
Recent trends in incidence, survival and mortality of female breast cancer in Northern Ireland

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

Further information

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INCIDENCE

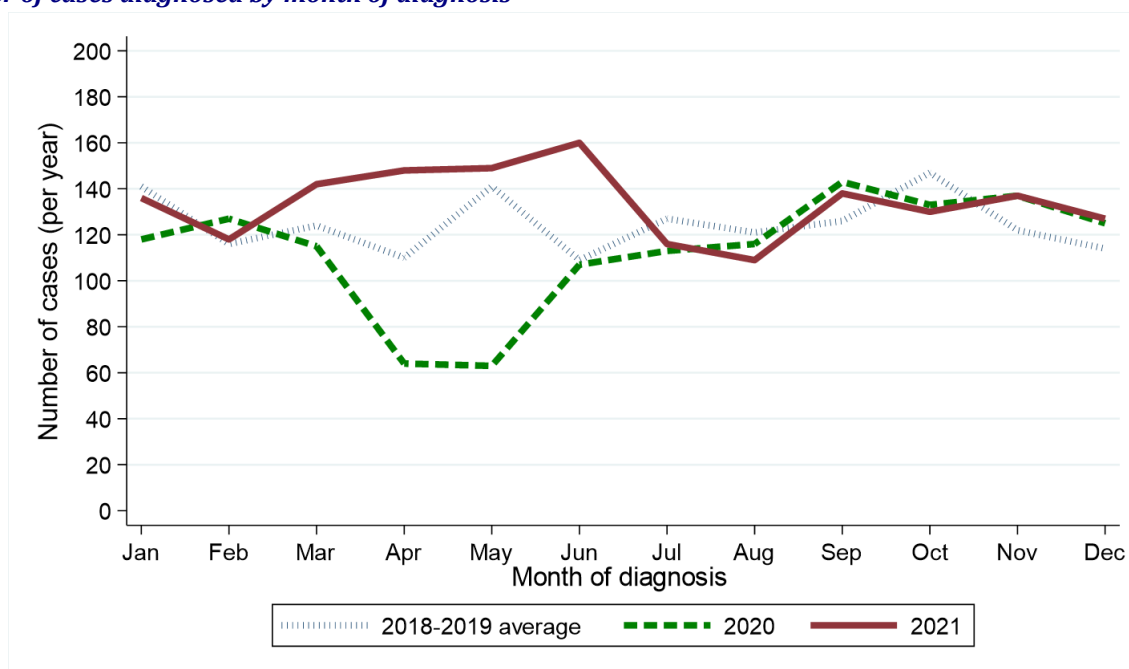
During the April-December period the number of cases of female breast cancer diagnosed increased between 2018-2019 and 2021 by 8.7% from 1,117 cases per year to 1,214 cases.

Table 1: Number of female breast cancer cases diagnosed in 2018-2021 by month and year of diagnosis

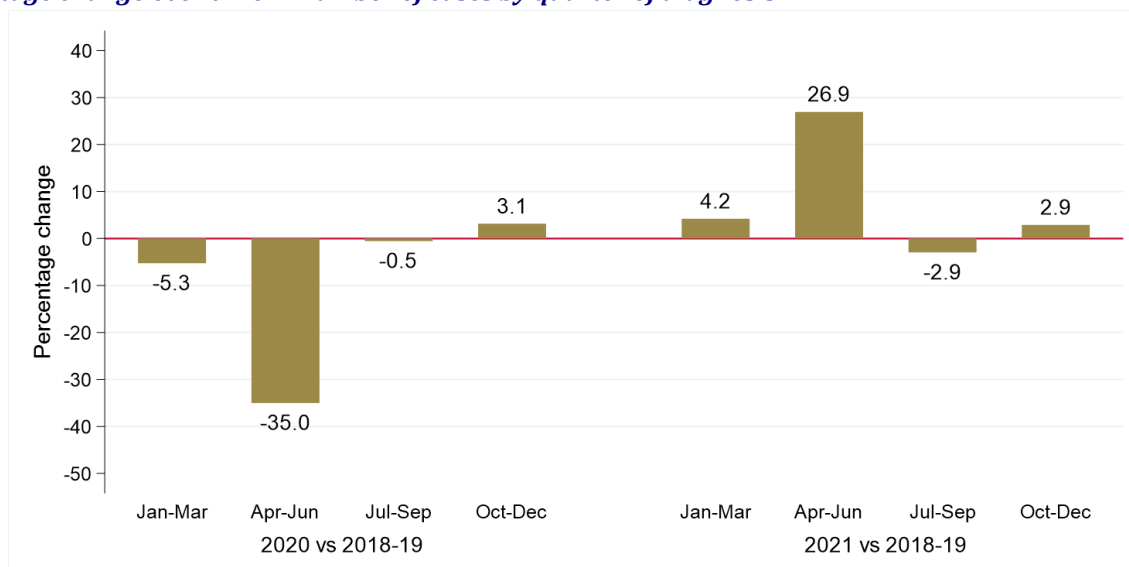
Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	1,497	141	116	124	110	141	109	127	121	126	147	122	114
2020	1,361	118	127	115	64	63	107	113	116	143	133	137	125
2021	1,610	136	118	142	148	149	160	116	109	138	130	137	127

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

Figure 1: Number of female breast cancer 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



AGE

Excluding the first quarter of each year the number of cases of female breast cancer diagnosed among those aged 0 to 54 increased by 1.4% from 370 per year in 2018-2019 to 375 in 2021. Between the same two time periods the number of cases of female breast cancer diagnosed among those aged 75 and over increased by 17.5% from 240 per year in 2018-2019 to 282 in 2021. The change in case distribution by age between 2018-2019 and 2021 was not statistically significant.

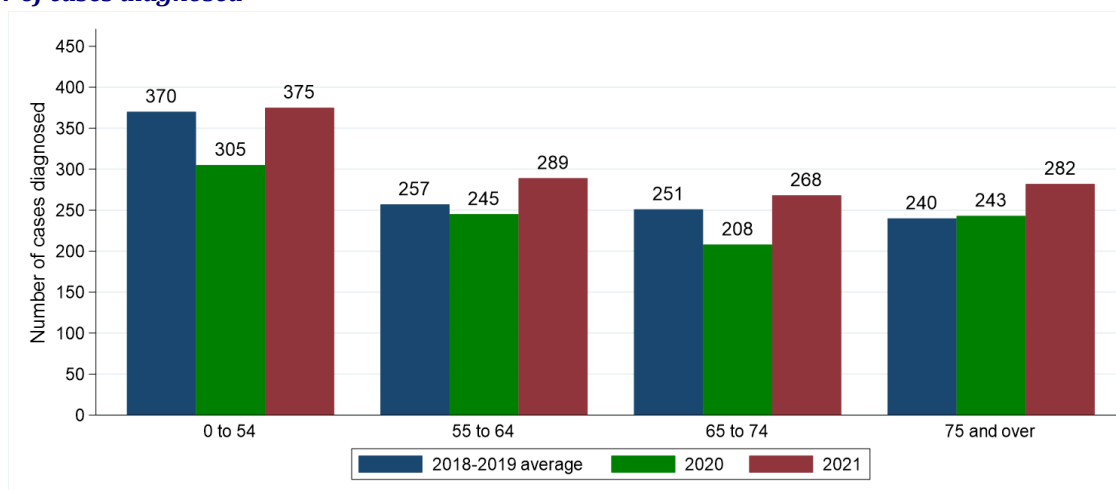
Table 2: Number and proportion of female breast cancer cases diagnosed in April-December of 2018-2021 by age and period of diagnosis

Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All ages	1,117	1,001	1,214	-10.4%	+8.7%
0 to 54	370 (33.1%)	305 (30.5%)	375 (30.9%)	-17.6%	+1.4%
55 to 64	257 (23.0%)	245 (24.5%)	289 (23.8%)	-4.7%	+12.5%
65 to 74	251 (22.5%)	208 (20.8%)	268 (22.1%)	-17.1%	+6.8%
75 and over	240 (21.5%)	243 (24.3%)	282 (23.2%)	+1.3%	+17.5%

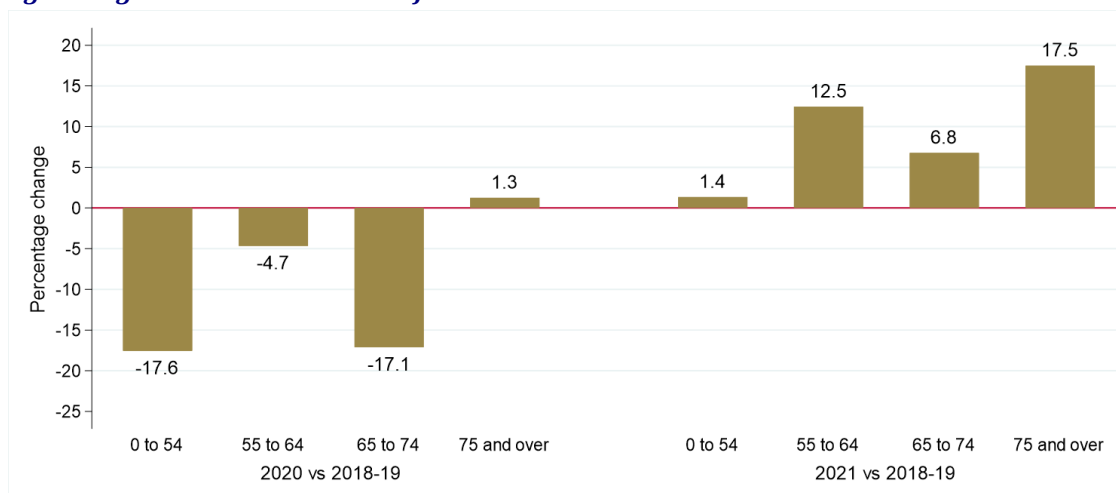
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 2: Number of female breast cancer 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



HEALTH AND SOCIAL CARE TRUST

Excluding the first quarter of each year the number of cases of female breast cancer diagnosed among those resident in Belfast HSCT decreased by 6.7% from 208 per year in 2018-2019 to 194 in 2021. Between the same two time periods the number of cases of female breast cancer diagnosed among those resident in Southern HSCT increased by 26.6% from 203 per year in 2018-2019 to 257 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 female breast cancer cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

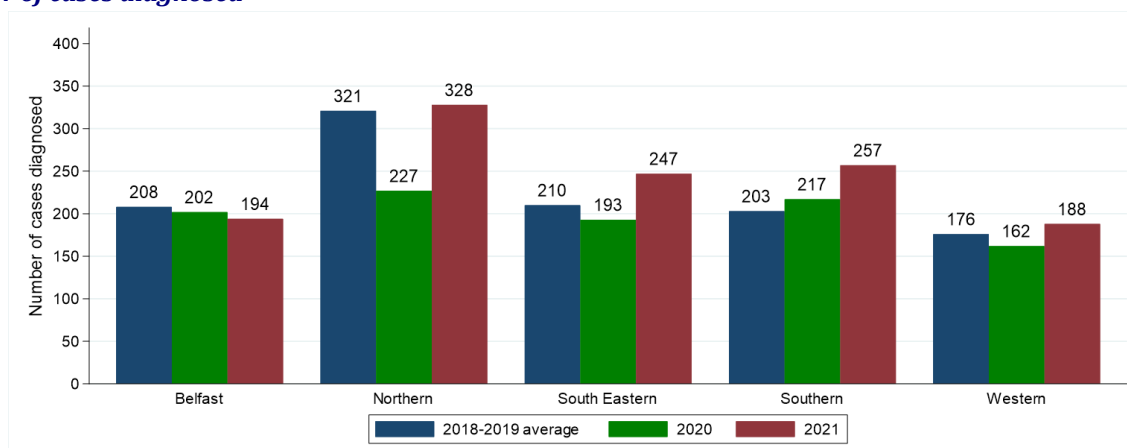
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	1,117	1,001	1,214	-10.4%	+8.7%
Belfast	208 (18.6%)	202 (20.2%)	194 (16.0%)	-2.9%	-6.7%
Northern	321 (28.7%)	227 (22.7%)	328 (27.0%)	-29.3%	+2.2%
South Eastern	210 (18.8%)	193 (19.3%)	247 (20.3%)	-8.1%	+17.6%
Southern	203 (18.2%)	217 (21.7%)	257 (21.2%)	+6.9%	+26.6%
Western	176 (15.8%)	162 (16.2%)	188 (15.5%)	-8.0%	+6.8%

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

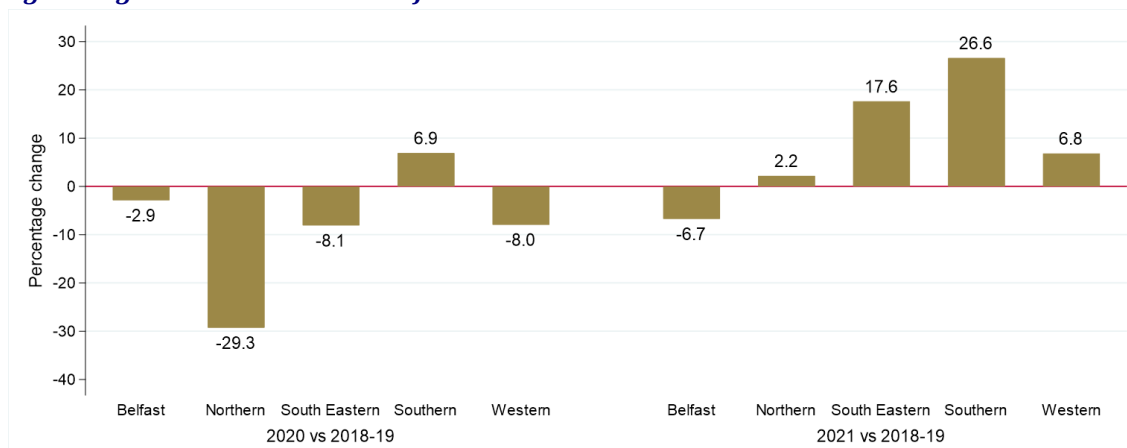
Note: Cases with unknown Health and Social Care Trust are included in totals.

Figure 3: Number of female breast cancer 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 female breast cancer diagnosed among those resident in the most deprived quintile did not change between 2018-2019 and 2021 with an average of 176 diagnosed each year. Between the same two time periods the number of cases of female breast cancer diagnosed among those resident in the least deprived quintile increased by 11.7% from 239 per year in 2018-2019 to 267 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 female breast cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

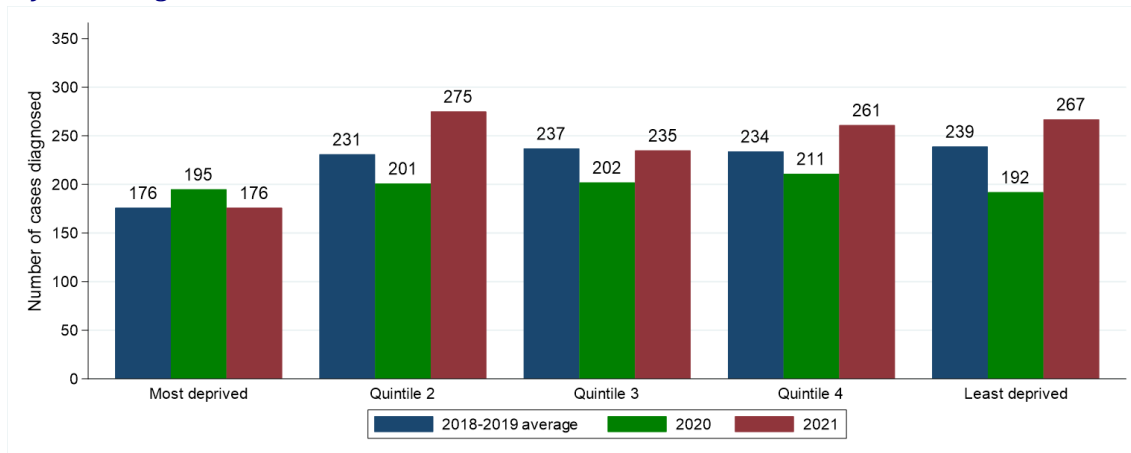
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	1,117	1,001	1,214	-10.4%	+8.7%
Most deprived	176 (15.8%)	195 (19.5%)	176 (14.5%)	+10.8%	0.0%
Quintile 2	231 (20.7%)	201 (20.1%)	275 (22.7%)	-13.0%	+19.0%
Quintile 3	237 (21.2%)	202 (20.2%)	235 (19.4%)	-14.8%	-0.8%
Quintile 4	234 (20.9%)	211 (21.1%)	261 (21.5%)	-9.8%	+11.5%
Least deprived	239 (21.4%)	192 (19.2%)	267 (22.0%)	-19.7%	+11.7%

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

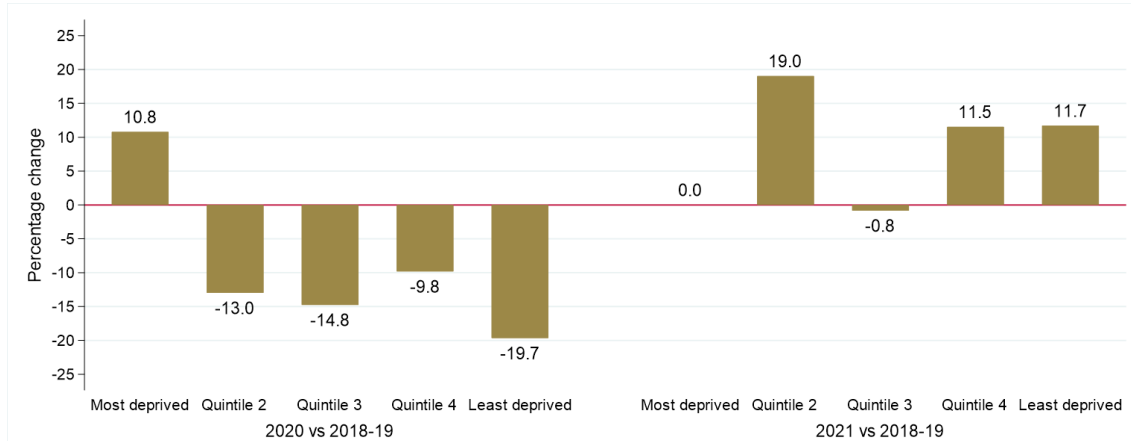
Note: Cases with unknown deprivation quintile are included in totals.

Figure 4: Number of female breast cancer 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 female breast cancer diagnosed via histology/cytology increased by 8.2% from 1,104 per year in 2018-2019 to 1,195 in 2021. As a proportion of all cases, histology/cytology diagnosis decreased from 98.8% in 2018-2019 to 98.4% in 2021. The change in case distribution by basis of diagnosis between 2018-2019 and 2021 was statistically significant ($p = 0.038$).

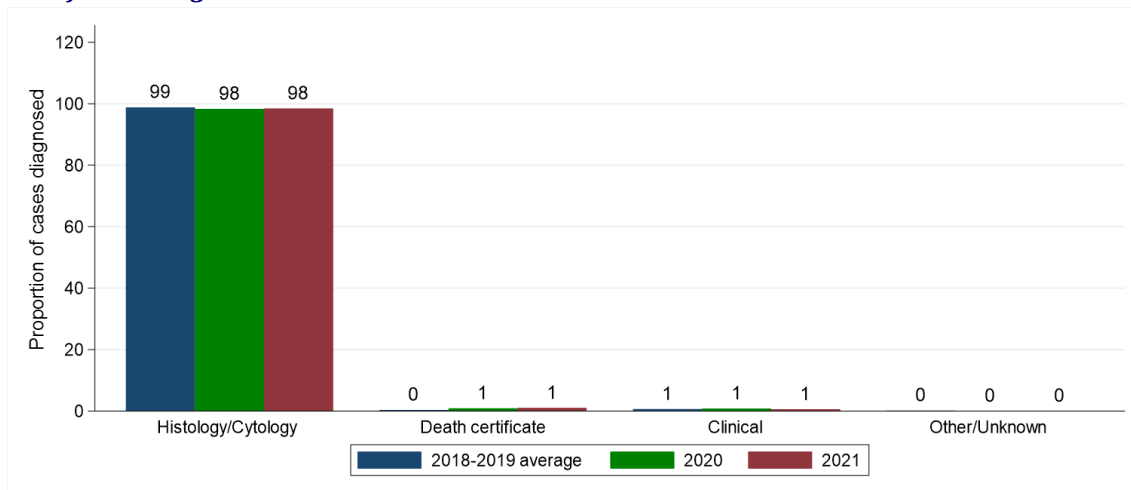
Table 5: Number and proportion of female breast cancer cases diagnosed in April-December of 2018-2021 by basis and period of diagnosis

Basis of diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All types	1,117	1,001	1,214	-10.4%	+8.7%
Histology/Cytology	1,104 (98.8%)	984 (98.3%)	1,195 (98.4%)	-10.9%	+8.2%
Death certificate	4 (0.4%)	9 (0.9%)	12 (1.0%)	+125.0%	+200.0%
Clinical	7 (0.6%)	8 (0.8%)	7 (0.6%)	+14.3%	0.0%
Other/Unknown	2 (0.2%)	0 (0.0%)	0 (0.0%)	-	-

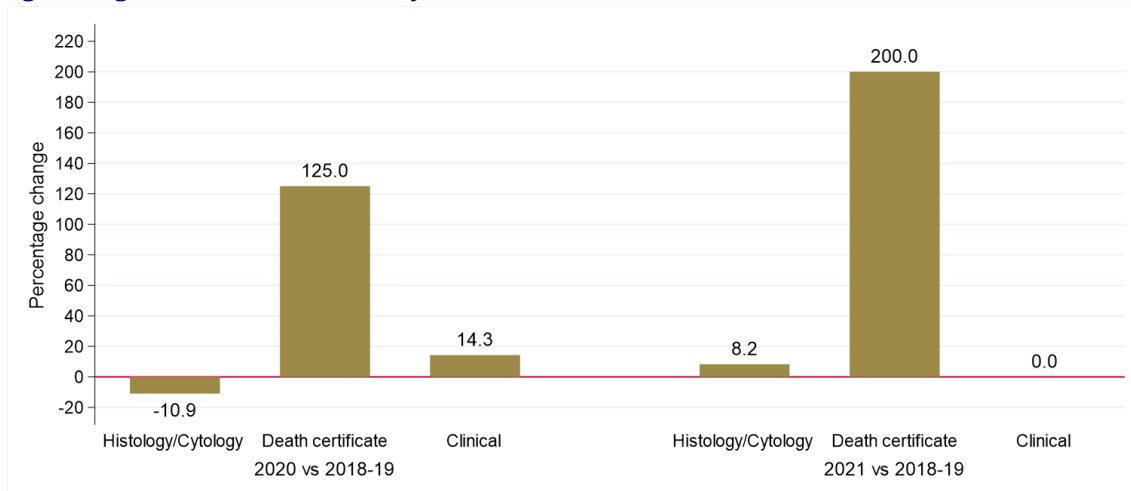
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 5: Proportion of female breast cancer 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 female breast cancer cases diagnosed at stage I in April to December of each year increased by 17.9% from 464 per year in 2018-2019 to 547 in 2021. In addition the number of female breast cancer cases diagnosed at stage IV decreased by 19.7% from 61 per year in 2018-2019 to 49 in 2021. As a proportion of all cases, stage IV diagnosis decreased from 5.5% in 2018-2019 to 4.0% in 2021. The change in stage distribution between 2018-2019 and 2021 was statistically significant ($p = 0.015$).

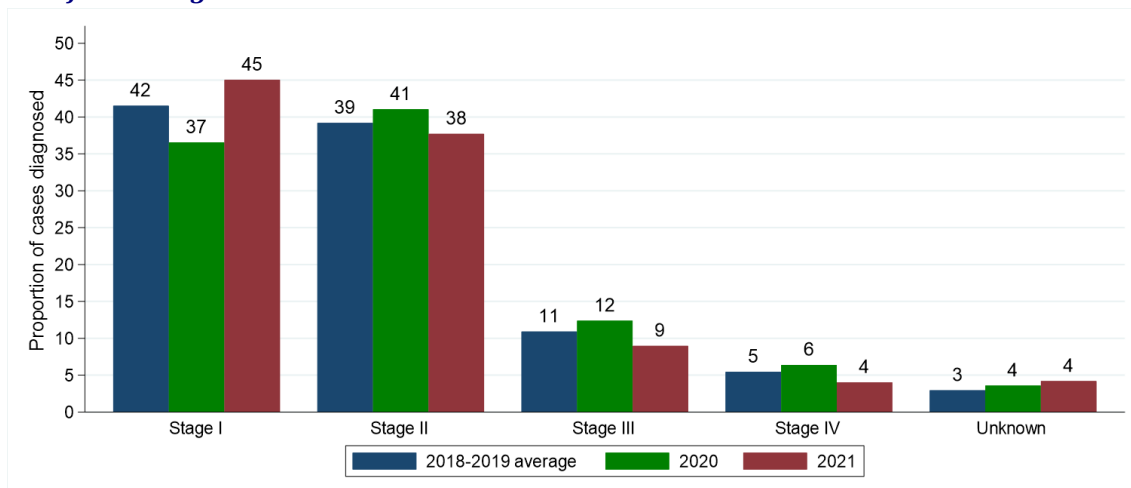
Table 6: Number and proportion of female breast cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	1,117	1,001	1,214	-10.4%	+8.7%
Stage I	464 (41.5%)	366 (36.6%)	547 (45.1%)	-21.1%	+17.9%
Stage II	438 (39.2%)	411 (41.1%)	458 (37.7%)	-6.2%	+4.6%
Stage III	122 (10.9%)	124 (12.4%)	109 (9.0%)	+1.6%	-10.7%
Stage IV	61 (5.5%)	64 (6.4%)	49 (4.0%)	+4.9%	-19.7%
Unknown	33 (3.0%)	36 (3.6%)	51 (4.2%)	+9.1%	+54.5%

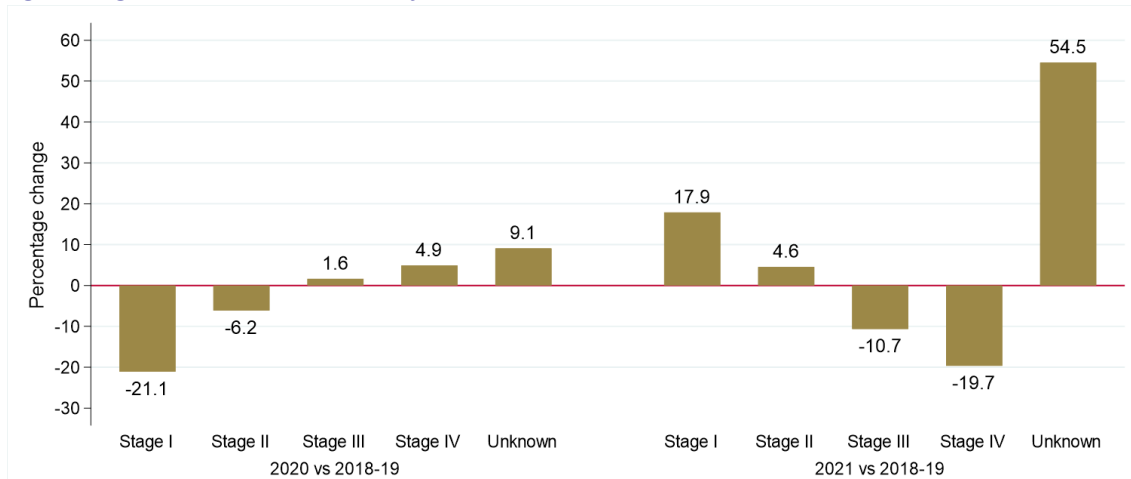
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 6: Proportion of female breast cancer 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 female breast cancer cases resulting in treatment by surgery within six months increased by 5.1% from 879 per year in 2018-2019 to 924 in 2021. The resulting decrease in the proportion receiving surgery from 78.7% in 2018-2019 to 76.1% in 2021 was not statistically significant.

Between the same two time periods the number of female breast cancer cases resulting in treatment by systemic therapy increased by 4.5% from 400 per year in 2018-2019 to 418 in 2021. The resulting decrease in the proportion receiving systemic therapy from 35.8% in 2018-2019 to 34.4% in 2021 was not statistically significant.

The number of female breast cancer cases treated with radiotherapy increased by 5.8% from 515 per year in 2018-2019 to 545 in 2021. The resulting decrease in the proportion receiving radiotherapy from 46.1% in 2018-2019 to 44.9% in 2021 was not statistically significant.

The number of female breast cancer cases resulting in treatment by hormone therapy increased by 8.1% from 732 per year in 2018-2019 to 791 in 2021. The resulting decrease in the proportion receiving hormone therapy from 65.5% in 2018-2019 to 65.2% in 2021 was not statistically significant.

Excluding the first quarter of each year the number of female breast cancer cases receiving none of these treatments within six months of diagnosis increased by 55.6% from 27 per year in 2018-2019 to 42 in 2021. The resulting increase in the proportion receiving none of these treatments from 2.4% in 2018-2019 to 3.5% in 2021 was not statistically significant.

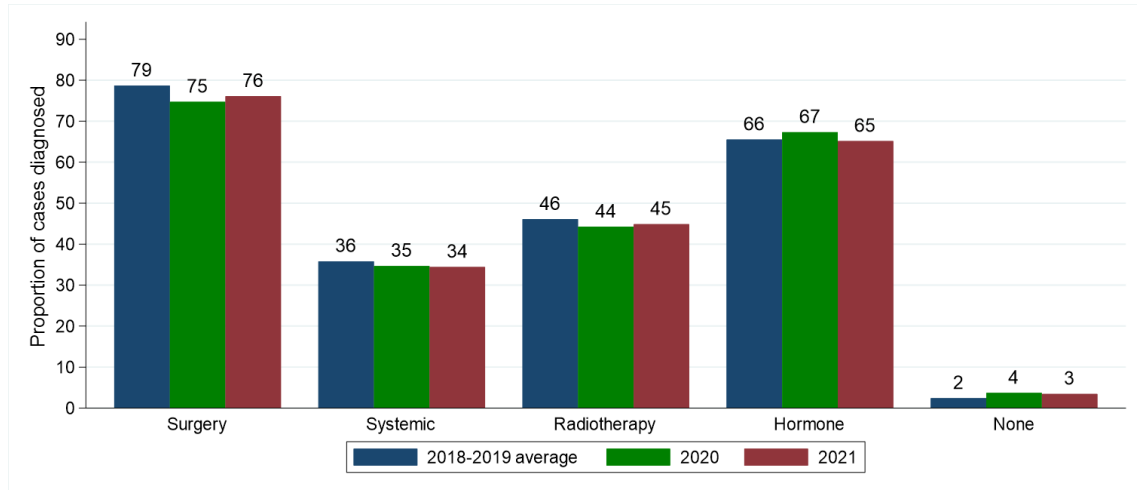
Table 7: Number and proportion of female breast cancer cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Surgery	879 (78.7%)	748 (74.7%)*	924 (76.1%)	-14.9%	+5.1%
Systemic therapy	400 (35.8%)	347 (34.7%)	418 (34.4%)	-13.3%	+4.5%
Radiotherapy	515 (46.1%)	443 (44.3%)	545 (44.9%)	-14.0%	+5.8%
Hormone therapy	732 (65.5%)	674 (67.3%)	791 (65.2%)	-7.9%	+8.1%
None of these treatments	27 (2.4%)	37 (3.7%)*	42 (3.5%)	+37.0%	+55.6%

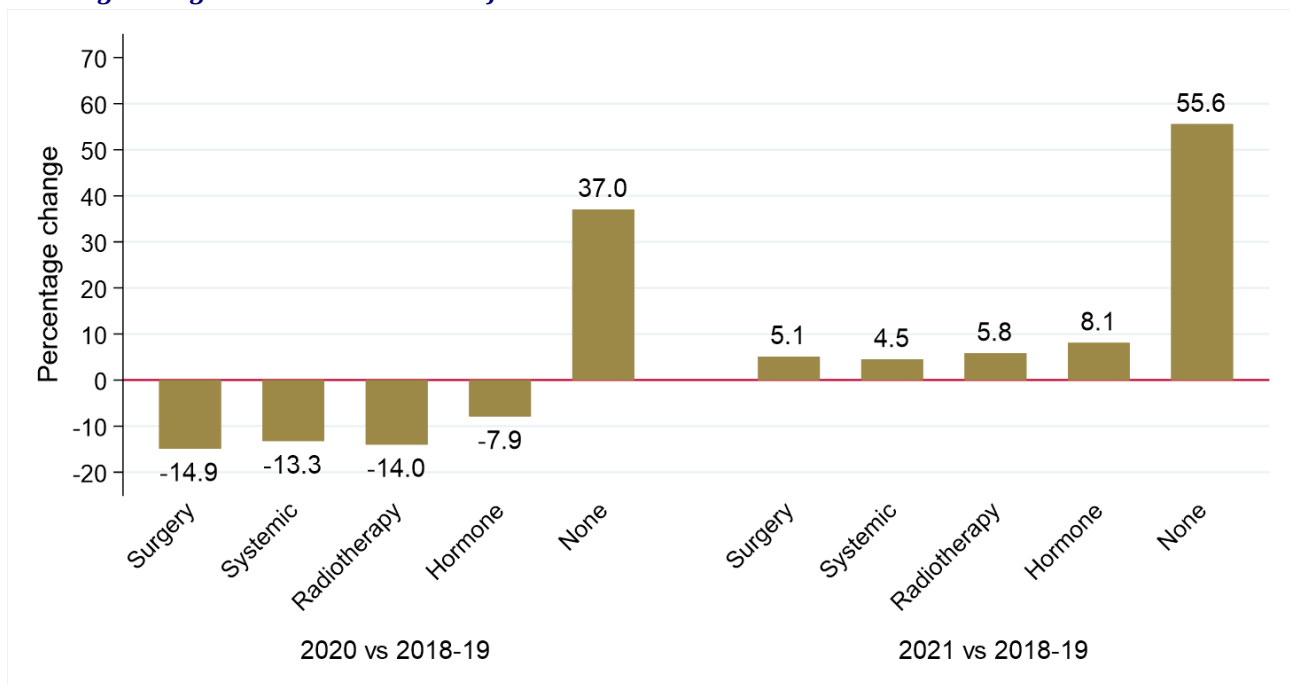
* Statistically significant change compared to 2018-2019

Figure 7: Proportion of female breast cancer 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

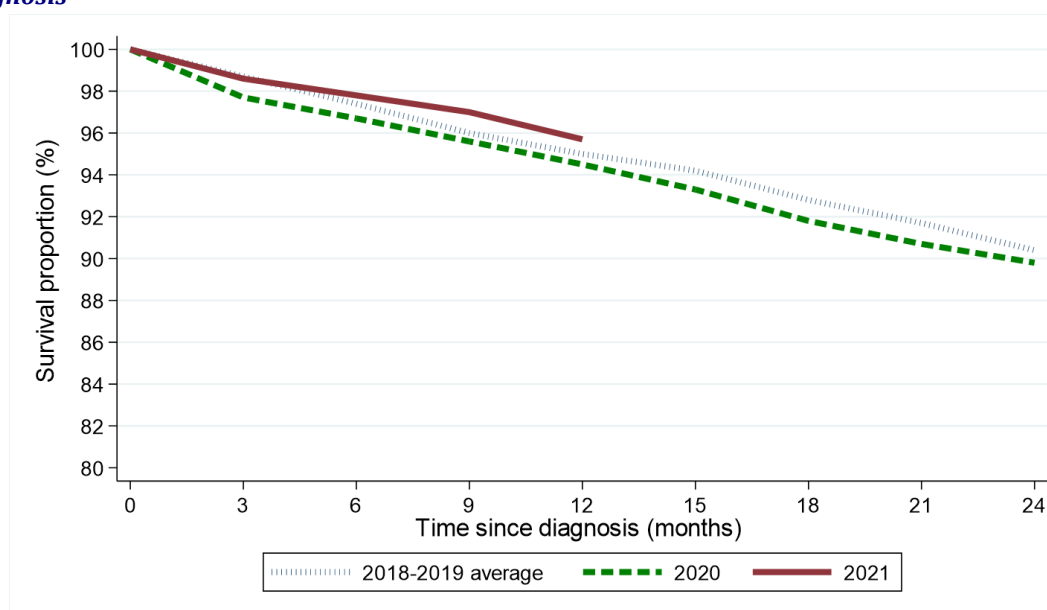
Survival among female breast cancer patients six months after diagnosis increased from 97.4% among those diagnosed in April-December of 2018-2019 to 97.8% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival increased from 95.0% to 95.7%. 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 ($p=0.970$).

Table 8: Observed survival for patients with female breast 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	98.7% (98.1% - 99.1%)	97.7% (96.5% - 98.5%)	98.6% (97.7% - 99.1%)
Six months	97.4% (96.6% - 98.0%)	96.7% (95.3% - 97.6%)	97.8% (96.7% - 98.5%)
One year	95.0% (94.0% - 95.9%)	94.5% (92.8% - 95.8%)	95.7% (94.3% - 96.7%)
Two years	90.4% (89.0% - 91.6%)	89.8% (87.7% - 91.6%)	-

No statistically significant reductions compared to 2018-2019

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



DEATHS FROM COVID-19

During 2021 there were a total of 34 deaths from Covid-19 among female breast cancer patients diagnosed at any point since 1993.

NET SURVIVAL

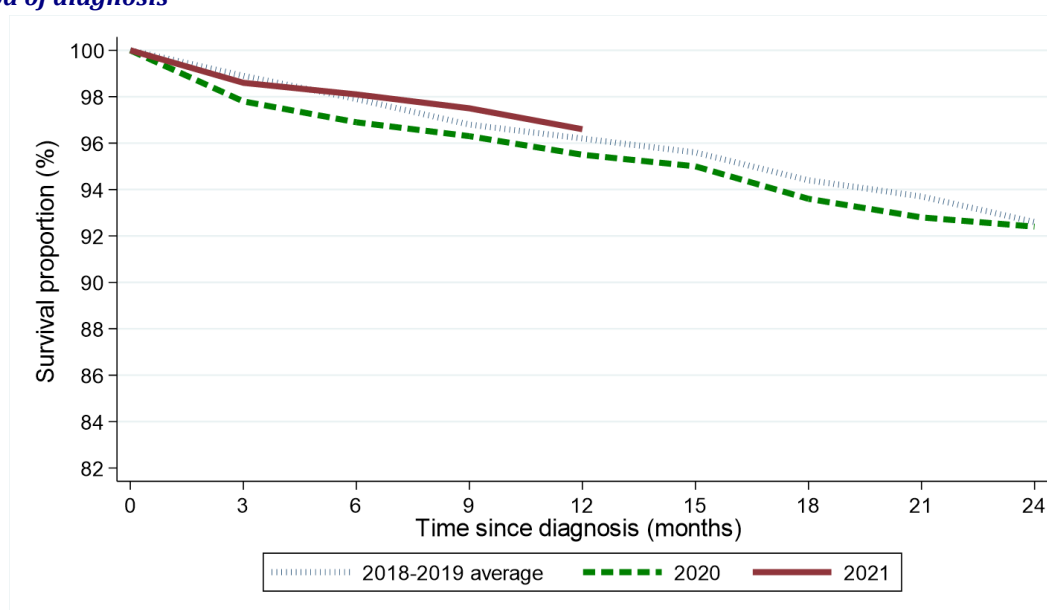
Net survival among female breast cancer patients six months after diagnosis increased from 97.9% among those diagnosed in April-December of 2018-2019 to 98.1% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival increased from 96.2% to 96.6%. This change was not statistically significant.

Table 9: Age-standardised net survival for patients with female breast 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	98.9% (98.3% - 99.5%)	97.8% (96.7% - 99.0%)	98.6% (97.6% - 99.6%)
Six months	97.9% (96.9% - 98.9%)	96.9% (95.4% - 98.4%)	98.1% (97.0% - 99.3%)
One year	96.2% (94.9% - 97.5%)	95.5% (93.6% - 97.4%)	96.6% (94.9% - 98.3%)
Two years	92.6% (90.8% - 94.4%)	92.4% (89.9% - 95.0%)	-

No statistically significant reductions compared to 2018-2019

Figure 9: Age-standardised net survival for patients with female breast cancer 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 female breast cancer did not change between 2018-2019 and 2021 with 231 deaths in 2021.

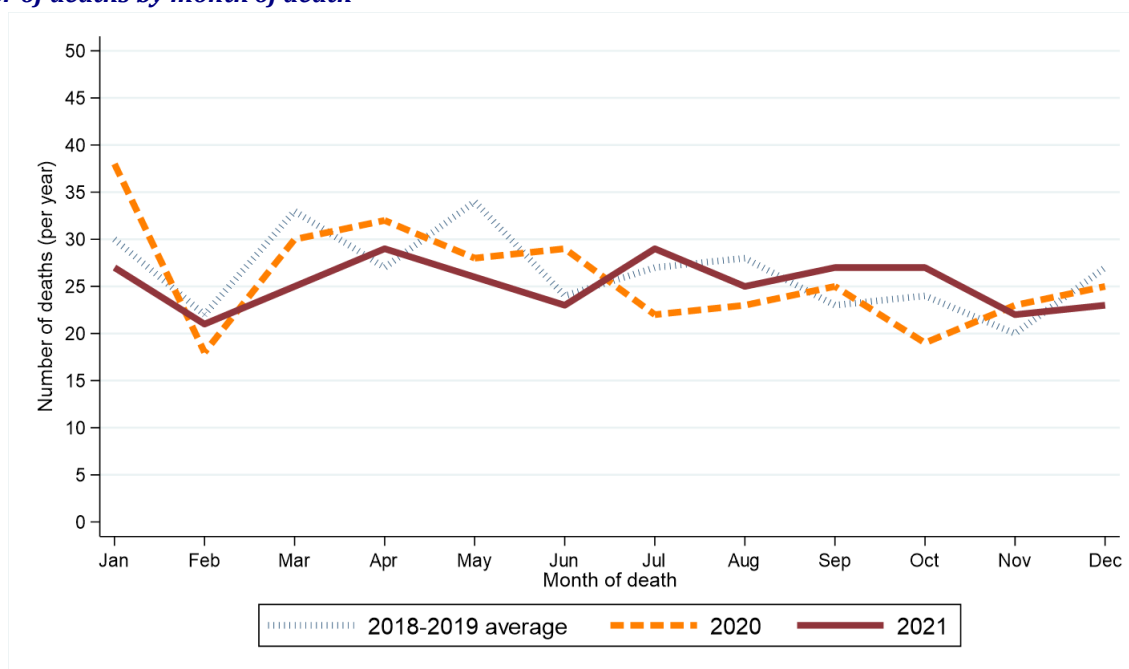
Table 10: Number of female breast cancer deaths in 2018-2021 by month and year of death

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	314	30	22	33	27	34	24	27	28	23	24	20	27
2020	312	38	18	30	32	28	29	22	23	25	19	23	25
2021	304	27	21	25	29	26	23	29	25	27	27	22	23

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

Figure 10: Number of female breast cancer 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

