
Recent trends in incidence, survival and mortality of cancer (ex NMSC) in Northern Ireland

(A comparison between April-December of 2021, 2020 and 2018-2019)

Further information

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Acknowledgements

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INCIDENCE

During the April-December period the number of cases of cancer (ex NMSC) diagnosed increased between 2018-2019 and 2021 by 4.0% from 7,748 cases per year to 8,055 cases.

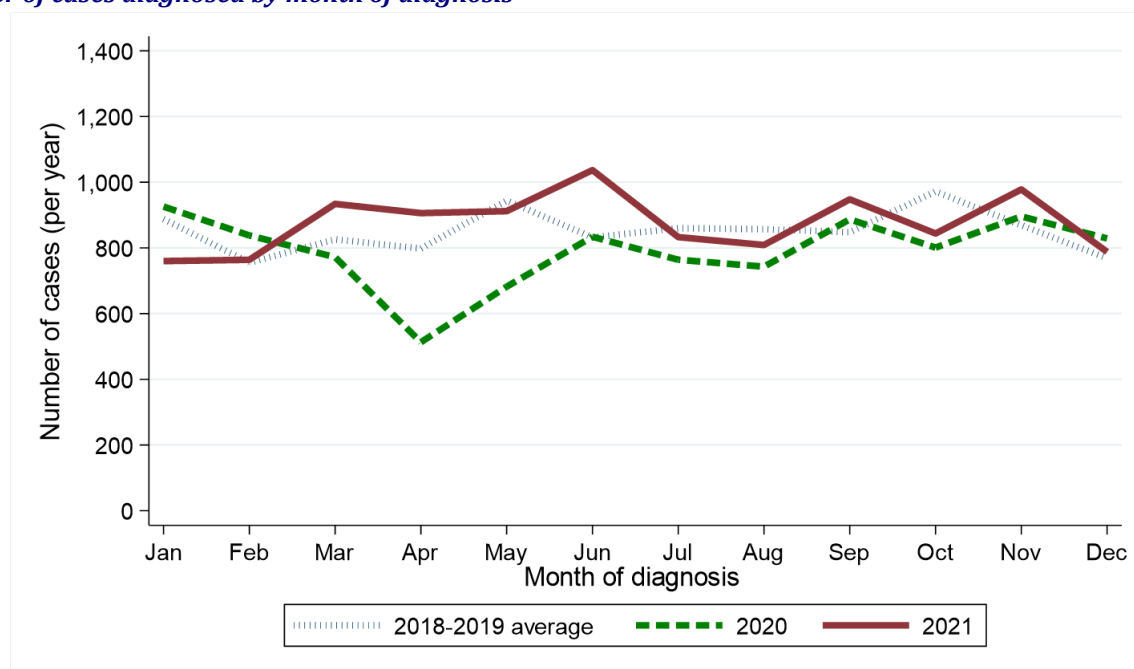
Table 1: Number of cancer (ex NMSC) cases diagnosed in 2018-2021 by month and year of diagnosis

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	10,216	888	755	826	798	944	832	860	857	848	972	869	769
2020	9,485	926	838	772	513	682	834	764	743	887	801	896	829
2021	10,513	760	764	934	906	912	1,037	833	809	948	844	978	788

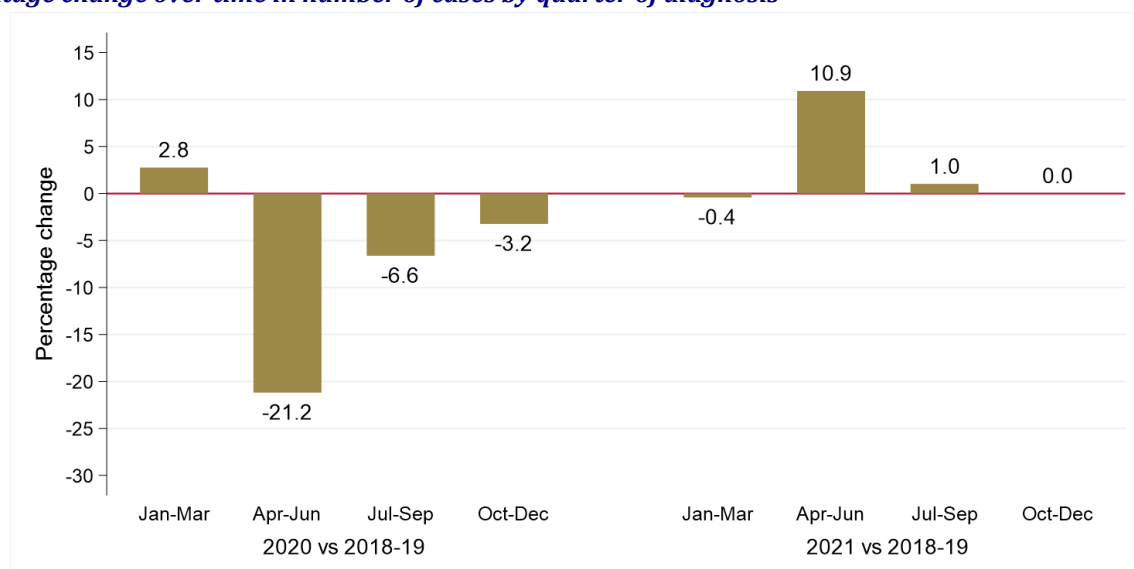
* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

Figure 1: Number of cancer (ex NMSC) cases diagnosed in 2018-2021 by month/quarter and year of diagnosis

(a) Number of cases diagnosed by month of diagnosis



(b) Percentage change over time in number of cases by quarter of diagnosis



GENDER

Excluding the first quarter of each year the number of male cancer (ex NMSC) cases diagnosed increased by 5.2% from 3,923 per year in 2018-2019 to 4,128 in 2021. Between the same two time periods the number of female cancer (ex NMSC) cases diagnosed increased by 2.7% from 3,825 per year in 2018-2019 to 3,927 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

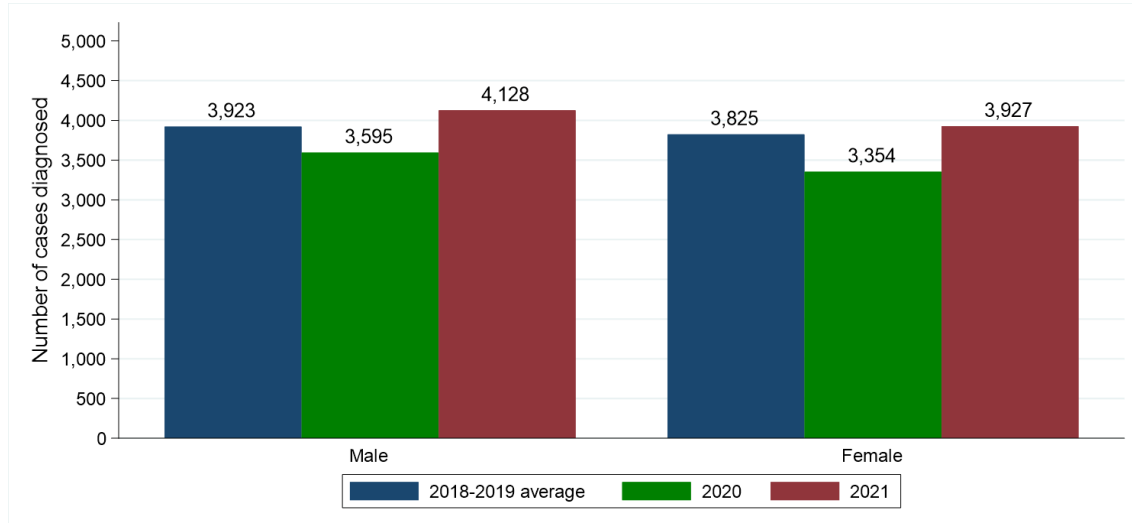
Table 2: Number and proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis

Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All persons	7,748	6,949	8,055	-10.3%	+4.0%
Male	3,923 (50.6%)	3,595 (51.7%)	4,128 (51.2%)	-8.4%	+5.2%
Female	3,825 (49.4%)	3,354 (48.3%)	3,927 (48.8%)	-12.3%	+2.7%

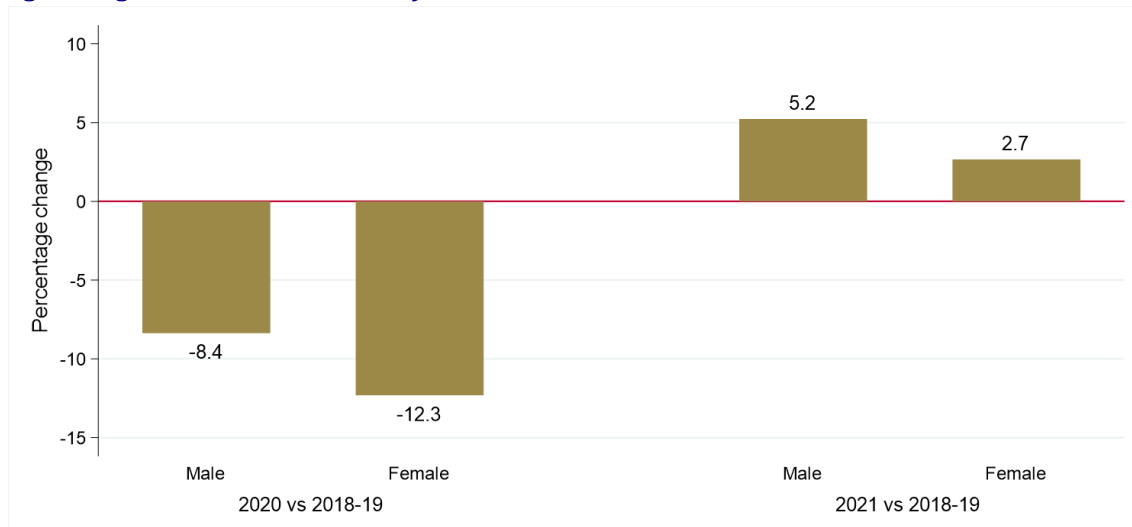
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 2: Number of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



AGE

Excluding the first quarter of each year the number of cases of cancer (ex NMSC) diagnosed among those aged 0 to 54 decreased by 1.7% from 1,360 per year in 2018-2019 to 1,337 in 2021. Between the same two time periods the number of cases of cancer (ex NMSC) diagnosed among those aged 75 and over increased by 9.0% from 2,633 per year in 2018-2019 to 2,871 in 2021. The change in case distribution by age between 2018-2019 and 2021 was statistically significant ($p = 0.006$).

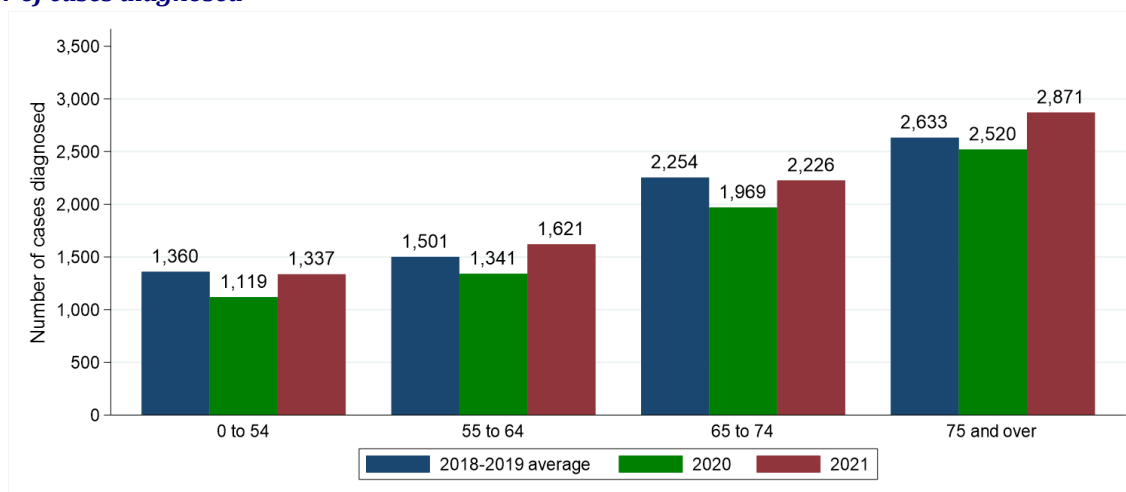
Table 3: Number and proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by age and period of diagnosis

Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All ages	7,748	6,949	8,055	-10.3%	+4.0%
0 to 54	1,360 (17.6%)	1,119 (16.1%)	1,337 (16.6%)	-17.7%	-1.7%
55 to 64	1,501 (19.4%)	1,341 (19.3%)	1,621 (20.1%)	-10.7%	+8.0%
65 to 74	2,254 (29.1%)	1,969 (28.3%)	2,226 (27.6%)	-12.6%	-1.2%
75 and over	2,633 (34.0%)	2,520 (36.3%)	2,871 (35.6%)	-4.3%	+9.0%

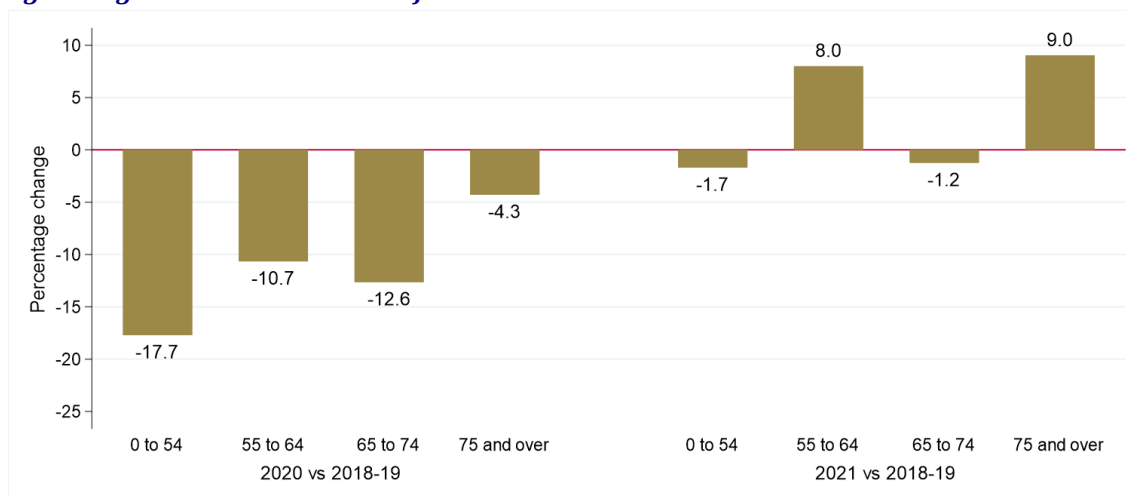
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 3: Number of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by age and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



CANCER TYPE

Excluding the first quarter of each year the number of bladder cancer cases diagnosed increased by 20.4% between 2018-2019 and 2021, while oesophageal cancer increased by 17.0% and colorectal cancer by 16.7%. Between the same two time periods the number of cases of leukaemia decreased by 13.5%, while head and neck cancer decreased by 13.1%.

Between 2018-2019 and 2021 (excluding the first quarter of each year) the number of cases of:

- Breast (Female and Male) cancer diagnosed increased by 8.8% from 1,124 cases per year to 1,223 cases.
- Lung cancer (including trachea) diagnosed decreased by 1.6% from 1,036 cases per year to 1,019 cases.
- Prostate cancer diagnosed increased by 6.1% from 1,040 cases per year to 1,103 cases.
- Colorectal cancer diagnosed increased by 16.7% from 911 cases per year to 1,063 cases.
- Lymphoma diagnosed increased by 11.9% from 319 cases per year to 357 cases.

The change in case distribution by cancer type between 2018-2019 and 2021 was statistically significant ($p = 0.008$).

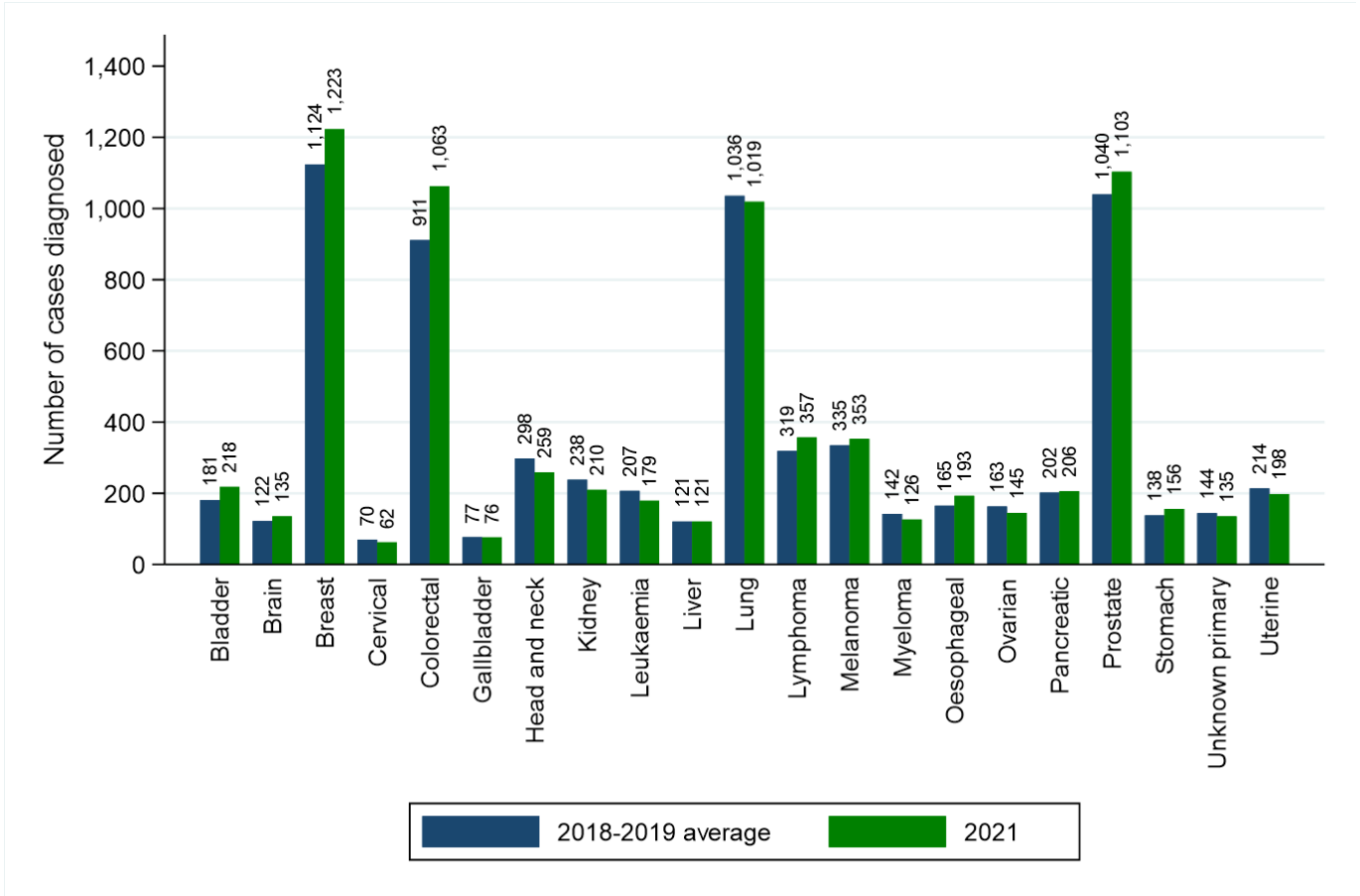
Table 4: Number and proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by cancer type and period of diagnosis

Cancer type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All cancers	7,748	6,949	8,055	-10.3%	+4.0%
Bladder	181 (2.3%)	176 (2.5%)	218 (2.7%)	-2.8%	+20.4%
Bone	11 (0.1%)	11 (0.2%)	14 (0.2%)	0.0%	+27.3%
Brain	122 (1.6%)	120 (1.7%)	135 (1.7%)	-1.6%	+10.7%
Breast (Female and male)	1,124 (14.5%)	1,007 (14.5%)	1,223 (15.2%)	-10.4%	+8.8%
Cervical	70 (0.9%)	55 (0.8%)	62 (0.8%)	-21.4%	-11.4%
Colorectal	911 (11.8%)	804 (11.6%)	1,063 (13.2%)	-11.7%	+16.7%
Gallbladder	77 (1.0%)	94 (1.4%)	76 (0.9%)	+22.1%	-1.3%
Head and neck	298 (3.8%)	238 (3.4%)	259 (3.2%)	-20.1%	-13.1%
Kidney	238 (3.1%)	190 (2.7%)	210 (2.6%)	-20.2%	-11.8%
Leukaemia	207 (2.7%)	194 (2.8%)	179 (2.2%)	-6.3%	-13.5%
Liver	121 (1.6%)	105 (1.5%)	121 (1.5%)	-13.2%	0.0%
Lung	1,036 (13.4%)	989 (14.2%)	1,019 (12.7%)	-4.5%	-1.6%
Lymphoma	319 (4.1%)	294 (4.2%)	357 (4.4%)	-7.8%	+11.9%
Melanoma	335 (4.3%)	205 (3.0%)	353 (4.4%)	-38.8%	+5.4%
Mesothelioma	40 (0.5%)	35 (0.5%)	37 (0.5%)	-12.5%	-7.5%
Myeloma	142 (1.8%)	122 (1.8%)	126 (1.6%)	-14.1%	-11.3%
Oesophageal	165 (2.1%)	130 (1.9%)	193 (2.4%)	-21.2%	+17.0%
Ovarian	163 (2.1%)	132 (1.9%)	145 (1.8%)	-19.0%	-11.0%
Pancreatic	202 (2.6%)	243 (3.5%)	206 (2.6%)	+20.3%	+2.0%
Prostate	1,040 (13.4%)	916 (13.2%)	1,103 (13.7%)	-11.9%	+6.1%
Stomach	138 (1.8%)	135 (1.9%)	156 (1.9%)	-2.2%	+13.0%
Testicular	51 (0.7%)	46 (0.7%)	42 (0.5%)	-9.8%	-17.6%
Thyroid	114 (1.5%)	110 (1.6%)	115 (1.4%)	-3.5%	+0.9%
Unknown primary	144 (1.9%)	129 (1.9%)	135 (1.7%)	-10.4%	-6.3%
Uterine	214 (2.8%)	178 (2.6%)	198 (2.5%)	-16.8%	-7.5%
Other	290 (3.7%)	291 (4.2%)	310 (3.8%)	+0.3%	+6.9%

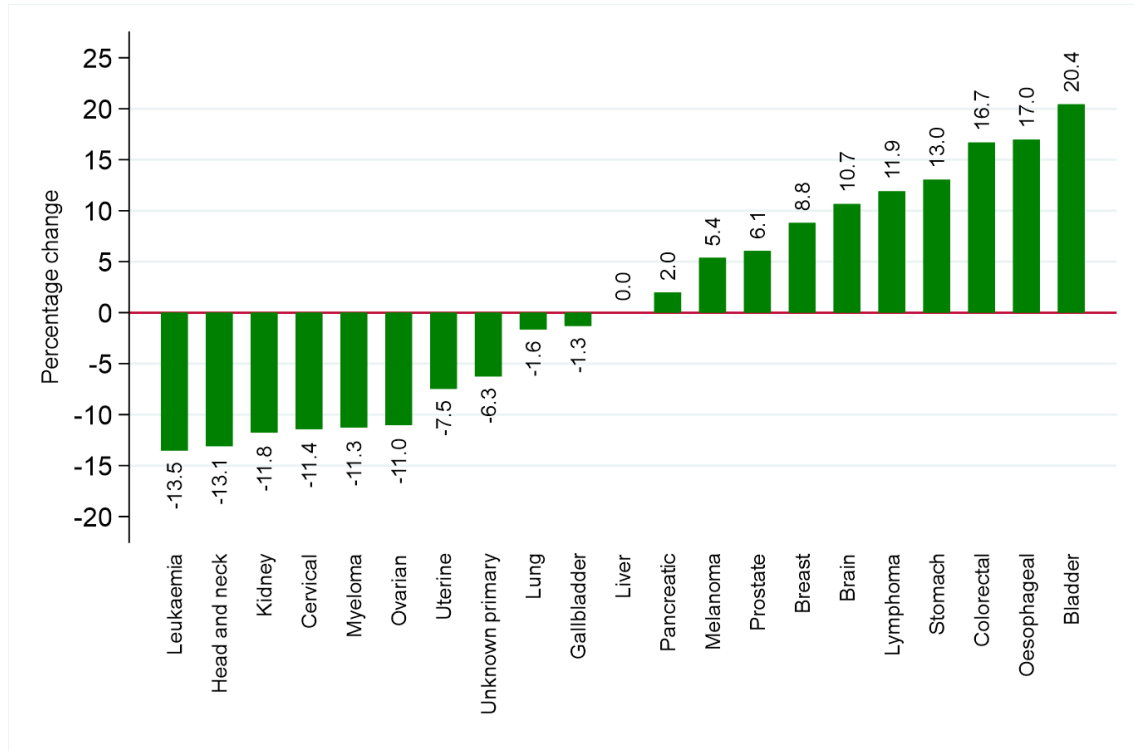
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 4: Number of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by cancer type and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



HEALTH AND SOCIAL CARE TRUST

Excluding the first quarter of each year the number of cases of cancer (ex NMSC) diagnosed among those resident in Belfast HSCT decreased by 0.8% from 1,497 per year in 2018-2019 to 1,485 in 2021. Between the same two time periods the number of cases of cancer (ex NMSC) diagnosed among those resident in Southern HSCT increased by 8.3% from 1,416 per year in 2018-2019 to 1,534 in 2021. The change in case distribution by Health and Social Care Trust between 2018-2019 and 2021 was not statistically significant.

Table 5: Number and proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

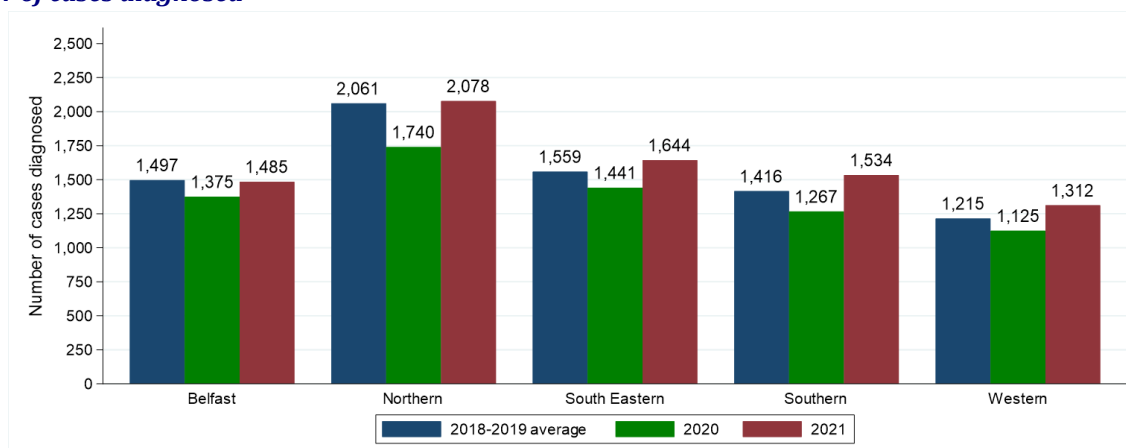
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	7,748	6,949	8,055	-10.3%	+4.0%
Belfast	1,497 (19.3%)	1,375 (19.8%)	1,485 (18.4%)	-8.1%	-0.8%
Northern	2,061 (26.6%)	1,740 (25.0%)	2,078 (25.8%)	-15.6%	+0.8%
South Eastern	1,559 (20.1%)	1,441 (20.7%)	1,644 (20.4%)	-7.6%	+5.5%
Southern	1,416 (18.3%)	1,267 (18.2%)	1,534 (19.0%)	-10.5%	+8.3%
Western	1,215 (15.7%)	1,125 (16.2%)	1,312 (16.3%)	-7.4%	+8.0%

* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

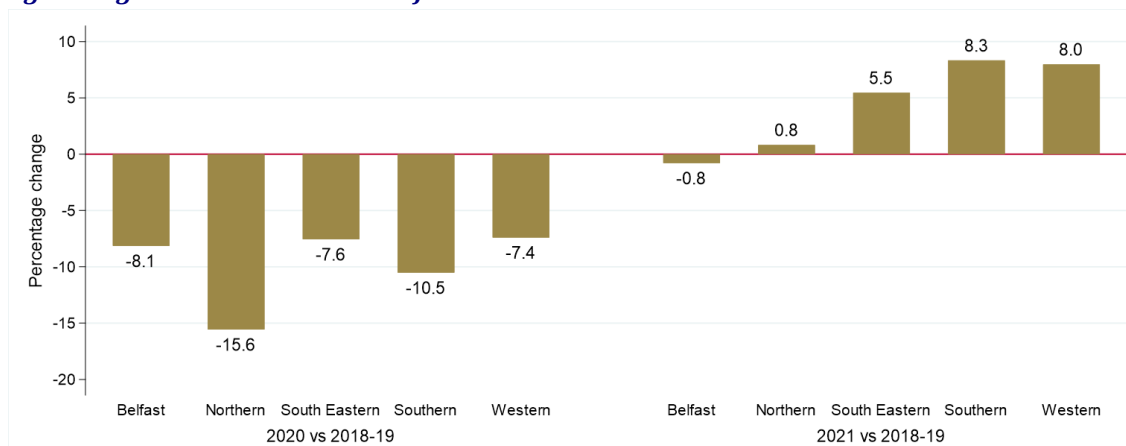
Note: Cases with unknown Health and Social Care Trust are included in totals.

Figure 5: Number of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



SOCIO-ECONOMIC DEPRIVATION

Excluding the first quarter of each year the number of cases of cancer (ex NMSC) diagnosed among those resident in the least deprived quintile increased by 3.1% from 1,614 per year in 2018-2019 to 1,664 in 2021. Between the same two time periods the number of cases of cancer (ex NMSC) diagnosed among those resident in the most deprived quintile increased by 3.7% from 1,417 per year in 2018-2019 to 1,470 in 2021. The change in case distribution by deprivation quintile between 2018-2019 and 2021 was not statistically significant.

Table 6: Number and proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

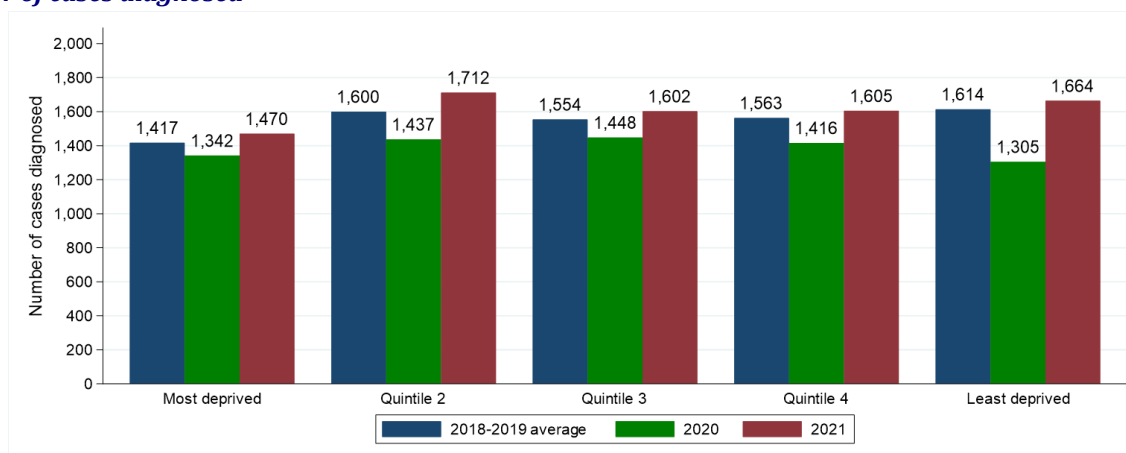
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	7,748	6,949	8,055	-10.3%	+4.0%
Most deprived	1,417 (18.3%)	1,342 (19.3%)	1,470 (18.2%)	-5.3%	+3.7%
Quintile 2	1,600 (20.7%)	1,437 (20.7%)	1,712 (21.3%)	-10.2%	+7.0%
Quintile 3	1,554 (20.1%)	1,448 (20.8%)	1,602 (19.9%)	-6.8%	+3.1%
Quintile 4	1,563 (20.2%)	1,416 (20.4%)	1,605 (19.9%)	-9.4%	+2.7%
Least deprived	1,614 (20.8%)	1,305 (18.8%)	1,664 (20.7%)	-19.1%	+3.1%

* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

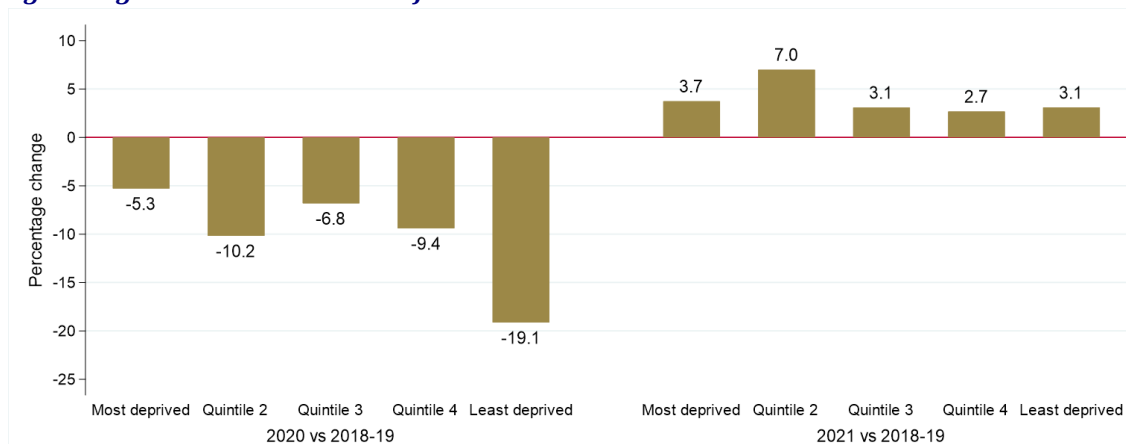
Note: Cases with unknown deprivation quintile are included in totals.

Figure 6: Number of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

(a) Number of cases diagnosed



(b) Percentage change over time in number of cases



BASIS OF DIAGNOSIS

Excluding the first quarter of each year the number of cases of cancer (ex NMSC) diagnosed via histology/cytology increased by 4.2% from 6,589 per year in 2018-2019 to 6,868 in 2021. As a proportion of all cases, histology/cytology diagnosis increased from 85.0% in 2018-2019 to 85.3% in 2021. The change in case distribution by basis of diagnosis between 2018-2019 and 2021 was not statistically significant.

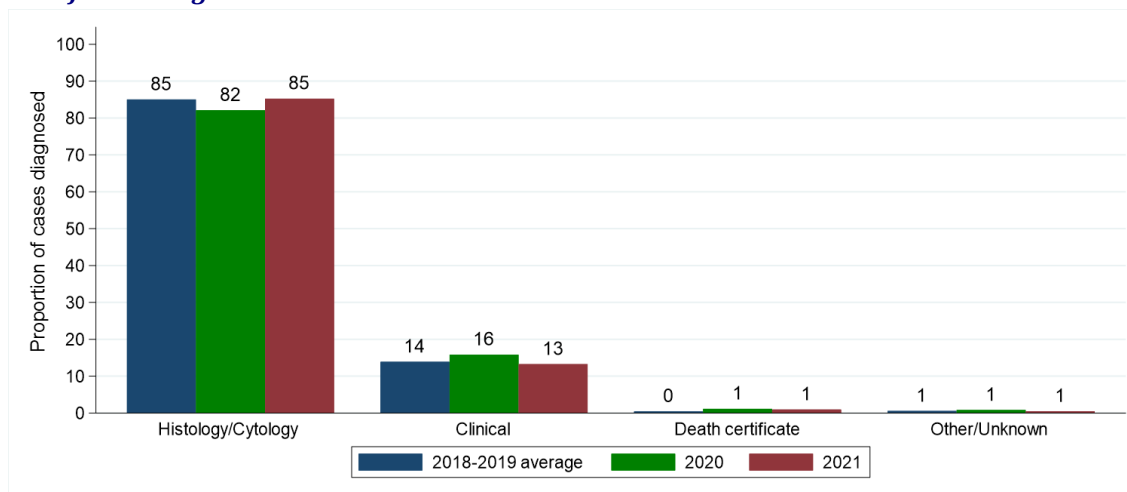
Table 7: Number and proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by basis and period of diagnosis

Basis of diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All types	7,748	6,949	8,055	-10.3%	+4.0%
Histology/Cytology	6,589 (85.0%)	5,707 (82.1%)	6,868 (85.3%)	-13.4%	+4.2%
Clinical	1,079 (13.9%)	1,102 (15.9%)	1,068 (13.3%)	+2.1%	-1.0%
Death certificate	36 (0.5%)	81 (1.2%)	78 (1.0%)	+125.0%	+116.7%
Other/Unknown	45 (0.6%)	59 (0.8%)	41 (0.5%)	+31.1%	-8.9%

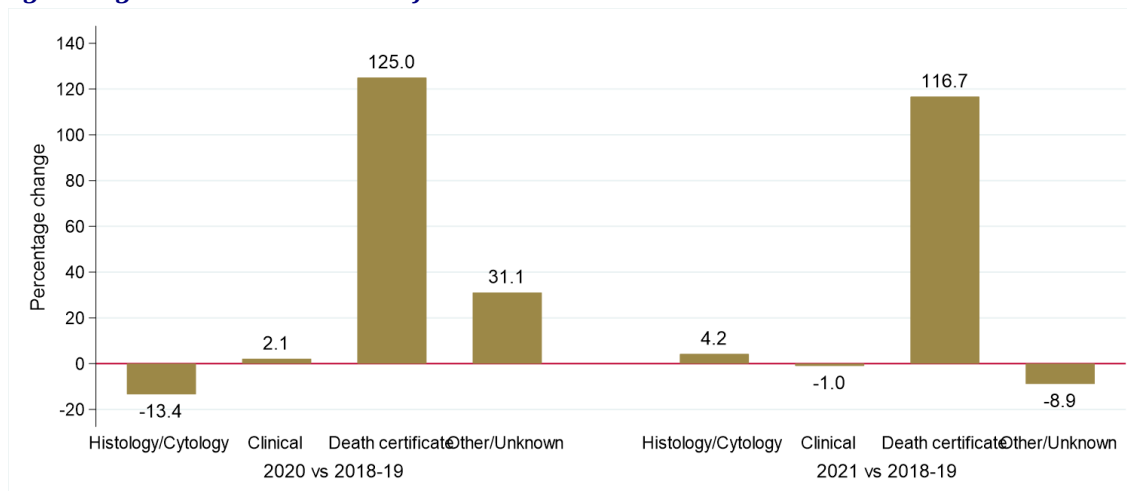
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 7: Proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by basis and period of diagnosis

(a) Proportion of cases diagnosed



(b) Percentage change over time in number of cases



STAGE AT DIAGNOSIS

The number of cancer (ex NMSC) cases diagnosed at stage I in April to December of each year increased by 5.1% from 2,269 per year in 2018-2019 to 2,385 in 2021. In addition the number of cancer (ex NMSC) cases diagnosed at stage IV increased by 7.8% from 1,583 per year in 2018-2019 to 1,707 in 2021. As a proportion of all cases, stage IV diagnosis increased from 20.4% in 2018-2019 to 21.2% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

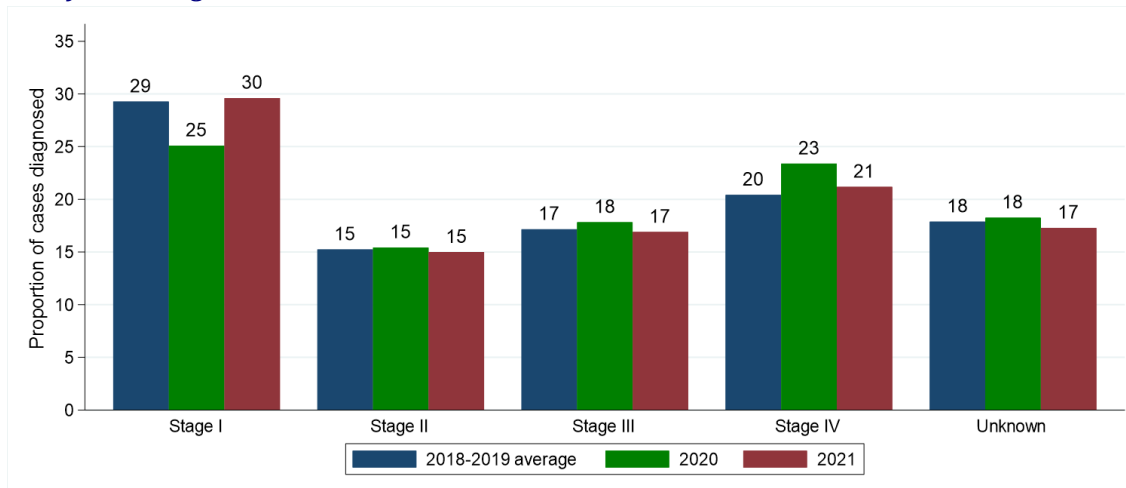
Table 8: Number and proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	7,748	6,949	8,055	-10.3%	+4.0%
Stage I	2,269 (29.3%)	1,744 (25.1%)	2,385 (29.6%)	-23.1%	+5.1%
Stage II	1,181 (15.2%)	1,072 (15.4%)	1,208 (15.0%)	-9.2%	+2.3%
Stage III	1,330 (17.2%)	1,239 (17.8%)	1,362 (16.9%)	-6.8%	+2.4%
Stage IV	1,583 (20.4%)	1,625 (23.4%)	1,707 (21.2%)	+2.7%	+7.8%
Unknown	1,386 (17.9%)	1,269 (18.3%)	1,393 (17.3%)	-8.4%	+0.5%

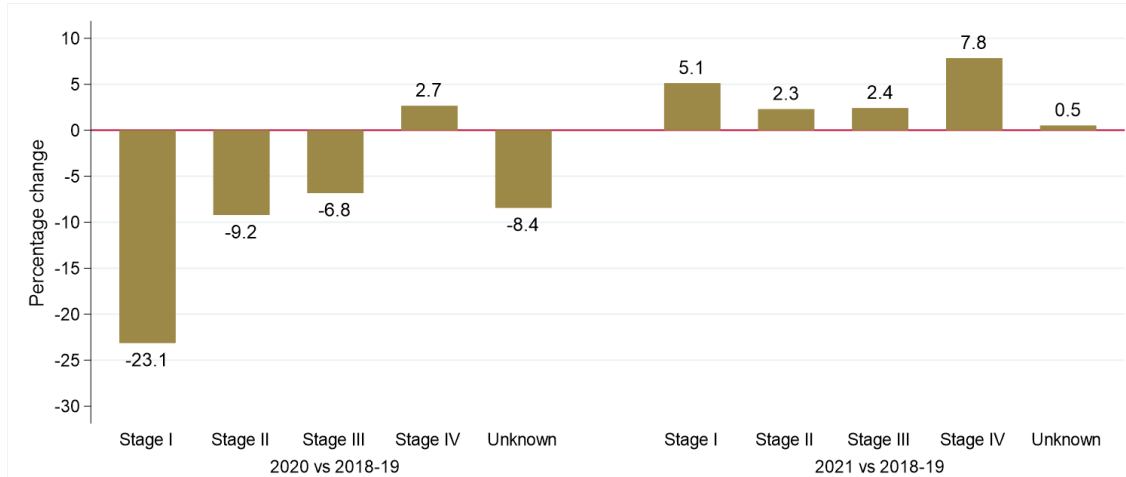
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 8: Proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis

(a) Proportion of cases diagnosed



(b) Percentage change over time in number of cases



TREATMENT

Excluding the first quarter of each year the number of cancer (ex NMSC) cases resulting in treatment by surgery within six months increased by 3.2% from 3,345 per year in 2018-2019 to 3,452 in 2021. The resulting decrease in the proportion receiving surgery from 43.2% in 2018-2019 to 42.9% in 2021 was not statistically significant.

Between the same two time periods the number of cancer (ex NMSC) cases resulting in treatment by systemic therapy increased by 8.8% from 2,200 per year in 2018-2019 to 2,393 in 2021. The resulting increase in the proportion receiving systemic therapy from 28.4% in 2018-2019 to 29.7% in 2021 was statistically significant ($p = 0.035$).

The number of cancer (ex NMSC) cases treated with radiotherapy decreased by 2.2% from 1,896 per year in 2018-2019 to 1,855 in 2021. The resulting decrease in the proportion receiving radiotherapy from 24.5% in 2018-2019 to 23.0% in 2021 was statistically significant ($p = 0.014$).

The number of cancer (ex NMSC) cases resulting in treatment by hormone therapy increased by 0.8% from 1,428 per year in 2018-2019 to 1,439 in 2021. The resulting decrease in the proportion receiving hormone therapy from 18.4% in 2018-2019 to 17.9% in 2021 was not statistically significant.

Excluding the first quarter of each year the number of cancer (ex NMSC) cases receiving none of these treatments within six months of diagnosis increased by 8.9% from 2,091 per year in 2018-2019 to 2,277 in 2021. The resulting increase in the proportion receiving none of these treatments from 27.0% in 2018-2019 to 28.3% in 2021 was statistically significant ($p = 0.037$).

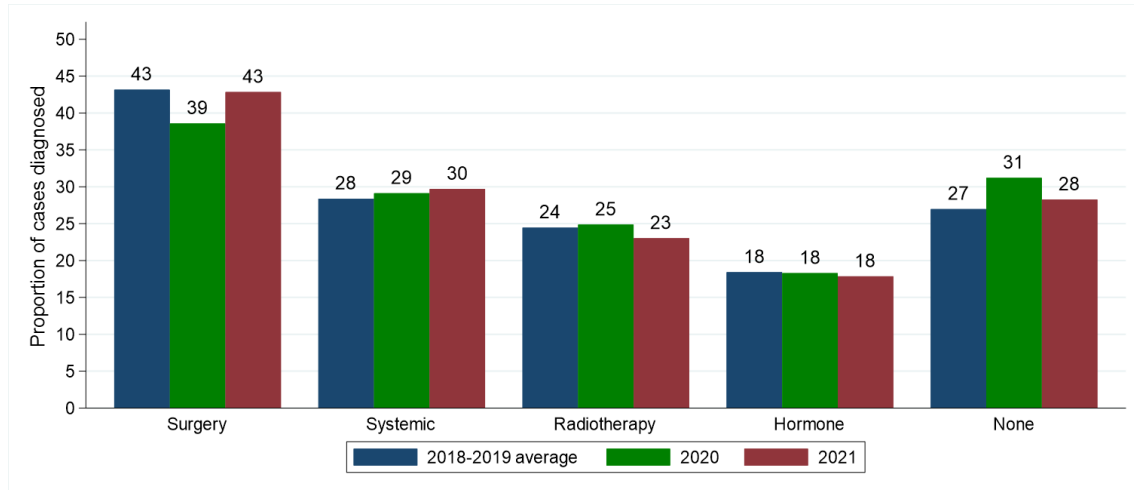
Table 9: Number and proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Surgery	3,345 (43.2%)	2,682 (38.6%)*	3,452 (42.9%)	-19.8%	+3.2%
Systemic therapy	2,200 (28.4%)	2,024 (29.1%)	2,393 (29.7%)*	-8.0%	+8.8%
Radiotherapy	1,896 (24.5%)	1,729 (24.9%)	1,855 (23.0%)*	-8.8%	-2.2%
Hormone therapy	1,428 (18.4%)	1,271 (18.3%)	1,439 (17.9%)	-11.0%	+0.8%
None of these treatments	2,091 (27.0%)	2,169 (31.2%)*	2,277 (28.3%)*	+3.7%	+8.9%

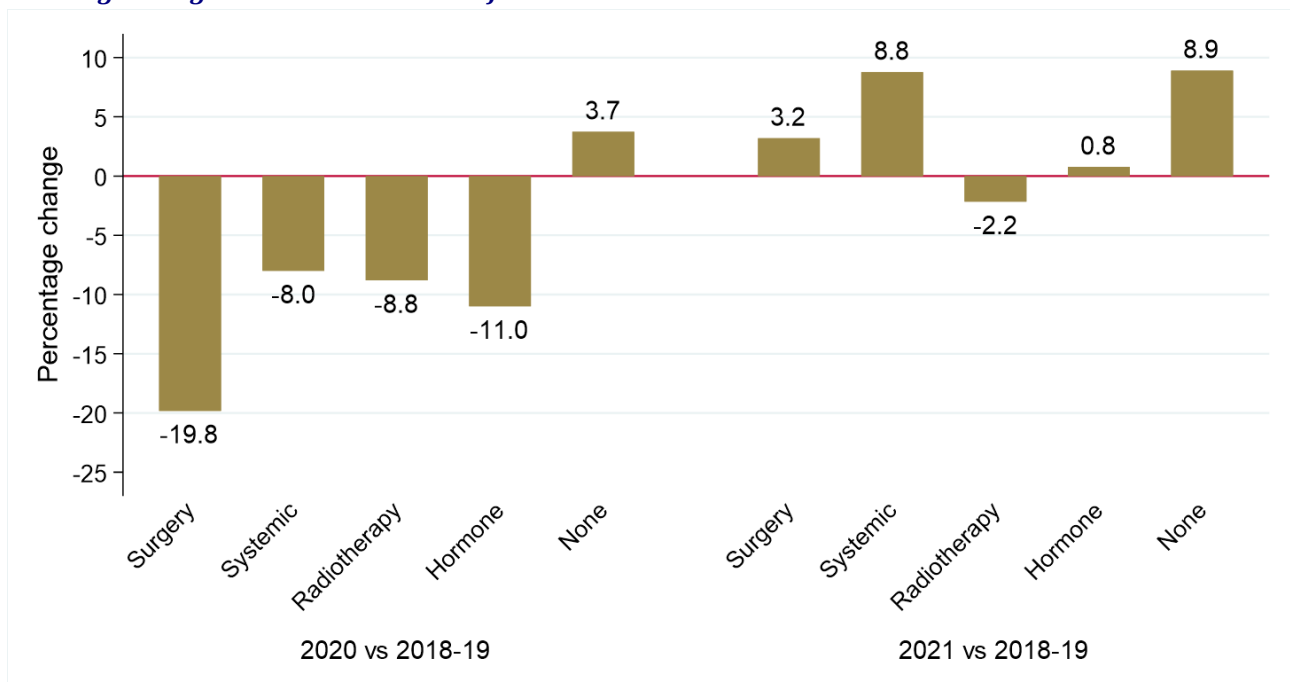
* Statistically significant change compared to 2018-2019

Figure 9: Proportion of cancer (ex NMSC) cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

(a) Proportion of cases diagnosed



(b) Percentage change over time in number of cases



SURVIVAL

Changes in survival are evaluated using two measures. Observed survival examines the time between diagnosis and death from any cause. It thus represents what cancer patients experience, however, due to the inclusion of non-cancer deaths (e.g. heart disease), it may not reflect how changes in cancer care impact survival from cancer. Thus changes in age-standardised net survival are also examined. This measure provides an estimate of patient survival which has been adjusted to take account of deaths unrelated to cancer. It also assumes a standard age distribution thereby removing the impact of changes in the age distribution of cancer patients on changes in survival over time. While this measure is hypothetical, as it assumes patients can only die from cancer related factors, it is a better indicator of the impact of changes in cancer care on patient survival.

OBSERVED SURVIVAL

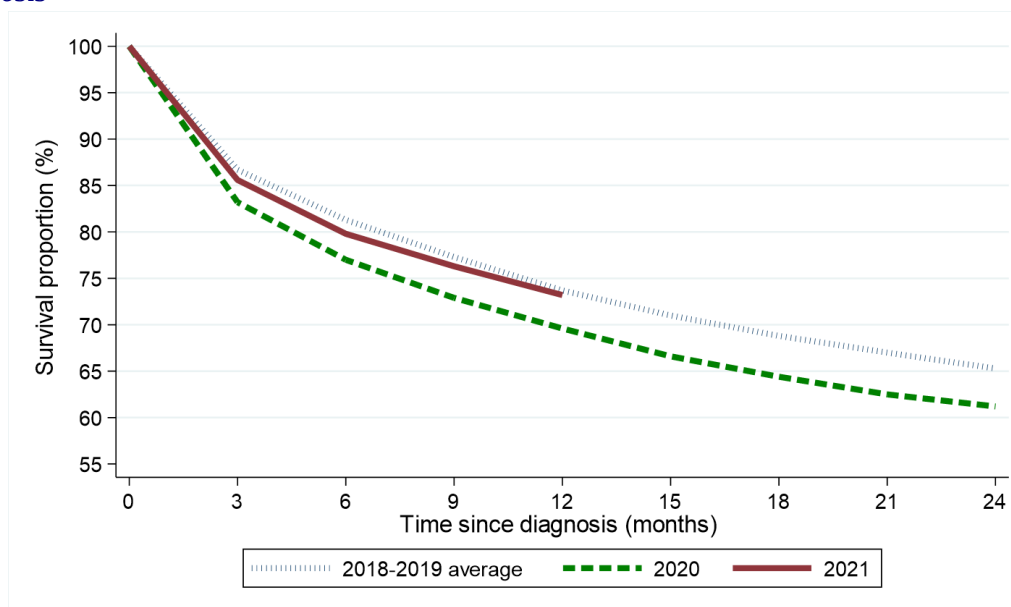
Survival among cancer (ex NMSC) patients six months after diagnosis decreased from 81.3% among those diagnosed in April-December of 2018-2019 to 79.8% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival decreased from 73.7% to 73.2%. This change was not statistically significant. The log-rank test of equality indicates no statistically significant difference between the survival functions for 2018-2019 and 2021 ($p=0.437$).

Table 10: Observed survival for patients with cancer (ex NMSC) diagnosed in April-December of 2018-2021 by period of diagnosis

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
Three months	86.7% (86.1% - 87.3%)	83.2% (82.2% - 84.1%)*	85.6% (84.7% - 86.4%)
Six months	81.3% (80.7% - 82.0%)	77.0% (75.9% - 78.0%)*	79.8% (78.8% - 80.7%)
One year	73.7% (73.0% - 74.5%)	69.6% (68.4% - 70.7%)*	73.2% (72.1% - 74.2%)
Two years	65.3% (64.5% - 66.1%)	61.2% (59.9% - 62.4%)*	-

* Statistically significant reduction compared to 2018-2019

Figure 10: Observed survival for patients with cancer (ex NMSC) diagnosed in April-December of 2018-2021 by period of diagnosis



DEATHS FROM COVID-19

During 2021 there were a total of 431 deaths from Covid-19 among cancer (ex NMSC) patients diagnosed at any point since 1993. Among the patients who died of Covid-19, 57 were diagnosed with cancer (ex NMSC) in 2021, 49 were diagnosed in 2020 and 325 were diagnosed in 1993-2019.

NET SURVIVAL

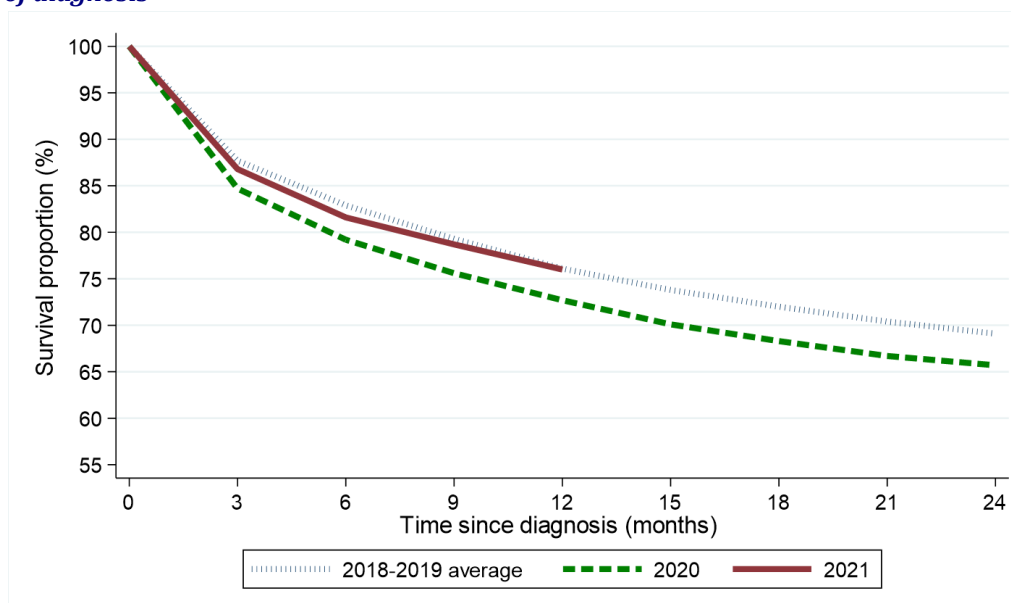
Net survival among cancer (ex NMSC) patients six months after diagnosis decreased from 82.9% among those diagnosed in April-December of 2018-2019 to 81.6% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival decreased from 76.1% to 76.0%. This change was not statistically significant.

Table 11: Age-standardised net survival for patients with cancer (ex NMSC) diagnosed in April-December of 2018-2021 by period of diagnosis

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
Three months	87.7% (87.2% - 88.2%)	84.7% (83.7% - 85.7%)*	86.8% (86.0% - 87.7%)
Six months	82.9% (82.3% - 83.6%)	79.2% (78.1% - 80.3%)*	81.6% (80.6% - 82.6%)
One year	76.1% (75.4% - 76.8%)	72.7% (71.4% - 74.0%)*	76.0% (75.0% - 77.0%)
Two years	69.1% (68.2% - 70.1%)	65.7% (64.3% - 67.1%)*	-

* Statistically significant reduction compared to 2018-2019

Figure 11: Age-standardised net survival for patients with cancer (ex NMSC) diagnosed in April-December of 2018-2021 by period of diagnosis



Note: All patients are followed up to the end of 2022. This enables calculation of two-year survival for patients diagnosed in 2018-2020, however only survival up to one year from diagnosis can be calculated for patients diagnosed in 2021.

MORTALITY

During the April-December period the number of deaths from cancer (ex NMSC) increased between 2018-2019 and 2021 by 6.6% from 3,290 deaths per year to 3,508 deaths.

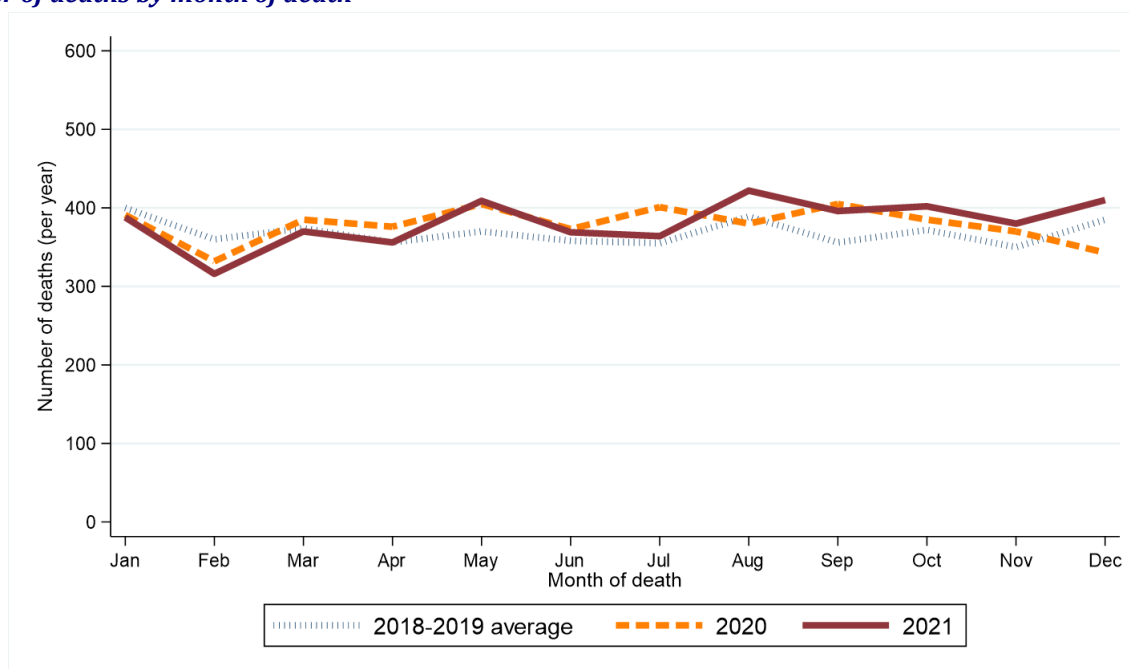
Table 12: Number of cancer (ex NMSC) deaths in 2018-2021 by month and year of death

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	4,422	400	360	374	356	370	358	355	389	356	372	350	385
2020	4,546	391	332	385	376	405	373	401	380	405	385	370	343
2021	4,582	388	316	370	356	409	369	364	422	396	402	380	410

* Average deaths per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

Figure 12: Number of cancer (ex NMSC) deaths in 2018-2021 by month/quarter and year of death

(a) Number of deaths by month of death



(b) Percentage change over time in number of deaths by quarter of death

