

Table S1 Clinical code lists for lung cancer

Concept ID	Concept SNOMED code	Concept description	Code used for
443388	363358000	Malignant tumor of lung	Incidence and prevalence
258369	93880001	Primary malignant neoplasm of lung	Incidence and prevalence
4092216	187862007	Malignant neoplasm of upper lobe of lung	Incidence and prevalence
4089756	187870002	Malignant neoplasm of lower lobe of lung	Incidence and prevalence
4151250	269464000	Malignant neoplasm of upper lobe, bronchus or lung	Incidence and prevalence
4246121	93827000	Primary malignant neoplasm of hilus of lung	Incidence and prevalence
4089754	187866005	Malignant neoplasm of middle lobe of lung	Incidence and prevalence
4092217	187864008	Malignant neoplasm of middle lobe, bronchus or lung	Incidence and prevalence
258375	109371002	Overlapping malignant neoplasm of bronchus and lung	Incidence and prevalence
4092218	187865009	Malignant neoplasm of middle lobe bronchus	Incidence and prevalence
256646	372112000	Primary malignant neoplasm of middle lobe, bronchus or lung	Incidence and prevalence
261236	372135002	Primary malignant neoplasm of upper lobe, bronchus or lung	Incidence and prevalence
433973	93729006	Primary malignant neoplasm of bronchus of left lower lobe	Incidence and prevalence
762426	354701000119107	Primary malignant neoplasm of left lung	Incidence and prevalence
762427	354741000119109	Primary malignant neoplasm of right lung	Incidence and prevalence
4110587	254625005	Malignant tumor of lung parenchyma	Incidence and prevalence
4110589	254629004	Large cell carcinoma of lung	Incidence and prevalence
4110590	254631008	Giant cell carcinoma of lung	Incidence and prevalence
4110591	254632001	Small cell carcinoma of lung	Incidence and prevalence
4110705	254634000	Squamous cell carcinoma of lung	Incidence and prevalence
4110706	254638002	Pancoast tumor	Incidence and prevalence
4111807	254635004	Epithelioid hemangioendothelioma of lung	Incidence and prevalence
4112738	254626006	Adenocarcinoma of lung	Incidence and prevalence
4112739	254633006	Oat cell carcinoma of lung	Incidence and prevalence
4115276	254637007	Non-small cell lung cancer	Incidence and prevalence
4140471	427038005	Epidermal growth factor receptor negative non-small cell lung cancer	Incidence and prevalence
4143825	426964009	Epidermal growth factor receptor positive non-small cell lung cancer	Incidence and prevalence
4155293	372111007	Carcinoma of lower lobe, bronchus or lung	Incidence and prevalence
4157454	372110008	Primary malignant neoplasm of lower lobe, bronchus or lung	Incidence and prevalence
4162248	372113005	Carcinoma of middle lobe, bronchus or lung	Incidence and prevalence
4162252	372136001	Carcinoma of upper lobe, bronchus or lung	Incidence and prevalence
4196724	313353007	Squamous cell carcinoma of bronchus in left lower lobe	Incidence and prevalence
4196725	313355000	Squamous cell carcinoma of bronchus in right lower lobe	Incidence and prevalence
4197581	313354001	Squamous cell carcinoma of bronchus in left upper lobe	Incidence and prevalence
4197582	313356004	Squamous cell carcinoma of bronchus in right middle lobe	Incidence and prevalence
4197583	313357008	Squamous cell carcinoma of bronchus in right upper lobe	Incidence and prevalence
4208307	440173001	Nonsquamous non-small cell neoplasm of lung	Incidence and prevalence
4246027	93730001	Primary malignant neoplasm of bronchus of left upper lobe	Incidence and prevalence
4246126	93865007	Primary malignant neoplasm of left upper lobe of lung	Incidence and prevalence
4246148	93991009	Primary malignant neoplasm of right lower lobe of lung	Incidence and prevalence
4246804	93732009	Primary malignant neoplasm of bronchus of right middle lobe	Incidence and prevalence
4246805	93733004	Primary malignant neoplasm of bronchus of right upper lobe	Incidence and prevalence
4247727	93731002	Primary malignant neoplasm of bronchus of right lower lobe	Incidence and prevalence
4247832	93864006	Primary malignant neoplasm of lower lobe of left lung	Incidence and prevalence
4307118	423050000	Large cell carcinoma of lung, TNM stage 2	Incidence and prevalence
4308479	423121009	Non-small cell carcinoma of lung, TNM stage 4	Incidence and prevalence
4310448	423295000	Squamous cell carcinoma of lung, TNM stage 1	Incidence and prevalence
4310703	424132000	Non-small cell carcinoma of lung, TNM stage 1	Incidence and prevalence
4311501	93992002	Primary malignant neoplasm of right middle lobe of lung	Incidence and prevalence
4311997	422968005	Non-small cell carcinoma of lung, TNM stage 3	Incidence and prevalence
4312274	425376008	Squamous cell carcinoma of lung, TNM stage 4	Incidence and prevalence
4312567	93993007	Primary malignant neoplasm of upper lobe of right lung	Incidence and prevalence
4312768	424970000	Large cell carcinoma of lung, TNM stage 3	Incidence and prevalence
4313200	423468007	Squamous cell carcinoma of lung, TNM stage 2	Incidence and prevalence
4313751	423600008	Large cell carcinoma of lung, TNM stage 4	Incidence and prevalence
4314040	424938000	Large cell carcinoma of lung, TNM stage 1	Incidence and prevalence
4314172	425048006	Non-small cell carcinoma of lung, TNM stage 2	Incidence and prevalence
4322387	425230006	Squamous cell carcinoma of lung, TNM stage 3	Incidence and prevalence
36686537	12235561000119100	Large cell carcinoma of left lung	Incidence and prevalence
36686538	12235601000119100	Large cell carcinoma of right lung	Incidence and prevalence
36712707	1078881000119100	Primary adenocarcinoma of lower lobe of left lung	Incidence and prevalence
36712708	1078901000119100	Primary adenocarcinoma of upper lobe of left lung	Incidence and prevalence
36712709	1078931000119100	Primary adenocarcinoma of lower lobe of right lung	Incidence and prevalence
36712815	12240951000119100	Squamous cell carcinoma of left lung	Incidence and prevalence
36712816	12240991000119100	Squamous cell carcinoma of right lung	Incidence and prevalence
36712981	15956381000119100	Adenocarcinoma of right lung	Incidence and prevalence
36713366	683991000119103	Extensive stage primary small cell carcinoma of lung	Incidence and prevalence
36716426	722425009	Reactive oxygen species 1 positive non-small cell lung cancer	Incidence and prevalence
36716500	722528008	Primary malignant neuroendocrine neoplasm of lung	Incidence and prevalence
36717017	1078961000119100	Primary adenocarcinoma of upper lobe of right lung	Incidence and prevalence
37109576	723301009	Squamous non-small cell lung cancer	Incidence and prevalence
37110031	724056005	Malignant neoplasm of lower lobe of right lung	Incidence and prevalence
37110032	724058006	Malignant neoplasm of upper lobe of left lung	Incidence and prevalence
37110033	724059003	Malignant neoplasm of lower lobe of left lung	Incidence and prevalence
37110034	724060008	Malignant neoplasm of right upper lobe of lung	Incidence and prevalence
37311684	822969007	Acinar cell cystadenocarcinoma of lung	Incidence and prevalence
37395648	67811000119102	Primary small cell malignant neoplasm of lung, TNM stage 1	Incidence and prevalence
37395649	67821000119109	Primary small cell malignant neoplasm of lung, TNM stage 2	Incidence and prevalence
37395650	67831000119107	Primary small cell malignant neoplasm of lung, TNM stage 3	Incidence and prevalence
37395651	67841000119103	Primary small cell malignant neoplasm of lung, TNM stage 4	Incidence and prevalence
40391740	189815007	Pulmonary blastoma	Incidence and prevalence
40492938	448993007	Carcinoma of lung	Incidence and prevalence
42539251	15956341000119100	Adenocarcinoma of left lung	Incidence and prevalence
45766129	703228009	Non-small cell lung cancer with mutation in epidermal growth factor receptor	Incidence and prevalence
45766131	703230006	Non-small cell lung cancer without mutation in epidermal growth factor receptor	Incidence and prevalence
45768879	707403002	Primary fetal adenocarcinoma of lung	Incidence and prevalence
45768880	707404008	Primary mixed subtype adenocarcinoma of lung	Incidence and prevalence
45768881	707405009	Primary adenosquamous carcinoma of lung	Incidence and prevalence
45768883	707408006	Primary small cell non-keratinizing squamous cell carcinoma of lung	Incidence and prevalence
45768884	707409003	Primary acinar cell carcinoma of lung	Incidence and prevalence
45768885	707410008	Primary solid carcinoma of lung	Incidence and prevalence
45768886	707411007	Primary papillary adenocarcinoma of lung	Incidence and prevalence
45768916	707451005	Primary adenocarcinoma of lung	Incidence and prevalence
45768917	707452003	Primary mucinous adenocarcinoma of lung	Incidence and prevalence
45768918	707453008	Primary clear cell squamous cell carcinoma of lung	Incidence and prevalence
45768919	707454002	Primary basaloid squamous cell carcinoma of lung	Incidence and prevalence
45768920	707456000	Primary undifferentiated carcinoma of lung	Incidence and prevalence
45768921	707457009	Primary spindle cell carcinoma of lung	Incidence and prevalence
45768922	707458004	Primary pleomorphic carcinoma of lung	Incidence and prevalence
45768923	707460002	Primary pseudosarcomatous carcinoma of lung	Incidence and prevalence
45768927	707464006	Primary myoepithelial carcinoma of lung	Incidence and prevalence
45768928	707466008	Primary adenoid cystic carcinoma of lung	Incidence and prevalence
45768929	707467004	Primary salivary gland type carcinoma of lung	Incidence and prevalence
45768930	707468009	Primary mixed mucinous and non-mucinous bronchiolo-alveolar carcinoma of lung	Incidence and prevalence
45768931	707469001	Primary non-mucinous bronchiolo-alveolar carcinoma of lung	Incidence and prevalence
45768932	707470000	Primary mucinous bronchiolo-alveolar carcinoma of lung	Incidence and prevalence
45769034	707595001	Primary mucinous cystadenocarcinoma of lung	Incidence and prevalence
45769035	707596000	Primary carcinosarcoma of lung	Incidence and prevalence
45772933	707407001	Primary signet ring cell carcinoma of lung	Incidence and prevalence
45772938	707455001	Primary papillary squamous cell carcinoma of lung	Incidence and prevalence
45772939	707465007	Primary mucoepidermoid carcinoma of lung	Incidence and prevalence
46272955	711414003	Primary clear cell adenocarcinoma of lung	Incidence and prevalence
4198434	314954002	Local recurrence of malignant tumor of lung	Prevalence only
4201621	315006004	Metastasis from malignant tumor of lung	Prevalence only

The clinical codelists used for lung cancer is listed in the table below with the corresponding SNOMED concept ID, OMOP concept ID and concept description. Only diagnosis records alone were used to identify cancer outcome for this study. Different codelists were created for incident and prevalent definitions of lung cancer. We developed concept definitions using ATLAS, the OHDSI open-source platform (<https://github.com/OHDSI/atlas>). Clinical adjudicators reviewed the cohort definitions and associated concept sets.

**Table S2** Population attrition showing eligible patients for study from each database

N	Reason	Excluded, n	Database
39999011	Starting population		Aurum
39999011	Missing year of birth	0	
39999011	Missing sex	0	
34833388	Cannot satisfy age criteria during the study period based on year of birth	5165623	
29190480	No observation time available during study period	5642908	
29190480	Doesn't satisfy age criteria during the study period	0	
25483313	Prior history requirement not fulfilled during study period	3707167	
24340860	No observation time available after applying age and prior history criteria	1142453	
24340860	Starting analysis population		
24340860	Estimating prevalence		
24334950	Excluded due to prior event (do not pass outcome washout during study period)	5910	
24334950	Estimating incidence		
88540	With a cancer diagnosis	24246410	
86710	Cancer diagnosis not on same date as death	1830	
86710	Estimating survival		
17054819	Starting population		GOLD
17054819	Missing year of birth	0	
17054819	Missing sex	0	
15210165	Cannot satisfy age criteria during the study period based on year of birth	1844654	
13978229	No observation time available during study period	1231936	
13978229	Doesn't satisfy age criteria during the study period	0	
12254874	Prior history requirement not fulfilled during study period	1723355	
11388117	No observation time available after applying age and prior history criteria	866757	
11388117	Starting analysis population		
11388117	Estimating prevalence		
11385621	Excluded due to prior event (do not pass outcome washout during study period)	2496	
11385621	Estimating incidence		
45563	With a cancer diagnosis	11340058	
43903	Cancer diagnosis not on same date as death	1660	
43903	Estimating survival		

**Table S3** Baseline characteristics of lung cancer patients at the time of diagnosis for CPRD GOLD stratified by region (England, Northern Ireland, Scotland and Wales)

Region	England	Northern Ireland	Scotland	Wales
Number of lung cancer patients	21595	2363	14118	7487
Sex: male	12087 (56.0%)	1273 (53.9%)	7202 (51.0%)	4007 (53.5%)
Age (years), median (IQR)	73 (65 to 79)	71 (64 to 78)	72 (65 to 79)	73 (65 to 79)
Age groups (years), N (%)				
18-29	16 (0.1%)	0	<5	5 (0.1%)
30-39	63 (0.3%)	<5	49 (0.3%)	15 (0.2%)
40-49	519 (2.4%)	55 (2.3%)	299 (2.1%)	157 (2.1%)
50-59	2212 (10.2%)	260 (11.0%)	1484 (10.5%)	704 (9.4%)
60-69	5692 (26.4%)	710 (30.0%)	3857 (27.3%)	1990 (26.6%)
70-79	7750 (35.9%)	843 (35.7%)	5317 (37.7%)	2835 (37.9%)
80-89	4706 (21.8%)	447 (18.9%)	2820 (20.0%)	1573 (21.0%)
90+	637 (2.9%)	46 (1.9%)	289 (2.0%)	208 (2.8%)
Prior history, days	3691 (2,057 to 5,312)	4180 (2,419 to 5,788)	3444.5 (1,854 to 5,193)	3820 (2,052 to 5,642)
Smoking status (any time 5 years prior)				
Non-smoker	3600 (16.7%)	410 (17.4%)	1896 (13.4%)	1248 (16.7%)
Former smoker	367 (1.7%)	19 (0.8%)	92 (0.7%)	65 (0.9%)
Current smoker	9331 (43.2%)	1321 (55.9%)	7673 (54.3%)	3694 (49.3%)
Missing	8297 (38.4%)	613 (25.9%)	4457 (31.6%)	2480 (33.1%)
General conditions (any time prior)				
Atrial Fibrillation	1535 (7.1%)	192 (8.1%)	904 (6.4%)	559 (7.5%)
Cerebrovascular Disease	1806 (8.4%)	212 (9.0%)	1207 (8.5%)	600 (8.0%)
Chronic Liver Disease	86 (0.4%)	19 (0.8%)	89 (0.6%)	48 (0.6%)
Chronic Obstructive Lung Disease	5058 (23.4%)	650 (27.5%)	3537 (25.1%)	1879 (25.1%)
Coronary Arteriosclerosis	292 (1.4%)	20 (0.8%)	274 (1.9%)	89 (1.2%)
Crohn's Disease	65 (0.3%)	16 (0.7%)	48 (0.3%)	25 (0.3%)
Dementia	332 (1.5%)	52 (2.2%)	270 (1.9%)	111 (1.5%)
Depressive Disorder	3237 (15.0%)	455 (19.3%)	1716 (12.2%)	981 (13.1%)
Diabetes Mellitus	2474 (11.5%)	311 (13.2%)	1553 (11.0%)	967 (12.9%)
Gastroesophageal Reflux Disease	513 (2.4%)	56 (2.4%)	404 (2.9%)	283 (3.8%)
Gastrointestinal Hemorrhage	1691 (7.8%)	235 (9.9%)	614 (4.3%)	559 (7.5%)
Heart Disease	5305 (24.6%)	598 (25.3%)	3079 (21.8%)	1698 (22.7%)
Heart Failure	1075 (5.0%)	114 (4.8%)	521 (3.7%)	291 (3.9%)
HIV	5 (0.0%)	<5	<5	<5
Hyperlipidemia	2367 (11.0%)	350 (14.8%)	1011 (7.2%)	853 (11.4%)
Hypertensive disorder	6293 (29.1%)	639 (27.0%)	3363 (23.8%)	2090 (27.9%)
Ischemic Heart Disease	3180 (14.7%)	356 (15.1%)	1746 (12.4%)	946 (12.6%)
Obesity	432 (2.0%)	64 (2.7%)	251 (1.8%)	181 (2.4%)
Osteoarthritis	5218 (24.2%)	491 (20.8%)	2499 (17.7%)	1622 (21.7%)
Peripheral Vascular Disease	1014 (4.7%)	151 (6.4%)	789 (5.6%)	301 (4.0%)
Pneumonia	1232 (5.7%)	168 (7.1%)	727 (5.1%)	406 (5.4%)
Pulmonary Embolism	386 (1.8%)	29 (1.2%)	242 (1.7%)	135 (1.8%)
Renal Impairment	2832 (13.1%)	389 (16.5%)	1823 (12.9%)	1086 (14.5%)
Ulcerative Colitis	103 (0.5%)	13 (0.6%)	36 (0.3%)	29 (0.4%)
Venous Thrombosis	1275 (5.9%)	134 (5.7%)	482 (3.4%)	427 (5.7%)

**Table S4** Baseline characteristics of lung cancer patients at the time of diagnosis for CPRD GOLD stratified by smoking status (any time 5 years prior)

Smoking status	Non-smoker	Former smoker	Smoker	Missing
Number of lung cancer patients	7154	543	22019	15847
Sex: male	3487 (48.7%)	315 (58.0%)	11446 (52.0%)	9321 (58.8%)
Age (years), median (IQR)	77 (69 to 83)	72 (65 to 77)	69 (62 to 76)	75 (68 to 81)
Age groups (years), N (%)				
18-29	14 (0.2%)	0	<5	6 (0.0%)
30-39	38 (0.5%)	<5	61 (0.3%)	29 (0.2%)
40-49	111 (1.6%)	9 (1.7%)	681 (3.1%)	229 (1.4%)
50-59	377 (5.3%)	37 (6.8%)	3109 (14.1%)	1137 (7.2%)
60-69	1263 (17.7%)	182 (33.5%)	7436 (33.8%)	3368 (21.3%)
70-79	2536 (35.4%)	231 (42.5%)	7678 (34.9%)	6300 (39.8%)
80-89	2366 (33.1%)	75 (13.8%)	2885 (13.1%)	4220 (26.6%)
90+	449 (6.3%)	8 (1.5%)	165 (0.7%)	558 (3.5%)
Prior history, days	3626.5 (1,978 to 5,432)	3198 (1,691 to 4,836)	3676 (2,105 to 5,357)	3662 (1,883 to 5,320)
General conditions (any time prior)				
Atrial Fibrillation	687 (9.6%)	36 (6.6%)	1119 (5.1%)	1348 (8.5%)
Cerebrovascular Disease	606 (8.5%)	47 (8.7%)	1812 (8.2%)	1360 (8.6%)
Chronic Liver Disease	25 (0.3%)	7 (1.3%)	153 (0.7%)	57 (0.4%)
Chronic Obstructive Lung Disease	905 (12.7%)	181 (33.3%)	6588 (29.9%)	3450 (21.8%)
Coronary Arteriosclerosis	114 (1.6%)	7 (1.3%)	304 (1.4%)	250 (1.6%)
Crohn's Disease	19 (0.3%)	<5	87 (0.4%)	47 (0.3%)
Dementia	155 (2.2%)	<5	305 (1.4%)	302 (1.9%)
Depressive Disorder	793 (11.1%)	64 (11.8%)	3721 (16.9%)	1811 (11.4%)
Diabetes Mellitus	1101 (15.4%)	73 (13.4%)	2406 (10.9%)	1725 (10.9%)
Gastroesophageal Reflux Disease	229 (3.2%)	23 (4.2%)	556 (2.5%)	448 (2.8%)
Gastrointestinal Hemorrhage	590 (8.2%)	39 (7.2%)	1353 (6.1%)	1117 (7.0%)
Heart Disease	1979 (27.7%)	148 (27.3%)	4422 (20.1%)	4131 (26.1%)
Heart Failure	368 (5.1%)	31 (5.7%)	707 (3.2%)	895 (5.6%)
HIV	<5	<5	7 (0.0%)	<5
Hyperlipidemia	823 (11.5%)	62 (11.4%)	2227 (10.1%)	1469 (9.3%)
Hypertensive disorder	2420 (33.8%)	152 (28.0%)	5587 (25.4%)	4226 (26.7%)
Ischemic Heart Disease	1115 (15.6%)	103 (19.0%)	2728 (12.4%)	2282 (14.4%)
Obesity	186 (2.6%)	11 (2.0%)	391 (1.8%)	340 (2.1%)
Osteoarthritis	1829 (25.6%)	117 (21.5%)	4163 (18.9%)	3721 (23.5%)
Peripheral Vascular Disease	208 (2.9%)	30 (5.5%)	1332 (6.0%)	685 (4.3%)
Pneumonia	377 (5.3%)	37 (6.8%)	1156 (5.3%)	963 (6.1%)
Pulmonary Embolism	170 (2.4%)	<5	309 (1.4%)	309 (1.9%)
Renal Impairment	1466 (20.5%)	67 (12.3%)	2353 (10.7%)	2244 (14.2%)
Ulcerative Colitis	34 (0.5%)	<5	60 (0.3%)	83 (0.5%)
Venous Thrombosis	463 (6.5%)	32 (5.9%)	908 (4.1%)	915 (5.8%)

**Table S5** Baseline characteristics of lung cancer patients at the time of diagnosis for CPRD Aurum

Database	CPRD Aurum
Number of patients	88540
Sex: male	48819 (55.1%)
Age, median (IQR)	73 (65 to 80)
Age groups, years	
18-29	45 (0.1%)
30-39	274 (0.3%)
40-49	1880 (2.1%)
50-59	8981 (10.1%)
60-69	23278 (26.3%)
70-79	31897 (36.0%)
80-89	19488 (22.0%)
90+	2697 (3.00%)
Prior history, days, median [IQR]	6775 (3,487 to 10,987)
General conditions (any time prior)	
Atrial fibrillation	7056 (8.0%)
Cerebrovascular disease	8298 (9.4%)
Chronic liver disease	530 (0.6%)
Chronic obstructive lung disease	23599 (26.7%)
Coronary arteriosclerosis	1261 (1.4%)
Crohn's disease	346 (0.4%)
Dementia	1656 (1.9%)
Depressive disorder	12974 (14.7%)
Diabetes mellitus	12822 (14.5%)
Gastroesophageal reflux disease	3058 (3.5%)
Gastrointestinal haemorrhage	6691 (7.6%)
Heart disease	24166 (27.3%)
Heart failure	4276 (4.8%)
Hepatitis C	126 (0.1%)
HIV	23 (0.00%)
Hyperlipidemia	10449 (11.8%)
Hypertensive disorder	35469 (40.1%)
Ischemic heart disease	14929 (16.9%)
Lesion of liver	1556 (1.8%)
Obesity	2403 (2.7%)
Osteoarthritis	25083 (28.3%)
Peripheral vascular disease	4932 (5.6%)
Pneumonia	6741 (7.6%)
Psoriasis	3740 (4.2%)
Pulmonary embolism	1923 (2.2%)
Renal impairment	13373 (15.1%)
Rheumatoid arthritis	2104 (2.4%)
Schizophrenia	420 (0.5%)
Ulcerative colitis	472 (0.5%)
Urinary tract infectious disease	12018 (13.6%)
Venous thrombosis	5252 (5.9%)
Visual system disorder	36552 (41.3%)

**Table S6** Overall incidence rates (with 95% confidence intervals) for lung cancer from 2000 to 2021 for CPRD GOLD and 2000 to 2019 for Aurum stratified by database and age group

Age group (years)	People, n	pys	Events, n	Incidence (100,000 pys)	Database
18 to 29	9,238,441	31,941,436	45	0.14 (0.10 to 0.19)	CPRD Aurum
30 to 39	8,292,622	32,680,100	274	0.84 (0.74 to 0.94)	
40 to 49	6,515,966	32,924,342	1,880	5.71 (5.45 to 5.97)	
50 to 59	5,438,224	28,668,826	8,981	31.33 (30.7 to 32.0)	
60 to 69	4,170,276	22,500,850	23,278	103.5 (102.1 to 104.8)	
70 to 79	3,119,104	16,252,188	31,897	196.3 (194.1 to 198.4)	
80 to 89	1,949,102	8,834,297	19,488	220.59 (217.5 to 223.7)	
90+	666,317	2,269,618	2,697	118.8 (114.4 to 123.4)	
18 to 29	3,871,131	16,018,568	24	0.2 (0.1 to 0.2)	
30 to 39	3,682,403	15,107,431	129	0.9 (0.7 to 1.0)	
40 to 49	3,246,901	16,116,689	1,030	6.4 (6.0 to 6.8)	
50 to 59	2,885,599	14,721,668	4,660	31.7 (30.8 to 32.6)	
60 to 69	2,293,348	11,892,162	12,249	103.0 (101.2 to 104.8)	
70 to 79	1,682,118	8,407,711	16,745	199.2 (196.2 to 202.2)	
80 to 89	1,023,695	4,422,107	9,546	215.9 (211.6 to 220.2)	
90+	322,801	965,457	1,181	122.3 (115.5 to 129.5)	

Pys, person years.

**Table S7** Survival (%) after 1, 5 and 10 years after lung cancer diagnosis stratified by database and sex

Time (years)	Sex	% Survival (95% CI)	Database	
1	Male	38.0 (37.6–38.5)	Aurum	
5		11.1 (10.7–11.4)		
10		5.6 (5.3–5.9)		
1	Female	44.6 (44.1–45.2)		
5		16.0 (15.6–16.5)		
10		9.46 (9.0–9.9)		
1	Male	35.8 (35.21–36.48)		GOLD
5		10.0 (9.6–10.5)		
10		5.0 (4.6–5.4)		
1	Female	42.6 (41.9–43.4)		
5		14.4 (13.8–15.0)		
10		8.2 (7.6–8.78)		

CI, confidence interval.



**Table S8** Median survival stratified by database and age group

Age group (years)	Median survival in years (95% CI)	People, n	Events, n	Database	
18 to 29	Not achieved	45	14	Aurum	
30 to 39	1.314 (1.008 - 2.062)	272	163		
40 to 49	0.947 (0.862 - 1.038)	1850	1323		
50 to 59	0.917 (0.890 - 0.945)	8845	6603		
60 to 69	0.851 (0.830 - 0.871)	22923	17474		
70 to 79	0.698 (0.684 - 0.715)	31247	24582		
80 to 89	0.504 (0.485 - 0.523)	18932	15166		
90 +	0.361 (0.329 - 0.397)	2596	2096		
18 to 29	Not achieved	24	6		GOLD
30 to 39	1.478 (0.810 - 2.177)	127	82		
40 to 49	0.903 (0.786 - 1.027)	999	740		
50 to 59	0.827 (0.789 - 0.873)	4549	3467		
60 to 69	0.797 (0.775 - 0.824)	11907	9415		
70 to 79	0.638 (0.621 - 0.657)	16164	13232		
80 to 89	0.463 (0.449 - 0.479)	9041	7535		
90 +	0.353 (0.301 - 0.386)	1092	904		

Not achieved: median survival was not achieved in study period.

**Table S9** Survival rates (and 95% confidence intervals) of lung cancer from for GOLD (2000-2021) and Aurum (2000-2019) stratified by database and age group

Age group (years)	One-year survival (%)		Five-year survival (%)		Ten-year survival (%)	
	GOLD	Aurum	GOLD	Aurum	GOLD	Aurum
18-29	82.7 (68.6–99.7)	77.3 (65.3–91.7)	71.6 (54.3–94.2)	57.5 (40.4–81.6)	–	–
30-39	54.0 (45.7–63.7)	56.0 (50.1–62.6)	30.3 (22.6–40.6)	31.9 (26.1–39.1)	21.6 (13.1–35.4)	26.0 (20.1–33.5)
40-49	47.8 (44.7–51.1)	48.6 (46.3–51.1)	19.4 (16.8–22.4)	21.3 (19.3–23.6)	14.8 (12.2–18.0)	15.5 (13.4–17.9)
50-59	44.7 (43.2–46.2)	47.2 (46.1–48.3)	16.4 (15.2–17.7)	17.6 (16.7–18.5)	11.3 (10.1–12.6)	12.0 (11.1–13.0)
60-69	43.5 (42.6–44.5)	45.4 (44.7–46.0)	15.1 (14.3–15.8)	16.8 (16.2–17.3)	8.6 (7.9–9.4)	10.1 (9.49–10.7)
70-79	38.4 (37.6–39.2)	40.9 (40.3–41.4)	11.3 (10.7–11.9)	12.6 (12.1–13.0)	5.1 (4.5–5.6)	5.76 (5.34–6.22)
80-89	31.5 (30.5–32.5)	33.7 (33.0–34.4)	6.2 (5.6–6.9)	7.5 (7.0–8.0)	1.5 (1.0–2.1)	2.25 (1.83–2.75)
90+	24.2 (21.6–27.0)	25.6 (23.9–27.5)	3.2 (1.9–5.5)	2.53 (1.70–3.78)	–	0.51 (0.17–1.50)

**Table S10** Median survival stratified by database, calendar year for whole population and sex

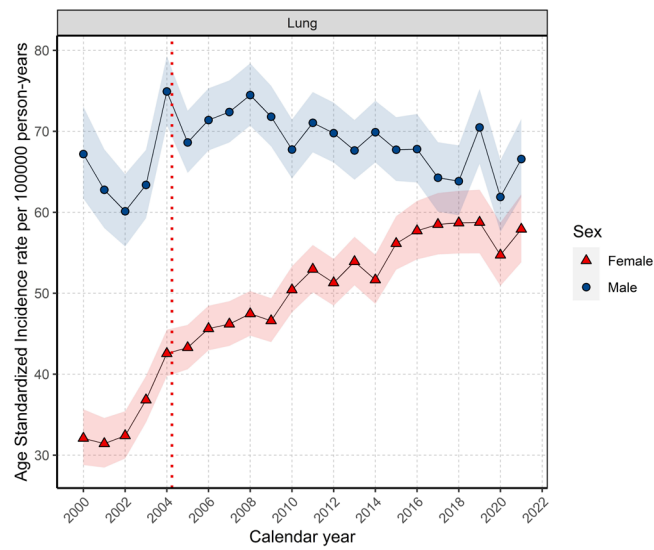
Sex	Calendar year	Median survival in years (95% CI)	People, n	Events, n	Database
Both	2000 to 2004	0.635 (0.613–0.654)	12019	8028	Aurum
Male		0.591 (0.564–0.616)	7188	4977	
Female		0.701 (0.671–0.753)	4831	3051	
Both	2005 to 2009	0.594 (0.578–0.608)	20204	14397	
Male		0.561 (0.542–0.583)	11592	8529	
Female		0.646 (0.616–0.671)	8612	5868	
Both	2010 to 2014	0.690 (0.674–0.709)	25364	16950	
Male		0.624 (0.602–0.649)	13678	9458	
Female		0.772 (0.745–0.799)	11686	7492	
Both	2015 to 2019	0.923 (0.898–0.947)	29123	17285	GOLD
Male		0.783 (0.756–0.819)	15311	9670	
Female		1.125 (1.073–1.175)	13812	7615	
Both	2000 to 2004	0.559 (0.526–0.589)	6250	4259	
Male		0.512 (0.482–0.548)	3718	2617	
Female		0.630 (0.586–0.679)	2532	1642	
Both	2005 to 2009	0.594 (0.578–0.613)	12111	8617	
Male		0.553 (0.534–0.578)	6792	4963	
Female		0.660 (0.627–0.687)	5319	3654	
Both	2010 to 2014	0.668 (0.643–0.693)	12847	8616	GOLD
Male		0.611 (0.591–0.643)	6780	4691	
Female		0.745 (0.706–0.786)	6067	3925	
Both	2015 to 2019	0.832 (0.791–0.865)	9650	5951	
Male		0.709 (0.665–0.745)	4808	3099	
Female		0.950 (0.898–1.021)	4842	2852	
Both	2020 to 2021	0.767 (0.690–0.810)	3045	1490	
Male		0.712 (0.619–0.789)	1523	776	
Female		0.816 (0.709–0.958)	1522	714	

CI, confidence interval.

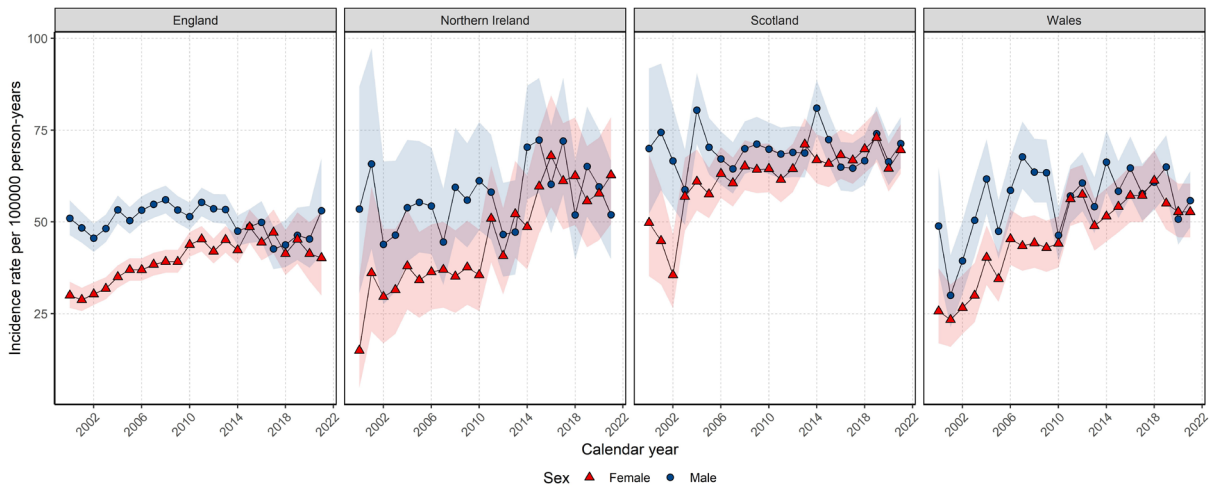


**Table S11** Survival (%) after 1 and 5 years after lung cancer diagnosis stratified by database, sex and calendar year

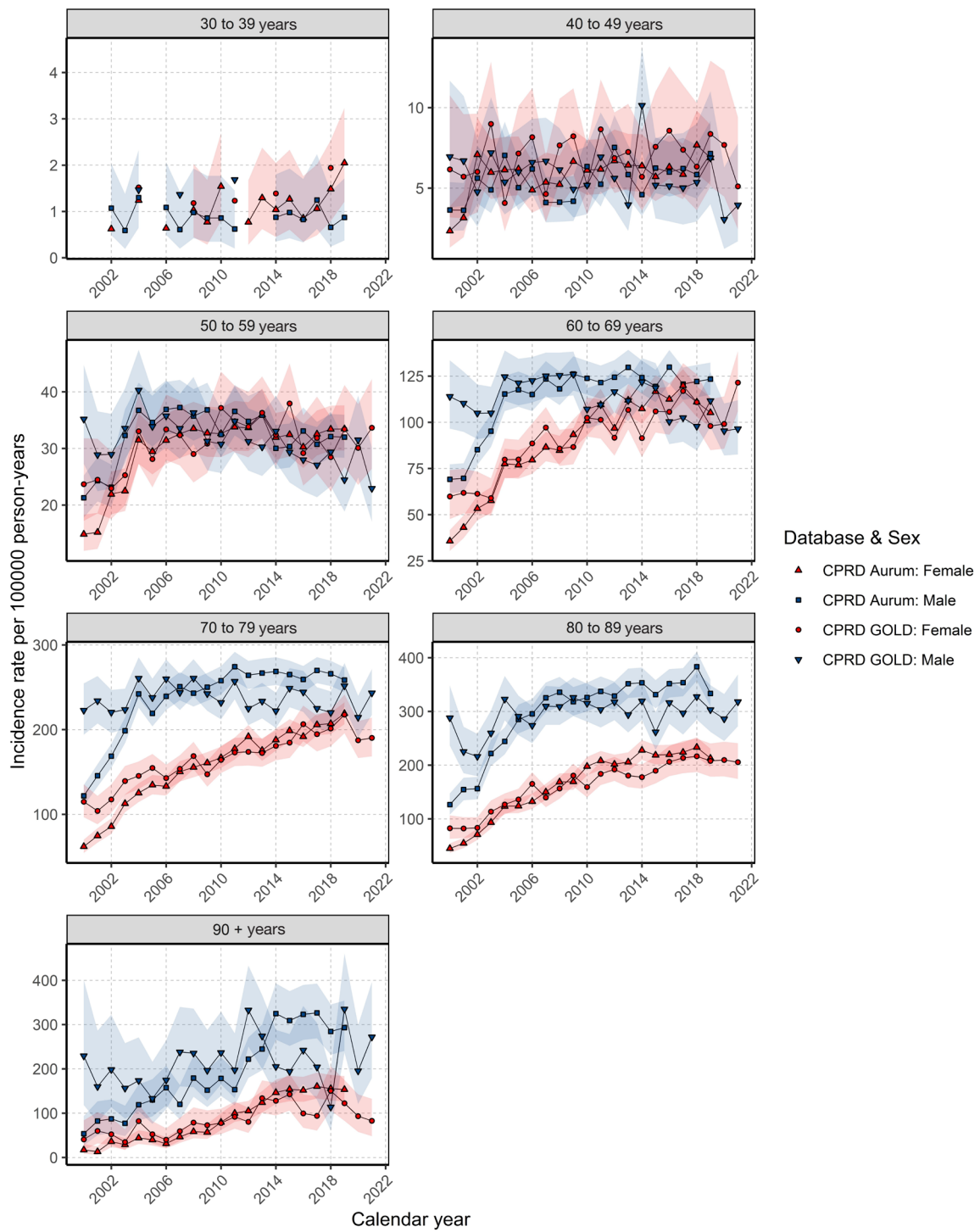
Calendar year	Time (years)	% Survival (95% CI)	Sex	Database
2000 to 2004	1	37.23 (36.29–38.20)	Both	Aurum
2005 to 2009	1	35.17 (34.46–35.89)		
2010 to 2014	1	40.06 (39.40–40.72)		
2015 to 2019	1	48.02 (47.40–48.65)		
2000 to 2004	1	33.43 (32.14–34.77)		
2005 to 2009	1	35.28 (34.36–36.21)	GOLD	
2010 to 2014	1	39.58 (38.67–40.51)		
2015 to 2019	1	45.20 (44.13–46.30)		
2020 to 2021	1	44.12 (42.06–46.28)		
2000 to 2004	1	40.23 (38.72–41.80)		Female
2005 to 2009	1	37.95 (36.84–39.09)		
2010 to 2014	1	43.11 (42.14–44.10)		
2015 to 2019	1	52.41 (51.52–53.32)		
2000 to 2004	1	37.38 (35.32–39.56)	GOLD	
2005 to 2009	1	38.83 (37.43–40.27)		
2010 to 2014	1	42.64 (41.32–44.01)		
2015 to 2019	1	48.98 (47.49–50.53)		
2020 to 2021	1	46.26 (43.37–49.35)		
2000 to 2004	1	35.24 (34.04–36.48)	Male	Aurum
2005 to 2009	1	33.14 (32.23–34.09)		
2010 to 2014	1	37.45 (36.57–38.34)		
2015 to 2019	1	44.07 (43.22–44.93)		
2000 to 2004	1	30.77 (29.14–32.48)		
2005 to 2009	1	32.49 (31.30–33.73)		
2010 to 2014	1	36.82 (35.59–38.09)		
2015 to 2019	1	41.29 (39.78–42.85)		
2020 to 2021	1	41.99 (39.12–45.07)		
2000 to 2004	5	10.47 (9.24–11.85)	Both	Aurum
2005 to 2009	5	9.09 (8.25–10.02)		
2010 to 2014	5	12.53 (11.56–13.58)		
2015 to 2019	5	19.51 (18.33–20.77)		
2000 to 2004	5	8.89 (7.30–10.82)		
2005 to 2009	5	8.46 (7.00–10.22)		
2010 to 2014	5	12.96 (11.84–14.19)		
2015 to 2019	5	17.31 (15.81–18.94)		
2000 to 2004	5	12.91 (10.73–15.54)	Female	Aurum
2005 to 2009	5	11.03 (9.70–12.54)		
2010 to 2014	5	15.12 (13.72–16.67)		
2015 to 2019	5	24.41 (22.84–26.09)		
2000 to 2004	5	10.39 (7.52–14.34)		
2005 to 2009	5	8.90 (6.42–12.34)		
2010 to 2014	5	15.43 (13.68–17.40)		
2015 to 2019	5	21.06 (18.80–23.58)		
2000 to 2004	5	8.94 (7.56–10.57)	Male	Aurum
2005 to 2009	5	7.69 (6.63–8.91)		
2010 to 2014	5	10.31 (9.02–11.79)		
2015 to 2019	5	15.05 (13.24–17.10)		
2000 to 2004	5	7.72 (6.06–9.85)		
2005 to 2009	5	8.24 (6.95–9.76)		
2010 to 2014	5	10.69 (9.28–12.31)		
2015 to 2019	5	13.49 (11.64–15.64)		



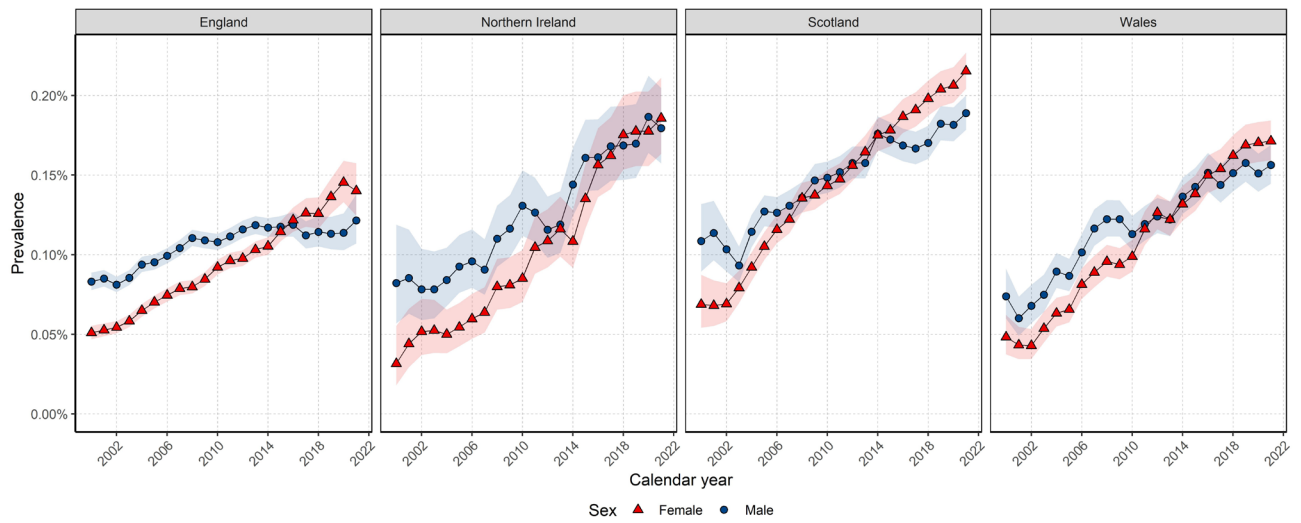
**Figure S1** Annualised age standardized incidence rates for lung cancer from 2000 to 2021 for CPRD GOLD stratified by sex-age standardized to the European Standard Population 2013. Band represents 95% CI.



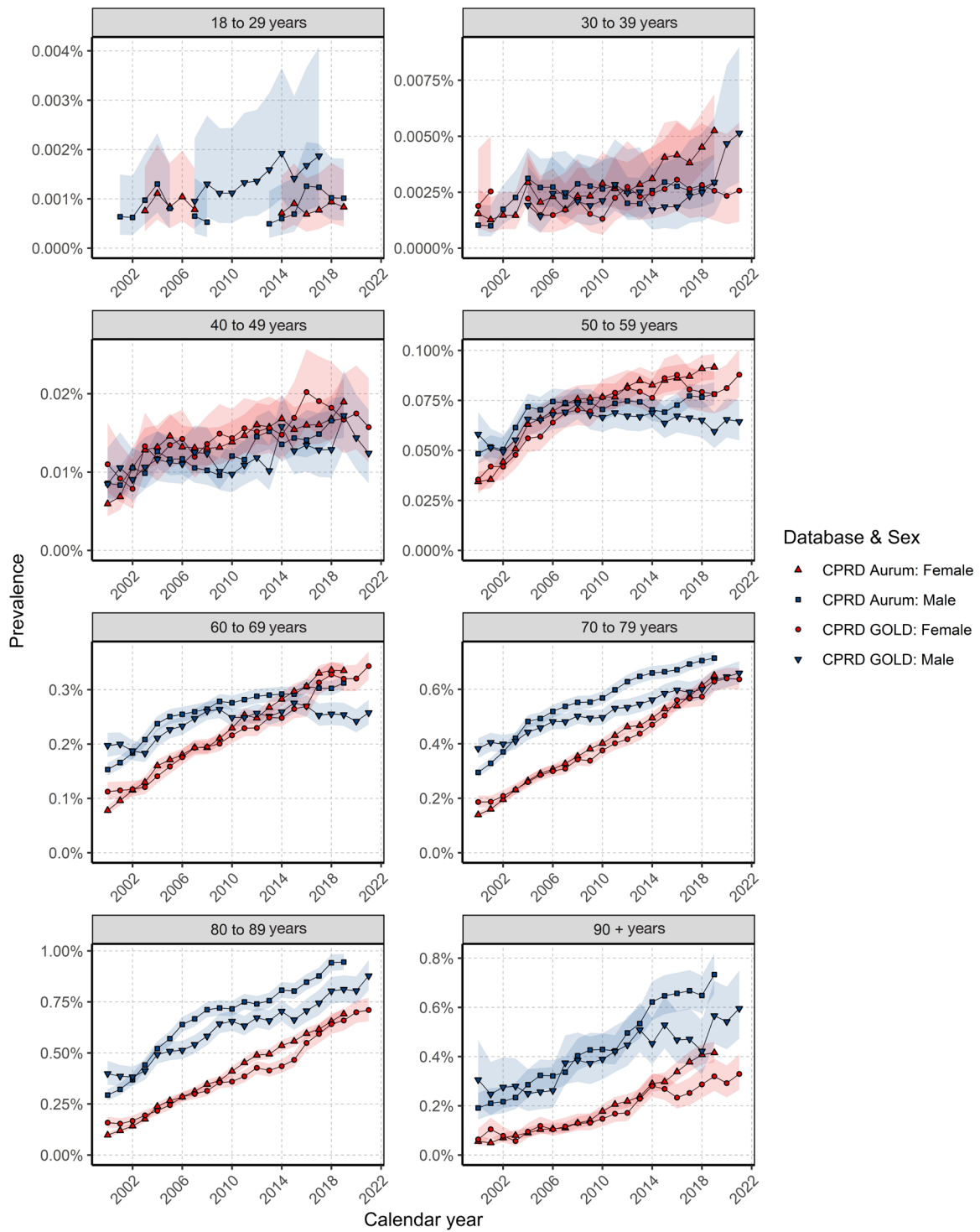
**Figure S2** Annualised age standardized incidence rates for lung cancer from 2000 to 2021 for CPRD GOLD stratified by sex and region-age standardized to the European Standard Population 2013. Band represents 95% CI.



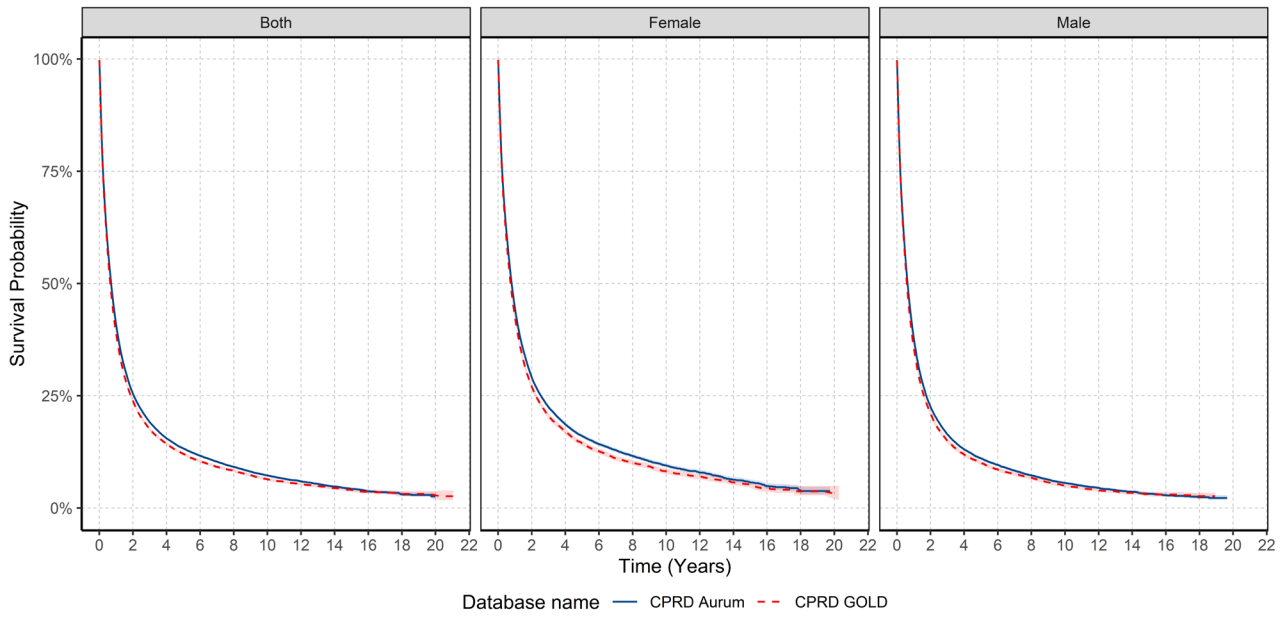
**Figure S3** Annualised incidence rates for lung cancer from 2000 to 2021 stratified by database, sex and age group. Band represents 95% CI.



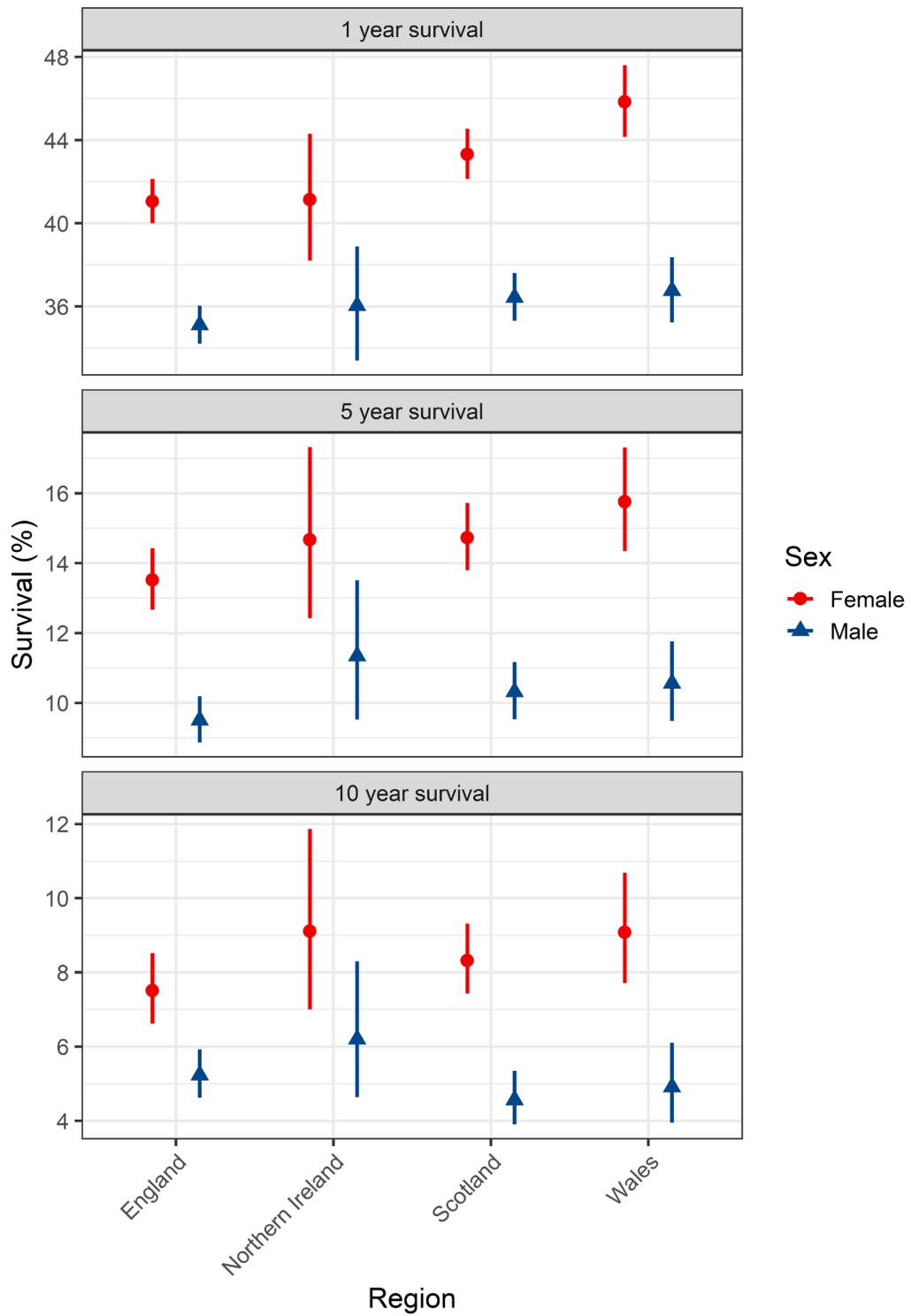
**Figure S4** Annual period prevalence from 2000 to 2021 stratified by UK region. Bands show 95% confidence interval.



**Figure S5** Annualised prevalence for lung cancer from 2000 to 2021 stratified by database, sex and age group. Band represents 95% CI.



**Figure S6** Kaplan-Meier survival curve of lung cancer by database and sex.



**Figure S7** Survival (%) after 1, 5 and 10 years after lung cancer diagnosis stratified by UK region and sex for GOLD.