
Recent trends in incidence, survival and mortality of rectal 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 rectal cancer diagnosed increased between 2018-2019 and 2021 by 5.8% from 292 cases per year to 309 cases.

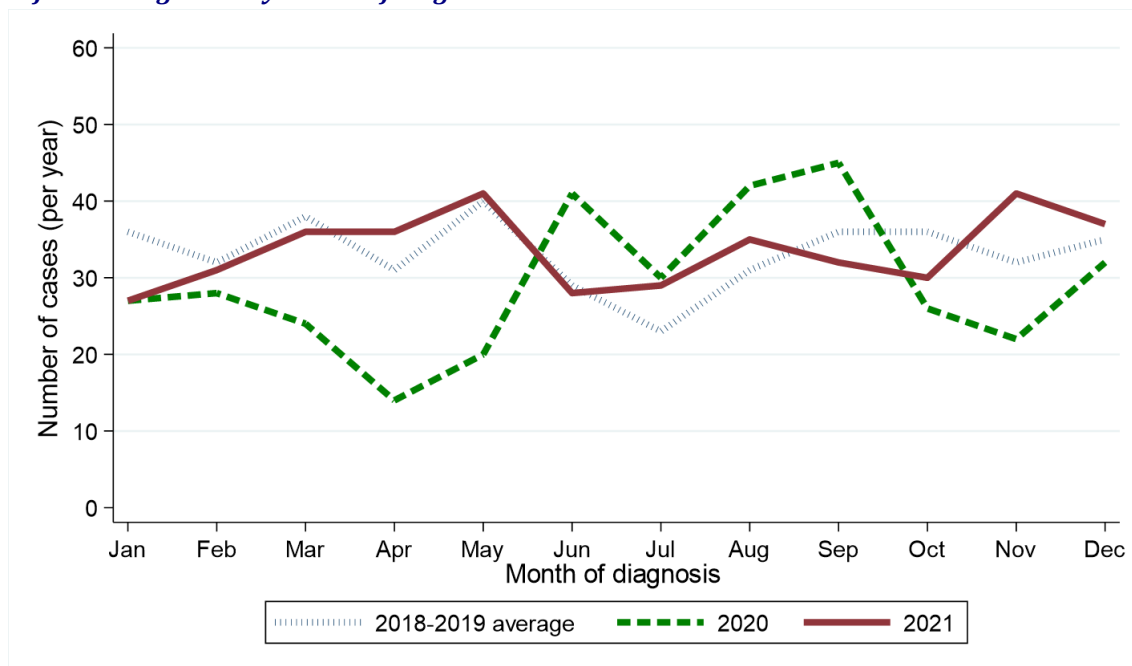
Table 1: Number of rectal cancer cases diagnosed in 2018-2021 by month and year of diagnosis

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	398	36	32	38	31	40	29	23	31	36	36	32	35
2020	351	27	28	24	14	20	41	30	42	45	26	22	32
2021	403	27	31	36	36	41	28	29	35	32	30	41	37

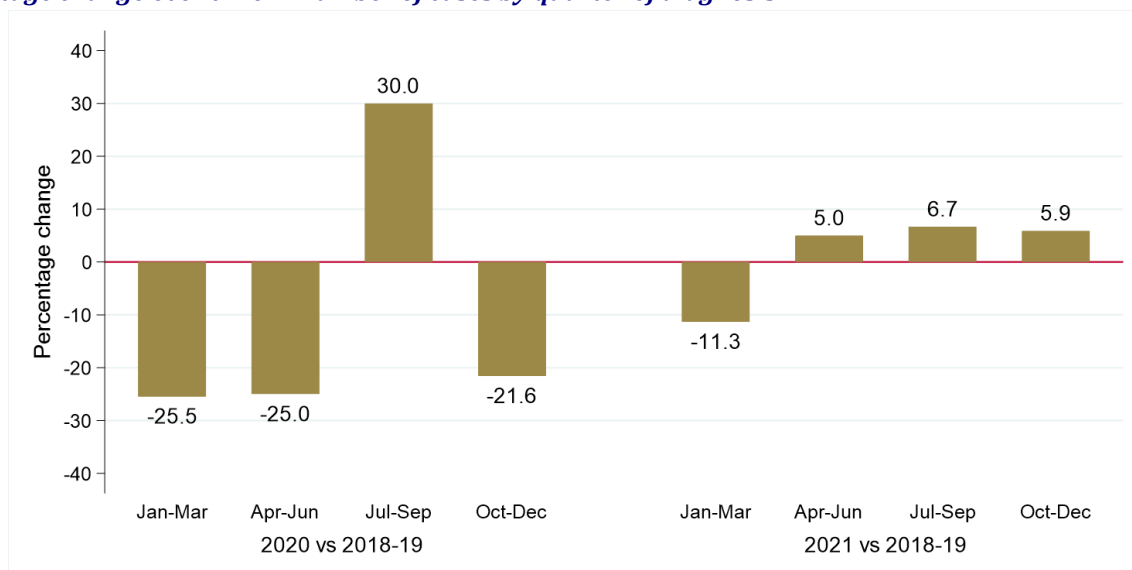
* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

Figure 1: Number of rectal 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 rectal cancer cases diagnosed increased by 12.3% from 171 per year in 2018-2019 to 192 in 2021. Between the same two time periods the number of female rectal cancer cases diagnosed decreased by 3.3% from 121 per year in 2018-2019 to 117 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

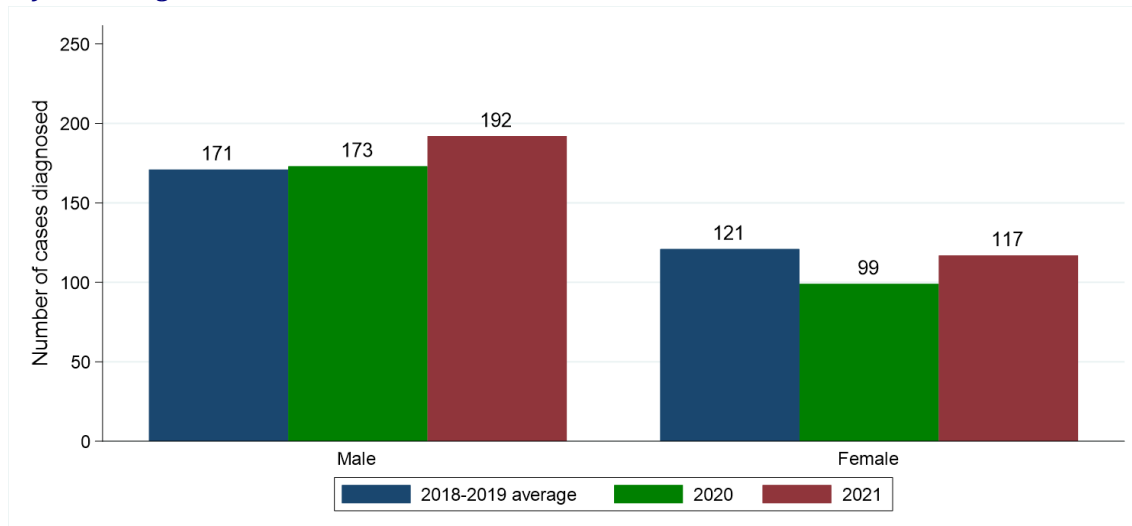
Table 2: Number and proportion of rectal cancer cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis

Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All persons	292	272	309	-6.8%	+5.8%
Male	171 (58.6%)	173 (63.6%)	192 (62.1%)	+1.2%	+12.3%
Female	121 (41.4%)	99 (36.4%)	117 (37.9%)	-18.2%	-3.3%

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

Figure 2: Number of rectal 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

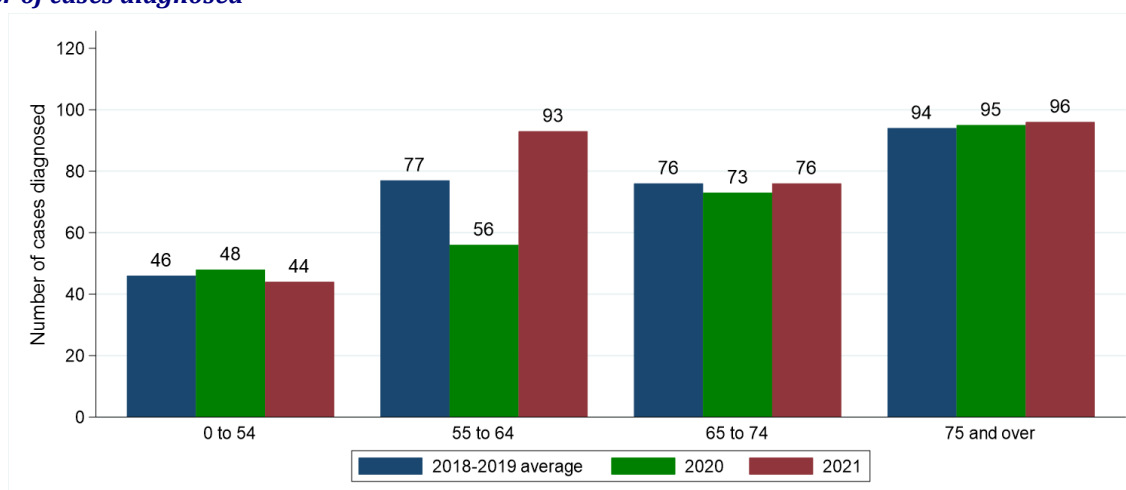
Excluding the first quarter of each year the number of cases of rectal cancer diagnosed among those aged 0 to 54 decreased by 4.3% from 46 per year in 2018-2019 to 44 in 2021. Between the same two time periods the number of cases of rectal cancer diagnosed among those aged 55 to 64 increased by 20.8% from 77 per year in 2018-2019 to 93 in 2021. The change in case distribution by age between 2018-2019 and 2021 was not statistically significant.

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

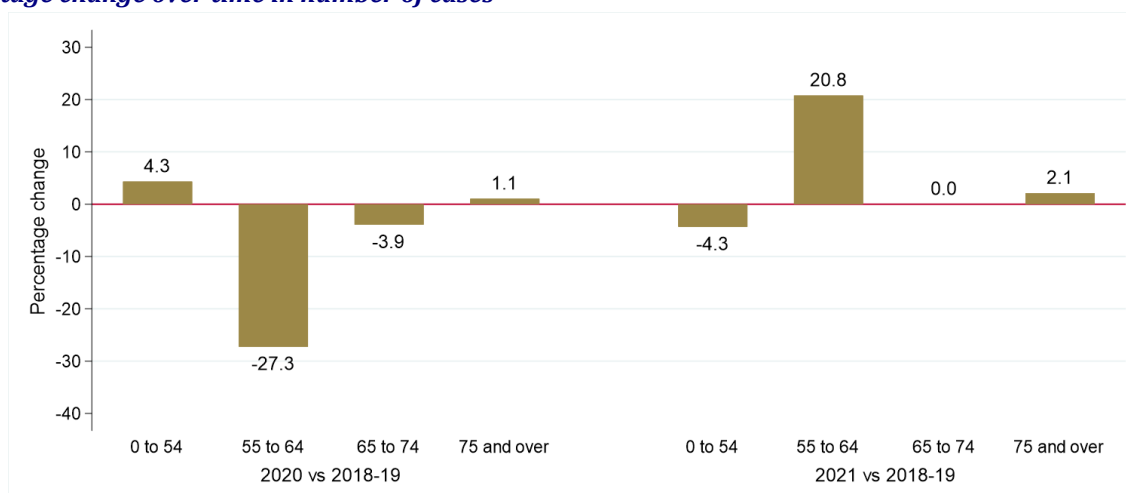
Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All ages	292	272	309	-6.8%	+5.8%
0 to 54	46 (15.8%)	48 (17.6%)	44 (14.2%)	+4.3%	-4.3%
55 to 64	77 (26.4%)	56 (20.6%)	93 (30.1%)	-27.3%	+20.8%
65 to 74	76 (26.0%)	73 (26.8%)	76 (24.6%)	-3.9%	0.0%
75 and over	94 (32.2%)	95 (34.9%)	96 (31.1%)	+1.1%	+2.1%

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

Figure 3: Number of rectal 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 rectal cancer diagnosed among those resident in South Eastern HSCT decreased by 11.5% from 61 per year in 2018-2019 to 54 in 2021. Between the same two time periods the number of cases of rectal cancer diagnosed among those resident in Belfast HSCT increased by 18.0% from 50 per year in 2018-2019 to 59 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 rectal cancer cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

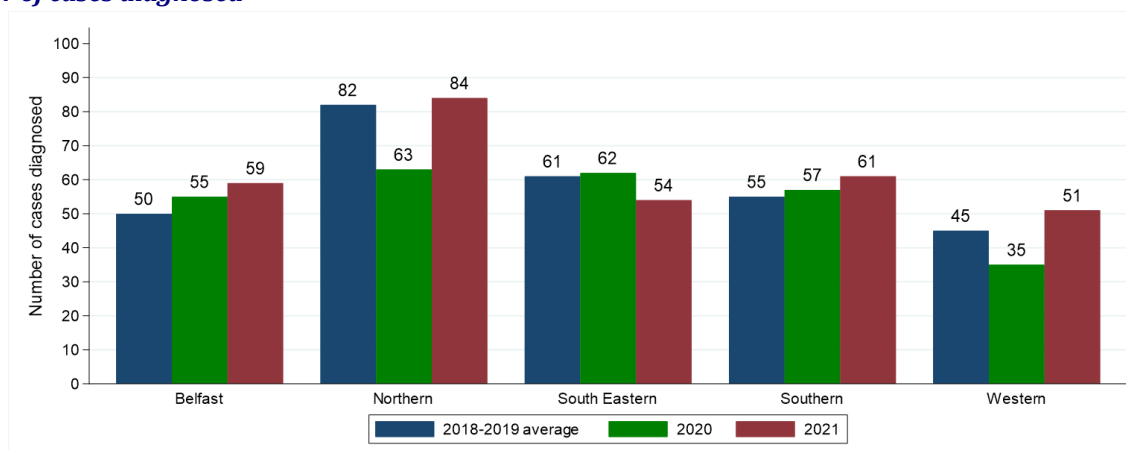
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	292	272	309	-6.8%	+5.8%
Belfast	50 (17.1%)	55 (20.2%)	59 (19.1%)	+10.0%	+18.0%
Northern	82 (28.1%)	63 (23.2%)	84 (27.2%)	-23.2%	+2.4%
South Eastern	61 (20.9%)	62 (22.8%)	54 (17.5%)	+1.6%	-11.5%
Southern	55 (18.8%)	57 (21.0%)	61 (19.7%)	+3.6%	+10.9%
Western	45 (15.4%)	35 (12.9%)	51 (16.5%)	-22.2%	+13.3%

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

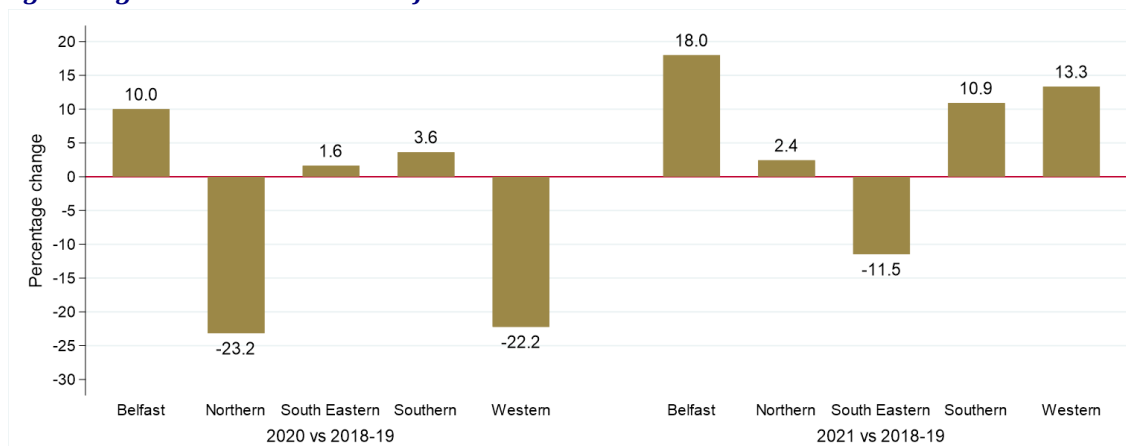
Note: Cases with unknown Health and Social Care Trust are included in totals.

Figure 4: Number of rectal 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 rectal cancer diagnosed among those resident in the most deprived quintile increased by 2.3% from 44 per year in 2018-2019 to 45 in 2021. Between the same two time periods the number of cases of rectal cancer diagnosed among those resident in the least deprived quintile increased by 13.4% from 67 per year in 2018-2019 to 76 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 rectal cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

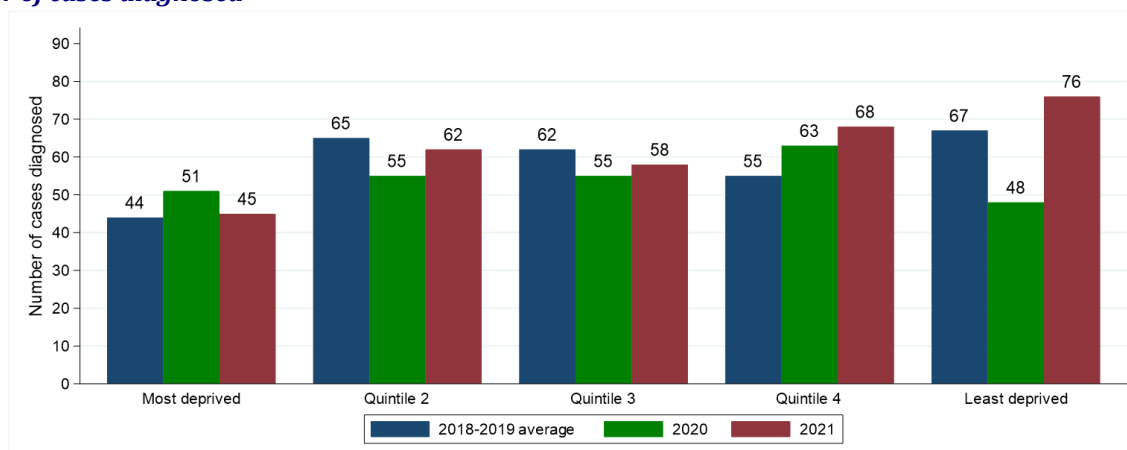
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	292	272	309	-6.8%	+5.8%
Most deprived	44 (15.1%)	51 (18.8%)	45 (14.6%)	+15.9%	+2.3%
Quintile 2	65 (22.3%)	55 (20.2%)	62 (20.1%)	-15.4%	-4.6%
Quintile 3	62 (21.2%)	55 (20.2%)	58 (18.8%)	-11.3%	-6.5%
Quintile 4	55 (18.8%)	63 (23.2%)	68 (22.0%)	+14.5%	+23.6%
Least deprived	67 (22.9%)	48 (17.6%)	76 (24.6%)	-28.4%	+13.4%

* 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 rectal 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 rectal cancer diagnosed via histology/cytology increased by 6.8% from 278 per year in 2018-2019 to 297 in 2021. As a proportion of all cases, histology/cytology diagnosis increased from 95.2% in 2018-2019 to 96.1% in 2021. The change in case distribution by basis of diagnosis between 2018-2019 and 2021 was not statistically significant.

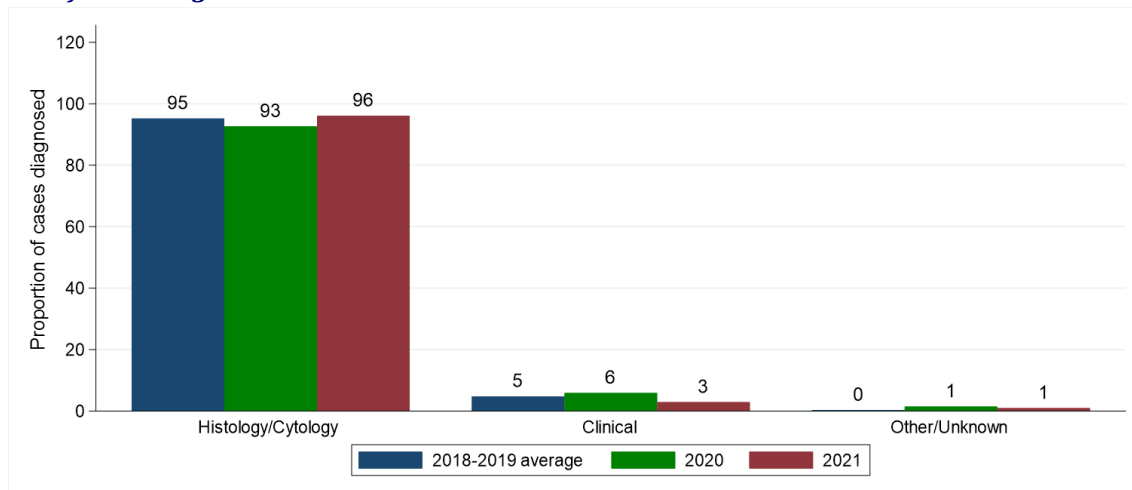
Table 6: Number and proportion of rectal cancer cases diagnosed in April-December of 2018-2021 by basis and period of diagnosis

Basis of diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All types	292	272	309	-6.8%	+5.8%
Histology/Cytology	278 (95.2%)	252 (92.6%)	297 (96.1%)	-9.4%	+6.8%
Clinical	14 (4.8%)	16 (5.9%)	9 (2.9%)	+14.3%	-35.7%
Other/Unknown	1 (0.3%)	4 (1.5%)	3 (1.0%)	-	-

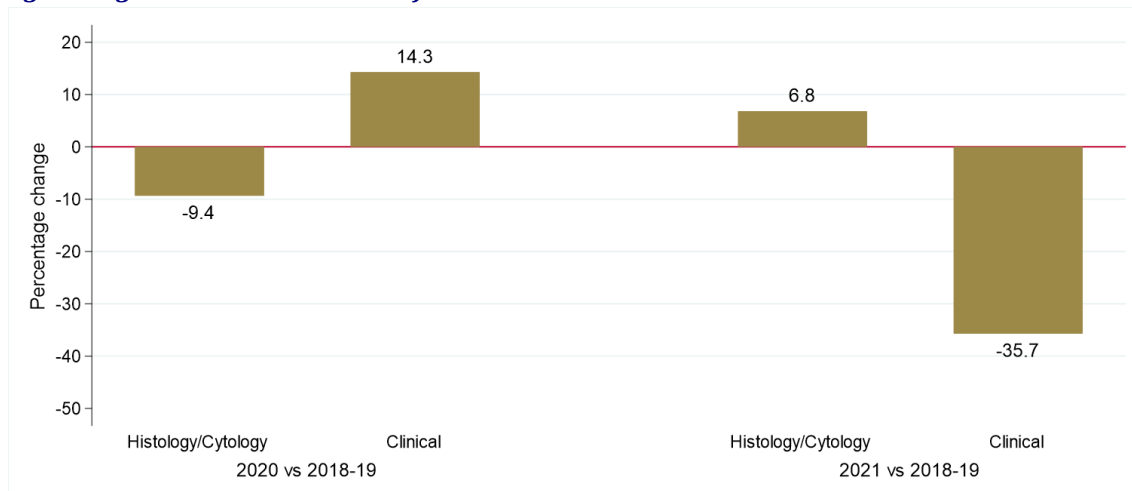
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 6: Proportion of rectal 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 rectal cancer cases diagnosed at stage I in April to December of each year increased by 29.8% from 57 per year in 2018-2019 to 74 in 2021. In addition the number of rectal cancer cases diagnosed at stage IV increased by 7.4% from 54 per year in 2018-2019 to 58 in 2021. As a proportion of all cases, stage IV diagnosis increased from 18.5% in 2018-2019 to 18.8% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

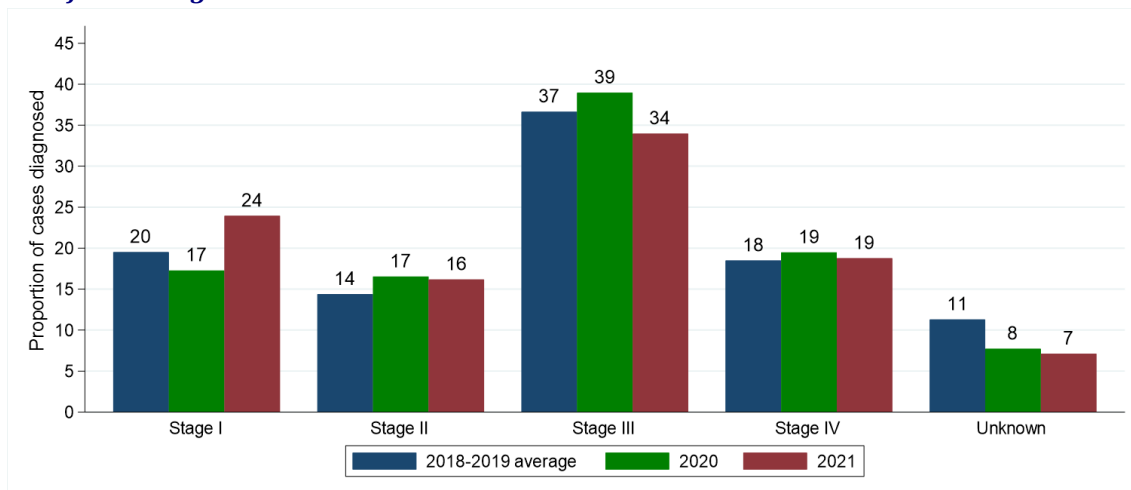
Table 7: Number and proportion of rectal cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	292	272	309	-6.8%	+5.8%
Stage I	57 (19.5%)	47 (17.3%)	74 (23.9%)	-17.5%	+29.8%
Stage II	42 (14.4%)	45 (16.5%)	50 (16.2%)	+7.1%	+19.0%
Stage III	107 (36.6%)	106 (39.0%)	105 (34.0%)	-0.9%	-1.9%
Stage IV	54 (18.5%)	53 (19.5%)	58 (18.8%)	-1.9%	+7.4%
Unknown	33 (11.3%)	21 (7.7%)	22 (7.1%)	-36.4%	-33.3%

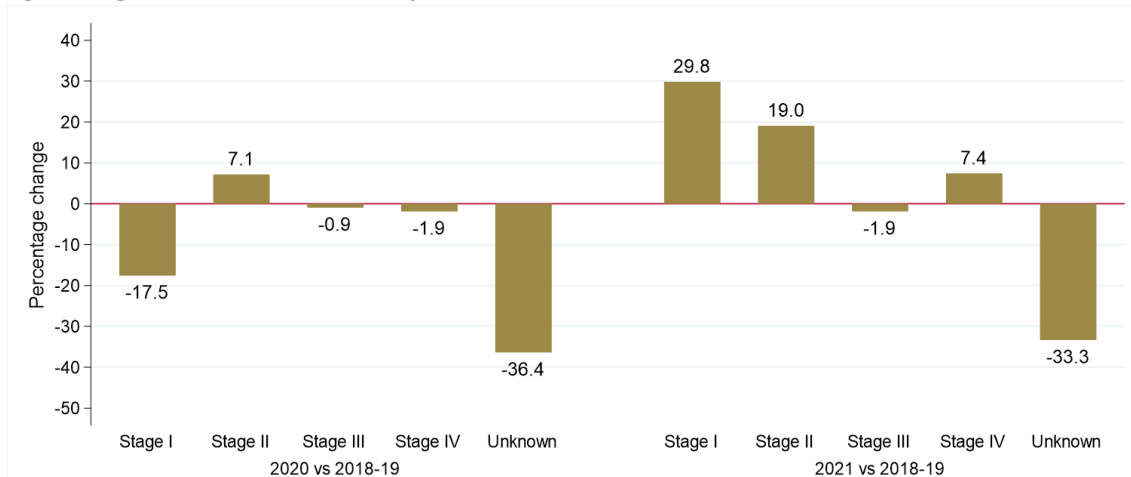
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 7: Proportion of rectal 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 rectal cancer cases resulting in treatment by surgery within six months decreased by 2.4% from 210 per year in 2018-2019 to 205 in 2021. The resulting decrease in the proportion receiving surgery from 71.9% in 2018-2019 to 66.3% in 2021 was not statistically significant.

Between the same two time periods the number of rectal cancer cases resulting in treatment by systemic therapy increased by 20.7% from 140 per year in 2018-2019 to 169 in 2021. The resulting increase in the proportion receiving systemic therapy from 47.9% in 2018-2019 to 54.7% in 2021 was not statistically significant.

The number of rectal cancer cases treated with radiotherapy decreased by 1.8% from 111 per year in 2018-2019 to 109 in 2021. The resulting decrease in the proportion receiving radiotherapy from 38.0% in 2018-2019 to 35.3% in 2021 was not statistically significant.

Excluding the first quarter of each year the number of rectal cancer cases receiving none of these treatments within six months of diagnosis increased by 30.0% from 30 per year in 2018-2019 to 39 in 2021. The resulting increase in the proportion receiving none of these treatments from 10.3% in 2018-2019 to 12.6% in 2021 was not statistically significant.

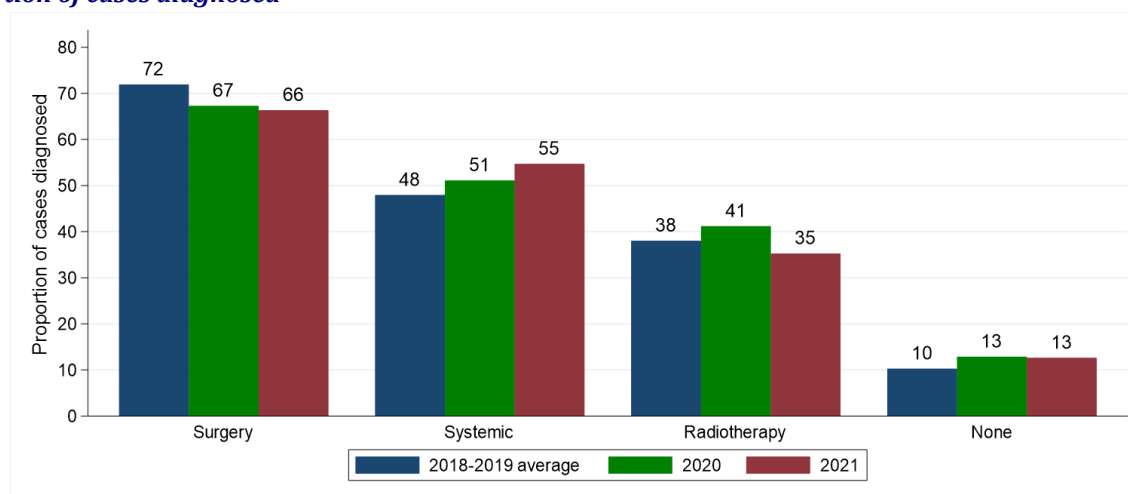
Table 8: Number and proportion of rectal cancer cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Surgery	210 (71.9%)	183 (67.3%)	205 (66.3%)	-12.9%	-2.4%
Systemic therapy	140 (47.9%)	139 (51.1%)	169 (54.7%)	-0.7%	+20.7%
Radiotherapy	111 (38.0%)	112 (41.2%)	109 (35.3%)	+0.9%	-1.8%
None of these treatments	30 (10.3%)	35 (12.9%)	39 (12.6%)	+16.7%	+30.0%

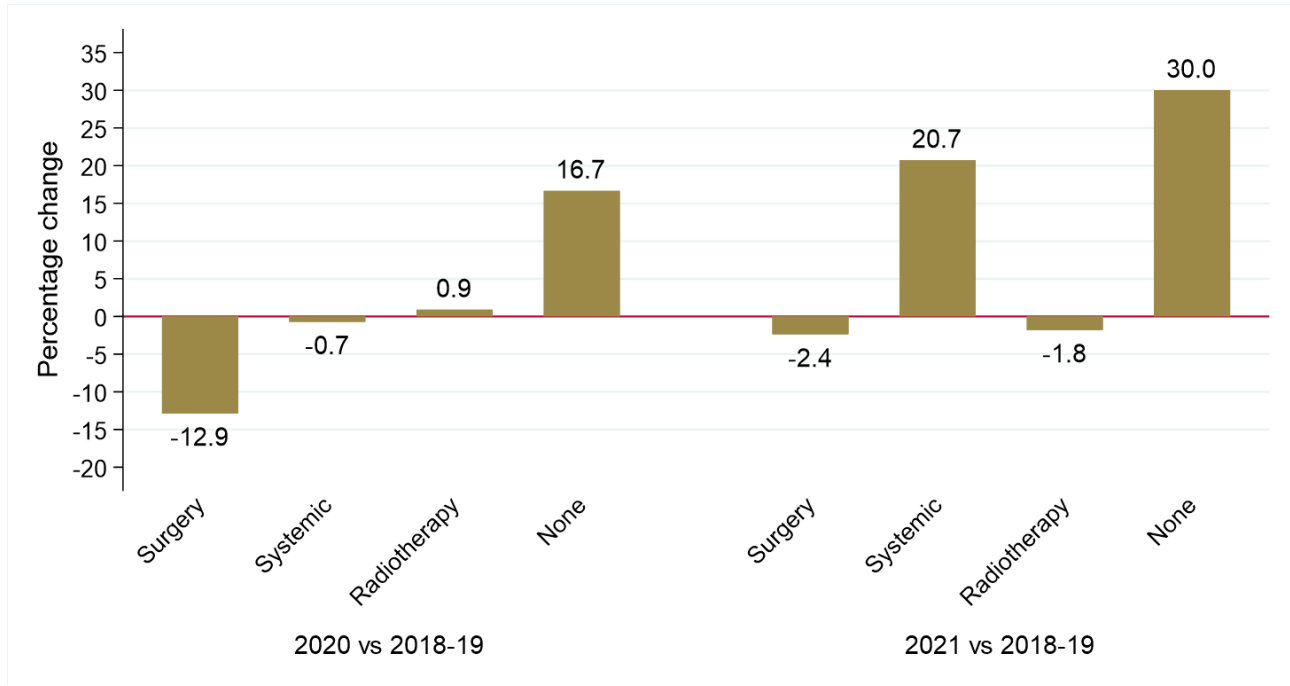
No statistically significant change compared to 2018-2019

Figure 8: Proportion of rectal 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

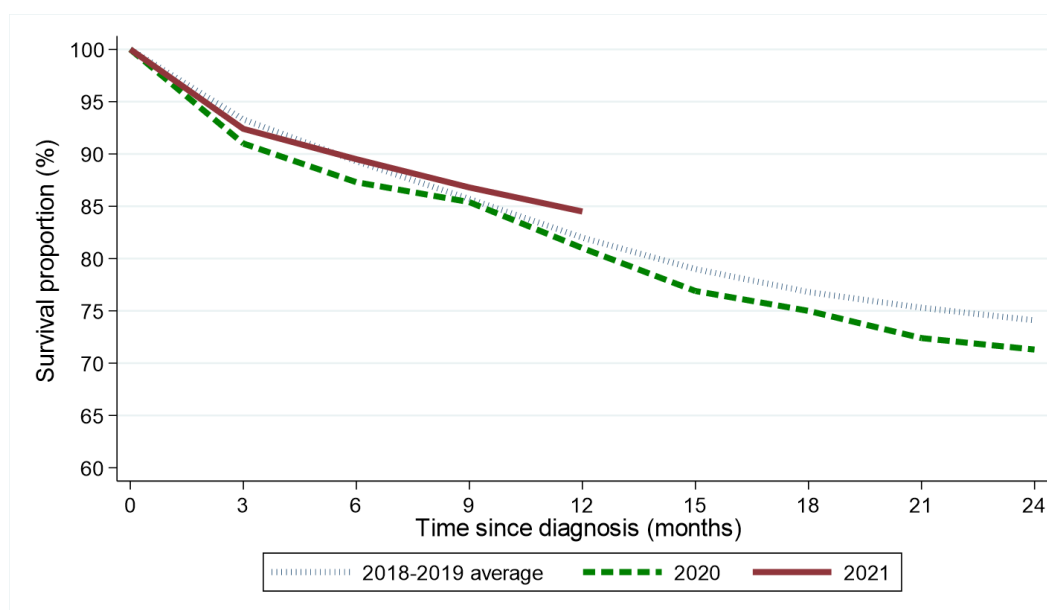
Survival among rectal cancer patients six months after diagnosis increased from 89.3% among those diagnosed in April-December of 2018-2019 to 89.5% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival increased from 82.0% to 84.5%. 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 ($p=0.872$).

Table 9: Observed survival for patients with rectal 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	93.3% (90.9% - 95.1%)	91.0% (86.9% - 93.9%)	92.4% (88.8% - 94.9%)
Six months	89.3% (86.5% - 91.6%)	87.3% (82.7% - 90.8%)	89.5% (85.4% - 92.4%)
One year	82.0% (78.6% - 84.9%)	81.0% (75.7% - 85.2%)	84.5% (80.0% - 88.1%)
Two years	74.1% (70.3% - 77.4%)	71.3% (65.4% - 76.3%)	-

No statistically significant reductions compared to 2018-2019

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



DEATHS FROM COVID-19

During 2021 there were a total of 17 deaths from Covid-19 among rectal cancer patients diagnosed at any point since 1993.

NET SURVIVAL

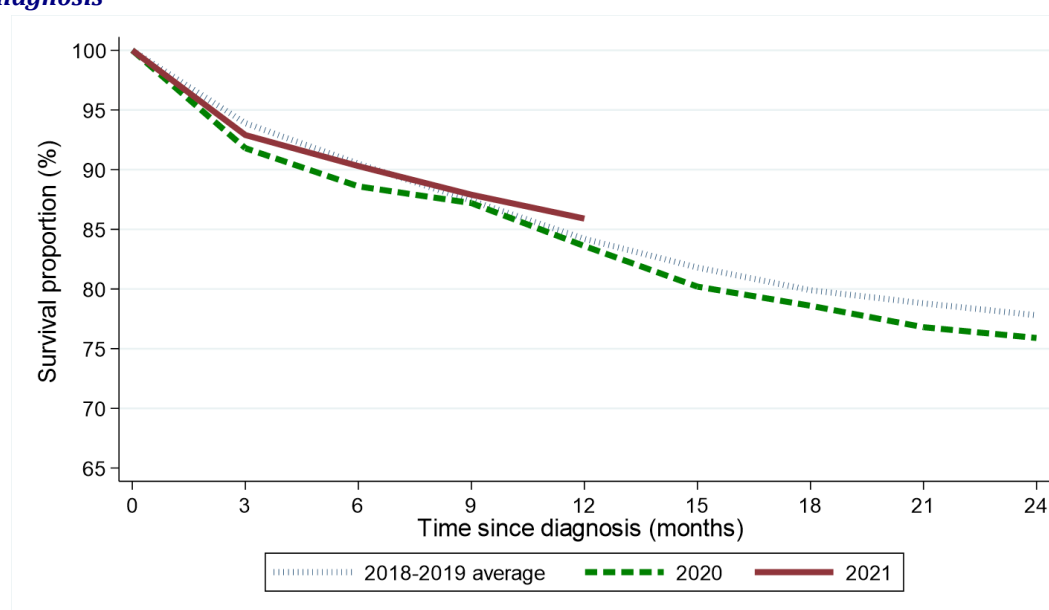
Net survival among rectal cancer patients six months after diagnosis decreased from 90.5% among those diagnosed in April-December of 2018-2019 to 90.3% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival increased from 84.2% to 85.9%. This change was not statistically significant.

Table 10: Age-standardised net survival for patients with rectal 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	93.9% (91.9% - 95.9%)	91.8% (88.4% - 95.3%)	92.9% (89.9% - 96.0%)
Six months	90.5% (88.1% - 93.0%)	88.6% (84.7% - 92.7%)	90.3% (86.8% - 93.9%)
One year	84.2% (81.0% - 87.6%)	83.6% (79.0% - 88.5%)	85.9% (81.8% - 90.2%)
Two years	77.8% (73.9% - 81.9%)	75.9% (70.5% - 81.8%)	-

No statistically significant reductions compared to 2018-2019

Figure 10: Age-standardised net survival for patients with rectal 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 rectal cancer increased between 2018-2019 and 2021 by 1.2% from 173 deaths per year to 175 deaths.

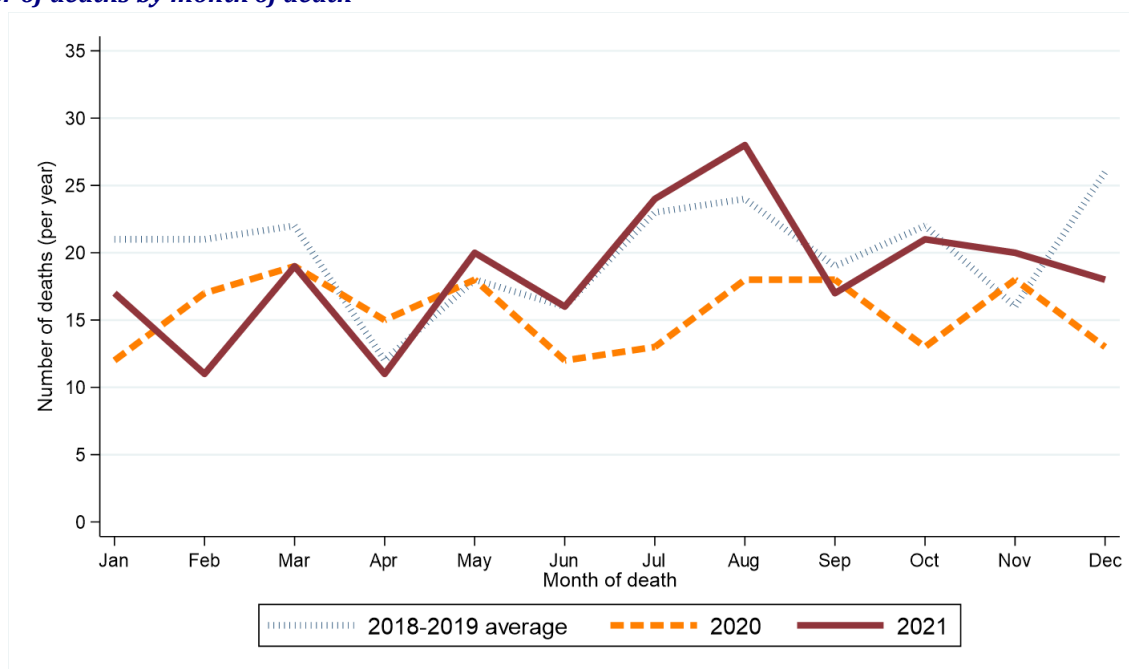
Table 11: Number of rectal cancer deaths in 2018-2021 by month and year of death

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	236	21	21	22	12	18	16	23	24	19	22	16	26
2020	186	12	17	19	15	18	12	13	18	18	13	18	13
2021	222	17	11	19	11	20	16	24	28	17	21	20	18

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

Figure 11: Number of rectal 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

