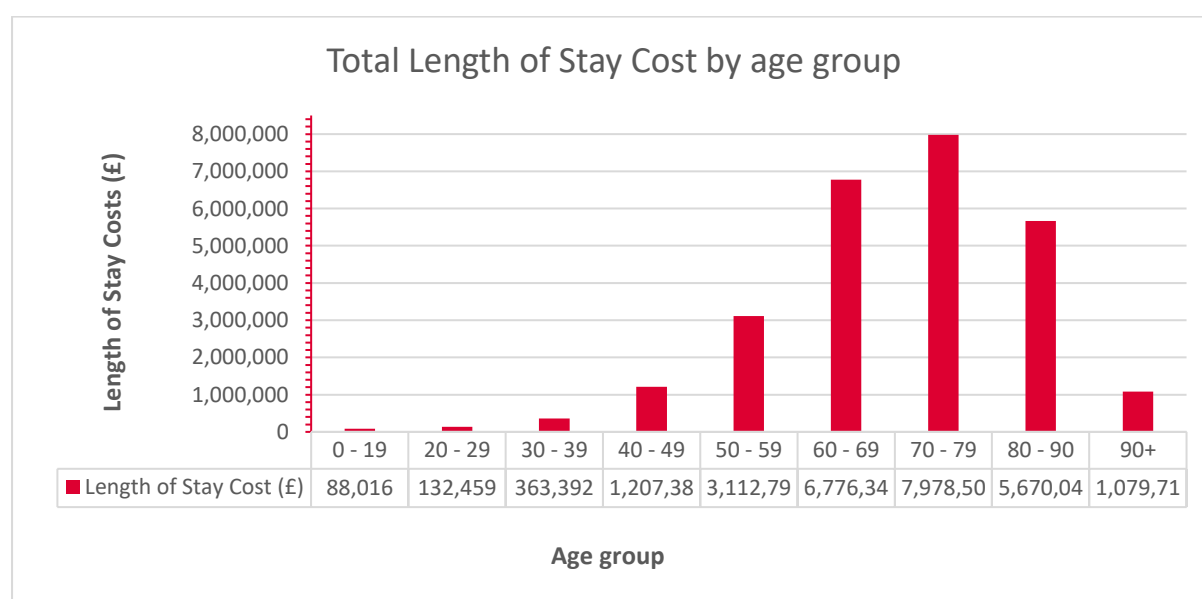


Appendix

A1 - 30 Day Readmissions

In total, there were 1008 episodes where readmission within 30 days of a previous admission occurred (1.65% of all admissions), with 226 individuals having multiple episodes of 30-day readmissions during their last year of life. Although not directly applied in the final cost model, we calculated a hypothetical readmission 'penalty' or tariff incurred, as a marginal difference between one additional day of excess bed day costs on the LOS of the previous admission and the cost of a new admission Day 1 cost, which was equal to £1303 per episode. Thus, for these (1008) events, where patients were readmitted on days 2-30 after a prior admission, the consequent hypothetical additional UEC cost 'penalty' of these 30-day readmissions was £1,313,424. This amount reflects a minimum cost since it does not reflect the duration of the readmission LOS.

A2 – Length of stay costs by Age group



A3 - Gender (114 words)

Of those accessing UEC, the minority were female (n=1394) compared with (n=1740) male. Whilst a higher proportion of males (75.7%) had at least one emergency admission recorded in the last year of life compared to females (72.5%; $p=0.018$), the mean LOS for UEC was similar - for females 19.2 days compared with 19.6 days for males (accounting for 44.1% and 55.3% of total inpatient days respectively). The total cost for UEC in the last year of life was £11,638,126 for females and £14,605,391 for males. The total LOS for females (26,710 days) was lower than for males (33,520 days). Mean costs for females £7,632 (SD = £5,490) was similar to males (£7,720, SD= £6313).

A4 - Socio-Economic Group (97 words)

There were greater numbers of people admitted for UEC in the last year of life from the most deprived socio-economic group (SES5 n=680, 21.6% of all those admitted, with UEC cost £5,691,397, Table A1) as compared to the least deprived (SES1) n=586 (total UEC cost £4,896,205). In SES2 (n=643) total UEC cost was £5,395,542), SES3 (n=605) total UEC cost was £5,335,848, SES4 (n=599) total UEC cost was £5,069,622. However, the mean UEC cost was highest in SES3 (£7,975), followed by SES5 (£7,738), SES4 (£7,624), and SES1 (£7,547), while the lowest average UEC cost was in SES2 (£7,516).

Table A1 – Costs and Length of stay by Socio-economic groups

Socio-economic Status Group	Number	Mean Cost (£) per person	Standard Deviation	Mean Inpatient days	Standard Deviation	Total Inpatient days (%)	Costs (£)
-----------------------------	--------	--------------------------	--------------------	---------------------	--------------------	--------------------------	-----------

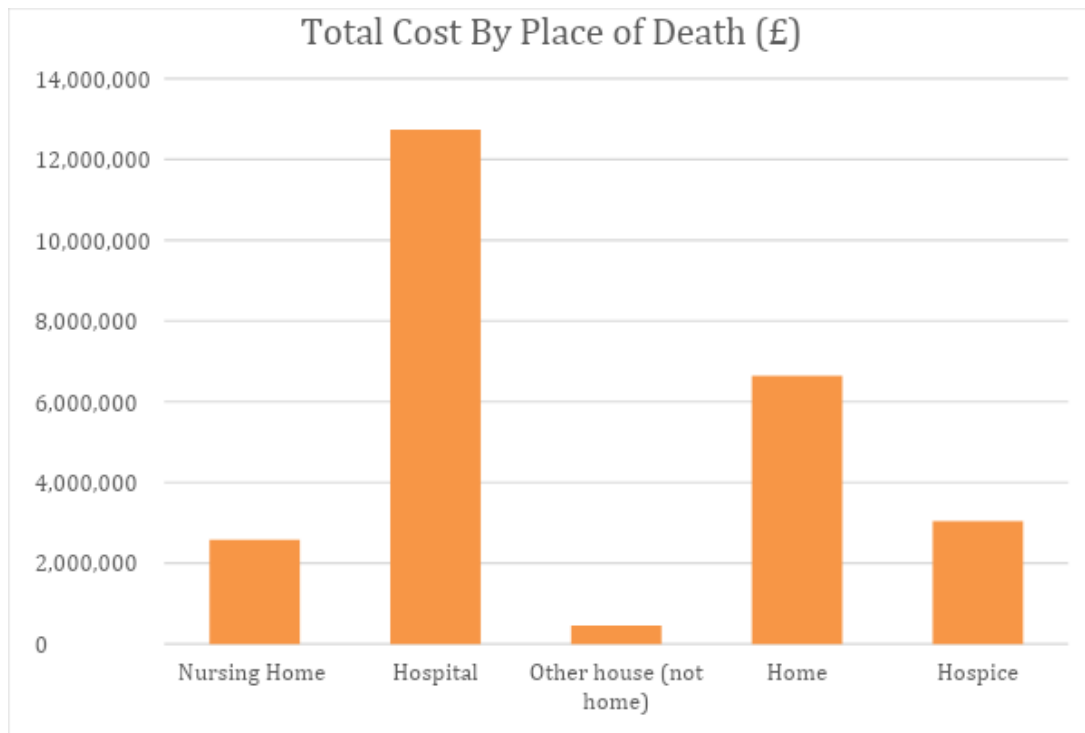
SES1 (least deprived)	586	7,547	5,237	19.2	15.8	11,237 (18.5%)	4,896,205
SES2	643	7,516	5,967	19.3	18.7	12,383 (20.4%)	5,395,542
SES3	605	7,975	6,259	20.2	19.5	12,246 (20.2%)	5,335,848
SES4	599	7,624	5,316	19.4	16.3	11,635 (19.2%)	5,069,622
SES5 (most deprived)	680	7,738	6,712	19.2	19.1	13,062 (21.6%)	5,691,397

NOTE: Costs based on length of stay costs only. Socio-economic status was based on the postcode of residence at the time of death. Super output areas (SOA) were assigned to each patient based on their postcode of usual residence at the time of death. The patient was then assigned, through their SOA, a socio-economic deprivation quintile based on the SOA's 2017 Income domain of the Multiple Deprivation Measure. The 2017 Multiple Deprivation Measure is available from the NI Statistics and Research Agency (www.nisra.gov.uk).

A5 - Admissions in the last 28 days of Life & Place of Death (217 words)

Of those (3134) people admitted during the last year of life, there were 1535 people admitted for UEC during the last 28 days of their life. An analysis of the data by the place of death shows that those who went on to die in hospice care (n=455) had the greatest average time from diagnosis to death (927 days) and the lowest average UEC cost in the last year of life £6,680 per person, total UEC cost in this group was £3,039,381. Those who went on to die in nursing home care (n=270) had an average time from diagnosis to death of 814 days and had the highest average cost of UEC in the last year of life £9,555 per person, total UEC cost £2,579,831 (note here we do not explicitly know if the persons were ordinary residents in nursing homes pre/ during and post-diagnosis). Those who went on to die at home (n=966)

had the shortest average time from diagnosis to death of 739 days, average UEC cost £6,876, and total UEC cost £6,642,295. In those who died in hospital (n=1494, 47% of those with UEC episodes), the average time from diagnosis to death was 752 days, with total UEC costs of £12,733,465, with an average UEC cost of £8,523 in their final year of life.



A6 - Summary of all regression analyses

		Adjusted R-Squared	
	Variables Analysed To examine variability in Length of stay	All Deaths	In Admitted Cases Only
Model 1	Gender	0.0010	
Model 2	Place Of Death	0.0336	
Model_2b	Survival Time	0.0003	
Model 3	ICD 10 Group	0.0133	
Model 4	Stage	-0.0005	
Model 5	Age At Diagnosis	0.0011	
Model 6	Age At Diagnosis + SES	-0.0001	
Model 7	Gender + ICD 10 Group + Stage + Age + SES	0.0146	
Model 8	Gender + ICD 10 Group + Stage + Age + SES + Place of Death	0.0449	
Model 9	Gender + ICD 10 Group + Stage + Age + SES + Place of Death + Palliative Care	0.2675	
Model 10	Gender + ICD 10 Group + Stage + Age + SES + Place of Death + Palliative Care + First Hospital Admission Location	0.2848	
Model 11	Gender + ICD 10 Group + Stage + Age + SES + Place of Death + Palliative Care + First Primary Admission Diagnosis + Age at Death	0.3551	
Model 12	ICD 10 Group + Stage + Age + SES + Place of Death + Palliative Care + First Primary Admission Diagnosis + Age at Death + First Hospital Admission Location	0.3765	
Model 13	Gender + ICD 10 Group + Stage + Age + SES + Place of Death + Palliative Care + First Primary Admission Diagnosis + Age at Death + First Hospital Admission Location	0.3767	
Model 14	Gender + ICD 10 Group + Stage + Age + SES + Place of Death + Palliative Care + First Primary Admission Diagnosis + Age at Death + First Hospital Admission Location + Settlement + Last Admission Primary Diagnosis	0.4127	0.1526
Model 15	Gender + ICD 10 Group + Stage + Age + SES + Place of Death + Palliative Care + First Primary Admission Diagnosis + Age at Death + First Hospital Admission Location + Settlement + Last Admission Primary Diagnosis + Survival Time	0.4126	0.1522

NOTE: Using the 'lm' function in R, with each regression variables were added iteratively to examine a series of data variables thought to potentially mediate length of stay. Each model of the latter models was examined for both all patients in the dataset and then separately for only those with an admission.