

Supplementary appendices

Supplementary Appendix 1: contains details of the measure of distinct medications, a frequency table of demographic characteristics by cohort and place of death, and a frequency table of comorbid conditions by cohort and place of death.

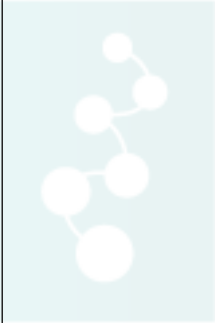
Number of distinct medications

Only items in BNF chapters 1 to 15 were included in the count as they comprise “active substances” (the other chapters contain “preparations used in diagnosis”, “dressings”, and “appliances”). BNF chapters correspond roughly to organ systems, so the next level of granularity (“BNF section”) was used to approximate a count of distinct types of medications. The total number of distinct BNF sections in the data was 110.

Supplementary Table 1a: Demographic characteristics of the cohort by place of death (home, hospital, care home)

	Place of death			Home			Hospital			CH			Total		
	Levels	2015-20	2020-21	p	2015-20	2020-21	p	2015-20	2020-21	p	2015-20	2020-21	p	2015-20	2020-21
Place of death, N (%) Age, Mean (SD)		76,770 (26.9%)	21,705 (33.2%)		140,722 (49.2%)	28,111 (43.0%)		68,278 (23.9%)	15,559 (23.8%)		285,770 (100.0%)	65,375 (100.0%)		76.60 (13.58)	.222 ^y
		70.28 (16.48)	71.31 (16.34)	.036 ^y	76.64 (12.97)	76.47 (12.82)		83.3 (11.23)	84.2 (10.30)		76.52 (13.63)	76.60 (13.58)			
Age group, N (%)	18-30	1,733 (2.3%)	446 (2.1%)	<.001 ^x	776 (0.6%)	134 (0.5%)	<.001 ^x	285 ^a (0.4%)	48 ^a (0.3%)	<.001 ^x	7,289 ^a (2.6%)	1,683 ^a (2.6%)			.007 ^x
	31-40	3,030 (3.9%)	800 (3.7%)		1,465 (1.0%)	255 (0.9%)		807 (1.2%)	124 (0.8%)		10,249 (3.6%)	2,270 (3.5%)			
	41-50	5,612 (7.3%)	1,365 (6.3%)		3,830 (2.7%)	781 (2.8%)		2,250 (3.3%)	355 (2.3%)		20,990 (7.3%)	4,840 (7.4%)			
	51-60	8,831 (11.5%)	2,432 (11.2%)		9,909 (7.0%)	2,053 (7.3%)		5,105 (7.5%)	922 (5.9%)		41,038 (14.4%)	9,048 (13.8%)			
	61-70	14,244 (18.6%)	3,778 (17.4%)		21,689 (15.4%)	4,348 (15.5%)		12,789 (18.7%)	2,925 (18.8%)		72,008 (25.2%)	16,742 (25.6%)			
	71-80	19,526 (25.4%)	5,593 (25.8%)		39,693 (28.2%)	8,224 (29.3%)		28,392 (41.6%)	6,821 (43.8%)		94,699 (33.1%)	21,624 (33.1%)			
	81-90	18,145 (23.6%)	5,433 (25.0%)		48,162 (34.2%)	9,370 (33.3%)		18,650 (27.3%)	4,364 (28.0%)		39,497 (13.8%)	9,168 (14.0%)			
	90+	5,649 (7.4%)	1,858 (8.6%)		15,198 (10.8%)	2,946 (10.5%)		43,129 (63.2%)	9,649 (62.0%)	.006 ^x	146,176 (51.2%)	32,587 (49.8%)			<.001 ^x
	female	32,980 (43.0%)	9,547 (44.0%)	<.001 ^x	70,067 (49.8%)	13,391 (47.6%)	.009 ^x	25,149 (36.8%)	5,910 (38.0%)		139,594 (48.8%)	32,788 (50.2%)			
Marital status, N (%)	male	43,790 (57.0%)	12,158 (56.0%)		70,655 (50.2%)	14,720 (52.4%)		7,805 (11.4%)	1,740 (11.2%)	<.001 ^x	39,527 (13.8%)	9,282 (14.2%)			<.001 ^x
	Single	15,046 (19.6%)	4,141 (19.1%)	<.001 ^x	16,676 (11.9%)	3,401 (12.1%)	.060 ^x	5,646 (8.3%)	1,447 (9.3%)		30,703 (10.7%)	7,434 (11.4%)			
	Divorced ^{y,b}	9,759 (12.7%)	2,704 (12.5%)		15,298 (10.9%)	3,283 (11.7%)		17,478 (25.6%)	3,667 (23.6%)		103,938 (36.4%)	23,488 (35.9%)			
	Married ^c	30,450 (39.7%)	8,603 (39.6%)		56,010 (39.8%)	11,218 (39.9%)		37,225 (54.5%)	8,681 (55.8%)		111,082 (38.9%)	25,049 (38.3%)			
	Widowed	21,295 (27.7%)	6,206 (28.6%)		52,562 (37.4%)	10,162 (36.1%)		124 (0.2%)	24 (0.2%)		520 (0.2%)	122 (0.2%)			
Ethnicity, N (%)	Missing	220 (0.3%)	51 (0.2%)		176 (0.1%)	47 (0.2%)		170 (0.2%)	37 (0.2%)	<.001 ^x	1,510 (0.5%)	464 (0.7%)			<.001 ^x
	Asian	366 (0.5%)	159 (0.7%)	<.001 ^x	974 (0.7%)	268 (1.0%)		66,778 (97.8%)	15,130 (97.2%)		279,661 (97.9%)	63,657 (97.4%)			
	White	74,375 (96.9%)	20,984 (96.7%)		138,508 (98.4%)	27,543 (98.0%)		98 (0.1%)	17 (0.1%)		526 (0.2%)	143 (0.2%)			
	BME	148 (0.2%)	50 (0.2%)		280 (0.2%)	76 (0.3%)		1,232 (1.8%)	375 (2.4%)		4,073 (1.4%)	1,111 (1.7%)			
	Missing	1,881 (2.5%)	512 (2.4%)		960 (0.7%)	224 (0.8%)									

Continued



Supplementary Table 1a: Continued

Place of death		Home			Hospital			CH			Total		
		2015-20	2020-21	p	2015-20	2020-21	p	2015-20	2020-21	p	2015-20	2020-21	p
Deprivation (SIMD quintile), N (%) (1=most deprived)	1	21,460 (27.9%)	5,900 (27.2%)	<.001 ^x	34,390 (24.4%)	7,200 (25.6%)	<.001 ^x	13,300 (19.5%)	3,010 (19.3%)	.456 ^x	69,150 (24.2%)	16,110 (24.6%)	<.001 ^x
	2	17,720 (23.1%)	5,050 (23.3%)		33,450 (23.8%)	6,600 (23.5%)		13,080 (19.2%)	3,010 (19.3%)		64,250 (22.5%)	14,660 (22.4%)	
	3	15,550 (20.3%)	4,270 (19.7%)		29,120 (20.7%)	5,660 (20.1%)		14,850 (21.7%)	3,430 (22.0%)		59,520 (20.8%)	13,360 (20.4%)	
	4	12,360 (16.1%)	3,540 (16.3%)		23,490 (16.7%)	4,660 (16.6%)		13,980 (20.5%)	3,140 (20.2%)		49,830 (17.4%)	11,340 (17.4%)	
	5	9,540 (12.4%)	2,910 (13.4%)		19,790 (14.1%)	3,920 (14.0%)		12,990 (19.0%)	2,960 (19.0%)		42,320 (14.8%)	9,790 (15.0%)	
	Missing	150 (0.2%)	30 (0.1%)		500 (0.4%)	60 (0.2%)		80 (0.1%)	10 (0.1%)		730 (0.3%)	100 (0.2%)	
Urban-rural location, N (%)	Urban	62,605 (81.5%)	17,787 (81.9%)	.003 ^{y,x}	117,036 (83.2%)	23,533 (83.7%)	<.001 ^x	57,927 (84.8%)	13,233 (85.1%)	<.001 ^x	237,568 (83.1%)	54,553 (83.4%)	<.001 ^x
	Rural	13,998 (18.2%)	3,827 (17.6%)		23,158 (16.5%)	4,446 (15.8%)		10,242 (15.0%)	2,245 (14.4%)		47,398 (16.6%)	10,518 (16.1%)	
	Missing	167 (0.2%)	91 (0.4%)		528 (0.4%)	132 (0.5%)		109 (0.2%)	81 (0.5%)		804 (0.3%)	304 (0.5%)	

CH: Care home & other; ^athe 18-30 and 31-40 categories in Care homes and the Total column, were combined due to small numbers; ^bincludes dissolved and annulled marriage or civil partnership; ^cFisher's exact test with simulated p-values using 10⁴ replicates (differences in distribution within each place of death between years were tested for each covariate; for place of death, the distribution across places and years was tested); ^dWelch's 2-sample t-test. Deprivation was measured using the Scottish Index of Multiple Deprivation (SIMD). Numbers for deprivation were rounded to nearest 10 due to small numbers missing – the totals may therefore add to slightly more than the total sample size.



Supplementary Table 1b: Demographic characteristics of the cohort by combined place of death (home vs institutional)

N (%) Variable	Place of death Levels	Institutional			Home		
		2015-20	2020-21	p ^x	2015-20	2020-21	p ^x
Age group	18–30	a	a	<0.001	1,733 (2.3%)	446 (2.1%)	<0.001
	31–40	2,526 (1.2%)	437 (1.0%)		3,030 (3.9%)	800 (3.7%)	
	41–50	4,637 (2.2%)	905 (2.1%)		5,612 (7.3%)	1,365 (6.3%)	
	51–60	12,159 (5.8%)	2,408 (5.5%)		8,831 (11.5%)	2,432 (11.2%)	
	61–70	26,794 (12.8%)	5,270 (12.1%)		14,244 (18.6%)	3,778 (17.4%)	
	71–80	52,482 (25.1%)	11,149 (25.5%)		19,526 (25.4%)	5,593 (25.8%)	
	81–90	76,554 (36.6%)	16,191 (37.1%)		18,145 (23.6%)	5,433 (25.0%)	
	90+	33,848 (16.2%)	7,310 (16.7%)		5,649 (7.4%)	1,858 (8.6%)	
Sex	female	113,196 (54.2%)	23,040 (52.8%)	0.007	32,980 (43.0%)	9,547 (44.0%)	<0.001
	male	95,804 (45.8%)	20,630 (47.2%)		43,790 (57.0%)	12,158 (56.0%)	
Marital status	Single	24,481 (11.7%)	5,141 (11.8%)	0.062	15,046 (19.6%)	4,141 (19.1%)	<0.001
	Divorced ^b	20,944 (10.0%)	4,730 (10.8%)		9,759 (12.7%)	2,704 (12.5%)	
	Married ^c	73,488 (35.2%)	14,885 (34.1%)		30,450 (39.7%)	8,603 (39.6%)	
	Widowed	89,787 (43.0%)	18,843 (43.1%)		21,295 (27.7%)	6,206 (28.6%)	
	Missing	300 (0.1%)	71 (0.2%)		220 (0.3%)	51 (0.2%)	
Ethnicity	Asian	1,144 (0.5%)	305 (0.7%)	<0.001	366 (0.5%)	159 (0.7%)	<0.001
	White	205,286 (98.2%)	42,673 (97.7%)		74,375 (96.9%)	20,984 (96.7%)	
	BME	378 (0.2%)	93 (0.2%)		148 (0.2%)	50 (0.2%)	
	Missing	2,192 (1.0%)	599 (1.4%)		1,881 (2.5%)	512 (2.4%)	
Deprivation (SIMD quintile)(1=most deprived)	1	47,690 (22.8%)	10,210 (23.4%)	<0.001	21,460 (27.9%)	5,900 (27.2%)	<0.001
	2	46,530 (22.3%)	9,610 (22.0%)		17,720 (23.1%)	5,050 (23.3%)	
	3	43,970 (21.0%)	9,090 (20.8%)		15,550 (20.3%)	4,270 (19.7%)	
	4	37,470 (17.9%)	7,800 (17.9%)		12,360 (16.1%)	3,540 (16.3%)	
	5	32,780 (15.7%)	6,880 (15.8%)		9,540 (12.4%)	2,910 (13.4%)	
	Missing	580 (0.3%)	70 (0.2%)		150 (0.2%)	30 (0.1%)	
Urban-rural location	Urban	174,963 (83.7%)	36,766 (84.2%)	<0.001	62,605 (81.5%)	17,787 (81.9%)	<0.001
	Rural	33,400 (16.0%)	6,691 (15.3%)		13,998 (18.2%)	3,827 (17.6%)	
	Missing	637 (0.3%)	213 (0.5%)		167 (0.2%)	91 (0.4%)	

'Institutional' place of death combines Hospital, Care home, & Other places of death;^athe 18-30 and 31-40 categories in Care homes and the Total column, were combined due to small numbers; ^bincludes dissolved and annulled marriage or civil partnership; ^cincludes civil partnership; ^xFisher's exact test with simulated p-values using 10⁴ replicates (differences in distribution within each place of death between years were tested for each covariate; for place of death, the distribution across places and years was tested). Deprivation was measured using the Scottish Index of Multiple Deprivation (SIMD). Numbers for deprivation were rounded to nearest 10 due to small numbers missing – the totals may therefore add to slightly more than the total sample size.



Supplementary Table 2: Frequency of comorbid conditions included in the Elixhauser index

Comorbid condition	Home		Hospital		CH		All	
	2015-20	2020-21	2015-20	2020-21	2015-20	2020-21	2015-20	2020-21
AIDS/HIV ^a	90 (0.1%)	20 (0.1%)	110 (0.1%)	30 (0.1%)	50 (0.1%)	10 (0.1%)	230 (0.1%)	60 (0.1%)
Alcohol abuse	9,281 (12.1%)	2,471 (11.4%)**	12,674 (9.0%)	2,557 (9.1%)	3,447 (5.0%)	820 (5.3%)	25,402 (8.9%)	5,848 (8.9%)
Blood loss anaemia	128 (0.2%)	40 (0.2%)	407 (0.3%)	63 (0.2%)	151 (0.2%)	26 (0.2%)	686 (0.2%)	129 (0.2%)*
Cardiac arrhythmias	14,955 (19.5%)	4,498 (20.7%)*	46,284 (32.9%)	9,114 (32.4%)	18,685 (27.4%)	4,295 (27.6%)	79,924 (28.0%)	17,907 (27.4%)*
Chronic pulmonary disease	17,256 (22.5%)	4,908 (22.6%)	40,856 (29.0%)	7,833 (27.9%)*	12,155 (17.8%)	2,765 (17.8%)	70,267 (24.6%)	15,506 (23.7%)*
Coagulopathy	1,175 (1.5%)	332 (1.5%)	3,513 (2.5%)	660 (2.3%)	940 (1.4%)	175 (1.1%)*	5,628 (2.0%)	1,167 (1.8%)*
Congestive heart failure	8,321 (10.8%)	2,372 (10.9%)	29,793 (21.2%)	5,551 (19.7%)*	8,054 (11.8%)	1,806 (11.6%)	46,168 (16.2%)	9,729 (14.9%)*
Deficiency anaemia	5,076 (6.6%)	1,528 (7.0%)*	13,862 (9.9%)	2,700 (9.6%)	6,127 (9.0%)	1,296 (8.3%)*	25,065 (8.8%)	5,524 (8.4%)*
Depression	4,113 (5.4%)	1,032 (4.8%)*	6,279 (4.5%)	1,246 (4.4%)	3,772 (5.5%)	856 (5.5%)	14,164 (5.0%)	3,134 (4.8%)*
Diabetes mellitus, complicated	1,649 (2.1%)	490 (2.3%)	4,878 (3.5%)	1,133 (4.0%)*	1,278 (1.9%)	308 (2.0%)	7,805 (2.7%)	1,931 (3.0%)*
Diabetes mellitus, uncomplicated	10,979 (14.3%)	3,298 (15.2%)*	29,681 (21.1%)	6,352 (22.6%)*	10,541 (15.4%)	2,555 (16.4%)*	51,201 (17.9%)	12,205 (18.7%)*
Drug abuse	3,499 (4.6%)	1,119 (5.2%)*	1,639 (1.2%)	370 (1.3%)*	244 (0.4%)	59 (0.4%)	5,382 (1.9%)	1,548 (2.4%)*
Fluid & electrolyte disorders	9,559 (12.5%)	3,127 (14.4%)*	26,686 (19.0%)	5,781 (20.6%)*	11,773 (17.2%)	2,884 (18.5%)*	48,018 (16.8%)	11,792 (18.0%)*
Hypertension, complicated	1,023 (1.3%)	188 (0.9%)*	3,395 (2.4%)	408 (1.5%)*	1,419 (2.1%)	202 (1.3%)*	5,837 (2.0%)	798 (1.2%)*
Hypertension, uncomplicated	21,807 (28.4%)	6,116 (28.2%)	59,844 (42.5%)	11,761 (41.8%)*	27,012 (39.6%)	6,269 (40.3%)*	108,663 (38.0%)	24,146 (36.9%)*
Hypothyroidism	3,095 (4.0%)	862 (4.0%)	8,508 (6.0%)	1,502 (5.3%)*	4,996 (7.3%)	1,123 (7.2%)	16,599 (5.8%)	3,487 (5.3%)*
Liver disease	4,447 (5.8%)	1,395 (6.4%)*	10,990 (7.8%)	2,348 (8.4%)*	1,855 (2.7%)	432 (2.8%)*	17,292 (6.1%)	4,175 (6.4%)*
Lymphoma	1,356 (1.8%)	396 (1.8%)*	3,674 (2.6%)	708 (2.5%)	1,066 (1.6%)	194 (1.2%)*	6,096 (2.1%)	1,298 (2.0%)*
Metastatic cancer	14,265 (18.6%)	4,223 (19.5%)*	25,851 (18.4%)	4,326 (15.4%)*	10,746 (15.7%)	1,742 (11.2%)*	50,862 (17.8%)	10,291 (15.7%)*
Obesity	2,036 (2.7%)	564 (2.6%)	4,990 (3.5%)	1,266 (4.5%)*	908 (1.3%)	213 (1.4%)	7,934 (2.8%)	2,043 (3.1%)*
Other neurological disorders	7,049 (9.2%)	1,991 (9.2%)	16,579 (11.8%)	3,244 (11.5%)	9,544 (14.0%)	2,272 (14.6%)*	33,172 (11.6%)	7,507 (11.5%)*
Paralysis	1,244 (1.6%)	328 (1.5%)	3,352 (2.4%)	647 (2.3%)	1,703 (2.5%)	366 (2.4%)	6,299 (2.2%)	1,341 (2.1%)*
Peptic ulcer disease	1,523 (2.0%)	382 (1.8%)*	3,730 (2.7%)	683 (2.4%)*	1,270 (1.9%)	235 (1.5%)*	6,523 (2.3%)	1,300 (2.0%)*
Peripheral vascular disorders	5,953 (7.8%)	1,628 (7.5%)	19,002 (13.5%)	3,778 (13.4%)	5,022 (7.4%)	1,040 (6.7%)*	29,977 (10.5%)	6,446 (9.9%)*
Psychoses	1,427 (1.9%)	381 (1.8%)*	1,861 (1.3%)	423 (1.5%)*	1,192 (1.7%)	331 (2.1%)*	4,480 (1.6%)	1,135 (1.7%)*
Pulmonary circulation disorders	4,529 (5.9%)	1,313 (6.0%)	12,522 (8.9%)	2,630 (9.4%)*	3,500 (5.1%)	728 (4.7%)*	20,551 (7.2%)	4,671 (7.1%)*
Renal failure	9,369 (12.2%)	2,744 (12.6%)*	32,997 (23.4%)	6,492 (23.1%)*	13,208 (19.3%)	3,217 (20.7%)*	55,574 (19.4%)	12,453 (19.0%)*
Rheumatoid arthritis/collagen vascular diseases	2,182 (2.8%)	685 (3.2%)*	6,402 (4.5%)	1,182 (4.2%)*	2,437 (3.6%)	519 (3.3%)	11,021 (3.9%)	2,386 (3.6%)*
Solid tumour without metastasis	26,479 (34.5%)	7,777 (35.8%)*	44,980 (32.0%)	7,896 (28.1%)*	20,934 (30.7%)	3,579 (23.0%)*	92,393 (32.3%)	19,252 (29.4%)*
Valvular disease	5,006 (6.5%)	1,556 (7.2%)*	16,339 (11.6%)	3,199 (11.4%)	5,204 (7.6%)	1,192 (7.7%)	26,549 (9.3%)	5,947 (9.1%)*
Weight loss	3,552 (4.6%)	1,048 (4.8%)*	8,287 (5.9%)	1,594 (5.7%)	3,196 (4.7%)	688 (4.4%)	15,035 (5.3%)	3,330 (5.1%)*

CH: Care home & 'other' places of death. ^aNumbers for AIDS/HIV were rounded to nearest 10 to avoid disclosing small numbers. The 5 most frequent comorbidities in each place of death are shown in bold. p-values reported in 2020-21 column for proportion test between rates in 2015-20 and 2020-21 for each condition, within each place of death; * p<.05; ** p<.01; *** p<.001.

