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# Recent trends in incidence, survival and mortality of colorectal 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 colorectal cancer diagnosed increased between 2018-2019 and 2021 by 16.7% from 911 cases per year to 1,063 cases.

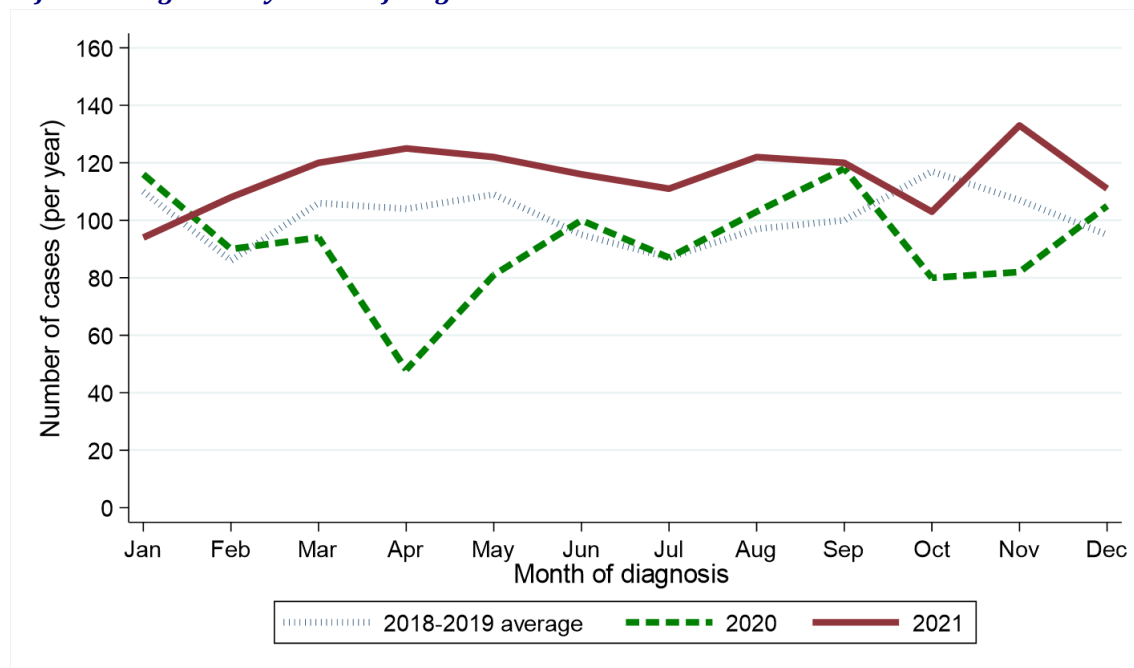
**Table 1: Number of colorectal cancer cases diagnosed in 2018-2021 by month and year of diagnosis**

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	1,211	110	86	106	104	109	95	87	97	100	117	107	95
2020	1,104	116	90	94	48	81	100	87	103	118	80	82	105
2021	1,385	94	108	120	125	122	116	111	122	120	103	133	111

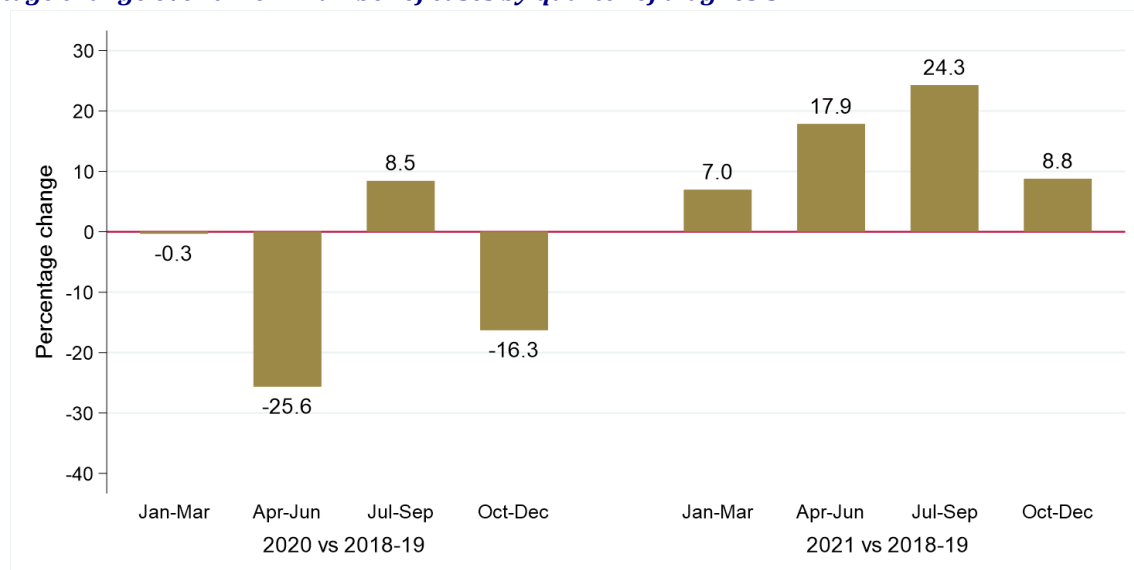
\* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

**Figure 1: Number of colorectal 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 colorectal cancer cases diagnosed increased by 21.5% from 492 per year in 2018-2019 to 598 in 2021. Between the same two time periods the number of female colorectal cancer cases diagnosed increased by 11.0% from 419 per year in 2018-2019 to 465 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

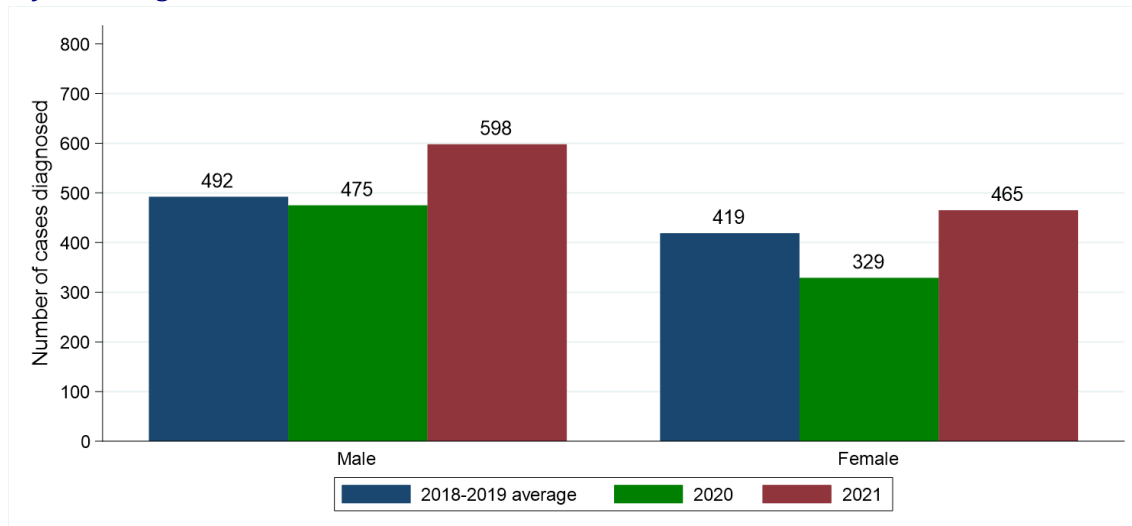
**Table 2: Number and proportion of colorectal cancer cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis**

Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>All persons</b>	911	804	1,063	-11.7%	+16.7%
<b>Male</b>	492 (54.0%)	475 (59.1%)	598 (56.3%)	-3.5%	+21.5%
<b>Female</b>	419 (46.0%)	329 (40.9%)	465 (43.7%)	-21.5%	+11.0%

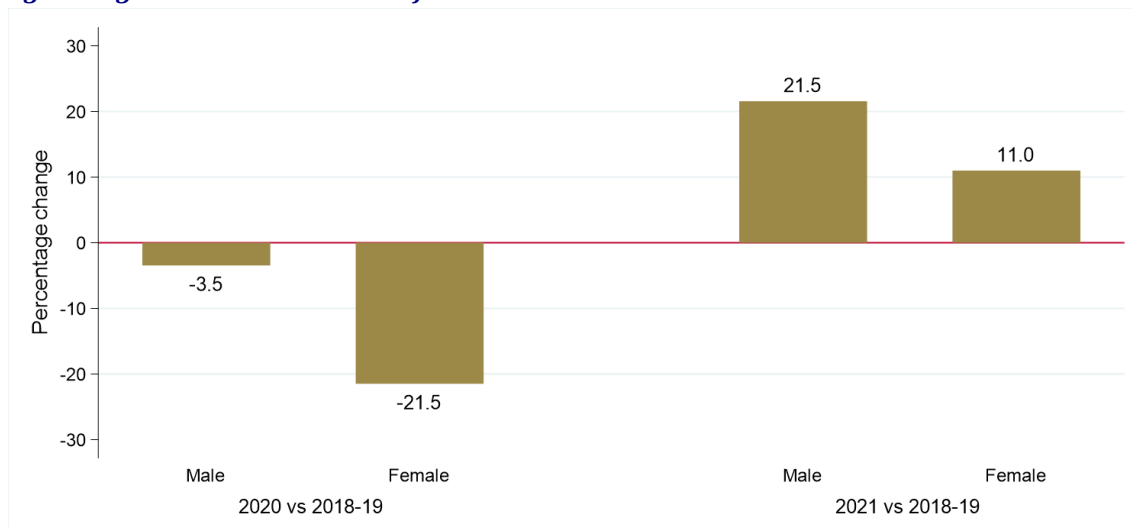
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 2: Number of colorectal 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 colorectal cancer diagnosed among those aged 65 to 74 decreased by 0.8% from 256 per year in 2018-2019 to 254 in 2021. Between the same two time periods the number of cases of colorectal cancer diagnosed among those aged 55 to 64 increased by 37.1% from 178 per year in 2018-2019 to 244 in 2021. The change in case distribution by age between 2018-2019 and 2021 was statistically significant ( $p = 0.036$ ).

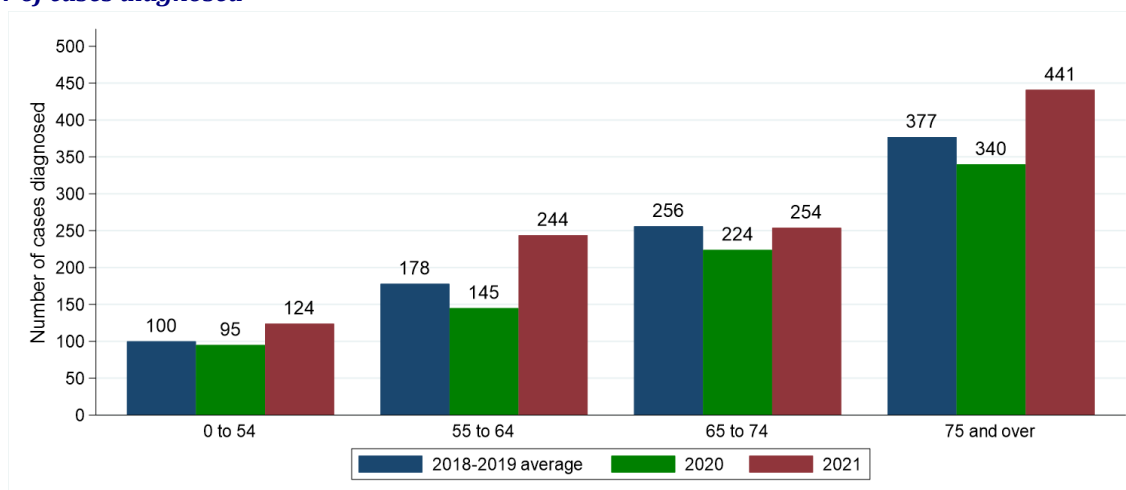
**Table 3: Number and proportion of colorectal cancer cases diagnosed in April-December of 2018-2021 by age and period of diagnosis**

Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>All ages</b>	911	804	1,063	-11.7%	+16.7%
<b>0 to 54</b>	100 (11.0%)	95 (11.8%)	124 (11.7%)	-5.0%	+24.0%
<b>55 to 64</b>	178 (19.5%)	145 (18.0%)	244 (23.0%)	-18.5%	+37.1%
<b>65 to 74</b>	256 (28.1%)	224 (27.9%)	254 (23.9%)	-12.5%	-0.8%
<b>75 and over</b>	377 (41.4%)	340 (42.3%)	441 (41.5%)	-9.8%	+17.0%

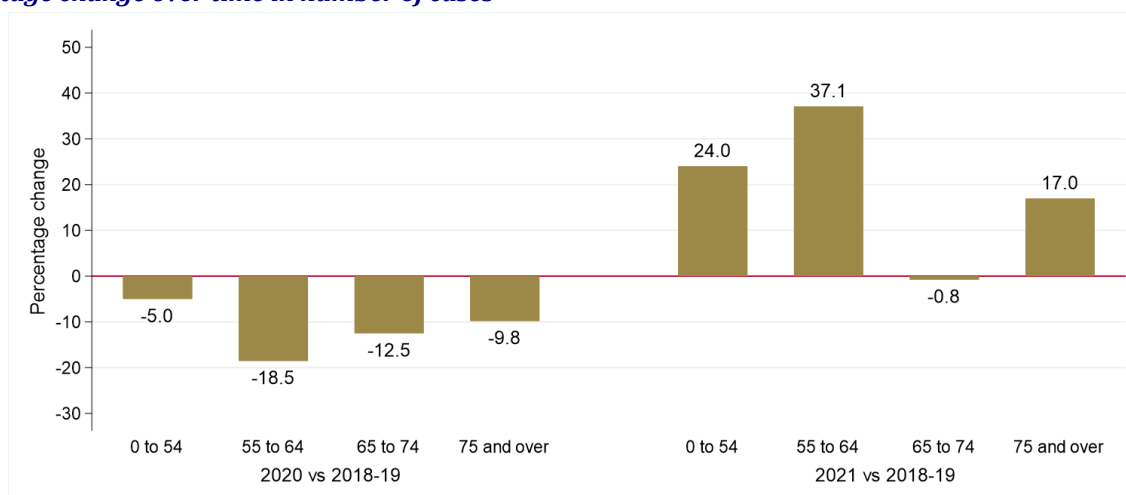
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 3: Number of colorectal 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 colorectal cancer diagnosed among those resident in Belfast HSCT decreased by 1.1% from 174 per year in 2018-2019 to 172 in 2021. Between the same two time periods the number of cases of colorectal cancer diagnosed among those resident in Western HSCT increased by 32.8% from 131 per year in 2018-2019 to 174 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 colorectal cancer cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis**

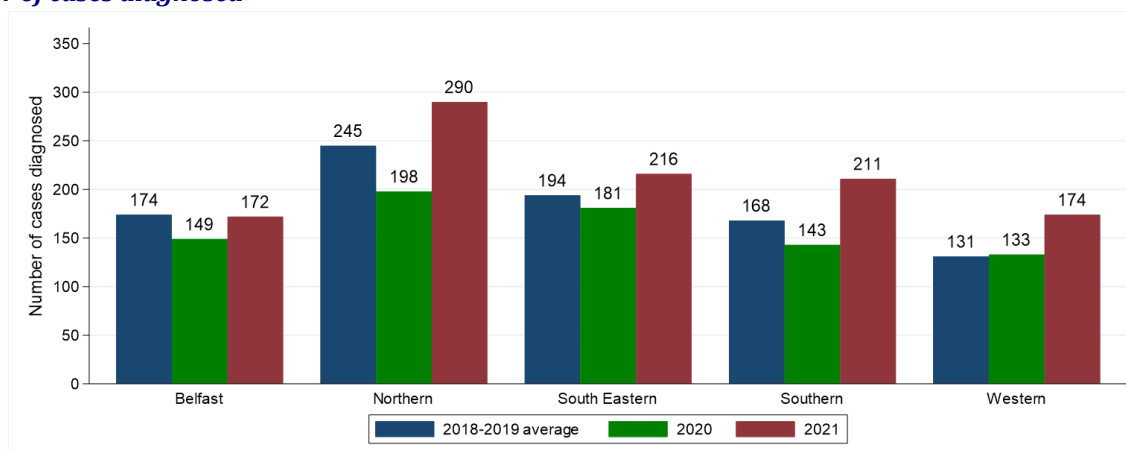
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	911	804	1,063	-11.7%	+16.7%
<b>Belfast</b>	174 (19.1%)	149 (18.5%)	172 (16.2%)	-14.4%	-1.1%
<b>Northern</b>	245 (26.9%)	198 (24.6%)	290 (27.3%)	-19.2%	+18.4%
<b>South Eastern</b>	194 (21.3%)	181 (22.5%)	216 (20.3%)	-6.7%	+11.3%
<b>Southern</b>	168 (18.4%)	143 (17.8%)	211 (19.8%)	-14.9%	+25.6%
<b>Western</b>	131 (14.4%)	133 (16.5%)	174 (16.4%)	+1.5%	+32.8%

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

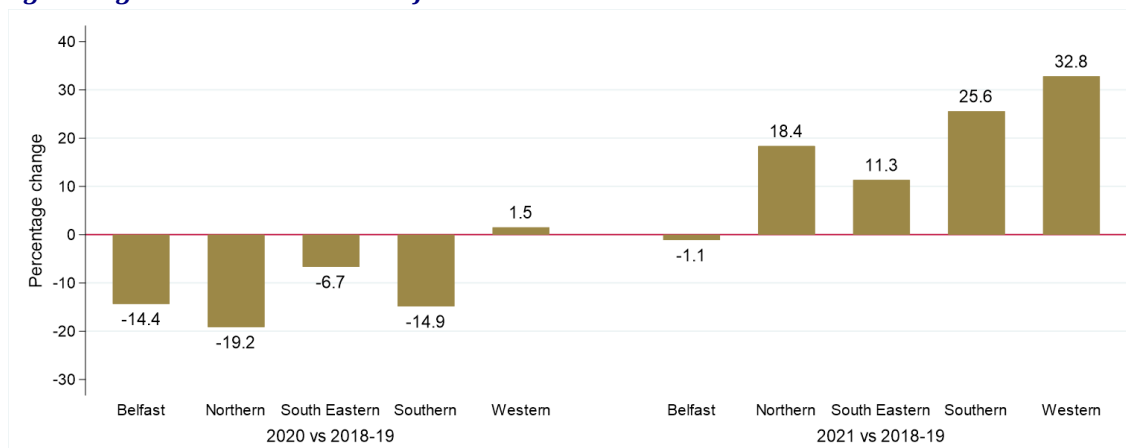
Note: Cases with unknown Health and Social Care Trust are included in totals.

**Figure 4: Number of colorectal 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 colorectal cancer diagnosed among those resident in the least deprived quintile increased by 3.3% from 215 per year in 2018-2019 to 222 in 2021. Between the same two time periods the number of cases of colorectal cancer diagnosed among those resident in the most deprived quintile increased by 10.7% from 149 per year in 2018-2019 to 165 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 colorectal cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis**

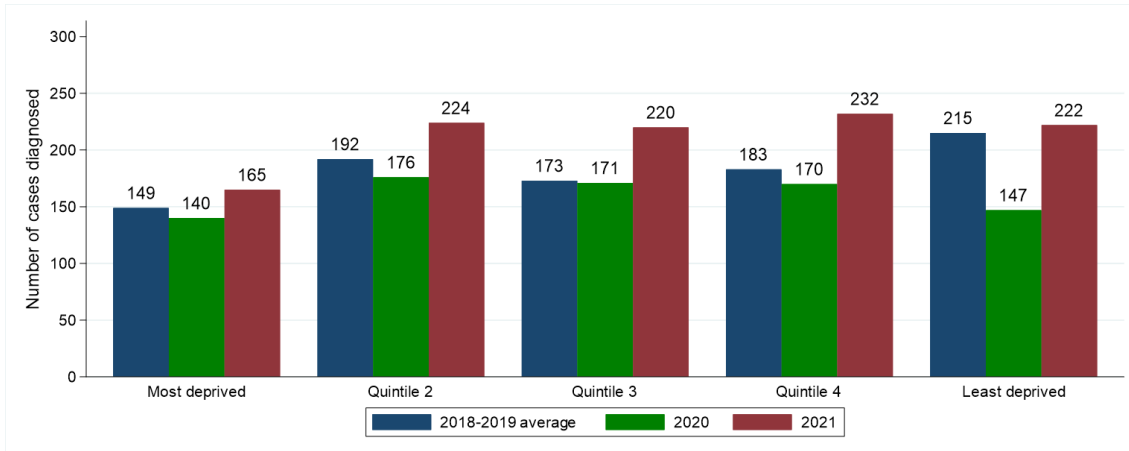
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	911	804	1,063	-11.7%	+16.7%
<b>Most deprived</b>	149 (16.4%)	140 (17.4%)	165 (15.5%)	-6.0%	+10.7%
<b>Quintile 2</b>	192 (21.1%)	176 (21.9%)	224 (21.1%)	-8.3%	+16.7%
<b>Quintile 3</b>	173 (19.0%)	171 (21.3%)	220 (20.7%)	-1.2%	+27.2%
<b>Quintile 4</b>	183 (20.1%)	170 (21.1%)	232 (21.8%)	-7.1%	+26.8%
<b>Least deprived</b>	215 (23.6%)	147 (18.3%)	222 (20.9%)	-31.6%	+3.3%

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

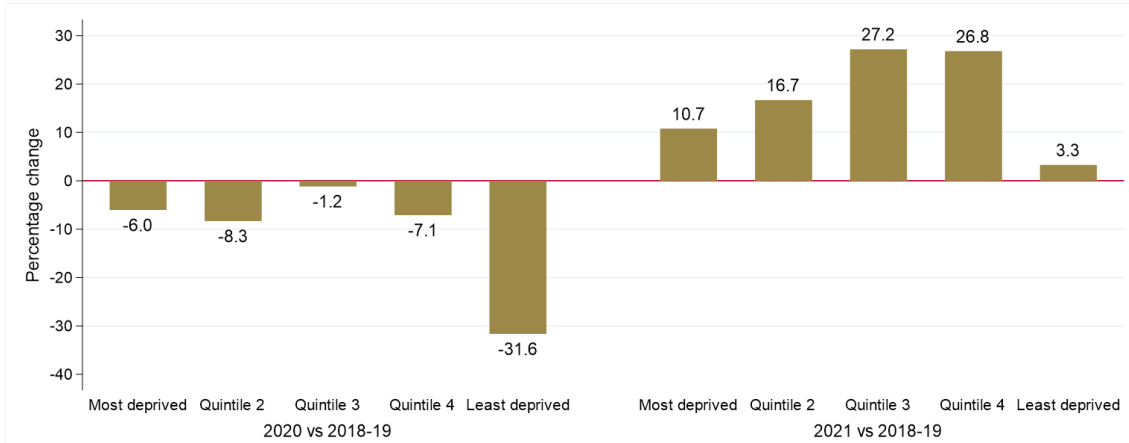
Note: Cases with unknown deprivation quintile are included in totals.

**Figure 5: Number of colorectal 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 colorectal cancer diagnosed via histology/cytology increased by 19.1% from 803 per year in 2018-2019 to 956 in 2021. As a proportion of all cases, histology/cytology diagnosis increased from 88.1% in 2018-2019 to 89.9% in 2021. The change in case distribution by basis of diagnosis between 2018-2019 and 2021 was not statistically significant.

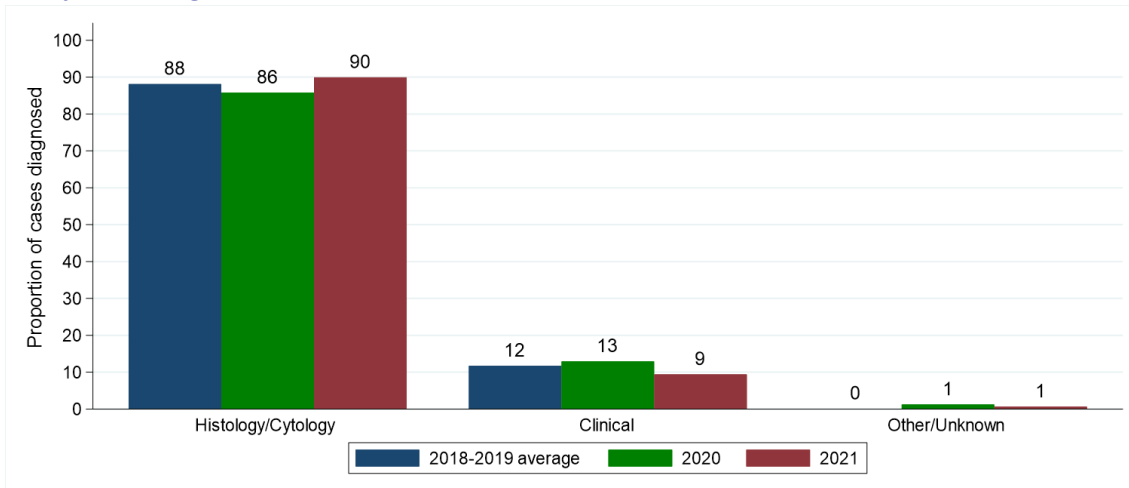
**Table 6: Number and proportion of colorectal cancer cases diagnosed in April-December of 2018-2021 by basis and period of diagnosis**

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>	911	804	1,063	-11.7%	+16.7%
<b>Histology/Cytology</b>	803 (88.1%)	690 (85.8%)	956 (89.9%)	-14.1%	+19.1%
<b>Clinical</b>	107 (11.7%)	104 (12.9%)	100 (9.4%)	-2.8%	-6.5%
<b>Other/Unknown</b>	1 (0.1%)	10 (1.2%)	7 (0.7%)	-	-

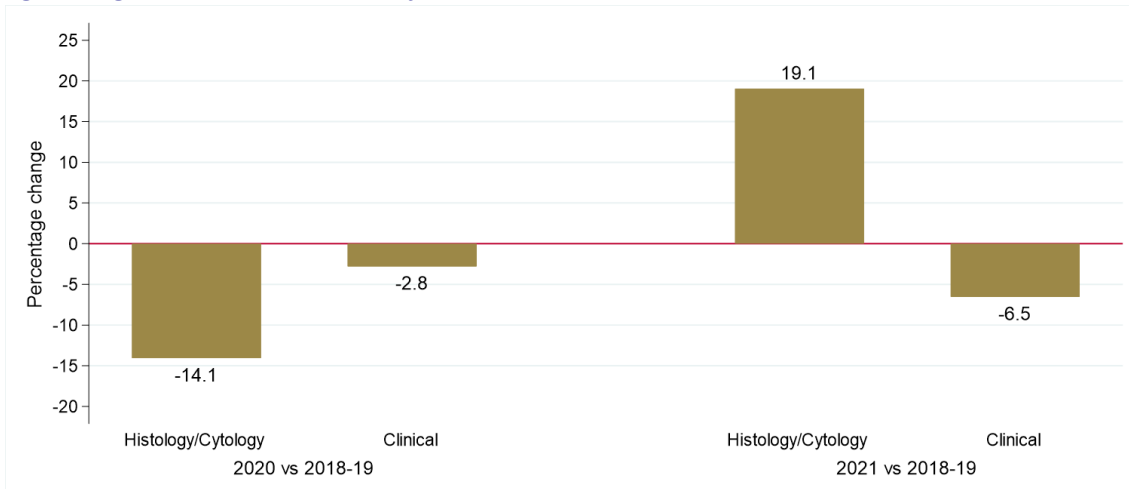
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 6: Proportion of colorectal 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 colorectal cancer cases diagnosed at stage I in April to December of each year increased by 26.6% from 139 per year in 2018-2019 to 176 in 2021. In addition the number of colorectal cancer cases diagnosed at stage IV increased by 12.9% from 202 per year in 2018-2019 to 228 in 2021. As a proportion of all cases, stage IV diagnosis decreased from 22.2% in 2018-2019 to 21.4% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

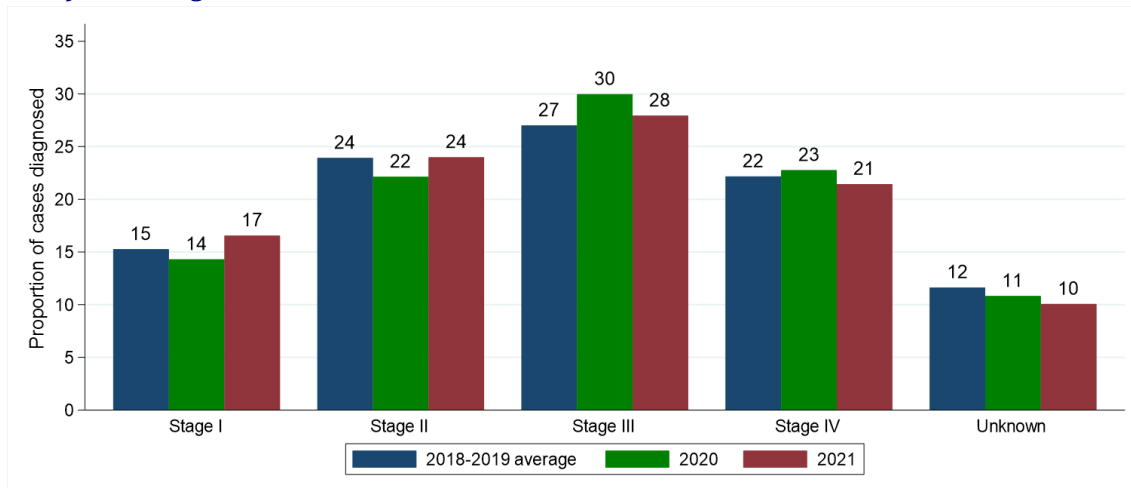
**Table 7: Number and proportion of colorectal cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis**

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	911	804	1,063	-11.7%	+16.7%
Stage I	139 (15.3%)	115 (14.3%)	176 (16.6%)	-17.3%	+26.6%
Stage II	218 (23.9%)	178 (22.1%)	255 (24.0%)	-18.3%	+17.0%
Stage III	246 (27.0%)	241 (30.0%)	297 (27.9%)	-2.0%	+20.7%
Stage IV	202 (22.2%)	183 (22.8%)	228 (21.4%)	-9.4%	+12.9%
Unknown	106 (11.6%)	87 (10.8%)	107 (10.1%)	-17.9%	+0.9%

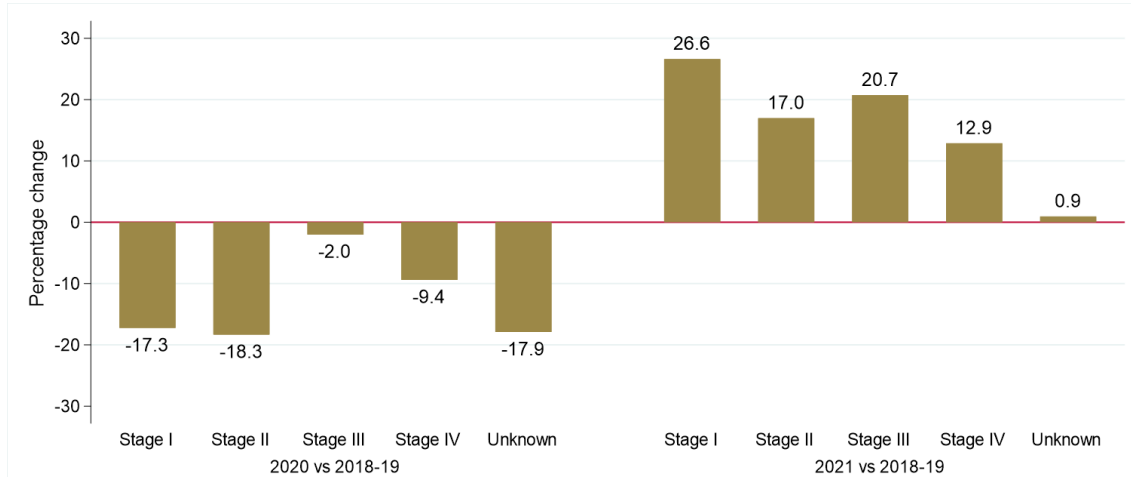
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 7: Proportion of colorectal 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 colorectal cancer cases resulting in treatment by surgery within six months increased by 16.2% from 673 per year in 2018-2019 to 782 in 2021. The resulting decrease in the proportion receiving surgery from 73.9% in 2018-2019 to 73.6% in 2021 was not statistically significant.

Between the same two time periods the number of colorectal cancer cases resulting in treatment by systemic therapy increased by 28.2% from 341 per year in 2018-2019 to 437 in 2021. The resulting increase in the proportion receiving systemic therapy from 37.4% in 2018-2019 to 41.1% in 2021 was not statistically significant.

The number of colorectal cancer cases treated with radiotherapy increased by 4.2% from 120 per year in 2018-2019 to 125 in 2021. The resulting decrease in the proportion receiving radiotherapy from 13.2% in 2018-2019 to 11.8% in 2021 was not statistically significant.

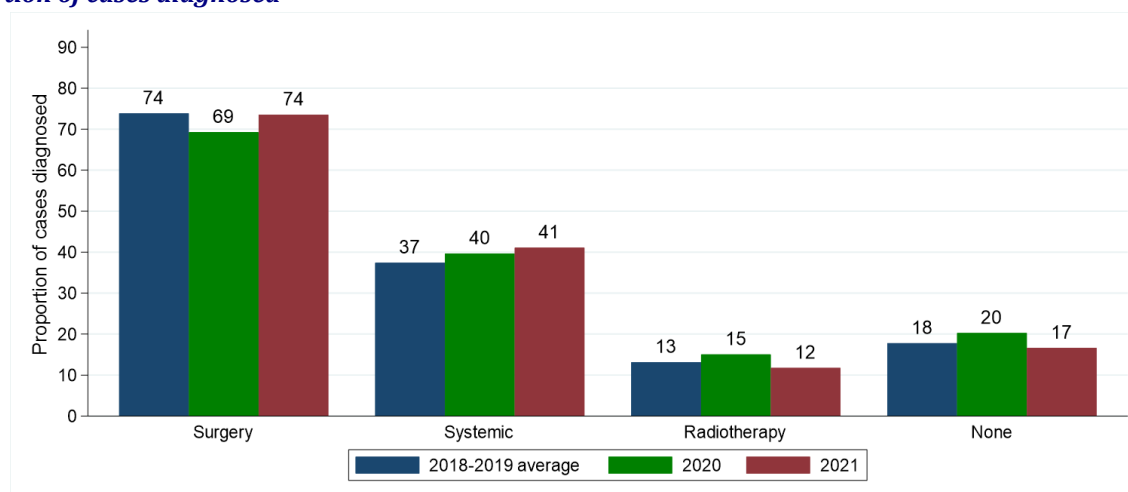
Excluding the first quarter of each year the number of colorectal cancer cases receiving none of these treatments within six months of diagnosis increased by 9.3% from 162 per year in 2018-2019 to 177 in 2021. The resulting decrease in the proportion receiving none of these treatments from 17.8% in 2018-2019 to 16.7% in 2021 was not statistically significant.

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

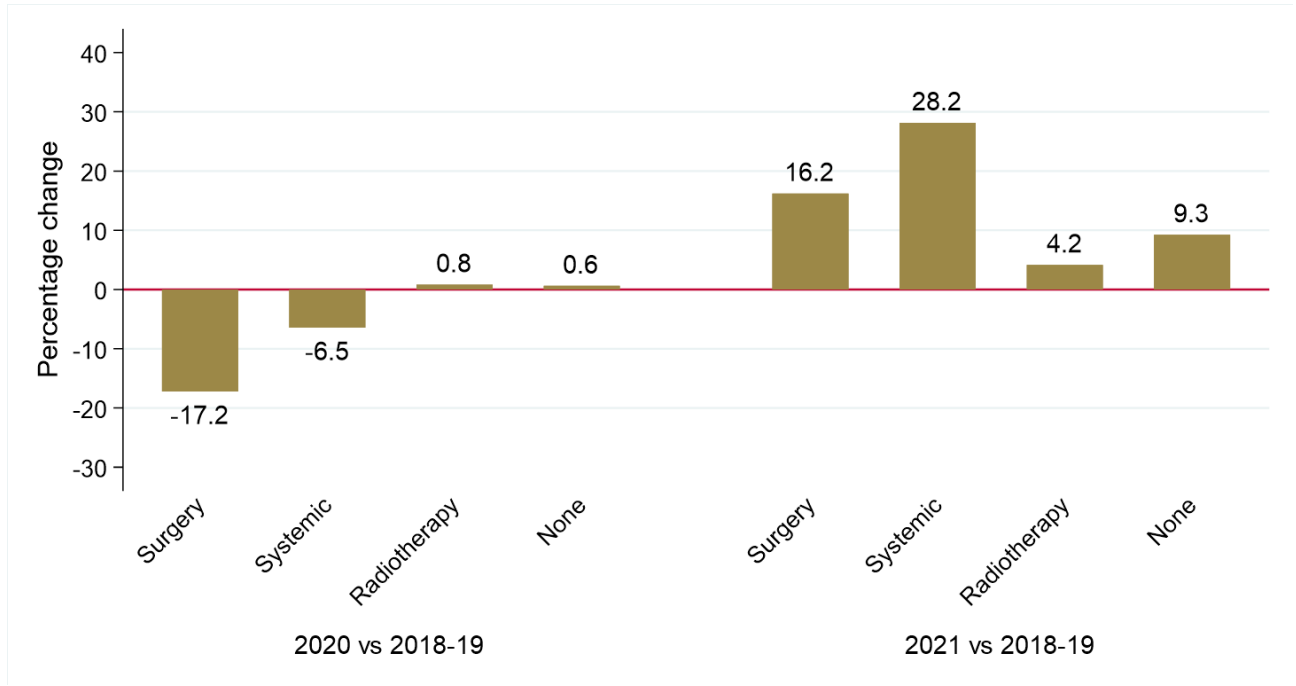
Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Surgery</b>	673 (73.9%)	557 (69.3%)*	782 (73.6%)	-17.2%	+16.2%
<b>Systemic therapy</b>	341 (37.4%)	319 (39.7%)*	437 (41.1%)	-6.5%	+28.2%
<b>Radiotherapy</b>	120 (13.2%)	121 (15.0%)*	125 (11.8%)	+0.8%	+4.2%
<b>None of these treatments</b>	162 (17.8%)	163 (20.3%)*	177 (16.7%)	+0.6%	+9.3%

\* Statistically significant change compared to 2018-2019

**Figure 8: Proportion of colorectal 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

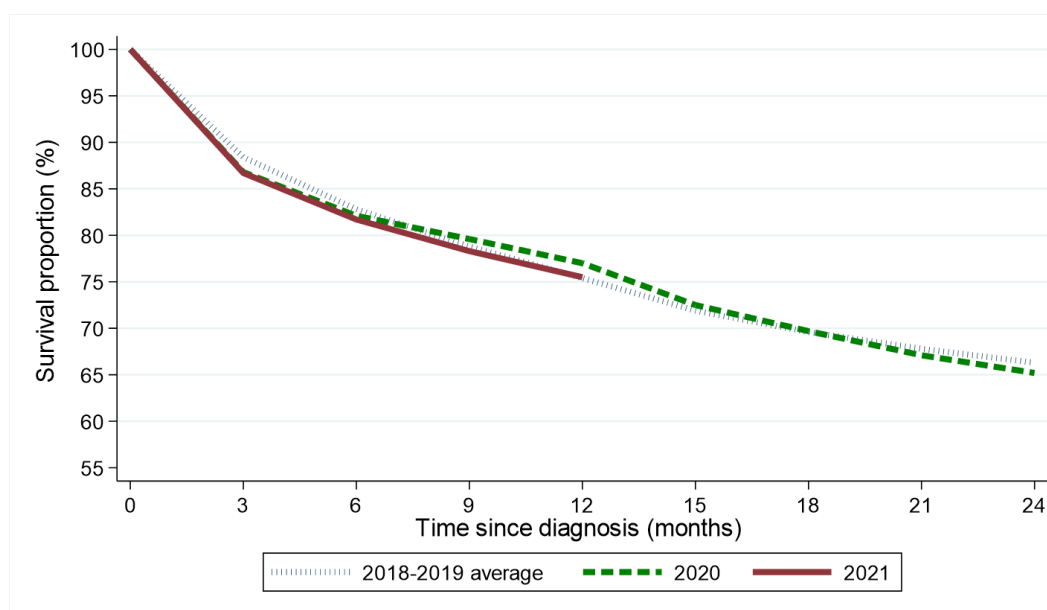
Survival among colorectal cancer patients six months after diagnosis decreased from 82.8% among those diagnosed in April-December of 2018-2019 to 81.7% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival increased from 75.4% to 75.5%. 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 ( $p=0.917$ ).

**Table 9: Observed survival for patients with colorectal 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>	88.4% (86.8% - 89.8%)	86.8% (84.2% - 89.0%)	86.7% (84.4% - 88.6%)
<b>Six months</b>	82.8% (80.9% - 84.4%)	82.1% (79.2% - 84.6%)	81.7% (79.2% - 83.9%)
<b>One year</b>	75.4% (73.3% - 77.4%)	77.0% (73.8% - 79.8%)	75.5% (72.7% - 78.1%)
<b>Two years</b>	66.3% (64.1% - 68.5%)	65.2% (61.7% - 68.4%)	-

*No statistically significant reductions compared to 2018-2019*

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



## DEATHS FROM COVID-19

During 2021 there were a total of 58 deaths from Covid-19 among colorectal cancer patients diagnosed at any point since 1993. Among the patients who died of Covid-19, 6 were diagnosed with colorectal cancer in 2021, 4 were diagnosed in 2020 and 48 were diagnosed in 1993-2019.

## NET SURVIVAL

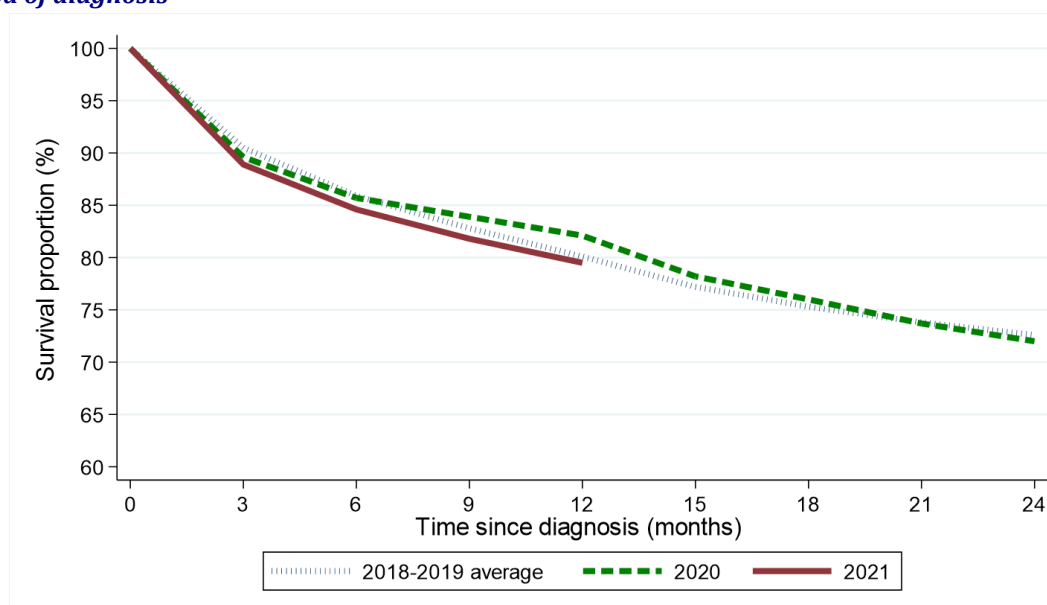
Net survival among colorectal cancer patients six months after diagnosis decreased from 85.9% among those diagnosed in April-December of 2018-2019 to 84.6% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival decreased from 80.1% to 79.5%. This change was not statistically significant.

**Table 10: Age-standardised net survival for patients with colorectal 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>	90.5% (89.1% - 91.9%)	89.6% (87.5% - 91.7%)	88.9% (87.0% - 90.8%)
<b>Six months</b>	85.9% (84.2% - 87.6%)	85.7% (83.2% - 88.3%)	84.6% (82.3% - 87.0%)
<b>One year</b>	80.1% (78.1% - 82.2%)	82.1% (79.3% - 85.0%)	79.5% (76.9% - 82.2%)
<b>Two years</b>	72.6% (70.4% - 74.9%)	72.0% (68.6% - 75.6%)	-

*No statistically significant reductions compared to 2018-2019*

**Figure 10: Age-standardised net survival for patients with colorectal 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 colorectal cancer increased between 2018-2019 and 2021 by 2.6% from 344 deaths per year to 353 deaths.

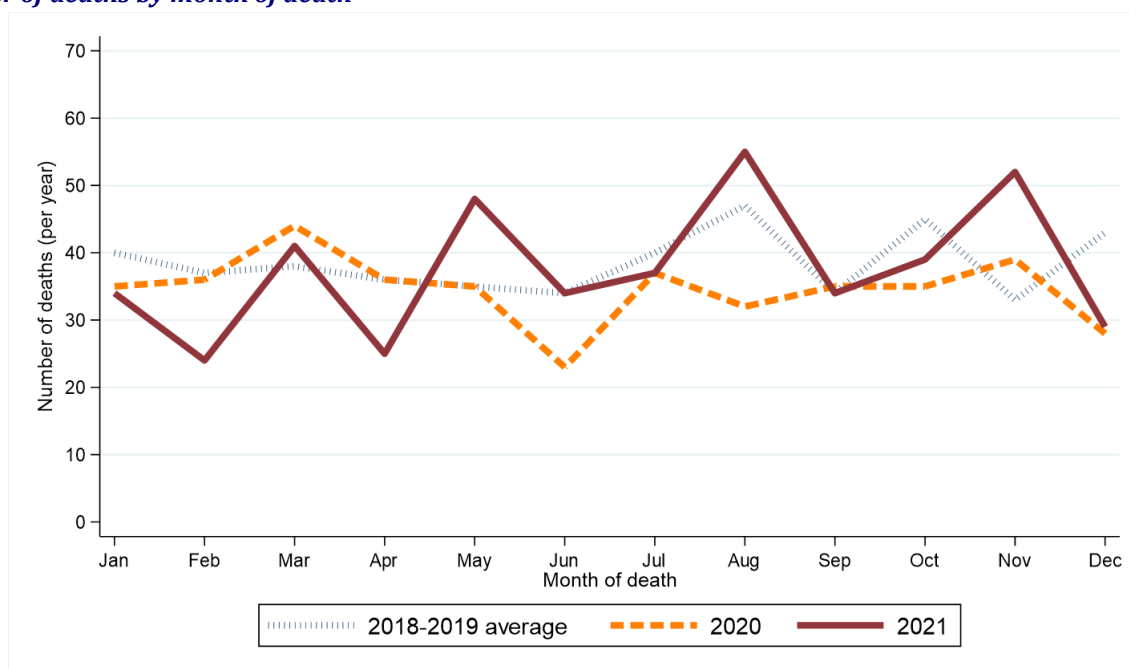
**Table 11: Number of colorectal cancer deaths in 2018-2021 by month and year of death**

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	459	40	37	38	36	35	34	40	47	34	45	33	43
2020	415	35	36	44	36	35	23	37	32	35	35	39	28
2021	452	34	24	41	25	48	34	37	55	34	39	52	29

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

**Figure 11: Number of colorectal 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**

