Recent trends in incidence, survival and mortality of cancer among older people (aged 75 and over) in Northern Ireland

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

Further information

Further information is available at: www.qub.ac.uk/research-centres/nicr

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Acknowledgements

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INCIDENCE

During the April-December period the number of cases of cancer diagnosed among older people (aged 75 and over) increased between 2018-2019 and 2021 by 9.0% from 2,633 cases per year to 2,871 cases.

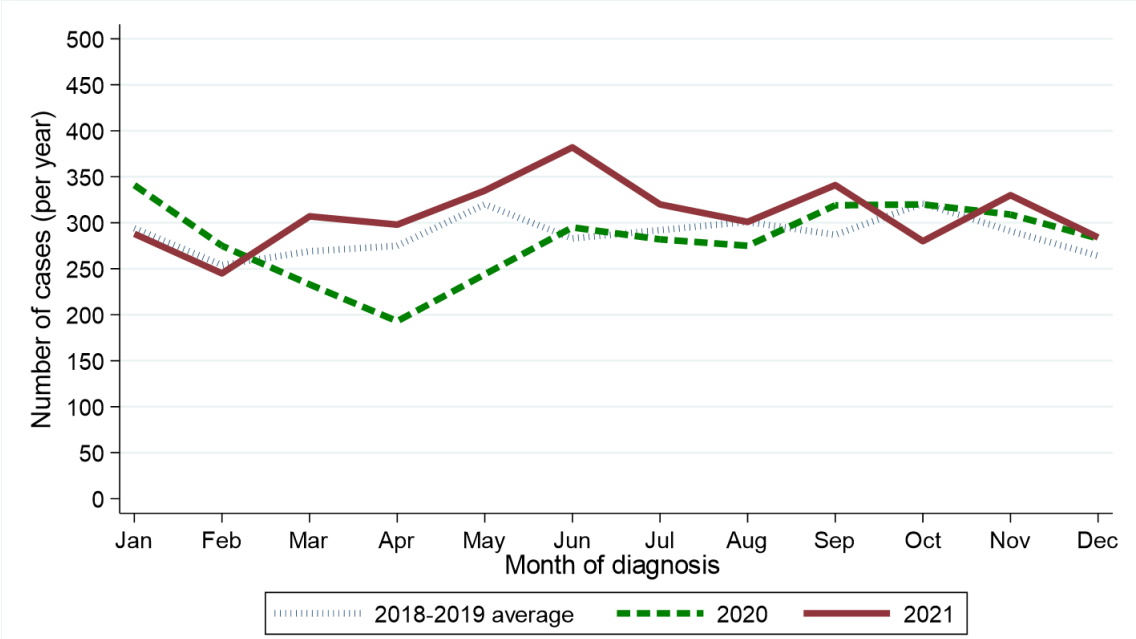
Table 1: Number of cancer cases diagnosed among older people in 2018-2021 by month and year of diagnosis

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	3,450	294	254	269	275	320	283	292	301	287	321	291	264
2020	3,369	341	275	233	193	244	295	282	275	319	320	309	283
2021	3,711	288	245	307	298	335	382	320	301	341	280	330	284

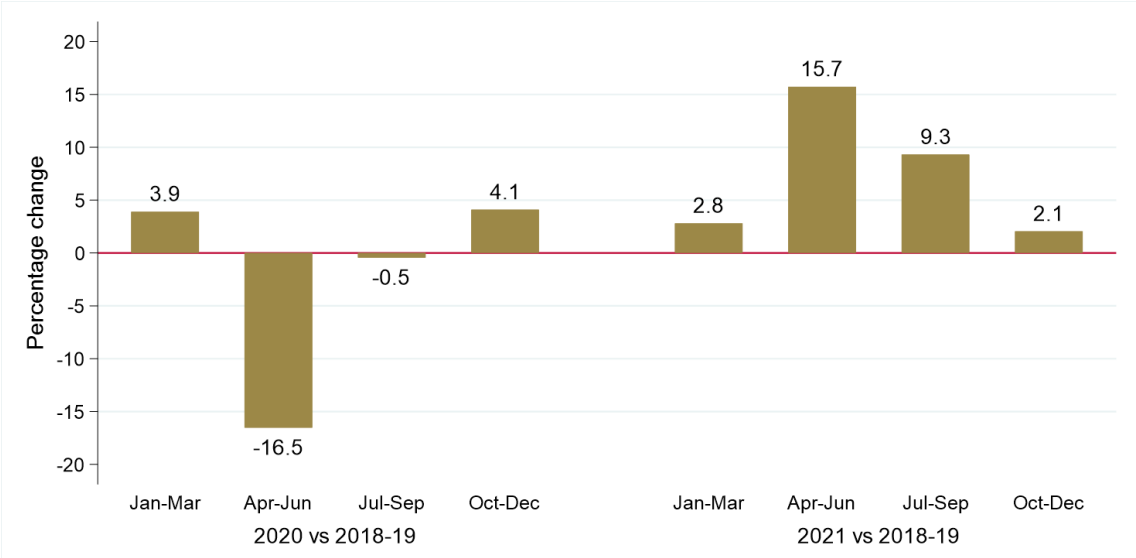
** Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.*

Figure 1: Number of cancer cases diagnosed among older people 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 cases diagnosed among older people increased by 7.6% from 1,402 per year in 2018-2019 to 1,509 in 2021. Between the same two time periods the number of female cancer cases diagnosed among older people increased by 10.6% from 1,231 per year in 2018-2019 to 1,362 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

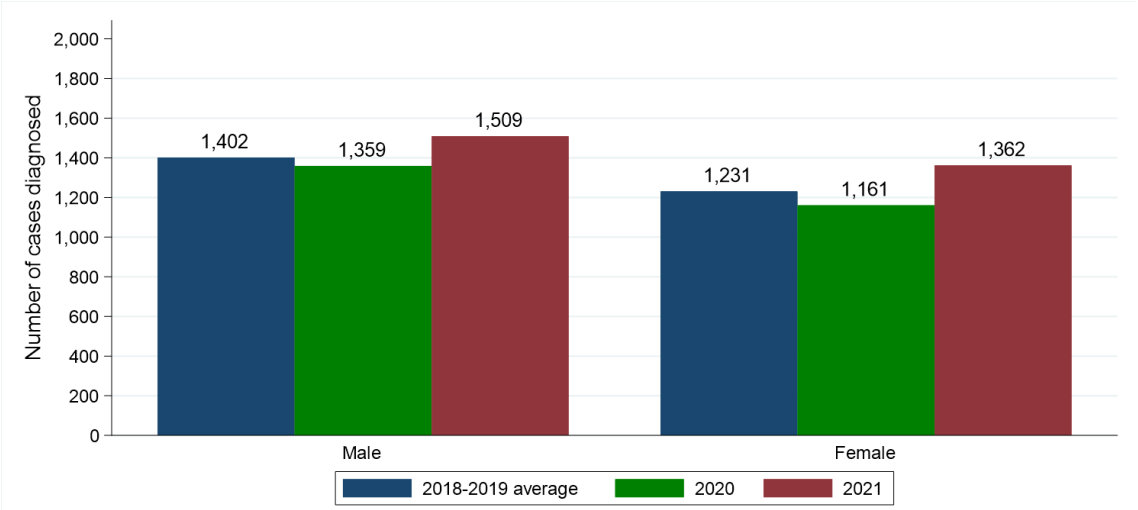
Table 2: Number and proportion of cancer cases diagnosed among older people in April-December of 2018-2021 by gender and period of diagnosis

Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All persons	2,633	2,520	2,871	-4.3%	+9.0%
Male	1,402 (53.2%)	1,359 (53.9%)	1,509 (52.6%)	-3.1%	+7.6%
Female	1,231 (46.8%)	1,161 (46.1%)	1,362 (47.4%)	-5.7%	+10.6%

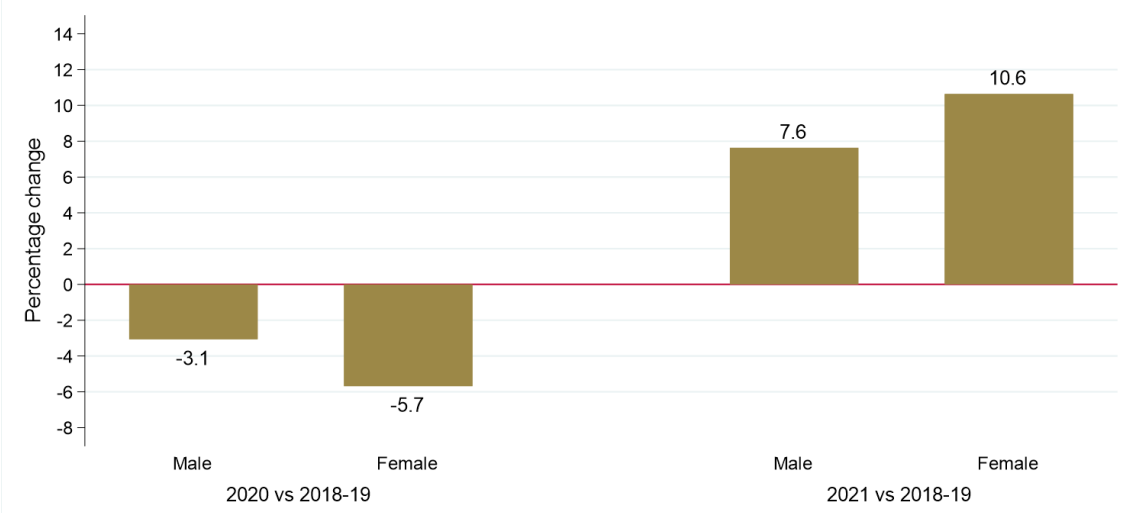
** Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.*

Figure 2: Number of cancer cases diagnosed among older people 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



HEALTH AND SOCIAL CARE TRUST

Excluding the first quarter of each year the number of cases of cancer diagnosed among older people resident in Belfast HSCT increased by 2.1% from 536 per year in 2018-2019 to 547 in 2021. Between the same two time periods the number of cases of cancer diagnosed among older people resident in South Eastern HSCT increased by 12.7% from 543 per year in 2018-2019 to 612 in 2021. The change in case distribution by Health and Social Care Trust between 2018-2019 and 2021 was not statistically significant.

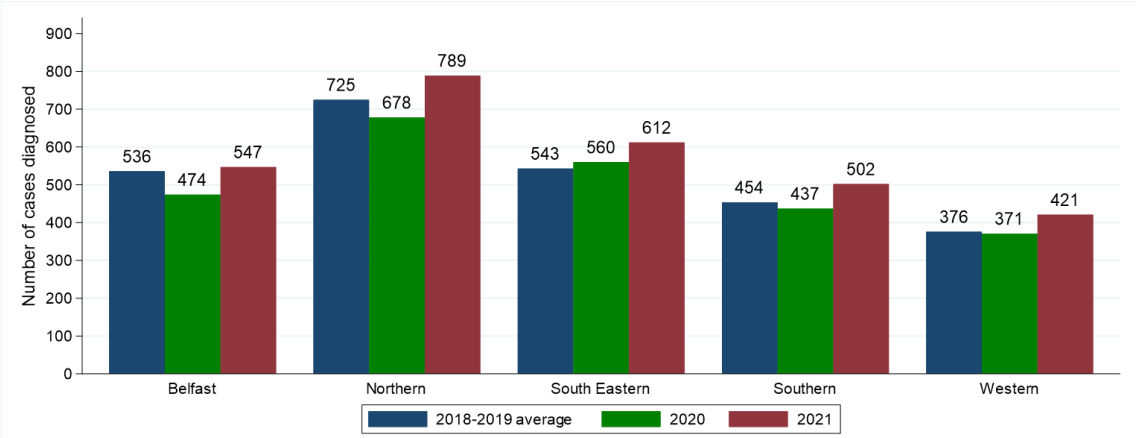
Table 3: Number and proportion of cancer cases diagnosed among older people in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

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	2,633	2,520	2,871	-4.3%	+9.0%
Belfast	536 (20.4%)	474 (18.8%)	547 (19.1%)	-11.6%	+2.1%
Northern	725 (27.5%)	678 (26.9%)	789 (27.5%)	-6.5%	+8.8%
South Eastern	543 (20.6%)	560 (22.2%)	612 (21.3%)	+3.1%	+12.7%
Southern	454 (17.2%)	437 (17.3%)	502 (17.5%)	-3.7%	+10.6%
Western	376 (14.3%)	371 (14.7%)	421 (14.7%)	-1.3%	+12.0%

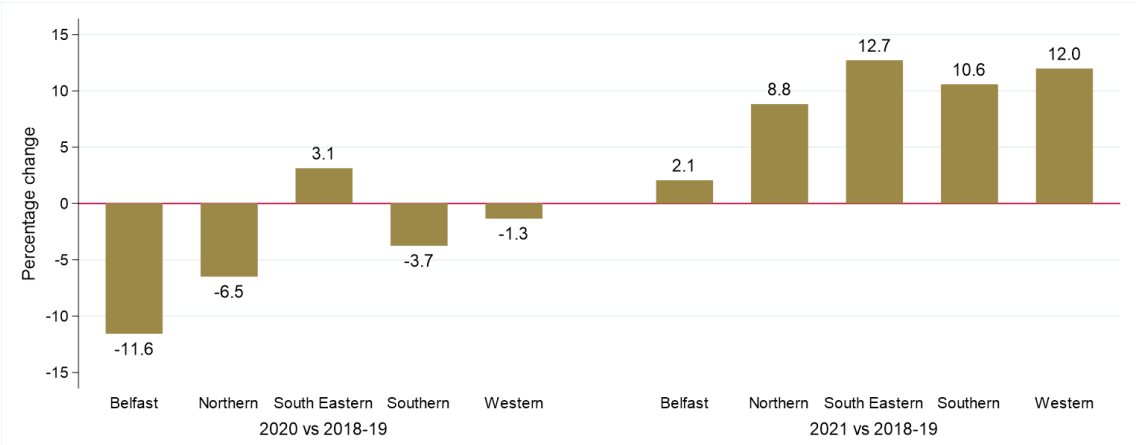
** Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.*
Note: Cases with unknown Health and Social Care Trust are included in totals.

Figure 3: Number of cancer cases diagnosed among older people 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 diagnosed among older people resident in the most deprived quintile increased by 5.8% from 433 per year in 2018-2019 to 458 in 2021. Between the same two time periods the number of cases of cancer diagnosed among older people resident in the least deprived quintile increased by 8.5% from 609 per year in 2018-2019 to 661 in 2021. The change in case distribution by deprivation quintile between 2018-2019 and 2021 was not statistically significant.

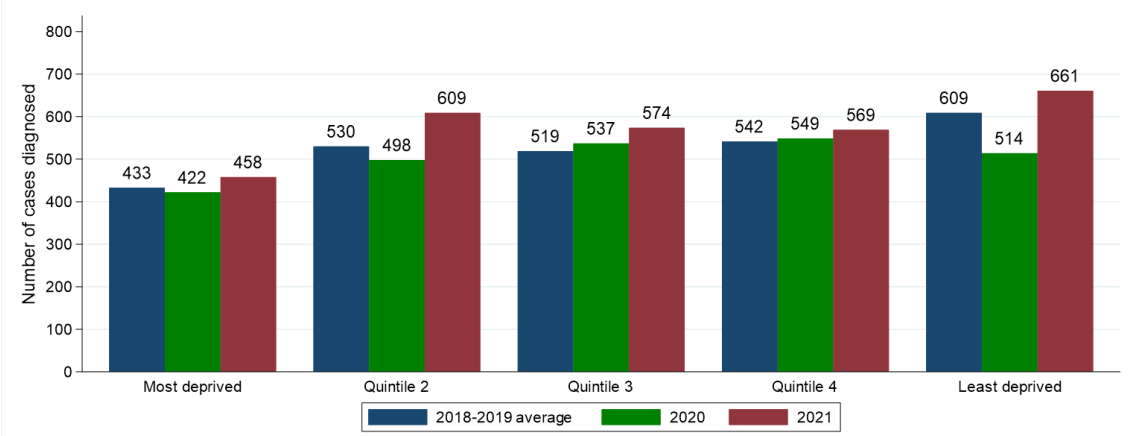
Table 4: Number and proportion of cancer cases diagnosed among older people in April-December of 2018-2021 by deprivation quintile and period of diagnosis

Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	2,633	2,520	2,871	-4.3%	+9.0%
Most deprived	433 (16.4%)	422 (16.7%)	458 (16.0%)	-2.5%	+5.8%
Quintile 2	530 (20.1%)	498 (19.8%)	609 (21.2%)	-6.0%	+14.9%
Quintile 3	519 (19.7%)	537 (21.3%)	574 (20.0%)	+3.5%	+10.6%
Quintile 4	542 (20.6%)	549 (21.8%)	569 (19.8%)	+1.3%	+5.0%
Least deprived	609 (23.1%)	514 (20.4%)	661 (23.0%)	-15.6%	+8.5%

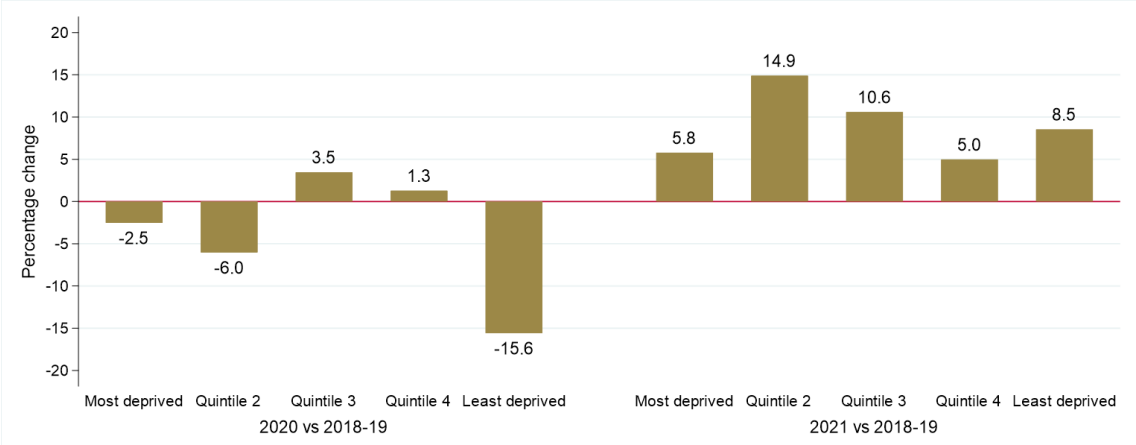
** Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.*
Note: Cases with unknown deprivation quintile are included in totals.

Figure 4: Number of cancer cases diagnosed among older people 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 diagnosed among older people via histology/cytology increased by 11.1% from 1,799 per year in 2018-2019 to 1,999 in 2021. As a proportion of all cases, histology/cytology diagnosis increased from 68.3% in 2018-2019 to 69.6% in 2021. The change in case distribution by basis of diagnosis between 2018-2019 and 2021 was statistically significant ($p < 0.001$).

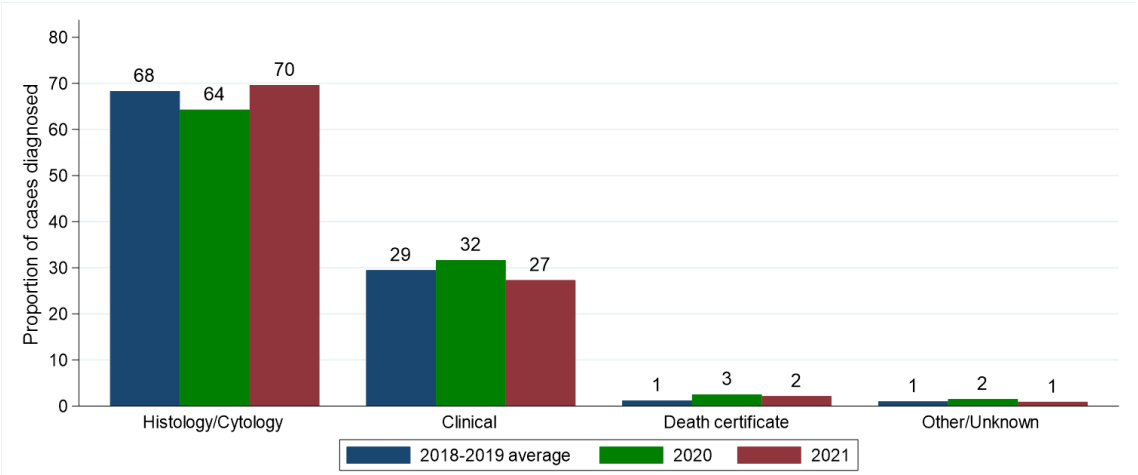
Table 5: Number and proportion of cancer cases diagnosed among older people in April-December of 2018-2021 by basis and period of diagnosis

Basis of diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All types	2,633	2,520	2,871	-4.3%	+9.0%
Histology/Cytology	1,799 (68.3%)	1,620 (64.3%)	1,999 (69.6%)	-9.9%	+11.1%
Clinical	776 (29.5%)	798 (31.7%)	784 (27.3%)	+2.8%	+1.0%
Death certificate	32 (1.2%)	64 (2.5%)	62 (2.2%)	+100.0%	+93.8%
Other/Unknown	27 (1.0%)	38 (1.5%)	26 (0.9%)	+40.7%	-3.7%

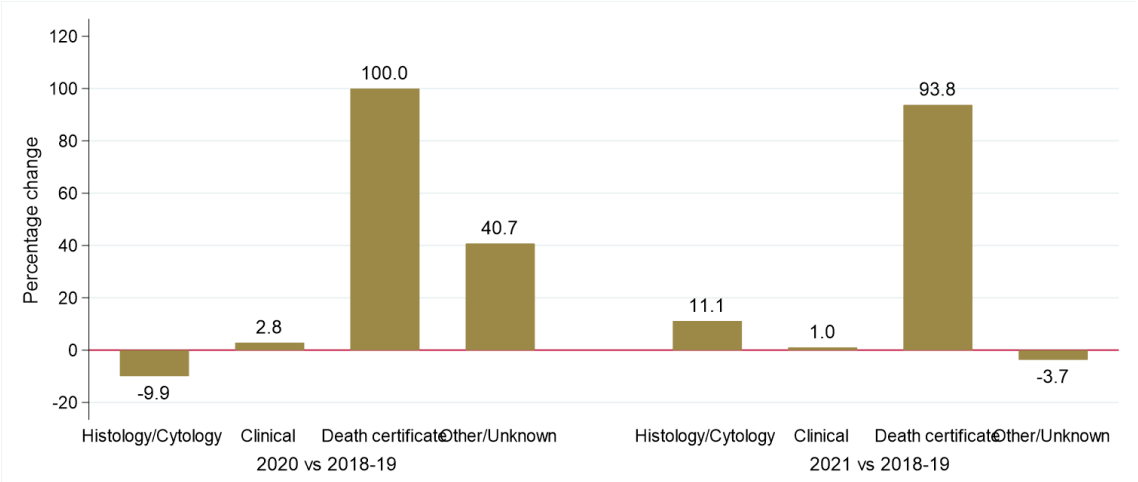
** Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.*

Figure 5: Proportion of cancer cases diagnosed among older people 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 cases diagnosed among older people at stage I in April to December of each year increased by 6.0% from 536 per year in 2018-2019 to 568 in 2021. In addition the number of cancer cases diagnosed among older people at stage IV increased by 15.0% from 599 per year in 2018-2019 to 689 in 2021. As a proportion of all cancer cases diagnosed among older people stage IV diagnosis increased from 22.7% in 2018-2019 to 24.0% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

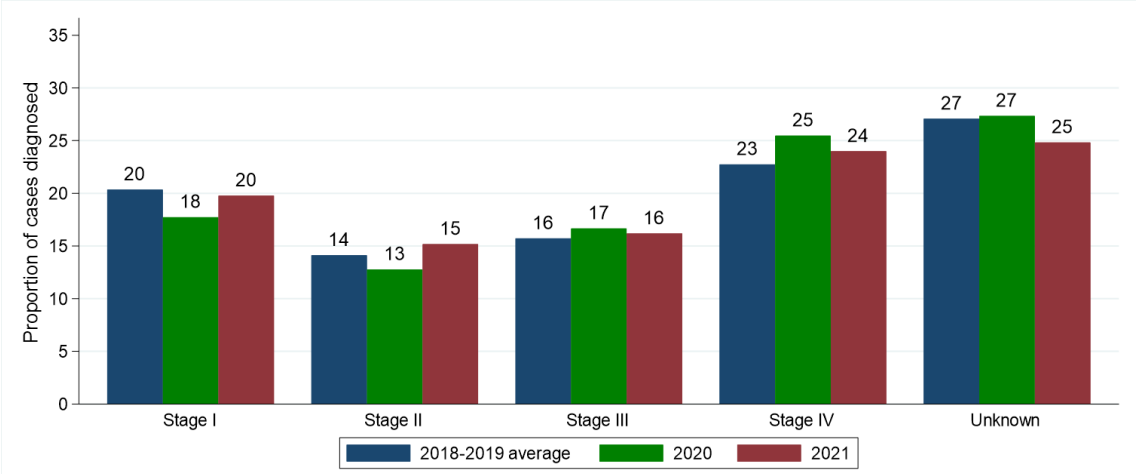
Table 6: Number and proportion of cancer cases diagnosed among older people in April-December of 2018-2021 by stage and period of diagnosis

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	2,633	2,520	2,871	-4.3%	+9.0%
Stage I	536 (20.4%)	447 (17.7%)	568 (19.8%)	-16.6%	+6.0%
Stage II	372 (14.1%)	322 (12.8%)	436 (15.2%)	-13.4%	+17.2%
Stage III	414 (15.7%)	420 (16.7%)	465 (16.2%)	+1.4%	+12.3%
Stage IV	599 (22.7%)	642 (25.5%)	689 (24.0%)	+7.2%	+15.0%
Unknown	713 (27.1%)	689 (27.3%)	713 (24.8%)	-3.4%	0.0%

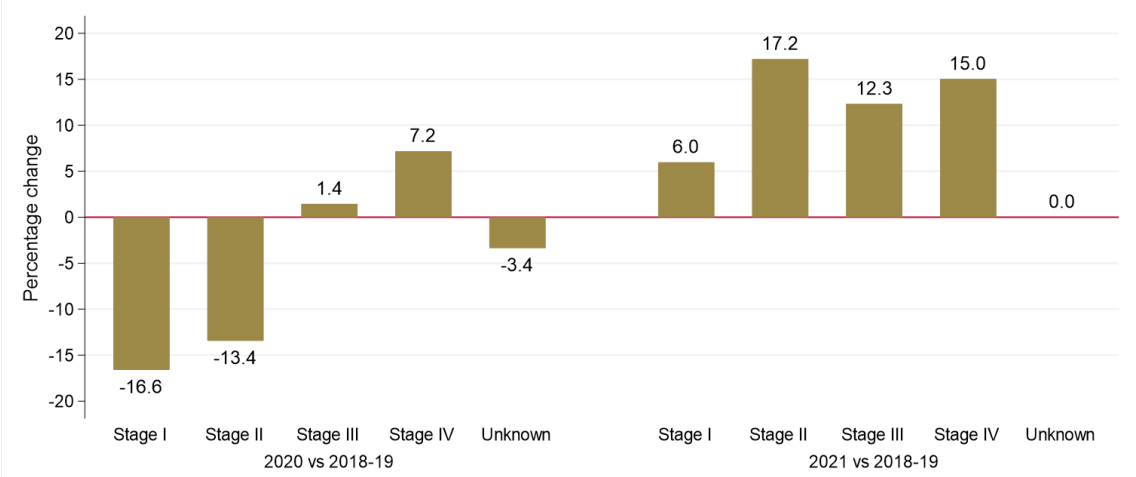
** Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.*

Figure 6: Proportion of cancer cases diagnosed among older people 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 cases among older people resulting in treatment by surgery within six months increased by 13.9% from 805 per year in 2018-2019 to 917 in 2021. The resulting increase in the proportion receiving surgery from 30.6% in 2018-2019 to 31.9% in 2021 was not statistically significant.

Between the same two time periods the number of cancer cases among older people resulting in treatment by systemic therapy increased by 29.2% from 356 per year in 2018-2019 to 460 in 2021. The resulting increase in the proportion receiving systemic therapy from 13.5% in 2018-2019 to 16.0% in 2021 was statistically significant (p = 0.002).

The number of cancer cases among older people treated with radiotherapy decreased by 2.1% from 467 per year in 2018-2019 to 457 in 2021. The resulting decrease in the proportion receiving radiotherapy from 17.7% in 2018-2019 to 15.9% in 2021 was statistically significant (p = 0.037).

The number of cancer cases among older people resulting in treatment by hormone therapy increased by 5.3% from 455 per year in 2018-2019 to 479 in 2021. The resulting decrease in the proportion receiving hormone therapy from 17.3% in 2018-2019 to 16.7% in 2021 was not statistically significant.

Excluding the first quarter of each year the number of cancer cases among older people resulting in none of these treatments within six months of diagnosis increased by 7.8% from 1,108 per year in 2018-2019 to 1,194 in 2021. The resulting decrease in the proportion receiving none of these treatments from 42.1% in 2018-2019 to 41.6% in 2021 was not statistically significant.

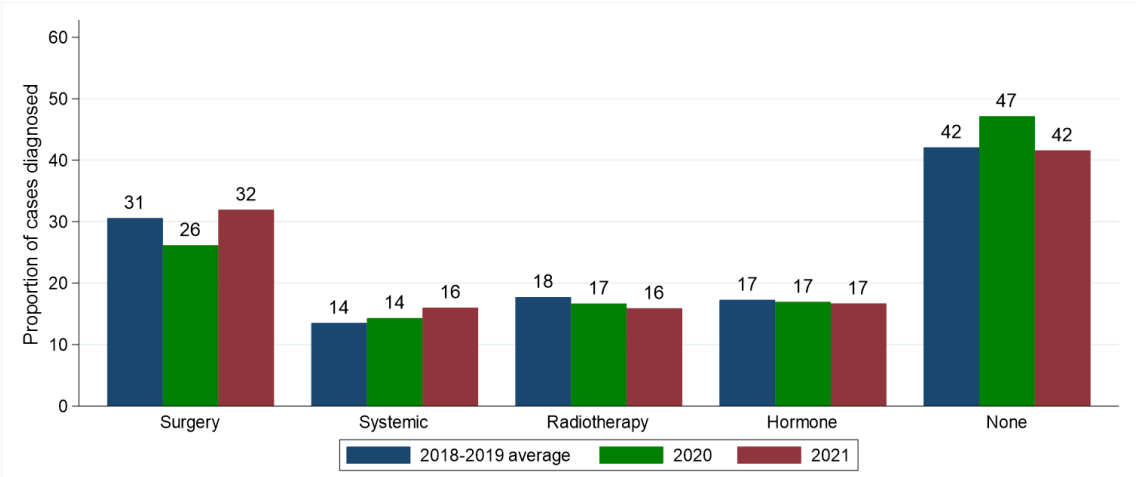
Table 7: Number and proportion of cancer cases diagnosed among older people in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Surgery	805 (30.6%)	659 (26.2%)*	917 (31.9%)	-18.1%	+13.9%
Systemic therapy	356 (13.5%)	361 (14.3%)	460 (16.0%)*	+1.4%	+29.2%
Radiotherapy	467 (17.7%)	420 (16.7%)	457 (15.9%)*	-10.1%	-2.1%
Hormone therapy	455 (17.3%)	427 (16.9%)	479 (16.7%)	-6.2%	+5.3%
None of these treatments	1,108 (42.1%)	1,188 (47.1%)*	1,194 (41.6%)	+7.2%	+7.8%

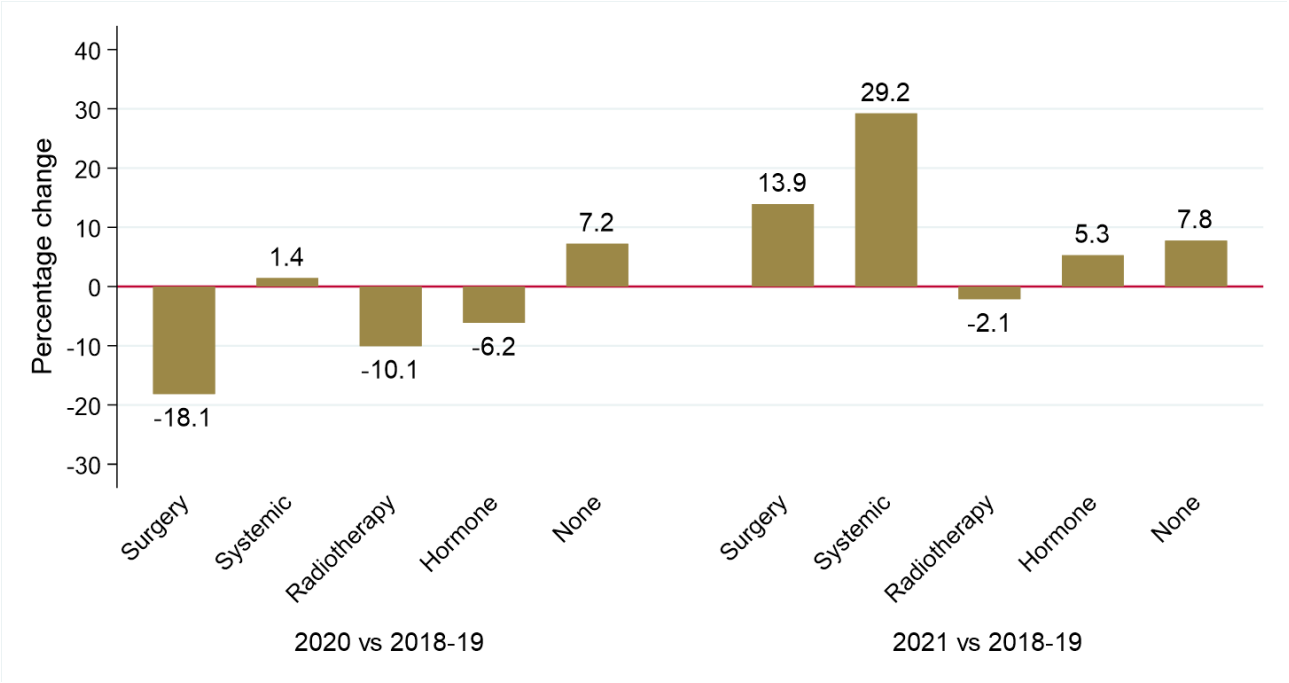
** Statistically significant change compared to 2018-2019*

Figure 7: Proportion of cancer cases diagnosed among older people 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 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. 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

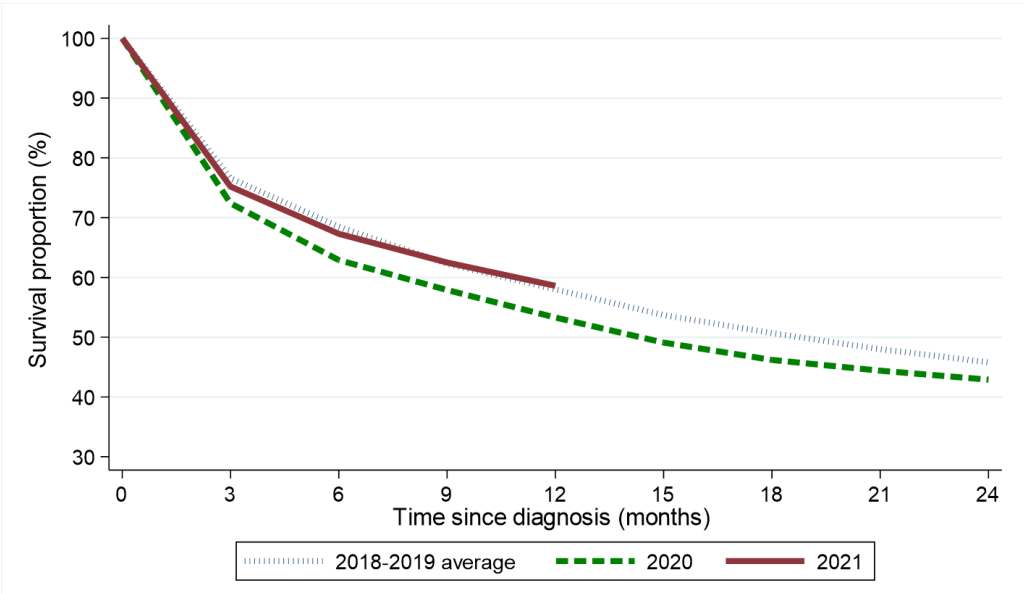
Survival among older cancer patients six months after diagnosis decreased from 68.5% among those diagnosed in April-December of 2018-2019 to 67.3% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival increased from 58.0% to 58.6%. 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=0.479).

Table 8: Observed survival for older patients with cancer diagnosed in April-December of 2018-2021 by period of diagnosis

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
Three months	76.6% (75.4% - 77.8%)	72.4% (70.5% - 74.2%)*	75.2% (73.5% - 76.8%)
Six months	68.5% (67.2% - 69.8%)	62.9% (60.8% - 64.8%)*	67.3% (65.4% - 69.1%)
One year	58.0% (56.6% - 59.4%)	53.3% (51.2% - 55.4%)*	58.6% (56.6% - 60.4%)
Two years	45.8% (44.4% - 47.2%)	42.9% (40.8% - 44.9%)	-

** Statistically significant reduction compared to 2018-2019*

Figure 8: Observed survival for older patients with cancer diagnosed in April-December of 2018-2021 by period of diagnosis



DEATHS FROM COVID-19

During 2021 there were a total of 193 deaths from Covid-19 among older cancer patients diagnosed at any point since 1993. Among the patients who died of Covid-19, 39 were diagnosed with cancer in 2021, 34 were diagnosed in 2020 and 120 were diagnosed in 1993-2019.

NET SURVIVAL

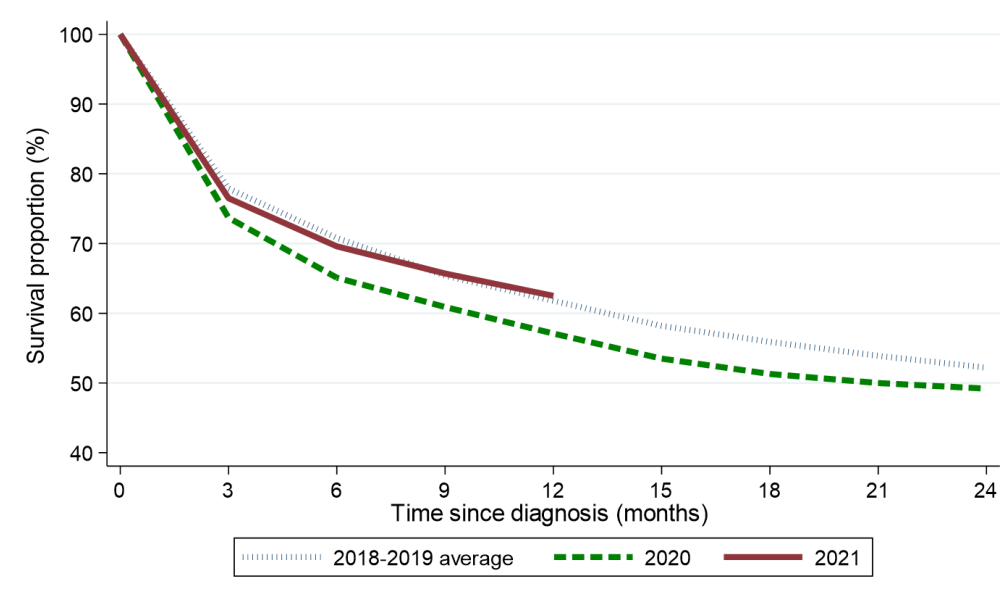
Net survival among older cancer patients six months after diagnosis decreased from 70.8% among those diagnosed in April-December of 2018-2019 to 69.6% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival increased from 61.8% to 62.5%. This change was not statistically significant.

Table 9: Net survival for older patients with cancer diagnosed in April-December of 2018-2021 by period of diagnosis

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
Three months	77.9% (76.7% - 79.1%)	73.7% (71.8% - 75.6%)*	76.5% (74.9% - 78.2%)
Six months	70.8% (69.4% - 72.2%)	65.1% (63.1% - 67.2%)*	69.6% (67.7% - 71.5%)
One year	61.8% (60.4% - 63.3%)	57.1% (54.9% - 59.4%)*	62.5% (60.5% - 64.6%)
Two years	52.2% (50.6% - 53.9%)	49.2% (46.8% - 51.7%)	-

** Statistically significant reduction compared to 2018-2019*

Figure 9: Net survival for older cancer patients 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 among older people (aged 75 and over) increased between 2018-2019 and 2021 by 7.8% from 1,730 deaths per year to 1,865 deaths.

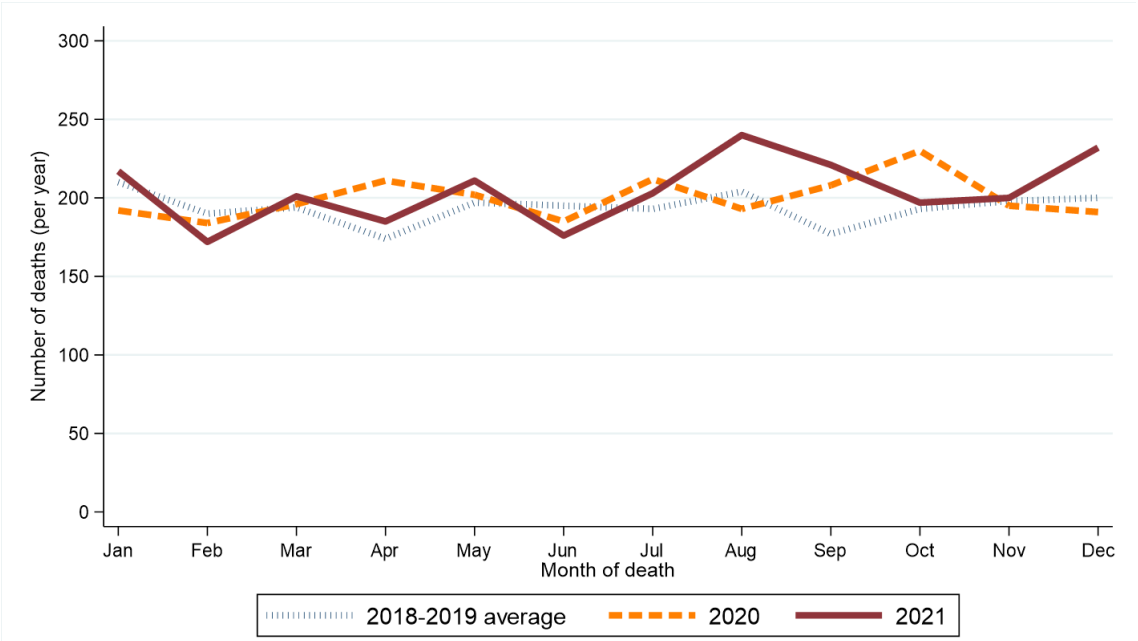
Table 10: Number of cancer deaths among older people in 2018-2021 by month and year of death

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	2,323	210	190	194	174	197	195	193	204	177	193	198	200
2020	2,399	192	184	196	211	202	185	212	193	208	230	195	191
2021	2,455	217	172	201	185	211	176	203	240	221	197	200	232

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

Figure 10: Number of cancer deaths among older people 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