

SUPPLEMENTAL FILE 1**Codes used to identify epilepsy in the CPRD****Table S1. Codes used to identify epilepsy in the CPRD**

medcode	readcode	readterm
573	F25..00	Epilepsy
85113	F250 A	
11186	F250.00	Generalised nonconvulsive epilepsy
2907	F250000	Petit mal (minor) epilepsy
1715	F250011	Epileptic absences
24309	F250200	Epileptic seizures - atonic
31830	F250300	Epileptic seizures - akinetic
34792	F250500	Lennox-Gastaut syndrome
59185	F250y00	Other specified generalised nonconvulsive epilepsy
44252	F250z00	Generalised nonconvulsive epilepsy NOS
26144	F251.00	Generalised convulsive epilepsy
95216	F2510	
988	F251000	Grand mal (major) epilepsy
22804	F251011	Tonic-clonic epilepsy
49340	F251111	Otohara syndrome
18471	F251200	Epileptic seizures - clonic
4801	F251300	Epileptic seizures - myoclonic
5152	F251400	Epileptic seizures - tonic
8187	F251500	Tonic-clonic epilepsy
45927	F251y00	Other specified generalised convulsive epilepsy
40806	F251z00	Generalised convulsive epilepsy NOS
9886	F252.00	Petit mal status
5117	F253.00	Grand mal status
4093	F253.11	Status epilepticus
32288	F254.00	Partial epilepsy with impairment of consciousness
3175	F254000	Temporal lobe epilepsy
23634	F254100	Psychomotor epilepsy
36203	F254200	Psychosensory epilepsy
55665	F254300	Limbic system epilepsy
34079	F254400	Epileptic automatism
11394	F254500	Complex partial epileptic seizure
31920	F254z00	Partial epilepsy with impairment of consciousness NOS
26015	F255.00	Partial epilepsy without impairment of consciousness
9569	F255000	Jacksonian, focal or motor epilepsy
5525	F255011	Focal epilepsy
65699	F255012	Motor epilepsy

48134	F255100	Sensory induced epilepsy
73542	F255300	Visceral reflex epilepsy
98870	F255311	Partial epilepsy with autonomic symptoms
55739	F255400	Visual reflex epilepsy
68946	F255500	Unilateral epilepsy
40105	F255600	Simple partial epileptic seizure
26733	F255y00	Partial epilepsy without impairment of consciousness OS
27526	F255z00	Partial epilepsy without impairment of consciousness NOS
71719	F257.00	Kojevnikov's epilepsy
30604	F25B.00	Alcohol-induced epilepsy
30816	F25C.00	Drug-induced epilepsy
56359	F25D.00	Menstrual epilepsy
65673	F25E.00	Stress-induced epilepsy
30635	F25F.00	Photosensitive epilepsy
106571	F25H.00	Generalised seizure
6271	F25X.00	Status epilepticus, unspecified
38307	F25y.00	Other forms of epilepsy
55260	F25y000	Cursive (running) epilepsy
53483	F25y100	Gelastic epilepsy
9887	F25y200	Local(foc)(part)idiop epilep&epilptic syn seiz locl onset
25330	F25y300	Complex partial status epilepticus
96641	F25y500	Panayiotopoulos syndrome
9979	F25yz00	Other forms of epilepsy NOS
9747	F25z.00	Epilepsy NOS
3607	F25z.11	Fit (in known epileptic) NOS
99731	Fyu5000	[X]Other generalized epilepsy and epileptic syndromes
69831	Fyu5100	[X]Other epilepsy
59120	Fyu5200	[X]Other status epilepticus
71801	Fyu5900	[X>Status epilepticus, unspecified
4109	SC20000	Traumatic epilepsy
37644	F132100	Progressive myoclonic epilepsy

Definition of variables

Lists of Medcodes and corresponding Read codes used for each variable can be found in Supplemental file 2. An initial list of Read codes was created for each variable, either based on previous research or by searching specific words in a Read code browser. Medcodes were matched to the Read code list using the CPRD Medical Dictionary. An additional search of the Medcodes was conducted to ensure all appropriate codes were used. Medcodes were used during the analysis in STATA as these are numeric codes. For variables using medication data, lists of prodcodes were generated by searching the CPRD product code list, which lists prodcodes against British National Formulary (BNF) information.

- **Age:** For cases: age = year of death – year of birth. For matched controls: age = year of death of the matched case – year of birth.

For epilepsy related factors (ie. Relating to seizures and treatment) and lifestyle factors, data from the CPRD was used from the date of death of the matched case up to 12 months prior. These variables are listed below:

- **Emergency department visit or emergency admission:** Emergency admissions or visits to emergency centres were identified from “Clinical data” from CPRD. These included keywords: seen by emergency clinician, in accident and emergency, emergency admission. A full list is available in Supplemental File 2.
- **Number of antiepileptic drugs (AEDs):** Number of different types of AEDs prescribed in 12 months were grouped into categories: 0, 1, 2, 3 and “4 or more”. Product codes (“Prodcodes”) were used from “Therapy data” to identify AEDs in the CPRD. A full list of Prodcodes and corresponding definitions is available in Supplemental File 2.
- **Status epilepticus:** recorded status epilepticus code in previous 12 months (medcode: 4093; readcode: F253.11) clinical CPRD data.¹
- **Depression:** the variable was coded as either a documented diagnostic medcode related to “depression” from “Clinical data” or a prescription of antidepressants from “Therapy data” in the previous 12 months.¹ Antidepressants were identified through their product codes (prodcode) from therapy data. A list of medcodes for depression and prodcodes for antidepressants can be found in Supplemental File 2.
- **Smoking status:** Data was coded from medcodes related to smoking or smoking cessation interventions from “Clinical data” and overall smoking status if available in the CPRD “Additional Files”. For any patients that did not have a smoking status recording in the 12-month data period, the last known recording from clinical data was used, as previously described by Booth et al.² The list of medcodes and readcodes used to identify smoking status can be found in Supplemental File 2.
- **Injury:** any injury documented in “Clinical data” was used. A list of medcodes from clinical CPRD data included: injuries, fractures, dislocations, burns, bruising, contusions, lacerations, abrasions, concussions and wounds.¹ A full list of medcodes and corresponding Read codes can be found in Supplemental File 2.
- **Seizure freedom:** recoded seizure freedom for > 12 months (medcode: 11015; readcode: 667F.00) in “Clinical data” from CPRD.¹

For co-morbidity, data coded for patient’s lifetime (within start and end dates with acceptable quality data recording):

- **Dementia:** code list included any medcodes for “dementia” and “Alzheimer’s” in patient history from “Clinical data” in the CPRD. The list of medcodes and corresponding Read codes can be found in Supplemental File 2.

- **Stroke:** code list included stroke, cerebral ischemia/arterial occlusion/haemorrhage/infarction. embolism in patient history from “Clinical data” in the CPRD. The list of medcodes and corresponding Read codes can be found in Supplemental File 2.

Table S2. Main cause of death of PWE registered in the CPRD between 2005 – 2013 by year

ICD-10 category (ICD-10 code)	2005 (%)	2006 (%)	2007 (%)	2008 (%)	2009 (%)	2010 (%)	2011 (%)	2012 (%)	2013 (%)
Epilepsy (G40-G41)	6.3	6.3	5.9	6.1	5.7	6.2	5.2	7.1	5.2
Certain infectious and parasitic diseases (A00-B99)	1.0	1.6	1.1	1.0	0.7	0.9	0.5	1.2	0.5
Neoplasms (C00-D48)	20.9	19.4	17.6	19.6	19.0	18.1	21.8	21.4	20.9
Diseases of the blood and blood-forming organs (D50-D89)	0.6	0.0	0.4	0.3	0.1	0.0	0.2	0.3	0.3
Endocrine, nutritional and metabolic diseases (E00-E90)	1.5	1.7	1.7	1.1	1.6	1.7	1.1	1.0	1.1
Mental and behavioural disorders (F00-F99)	4.6	3.8	5.8	5.0	6.6	4.5	10.7	10.9	10.5
Diseases of the nervous system (G00-G37, G43-G99)	4.6	5.1	5.1	6.0	7.5	5.5	7.3	5.6	7.2
Diseases of the circulatory system (I00-I99)	33.8	35.1	34.0	34.0	31.3	33.1	28.3	26.8	28.1
Diseases of the respiratory system (J00-J99)	12.9	16.3	14.7	13.6	13.0	14.5	12.6	12.7	12.5
Diseases of the digestive system (K00-KK93)	3.8	3.3	4.3	4.6	4.1	4.8	4.9	4.9	5.0
Diseases of the skin and subcutaneous tissue (L00-L99)	0.0	0.1	0.5	0.3	0.4	0.3	0.1	0.0	0.1
Diseases of the musculoskeletal system and connective tissue (M00-M99)	0.4	0.0	0.8	0.3	1.2	0.2	0.7	0.4	0.8
Diseases of the genitourinary system (N00-N99)	2.9	2.5	2.4	1.8	2.8	3.1	0.7	2.1	1.2
Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)	1.5	1.5	1.1	1.5	1.6	0.9	0.8	0.8	1.1
Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)	1.5	1.3	1.8	1.7	1.0	2.3	1.7	1.8	1.0
External causes of morbidity and mortality (V01-X59, X85-Y98)	3.3	1.6	2.6	2.8	3.1	3.1	3.2	2.6	3.5
External causes of morbidity and mortality (intentional) (X60-X84)	0.4	0.4	0.1	0.4	0.4	0.8	0.2	0.3	1.0
Total (n)	521	687	761	785	836	874	886	956	987

References

1. Ridsdale L, Charlton J, Ashworth M, et al. Epilepsy mortality and risk factors for death in epilepsy: a population-based study. *Br J Gen Pract* 2011;61(586):e271-8. doi: 10.3399/bjgp11X572463
2. Booth HP, Prevost AT, Gulliford MC. Validity of smoking prevalence estimates from primary care electronic health records compared with national population survey data for England, 2007 to 2011. *Pharmacoepidemiol Drug Saf* 2013;22(12):1357-61. doi: 10.1002/pds.3537