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# Recent trends in incidence, survival and mortality of colon cancer in Northern Ireland

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

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## Further information

Further information is available at: [www.qub.ac.uk/research-centres/nicr](http://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 colon cancer diagnosed increased between 2018-2019 and 2021 by 21.8% from 619 cases per year to 754 cases.

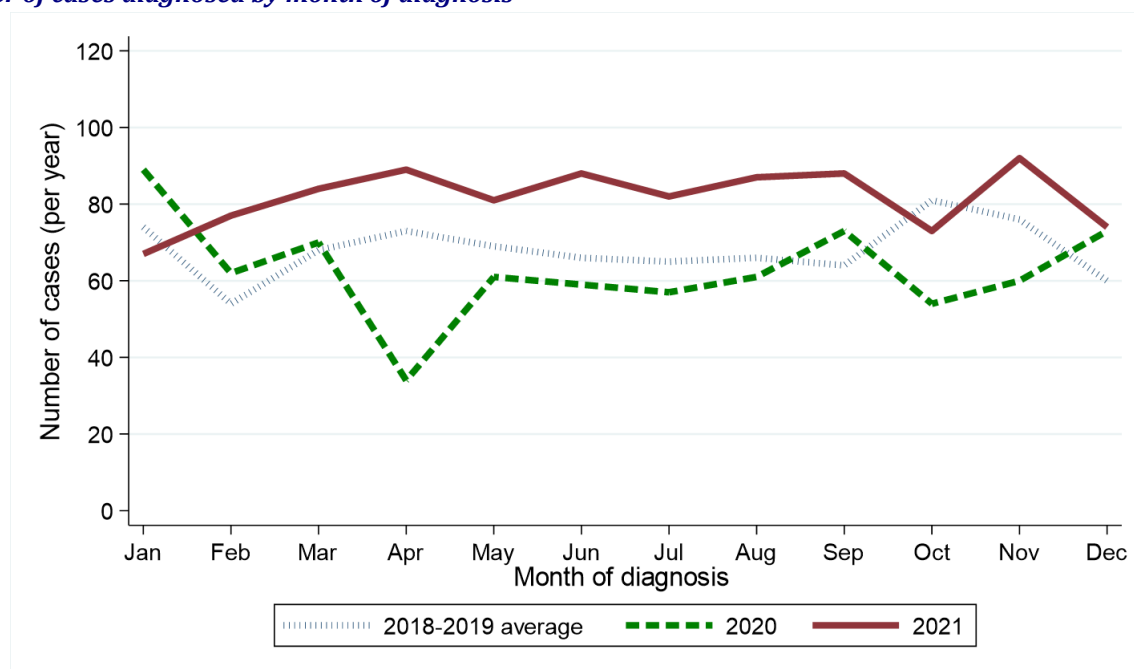
**Table 1: Number of colon cancer cases diagnosed in 2018-2021 by month and year of diagnosis**

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	814	74	54	68	73	69	66	65	66	64	81	76	60
2020	753	89	62	70	34	61	59	57	61	73	54	60	73
2021	982	67	77	84	89	81	88	82	87	88	73	92	74

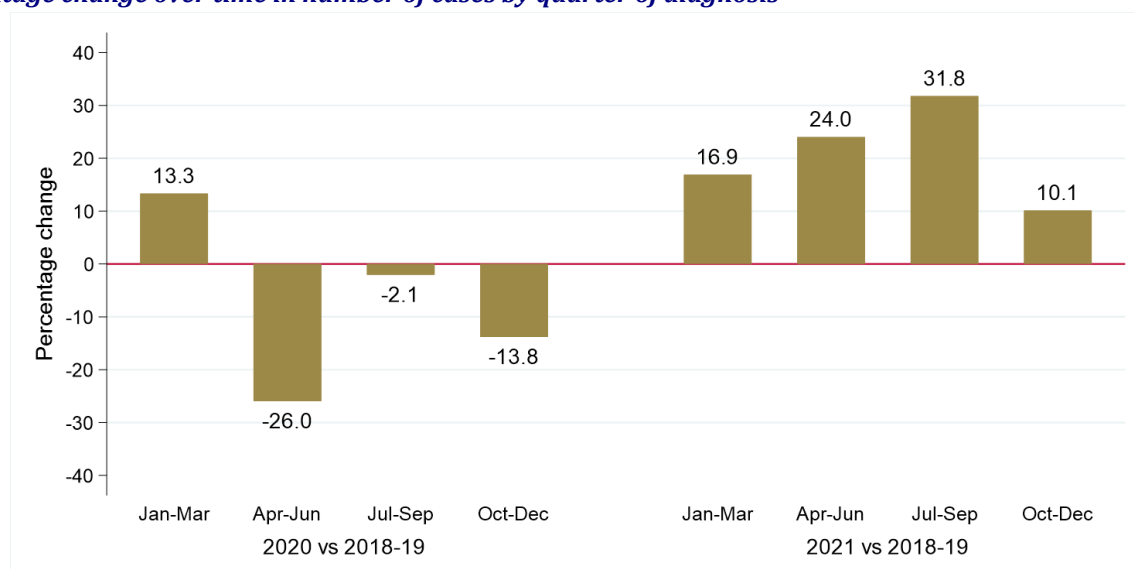
\* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

**Figure 1: Number of colon 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**



## GENDER

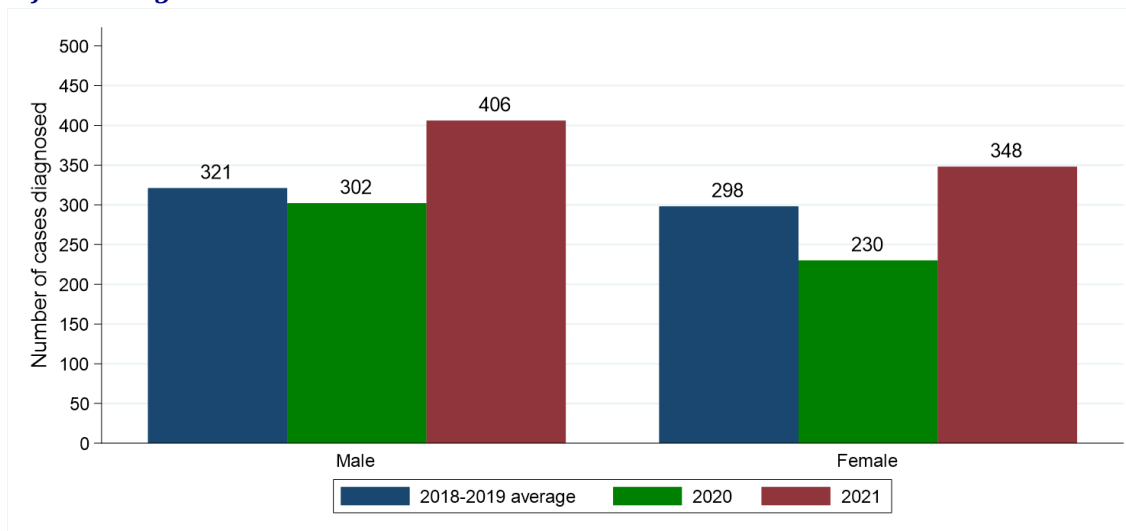
Excluding the first quarter of each year the number of male colon cancer cases diagnosed increased by 26.5% from 321 per year in 2018-2019 to 406 in 2021. Between the same two time periods the number of female colon cancer cases diagnosed increased by 16.8% from 298 per year in 2018-2019 to 348 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

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

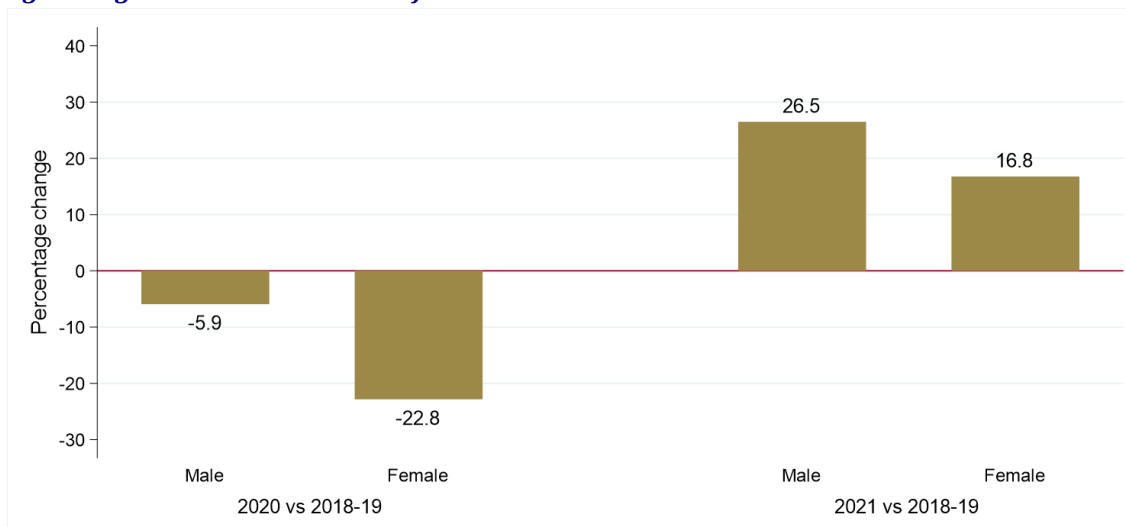
Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>All persons</b>	619	532	754	-14.1%	+21.8%
<b>Male</b>	321 (51.9%)	302 (56.8%)	406 (53.8%)	-5.9%	+26.5%
<b>Female</b>	298 (48.1%)	230 (43.2%)	348 (46.2%)	-22.8%	+16.8%

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

**Figure 2: Number of colon cancer 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

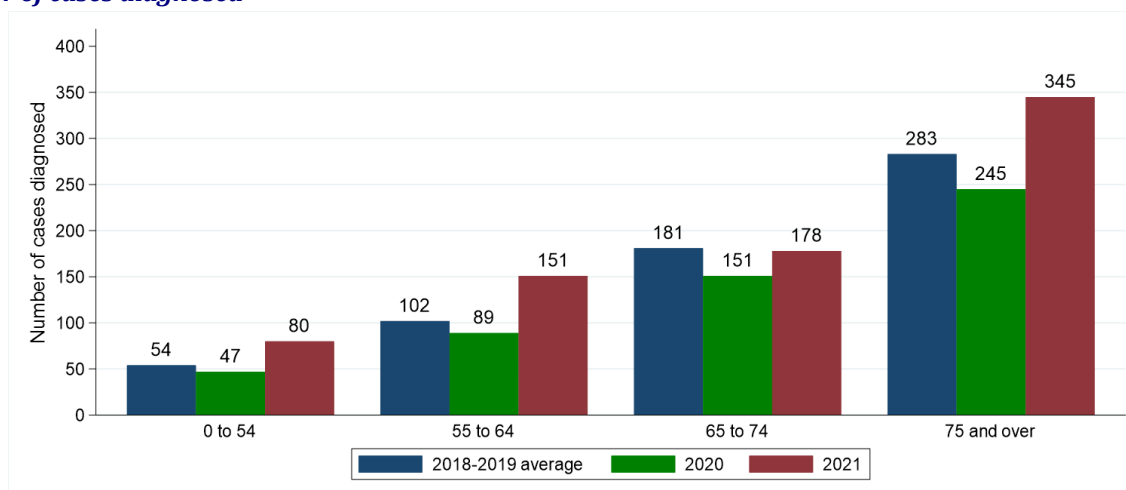
Excluding the first quarter of each year the number of cases of colon cancer diagnosed among those aged 65 to 74 decreased by 1.7% from 181 per year in 2018-2019 to 178 in 2021. Between the same two time periods the number of cases of colon cancer diagnosed among those aged 0 to 54 increased by 48.1% from 54 per year in 2018-2019 to 80 in 2021. The change in case distribution by age between 2018-2019 and 2021 was statistically significant ( $p = 0.014$ ).

**Table 3: Number and proportion of colon cancer cases diagnosed in April-December of 2018-2021 by age and period of diagnosis**

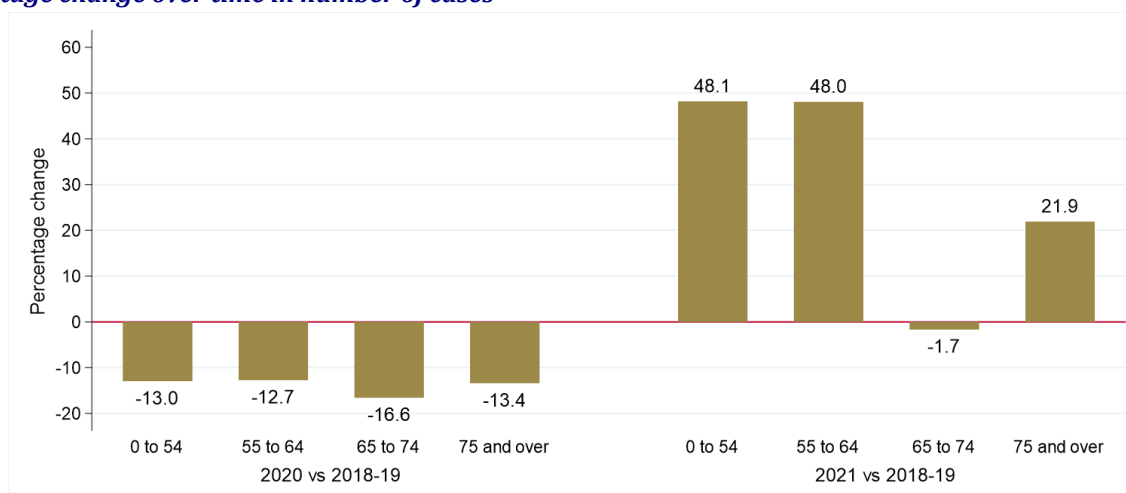
Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>All ages</b>	619	532	754	-14.1%	+21.8%
<b>0 to 54</b>	54 (8.7%)	47 (8.8%)	80 (10.6%)	-13.0%	+48.1%
<b>55 to 64</b>	102 (16.5%)	89 (16.7%)	151 (20.0%)	-12.7%	+48.0%
<b>65 to 74</b>	181 (29.2%)	151 (28.4%)	178 (23.6%)	-16.6%	-1.7%
<b>75 and over</b>	283 (45.7%)	245 (46.1%)	345 (45.8%)	-13.4%	+21.9%

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

**Figure 3: Number of colon 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 colon cancer diagnosed among those resident in Belfast HSCT decreased by 8.9% from 124 per year in 2018-2019 to 113 in 2021. Between the same two time periods the number of cases of colon cancer diagnosed among those resident in Western HSCT increased by 43.0% from 86 per year in 2018-2019 to 123 in 2021. The change in case distribution by Health and Social Care Trust between 2018-2019 and 2021 was not statistically significant.

**Table 4: Number and proportion of colon cancer cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis**

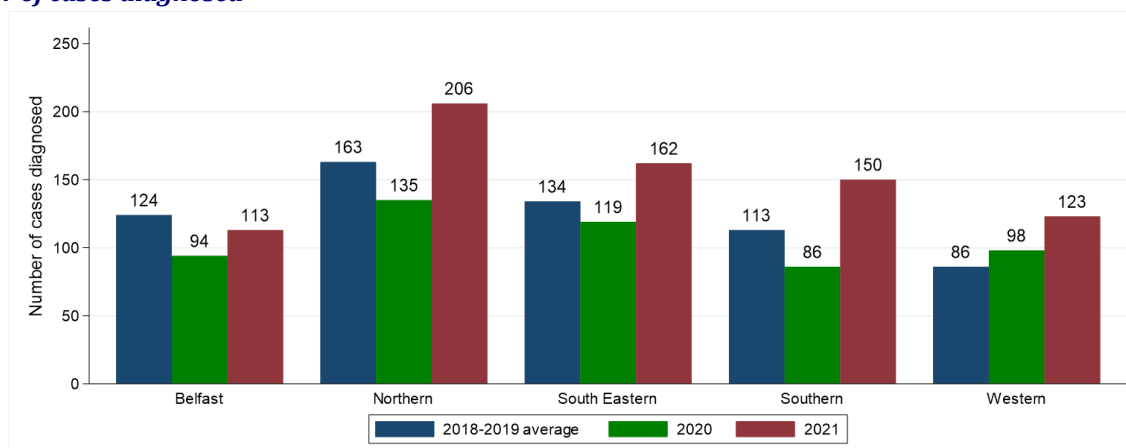
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	619	532	754	-14.1%	+21.8%
<b>Belfast</b>	124 (20.0%)	94 (17.7%)	113 (15.0%)	-24.2%	-8.9%
<b>Northern</b>	163 (26.3%)	135 (25.4%)	206 (27.3%)	-17.2%	+26.4%
<b>South Eastern</b>	134 (21.6%)	119 (22.4%)	162 (21.5%)	-11.2%	+20.9%
<b>Southern</b>	113 (18.3%)	86 (16.2%)	150 (19.9%)	-23.9%	+32.7%
<b>Western</b>	86 (13.9%)	98 (18.4%)	123 (16.3%)	+14.0%	+43.0%

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

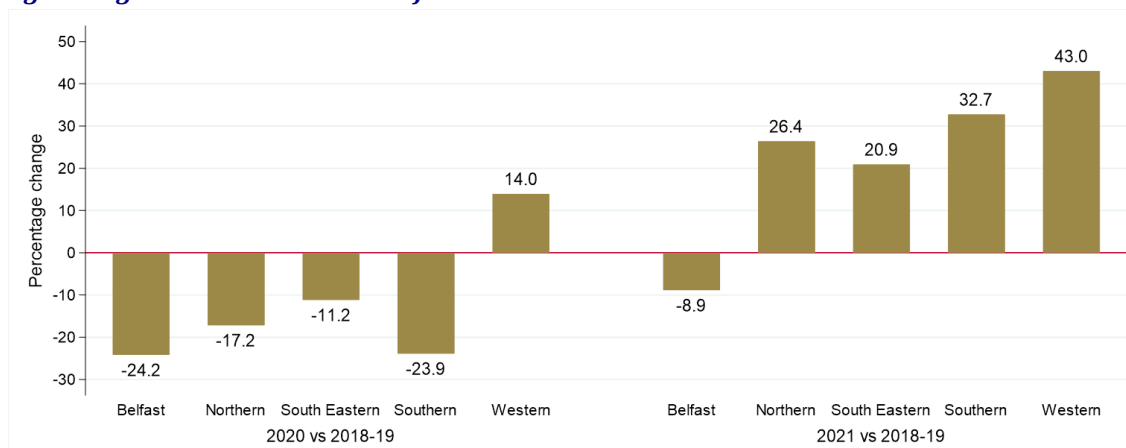
Note: Cases with unknown Health and Social Care Trust are included in totals.

**Figure 4: Number of colon 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 colon cancer diagnosed among those resident in the least deprived quintile decreased by 1.4% from 148 per year in 2018-2019 to 146 in 2021. Between the same two time periods the number of cases of colon cancer diagnosed among those resident in the most deprived quintile increased by 13.2% from 106 per year in 2018-2019 to 120 in 2021. The change in case distribution by deprivation quintile between 2018-2019 and 2021 was not statistically significant.

**Table 5: Number and proportion of colon cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis**

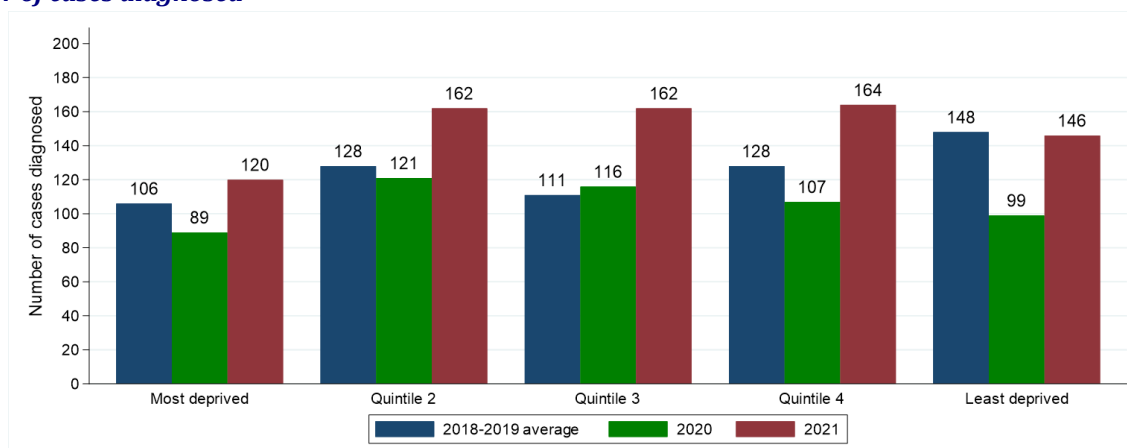
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	619	532	754	-14.1%	+21.8%
<b>Most deprived</b>	106 (17.1%)	89 (16.7%)	120 (15.9%)	-16.0%	+13.2%
<b>Quintile 2</b>	128 (20.7%)	121 (22.7%)	162 (21.5%)	-5.5%	+26.6%
<b>Quintile 3</b>	111 (17.9%)	116 (21.8%)	162 (21.5%)	+4.5%	+45.9%
<b>Quintile 4</b>	128 (20.7%)	107 (20.1%)	164 (21.8%)	-16.4%	+28.1%
<b>Least deprived</b>	148 (23.9%)	99 (18.6%)	146 (19.4%)	-33.1%	-1.4%

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

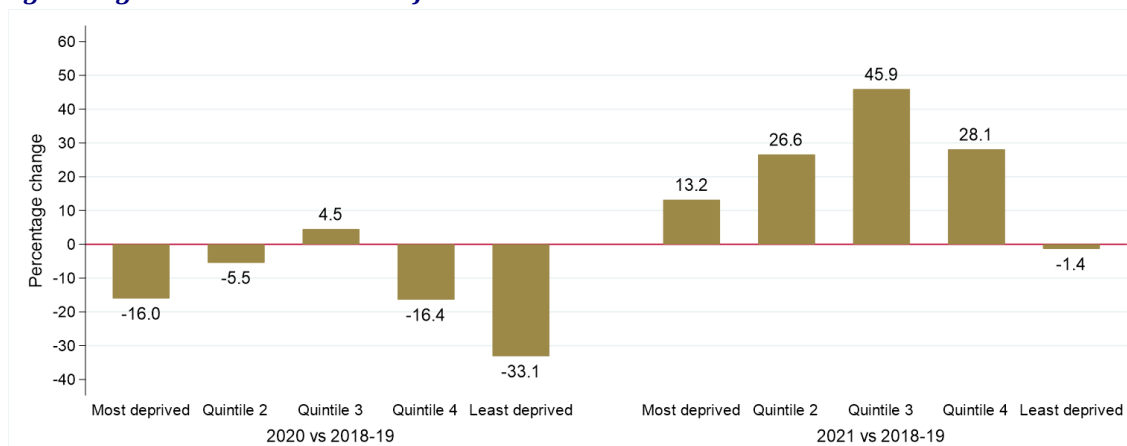
Note: Cases with unknown deprivation quintile are included in totals.

**Figure 5: Number of colon 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 colon cancer diagnosed via histology/cytology increased by 25.3% from 526 per year in 2018-2019 to 659 in 2021. As a proportion of all cases, histology/cytology diagnosis increased from 85.0% in 2018-2019 to 87.4% in 2021. The change in case distribution by basis of diagnosis between 2018-2019 and 2021 was not statistically significant.

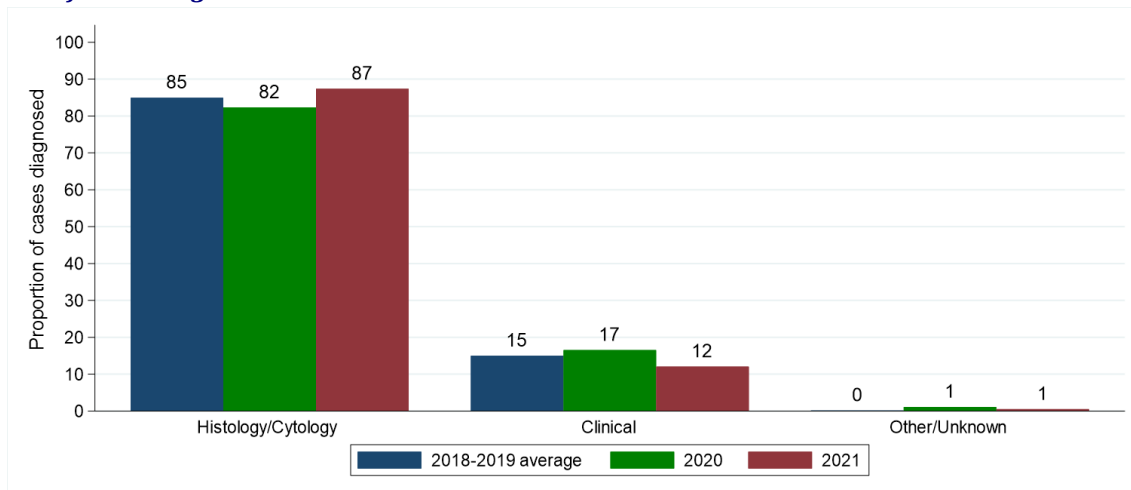
**Table 6: Number and proportion of colon cancer cases diagnosed in April-December of 2018-2021 by basis and period of diagnosis**

Basis of diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>All types</b>	619	532	754	-14.1%	+21.8%
<b>Histology/Cytology</b>	526 (85.0%)	438 (82.3%)	659 (87.4%)	-16.7%	+25.3%
<b>Clinical</b>	93 (15.0%)	88 (16.5%)	91 (12.1%)	-5.4%	-2.2%
<b>Other/Unknown</b>	1 (0.2%)	6 (1.1%)	4 (0.5%)	-	-

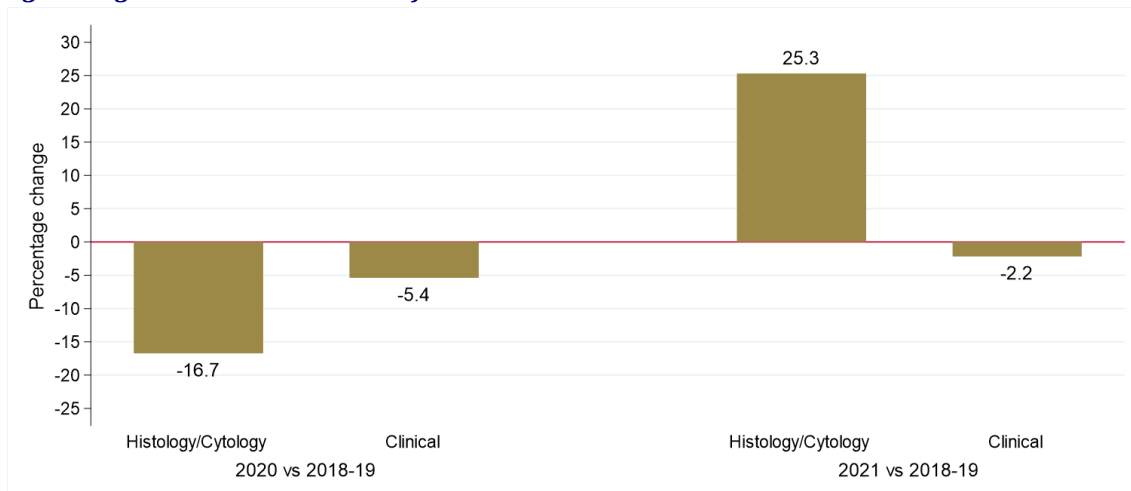
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 6: Proportion of colon 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 colon cancer cases diagnosed at stage I in April to December of each year increased by 24.4% from 82 per year in 2018-2019 to 102 in 2021. In addition the number of colon cancer cases diagnosed at stage IV increased by 14.1% from 149 per year in 2018-2019 to 170 in 2021. As a proportion of all cases, stage IV diagnosis decreased from 24.1% in 2018-2019 to 22.5% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

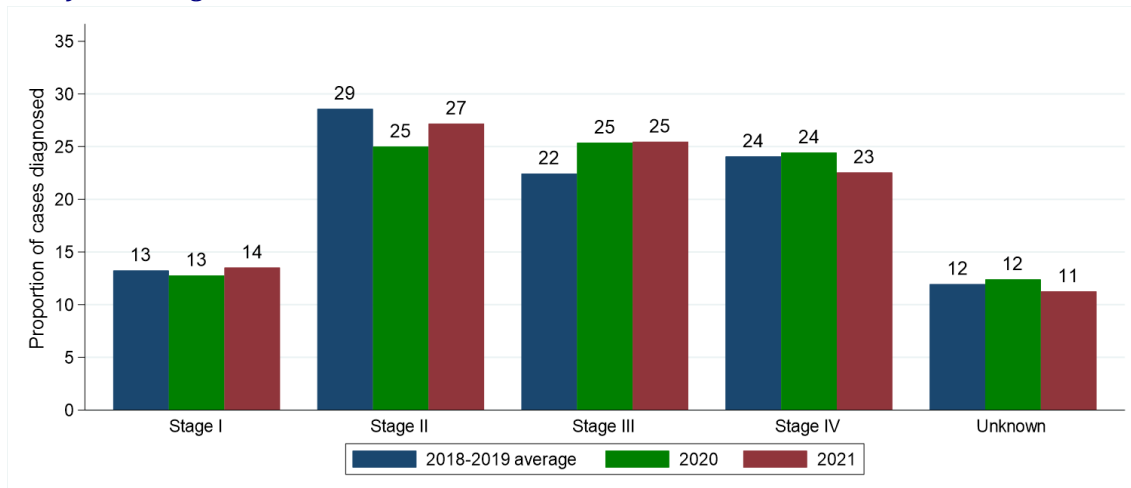
**Table 7: Number and proportion of colon cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis**

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	619	532	754	-14.1%	+21.8%
Stage I	82 (13.2%)	68 (12.8%)	102 (13.5%)	-17.1%	+24.4%
Stage II	177 (28.6%)	133 (25.0%)	205 (27.2%)	-24.9%	+15.8%
Stage III	139 (22.5%)	135 (25.4%)	192 (25.5%)	-2.9%	+38.1%
Stage IV	149 (24.1%)	130 (24.4%)	170 (22.5%)	-12.8%	+14.1%
Unknown	74 (12.0%)	66 (12.4%)	85 (11.3%)	-10.8%	+14.9%

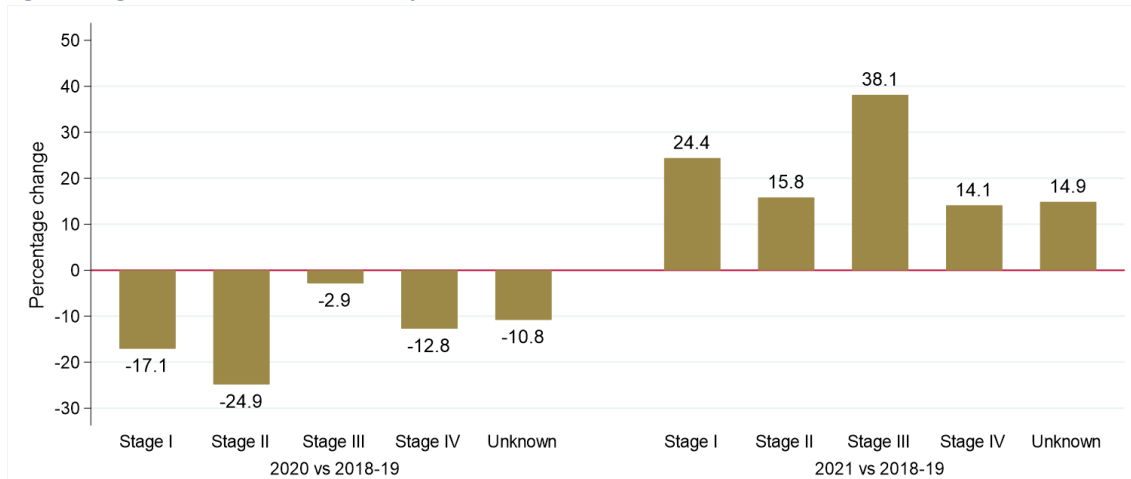
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 7: Proportion of colon 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 colon cancer cases resulting in treatment by surgery within six months increased by 24.6% from 463 per year in 2018-2019 to 577 in 2021. The resulting increase in the proportion receiving surgery from 74.8% in 2018-2019 to 76.5% in 2021 was not statistically significant.

Between the same two time periods the number of colon cancer cases resulting in treatment by systemic therapy increased by 33.3% from 201 per year in 2018-2019 to 268 in 2021. The resulting increase in the proportion receiving systemic therapy from 32.5% in 2018-2019 to 35.5% in 2021 was not statistically significant.

The number of colon cancer cases treated with radiotherapy increased by 60.0% from 10 per year in 2018-2019 to 16 in 2021. The resulting increase in the proportion receiving radiotherapy from 1.6% in 2018-2019 to 2.1% in 2021 was not statistically significant.

Excluding the first quarter of each year the number of colon cancer cases receiving none of these treatments within six months of diagnosis increased by 3.8% from 133 per year in 2018-2019 to 138 in 2021. The resulting decrease in the proportion receiving none of these treatments from 21.5% in 2018-2019 to 18.3% in 2021 was not statistically significant.

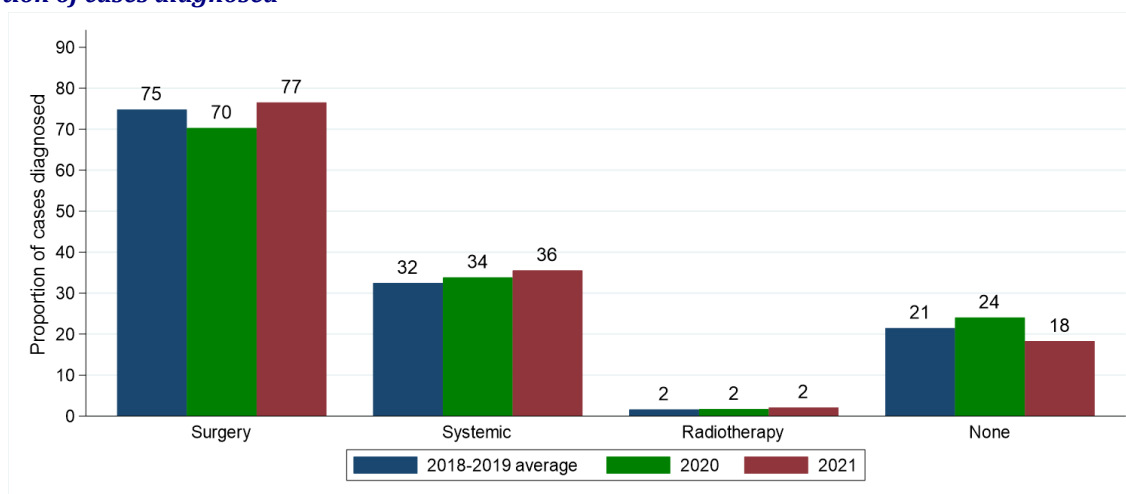
**Table 8: Number and proportion of colon cancer cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis**

Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Surgery</b>	463 (74.8%)	374 (70.3%)*	577 (76.5%)	-19.2%	+24.6%
<b>Systemic therapy</b>	201 (32.5%)	180 (33.8%)*	268 (35.5%)	-10.4%	+33.3%
<b>Radiotherapy</b>	10 (1.6%)	9 (1.7%)*	16 (2.1%)	-10.0%	+60.0%
<b>None of these treatments</b>	133 (21.5%)	128 (24.1%)*	138 (18.3%)	-3.8%	+3.8%

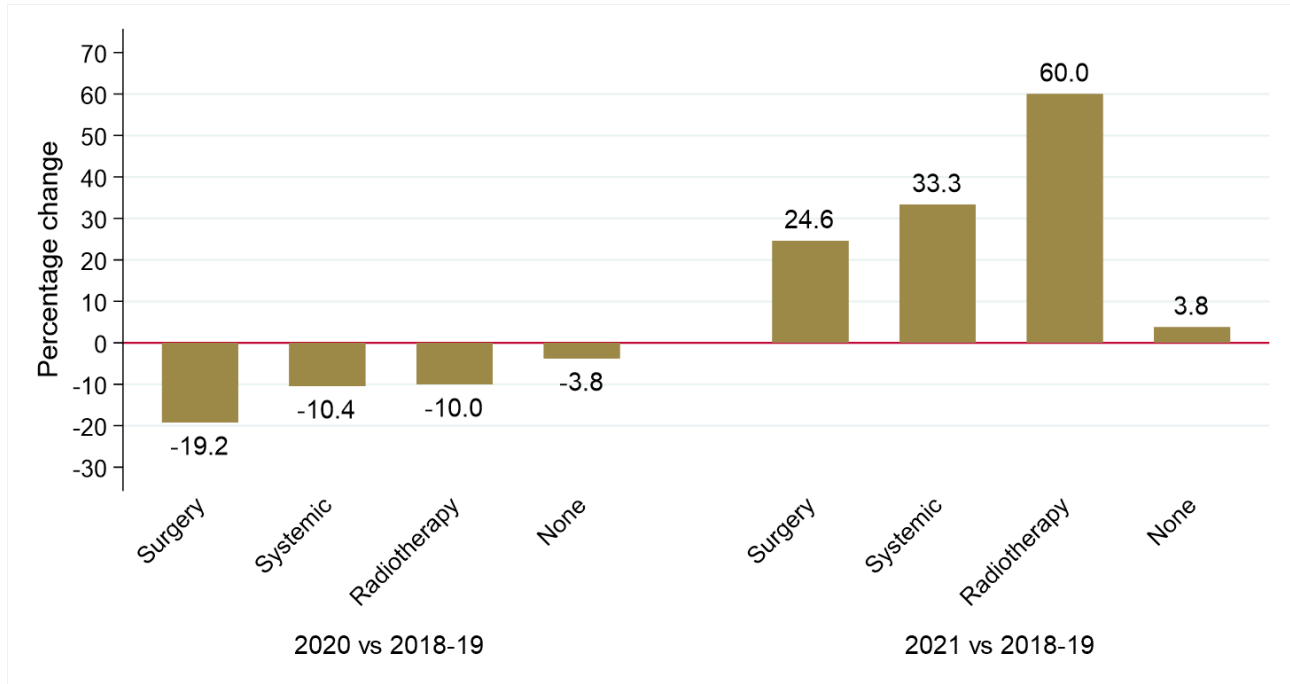
\* Statistically significant change compared to 2018-2019

**Figure 8: Proportion of colon 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

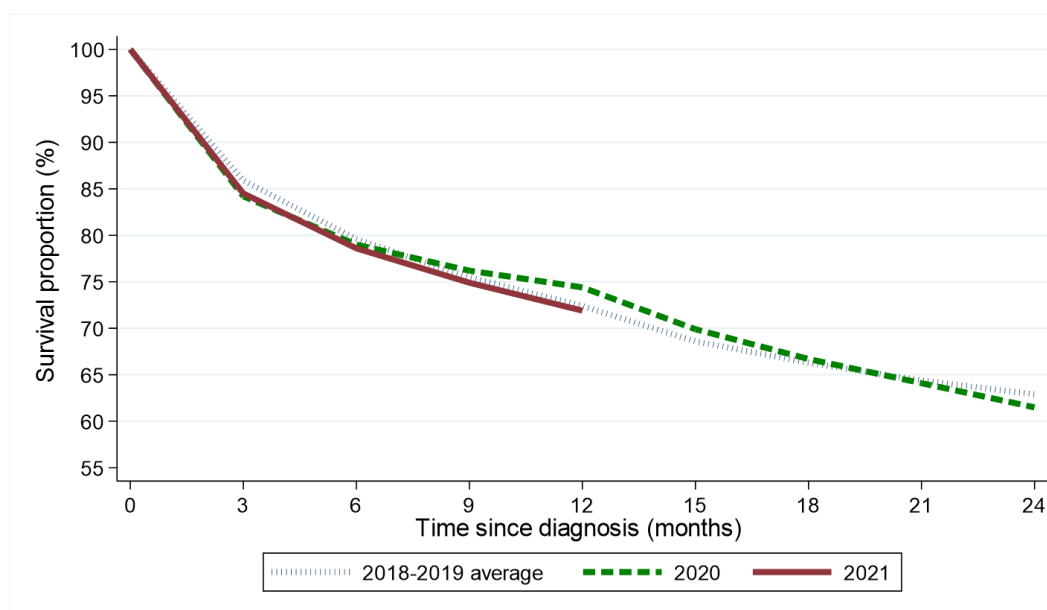
Survival among colon cancer patients six months after diagnosis decreased from 79.6% among those diagnosed in April-December of 2018-2019 to 78.6% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival decreased from 72.4% to 71.9%. 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 ( $p=0.950$ ).

**Table 9: Observed survival for patients with colon 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	85.9% (83.8% - 87.8%)	84.2% (80.7% - 87.1%)	84.5% (81.6% - 87.0%)
Six months	79.6% (77.2% - 81.8%)	79.0% (75.2% - 82.3%)	78.6% (75.4% - 81.5%)
One year	72.4% (69.7% - 74.8%)	74.4% (70.4% - 78.0%)	71.9% (68.5% - 75.1%)
Two years	62.9% (60.0% - 65.5%)	61.5% (57.1% - 65.6%)	-

*No statistically significant reductions compared to 2018-2019*

**Figure 9: Observed survival for patients with colon cancer diagnosed in April-December of 2018-2021 by period of diagnosis**



## DEATHS FROM COVID-19

During 2021 there were a total of 41 deaths from Covid-19 among colon cancer patients diagnosed at any point since 1993.

## NET SURVIVAL

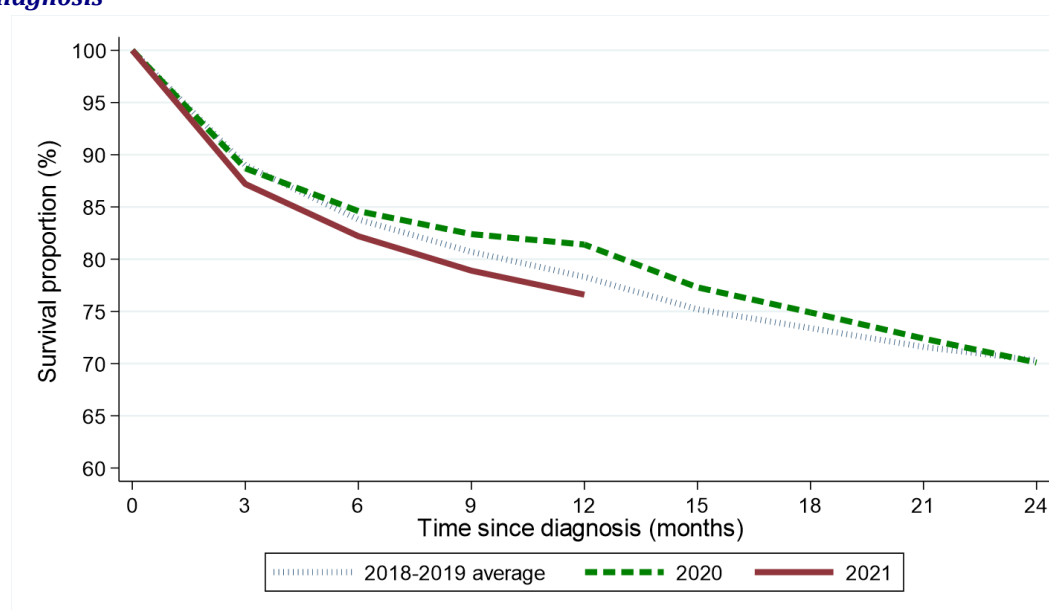
Net survival among colon cancer patients six months after diagnosis decreased from 83.8% among those diagnosed in April-December of 2018-2019 to 82.2% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival decreased from 78.3% to 76.6%. This change was not statistically significant.

**Table 10: Age-standardised net survival for patients with colon cancer diagnosed in April-December of 2018-2021 by period of diagnosis**

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
<b>Three months</b>	89.0% (87.3% - 90.8%)	88.7% (86.1% - 91.3%)	87.2% (84.7% - 89.8%)
<b>Six months</b>	83.8% (81.7% - 86.0%)	84.6% (81.5% - 87.8%)	82.2% (79.4% - 85.2%)
<b>One year</b>	78.3% (75.9% - 80.8%)	81.4% (78.0% - 85.0%)	76.6% (73.4% - 80.0%)
<b>Two years</b>	70.3% (67.5% - 73.3%)	70.1% (65.8% - 74.6%)	-

*No statistically significant reductions compared to 2018-2019*

**Figure 10: Age-standardised net survival for patients with colon 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 colon cancer increased between 2018-2019 and 2021 by 4.1% from 171 deaths per year to 178 deaths.

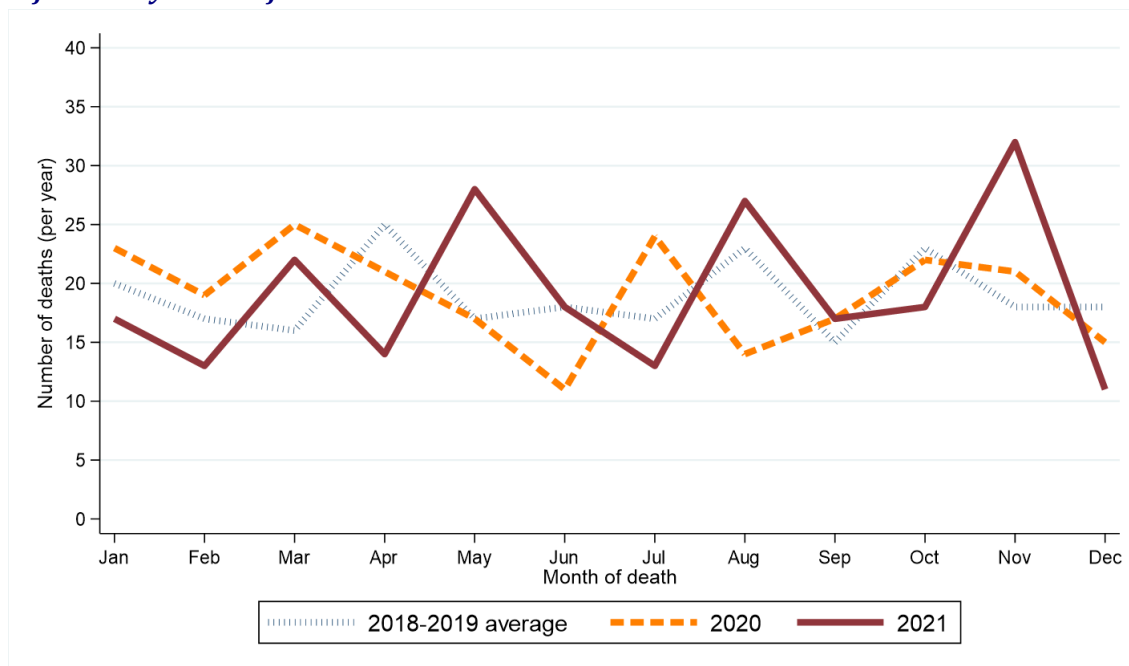
**Table 11: Number of colon cancer deaths in 2018-2021 by month and year of death**

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	223	20	17	16	25	17	18	17	23	15	23	18	18
2020	229	23	19	25	21	17	11	24	14	17	22	21	15
2021	230	17	13	22	14	28	18	13	27	17	18	32	11

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

**Figure 11: Number of colon 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**

