	0.1	0.1	0.1	0.1	0.1	-19.5	-15.9
10–14	0.2	0.1	0.1	0.1	0.1	0.1	-37.1	-30.5
15–19	0.6	0.3	0.4	0.2	0.4	0.2	-28.6	-25.7
20–24	0.9	0.3	0.6	0.3	0.7	0.3	-28.7	-18.5
25–29	1.0	0.4	0.8	0.3	0.8	0.3	-22.8	-14.5
30–34	1.1	0.5	1.0	0.5	1.0	0.5	-9.4	-0.8
35–39	1.3	0.8	1.3	0.7	1.3	0.7	1.5	-8.4
40–44	2.0	1.3	1.8	1.1	1.8	1.1	-7.4	-10.2
45–49	3.1	2.0	2.6	1.8	2.7	1.8	-11.2	-12.8
50–54	4.9	3.2	4.3	2.8	4.3	2.9	-12.7	-10.9
55–59	8.5	5.2	6.9	4.4	6.7	4.3	-21.8	-17.0
60–64	14.2	8.4	10.7	6.8	10.4	6.7	-26.5	-20.3
65–69	24.3	14.4	17.8	11.0	17.1	10.8	-29.6	-25.3
70–74	41.7	25.4	28.0	18.4	27.7	18.0	-33.5	-28.8
75–79	65.9	40.9	48.7	32.8	47.6	32.1	-27.8	-21.5
80–84	109.1	72.7	84.0	60.1	82.0	59.4	-24.8	-18.4
85 and over	192.7	158.4	161.0	143.6	162.3	146.8	-15.8	-7.3

¹ Figures may vary from previous rates published. For 2007, the population projections used to calculate rates have been replaced with 2007 mid-year population estimates. For 1998, the mid-year estimates used in the rates have been revised following the 2001 Census.

² Provisional rates based on 2006-based population projections for 2008 and 2008 live births.

³ These rates are standardised to the European standard population, expressed per million population; they allow comparisons between populations with different age structures, including between males and females and over time.

⁴ Deaths per 1,000 live births.

Table 1 shows death rates by age and sex, for the years 1998, 2007 and 2008, together with percentage changes between 1998 and 2008. The provisional age-standardised mortality rates were 6,860 per million population for males and 4,910 per million for females in 2008 which are the lowest ever recorded in England and Wales. This compares with age-standardised rates of 6,949 per million for males and 4,921 per million for females in 2007. These age-standardised rates are for all causes and cover all ages. Between 1998 and 2008, the age-standardised rate for males fell by 24 per cent (from 8,967 deaths per million), while for females it decreased by 17 per cent (from 5,928 deaths per million).

Among the older ages, where most deaths occur, the largest percentage decrease in age-specific rates between 1998 and 2008 was in the 70–74 age group (34 per cent and 29 per cent for males and females respectively). It should be noted that the age-specific rates for the younger age groups are based on small numbers of deaths, and relatively small changes in such numbers can result in large percentage changes.

Figure 1 shows the trend in age-standardised mortality rates for both males and females by year, between 1998 and 2008.

Deaths by underlying cause

Table 2 presents deaths by age and sex for selected underlying causes of death, grouped according to the International Classification of Diseases, Tenth Revision (ICD–10). The chapters (broad disease groups) of ICD–10 with the largest numbers of deaths in 2008 were circulatory diseases, cancers (neoplasms) and respiratory diseases. Circulatory diseases, which include deaths from ischaemic heart disease and strokes, accounted for 33 per cent of all deaths, while cancers and respiratory diseases (including deaths from pneumonia) accounted for 28 per cent and 14 per cent of all deaths respectively.

Figure 2 shows the trends in all age mortality rates for these three cause of death groups between 1998 and 2008. Throughout the period, the highest death rate among males was for circulatory diseases, despite a fall of 40 per cent in the rate, to 2,216 per million population. The female death rate for circulatory disease also fell over the same period by more than a third (38 per cent) to 1,422 per million population, and since 2006 has been lower than the female death rate for cancer. The fall in age-standardised mortality rates for cancer has been more gradual, with death rates 17 and 11 per cent lower in 2008 than in 1998 for males and females respectively.

The rate for respiratory diseases in males decreased by 17 per cent over the same period, while the rate for females was 4 per cent lower in 2008 than in 1998. Respiratory disease mortality rates in a given year are strongly influenced by the seasonal pattern of mortality in that year and so differences between two years should always be examined in the context of long-term trends. Comparability ratios have been applied to the figures for each of the three cause of death groups for 1998 to 2000 in order to produce a consistent trend that adjusts for the change to ICD–10 in 2001; see the Background notes.

Leading causes of death

Both Table 3 and Figure 3 show the ten leading underlying causes of death in 2008 for males and females. These are ranked according to a World Health Organisation (WHO) list which categorises causes using ICD–10 groups specifically designed for determining the leading causes of death; see the Background notes. Figure 3 also shows how mortality rates for the leading causes of death in 2008 have changed since 2003.

The leading cause of death for both sexes was ischaemic heart diseases, which accounted for approximately one in six male deaths and one in

Table 2 Deaths by age, sex and underlying cause, 2008¹ registrations

England and Wales

ICD-10 code	Causes of death ¹	Sex	Age group												
			All ages	Under 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over	
A00-R99, U509, V01-Y89	All causes, all ages	M	243,014	1,920	284	370	2,034	3,088	6,419	12,269	27,093	47,862	79,799	61,876	
		F	266,076	1,450	270	277	809	1,445	3,811	8,291	18,187	33,883	77,827	119,826	
	All causes, ages under 28 days	M	1,309	1,309	-	-	-	-	-	-	-	-	-	-	
		F	990	990	-	-	-	-	-	-	-	-	-	-	
A00-R99, U509, V01-Y89	All causes, ages 28 days and over	M	241,705	611	284	370	2,034	3,088	6,419	12,269	27,093	47,862	79,799	61,876	
		F	265,086	460	270	277	809	1,445	3,811	8,291	18,187	33,883	77,827	119,826	
A00-B99	Certain infectious and parasitic diseases	M	2,919	43	35	10	19	56	142	206	285	442	874	807	
		F	3,580	40	22	12	21	42	87	93	171	404	1,053	1,635	
A00-A09	Intestinal infectious diseases	M	974	-	1	1	1	2	2	12	43	122	371	419	
		F	1,716	1	-	1	-	-	6	11	33	134	528	1,002	
A15-A16	Respiratory tuberculosis	M	157	-	-	-	-	4	6	19	24	37	39	28	
		F	103	-	-	-	-	5	6	9	11	16	35	21	
A17-A19	Other tuberculosis	M	50	-	-	-	-	4	4	6	8	9	9	10	
		F	35	-	1	-	4	1	2	3	3	12	3	6	
A39	Meningococcal infection	M	43	9	14	-	7	1	1	2	3	2	4	-	
		F	34	10	5	3	2	1	3	2	2	-	1	5	
A40-A41	Septicaemia	M	943	13	4	4	2	14	21	40	78	157	333	277	
		F	1,211	11	9	3	8	9	21	26	77	164	380	503	
B15-B19	Viral hepatitis	M	150	-	-	-	-	2	14	55	45	21	13	-	
		F	68	-	-	-	1	-	6	15	14	13	16	3	
B20-B24	Human immunodeficiency virus [HIV] disease	M	168	-	1	1	3	16	68	41	24	8	5	1	
		F	81	-	-	-	2	22	30	16	6	4	1	-	
B90	Sequelae of tuberculosis	M	16	-	-	-	-	-	-	2	1	1	8	4	
		F	23	-	-	-	-	-	-	-	-	2	12	9	
C00-D48	Neoplasms	M	73,702	3	31	86	177	316	1,029	3,509	11,290	20,035	25,077	12,149	
		F	67,437	6	38	64	104	378	1,536	4,097	9,822	15,146	21,193	15,053	
C00-C97	Malignant neoplasms	M	72,092	1	30	82	166	299	992	3,450	11,120	19,710	24,489	11,753	
		F	65,735	3	32	58	99	370	1,512	4,043	9,718	14,918	20,639	14,343	
C00-C14	Malignant neoplasms of lip, oral cavity and pharynx	M	1,140	-	-	1	4	4	39	190	326	318	176	82	
		F	675	-	2	1	4	4	12	58	147	129	170	148	
C15	Malignant neoplasm of oesophagus	M	4,399	-	-	-	3	11	75	306	977	1,240	1,262	525	
		F	2,210	-	-	-	-	5	24	77	295	450	799	560	
C16	Malignant neoplasm of stomach	M	2,827	-	-	-	2	7	44	107	344	751	1,117	455	
		F	1,719	-	-	1	-	13	31	74	132	328	651	489	
C18	Malignant neoplasm of colon	M	4,587	-	-	-	4	15	57	183	649	1,217	1,647	815	
		F	4,371	-	-	-	2	11	52	176	484	878	1,462	1,306	
C19-C21	Malignant neoplasm of rectosigmoid junction, rectum and anus	M	3,109	-	-	-	3	10	35	177	538	897	978	471	
		F	2,208	-	-	-	4	9	38	121	297	439	686	614	
C22	Malignant neoplasm of liver and intrahepatic bile ducts	M	1,788	-	1	1	2	14	27	100	376	537	546	184	
		F	1,202	1	1	-	1	8	15	68	159	273	425	251	
C23-C24	Malignant neoplasm of gallbladder and biliary tract	M	208	-	-	-	-	-	3	10	30	44	84	37	
		F	351	-	-	-	-	1	1	17	54	73	119	86	
C25	Malignant neoplasm of pancreas	M	3,379	-	-	-	-	4	42	205	659	1,037	1,079	353	
		F	3,550	-	-	-	-	3	30	154	466	937	1,211	749	
C32	Malignant neoplasm of larynx	M	575	-	-	-	1	1	4	36	128	162	169	74	
		F	140	-	-	-	-	1	-	13	24	45	31	26	
C33-C34	Malignant neoplasm of trachea, bronchus and lung	M	17,231	-	-	-	-	10	123	728	2,921	5,378	5,932	2,139	
		F	13,093	-	-	-	1	5	120	661	2,206	3,591	4,598	1,911	
C43	Malignant melanoma of skin	M	1,008	-	-	-	7	22	63	110	222	237	255	92	
		F	839	-	-	-	6	18	59	88	167	164	202	135	
C44	Other malignant neoplasms of skin	M	261	-	-	-	-	-	2	3	24	42	90	100	
		F	156	-	-	-	1	-	2	7	5	20	39	82	
C45	Mesothelioma	M	1,609	-	-	-	-	-	8	32	284	575	572	138	
		F	351	-	-	-	-	2	2	10	65	98	125	49	
C46	Kaposi's sarcoma	M	4	-	-	-	1	-	1	-	-	-	1	1	
		F	4	-	-	-	-	1	-	1	-	-	1	1	
C50	Malignant neoplasm of breast	M	62	-	-	-	-	-	2	2	11	12	24	11	
		F	10,716	-	-	-	1	74	542	1,179	1,917	2,113	2,554	2,336	

¹ Figures for 2008 are provisional.² The figures for individual cause categories exclude deaths at ages under 28 days.³ Including sequelae of transport accidents.

Table 2 cont. Deaths by age, sex and underlying cause, 2008¹ registrations

England and Wales

ICD-10 code	Causes of death ¹	Sex	Age group												
			All ages	Under 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over	
C53	Malignant neoplasm of cervix uteri	F	830	—	—	—	4	51	97	137	131	145	163	102	
C54-C55	Malignant neoplasm of other and unspecified parts of uterus	F	1,544	—	—	—	—	3	17	83	259	430	449	303	
C56	Malignant neoplasm of ovary	F	3,733	—	—	—	3	21	85	273	734	1,070	1,049	498	
C61	Malignant neoplasm of prostate	M	9,157	—	—	—	—	—	2	73	553	1,901	3,738	2,890	
C62	Malignant neoplasm of testis	M	60	—	—	—	5	14	8	11	7	6	2	7	
C64	Malignant neoplasm of kidney, except renal pelvis	M	1,865	—	1	1	—	8	35	129	372	507	581	231	
		F	1,220	—	2	6	2	4	22	87	173	289	400	235	
C67	Malignant neoplasm of bladder	M	2,935	—	—	—	—	3	11	56	286	652	1,118	809	
		F	1,521	—	—	—	—	4	12	23	108	216	535	623	
C71	Malignant neoplasm of brain	M	1,895	1	8	31	29	50	147	270	465	498	335	61	
		F	1,312	—	9	22	12	34	76	156	298	321	283	101	
C81	Hodgkin's disease	M	157	—	—	2	6	8	14	17	34	28	38	10	
		F	124	—	—	—	6	7	15	12	11	28	30	15	
C82-C85	Non-Hodgkin's lymphoma	M	2,164	—	1	4	15	16	59	128	314	570	763	294	
		F	1,836	—	—	—	8	11	20	69	242	415	655	416	
C90	Multiple myeloma and malignant plasma cell neoplasms	M	1,267	—	—	—	—	—	8	54	183	351	479	192	
		F	1,080	—	—	—	1	—	11	34	132	282	360	260	
C91-C95	Leukaemia	M	2,234	—	8	18	28	45	51	103	273	643	731	334	
		F	1,690	—	8	9	16	32	59	60	153	350	546	457	
C97	Malignant neoplasms of independent (primary) multiple sites	M	571	—	—	1	—	1	5	11	52	139	230	132	
		F	448	—	1	1	—	—	6	24	61	109	150	96	
D00-D48	In situ and benign neoplasms, and neoplasms of uncertain or unknown behaviour	M	1,610	2	1	4	11	17	37	59	170	325	588	396	
		F	1,702	3	6	6	5	8	24	54	104	228	554	710	
D50-D89	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism	M	400	2	5	6	10	7	24	35	46	77	84	104	
		F	552	6	4	7	8	15	16	26	44	80	126	220	
D50-D64	Anaemias	M	149	—	2	3	4	2	5	7	12	21	30	63	
		F	273	1	1	4	4	3	4	6	7	20	57	166	
E00-E90	Endocrine, nutritional and metabolic diseases	M	3,425	20	22	21	33	68	127	186	336	646	1,116	850	
		F	4,001	12	9	19	46	48	78	154	214	515	1,193	1,713	
E10-E14	Diabetes mellitus	M	2,649	—	1	1	10	37	61	107	241	519	964	708	
		F	2,892	—	—	1	7	16	32	92	119	374	939	1,312	
F00-F99	Mental and behavioural disorders	M	5,965	—	—	—	97	271	367	230	203	403	1,779	2,615	
		F	12,472	—	—	2	24	66	98	106	100	389	2,873	8,814	
F01, F03	Vascular and unspecified dementia	M	4,690	—	—	—	—	—	—	4	53	332	1,729	2,572	
		F	11,919	—	—	—	—	—	—	3	44	347	2,805	8,720	
F10-F19	Mental and behavioural disorders due to psycho-active substance use	M	1,175	—	—	—	94	270	363	220	142	61	21	4	
		F	359	—	—	—	17	59	92	95	51	30	12	3	
G00-G99	Diseases of the nervous system	M	8,127	57	27	55	135	135	252	394	707	1,309	3,023	2,033	
		F	9,394	30	42	40	83	79	153	312	649	1,124	2,946	3,936	
G00-G03	Meningitis (excluding meningococcal)	M	86	2	2	3	7	3	10	16	15	5	15	8	
		F	72	4	1	—	3	2	5	11	17	11	9	9	
G12.2	Motor neuron disease	M	936	—	—	—	—	4	12	67	175	319	289	70	
		F	802	—	—	—	—	1	7	34	145	248	273	94	
G20	Parkinson's disease	M	2,781	—	—	—	—	—	—	3	59	386	1,447	886	
		F	1,963	—	—	—	—	—	—	2	17	208	883	853	
G30	Alzheimer's disease	M	1,997	—	—	—	—	—	1	5	58	207	873	853	
		F	4,235	—	—	—	—	—	2	7	56	272	1,339	2,559	
G35	Multiple sclerosis	M	369	—	—	—	—	6	32	78	112	84	49	8	
		F	681	—	—	—	1	3	51	129	206	145	106	40	
G40	Epilepsy	M	575	2	5	9	43	69	106	105	86	49	65	36	
		F	404	2	13	8	42	36	37	38	51	36	65	76	
H00-H59	Diseases of the eye and adnexa	M	3	—	—	—	—	—	—	—	—	2	—	1	
		F	8	—	—	—	—	—	—	—	—	—	2	6	
H60-H95	Diseases of the ear and mastoid process	M	11	—	—	—	1	1	1	2	1	1	2	2	
		F	13	—	—	1	—	—	1	1	1	2	3	4	

1 Figures for 2008 are provisional.

2 The figures for individual cause categories exclude deaths at ages under 28 days.

3 Including sequelae of transport accidents.

Table 2 cont. Deaths by age, sex and underlying cause, 2008¹ registrations

England and Wales

ICD-10 code	Causes of death ¹	Sex	Age group												
			All ages	Under 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over	
I00-I99	Diseases of the circulatory system	M	80,846	28	11	24	98	316	1,286	3,627	8,128	15,356	28,831	23,141	
		F	87,392	21	18	21	56	145	514	1,307	3,220	8,557	27,334	46,199	
I05-I09	Chronic rheumatic heart diseases	M	309	—	—	—	1	4	4	5	31	75	122	67	
		F	706	—	—	—	2	6	8	14	40	118	265	253	
I10-I15	Hypertensive diseases	M	1,805	—	—	—	1	11	40	117	177	326	570	563	
		F	2,668	—	—	—	—	3	15	43	120	238	751	1,498	
I20-I25	Ischaemic heart diseases	M	43,462	4	1	2	7	88	680	2,343	5,414	9,365	15,066	10,492	
		F	33,523	—	1	—	2	18	153	490	1,460	4,109	11,060	16,230	
I21-I22	Acute myocardial infarction	M	16,691	2	—	1	4	31	304	1,012	2,253	3,651	5,690	3,743	
		F	12,639	—	—	—	2	10	95	206	606	1,729	4,388	5,603	
I26-I51	Other heart diseases	M	10,166	18	8	14	58	105	269	423	815	1,431	3,302	3,723	
		F	14,543	17	16	10	29	53	114	215	486	1,133	3,946	8,524	
I60-I69	Cerebrovascular diseases	M	17,805	5	2	5	22	65	186	475	1,061	2,535	6,876	6,573	
		F	28,641	2	1	11	14	44	162	396	798	2,026	8,691	16,496	
I60-I62	Intracranial haemorrhage	M	3,285	2	—	3	20	46	138	321	487	676	1,016	576	
		F	4,212	—	1	7	9	34	131	293	476	634	1,425	1,202	
I63	Cerebral infarction	M	1,824	—	—	1	2	8	21	67	157	277	675	616	
		F	2,568	1	—	—	3	5	11	37	70	184	823	1,434	
I64	Stroke, not specified as haemorrhage or infarction	M	7,925	—	1	1	—	7	21	66	329	1,118	3,274	3,108	
		F	13,927	—	—	—	—	4	14	55	199	895	4,314	8,446	
I70	Atherosclerosis	M	198	—	—	—	—	—	—	1	6	33	74	84	
		F	369	1	—	—	—	—	—	1	2	15	101	249	
I71	Aortic aneurysm and dissection	M	4,415	—	—	3	1	8	48	88	276	1,035	1,917	1,039	
		F	2,958	—	—	—	3	3	8	24	95	410	1,239	1,176	
J00-J99	Diseases of the respiratory system	M	32,801	44	34	30	41	72	236	584	2,208	5,506	11,961	12,085	
		F	38,950	25	29	19	40	71	205	489	1,615	4,205	11,717	20,535	
J10-J11	Influenza	M	14	2	—	2	1	1	—	1	—	1	3	3	
		F	25	3	2	—	—	—	—	1	1	1	5	12	
J12-J18	Pneumonia	M	11,531	20	13	6	15	36	120	215	538	1,269	3,602	5,697	
		F	17,396	9	10	6	17	30	102	158	370	907	4,060	11,727	
J40-J44	Bronchitis, emphysema and other chronic obstructive pulmonary disease	M	13,032	1	—	—	1	1	34	191	1,134	2,876	5,402	3,392	
		F	11,784	—	—	—	1	3	24	163	885	2,385	4,947	3,376	
J45-J46	Asthma	M	322	—	2	15	12	9	19	33	35	47	69	81	
		F	749	—	—	6	11	15	29	48	55	68	197	320	
K00-K93	Diseases of the digestive system	M	12,305	18	8	10	30	189	807	1,621	2,123	2,223	3,065	2,211	
		F	13,692	11	5	8	25	97	423	842	1,255	1,815	4,029	5,182	
K25-K27	Gastric and duodenal ulcer	M	1,417	—	—	1	2	11	36	92	194	252	485	344	
		F	1,495	—	—	—	4	3	16	38	100	207	477	650	
K40-K46	Hernia	M	373	—	1	1	—	—	3	10	33	69	139	117	
		F	523	1	—	—	1	—	2	5	28	61	159	266	
K57	Diverticular disease of intestine	M	467	—	—	—	—	1	2	13	32	91	182	146	
		F	1,358	—	—	—	—	—	3	15	49	123	516	652	
K70-K76	Diseases of the liver	M	4,726	3	2	1	10	137	660	1,249	1,359	828	377	100	
		F	2,791	1	—	—	9	68	324	617	727	531	373	141	
L00-L99	Diseases of the skin and subcutaneous tissue	M	572	—	1	—	—	3	7	26	50	99	207	179	
		F	1,324	—	—	—	1	3	9	18	58	118	407	710	
M00-M99	Diseases of the musculoskeletal system and connective tissue	M	1,354	1	2	2	6	6	23	35	91	232	489	467	
		F	3,044	1	2	3	9	10	23	54	152	346	880	1,564	
M05-M06, M08	Rheumatoid arthritis and juvenile arthritis	M	183	—	—	—	—	1	—	7	19	47	86	23	
		F	570	—	—	—	1	—	2	6	41	126	215	179	
M80-M81	Osteoporosis	M	321	—	—	—	—	—	—	—	2	15	93	211	
		F	1,099	—	—	—	—	1	—	1	7	22	268	800	
N00-N99	Diseases of the genitourinary system	M	4,823	4	2	4	6	21	33	63	179	489	1,710	2,312	
		F	7,064	1	1	1	6	12	38	76	207	546	2,037	4,139	
N00-N15	Glomerular and renal tubulo-interstitial diseases	M	365	3	2	1	2	5	11	20	28	49	126	118	
		F	430	—	1	—	1	4	8	15	30	68	135	168	
N17-N19	Renal failure	M	1,417	—	—	2	3	9	7	20	43	154	513	666	
		F	1,571	1	—	—	1	—	11	15	56	134	469	884	

¹ Figures for 2008 are provisional.² The figures for individual cause categories exclude deaths at ages under 28 days.³ Including sequelae of transport accidents.

Table 2 cont. Deaths by age, sex and underlying cause, 2008¹ registrations

England and Wales

ICD-10 code	Causes of death ¹	Sex	Age group												
			All ages	Under 1	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85 and over	
N40	Hyperplasia of prostate	M	184	—	—	—	—	—	—	—	5	11	63	105	
O00-O99	Pregnancy, childbirth and the puerperium	F	44	—	—	—	11	16	15	2	—	—	—	—	
P00-P96	Certain conditions originating in the perinatal period	M	125	116	6	—	1	1	—	—	—	—	—	1	
		F	110	97	9	3	1	—	—	—	—	—	—	—	
Q00-Q99	Congenital malformations, deformations and chromosomal abnormalities	M	555	100	37	23	34	38	53	74	89	49	36	22	
		F	584	103	41	15	27	29	48	60	111	50	64	36	
Q20-Q28	Congenital malformations of the circulatory system	M	210	48	12	6	21	16	29	27	18	18	11	4	
		F	234	46	16	5	11	14	20	24	26	18	34	20	
R00-R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified	M	2,749	148	12	5	33	72	128	166	173	114	258	1,640	
		F	8,400	88	9	4	11	29	56	76	76	59	564	7,428	
R54	Senility	M	1,737	—	—	—	—	—	—	—	—	2	177	1,558	
		F	7,583	—	—	—	—	—	—	—	—	4	446	7,133	
R95	Sudden infant death syndrome	M	102	97	4	1	—	—	—	—	—	—	—	—	
		F	74	70	3	1	—	—	—	—	—	—	—	—	
R99	Other ill-defined and unspecified causes of mortality	M	767	49	8	4	21	65	119	155	161	102	61	22	
		F	373	17	5	3	9	22	52	68	70	49	66	12	
U509, V01-Y89	External causes of morbidity and mortality	M	11,023	27	51	94	1,313	1,516	1,904	1,511	1,184	879	1,287	1,257	
		F	7,025	19	41	58	336	405	511	578	492	527	1,406	2,652	
V01-X59	Accidents	M	6,754	16	36	77	795	795	875	747	624	579	1,062	1,148	
		F	5,477	11	28	40	211	181	256	290	285	374	1,246	2,555	
V01-V99, Y85	Transport accidents ³	M	2,021	—	14	42	536	350	328	236	184	131	134	66	
		F	689	1	11	23	145	77	64	77	55	60	109	67	
V01-V89	Land transport accidents involving pedestrians, pedalcyclists, motor cyclists and occupants of motor vehicles	M	1,954	—	14	42	533	343	310	221	173	122	130	66	
		F	672	1	11	23	143	76	63	72	52	57	107	67	
W00-W19	Falls	M	1,680	—	1	5	34	36	78	154	182	241	513	436	
		F	1,779	—	1	1	8	11	19	62	93	159	535	890	
W65-W74	Accidental drowning and submersion	M	161	1	9	5	28	23	26	26	25	7	5	6	
		F	34	—	2	—	—	2	5	4	11	3	7	—	
X00-X09	Exposure to smoke, fire and flames	M	160	—	3	2	3	9	21	22	33	26	23	18	
		F	122	—	3	2	5	7	12	15	16	17	22	23	
X40-X49	Accidental poisoning by and exposure to noxious substances	M	1,034	—	—	5	116	283	319	186	73	23	12	17	
		F	395	—	2	1	28	60	116	84	46	23	20	15	
X41	Accidental poisoning by and exposure to antiepileptic, sedative-hypnotic, antiparkinsonism and psychotropic drugs, not elsewhere classified	M	95	—	—	1	12	16	30	18	13	2	2	1	
		F	73	—	—	—	4	11	21	14	14	5	3	1	
X42	Accidental poisoning by and exposure to narcotics and psychodysleptics [hallucinogens], not elsewhere classified	M	472	—	—	2	51	162	168	72	14	3	—	—	
		F	108	—	1	—	13	18	49	17	3	3	2	2	
X44	Accidental poisoning by and exposure to other and unspecified drugs, medicaments and biological substances	M	251	—	—	—	33	78	74	33	13	6	6	8	
		F	116	—	—	—	9	20	29	26	12	7	9	4	
X59	Accidental exposure to unspecified factor	M	1,117	1	1	2	11	20	28	44	54	89	315	552	
		F	2,098	—	—	1	6	7	8	22	33	79	466	1,476	
X60-X84	Intentional self-harm	M	2,663	—	—	3	238	465	664	511	405	182	136	59	
		F	775	—	—	5	61	121	153	169	114	71	64	17	
X85-Y09	Assault	M	233	4	4	3	55	53	53	31	18	9	3	—	
		F	105	3	8	1	11	24	17	17	5	7	8	4	
Y10-Y34	Event of undetermined intent	M	836	2	4	3	126	143	233	162	75	55	26	7	
		F	336	—	—	6	27	56	59	72	51	30	20	15	
X60-X84, Y10-Y34	Intentional self-harm and event of undetermined intent	M	3,499	2	4	6	364	608	897	673	480	237	162	66	
		F	1,111	—	—	11	88	177	212	241	165	101	84	32	
U509, X85-Y09	Assault; death from injury and poisoning, event awaiting determination of intent	M	535	7	10	10	146	109	117	68	44	17	5	2	
		F	223	8	12	5	35	44	36	30	13	15	18	7	

¹ Figures for 2008 are provisional.² The figures for individual cause categories exclude deaths at ages under 28 days.³ Including sequelae of transport accidents.

Table 3 Leading causes of mortality by sex, 2008¹

England and Wales

Rank	Underlying cause of death ²	Number of deaths	Percentage of all deaths	Age-standardised all age mortality rate per 100,000 population
Males				
1	Ischaemic heart diseases (I20–I25)	43,462	17.9	121.2
2	Cerebrovascular diseases (I60–I69)	17,805	7.3	46.8
3	Malignant neoplasm of trachea, bronchus and lung (C33–C34)	17,231	7.1	49.5
4	Chronic lower respiratory diseases (J40–J47)	13,777	5.7	36.8
5	Influenza and pneumonia (J10–J18)	11,545	4.8	30.3
6	Malignant neoplasm of prostate (C61)	9,157	3.8	24.0
7	Malignant neoplasm of colon, sigmoid, rectum and anus (C18–C21)	7,696	3.2	22.0
8	Dementia and Alzheimer's disease (F01, F03, G30)	6,687	2.8	16.7
9	Malignant neoplasms of lymphoid, haematopoietic and related tissue (C81–C96)	5,905	2.4	17.0
10	Cirrhosis and other diseases of liver (K70–K76)	4,726	1.9	16.4
All deaths		243,014		
Females				
1	Ischaemic heart diseases (I20–I25)	33,523	12.6	56.3
2	Cerebrovascular diseases (I60–I69)	28,641	10.8	44.4
3	Influenza and pneumonia (J10–J18)	17,421	6.5	25.7
4	Dementia and Alzheimer's disease (F01, F03, G30)	16,154	6.1	22.2
5	Chronic lower respiratory diseases (J40–J47)	13,125	4.9	25.3
6	Malignant neoplasm of trachea, bronchus and lung (C33–C34)	13,093	4.9	30.7
7	Malignant neoplasms of female breast (C50)	10,716	4.0	26.3
8	Diseases of the urinary system (N00–N39)	6,921	2.6	10.7
9	Heart failure and complications and ill-defined heart disease (I50–I51)	6,877	2.6	10.0
10	Malignant neoplasm of colon, sigmoid, rectum and anus (C18–C21)	6,579	2.5	13.8
All deaths		266,076		

¹ Figures for 2008 are provisional.² The cause of death groups used here are based on a list developed by the WHO, modified for use in England and Wales. For more information see Reference 9.**Figure 3**Age-standardised, all age mortality rates for the ten leading causes of death¹ by sex, 2008 and comparison rate for 2003²

England and Wales

¹ The cause of death groups used here are based on a list provided developed by the WHO, modified for use in England and Wales. For more information see Reference 9.² Rates for 2008 are provisional.³ For 2003 the mortality rates are given for the top ten causes of death in 2008 as a comparison.

eight female deaths during 2008. Cerebrovascular diseases (strokes) was the second leading cause of death for both sexes and accounted for a higher proportion of female deaths (11 per cent) than males (7 per cent). The difference between the top two causes of death, ischaemic heart and cerebrovascular diseases, was greater among males (a difference of around 26,000 deaths) than females (just over 5,000 deaths). A further five causes of death appear in both the male and female top ten underlying causes but not at the same ranks.

For both sexes, lung cancer (malignant neoplasm of trachea, bronchus and lung) was the most common cancer, appearing third in the underlying cause of death list for males and sixth for females. The list also contained three other cancers for males and two for females, including ones which are sex-specific (prostate cancer and female breast cancer).

In Table 3 and Figure 3, the leading causes are ranked by number of deaths. If causes were ranked by their age-standardised mortality rates instead, the rankings would change. For example, dementia and Alzheimer's disease among females is ranked fourth on number of deaths but would be ranked seventh on mortality rates. This is because the age-standardisation process gives less weight to deaths at older ages (where most of the dementia and Alzheimer's disease deaths occur).

For males, there have been decreases in the majority of mortality rates for the leading underlying causes since 2003. The largest percentage falls in male mortality rates were for cerebrovascular diseases and ischaemic heart diseases which both fell by 29 per cent between 2003 and 2008. There were increases in the male mortality rates over the same period for dementia and Alzheimer's disease and for cirrhosis and other diseases of liver (8.7 and 5.3 per cent respectively).

For females, the all age mortality rates for ischaemic heart diseases and cerebrovascular diseases also showed the largest falls between 2003 and 2008 (31 and 28 per cent respectively). The mortality rates of three of the leading causes increased over the same period. Diseases of the urinary system increased by just over a fifth (22 per cent), dementia and Alzheimer's disease increased by 11 per cent and lung cancer increased by 12 per cent.

Background notes

1. Registrations and occurrences: the year in which a death is registered may not correspond to the year in which the death occurred. Up to 1992, Office for National Statistics (ONS) publications gave numbers of deaths registered in the data year. Between 1993 and 2005 the majority of ONS's published figures represented the number of deaths that occurred in the data year. For 2006 onwards, ONS changed the reporting of death figures back to deaths registered in a reference year. In most years (and for most causes of death), this change has little effect on annual totals but allows the output of more timely mortality data. For an annual extract of death occurrences to be acceptably complete, it must be taken some months after the end of the data year to allow for any late registrations.
2. Coding underlying cause of death: the cause of death data in this report are based on the **final** underlying cause of death, which takes account of any additional information provided by medical practitioners or coroners after the death has been registered. The **original** underlying cause of death only changes in a very small number of deaths (around 0.2 per cent) in a given year. Since January 2001 cause of death has been coded to the Tenth Revision of the *International Classification of Diseases and Related Health Problems* (ICD-10).¹ This was introduced on the recommendation of the WHO and replaced the Ninth Revision (ICD-9),² which had been in use since 1979. ICD-10 represents the largest change in the ICD in over 50 years. The major changes have been described in detail in *Health Statistics Quarterly* 08³ and 13,⁴ and on the ONS website.⁵ Cause of

death is assigned by an automated coding system with the exception of deaths due to external causes (ICD-10 codes V01–Y89). These are coded clerically using information from coroners' certificates (including inquest verdicts) to produce consistent figures on suicides, homicides and other deaths not from natural causes.

3. Comparability ratios: in order to help quantify the changes arising as a result of the change to ICD-10, ONS carried out a bridge coding study.⁶ All deaths registered in 1999 were independently coded to both ICD-9 and ICD-10 and the causes in each revision were compared using internationally agreed groups of equivalent codes. Comparability ratios were produced for selected causes of death, including each ICD cause chapter, to indicate the net effect of the change in classification on a particular cause. The ratios were calculated by dividing the number of deaths coded to a particular cause in ICD-10 by the number coded to that cause in ICD-9. These ratios can then be applied to England and Wales data (from 1993 onwards) coded to ICD-9 in order to examine trends over time. For a particular cause, the number of deaths coded to the equivalent cause in ICD-9 is multiplied by the comparability ratio in order to give an 'expected' number of deaths that would have been coded to this cause in ICD-10. The ratios can also be applied directly to rates, to give an 'expected' rate.
4. Population estimates: in this report, the population figures used to calculate mortality rates for 2008 are the 2006-based population projections for 2008. These are available on the ONS website.⁷ The population figures used to calculate mortality rates for 2007 and earlier years are ONS mid-year population estimates. Population estimates for mid-2007 were published on 21 August 2008. Population estimates for 2006 were published on 22 August 2007 alongside revised population estimates for 2002 to 2005. Revised estimates for mid-2001 were published on 9 September 2004, and revised estimates for 1992 to 2000 were published on 7 October 2004. These population estimates were the most up-to-date at the time of publication of this report. All these estimates incorporate the findings of the Local Authority Population Studies, the results of which were published in July 2004. Further information on population estimates and their methodology can be found on the ONS website.⁸
5. Leading causes of death in England and Wales: the cause of death groups used here are based on a list developed by the WHO which categorises causes using ICD-10 groups specifically designed for determining the leading causes of death. The list has been modified for use in England and Wales and further information on the rationale behind ranking leading causes of death and how causes are grouped can be found in an article published on this subject in *Health Statistics Quarterly* 28.⁹

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