Recent trends in incidence, survival and mortality of ovarian cancer 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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N. Ireland Cancer Registry

Queen's University Belfast

HSC Public Health Agency

INCIDENCE

During the April-December period the number of cases of ovarian cancer diagnosed decreased between 2018-2019 and 2021 by 11.0% from 163 cases per year to 145 cases.

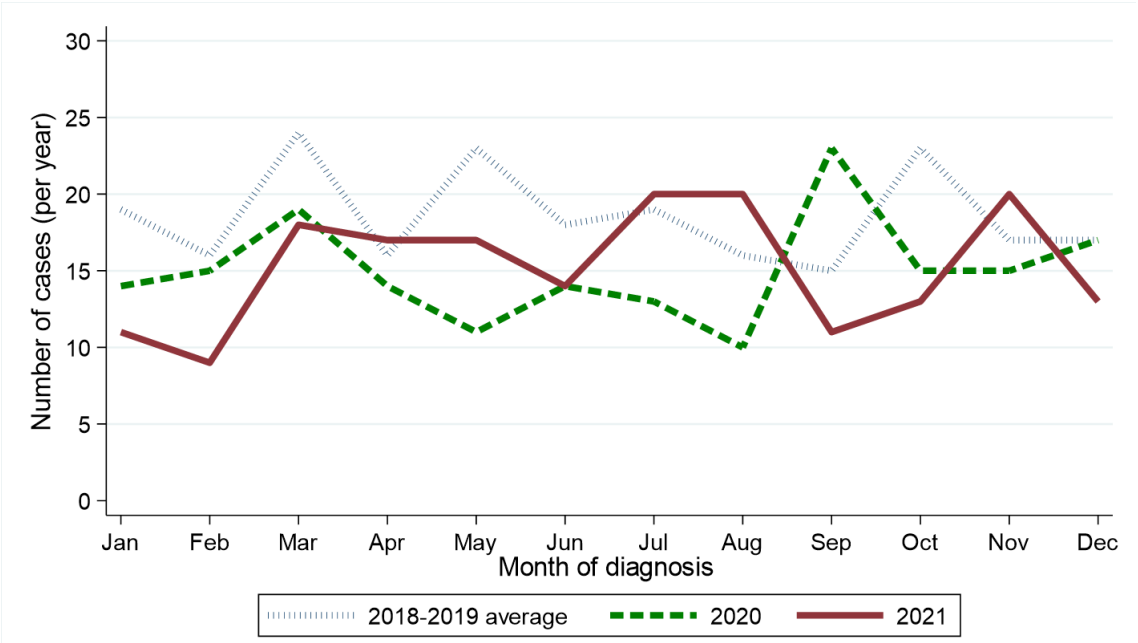
Table 1: Number of ovarian cancer cases diagnosed in 2018-2021 by month and year of diagnosis

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	221	19	16	24	16	23	18	19	16	15	23	17	17
2020	180	14	15	19	14	11	14	13	10	23	15	15	17
2021	183	11	9	18	17	17	14	20	20	11	13	20	13

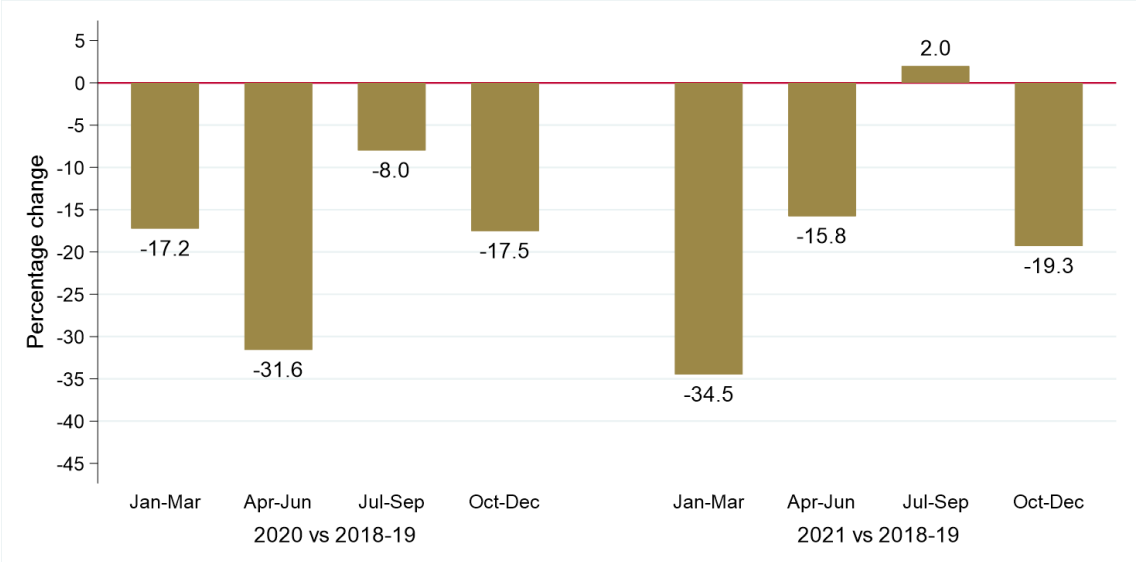
** Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.*

Figure 1: Number of ovarian 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 ovarian cancer diagnosed among those aged 0 to 54 decreased by 19.6% from 46 per year in 2018-2019 to 37 in 2021. Between the same two time periods the number of cases of ovarian cancer diagnosed among those aged 75 and over decreased by 2.1% from 48 per year in 2018-2019 to 47 in 2021. The change in case distribution by age between 2018-2019 and 2021 was not statistically significant.

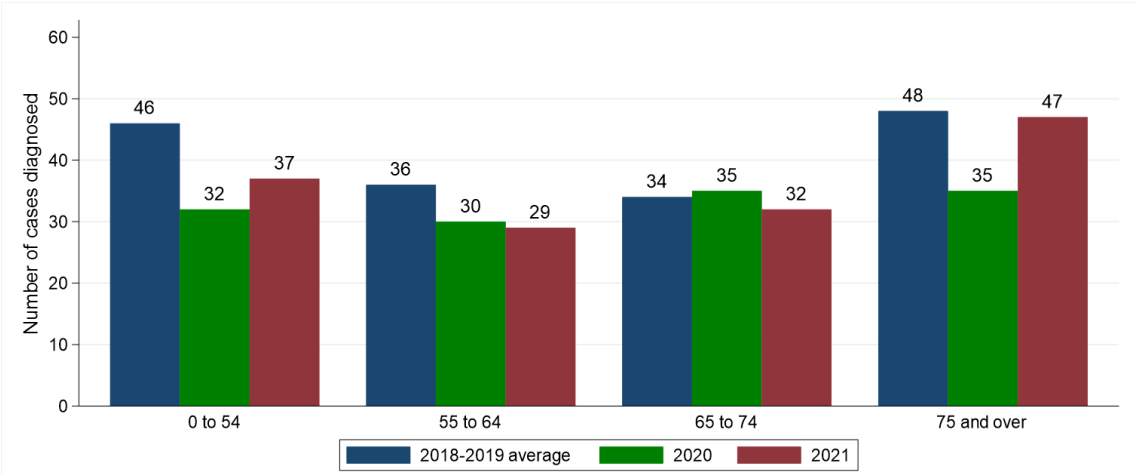
Table 2: Number and proportion of ovarian cancer cases diagnosed in April-December of 2018-2021 by age and period of diagnosis

Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All ages	163	132	145	-19.0%	-11.0%
0 to 54	46 (28.2%)	32 (24.2%)	37 (25.5%)	-30.4%	-19.6%
55 to 64	36 (22.1%)	30 (22.7%)	29 (20.0%)	-16.7%	-19.4%
65 to 74	34 (20.9%)	35 (26.5%)	32 (22.1%)	+2.9%	-5.9%
75 and over	48 (29.4%)	35 (26.5%)	47 (32.4%)	-27.1%	-2.1%

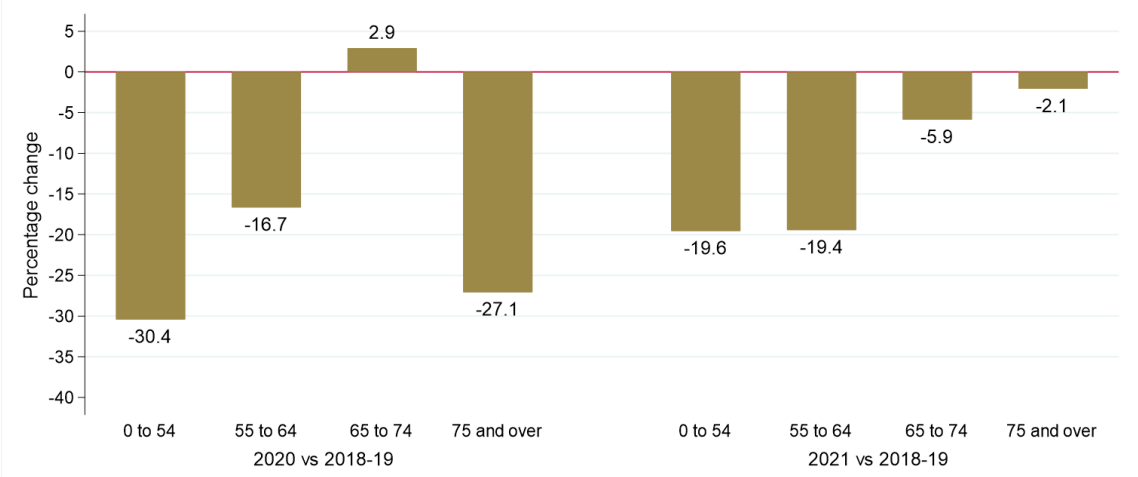
** Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.*

Figure 2: Number of ovarian 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 ovarian cancer diagnosed among those resident in Northern HSCT decreased by 36.4% from 44 per year in 2018-2019 to 28 in 2021. Between the same two time periods the number of cases of ovarian cancer diagnosed among those resident in Western HSCT increased by 9.5% from 21 per year in 2018-2019 to 23 in 2021. The change in case distribution by Health and Social Care Trust between 2018-2019 and 2021 was not statistically significant.

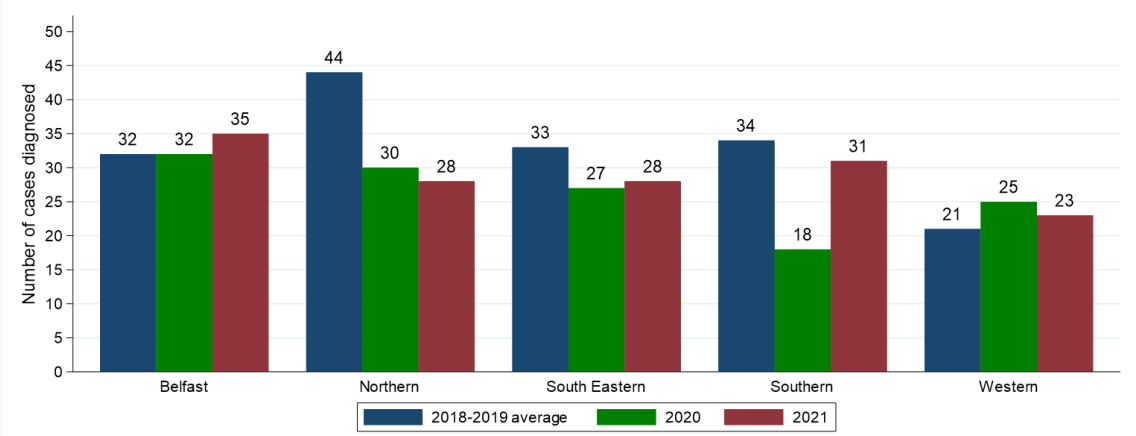
Table 3: Number and proportion of ovarian cancer cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

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	163	132	145	-19.0%	-11.0%
Belfast	32 (19.6%)	32 (24.2%)	35 (24.1%)	0.0%	+9.4%
Northern	44 (27.0%)	30 (22.7%)	28 (19.3%)	-31.8%	-36.4%
South Eastern	33 (20.2%)	27 (20.5%)	28 (19.3%)	-18.2%	-15.2%
Southern	34 (20.9%)	18 (13.6%)	31 (21.4%)	-47.1%	-8.8%
Western	21 (12.9%)	25 (18.9%)	23 (15.9%)	+19.0%	+9.5%

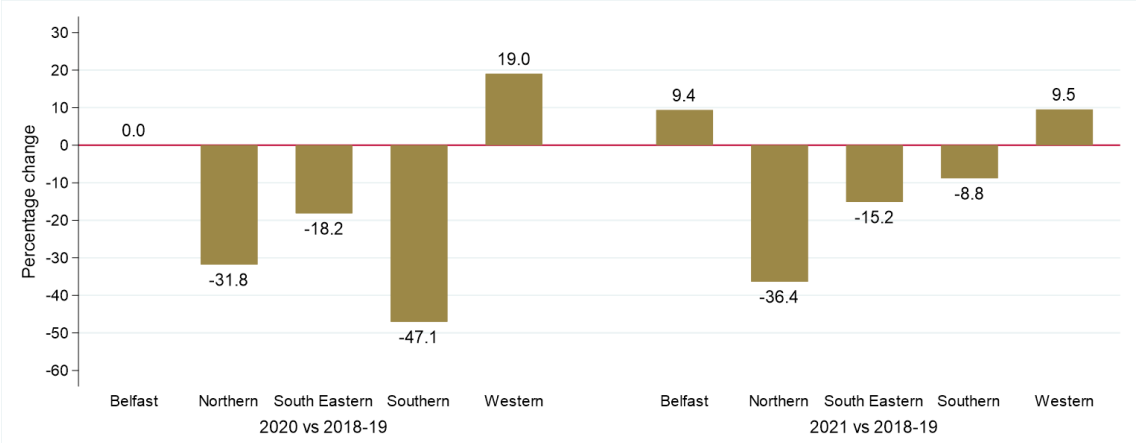
** Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.*
Note: Cases with unknown Health and Social Care Trust are included in totals.

Figure 3: Number of ovarian 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 ovarian cancer diagnosed among those resident in the most deprived quintile decreased by 22.2% from 27 per year in 2018-2019 to 21 in 2021. Between the same two time periods the number of cases of ovarian cancer diagnosed among those resident in the least deprived quintile decreased by 8.6% from 35 per year in 2018-2019 to 32 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 ovarian cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

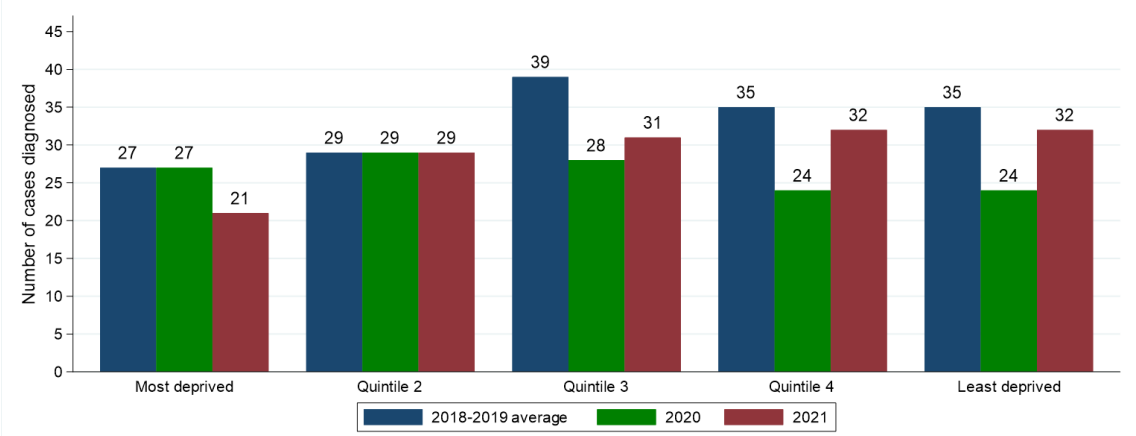
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	163	132	145	-19.0%	-11.0%
Most deprived	27 (16.6%)	27 (20.5%)	21 (14.5%)	0.0%	-22.2%
Quintile 2	29 (17.8%)	29 (22.0%)	29 (20.0%)	0.0%	0.0%
Quintile 3	39 (23.9%)	28 (21.2%)	31 (21.4%)	-28.2%	-20.5%
Quintile 4	35 (21.5%)	24 (18.2%)	32 (22.1%)	-31.4%	-8.6%
Least deprived	35 (21.5%)	24 (18.2%)	32 (22.1%)	-31.4%	-8.6%

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

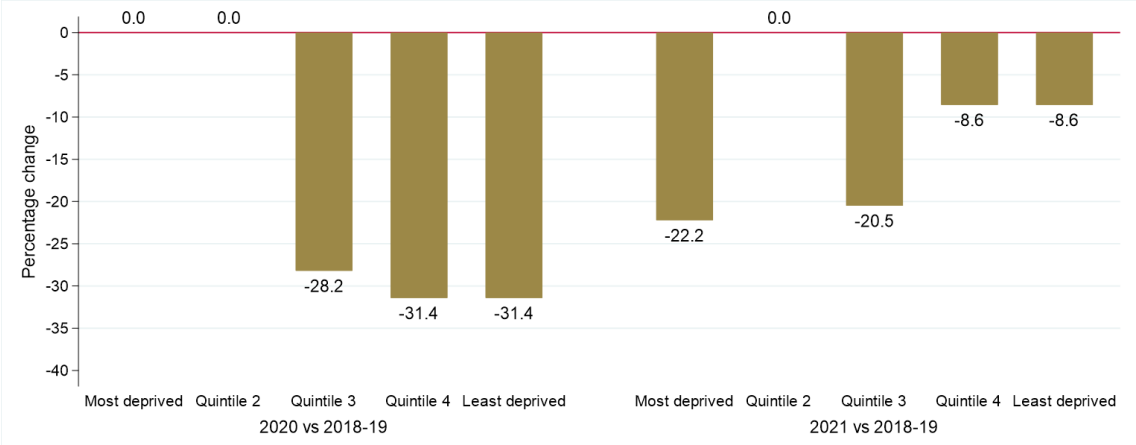
Note: Cases with unknown deprivation quintile are included in totals.

Figure 4: Number of ovarian 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



STAGE AT DIAGNOSIS

The number of ovarian cancer cases diagnosed at stage I in April to December of each year decreased by 2.0% from 50 per year in 2018-2019 to 49 in 2021. In addition the number of ovarian cancer cases diagnosed at stage IV increased by 10.7% from 28 per year in 2018-2019 to 31 in 2021. As a proportion of all cases, stage IV diagnosis increased from 17.2% in 2018-2019 to 21.4% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

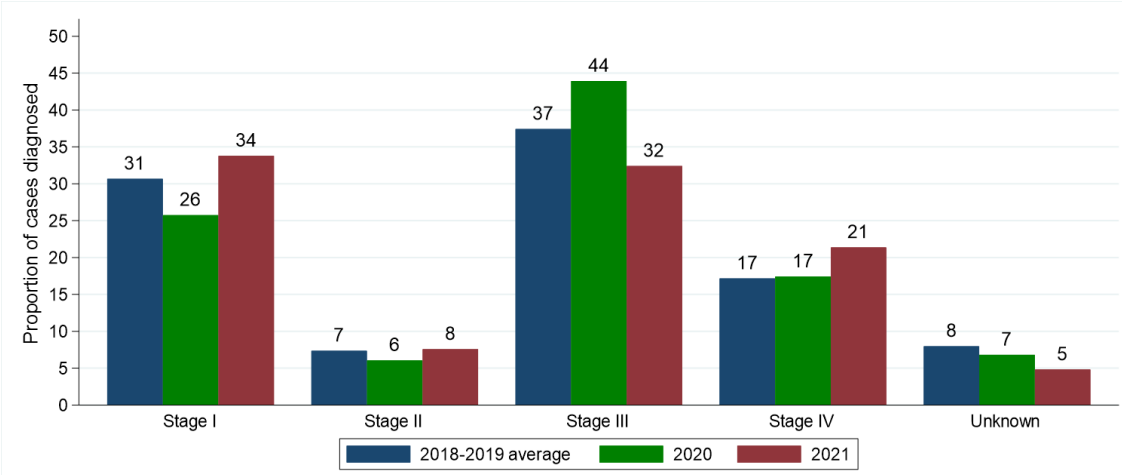
Table 5: Number and proportion of ovarian cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	163	132	145	-19.0%	-11.0%
Stage I	50 (30.7%)	34 (25.8%)	49 (33.8%)	-32.0%	-2.0%
Stage II	12 (7.4%)	8 (6.1%)	11 (7.6%)	-33.3%	-8.3%
Stage III	61 (37.4%)	58 (43.9%)	47 (32.4%)	-4.9%	-23.0%
Stage IV	28 (17.2%)	23 (17.4%)	31 (21.4%)	-17.9%	+10.7%
Unknown	13 (8.0%)	9 (6.8%)	7 (4.8%)	-30.8%	-46.2%

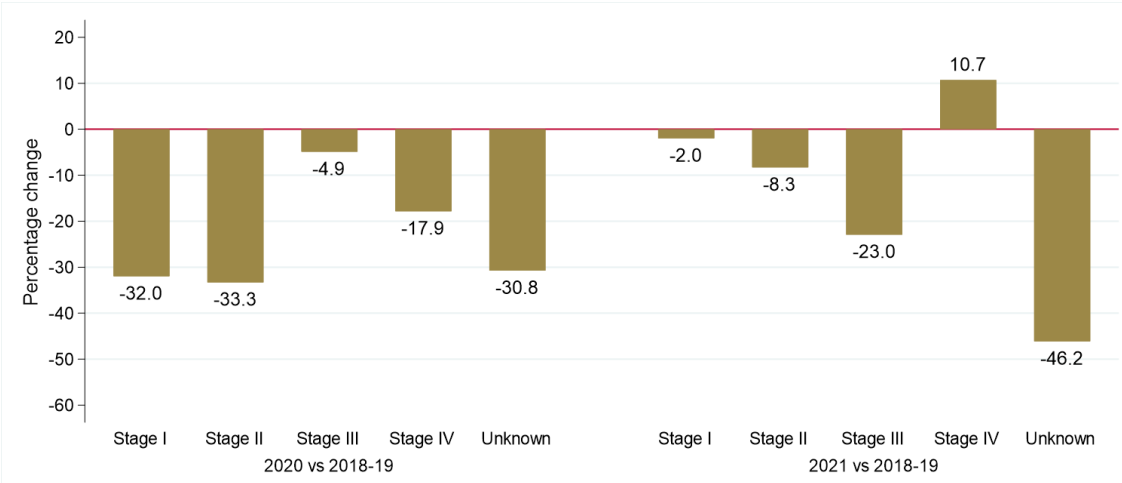
** Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.*

Figure 5: Proportion of ovarian 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 ovarian cancer cases resulting in treatment by surgery within six months decreased by 11.2% from 89 per year in 2018-2019 to 79 in 2021. The resulting decrease in the proportion receiving surgery from 54.6% in 2018-2019 to 54.5% in 2021 was not statistically significant.

Between the same two time periods the number of ovarian cancer cases resulting in treatment by systemic therapy decreased by 6.7% from 75 per year in 2018-2019 to 70 in 2021. The resulting increase in the proportion receiving systemic therapy from 46.0% in 2018-2019 to 48.3% in 2021 was not statistically significant.

The number of ovarian cancer cases treated with hormone therapy increased by 16.7% from 6 per year in 2018-2019 to 7 in 2021. The resulting increase in the proportion receiving hormone therapy from 3.7% in 2018-2019 to 4.8% in 2021 was not statistically significant.

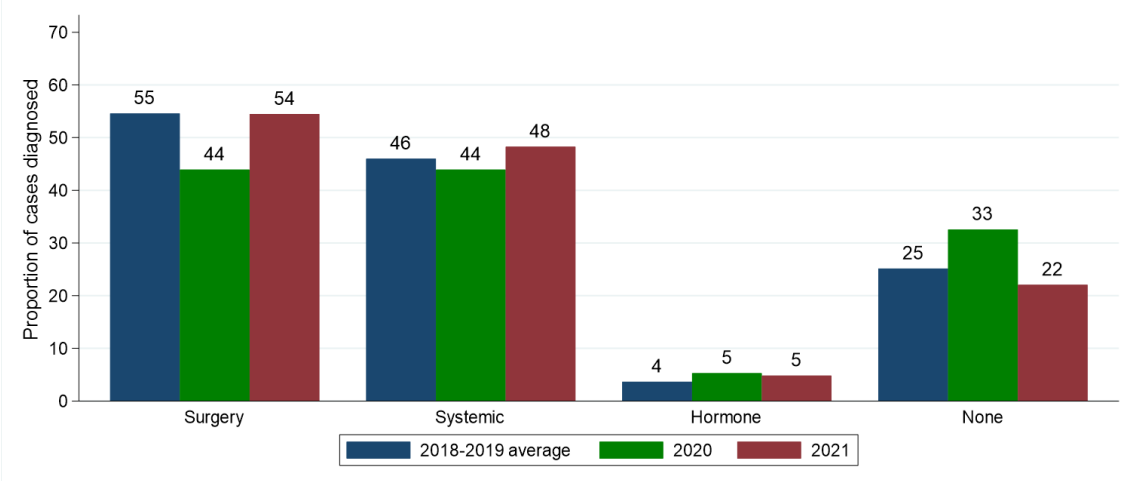
Excluding the first quarter of each year the number of ovarian cancer cases receiving none of these treatments within six months of diagnosis decreased by 22.0% from 41 per year in 2018-2019 to 32 in 2021. The resulting decrease in the proportion receiving none of these treatments from 25.2% in 2018-2019 to 22.1% in 2021 was not statistically significant.

Table 6: Number and proportion of ovarian cancer cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

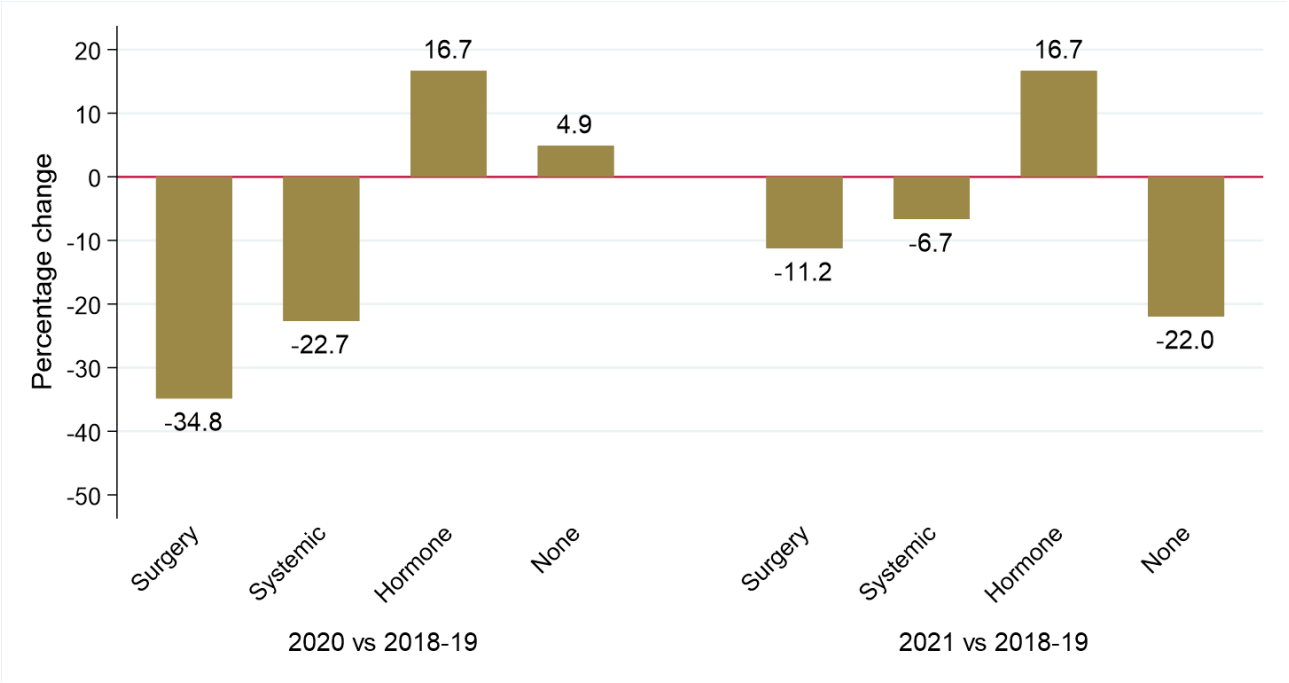
Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Surgery	89 (54.6%)	58 (43.9%)*	79 (54.5%)	-34.8%	-11.2%
Systemic therapy	75 (46.0%)	58 (43.9%)	70 (48.3%)	-22.7%	-6.7%
Hormone therapy	6 (3.7%)	7 (5.3%)	7 (4.8%)	+16.7%	+16.7%
None of these treatments	41 (25.2%)	43 (32.6%)	32 (22.1%)	+4.9%	-22.0%

** Statistically significant change compared to 2018-2019*

Figure 6: Proportion of ovarian 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

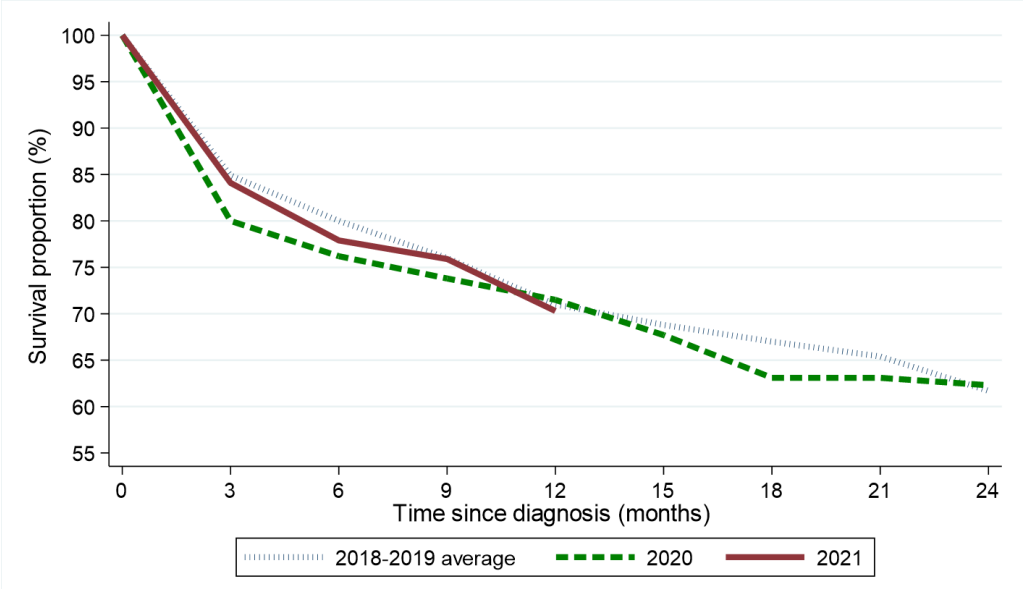
Survival among ovarian cancer patients six months after diagnosis decreased from 80.0% among those diagnosed in April-December of 2018-2019 to 77.9% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival decreased from 71.0% to 70.3%. 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=0.956).

Table 7: Observed survival for patients with ovarian 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	84.9% (80.5% - 88.4%)	80.0% (72.0% - 85.9%)	84.1% (77.1% - 89.2%)
Six months	80.0% (75.2% - 83.9%)	76.2% (67.9% - 82.6%)	77.9% (70.3% - 83.8%)
One year	71.0% (65.7% - 75.6%)	71.5% (62.9% - 78.5%)	70.3% (62.2% - 77.1%)
Two years	61.7% (56.2% - 66.7%)	62.3% (53.4% - 70.0%)	-

No statistically significant reductions compared to 2018-2019

Figure 7: Observed survival for patients with ovarian cancer diagnosed in April-December of 2018-2021 by period of diagnosis



DEATHS FROM COVID-19

During 2021 there were a total of 3 deaths from Covid-19 among ovarian cancer patients diagnosed at any point since 1993.

NET SURVIVAL

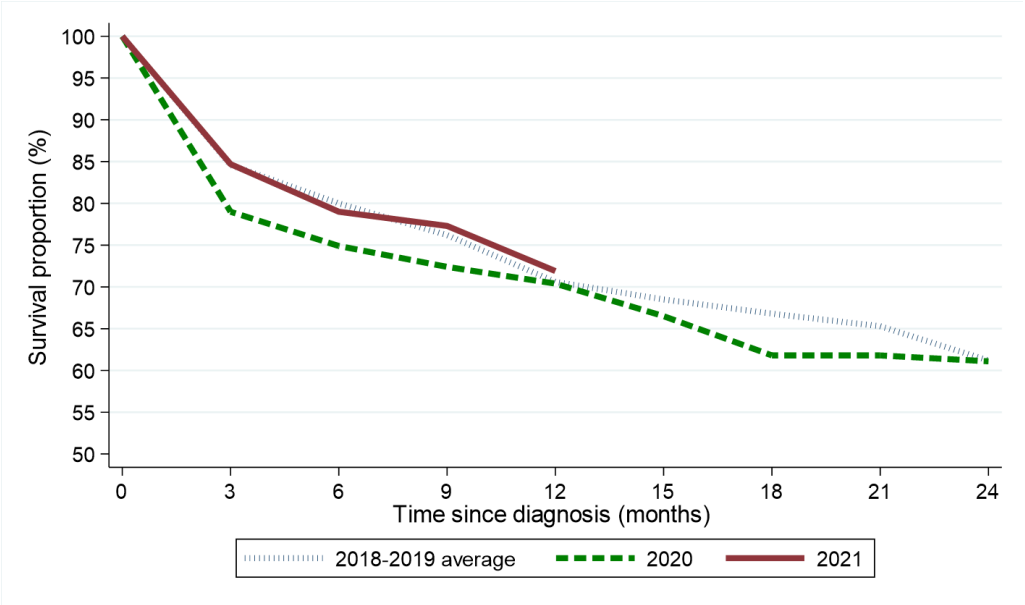
Net survival among ovarian cancer patients six months after diagnosis decreased from 80.0% among those diagnosed in April-December of 2018-2019 to 79.0% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival increased from 70.6% to 71.9%. This change was not statistically significant.

Table 8: Age-standardised net survival for patients with ovarian 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	84.6% (80.4% - 89.0%)	79.0% (70.6% - 88.3%)	84.7% (78.8% - 91.1%)
Six months	80.0% (75.3% - 85.0%)	74.9% (66.2% - 84.7%)	79.0% (72.2% - 86.5%)
One year	70.6% (65.0% - 76.7%)	70.4% (61.4% - 80.8%)	71.9% (64.2% - 80.6%)
Two years	61.2% (54.9% - 68.2%)	61.1% (51.4% - 72.6%)	-

No statistically significant reductions compared to 2018-2019

Figure 8: Age-standardised net survival for patients with ovarian 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 ovarian cancer decreased between 2018-2019 and 2021 by 18.9% from 95 deaths per year to 77 deaths.

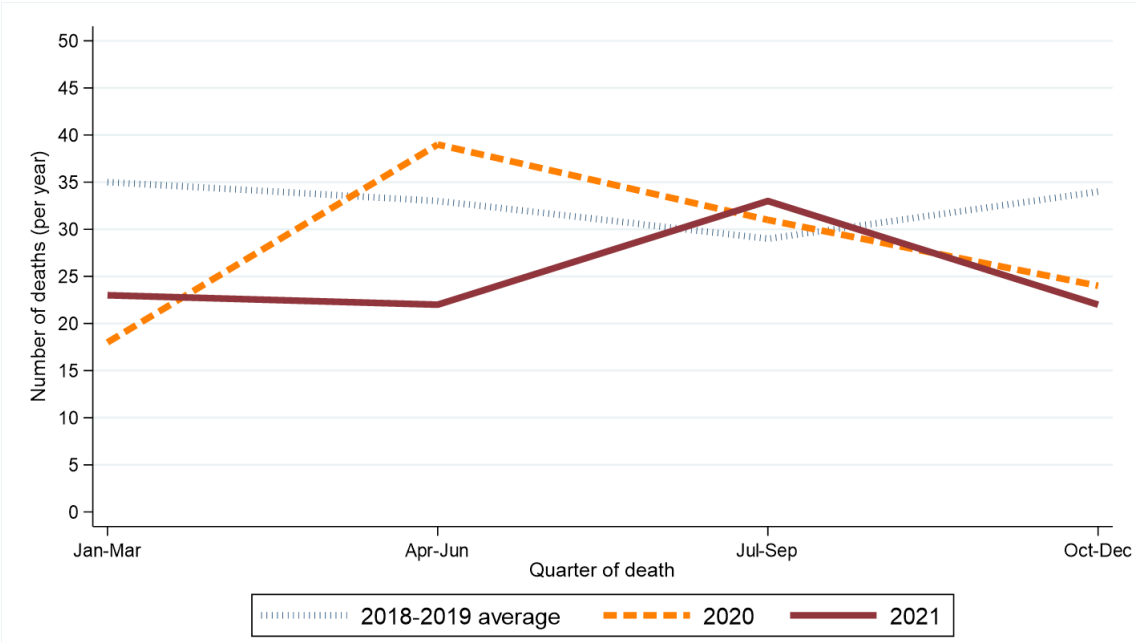
Table 9: Number of ovarian cancer deaths in 2018-2021 by quarter and year of death

Period of death	Annual total	Quarter of death			
		Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec
2018-2019*	130	35	33	29	34
2020	112	18	39	31	24
2021	100	23	22	33	22

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

Figure 9: Number of ovarian cancer deaths in 2018-2021 by quarter and year of death

(a) Number of deaths by quarter of death



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