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Scottish Routes from Diagnosis: Mortality and End of life care

MACMILLAN CANCER SUPPORT

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Acknowledgements

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Background

Scottish Routes from Diagnosis (SRfD) was a collaborative project between Public Health Scotland (formerly ISD) and Macmillan, which investigated survivorship outcomes and experiences of residents of Scotland with the four most common types of cancer found in Scotland: breast, prostate, colorectal and lung, using national datasets from 2007 and 2012.

The project developed survivorship Outcome Groups (OGs), which capture the survivorship experiences in four different groups and allow comparisons across (as well as within) cancer types. Reporting patient factors, pathways, and outcomes using these outcome groups allows for investigation into the very different experiences people can have following a cancer diagnosis.

For a full explanation of the Outcome Groups and methodology of SRfD, please refer to the initial context and methodology publication[1]. The cohort results report also contains general technical notes on the main SRfD data sources[2]. Additional technical notes, limitations and assumptions covering methods and data sources specific to this chapter are presented in the technical appendix.

Please note that this publication is based on data relating to cancer prior to the COVID-19 pandemic. Consequently, caution may be required in generalising these results to later time periods.

[1] https://www.macmillan.org.uk/_images/SRfD_Context_and_Methodology_tcm9-356648.pdf
[2] https://www.macmillan.org.uk/_images/SRfD_Cohort_Results_tcm9-356649.pdf, [p5-6]

Mortality and end of life care

Aims of chapter

The Scottish Routes from Diagnosis project investigated survivorship experiences to improve the understanding of post-diagnosis pathways for people living with cancer in Scotland and the services needed to support them. Nowhere is this more important than for those people where the cancer cannot be cured and is life-limiting.

The first SRfD publication[1] highlighted that, for the four 2012 cohorts in total, around half (8,600 people) have died within five years of diagnosis. However, this overall figure masks important contrasts between the cohorts with respect to mortality (Table 1).

For **lung** cancer observed survival is poor while people in the **breast** and **prostate** cohorts are living longer after a cancer diagnosis with many surviving into old age where conditions other than the original cancer diagnosis impact mortality and end of life care.

It is therefore important that people diagnosed with cancer receive appropriate person-centred palliative care as health declines and particularly at the end of life; optimising quality of life in the time before death as well as enabling people to have a dignified death[3,4]. Timeliness of access to specialist palliative care is especially important for those likely to have very limited survival such as many in the **lung** cohort.

In 2014, the governing body of the World Health Organisation (WHO) passed a resolution requiring all governments to recognize palliative care and to make provision for it in their national health policies. In response, the Scottish Government developed the Strategic Framework for Action[5] that includes a set of commitments to help ensure that everyone in Scotland gets the care they need when time is becoming shorter.

A key outcome of the Scottish framework is that people should receive health and social care that supports their wellbeing, irrespective of their diagnosis, age, socio-economic background, care setting or proximity to death. It is acknowledged however that, currently, many people are not receiving the end of life care they need[5,6].

The framework also supports improvements in the collection, analysis, interpretation and dissemination of data and evidence relating to needs, provision, activity, indicators and outcomes in respect of palliative and end of life care[5]. However, with the routinely collected data currently available, it is not possible to measure the overall need for palliative care directly and whether people receive appropriate palliative and end of life care.

[3] https://www.palliativecarescotland.org.uk/content/what_is_palliative_care
[4] https://www.who.int/cancer/palliative/definition/en/
[5] https://www.gov.scot/publications/strategic-framework-action-palliative-end-life-care/
[6] https://healthandcare.scot/default.asp?page=story&story=1424)

Considering this framework, the chapter begins by examining **overall mortality** and the likely **need for palliative and end of life care** for each cohort before investigating if there is **potential variation in equity of access to end of life care** for those people who died. This chapter is more focused on palliative care towards the end of life and does not cover the complex needs of those people that have treatable but not curable cancer[7].

Until more direct measures become available, proxy indicators have been used throughout including **treatment intent** at diagnosis, **place of death**, **opioid prescribing in the community** and **acute admissions** in the last year of life.

How chapter results are organised

The chapter begins with a summary of observed survival and treatment intent:

- **Summary of survival** - Review of previously reported observed survival rates across cancer types and additional analysis of age at death for those who died in the follow-up period(s).
- **Treatment intent** - Therapy objective at diagnosis (curative or non-curative) is examined in conjunction with the proportion of people receiving no treatment.

It then focuses on further analysis of those people that died within the follow-up periods only:

- **Cause of death** - For people with limited survival the main cause of death will often be the cohort cancer but for the increasing number of people living longer after a cancer diagnosis other causes of death are likely to become more evident.
- **Place of death** – Most people would prefer to die at home or in the community rather than in hospital but for many this is not the reality[8]. Place of death is examined with respect to cause of death, survival time, deprivation and urban-rural category.
- **Acute care stays at end of life** – It is often clinically appropriate for people to have acute admissions towards the end of life; however, such admissions (especially emergency care) can indicate unmet needs with respect to specialist palliative care and/or unnecessary treatment, for example chemotherapy in last three months of life.
- **Opioid prescribing at end of life** – Prescribing of strong opioids can be a proxy for dedicated palliative care and is examined with respect to survival time, deprivation and urban-rural category for deaths from cancer.

[7] https://www.macmillan.org.uk/_images/tbcn-research-summary-march-2020_tcm9-355791.pdf
[8] https://www.macmillan.org.uk/_images/MAC16904-end-of-life-policy-report_tcm9-321025.pdf

Results relate to the 2012 cohorts unless otherwise specified. The equivalent 2007 cohort results are only presented where there has been a noticeable change, or to provide additional information from the longer (ten year) follow-up period. Additional tables referred to in the report can be found in the data appendix.

Results

Summary of survival

The initial SRfD Introduction publication showed a marked contrast in outcomes[9] and observed survival times[10] between the four most common cancer types. Table 1 shows the proportions in each cohort who have died within five years (and ten years for the 2007 cohorts).

Table 1: Number of deaths within follow-up period(s) by cancer type: 2007 and 2012

Cohort	People	Deaths within 5 years		Deaths within 10 years	
		No.	%	No.	%
Breast 2007	**4,020**	1,037	26%	1,604	40%
Colorectal 2007	**3,618**	1,982	55%	2,458	68%
Lung 2007	**4,884**	4,515	92%	4,697	96%
Prostate 2007	**2,760**	939	34%	1,492	54%
Breast 2012	**4,468**	1,005	22%		
Colorectal 2012	**3,825**	1,947	51%		
Lung 2012	**5,182**	4,670	90%		
Prostate 2012	**3,107**	985	32%		

Survival time is a key part of the outcome group definitions: OG4 (limited survival) consists of all people who have died (from any cause) within 12 months of diagnosis and OG3 (living with a continued presence of cancer) includes people who have died from cancer between one and five years after diagnosis.

Approximately two-thirds (65%) of the **lung** cancer cohort had limited survival (OG4); and, within OG4 those diagnosed with **lung** cancer died more quickly than the other three cancer types. A further quarter (27%) of this cohort were in OG3. For those diagnosed with **colorectal** cancer around one quarter (27%) were in OG4 and 41% were in OG3.

[9] https://www.macmillan.org.uk/_images/SRfD_Context_and_Methodology_tcm9-356648.pdf, [p 19-20]
[10] https://www.macmillan.org.uk/_images/SRfD_Context_and_Methodology_tcm9-356648.pdf, [p 21-25]

The **breast** and **prostate** cohorts had the highest proportions in OG1 and OG2 (living with similar and increased acute healthcare needs respectively) with around half of each cohort in these outcome groups. While both cohorts had around 40% of people in OG3 the five-year survival rate for this outcome group was higher for the **breast** cohort (70%) than **prostate** (51%). The ten-year survival rate (all outcome groups) for the **breast 2007** cohort was 60% while for the **prostate 2007** cohort it was 46%[10].

For all cancer types there is an increase in five-year survival for the 2012 cohorts compared to the equivalent 2007 cohorts. This is statistically significant for all cancer types except prostate cancer[11].

Age at diagnosis varies across the cohorts[12] and this, combined with the different survival times, impacts the age at death profiles for each cohort (Figure 1). Older people often have lower cancer survival and higher background mortality[10] and people aged 75 to 84 account for the highest proportion of deaths (within five years) for each cohort (between 30% and 39%).

A relatively high proportion (around 30%) of those in the **breast** and **prostate** cohorts that died were aged 85 or over; while for the **lung** cohort age at diagnosis broadly reflects age at death due to the high proportion of people with limited survival. Around 60% of those in the **colorectal** cohort that died were aged 75 or over[13].

For the 2007 cohorts, the age at death distribution is broadly similar to the 2012 cohorts even though there is a longer follow-up period of ten years[14].

[11] https://www.macmillan.org.uk/_images/SRfD_Context_and_Methodology_tcm9-356648.pdf [p 22]
[12] https://www.macmillan.org.uk/_images/SRfD_Cohort_Results_tcm9-356649.pdf [p 8]
[13] Data appendix [Tables D1-D2]
[14] Data available on request

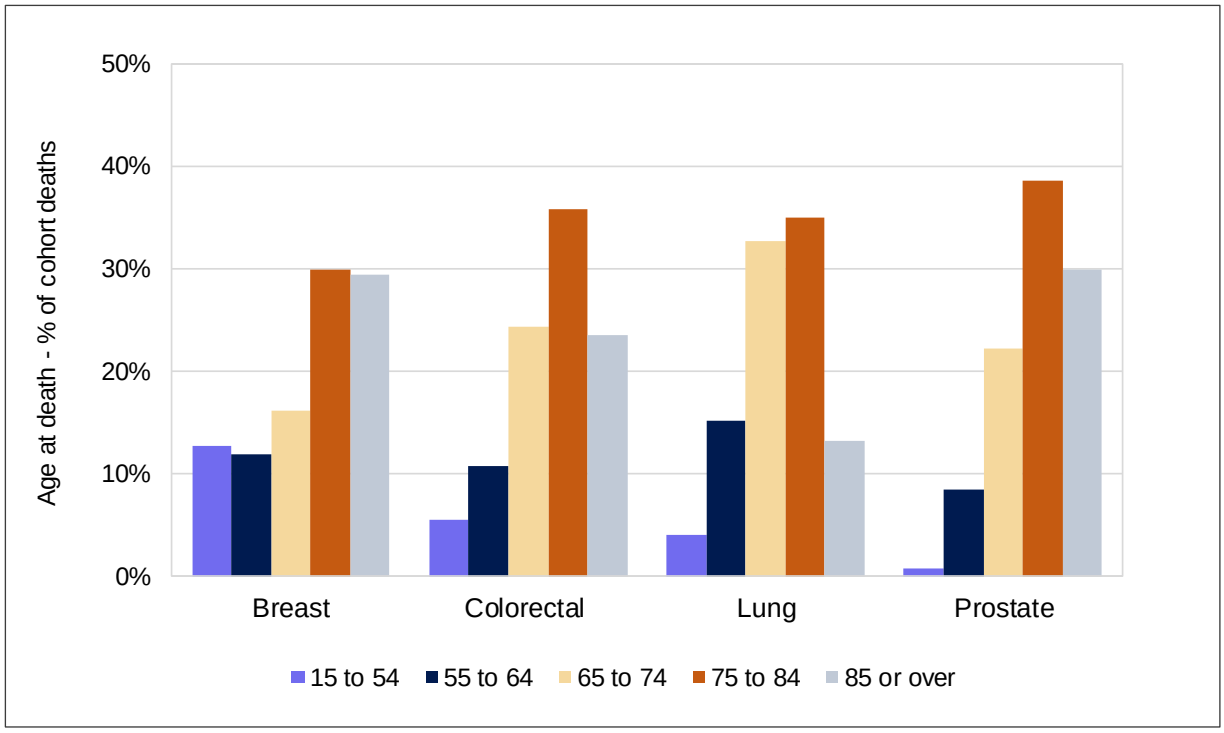

Figure 1: Age at death by cancer type (deaths within 5 years of diagnosis): 2012

Treatment intent

The potential proportion of people that will need palliative end of life care has been estimated using treatment intent at diagnosis. It should be noted that intent may not reflect what took place and will not include those people that subsequently develop the need for palliative (rather than original curative) care.

The aim of cancer treatment is, where possible, to cure or considerably prolong life[15]. Different cancer types require different treatment approaches and stage will also impact treatment decisions[16].

Despite advances these types of treatment can have significant side effects and for some people they are not appropriate for reasons such as age, advanced stage of cancer, frailty and personal choice. SRfD examined four main types of therapeutic treatment (Surgery; Radiotherapy; SACT[17] and Hormonal therapy) as recorded in cancer registry data[16].

For treatment intent, we have analysed therapy objective in cancer registry data that has values of curative, non-curative and not known. For most people non-curative is likely to mean palliative (however it could also include non-curative treatments that are not palliative).

[15] https://www.who.int/activities/ensuring-quality-treatment-for-cancer
[16] https://www.macmillan.org.uk/_images/SRfD_Cohort_Results_tcm9-356649.pdf, [p 25-27]
[17] Systemic Anti-Cancer Therapy (SACT) includes chemotherapy and biological therapies

Examining treatment intent alongside treatment(s) received shows that where intent is curative the proportion receiving none of the four specified types of treatment is very low across all cohorts (Table 2).

Table 2: Treatment intent and proportion receiving no treatment by cancer type: 2012

Cohort	Treatment intent	People	% of cohort	Receiving no treatment	
				No.	%
Breast 2012	Curative	3,373	75%	1	0%
	Non curative	715	16%	82	11%
	Not known	380	9%	1	0%
	Total	**4,468**	**100%**	**84**	**2%**
Colorectal 2012	Curative	2,276	60%	13	1%
	Non curative	1,326	35%	674	51%
	Not known	223	6%	11	5%
	Total	**3,825**	**100%**	**698**	**18%**
Lung 2012	Curative	907	18%	27	3%
	Non curative	4,158	80%	2,207	53%
	Not known	117	2%	16	14%
	Total	**5,182**	**100%**	**2,250**	**43%**
Prostate 2012	Curative	1,230	40%	51	4%
	Non curative	1,611	52%	618	38%
	Not known	266	9%	53	20%
	Total	**3,107**	**100%**	**722**	**23%**

Half of the **prostate** cohort (52%) have non-curative treatment intent at diagnosis, and this may include watchful wait and active surveillance (that are not included in the selected treatments).

Those diagnosed at advanced stage and older age groups are less likely to have curative treatment intent[18]. Excluding those with curative intent, older age groups have a higher proportion receiving no treatment in the **breast**, **colorectal** and **lung** cohorts[19] (see also Figure 2).

[18] Data appendix [Tables D3-D10]
[19] Data appendix [Tables D11-D14]

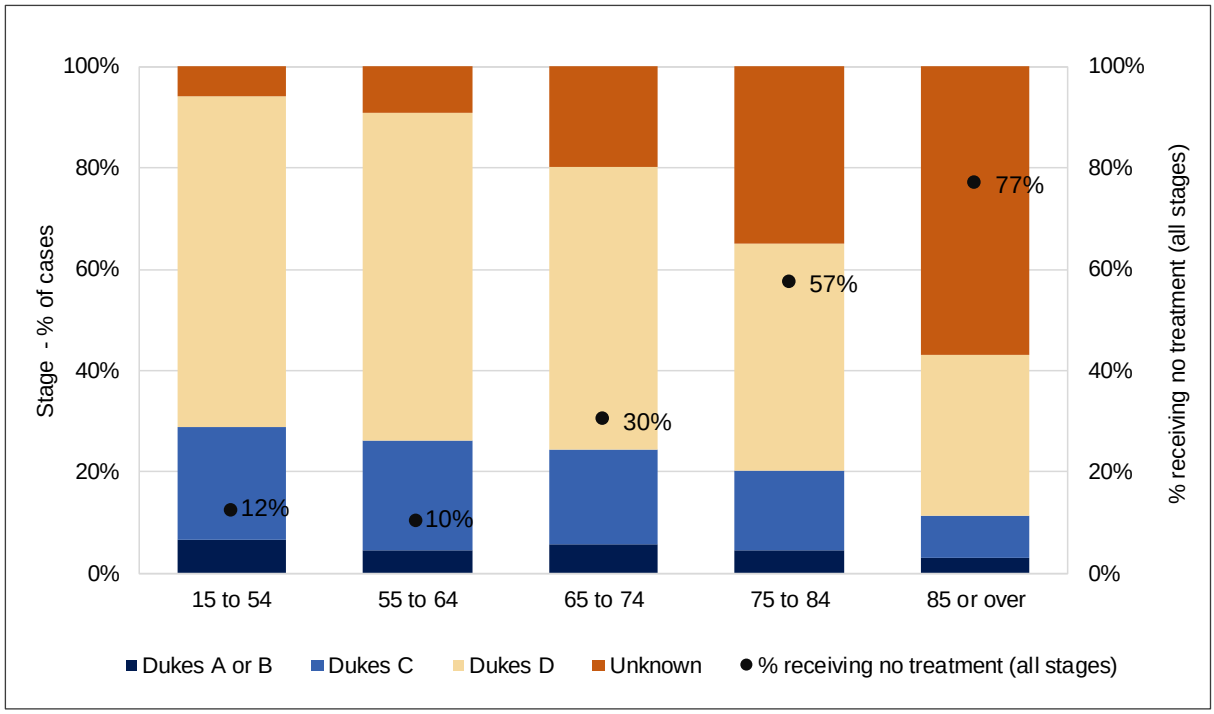

Figure 2: Dukes stage breakdown and overall proportion receiving no treatment by age group (curative treatment intent excluded): Colorectal 2012

In the **lung** cohort, most people were diagnosed at an advanced stage[20] and it was also the oldest cohort at diagnosis[21] resulting in a low proportion of people with curative treatment intent and a high proportion receiving no treatment.

Cause of death

People are now living longer after a cancer diagnosis, especially for cohorts such as **breast** and **prostate** cancer where a high proportion survive longer without a continued presence of cancer (OG1 and OG2). It is therefore important to understand the burden of the causes of mortality other than the cohort cancer for those people that survive into older age[22].

As well as primary cause of death, there can also be contributory causes of death that indicate comorbidities. These are more common in older people and result in additional complexities for palliative and end of life care for people with multiple conditions. The focus of analysis here is on the main, or underlying, cause of death that is defined as the disease which initiated the chain of events leading directly to death[23].

[20] https://www.macmillan.org.uk/_images/SRfD_Cohort_Results_tcm9-356649.pdf, [data appendix]
[21] https://www.macmillan.org.uk/_images/SRfD_Cohort_Results_tcm9-356649.pdf, [p 8]
[22] Dasgupta, P. Aitken, J.F. Pyke, C. et al (2018). Competing mortality risks among women aged 50-79 years when diagnosed with invasive breast cancer, Queensland, 1997-2012. The Breast, Volume 41 [p113-119]
[23] https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/deaths/deaths-background-information

Common causes of death in the general population published by National Records of Scotland (NRS) vary by gender and age group[24,25] (Table 3, Table 4). The most obvious cause related to the oldest age groups is **Dementia/Alzheimer's** that accounts for around a quarter (24%) of deaths in females aged 85 or over (17% of deaths for males aged 85 or over).

Table 3: Male deaths by cause (selected) and age, Scotland, 2018 (NRS)

Cause of death	All ages		45 to 54		55 to 64		65 to 74		75 to 84		85 or over	
	No.	**%**	No.	%	No.	%	No.	%	No.	%	No.	%
Neoplasms	**8,528**	**30%**	377	22%	1,211	38%	2,445	40%	2,902	33%	1,454	20%
Dementia/Alzheimer's	**2,187**	**8%**	2	0%	15	0%	160	3%	823	9%	1,187	17%
Heart Disease	**4,798**	**17%**	274	16%	644	20%	1,112	18%	1,485	17%	1,194	17%
Cerebrovascular Disease	**1,621**	**6%**	41	2%	116	4%	287	5%	603	7%	556	8%
Respiratory Disease	**3,221**	**11%**	78	5%	204	6%	608	10%	1,167	13%	1,135	16%
All Other Causes	**8,287**	**29%**	938	55%	1,025	32%	1,442	24%	1,908	21%	1,654	23%
All causes	**28,642**		**1,710**		**3,215**		**6,054**		**8,888**		**7,180**	

Table 4: Female deaths by cause (selected) and age, Scotland, 2018 (NRS)

Cause of death	All ages		45-54		55-64		65-74		75-84		85 or over	
	No.	**%**	No.	%	No.	%	No.	%	No.	%	No.	%
Neoplasms	**8,047**	**27%**	444	39%	1,094	48%	2,084	44%	2,564	30%	1,679	14%
Dementia/Alzheimer's	**4,297**	**14%**	2	0%	19	1%	169	4%	1,123	13%	2,984	24%
Heart Disease	**3,514**	**12%**	93	8%	203	9%	482	10%	1,082	13%	1,629	13%
Cerebrovascular Disease	**2,210**	**7%**	49	4%	77	3%	240	5%	617	7%	1,215	10%
Respiratory Disease	**3,907**	**13%**	76	7%	201	9%	656	14%	1,271	15%	1,676	14%
All Other Causes	**7,886**	**26%**	486	42%	707	31%	1,074	23%	1,966	23%	3,028	25%
All causes	**29,861**		**1,150**		**2,301**		**4,705**		**8,623**		**12,211**	

Examining the main causes of death for those in the 2012 cohorts that died within five years of diagnosis shows that the index or cohort cancer (i.e. breast cancer for the **breast** cohort) is the most common cause of death across all four cohorts (Figure 3).

[24] https://webarchive.nrscotland.gov.uk/20210314054215/https:/www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/general-publications/vital-events-reference-tables/2018, [Section 6, Table 6.02]

[25] ICD10 codes for selected causes: Neoplasms (C00-D48); Dementia & Alzheimer's (F01, F03, G30); Heart Disease (I20-I25, I30-I33, I39-I52); Cerebrovascular Disease (I60-I69); Respiratory Disease (J00-J99)

As expected, **lung** cancer has the highest proportion (87%) of deaths due to cohort cancer because of its low observed survival rates. For the **colorectal** cohort 70% of deaths are due to colorectal cancer and a further 14% of deaths are from other cancers.

The **breast** and **prostate** cohorts have competing causes of mortality as people live longer after diagnosis; the proportion of deaths with a main cause of index cancer for these cohorts is lower (53% and 56% respectively)[26].

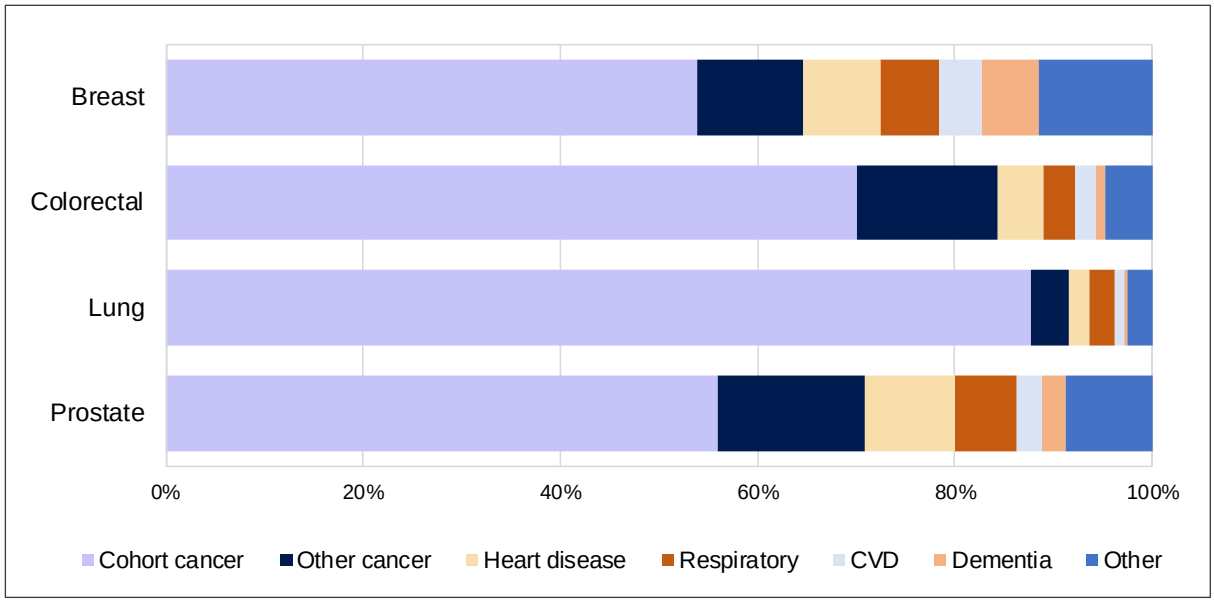

Figure 3: Cause of death by cancer type: 2012

In the **breast 2012** cohort, the proportion of deaths with a main cause of cancer (cohort or other cancer) within the five-year follow-up period is 64%; the equivalent proportion for the **breast 2007** cohort is 70% and this is most likely due to people from the 2012 cohort living longer. For the **breast 2007** cohort with the longer ten-year follow-up period this proportion is 66% as people die later from competing causes of death[27].

In the **breast** and **prostate** cohorts, the proportion of deaths due to cancer falls in the older age groups. In the **breast** cohort this proportion falls from 88% (aged 15 to 64) to 44% (aged 85 or over); and, in the **prostate** cohort this range is 84% to 67%[28].

This contrasts with the **lung** and **colorectal** cohorts where cancer is the dominant cause of death across all ages, with this proportion decreasing to a lesser extent in the older age groups. In the **lung** cohort this proportion falls from 95% (aged 15 to 64) to 88% (aged 85 or over). In the **colorectal** cohort this range is 93% to 79% with a higher proportion of deaths due to other cancer (compared to the **lung** cohort)[28].

[26] Data appendix [Table D15]
[27] Data appendix [Tables D15-D17]
[28] Data appendix [Tables D18-D21]

Many women in the **breast** cohort survive into the oldest age groups where dementia is a more noticeable cause of death[29] (Figure 4).

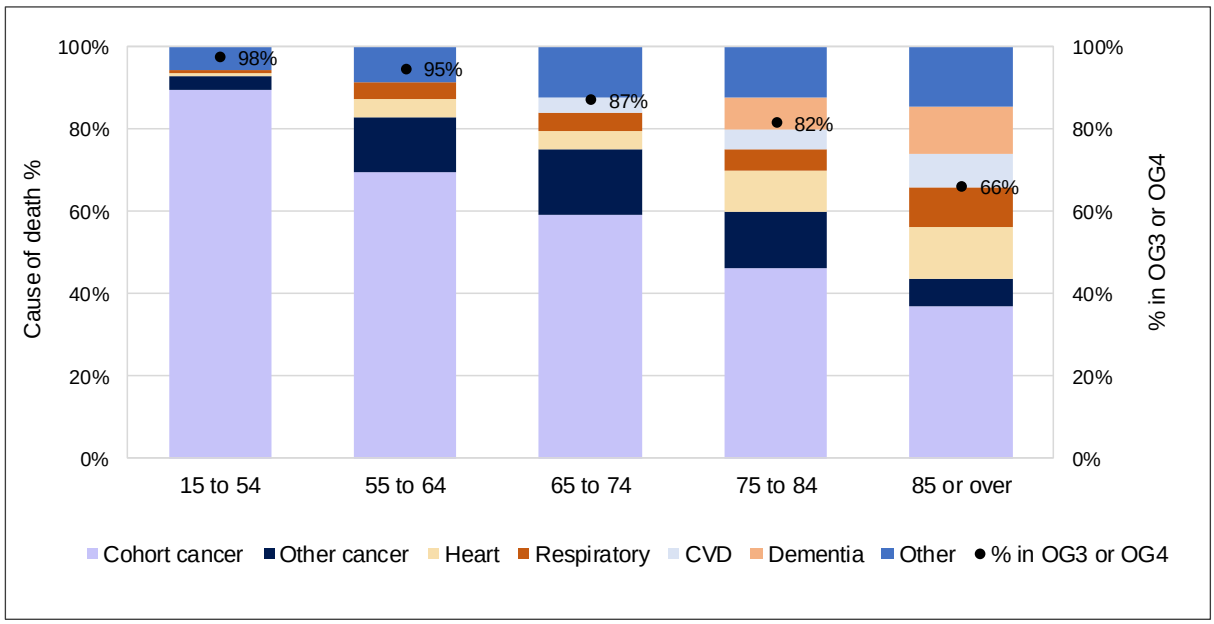

Figure 4: Cause of death by age at death: Breast 2012

Contributory causes of death

As people age, they are more likely to have comorbidities that contribute to death even if they do not replace the main cause of death. Contributory causes are defined as significant diseases which contributed to the occurrence of the death but were not part of the main sequence leading to death (they are not a list of all the conditions that were present at death)[23].

Generally, the number of contributory causes is higher for the older age groups[30] and will be influenced by other factors, especially survival time.

The **lung** cohort has the highest proportion of deaths due to cohort cancer. Of those that die from lung cancer just over a fifth of those aged 85 or over (22%) also have a contributory cause of heart disease[31]; and, around a fifth of those aged 75 or over (19%) have a contributory cause of chronic lower respiratory disease[32] (
Table *5*).

In the **breast** cohort, dementia is a main or contributory cause in around a fifth (21%) of those who died aged 75 or over (27% of those aged 85 or older)[33]. Contributory causes are examined in more detail for all cohorts as part of the separate SRfD Comorbidities report.

[29] Data appendix [Table D18]
[30] Data appendix [Table D22]
[31] Contributory heart disease: ICD10 codes I20-I52
[32] Contributory chronic lower respiratory disease: ICD10 codes J40-J47
[33] Data appendix [Table D23]

Table 5: Lung cancer deaths, selected contributory causes by age at death: Lung 2012

Age at death	Deaths from Lung cancer (Main cause)	Heart disease (Contributory)		Chronic lower respiratory disease (Contributory)	
		No.	%	No.	%
15 to 54	172	16	9%	14	8%
55 to 64	638	65	10%	89	14%
65 to 74	1,357	186	14%	246	18%
75 to 84	1,387	255	18%	278	20%
85 or over	523	117	22%	86	16%
Total	**4,077**	**639**	**16%**	**713**	**17%**

End of life care

While appropriate person-centred end of life care is recognised as critically important for those with cancer (and other life-limiting conditions) current evidence suggests that many people are not receiving the end of life care they need[34].

This section examines key factors such as place of death, opioid prescribing in the community and acute admissions in the last months of life to try to highlight any potential issues with respect to equity of access to dedicated palliative care at the end of life.

As shown in earlier sections, as people live longer after a cancer diagnosis, they are dying from causes other than cancer and may have multiple conditions that could impact their end of life care needs.

Place of death

Place of death can be a critical contributor to the quality of death for an individual and their family and friends[35] with most people preferring to die at home (or in a specialist palliative care setting such as a hospice); however, in the UK more than a third of people who die from cancer are dying in hospital[34].

In the 2012 cohorts, the main cause of death is cancer (Figure 3). Deaths from cancer (compared with deaths from other causes) were less likely to take place in a large or

[34] https://www.macmillan.org.uk/_images/MAC16904-end-of-life-policy-report_tcm9-321025.pdf

[35] http://www.healthcareimprovementscotland.org/our_work/patient_experience/palliative_care/palliative_care_indicators.aspx

acute hospital and more likely to take place at home. Only a very small proportion of non-cancer deaths took place in a hospice or specialist palliative care unit[36].

Analysis in this section is limited to deaths where the primary cause of death was cancer i.e. people in OG3 (People likely to be living with a continued presence of cancer) and OG4 (Limited survival)[37].

Place of death was compared across cancer types and was also analysed by SIMD quintile[38] and urban-rural category[39] to highlight potential issues with equitable access to end of life care.

The total number of cancer deaths is highest in the **lung** (4,257) and **colorectal** (1,636) cohorts and lowest in the **breast** (642) and **prostate** (694) cohorts[40].

Around a third of cancer deaths across the four cohorts took place in a large or acute hospital and this proportion is slightly higher for the **lung** cohort (Figure 5).

The **breast** and **prostate** cohorts have the highest proportions that died in care homes (more than 10%) reflecting the older ages at death for these cohorts[41]. For many older people care homes is likely to be their usual place of residence.

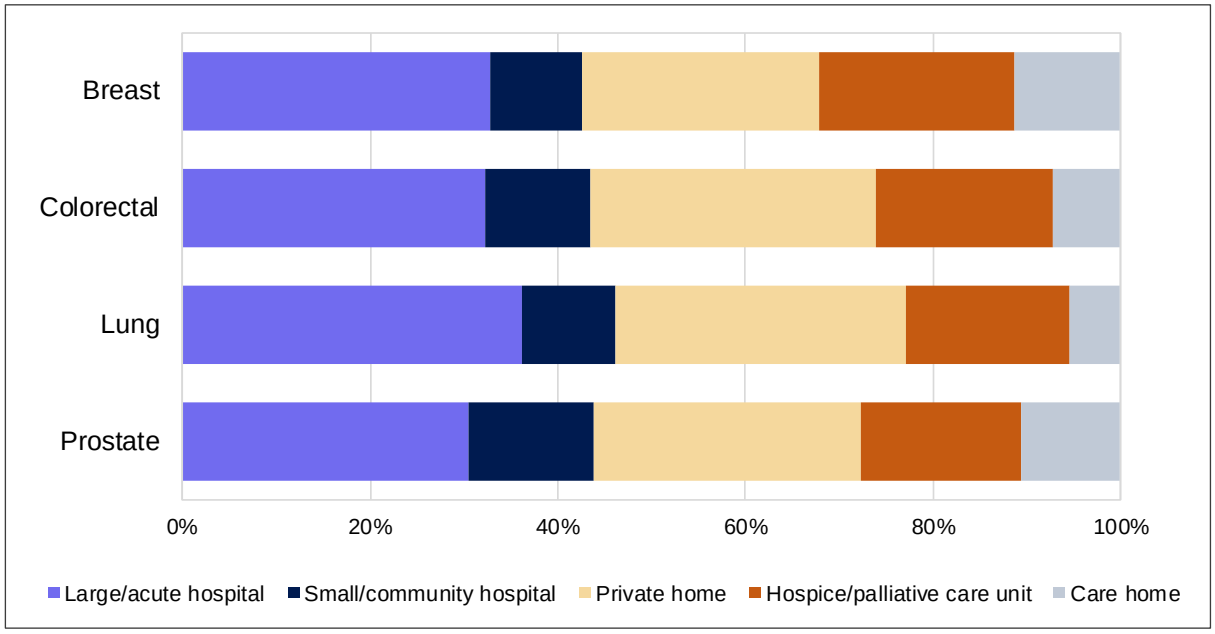

Figure 5: Deaths from cancer, Place of death by cancer type: 2012

[36] Data appendix [Table D24]
[37] See Technical appendix, Cause of death section [p 28] for reason behind the small number of exceptions
[38] https://www.gov.scot/publications/scottish-index-multiple-deprivation-2012-executive-summary/
[39] https://www.webarchive.org.uk/.../http:/www.gov.scot/Topics/Statistics/About/Methodology/UrbanRuralClassification
[40] Data appendix [Table D15]
[41] Data appendix [Table D24]

Place of death varies with survival time and the proportion of deaths in a large or acute hospital increases as survival time decreases in the **colorectal** (Figure 6) and **lung** (Figure 7) cohorts[42].

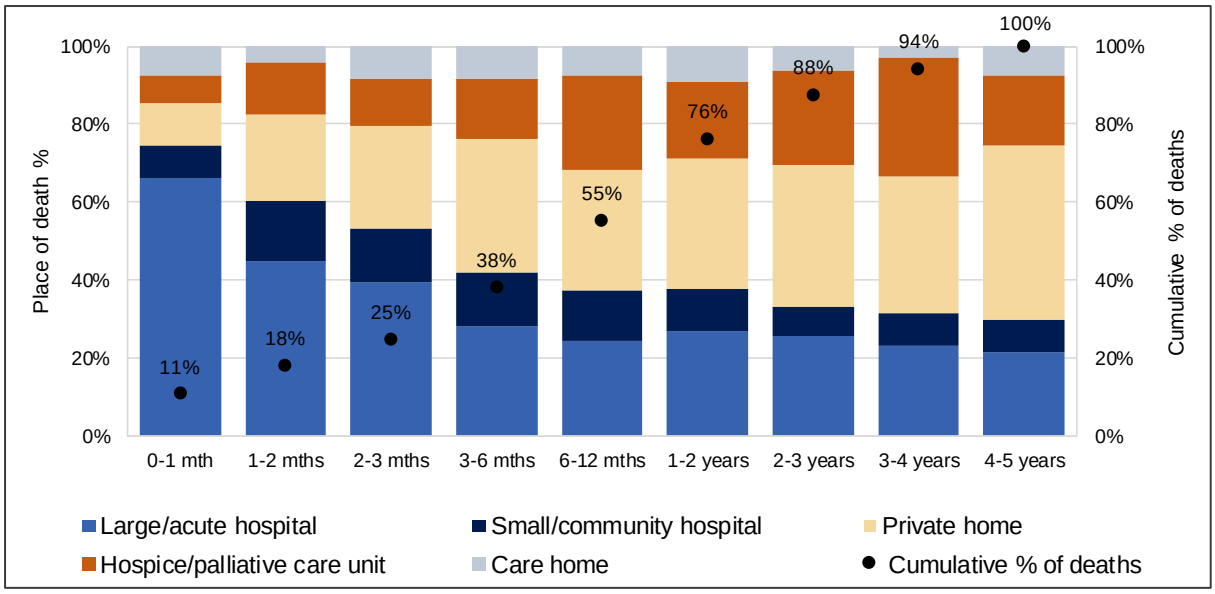

Figure 6: Deaths from cancer, Place of death by survival time: Colorectal 2012

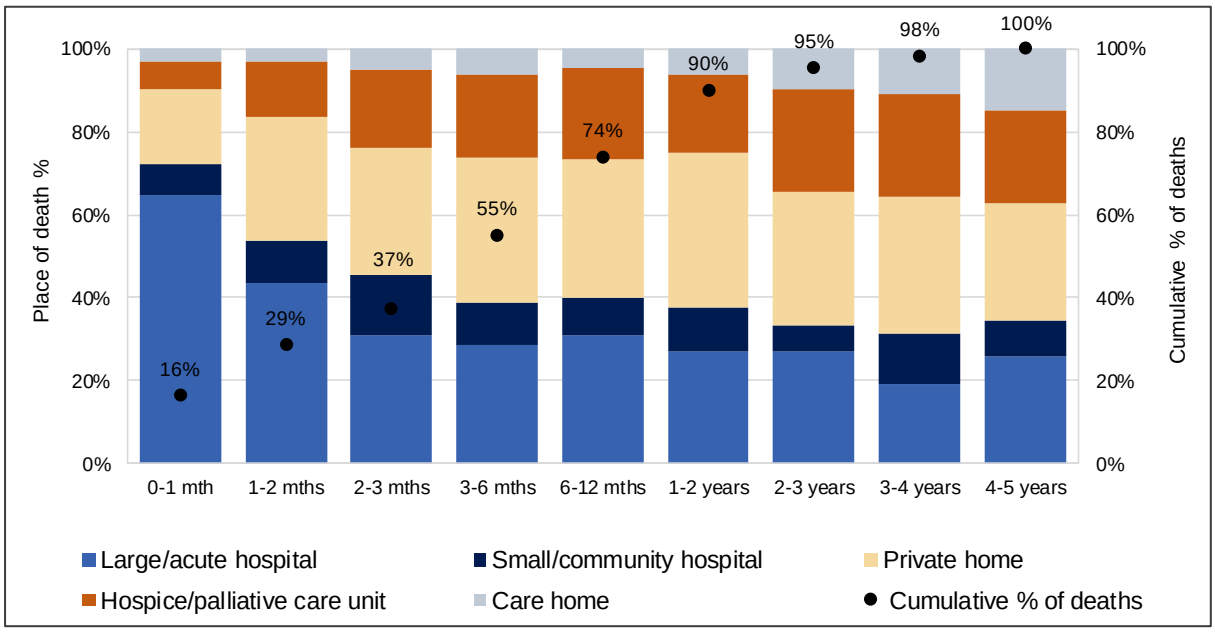

Figure 7: Deaths from cancer, Place of death by survival time: Lung 2012

The relationship between place of death and survival time is similar in the **lung** and **colorectal** cohorts however 55% (2,339) of deaths from cancer in the **lung** cohort are within six months of diagnosis compared to 38% (622) in the **colorectal** cohort.

[42] Data appendix [Tables D25-D28]

In the 2007 cohorts[43], the proportion dying in a large or acute hospital (within a five-year follow-up period) is similar for all cohorts except in the **lung** cohort where this proportion is slightly higher (40%) than 2012 (36%). Examining the **breast** and **prostate** cohorts using the longer ten-year follow-up period, shows that those people that died from cancer between five and ten years after diagnosis were most likely to die at home.

There are various clinical, personal and environmental factors that influence place of death. Dying at home requires specialist support and may not be possible for all those that would prefer this[44]; however, a high proportion (especially those with the shortest survival times) are dying in a large or acute hospital.

While dying in hospital may be appropriate for clinical and other reasons, analysing hospital admissions before death in more detail with respect to type and reason for admission, alongside treatments received, may highlight potential unmet needs in end of life care.

Deprivation has been shown to be one factor associated with an increased likelihood of dying in an acute hospital[45]. Another potential factor is geographical location, people living in remote and rural areas may have limited access to specialist palliative care centres and services and while the impact on national figures may be small this will be an important factor locally.

Place of death has been analysed here by SIMD quintile and Urban-Rural category to highlight any potential equity issues with respect to deprivation and geographical location.

In the **breast** and **prostate** cohorts standardised incidence rates appear to increase as deprivation decreases; and this is statistically significant for OG1 (Living with similar acute care needs) in both cohorts[46]. These cohorts had relatively fewer deaths from cancer within five years resulting in more variable results when place of death was broken down further by SIMD quintile or Urban-Rural category[47].

[43] Data appendix [Tables D29-D32]
[44] https://bmcmedicine.biomedcentral.com/articles/10.1186/s12916-015-0466-5
[45] O'Dowd, E.L. McKeever, T.M. Baldwin, D.R. et al (2016). Place of Death in Patients with Lung Cancer: A Retrospective Cohort Study from 2004-2013.
[46] https://www.macmillan.org.uk/_images/SRfD_Cohort_Results_tcm9-356649.pdf, [p 10,13]
[47] Data appendix [Tables D33, D36, D39, D42]

Deprivation (SIMD quintile)

There are higher standardised cancer incidence rates in the most deprived areas compared to the least deprived areas for **lung** cancer (all OGs) and **colorectal** cancer (OG4)[48].

In the **lung** cohort (Figure 8), around a third of all people who died from cancer lived in areas in the most deprived SIMD[49] quintile; this quintile also has the highest proportion of deaths in a large or acute hospital at 41% (in the least deprived quintile this proportion is 33%)[50].

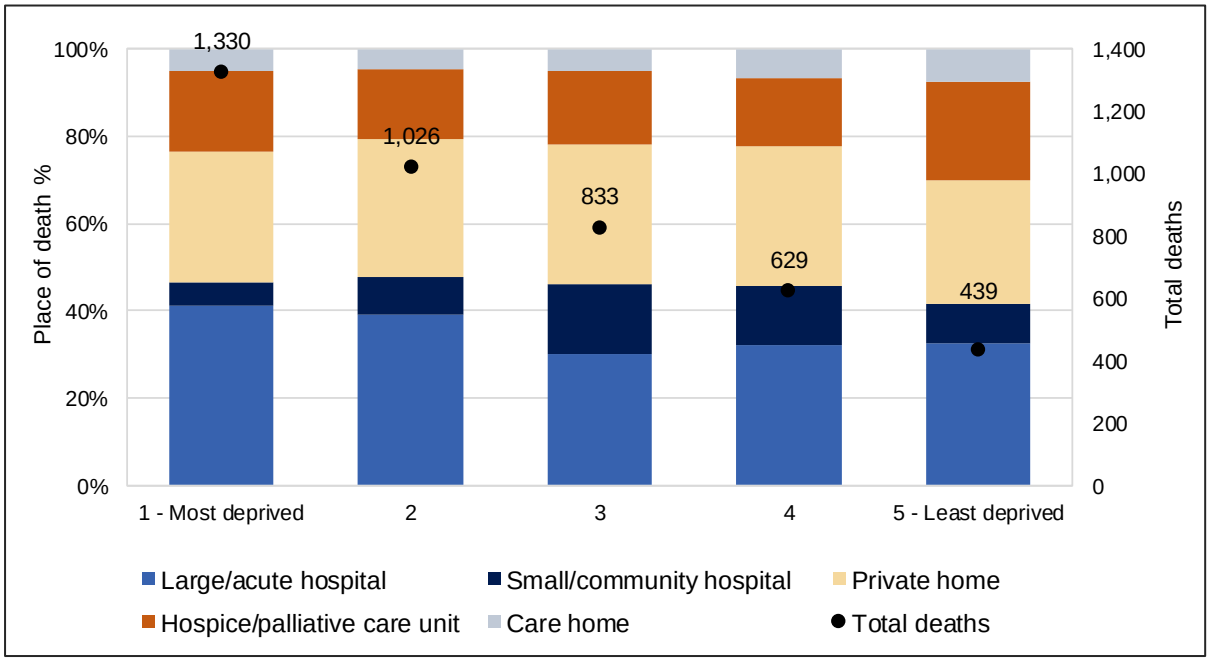

Figure 8: Deaths from cancer, Place of death by SIMD quintile: Lung 2012

Similarly, in the **colorectal** cohort (Figure 9), the most deprived quintile has the highest proportion of deaths in a large or acute hospital at 41% (compared to 29% in the least deprived quintile)[51].

[48] https://www.macmillan.org.uk/_images/SRfD_Cohort_Results_tcm9-356649.pdf, [p 11-12]
[49] https://www.gov.scot/publications/scottish-index-multiple-deprivation-2012-executive-summary/
[50] Data appendix [Table D35]
[51] Data appendix [Table D34]

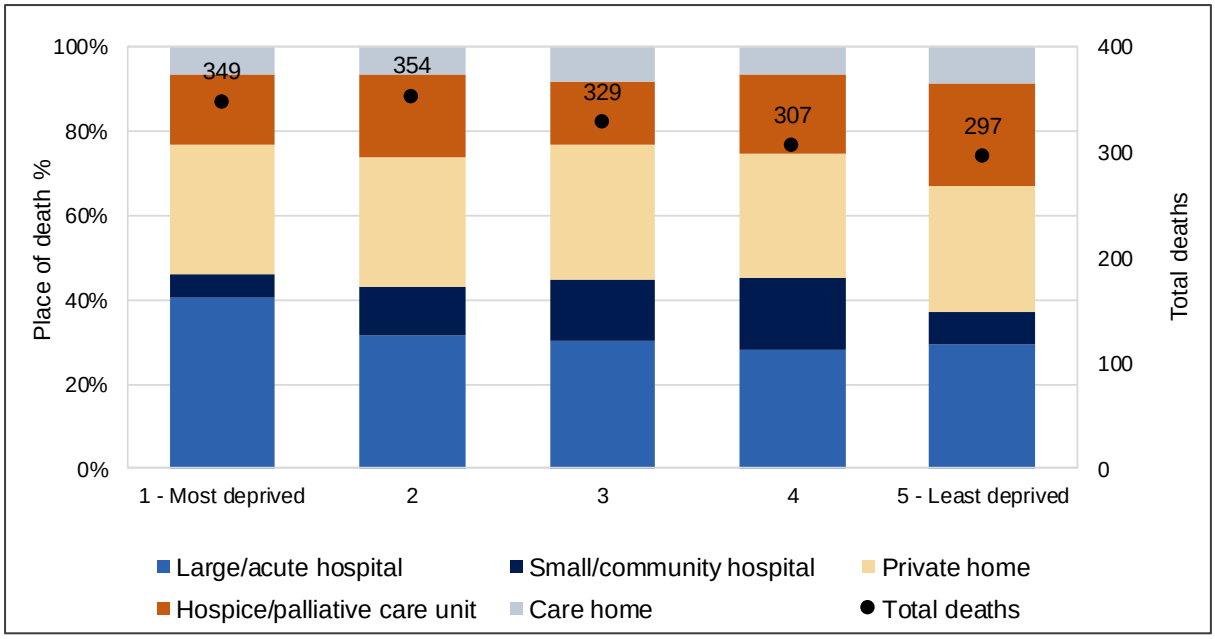

Figure 9: Deaths from cancer, Place of death by SIMD quintile: Colorectal 2012

In the 2007 **lung** and **colorectal** cohorts the differences between the most and least deprived SIMD quintiles with respect to the proportion dying in a large or acute hospital (within five years) are broadly similar[52].

People with very limited survival times were more likely to die in a large or acute hospital[53] and, for those with similar survival times, those living in the most deprived SIMD quintile areas generally have the highest proportion of deaths in a large or acute hospital in the **lung** and **colorectal** cohorts[54].

Urban Rural Category

Health services may be organised differently with respect to geographical area especially in rural and/or remote areas[55].

Across all cohorts the proportion of deaths that occurred in a small or community hospital is higher for small towns and rural areas (especially remote areas). This proportion is lowest for urban areas where the proportion dying in a large or acute hospital is highest, reflecting the different structures of health care services in different geographical areas[56].

In the **colorectal** (Figure 10) and **lung** (Figure 11) cohorts the proportion that died in a small or community hospital is highest for remote small towns and remote rural areas

[52] Data available on request
[53] Data appendix [Tables D25-D28]
[54] Data appendix [Tables D37-D38] Breast and prostate tables are not included because of the low number of cancer deaths in these cohorts
[55] https://www.webarchive.org.uk/.../http:/www.gov.scot/Topics/Statistics/About/Methodology/UrbanRuralClassification
[56] Data appendix [Tables D39-D42]

where the proportion that died in a hospice or specialist palliative care hospital unit is also lowest.

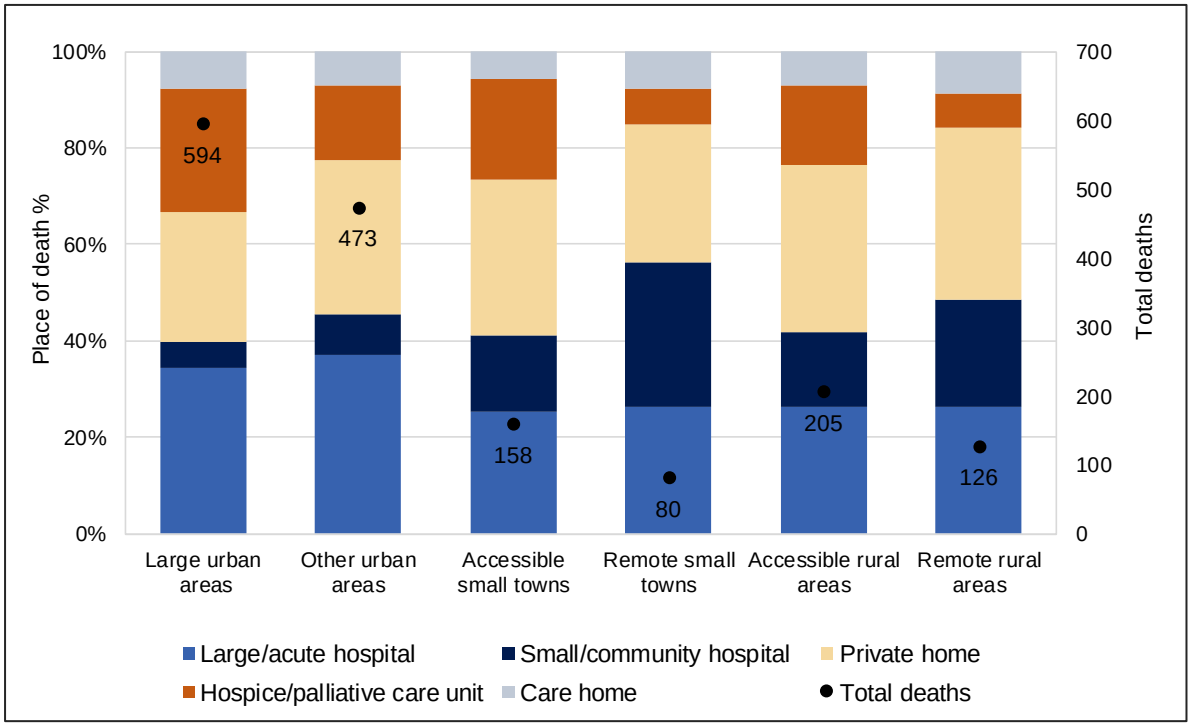

Figure 10: Deaths from cancer, Place of death by urban-rural category: Colorectal 2012

In the **lung** cohort, 42% of all deaths from cancer are for large urban areas compared with 34-36% in the other cohorts[56]. This appears to be linked to the deprivation results above, as many of the most deprived areas are also in large urban areas[57].

[57] https://www.gov.scot/publications/scottish-index-multiple-deprivation-2012-executive-summary/

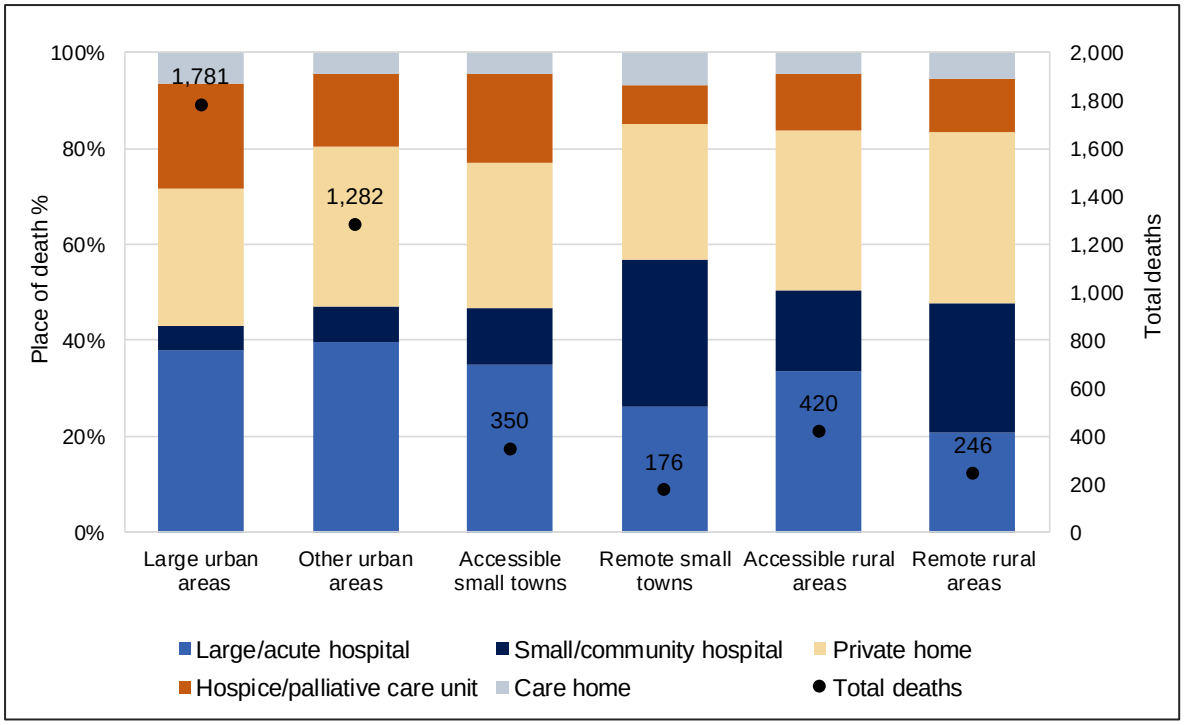

Figure 11: Deaths from cancer, Place of death by urban-rural category: Lung 2012

Modelling deprivation and urban-rural category

Multinomial logistic regression is one technique used to model the impacts from several different factors on a category variable such as place of death. Deaths from cancer were analysed using the large or acute hospital category as the reference place of death; with SIMD quintile and urban-rural category (6-fold) as factors (while also controlling for age at diagnosis and survival time).

Results[58,59] showed that in the **colorectal** cohort, those living in the least deprived SIMD quintile were 2.2 times (1.4-3.4) more likely than those living in the most deprived SIMD quintile to die in a hospice or specialist palliative care unit (compared to a large or acute hospital). For the **lung** cohort the equivalent effect was 1.7 times (1.2-2.3). In the **colorectal** cohort, there is also a statistically significant difference for those living in SIMD quintile 4 that were 1.9 times (1.2-3.2) more likely than those in the most deprived SIMD quintile to die in a hospice or specialist palliative care unit (compared to a large or acute hospital).

The **breast** and **prostate** cohorts had fewer cancer deaths than the **colorectal** and **lung** cohorts and did not show the same deprivation effects with respect to specialist palliative care centres.

For all cohorts, people living in small towns or rural areas (especially remote areas) were much more likely than those living in urban areas to die in a small or community hospital

[58] Data appendix [Tables D43-D46] contains detailed SPSS output
[59] 95% confidence intervals for selected results shown in brackets here

(compared to a large or acute hospital) reflecting the geographical location of these types of hospital.

Opioid prescribing in the community

This analysis was originally presented in a poster at the National Cancer Research Institute (NCRI) 2018 conference[60,61].

Opioids are among the most common drugs used for symptom control[62] and prescribing of strong opioids can be a proxy for the use of dedicated palliative programmes[63]. Routine prescribing data from the Prescribing Information System for Scotland (PIS) was used to learn more about the patterns of opioid[64] prescribing in the community prior to death for the 2012 cohorts only; including potential differences in access due to rurality or deprivation.

PIS contains details of all NHS medicines prescribed and dispensed in the community, including care home residents. It excludes people attending hospital clinics where the prescription is dispensed at a hospital pharmacy and those people receiving hospital managed advanced therapies home care. It should be noted that the PIS dataset does not include any reason for prescribing.

The percentage of people prescribed an opioid prior to a death from cancer increases with proximity to death across all cohorts, with slightly lower proportions for the **colorectal** cohort[65] (Figure 12).

With respect to equity of access, opioid prescribing in the three months prior to a cancer related death (within the five-year follow-up period) was examined for those who died in a private home only (as PIS is limited to community prescribing only).

Analysis suggests equitable access with respect to deprivation (Table 6) and urban-rural category Table 7) across the four cancers with the possible exception of rurality for the **lung** cohort where a statistically significant difference was found between urban (84%) and rural (90%) areas.

[60] https://abstracts.ncri.org.uk/abstract/investigating-palliative-opioid-prescribing-using-linked-patient-level-community-prescribing-data-in-the-scottish-routes-from-diagnosis-framework/
[61] https://www.macmillan.org.uk/_images/investigating-palliative-opioid-prescribing_tcm9-341788.pdf
[62] Fisher J, Urquhart R, Johnson G. Use of opioid analgesics among older persons with colorectal cancer in two health districts with palliative care programs, Journal of Pain and Symptom Management 2013
[63] https://www.medicinescomplete.com/mc/bnflegacy/64/
[64] Defined as British National Formulary (BNF) paragraph 0407020
[65] Data appendix [Table D47]

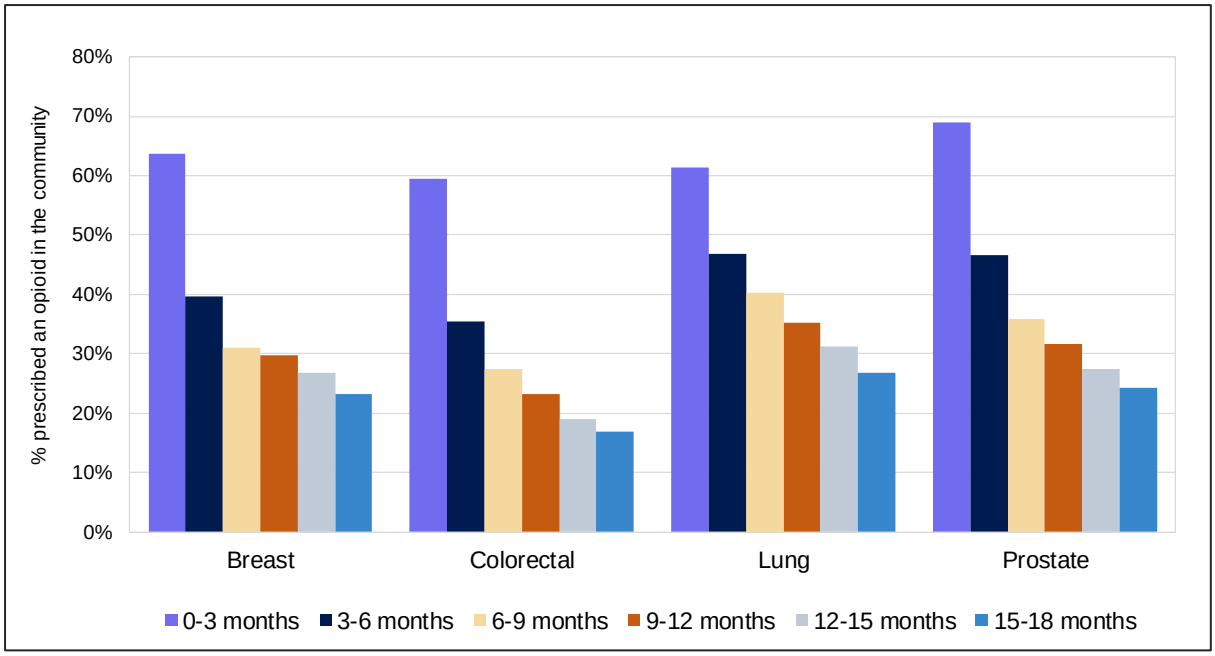

Figure 12: Deaths from cancer, Proportion prescribed an opioid in the community by proximity to death and cancer type: 2012

Table 6: Proportion of people prescribed an opioid in the three months prior to a death from cancer in a private home, by SIMD quintile and cancer type: 2012

SIMD quintile	Breast 2012			Colorectal 2012			Lung 2012			Prostate 2012		
	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid
1 - Most deprived	32	36	89%	86	101	85%	326	387	84%	32	35	91%
2	27	31	87%	104	112	93%	275	328	84%	36	39	92%
3	38	42	90%	95	106	90%	234	271	86%	44	47	94%
4	23	29	79%	87	93	94%	169	190	89%	43	49	88%
5 - Least deprived	22	25	88%	79	88	90%	116	137	85%	28	28	100%
Chi-square test^			0.596			0.298			0.284			0.581

^ Linear-by-linear association p value

Table 7: Proportion of people prescribed an opioid in the three months prior to a death from cancer in a private home, by urban-rural category and cancer type: 2012

Urban-Rural category	Breast 2012			Colorectal 2012			Lung 2012			Prostate 2012		
	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid
Urban areas	115	131	88%	341	384	89%	916	1,087	84%	135	147	92%
Rural areas	27	32	84%	110	116	95%	204	226	90%	48	51	94%
Chi-square test			0.606			0.056			0.021			0.596

Analysis also suggests shorter survival time (Table 8) may impact opioid prescribing in the **lung** cohort in the three months prior to death where 78% of people surviving less than three months were prescribed an opioid compared to 89% of those surviving longer than three months.

Table 8: Proportion of people prescribed an opioid in the three months prior to a death from cancer in a private home, by survival time and cancer type: 2012

Died less than 3 months from diagnosis	Breast 2012			Colorectal 2012			Lung 2012			Prostate 2012		
	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid	No. prescribed opioid	Total No.	% prescribed opioid
No	137	158	87%	388	426	91%	820	926	89%	171	184	93%
Yes	5	5	100%	63	74	85%	300	387	78%	12	14	86%
Chi-square test			*			0.112			<0.001			0.325

* No significance reported due to zero counts

Acute admissions in last year of life

A UK wide report[66] found that stressful and potentially unnecessary emergency admissions are a common experience for many during their last months of life. The pattern of emergency admissions varies according to condition, with people with cancer experiencing more frequent admissions than those with non-cancer conditions. The report also highlights differences with respect to country with more repeat emergency admissions in England compared to the devolved nations where they are less frequent but of longer duration. Given these variations it is not clear whether all emergency admissions are clinically legitimate or if many could be avoided by increased investment in social and community care services.

As well as potentially avoidable emergency admissions, the appropriateness of other types of treatment such as chemotherapy at the end of life has also been questioned[67,68].

Public Heath England have reported[69] on the proportion of people with three or more emergency admissions in the three months before death in England. They monitor this alongside other admissions-based measures[70] as potential indicators of poor end of life care.

For this initial analysis we have examined all acute admissions (including day cases) in the last year of life (after diagnosis) for people who died from cancer and compared this across cancer types. It should be noted that this acute activity includes geriatric long stay and hospice stays (where data has been submitted).

In the **breast** cohort, 10% had no admissions (or day cases) in their last months of life whereas this proportion is lower in the **colorectal** (5%), **lung** (6%) and **prostate** (8%) cohorts. Also, some people had a high number of day cases that could indicate chemotherapy treatments towards the end of life[71].

[66] https://www.mariecurie.org.uk/globalassets/media/documents/policy/policy-publications/2018/emergency-admissions-report-2018.pdf
[67] https://www.bmj.com/content/348/bmj.g1529
[68] https://www.breastcancer.org/research-news/end-stage-chemo-for-quality-of-life
[69] https://www.gov.uk/government/publications/emergency-admissions-in-the-3-months-before-death/emergency-admissions-in-the-3-months-before-death
[70] https://fingertips.phe.org.uk/profile/end-of-life
[71] Data appendix [Table D48]

For those people that had at least one admission in the twelve months prior to death, women in the **breast** cohort spent on average around 12% of their last year[72] as an inpatient. This proportion rises to 17% for the **lung** cohort; and most of this time is for hospital stays that began with a non-elective (emergency or urgent) admission (Figure 13).

Figure 13: Deaths from cancer, Proportion of last year of life spent in hospital by cancer type: 2012

The proportion of time spent in hospital increases as survival time decreases for all cohorts[73]. In the **breast** and **prostate** cohorts, for those surviving six months or less this is around 38% of this time falling to around 10% of their last twelve months for those that lived for more than one year. In the **lung** and **colorectal** cohorts, those surviving one month or less spent on average around three-quarters of this time in hospital, with this proportion falling to around 11% for those surviving more than one year.

Conclusions

Initial analysis has shown a high proportion of deaths in an acute or large hospital, especially for those with very limited survival (impacting the **lung** cohort most of all). It has also highlighted potential unmet needs in those living in the most deprived areas who were less likely to die in a specialist palliative care setting (compared to an acute hospital) in the **lung** and **colorectal** cohorts.

[72] Adjusted for survival time (post-diagnosis stays only)
[73] Data appendix [Table D49-D52]. People with at least one inpatient admission in last year of life.

For those in the **lung** cohort that died in a private home there also appears to be differences in the proportion prescribed opioids with respect to survival time and geographic area, with lower proportions for those surviving three months or less and those living in urban areas.

Most people had at least one acute hospital admission towards the end of life. On average, these people spend almost a fifth of their last months of life after diagnosis in an acute hospital and this proportion increases for those with the shortest survival times. Hospital stays were also predominantly non-elective in nature.

Palliative care is recommended at an early a stage as possible with evidence from the Macmillan North Manchester pilot suggesting that early involvement of a dedicated palliative care service can avoid unnecessary treatment and minimise emergency admissions to acute care[74]. The demand for specialist (and general) palliative care is also projected to continue to grow in future with increasingly complex care needs[75].

Timely identification of people who need palliative and end of life care is especially important for those with very limited survival. More detailed analysis of hospital activity in the last months of life is recommended especially relating to emergency admissions and for those with lengthy stays ending with a death in hospital. Indicators like those used in Public Health England and further analysis of reasons for admission and treatments received (alongside other information) could help highlight admissions that could potentially be avoided and provide further evidence to support moving investment to the community.

Analysis of cause of death shows that cancer is the main cause of death across all cohorts. However, in the **breast** and **prostate** cohorts in particular, people are now living longer after their initial cancer diagnosis and dying from causes other than the original cancer. People who die at older ages are also developing multiple conditions that will increase the complexity of care and support they need at end of life. The **breast** cohort have the highest proportion dying with dementia as the main cause of death as well as the highest proportion dying in a care home. Further analysis of comorbidities can help understand the scale of multiple conditions and its potential impact on the demand for palliative and end of life care.

Data sources are constantly developing and there is a specific commitment in the Scottish Government's strategic framework to improving data collection and analysis so that evidence can be provided that the framework is meeting its aims. It is important therefore to monitor and influence the long-term data and indicator developments around palliative and end of life care as data sources develop.

[74] https://www.england.nhs.uk/atlas_case_study/introduction-of-the-north-manchester-macmillan-palliative-care-specialist-service-nnmpcss
[75] https://www.palliativecarescotland.org.uk/content/publications/Anne-Finucane-5-min-short-story.pdf

Further Information

Further information on the Scottish Routes from Diagnosis project, or other work resulting from our partnership, can be found on the Macmillan or the Public Health Scotland websites or by contacting us at phs.macmillan@phs.scot or HealthData@macmillan.org.uk.

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Technical Appendix

For a full explanation of the methodology of SRfD, including data sources, terms and abbreviations please refer to the SRfD Context and Methodology publication. Additional technical notes, limitations and assumptions covering data and methods specific to this report are detailed below.

Data Sources

- Initial SRfD analysis file
- NRS deaths data extract as at November 2018
- Prescribing Information System (PIS) extract as at September 2018
- SMR01[76] extract as at September 2019
- SMR06[77] extract as at October 2019

During the mortality analysis a very small number of cases with a date of death recorded in the initial SRfD analysis file were found to have either no NRS death record or to have a later date of death recorded in the NRS data. For these people the original date of death has been used with respect to follow-up periods (as this date was used to derive the original outcome groups and survival time). Cause of death and location of death are both derived from NRS data, and these have been set to unknown for these exceptions.

Outcome Groups

Outcome Group 3 (OG3-People likely to be living with a continued presence of cancer) includes people that have died within five years of diagnosis from cancer and Outcome Group 4 (OG4-Limited survival) is defined as all those who die within 12 months of

[76] https://www.ndc.scot.nhs.uk/Data-Dictionary/SMR-Datasets/SMR01-General-Acute-Inpatient-and-Day-Case/
[77] https://www.ndc.scot.nhs.uk/National-Datasets/data.asp?SubID=8

diagnosis from any cause. This analysis is therefore primarily of those in OG3 and OG4, for this reason analysis is at cohort (rather than OG) level with selected analyses also broken down by survival time (additional analyses by individual outcome group have not been included in the report).

Treatment Intent

The therapy objective at diagnosis variable from cancer registry data (SMR06) is used to describe treatment intent.

Cause of death

The published NRS tables of number of deaths by cause and sex in Scotland in 2018 have been adapted to show the following main groups of cause of death: Neoplasms (C00-D48); Dementia & Alzheimer's (F01, F03, G30); Heart disease (I20-I25, I30-I33, I39-I52); Cerebrovascular Disease (I60-I69); Respiratory Disease (J00-J99); Other (*all other ICD10 codes*).

In the tables and charts relating to the SRfD cohorts, the following ICD10 codes have been used to group primary cause of death. These groupings reflect the main causes of death published by NRS (above) with some definitional differences:

Cause of death	ICD10 codes
Cohort cancer	Breast (C50); Colorectal (C18-C20); Lung (C33-C34); Prostate (C61)
Other cancer	C00-C97; D10-D48
Heart disease	I00-I52
Respiratory	J00-J99
CVD	I60-I69; G45
Dementia	F01; F03; G30
Other	*All other ICD10 codes*

Outcome group 3 includes people who died from cancer within five years of diagnosis however only C codes are used to define cancer deaths in the outcome groups definitions. This means that there are a small number of people where cause of death is other cancer (D10-D48 ICD10 codes), but their outcome group is not 3 (it is outcome group 1 or 2 instead). The number of these cases in each of the 2012 cohorts is as follows: Breast (0); Colorectal (1); Lung (2) and Prostate (1).

In the NRS deaths data up to ten contributory causes can be recorded; however, in many records the first contributory cause is the same as the main or underlying cause (at the four-digit level). Contributory causes (in any position) have been excluded from analysis where they are the same as the main cause.

Place of death

Location of death

Location of death is derived from the institution code (and name) recorded in NRS deaths data where there is a separate code for private home. Hospices and community hospital location codes are identified using reference information from PHS Health & Social Care Team (Source). Deaths occurring in SMR01 data with a significant facility is 1G were flagged as deaths in specialist palliative care units that are part of acute hospitals. Remaining hospital sites were classified as large/acute or small hospitals using the published 2017/18 Scottish Health Services Costs hospital profile reference information: https://www.isdscotland.org/Health-Topics/Finance/Costs/costs-archive.asp

Modelling deprivation and urban/rural category

Multinomial logistic regression is one technique used to model the impacts from several different factors on a category variable. The IBM SPSS Statistics 24 software package was used for this multinomial logistic regression using place of death as the dependent variable with a reference location of large or acute hospital: with survival time and age at diagnosis as covariates and SIMD quintile and urban-rural category (6-fold) as factors. Analysis included deaths with a main cause of cancer only (and within the five-year follow-up period).

Acute admissions in last year of life

Stays here are defined as continuous inpatient stays. A continuous inpatient stay (CIS) is an unbroken period of time that a patient spends as an inpatient. However, a patient may change consultant, significant facility, specialty, and/or hospital during a continuous inpatient stay. For further information see: https://www.isdscotland.org/Health-Topics/Hospital-Care/Publications/2018-12-18/Acute-Hospital-Publication/glossary/

The source for this analysis is SMR01 including geriatric long stay records. For this analysis stays (CIS) from SMR01 are classified as day cases or inpatient stays. If a CIS consists of both day case and inpatient episodes the CIS is classified as an inpatient stay. Length of stay for day cases and for inpatient stays that are admitted and discharged on the same day have been set to one (rather than zero). Admissions and length of stay are calculated from date of diagnosis onwards and denominators adjusted for survival time.

SMR01 also includes stays at hospices where this data has been submitted. There have been completeness issues historically in SMR01 for some hospices.

Type of admission has been derived from the first episode in the CIS. Non elective stays (CIS) include stays that begin with an urgent or emergency inpatient admission (stays that begin with a planned transfer admission have not been classed as non-elective).

All stay metrics such as mean, median, etc. relate only to those people who have had at least one inpatient admission (or day case) in their last year of life (after cancer diagnosis).

Analysis includes deaths with a main cause of cancer only and tables that are broken down by survival time as well as cohort are limited to OG3 and OG4. The total number of deaths in these tables do not tie to the overall cohort totals because of the other cancer deaths due to D10-D48 codes (see notes in Cause of death section above).

Opioid prescribing in the community

Analysis excludes people who died on the day of diagnosis as well as those that died after the five-year follow-up period. These results differ from those shown in the previously published poster[78] as this analysis included deaths after the follow-up period.

Opioid prescriptions are based on prescriptions in the community only. PIS contains details of all NHS medicines prescribed and dispensed in the community, including care home residents. It excludes people attending hospital clinics where the prescription is dispensed at a hospital pharmacy and excludes people receiving hospital managed advanced therapies home care.

The denominators used in each proximity to death group have been adjusted for survival time.

Data Appendix

Table D1: Age at death by cancer type: 2012 (5 year follow-up period)

Age at death	Breast 2012		Colorectal 2012		Lung 2012		Prostate 2012	
	No.	%	No.	%	No.	%	No.	%
15 to 54	128	13%	108	6%	186	4%	8	1%
55 to 64	119	12%	208	11%	707	15%	83	8%
65 to 74	162	16%	473	24%	1,527	33%	219	22%
75 to 84	301	30%	699	36%	1,632	35%	381	39%
85 or over	295	29%	459	24%	618	13%	294	30%
All ages	**1,005**		**1,947**		**4,670**		**985**	

[78] https://www.macmillan.org.uk/_images/investigating-palliative-opioid-prescribing_tcm9-341788.pdf

Table D2: Age at diagnosis by cancer type: 2012

Age at diagnosis	Breast 2012		Colorectal 2012		Lung 2012		Prostate 2012	
	No.	%	No.	%	No.	%	No.	%
15 to 54	1,326	30%	433	11%	275	5%	132	4%
55 to 64	1,099	25%	711	19%	937	18%	706	23%
65 to 74	1,005	22%	1,144	30%	1,755	34%	1,269	41%
75 to 84	733	16%	1,084	28%	1,681	32%	747	24%
85 or over	305	7%	453	12%	534	10%	253	8%
All ages	**4,468**		**3,825**		**5,182**		**3,107**	

Table D3: Therapy objective (treatment intent) at diagnosis by age with number and percentage receiving no treatment: Breast 2012

Age group	Treatment intent	Number	% of age group	No treatment	
				No.	%
15 to 54	Curative	1,114	84%	-	-
	Non curative	86	6%	5	6%
	Not known	126	10%	1	1%
	Total	**1,326**	**100%**	**6**	**0%**
55 to 64	Curative	936	85%	-	-
	Non curative	83	8%	5	6%
	Not known	80	7%	-	-
	Total	**1,099**	**100%**	**5**	**0%**
65 to 74	Curative	808	80%	-	-
	Non curative	116	12%	12	10%
	Not known	81	8%	-	-
	Total	**1,005**	**100%**	**12**	**1%**
75 to 84	Curative	422	58%	1	0%
	Non curative	243	33%	30	12%
	Not known	68	9%	-	-
	Total	**733**	**100%**	**31**	**4%**
85 or over	Curative	93	30%	-	-
	Non curative	187	61%	30	16%
	Not known	25	8%	-	-
	Total	**305**	**100%**	**30**	**10%**

Table D4: Therapy objective (treatment intent) at diagnosis by age with number and percentage receiving no treatment: Colorectal 2012

Age group	Treatment intent	Number	% of age group	No treatment	
				No.	%
15 to 54	Curative	295	68%	-	-
	Non curative	102	24%	16	16%
	Not known	36	8%	1	3%
	Total	**433**	**100%**	**17**	**4%**
55 to 64	Curative	505	71%	1	0%
	Non curative	156	22%	21	13%
	Not known	50	7%	-	-
	Total	**711**	**100%**	**22**	**3%**
65 to 74	Curative	763	67%	2	0%
	Non curative	313	27%	111	35%
	Not known	68	6%	4	6%
	Total	**1,144**	**100%**	**117**	**10%**
75 to 84	Curative	567	52%	5	1%
	Non curative	470	43%	294	63%
	Not known	47	4%	2	4%
	Total	**1,084**	**100%**	**301**	**28%**
85 or over	Curative	146	32%	5	3%
	Non curative	285	63%	232	81%
	Not known	22	5%	4	18%
	Total	**453**	**100%**	**241**	**53%**

Table D5: Therapy objective (treatment intent) at diagnosis by age with number and percentage receiving no treatment: Lung 2012

Age group	Treatment intent	Number	% of age group	No treatment	
				No.	%
15 to 54	Curative	76	28%	1	1%
	Non curative	193	70%	39	20%
	Not known	6	2%	1	17%
	Total	**275**	**100%**	**41**	**15%**
55 to 64	Curative	226	24%	1	0%
	Non curative	688	73%	226	33%
	Not known	23	2%	2	9%
	Total	**937**	**100%**	**229**	**24%**
65 to 74	Curative	357	20%	11	3%
	Non curative	1,344	77%	595	44%
	Not known	54	3%	7	13%
	Total	**1,755**	**100%**	**613**	**35%**
75 to 84	Curative	223	13%	9	4%
	Non curative	1,426	85%	919	64%
	Not known	32	2%	5	16%
	Total	**1,681**	**100%**	**933**	**56%**
85 or over	Curative	25	5%	5	20%
	Non curative	507	95%	428	84%
	Not known	2	0%	1	50%
	Total	**534**	**100%**	**434**	**81%**

Table D6: Therapy objective (treatment intent) at diagnosis by age with number and percentage receiving no treatment: Prostate 2012

Age group	Treatment intent	Number	% of age group	No treatment	
				No.	%
15 to 64	Curative	448	53%	24	5%
	Non curative	319	38%	146	46%
	Not known	71	8%	16	23%
	Total	**838**	**100%**	**186**	**22%**
65 to 74	Curative	579	46%	17	3%
	Non curative	572	45%	253	44%
	Not known	118	9%	20	17%
	Total	**1,269**	**100%**	**290**	**23%**
75 to 84	Curative	193	26%	9	5%
	Non curative	493	66%	140	28%
	Not known	61	8%	10	16%
	Total	**747**	**100%**	**159**	**21%**
85 or over	Curative	10	4%	1	10%
	Non curative	227	90%	79	35%
	Not known	16	6%	7	44%
	Total	**253**	**100%**	**87**	**34%**

Table D7: Therapy objective (treatment intent) at diagnosis by stage with number and percentage receiving no treatment: Breast 2012

Stage	Treatment intent	Number	% of stage	No treatment	
				No.	%
Stage 1 or 2	Curative	2,787	86%	-	-
	Non curative	198	6%	15	8%
	Not known	274	8%	1	0%
	Total	**3,259**	**100%**	**16**	**0%**
Stage 3	Curative	380	68%	-	-
	Non curative	119	21%	9	8%
	Not known	60	11%	-	-
	Total	**559**	**100%**	**9**	**2%**
Stage 4	Curative	24	10%	-	-
	Non curative	202	85%	21	10%
	Not known	12	5%	-	-
	Total	**238**	**100%**	**21**	**9%**
Unknown	Curative	182	44%	1	1%
	Non curative	196	48%	37	19%
	Not known	34	8%	-	-
	Total	**412**	**100%**	**38**	**9%**

Table D8: Therapy objective (treatment intent) at diagnosis by Dukes' stage with number and percentage receiving no treatment: Colorectal 2012

Dukes' stage	Treatment intent	Number	% of Dukes' stage	No treatment	
				No.	%
Dukes' A or B	Curative	1,530	96%	2	0%
	Non curative	36	2%	10	28%
	Not known	36	2%	3	8%
	Total	**1,602**	**100%**	**15**	**1%**
Dukes' C	Curative	607	70%	-	-
	Non curative	121	14%	8	7%
	Not known	133	15%	-	-
	Total	**861**	**100%**	**8**	**1%**
Dukes' D	Curative	60	7%	5	8%
	Non curative	752	91%	308	41%
	Not known	13	2%	-	-
	Total	**825**	**100%**	**313**	**38%**
Unknown	Curative	79	15%	6	8%
	Non curative	417	78%	348	83%
	Not known	41	8%	8	20%
	Total	**537**	**100%**	**362**	**67%**

Table D9: Therapy objective (treatment intent) at diagnosis by stage with number and percentage receiving no treatment: Lung 2012

Stage	Treatment intent	Number	% of stage	No treatment	
				No.	%
Stage 1 or 2	Curative	574	61%	9	2%
	Non curative	325	35%	195	60%
	Not known	36	4%	3	8%
	Total	**935**	**100%**	**207**	**22%**
Stage 3	Curative	208	22%	2	1%
	Non curative	719	75%	260	36%
	Not known	36	4%	3	8%
	Total	**963**	**100%**	**265**	**28%**
Stage 4	Curative	35	2%	5	14%
	Non curative	2,276	98%	1,117	49%
	Not known	16	1%	4	25%
	Total	**2,327**	**100%**	**1,126**	**48%**
Unknown	Curative	90	9%	11	12%
	Non curative	838	88%	635	76%
	Not known	29	3%	6	21%
	Total	**957**	**100%**	**652**	**68%**

Table D10: Therapy objective (treatment intent) at diagnosis by grade with number and percentage receiving no treatment: Prostate 2012

Grade	Treatment intent	Number	% of grade	No treatment	
				No.	%
Gleason grades 1 to 3	Curative	940	52%	45	5%
	Non curative	721	40%	458	64%
	Not known	145	8%	42	29%
	Total	**1,806**	**100%**	**545**	**30%**
Gleason grade 4	Curative	126	48%	-	-
	Non curative	106	40%	8	8%
	Not known	31	12%	1	3%
	Total	**263**	**100%**	**9**	**3%**
Gleason grade 5	Curative	134	30%	2	1%
	Non curative	242	55%	8	3%
	Not known	66	15%	-	-
	Total	**442**	**100%**	**10**	**2%**
Unknown	Curative	30	5%	4	13%
	Non curative	542	91%	144	27%
	Not known	24	4%	10	42%
	Total	**596**	**100%**	**158**	**27%**

Table D11: Excluding curative therapy objective, Age group by stage with number and percentage receiving no treatment (all stages): Breast 2012

Age group	Stage 1 or 2		Stage 3		Stage 4		Unknown		No treatment (all stages)	
	No.	%	No.	%	No.	%	No.	%	No.	%
15 to 54	96	45%	44	21%	52	25%	20	9%	6	3%
55 to 64	72	44%	37	23%	41	25%	13	8%	5	3%
65 to 74	97	49%	24	12%	43	22%	33	17%	12	6%
75 to 84	136	44%	45	14%	56	18%	74	24%	30	10%
85 or over	71	33%	29	14%	22	10%	90	42%	30	14%
All ages	**472**	**43%**	**179**	**16%**	**214**	**20%**	**230**	**21%**	**83**	**8%**

Table D12: Excluding curative therapy objective, Age group by Dukes' stage with number and percentage receiving no treatment (all stages): Colorectal 2012

Age group	Dukes' A or B		Dukes' C		Dukes' D		Unknown		No treatment (all stages)	
	No.	%	No.	%	No.	%	No.	%	No.	%
15 to 54	9	7%	31	22%	90	65%	8	6%	17	12%
55 to 64	9	4%	45	22%	133	65%	19	9%	21	10%
65 to 74	22	6%	71	19%	212	56%	76	20%	115	30%
75 to 84	23	4%	81	16%	233	45%	180	35%	296	57%
85 or over	9	3%	26	8%	97	32%	175	57%	236	77%
All ages	**72**	**5%**	**254**	**16%**	**765**	**49%**	**458**	**30%**	**685**	**44%**

Table D13: Excluding curative therapy objective, Age group by stage with number and percentage receiving no treatment (all stages): Lung 2012

Age group	Stage 1 or 2		Stage 3		Stage 4		Unknown		No treatment (all stages)	
	No.	%	No.	%	No.	%	No.	%	No.	%
15 to 54	6	3%	24	12%	151	76%	18	9%	40	20%
55 to 64	40	6%	125	18%	470	66%	76	11%	228	32%
65 to 74	99	7%	284	20%	785	56%	230	16%	602	43%
75 to 84	159	11%	251	17%	691	47%	357	24%	924	63%
85 or over	57	11%	71	14%	195	38%	186	37%	429	84%
All ages	**361**	**8%**	**755**	**18%**	**2,292**	**54%**	**867**	**20%**	**2,223**	**52%**

Table D14: Excluding curative therapy objective, Age group by grade with number and percentage receiving no treatment (all grades): Prostate 2012

Age group	Gleason grades 1 to 3		Gleason grade 4		Gleason grade 5		Unknown		No treatment (all grades)	
	No.	%	No.	%	No.	%	No.	%	No.	%
15 to 64	250	64%	29	7%	76	19%	35	9%	162	42%
65 to 74	430	62%	67	10%	126	18%	67	10%	273	40%
75 to 84	179	32%	34	6%	93	17%	248	45%	150	27%
85 or over	7	3%	7	3%	13	5%	216	89%	86	35%
All ages	**866**	**46%**	**137**	**7%**	**308**	**16%**	**566**	**30%**	**671**	**36%**

Table D15: Primary cause of death by cancer type: 2012 (5 year follow-up period)

Cohort	Cohort cancer		Other cancer		Heart disease		Respiratory		CVD		Dementia		Other		Unknown		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Breast 2012	536	53%	106	11%	79	8%	58	6%	43	4%	57	6%	115	11%	11	1%	**1,005**
Colorectal 2012	1,358	70%	278	14%	91	5%	63	3%	39	2%	19	1%	92	5%	7	0%	**1,947**
Lung 2012	4,077	87%	180	4%	91	2%	126	3%	45	1%	13	0%	115	2%	23	0%	**4,670**
Prostate 2012	547	56%	147	15%	89	9%	61	6%	26	3%	23	2%	86	9%	6	1%	**985**

Table D16: Primary cause of death by cancer type: 2007 (5 year follow-up period)

Cohort	Cohort cancer		Other cancer		Heart disease		Respiratory		CVD		Dementia		Other		Unknown		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Breast 2007	625	60%	102	10%	91	9%	45	4%	44	4%	35	3%	90	9%	5	0%	**1,037**
Colorectal 2007	1,341	68%	281	14%	126	6%	54	3%	49	2%	9	0%	109	5%	13	1%	**1,982**
Lung 2007	3,950	87%	194	4%	95	2%	110	2%	34	1%	15	0%	103	2%	14	0%	**4,515**
Prostate 2007	521	55%	136	14%	97	10%	61	6%	33	4%	13	1%	76	8%	2	0%	**939**

Table D17: Primary cause of death by cancer type: 2007 (10 year follow-up period)

Cohort	Cohort cancer		Other cancer		Heart disease		Respiratory		CVD		Dementia		Other		Unknown		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
Breast 2007	852	53%	201	13%	158	10%	97	6%	62	4%	63	4%	164	10%	7	0%	**1,604**
Colorectal 2007	1,456	59%	395	16%	183	7%	109	4%	79	3%	48	2%	170	7%	18	1%	**2,458**
Lung 2007	4,044	86%	209	4%	109	2%	140	3%	38	1%	20	0%	119	3%	18	0%	**4,697**
Prostate 2007	697	47%	253	17%	174	12%	107	7%	65	4%	46	3%	142	10%	8	1%	**1,492**

Table D18: Primary cause of death by age at death: Breast 2012 (5 year follow-up period)

Age group	Cohort cancer		Other cancer		Heart disease		Respiratory		CVD		Dementia		Other		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
15 to 54	114	90%	4	3%	1	1%	1	1%	-	-	-	-	7	6%	**127**
55 to 64	82	69%	16	14%	5	4%	5	4%	-	-	-	-	10	8%	**118**
65 to 74	93	59%	25	16%	7	4%	7	4%	6	4%	-	-	19	12%	**157**
75 to 84	139	46%	41	14%	30	10%	16	5%	14	5%	23	8%	37	12%	**300**
85 or over	108	37%	20	7%	36	12%	29	10%	23	8%	34	12%	42	14%	**292**
All ages	**536**	**54%**	**106**	**11%**	**79**	**8%**	**58**	**6%**	**43**	**4%**	**57**	**6%**	**115**	**12%**	**994**

Excludes deaths where primary cause is unknown

Table D19: Primary cause of death by age at death: Colorectal 2012 (5 year follow-up period)

Age group	Cohort cancer		Other cancer		Heart disease		Respiratory		CVD		Dementia		Other		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
15 to 64	250	80%	42	13%	4	1%	3	1%	1	0%	-	-	13	4%	**313**
65 to 74	338	71%	80	17%	23	5%	15	3%	2	0%	1	0%	14	3%	**473**
75 to 84	473	68%	94	13%	35	5%	24	3%	19	3%	7	1%	45	6%	**697**
85 or over	297	65%	62	14%	29	6%	21	5%	17	4%	11	2%	20	4%	**457**
All ages	**1,358**	**70%**	**278**	**14%**	**91**	**5%**	**63**	**3%**	**39**	**2%**	**19**	**1%**	**92**	**5%**	**1,940**

Excludes deaths where primary cause is unknown

Table D20: Primary cause of death by age at death: Lung 2012 (5 year follow-up period)

Age group	Cohort cancer		Other cancer		Heart disease		Respiratory		CVD		Dementia		Other		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
15 to 64	810	92%	30	3%	11	1%	10	1%	5	1%	-	-	18	2%	**884**
65 to 74	1,357	89%	57	4%	24	2%	40	3%	12	1%	-	-	29	2%	**1,519**
75 to 84	1,387	85%	72	4%	37	2%	55	3%	20	1%	6	0%	49	3%	**1,626**
85 or over	523	85%	21	3%	19	3%	21	3%	8	1%	7	1%	19	3%	**618**
All ages	**4,077**	**88%**	**180**	**4%**	**91**	**2%**	**126**	**3%**	**45**	**1%**	**13**	**0%**	**115**	**2%**	**4,647**

Excludes deaths where primary cause is unknown

Table D21: Primary cause of death by age at death: Prostate 2012 (5 year follow-up period)

Age group	Cohort cancer		Other cancer		Heart disease		Respiratory		CVD		Dementia		Other		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	
15 to 64	67	74%	9	10%	3	3%	4	4%	-	-	-	-	7	8%	**90**
65 to 74	131	61%	40	19%	14	6%	12	6%	2	1%	-	-	17	8%	**216**
75 to 84	186	49%	63	17%	46	12%	22	6%	13	3%	10	3%	39	10%	**379**
85 or over	163	55%	35	12%	26	9%	23	8%	11	4%	13	4%	23	8%	**294**
All ages	**547**	**56%**	**147**	**15%**	**89**	**9%**	**61**	**6%**	**26**	**3%**	**23**	**2%**	**86**	**9%**	**979**

Excludes deaths where primary cause is unknown

Table D22: Deaths (all causes) by number of contributory causes, age at death and cancer type: 2012 (5 year follow-up period)

Cohort	15 to 54		55 to 64		65 to 74		75 to 84		85 or over		All ages	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Breast 2012												
No contributory causes	63	50%	47	40%	52	33%	72	24%	48	16%	**282**	**28%**
1 contributory cause	29	23%	21	18%	36	23%	80	27%	66	23%	**232**	**23%**
2+ contributory causes	35	28%	50	42%	69	44%	148	49%	178	61%	**480**	**48%**
Total	**127**		**118**		**157**		**300**		**292**		**994**	
Colorectal 2012												
No contributory causes	59	55%	102	50%	209	44%	228	33%	136	30%	**734**	**38%**
1 contributory cause	21	20%	52	25%	108	23%	172	25%	126	28%	**479**	**25%**
2+ contributory causes	27	25%	52	25%	156	33%	297	43%	195	43%	**727**	**37%**
Total	**107**		**206**		**473**		**697**		**457**		**1,940**	
Lung 2012												
No contributory causes	105	57%	310	44%	586	39%	527	32%	174	28%	**1,702**	**37%**
1 contributory cause	44	24%	211	30%	457	30%	500	31%	187	30%	**1,399**	**30%**
2+ contributory causes	36	19%	178	25%	476	31%	599	37%	257	42%	**1,546**	**33%**
Total	**185**		**699**		**1,519**		**1,626**		**618**		**4,647**	

Prostate 2012	15 to 64		65 to 74		75 to 84		85 or over		All ages	
	No.	%	No.	%	No.	%	No.	%	No.	%
No contributory causes	40	44%	75	35%	82	22%	59	20%	**256**	**26%**
1 contributory cause	18	20%	45	21%	92	24%	76	26%	**231**	**24%**
2+ contributory causes	32	36%	96	44%	205	54%	159	54%	**492**	**50%**
Total	**90**		**216**		**379**		**294**		**979**	

Excludes deaths where primary cause is unknown

Table D23: Dementia/Alzheimer's as primary or contributory cause of death by age at death: Breast 2012 (5 year follow-up period)

Age at death	Primary cause		Primary or Contributory		Neither		Total Deaths	
	No.	%	No.	%	No.	%	**No.**	**%**
15 to 64	-	-	-	-	245	100%	**245**	**25%**
65 to 74	-	-	6	4%	151	96%	**157**	**16%**
75 to 84	23	8%	46	15%	254	85%	**300**	**30%**
85 or over	34	12%	79	27%	213	73%	**292**	**29%**
All ages	**57**	**6%**	**131**	**13%**	**863**	**87%**	**994**	**100%**

Excludes deaths where primary cause is unknown

Table D24: Place of death by cancer type and primary cause of death: 2012 (5 year follow-up period)

Cohort	Cause of death	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
		No.	%	No.	%	No.	%	No.	%	No.	%	
Breast 2012	Cancer	211	33%	62	10%	163	25%	134	21%	72	11%	**642**
	Other	165	47%	25	7%	55	16%	6	2%	101	29%	**352**
	All causes	**376**	**38%**	**87**	**9%**	**218**	**22%**	**140**	**14%**	**173**	**17%**	**994**
Colorectal 2012	Cancer	527	32%	183	11%	500	31%	307	19%	119	7%	**1,636**
	Other	192	63%	15	5%	54	18%	10	3%	33	11%	**304**
	All causes	**719**	**37%**	**198**	**10%**	**554**	**29%**	**317**	**16%**	**152**	**8%**	**1,940**
Lung 2012	Cancer	1,543	36%	418	10%	1320	31%	748	18%	228	5%	**4,257**
	Other	258	66%	27	7%	70	18%	8	2%	27	7%	**390**
	All causes	**1,801**	**39%**	**445**	**10%**	**1390**	**30%**	**756**	**16%**	**255**	**5%**	**4,647**
Prostate 2012	Cancer	212	31%	92	13%	198	29%	118	17%	74	11%	**694**
	Other	170	60%	23	8%	56	20%	3	1%	33	12%	**285**
	All causes	**382**	**39%**	**115**	**12%**	**254**	**26%**	**121**	**12%**	**107**	**11%**	**979**

Excludes deaths where primary cause is unknown

Table D25: Deaths from cancer, Place of death by survival time: Breast 2012 (5 year follow-up period)

Survival time	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
6 months or less	43	41%	18	17%	17	16%	13	12%	14	13%	**105**
6 to 12 months	30	36%	4	5%	17	20%	23	28%	9	11%	**83**
1 to 2 years	38	27%	13	9%	40	28%	29	21%	21	15%	**141**
2 to 3 years	42	35%	11	9%	32	26%	27	22%	9	7%	**121**
3 to 4 years	34	37%	4	4%	27	30%	16	18%	10	11%	**91**
4 to 5 years	24	24%	12	12%	30	30%	26	26%	9	9%	**101**
Total	**211**	**33%**	**62**	**10%**	**163**	**25%**	**134**	**21%**	**72**	**11%**	**642**

Table D26: Deaths from cancer, Place of death by survival time: Colorectal 2012 (5 year follow-up period)

Survival time	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
1 month or less	117	66%	15	8%	19	11%	13	7%	13	7%	**177**
1 to 2 months	54	45%	19	16%	27	22%	16	13%	5	4%	**121**
2 to 3 months	42	39%	15	14%	28	26%	13	12%	9	8%	**107**
3 to 6 months	61	28%	30	14%	74	34%	34	16%	18	8%	**217**
6 to 12 months	69	24%	36	13%	88	31%	69	24%	21	7%	**283**
1 to 2 years	91	27%	37	11%	115	34%	67	20%	31	9%	**341**
2 to 3 years	48	26%	14	7%	69	37%	45	24%	12	6%	**188**
3 to 4 years	25	23%	9	8%	38	35%	33	31%	3	3%	**108**
4 to 5 years	20	21%	8	9%	42	45%	17	18%	7	7%	**94**
Total	**527**	**32%**	**183**	**11%**	**500**	**31%**	**307**	**19%**	**119**	**7%**	**1,636**

Table D27: Deaths from cancer, Place of death by survival time: Lung 2012 (5 year follow-up period)

Survival time	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
1 month or less	446	65%	52	8%	127	18%	45	7%	21	3%	**691**
1 to 2 months	227	43%	55	11%	155	30%	70	13%	16	3%	**523**
2 to 3 months	113	31%	54	15%	112	31%	68	19%	19	5%	**366**
3 to 6 months	217	29%	77	10%	266	35%	152	20%	47	6%	**759**
6 to 12 months	249	31%	72	9%	266	33%	179	22%	36	4%	**802**
1 to 2 years	185	27%	72	10%	258	38%	129	19%	42	6%	**686**
2 to 3 years	62	27%	14	6%	73	32%	57	25%	22	10%	**228**
3 to 4 years	23	19%	15	12%	40	33%	30	25%	13	11%	**121**
4 to 5 years	21	26%	7	9%	23	28%	18	22%	12	15%	**81**
Total	**1,543**	**36%**	**418**	**10%**	**1,320**	**31%**	**748**	**18%**	**228**	**5%**	**4,257**

Table D28: Deaths from cancer, Place of death by survival time: Prostate 2012 (5 year follow-up period)

Survival time	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
6 months or less	40	36%	19	17%	22	20%	7	6%	22	20%	**110**
6 to 12 months	31	37%	7	8%	20	24%	17	20%	9	11%	**84**
1 to 2 years	60	36%	24	14%	41	25%	26	16%	16	10%	**167**
2 to 3 years	34	25%	22	16%	44	32%	28	21%	8	6%	**136**
3 to 4 years	20	18%	12	11%	40	36%	24	22%	14	13%	**110**
4 to 5 years	27	31%	8	9%	31	36%	16	18%	5	6%	**87**
Total	**212**	**31%**	**92**	**13%**	**198**	**29%**	**118**	**17%**	**74**	**11%**	**694**

Table D29: Deaths from cancer, Place of death by survival time: Breast 2007 (10 year follow-up period)

Survival time	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
1 year or less	77	36%	35	16%	40	19%	22	10%	40	19%	**214**
1 to 3 years	99	34%	30	10%	56	19%	79	27%	27	9%	**291**
3 to 5 years	72	32%	28	13%	45	20%	59	27%	18	8%	**222**
5 to 10 years	87	27%	36	11%	96	29%	82	25%	25	8%	**326**
Total	**335**	**32%**	**129**	**12%**	**237**	**23%**	**242**	**23%**	**110**	**10%**	**1,053**

Table D30: Deaths from cancer, Place of death by survival time: Colorectal 2007 (10 year follow-up period)

Survival time	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
6 months or less	252	45%	75	13%	126	22%	78	14%	33	6%	**564**
6 to 12 months	81	28%	49	17%	88	31%	50	17%	19	7%	**287**
1 to 3 years	136	25%	81	15%	170	31%	117	22%	39	7%	**543**
3 to 5 years	62	27%	34	15%	59	26%	62	27%	11	5%	**228**
5 to 10 years	64	28%	27	12%	73	32%	48	21%	17	7%	**229**
Total	**595**	**32%**	**266**	**14%**	**516**	**28%**	**355**	**19%**	**119**	**6%**	**1,851**

Table D31: Deaths from cancer, Place of death by survival time: Lung 2007 (10 year follow-up period)

Survival time	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
6 months or less	1,070	45%	267	11%	575	24%	367	15%	105	4%	**2,384**
6 to 12 months	266	33%	79	10%	228	28%	198	24%	40	5%	**811**
1 to 3 years	265	33%	88	11%	227	28%	196	24%	38	5%	**814**
3 to 5 years	43	32%	11	8%	41	30%	34	25%	6	4%	**135**
5 to 10 years	37	34%	5	5%	39	36%	19	17%	9	8%	**109**
Total	**1,681**	**40%**	**450**	**11%**	**1,110**	**26%**	**814**	**19%**	**198**	**5%**	**4,253**

Table D32: Deaths from cancer, Place of death by survival time: Prostate 2007 (10 year follow-up period)

Survival time	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
1 year or less	65	32%	45	22%	42	21%	30	15%	22	11%	**204**
1 to 3 years	92	32%	48	16%	80	27%	55	19%	17	6%	**292**
3 to 5 years	50	31%	25	16%	39	24%	35	22%	12	7%	**161**
5 to 10 years	91	31%	24	8%	107	37%	44	15%	27	9%	**293**
Total	**298**	**31%**	**142**	**15%**	**268**	**28%**	**164**	**17%**	**78**	**8%**	**950**

Table D33: Deaths from cancer, Place of death by SIMD quintile: Breast 2012 (5 year follow-up period)

SIMD quintile	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
1 - Most deprived	43	34%	8	6%	35	27%	28	22%	14	11%	**128**
2	54	41%	8	6%	31	23%	27	20%	12	9%	**132**
3	41	26%	22	14%	43	28%	35	23%	14	9%	**155**
4	37	30%	15	12%	30	24%	25	20%	18	14%	**125**
5 - Least deprived	36	35%	9	9%	24	24%	19	19%	14	14%	**102**
Total	**211**	**33%**	**62**	**10%**	**163**	**25%**	**134**	**21%**	**72**	**11%**	**642**

Table D34: Deaths from cancer, Place of death by SIMD quintile: Colorectal 2012 (5 year follow-up period)

SIMD quintile	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
1 - Most deprived	142	41%	19	5%	107	31%	58	17%	23	7%	**349**
2	111	31%	42	12%	108	31%	70	20%	23	6%	**354**
3	100	30%	47	14%	106	32%	49	15%	27	8%	**329**
4	87	28%	52	17%	90	29%	58	19%	20	7%	**307**
5 - Least deprived	87	29%	23	8%	89	30%	72	24%	26	9%	**297**
Total	**527**	**32%**	**183**	**11%**	**500**	**31%**	**307**	**19%**	**119**	**7%**	**1,636**

Table D35: Deaths from cancer, Place of death by SIMD quintile: Lung 2012 (5 year follow-up period)

SIMD quintile	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
1 - Most deprived	548	41%	71	5%	400	30%	246	18%	65	5%	**1,330**
2	400	39%	89	9%	326	32%	165	16%	46	4%	**1,026**
3	250	30%	134	16%	266	32%	140	17%	43	5%	**833**
4	202	32%	85	14%	202	32%	98	16%	42	7%	**629**
5 - Least deprived	143	33%	39	9%	126	29%	99	23%	32	7%	**439**
Total	**1,543**	**36%**	**418**	**10%**	**1,320**	**31%**	**748**	**18%**	**228**	**5%**	**4,257**

Table D36: Deaths from cancer, Place of death by SIMD quintile: Prostate 2012 (5 year follow-up period)

SIMD quintile	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
1 - Most deprived	50	38%	11	8%	30	23%	19	15%	20	15%	**130**
2	39	28%	16	12%	45	33%	24	17%	14	10%	**138**
3	37	26%	25	18%	40	29%	22	16%	16	11%	**140**
4	43	27%	23	14%	53	33%	29	18%	13	8%	**161**
5 - Least deprived	43	34%	17	14%	30	24%	24	19%	11	9%	**125**
Total	**212**	**31%**	**92**	**13%**	**198**	**29%**	**118**	**17%**	**74**	**11%**	**694**

Table D37: Deaths from cancer, Place of death by survival time and SIMD quintile: Colorectal 2012 (5 year follow-up period)

Survival time	SIMD quintile	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
		No.	%	No.	%	No.	%	No.	%	No.	%	
1 year or less	1 - Most deprived	91	44%	11	5%	58	28%	35	17%	10	5%	**205**
	2	68	36%	28	15%	49	26%	30	16%	13	7%	**188**
	3	72	38%	32	17%	49	26%	25	13%	14	7%	**192**
	4	56	35%	29	18%	40	25%	25	16%	9	6%	**159**
	5 - Least deprived	56	35%	15	9%	40	25%	30	19%	20	12%	**161**
	Total	**343**	**38%**	**115**	**13%**	**236**	**26%**	**145**	**16%**	**66**	**7%**	**905**
1 to 5 years	1 - Most deprived	51	35%	8	6%	49	34%	23	16%	13	9%	**144**
	2	43	26%	14	8%	59	36%	40	24%	10	6%	**166**
	3	28	20%	15	11%	57	42%	24	18%	13	9%	**137**
	4	31	21%	23	16%	50	34%	33	22%	11	7%	**148**
	5 - Least deprived	31	23%	8	6%	49	36%	42	31%	6	4%	**136**
	Total	**184**	**25%**	**68**	**9%**	**264**	**36%**	**162**	**22%**	**53**	**7%**	**731**
Total		**527**	**32%**	**183**	**11%**	**500**	**31%**	**307**	**19%**	**119**	**7%**	**1,636**

Table D38: Deaths from cancer, Place of death by survival time and SIMD quintile: Lung 2012 (5 year follow-up period)

Survival time	SIMD quintile	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
		No.	%	No.	%	No.	%	No.	%	No.	%	
3 months or less	1 - Most deprived	273	55%	28	6%	124	25%	58	12%	10	2%	**493**
	2	218	53%	39	10%	105	26%	36	9%	10	2%	**408**
	3	128	43%	48	16%	73	24%	38	13%	13	4%	**300**
	4	103	44%	33	14%	61	26%	23	10%	13	6%	**233**
	5 - Least deprived	64	44%	13	9%	31	21%	28	19%	10	7%	**146**
	Total	**786**	**50%**	**161**	**10%**	**394**	**25%**	**183**	**12%**	**56**	**4%**	**1,580**
3 to 6 months	1 - Most deprived	82	34%	11	5%	93	39%	39	16%	13	5%	**238**
	2	46	27%	13	8%	64	37%	37	21%	13	8%	**173**
	3	44	30%	25	17%	45	30%	28	19%	6	4%	**148**
	4	19	19%	17	17%	30	30%	30	30%	5	5%	**101**
	5 - Least deprived	26	26%	11	11%	34	34%	18	18%	10	10%	**99**
	Total	**217**	**29%**	**77**	**10%**	**266**	**35%**	**152**	**20%**	**47**	**6%**	**759**
6 to 12 months	1 - Most deprived	100	38%	10	4%	80	30%	62	23%	13	5%	**265**
	2	57	29%	18	9%	67	34%	49	25%	5	3%	**196**
	3	34	22%	29	19%	56	36%	30	19%	7	4%	**156**
	4	33	31%	12	11%	37	35%	16	15%	8	8%	**106**
	5 - Least deprived	25	32%	3	4%	26	33%	22	28%	3	4%	**79**
	Total	**249**	**31%**	**72**	**9%**	**266**	**33%**	**179**	**22%**	**36**	**4%**	**802**
1 to 5 years	1 - Most deprived	93	28%	22	7%	103	31%	87	26%	29	9%	**334**
	2	79	32%	19	8%	90	36%	43	17%	18	7%	**249**
	3	44	19%	32	14%	92	40%	44	19%	17	7%	**229**
	4	47	25%	23	12%	74	39%	29	15%	16	8%	**189**
	5 - Least deprived	28	24%	12	10%	35	30%	31	27%	9	8%	**115**
	Total	**291**	**26%**	**108**	**10%**	**394**	**35%**	**234**	**21%**	**89**	**8%**	**1,116**
Total		**1,543**	**36%**	**418**	**10%**	**1,320**	**31%**	**748**	**18%**	**228**	**5%**	**4,257**

Table D39: Deaths from cancer, Place of death by Urban-Rural category: Breast 2012 (5 year follow-up period)

Urban-Rural category	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
Large urban areas	86	39%	11	5%	51	23%	49	22%	22	10%	**219**
Other urban areas	73	35%	7	3%	52	25%	46	22%	32	15%	**210**
Small towns*	18	21%	13	15%	28	33%	15	18%	10	12%	**84**
Rural areas*	34	26%	31	24%	32	25%	24	19%	8	6%	**129**
Total	**211**	**33%**	**62**	**10%**	**163**	**25%**	**134**	**21%**	**72**	**11%**	**642**

* Accessible and remote categories grouped together

Table D40: Deaths from cancer, Place of death by Urban-Rural category: Colorectal 2012 (5 year follow-up period)

Urban-Rural category	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
Large urban areas	204	34%	33	6%	159	27%	152	26%	46	8%	**594**
Other urban areas	175	37%	41	9%	151	32%	73	15%	33	7%	**473**
Accessible small towns	40	25%	25	16%	51	32%	33	21%	9	6%	**158**
Remote small towns	21	26%	24	30%	23	29%	6	8%	6	8%	**80**
Accessible rural areas	54	26%	32	16%	71	35%	34	17%	14	7%	**205**
Remote rural areas	33	26%	28	22%	45	36%	9	7%	11	9%	**126**
Total	**527**	**32%**	**183**	**11%**	**500**	**31%**	**307**	**19%**	**119**	**7%**	**1,636**

Table D41: Deaths from cancer, Place of death by Urban-Rural category: Lung 2012 (5 year follow-up period)

Urban-Rural category	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
Large urban areas	676	38%	90	5%	507	28%	395	22%	113	6%	**1,781**
Other urban areas	507	40%	95	7%	429	33%	195	15%	56	4%	**1,282**
Accessible small towns	122	35%	42	12%	106	30%	64	18%	16	5%	**350**
Remote small towns	46	26%	54	31%	50	28%	14	8%	12	7%	**176**
Accessible rural areas	141	34%	71	17%	140	33%	50	12%	18	4%	**420**
Remote rural areas	51	21%	66	27%	88	36%	28	11%	13	5%	**246**
Unknown	-		-		-		*2*		-		***2***
Total	**1,543**	**36%**	**418**	**10%**	**1,320**	**31%**	**748**	**18%**	**228**	**5%**	**4,257**

Table D42: Deaths from cancer, Place of death by Urban-Rural category: Prostate 2012 (5 year follow-up period)

Urban-Rural category	Large/acute hospital		Small/community hospital		Private home		Hospice/palliative care unit		Care home		Total Deaths
	No.	%	No.	%	No.	%	No.	%	No.	%	
Large urban areas	79	32%	16	7%	61	25%	60	24%	30	12%	**246**
Other urban areas	66	34%	25	13%	63	32%	26	13%	14	7%	**194**
Small towns*	20	24%	18	22%	23	28%	14	17%	8	10%	**83**
Rural areas*	47	27%	33	19%	51	30%	18	11%	22	13%	**171**
Total	**212**	**31%**	**92**	**13%**	**198**	**29%**	**118**	**17%**	**74**	**11%**	**694**

* Accessible and remote categories grouped together

Table D43: Deaths from cancer, Multinomial logistic regression results: Breast 2012
(5 year follow-up period)

Number of cases = 642

Parameter Estimates

Place of death (Reference category is **Large / Acute hospital**)		**B**	**Std. Error**	**Sig.**	**Exp(B)**	**95% Confidence Interval for Exp(B)** Lower Bound	Upper Bound
Small/community hospital	Intercept	-4.426	1.032	0.000			
	Survival (Days)	0.000	0.000	0.636	1.000	1.000	1.001
	Age at Diagnosis	0.035	0.012	0.003	1.036	1.012	1.060
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	-0.764	0.576	0.185	0.466	0.151	1.441
	[SIMD Quintile=3]	0.035	0.537	0.948	1.036	0.361	2.968
	[SIMD Quintile=4]	-0.230	0.554	0.679	0.795	0.268	2.355
	[SIMD Quintile=5. Least deprived]	-0.036	0.565	0.950	0.965	0.319	2.921
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	-0.284	0.516	0.582	0.753	0.274	2.070
	[UrbanRural (6 fold)=3.Accessible small towns]	1.515	0.596	0.011	4.549	1.413	14.640
	[UrbanRural (6 fold)=4.Remote small towns]	1.978	0.686	0.004	7.227	1.882	27.750
	[UrbanRural (6 fold)=5.Accessible rural]	1.378	0.497	0.006	3.968	1.498	10.511
	[UrbanRural (6 fold)=6.Remote rural]	2.867	0.607	0.000	17.585	5.351	57.791
Private home	Intercept	-1.167	0.596	0.050	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.015	1.001	1.000	1.001
	Age at Diagnosis	0.007	0.007	0.345	1.007	0.993	1.021
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	-0.527	0.331	0.112	0.590	0.308	1.130
	[SIMD Quintile=3]	0.023	0.341	0.946	1.023	0.525	1.995
	[SIMD Quintile=4]	-0.222	0.358	0.534	0.801	0.397	1.615
	[SIMD Quintile=5. Least deprived]	-0.256	0.356	0.471	0.774	0.385	1.554
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.175	0.258	0.499	1.191	0.718	1.975
	[UrbanRural (6 fold)=3.Accessible small towns]	1.061	0.412	0.010	2.888	1.287	6.482
	[UrbanRural (6 fold)=4.Remote small towns]	0.704	0.596	0.237	2.023	0.629	6.506
	[UrbanRural (6 fold)=5.Accessible rural]	-0.376	0.410	0.359	0.686	0.308	1.533
	[UrbanRural (6 fold)=6.Remote rural]	1.472	0.495	0.003	4.359	1.651	11.503
Hospice/Palliative care unit	Intercept	0.142	0.589	0.810	0.000	0.000	0.000
	Survival (Days)	0.000	0.000	0.184	1.000	1.000	1.001
	Age at Diagnosis	-0.013	0.007	0.075	0.987	0.973	1.001
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	-0.290	0.345	0.401	0.748	0.380	1.472
	[SIMD Quintile=3]	0.156	0.355	0.661	1.168	0.583	2.341
	[SIMD Quintile=4]	-0.037	0.373	0.921	0.964	0.464	2.001
	[SIMD Quintile=5. Least deprived]	-0.207	0.379	0.584	0.813	0.387	1.708
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.100	0.265	0.707	1.105	0.658	1.856
	[UrbanRural (6 fold)=3.Accessible small towns]	0.258	0.484	0.593	1.295	0.502	3.342
	[UrbanRural (6 fold)=4.Remote small towns]	0.674	0.616	0.274	1.962	0.586	6.569
	[UrbanRural (6 fold)=5.Accessible rural]	0.083	0.376	0.825	1.086	0.520	2.270
	[UrbanRural (6 fold)=6.Remote rural]	0.264	0.603	0.662	1.302	0.399	4.243
Care home	Intercept	-13.499	1.706	0.000	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.014	1.001	1.000	1.001
	Age at Diagnosis	0.150	0.019	0.000	1.162	1.119	1.207
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	-0.441	0.499	0.377	0.643	0.242	1.711
	[SIMD Quintile=3]	0.446	0.526	0.397	1.562	0.557	4.377
	[SIMD Quintile=4]	0.257	0.501	0.608	1.293	0.485	3.450
	[SIMD Quintile=5. Least deprived]	0.165	0.496	0.740	1.179	0.446	3.120
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.434	0.367	0.237	1.543	0.752	3.167
	[UrbanRural (6 fold)=3.Accessible small towns]	0.332	0.664	0.617	1.394	0.379	5.125
	[UrbanRural (6 fold)=4.Remote small towns]	0.693	0.743	0.351	1.999	0.466	8.568
	[UrbanRural (6 fold)=5.Accessible rural]	-0.528	0.583	0.365	0.590	0.188	1.848
	[UrbanRural (6 fold)=6.Remote rural]	-0.116	0.907	0.899	0.891	0.151	5.272

a This parameter is set to zero because it is redundant.

Table D44: Deaths from cancer, Multinomial logistic regression results: Colorectal 2012

(5 year follow-up period)

Number of cases = 1,636

Parameter Estimates

Place of death (Reference category is **Large / Acute hospital**)		**B**	**Std. Error**	**Sig.**	**Exp(B)**	**95% Confidence Interval for Exp(B)** Lower Bound	Upper Bound
Small/community hospital	Intercept	-7.357	0.826	0.000			
	Survival (Days)	0.000	0.000	0.047	1.000	1.000	1.001
	Age at Diagnosis	0.064	0.010	0.000	1.066	1.046	1.086
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.657	0.318	0.039	1.928	1.033	3.598
	[SIMD Quintile=3]	0.684	0.322	0.034	1.982	1.054	3.728
	[SIMD Quintile=4]	0.892	0.327	0.006	2.440	1.285	4.634
	[SIMD Quintile=5. Least deprived]	0.335	0.350	0.339	1.398	0.704	2.774
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.298	0.263	0.257	1.347	0.805	2.254
	[UrbanRural (6 fold)=3.Accessible small towns]	1.299	0.330	0.000	3.667	1.921	7.002
	[UrbanRural (6 fold)=4.Remote small towns]	1.902	0.370	0.000	6.702	3.245	13.845
	[UrbanRural (6 fold)=5.Accessible rural]	1.134	0.314	0.000	3.108	1.678	5.757
	[UrbanRural (6 fold)=6.Remote rural]	1.475	0.344	0.000	4.372	2.227	8.583
Private home	Intercept	-0.162	0.434	0.710	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.000	1.001	1.001	1.001
	Age at Diagnosis	-0.008	0.005	0.135	0.992	0.981	1.003
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.158	0.194	0.415	1.171	0.801	1.713
	[SIMD Quintile=3]	0.162	0.203	0.425	1.175	0.790	1.749
	[SIMD Quintile=4]	0.047	0.216	0.829	1.048	0.686	1.600
	[SIMD Quintile=5. Least deprived]	0.213	0.204	0.297	1.238	0.829	1.847
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.053	0.159	0.738	1.055	0.772	1.440
	[UrbanRural (6 fold)=3.Accessible small towns]	0.412	0.245	0.093	1.510	0.934	2.442
	[UrbanRural (6 fold)=4.Remote small towns]	0.227	0.330	0.490	1.255	0.658	2.396
	[UrbanRural (6 fold)=5.Accessible rural]	0.463	0.226	0.040	1.589	1.021	2.473
	[UrbanRural (6 fold)=6.Remote rural]	0.484	0.269	0.072	1.623	0.958	2.751
Hospice/Palliative care unit	Intercept	-0.046	0.489	0.925	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.000	1.001	1.001	1.001
	Age at Diagnosis	-0.015	0.006	0.017	0.985	0.973	0.997
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.567	0.228	0.013	1.764	1.127	2.759
	[SIMD Quintile=3]	0.390	0.248	0.115	1.477	0.909	2.400
	[SIMD Quintile=4]	0.657	0.251	0.009	1.930	1.179	3.158
	[SIMD Quintile=5. Least deprived]	0.779	0.231	0.001	2.180	1.386	3.429
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	-0.697	0.183	0.000	0.498	0.348	0.713
	[UrbanRural (6 fold)=3.Accessible small towns]	-0.106	0.269	0.694	0.899	0.531	1.524
	[UrbanRural (6 fold)=4.Remote small towns]	-1.177	0.485	0.015	0.308	0.119	0.797
	[UrbanRural (6 fold)=5.Accessible rural]	-0.394	0.262	0.133	0.674	0.403	1.127
	[UrbanRural (6 fold)=6.Remote rural]	-1.189	0.406	0.003	0.305	0.138	0.675
Care home	Intercept	-11.718	1.172	0.000	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.000	1.001	1.001	1.001
	Age at Diagnosis	0.121	0.014	0.000	1.129	1.099	1.160
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.077	0.340	0.821	1.080	0.555	2.103
	[SIMD Quintile=3]	0.310	0.341	0.364	1.363	0.698	2.660
	[SIMD Quintile=4]	0.132	0.369	0.721	1.141	0.554	2.349
	[SIMD Quintile=5. Least deprived]	0.298	0.334	0.371	1.348	0.701	2.593
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	-0.139	0.265	0.598	0.870	0.518	1.461
	[UrbanRural (6 fold)=3.Accessible small towns]	0.169	0.425	0.692	1.184	0.514	2.724
	[UrbanRural (6 fold)=4.Remote small towns]	0.428	0.518	0.408	1.535	0.556	4.238
	[UrbanRural (6 fold)=5.Accessible rural]	0.310	0.374	0.407	1.364	0.655	2.840
	[UrbanRural (6 fold)=6.Remote rural]	0.476	0.427	0.264	1.610	0.698	3.714

a This parameter is set to zero because it is redundant.

Table D45: Deaths from cancer, Multinomial logistic regression results: Lung 2012

(5 year follow-up period)

Number of cases = 4,255 (Excludes 2 cases with missing urban-rural category)

Parameter Estimates

Place of death (Reference category is **Large / Acute hospital**)		**B**	**Std. Error**	**Sig.**	**Exp(B)**	**95% Confidence Interval for Exp(B)**	
						Lower Bound	Upper Bound
Small/community hospital	Intercept	-6.633	0.517	0.000			
	Survival (Days)	0.001	0.000	0.000	1.001	1.000	1.001
	Age at Diagnosis	0.055	0.006	0.000	1.057	1.044	1.070
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.222	0.180	0.218	1.248	0.877	1.778
	[SIMD Quintile=3]	0.765	0.181	0.000	2.148	1.506	3.065
	[SIMD Quintile=4]	0.494	0.198	0.012	1.640	1.113	2.416
	[SIMD Quintile=5. Least deprived]	0.467	0.227	0.040	1.595	1.022	2.489
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.343	0.163	0.035	1.409	1.024	1.940
	[UrbanRural (6 fold)=3.Accessible small towns]	0.867	0.217	0.000	2.379	1.554	3.643
	[UrbanRural (6 fold)=4.Remote small towns]	2.106	0.241	0.000	8.214	5.119	13.179
	[UrbanRural (6 fold)=5.Accessible rural]	1.195	0.197	0.000	3.305	2.246	4.864
	[UrbanRural (6 fold)=6.Remote rural]	2.098	0.236	0.000	8.152	5.133	12.948
Private home	Intercept	-0.921	0.292	0.002	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.000	1.001	1.001	1.001
	Age at Diagnosis	0.004	0.004	0.282	1.004	0.997	1.012
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.070	0.103	0.498	1.072	0.877	1.311
	[SIMD Quintile=3]	0.242	0.116	0.037	1.274	1.014	1.600
	[SIMD Quintile=4]	0.162	0.127	0.204	1.175	0.916	1.508
	[SIMD Quintile=5. Least deprived]	0.163	0.141	0.248	1.176	0.893	1.550
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.100	0.091	0.269	1.105	0.926	1.320
	[UrbanRural (6 fold)=3.Accessible small towns]	0.098	0.148	0.509	1.103	0.825	1.475
	[UrbanRural (6 fold)=4.Remote small towns]	0.304	0.217	0.161	1.355	0.886	2.072
	[UrbanRural (6 fold)=5.Accessible rural]	0.218	0.141	0.121	1.243	0.944	1.638
	[UrbanRural (6 fold)=6.Remote rural]	0.743	0.194	0.000	2.103	1.437	3.077
Hospice/Palliative care unit	Intercept	0.360	0.333	0.280	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.000	1.001	1.001	1.001
	Age at Diagnosis	-0.019	0.004	0.000	0.981	0.972	0.990
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.065	0.124	0.604	1.067	0.836	1.361
	[SIMD Quintile=3]	0.357	0.138	0.010	1.429	1.090	1.874
	[SIMD Quintile=4]	0.227	0.155	0.142	1.254	0.927	1.698
	[SIMD Quintile=5. Least deprived]	0.526	0.155	0.001	1.693	1.249	2.294
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	-0.456	0.109	0.000	0.634	0.512	0.785
	[UrbanRural (6 fold)=3.Accessible small towns]	-0.190	0.172	0.267	0.827	0.591	1.157
	[UrbanRural (6 fold)=4.Remote small towns]	-0.769	0.316	0.015	0.463	0.249	0.861
	[UrbanRural (6 fold)=5.Accessible rural]	-0.609	0.185	0.001	0.544	0.379	0.781
	[UrbanRural (6 fold)=6.Remote rural]	-0.218	0.253	0.390	0.804	0.490	1.321
Care home	Intercept	-10.472	0.750	0.000	0.000	0.000	0.000
	Survival (Days)	0.002	0.000	0.000	1.002	1.002	1.002
	Age at Diagnosis	0.104	0.009	0.000	1.109	1.090	1.129
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.013	0.214	0.951	1.013	0.666	1.542
	[SIMD Quintile=3]	0.290	0.230	0.207	1.337	0.852	2.099
	[SIMD Quintile=4]	0.401	0.234	0.086	1.493	0.944	2.362
	[SIMD Quintile=5. Least deprived]	0.484	0.245	0.048	1.623	1.003	2.625
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	-0.289	0.184	0.116	0.749	0.523	1.074
	[UrbanRural (6 fold)=3.Accessible small towns]	-0.207	0.296	0.485	0.813	0.455	1.453
	[UrbanRural (6 fold)=4.Remote small towns]	0.523	0.360	0.146	1.687	0.833	3.417
	[UrbanRural (6 fold)=5.Accessible rural]	-0.200	0.289	0.487	0.818	0.465	1.441
	[UrbanRural (6 fold)=6.Remote rural]	0.504	0.354	0.155	1.655	0.827	3.313

a This parameter is set to zero because it is redundant.

Table D46: Deaths from cancer, Multinomial logistic regression results: Prostate 2012

(5 year follow-up period)

Number of cases = 694

Parameter Estimates

Place of death (Reference category is **Large / Acute hospital**)		**B**	**Std. Error**	**Sig.**	**Exp(B)**	**95% Confidence Interval for Exp(B)**	
						Lower Bound	Upper Bound
Small/community hospital	Intercept	-6.303	1.310	0.000			
	Survival (Days)	0.000	0.000	0.196	1.000	1.000	1.001
	Age at Diagnosis	0.054	0.015	0.000	1.056	1.025	1.088
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.240	0.464	0.605	1.271	0.512	3.156
	[SIMD Quintile=3]	0.599	0.464	0.197	1.820	0.733	4.521
	[SIMD Quintile=4]	0.476	0.461	0.302	1.610	0.652	3.974
	[SIMD Quintile=5. Least deprived]	0.193	0.457	0.673	1.213	0.496	2.967
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.625	0.369	0.091	1.868	0.906	3.854
	[UrbanRural (6 fold)=3.Accessible small towns]	1.365	0.499	0.006	3.914	1.472	10.413
	[UrbanRural (6 fold)=4.Remote small towns]	1.622	0.647	0.012	5.062	1.423	18.000
	[UrbanRural (6 fold)=5.Accessible rural]	0.873	0.426	0.041	2.393	1.038	5.519
	[UrbanRural (6 fold)=6.Remote rural]	1.527	0.528	0.004	4.603	1.635	12.955
Private home	Intercept	-0.883	0.910	0.332	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.000	1.001	1.000	1.001
	Age at Diagnosis	-0.004	0.011	0.751	0.996	0.975	1.018
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.621	0.331	0.061	1.861	0.973	3.560
	[SIMD Quintile=3]	0.409	0.352	0.245	1.505	0.756	2.998
	[SIMD Quintile=4]	0.733	0.335	0.029	2.081	1.079	4.013
	[SIMD Quintile=5. Least deprived]	0.112	0.343	0.745	1.118	0.571	2.189
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	0.091	0.254	0.721	1.095	0.665	1.803
	[UrbanRural (6 fold)=3.Accessible small towns]	0.084	0.433	0.845	1.088	0.466	2.540
	[UrbanRural (6 fold)=4.Remote small towns]	0.749	0.561	0.182	2.115	0.705	6.350
	[UrbanRural (6 fold)=5.Accessible rural]	-0.166	0.327	0.612	0.847	0.447	1.607
	[UrbanRural (6 fold)=6.Remote rural]	0.730	0.438	0.096	2.075	0.879	4.896
Hospice/Palliative care unit	Intercept	2.641	1.015	0.009	0.000	0.000	0.000
	Survival (Days)	0.001	0.000	0.026	1.001	1.000	1.001
	Age at Diagnosis	-0.053	0.013	0.000	0.949	0.925	0.973
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	0.809	0.396	0.041	2.246	1.034	4.881
	[SIMD Quintile=3]	0.616	0.415	0.138	1.851	0.820	4.179
	[SIMD Quintile=4]	0.935	0.395	0.018	2.548	1.175	5.526
	[SIMD Quintile=5. Least deprived]	0.644	0.392	0.101	1.904	0.883	4.106
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	-0.813	0.303	0.007	0.444	0.245	0.803
	[UrbanRural (6 fold)=3.Accessible small towns]	-0.329	0.479	0.491	0.719	0.282	1.838
	[UrbanRural (6 fold)=4.Remote small towns]	0.030	0.652	0.964	1.030	0.287	3.694
	[UrbanRural (6 fold)=5.Accessible rural]	-1.289	0.416	0.002	0.276	0.122	0.623
	[UrbanRural (6 fold)=6.Remote rural]	-0.265	0.543	0.626	0.768	0.265	2.226
Care home	Intercept	-13.046	1.845	0.000	0.000	0.000	0.000
	Survival (Days)	0.000	0.000	0.137	1.000	1.000	1.001
	Age at Diagnosis	0.150	0.022	0.000	1.162	1.114	1.212
	[SIMD Quintile=x1. Most deprived]	0[a]	.	.	.	.	.
	[SIMD Quintile=2]	-0.449	0.451	0.319	0.638	0.263	1.545
	[SIMD Quintile=3]	-0.125	0.481	0.795	0.882	0.344	2.266
	[SIMD Quintile=4]	-0.680	0.493	0.167	0.506	0.193	1.331
	[SIMD Quintile=5. Least deprived]	-1.042	0.470	0.027	0.353	0.140	0.887
	[UrbanRural (6 fold)=x1.Large urban]	0[a]	.	.	.	.	.
	[UrbanRural (6 fold)=2.Other urban]	-0.501	0.391	0.201	0.606	0.281	1.305
	[UrbanRural (6 fold)=3.Accessible small towns]	0.431	0.571	0.450	1.538	0.503	4.709
	[UrbanRural (6 fold)=4.Remote small towns]	0.020	0.905	0.983	1.020	0.173	6.010
	[UrbanRural (6 fold)=5.Accessible rural]	0.383	0.450	0.395	1.466	0.608	3.539
	[UrbanRural (6 fold)=6.Remote rural]	0.389	0.601	0.518	1.475	0.454	4.792

a This parameter is set to zero because it is redundant.

Table D47: Deaths from cancer, Percentage prescribed an opioid in the community by proximity to death and cancer type: 2012 (5 year follow-up period)

Time prior to death	Breast 2012			Colorectal 2012			Lung 2012			Prostate 2012		
	No. prescribed opioid	Total	% prescribed opioid	No. prescribed opioid	Total	% prescribed opioid	No. prescribed opioid	Total	% prescribed opioid	No. prescribed opioid	Total	% prescribed opioid
15-18 months	98	422	23%	105	620	17%	227	845	27%	113	464	24%
12-15 months	122	454	27%	139	731	19%	348	1,116	31%	137	500	27%
9-12 months	147	494	30%	201	863	23%	512	1,455	35%	173	546	32%
6-9 months	166	537	31%	278	1,014	27%	772	1,918	40%	209	584	36%
3-6 months	233	587	40%	435	1,231	35%	1,255	2,677	47%	292	627	47%
0-3 months	408	641	64%	968	1,628	59%	2,599	4,231	61%	478	694	69%

Table D48: Deaths from cancer, Acute admissions and length of stay in last year of life by cancer type: 2012 (5 year follow-up period)

Cohort	Total deaths	Zero stays		At least one stay	Length of stay				No. of Inpatient stays			No. of Day cases		
		No.	%	No.	Mean	Median	% of time (all stays)	% of time (non elective)	Mean	Median	Maximum	Mean	Median	Maximum
Breast 2012	642	63	10%	579	35	27	12%	9%	3	2	13	3	0	39
Colorectal 2012	1,636	83	5%	1,553	37	25	16%	12%	3	2	18	2	0	42
Lung 2012	4,257	239	6%	4,018	31	21	17%	14%	2	2	14	1	0	21
Prostate 2012	694	54	8%	640	43	33	14%	12%	3	2	14	1	0	35

Table D49: Deaths from cancer, Acute admissions and length of stay in last year of life by survival time (OG3 and OG4): Breast 2012 (5 year follow-up period) [79]

Survival time	Total deaths	Zero stays		No. with at least one stay	Length of stay				No. of Inpatient stays	
		No.	%		Mean	Median	% of time (all stays)	% of time (non elective)	Mean	Median
6 months or less	105	12	11%	93	31	20	38%	34%	2	1
6 to 12 months	83	7	8%	76	39	30	15%	11%	3	2
1 to 2 years	141	17	12%	124	36	27	10%	7%	3	3
2 to 5 years	313	27	9%	286	36	30	10%	7%	3	2

[79] There were a very small number of deaths from cancer for people who were not in OG3 or OG4 so totals in tables D49-D51 may differ slightly from other tables. See Technical appendix, Cause of death section [p 28] for the definitional reason for these exceptions.

Table D50: Deaths from cancer, Acute admissions and length of stay in last year of life by survival time (OG3 and OG4): Colorectal 2012 (5 year follow-up period)[79]

Survival time	Total deaths	Zero stays		No. with at least one stay	Length of stay				No. of Inpatient stays	
		No.	%		Mean	Median	% of time (all stays)	% of time (non elective)	Mean	Median
1 month or less	177	9	5%	168	11	10	77%	73%	1	1
1 to 2 months	121	4	3%	117	28	25	62%	55%	1	1
2 to 3 months	107	7	7%	100	33	26	45%	38%	2	2
3 to 6 months	217	12	6%	205	41	32	30%	23%	2	2
6 to 12 months	283	4	1%	279	49	34	18%	13%	3	3
1 to 2 years	340	23	7%	317	44	31	12%	8%	4	3
2 to 5 years	390	24	6%	366	35	25	10%	7%	3	2

Table D51: Deaths from cancer, Acute admissions and length of stay in last year of life by survival time (OG3 and OG4): Lung 2012 (5 year follow-up period)[79]

Survival time	Total deaths	Zero stays		No. with at least one stay	Length of stay				No. of Inpatient stays	
		No.	%		Mean	Median	% of time (all stays)	% of time (non elective)	Mean	Median
1 month or less	691	47	7%	644	13	12	75%	71%	1	1
1 to 2 months	523	25	5%	498	23	22	52%	48%	1	1
2 to 3 months	366	13	4%	353	28	22	38%	34%	2	2
3 to 6 months	759	35	5%	724	33	24	25%	20%	2	2
6 to 12 months	802	18	2%	784	38	28	14%	11%	3	3
1 to 2 years	686	64	9%	622	38	26	11%	9%	3	2
2 to 5 years	428	36	8%	392	39	27	11%	9%	3	2

Table D52: Deaths from cancer, Acute admissions and length of stay in last year of life by survival time (OG3 and OG4): Prostate 2012 (5 year follow-up period)[79]

Survival time	Total deaths	Zero stays		No. with at least one stay	Length of stay				No. of Inpatient stays	
		No.	%		Mean	Median	% of time (all stays)	% of time (non elective)	Mean	Median
6 months or less	110	15	14%	95	32	25	37%	34%	2	2
6 to 12 months	84	8	10%	76	52	41	19%	15%	3	3
1 to 2 years	167	8	5%	159	46	39	13%	11%	3	2
2 to 5 years	332	23	7%	309	42	33	11%	10%	3	2