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# Recent trends in incidence, survival and mortality of head and neck 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

The Northern Ireland Cancer Registry (NICR) uses data provided by patients and collected by the health service as part of their care and support.

NICR is funded by the Public Health Agency and is based in Queen's University, Belfast.



# INCIDENCE

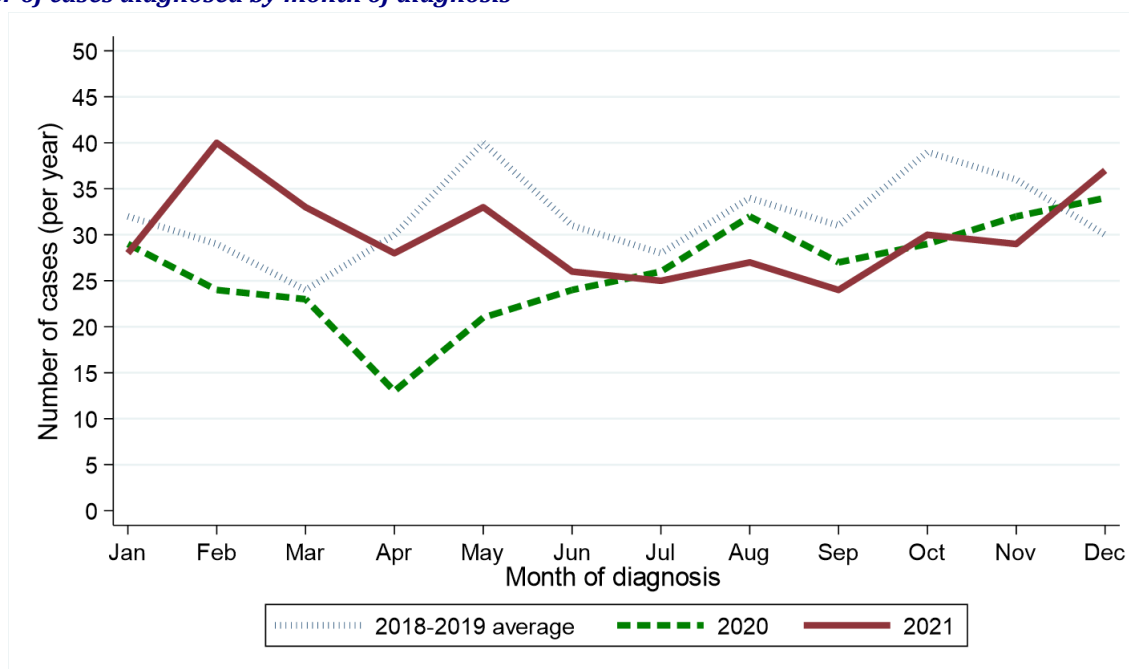
During the April-December period the number of cases of head and neck cancer diagnosed decreased between 2018-2019 and 2021 by 13.1% from 298 cases per year to 259 cases.

**Table 1: Number of head and neck 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*	383	32	29	24	30	40	31	28	34	31	39	36	30
2020	314	29	24	23	13	21	24	26	32	27	29	32	34
2021	360	28	40	33	28	33	26	25	27	24	30	29	37

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

**Figure 1: Number of head and neck 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 head and neck cancer cases diagnosed decreased by 7.4% from 203 per year in 2018-2019 to 188 in 2021. Between the same two time periods the number of female head and neck cancer cases diagnosed decreased by 25.3% from 95 per year in 2018-2019 to 71 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

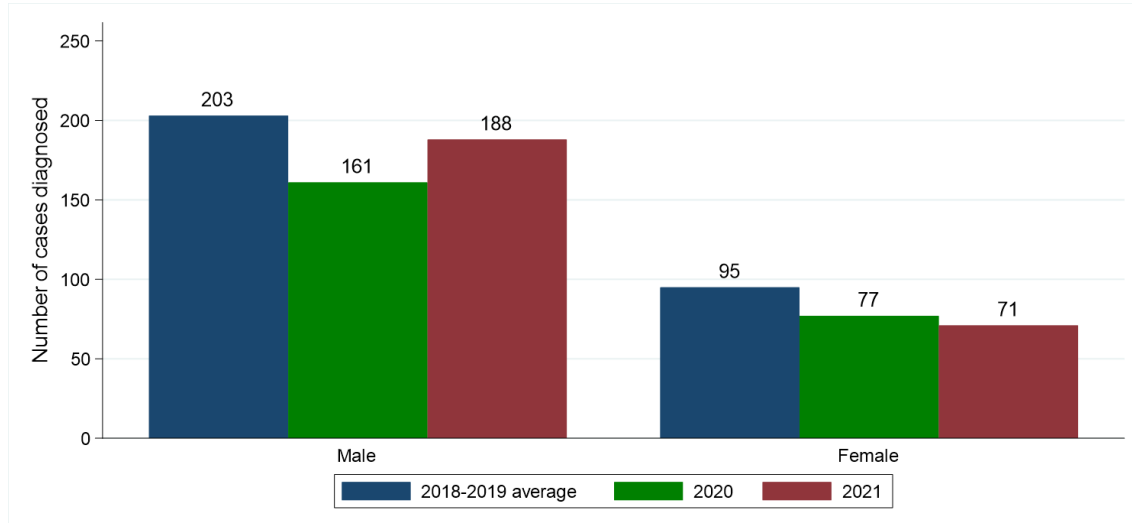
**Table 2: Number and proportion of head and neck cancer cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis**

Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>All persons</b>	298	238	259	-20.1%	-13.1%
<b>Male</b>	203 (68.1%)	161 (67.6%)	188 (72.6%)	-20.7%	-7.4%
<b>Female</b>	95 (31.9%)	77 (32.4%)	71 (27.4%)	-18.9%	-25.3%

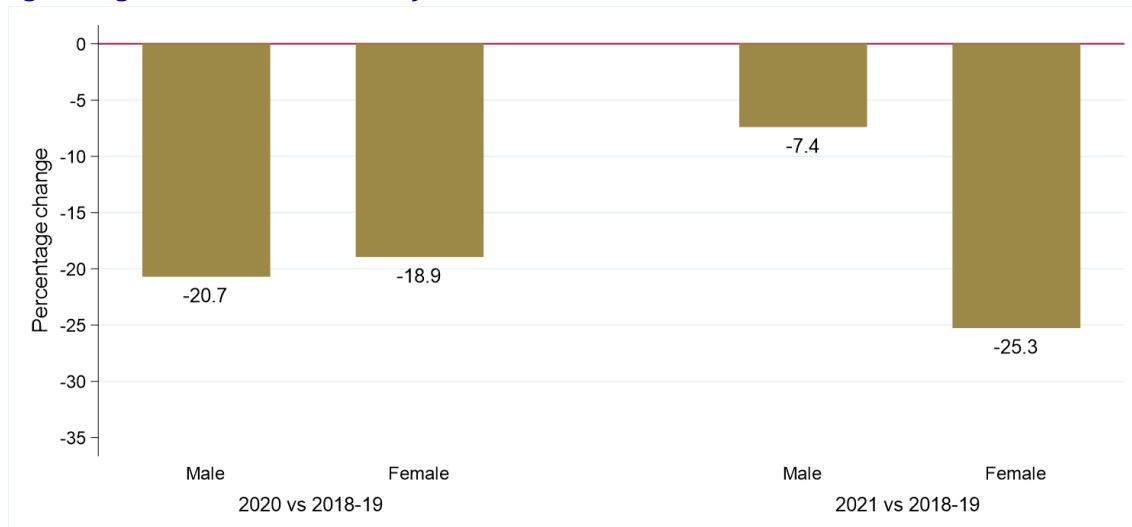
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 2: Number of head and neck 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 head and neck cancer diagnosed among those aged 0 to 54 decreased by 38.8% from 67 per year in 2018-2019 to 41 in 2021. Between the same two time periods the number of cases of head and neck cancer diagnosed among those aged 75 and over increased by 10.5% from 57 per year in 2018-2019 to 63 in 2021. The change in case distribution by age between 2018-2019 and 2021 was not statistically significant.

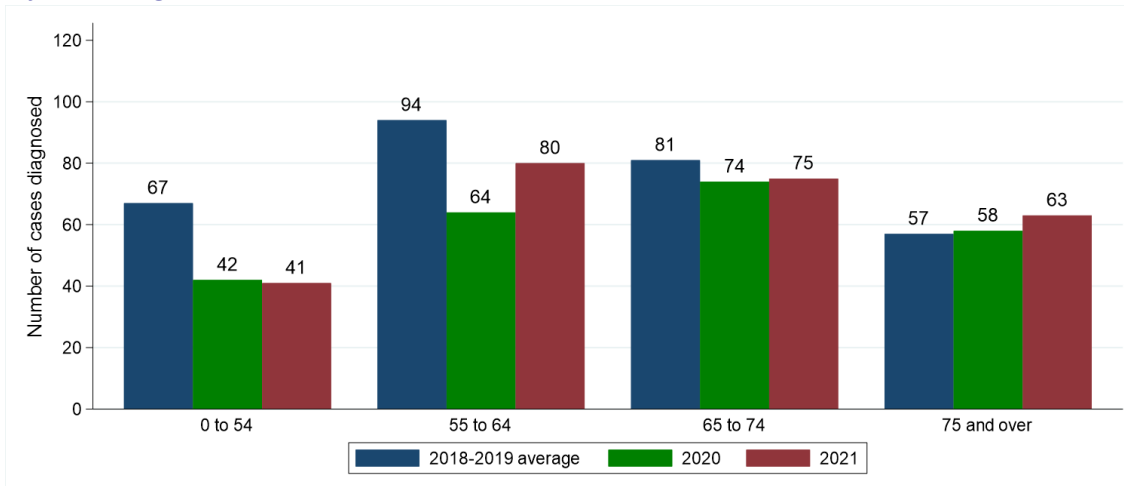
**Table 3: Number and proportion of head and neck cancer cases diagnosed in April-December of 2018-2021 by age and period of diagnosis**

Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All ages	298	238	259	-20.1%	-13.1%
0 to 54	67 (22.5%)	42 (17.6%)	41 (15.8%)	-37.3%	-38.8%
55 to 64	94 (31.5%)	64 (26.9%)	80 (30.9%)	-31.9%	-14.9%
65 to 74	81 (27.2%)	74 (31.1%)	75 (29.0%)	-8.6%	-7.4%
75 and over	57 (19.1%)	58 (24.4%)	63 (24.3%)	+1.8%	+10.5%

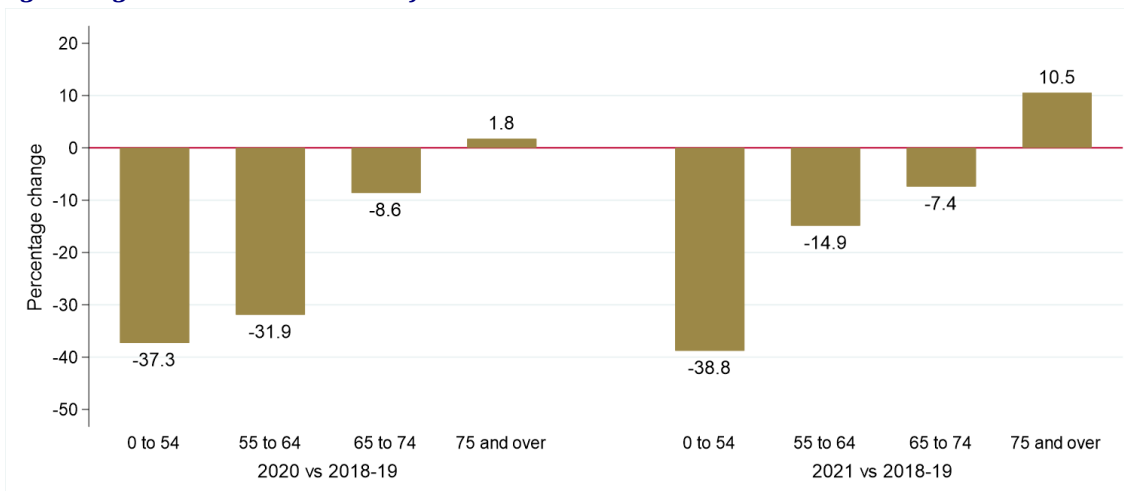
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 3: Number of head and neck 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 head and neck cancer diagnosed among those resident in South Eastern HSCT decreased by 43.8% from 64 per year in 2018-2019 to 36 in 2021. Between the same two time periods the number of cases of head and neck cancer diagnosed among those resident in Western HSCT increased by 29.8% from 47 per year in 2018-2019 to 61 in 2021. The change in case distribution by Health and Social Care Trust between 2018-2019 and 2021 was statistically significant ( $p = 0.001$ ).

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

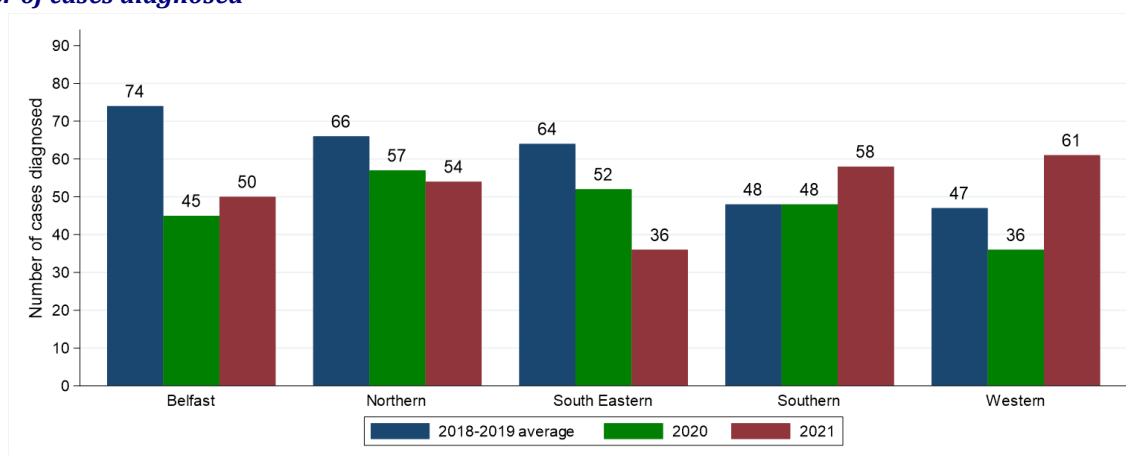
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	298	238	259	-20.1%	-13.1%
<b>Belfast</b>	74 (24.8%)	45 (18.9%)	50 (19.3%)	-39.2%	-32.4%
<b>Northern</b>	66 (22.1%)	57 (23.9%)	54 (20.8%)	-13.6%	-18.2%
<b>South Eastern</b>	64 (21.5%)	52 (21.8%)	36 (13.9%)	-18.8%	-43.8%
<b>Southern</b>	48 (16.1%)	48 (20.2%)	58 (22.4%)	0.0%	+20.8%
<b>Western</b>	47 (15.8%)	36 (15.1%)	61 (23.6%)	-23.4%	+29.8%

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

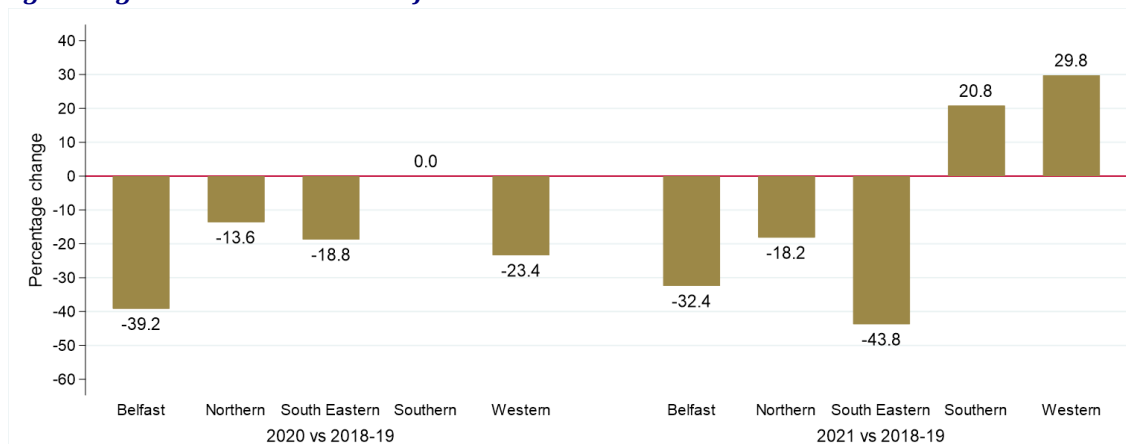
Note: Cases with unknown Health and Social Care Trust are included in totals.

**Figure 4: Number of head and neck 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 head and neck cancer diagnosed among those resident in the least deprived quintile decreased by 34.6% from 52 per year in 2018-2019 to 34 in 2021. Between the same two time periods the number of cases of head and neck cancer diagnosed among those resident in the most deprived quintile decreased by 8.6% from 81 per year in 2018-2019 to 74 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 head and neck cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis**

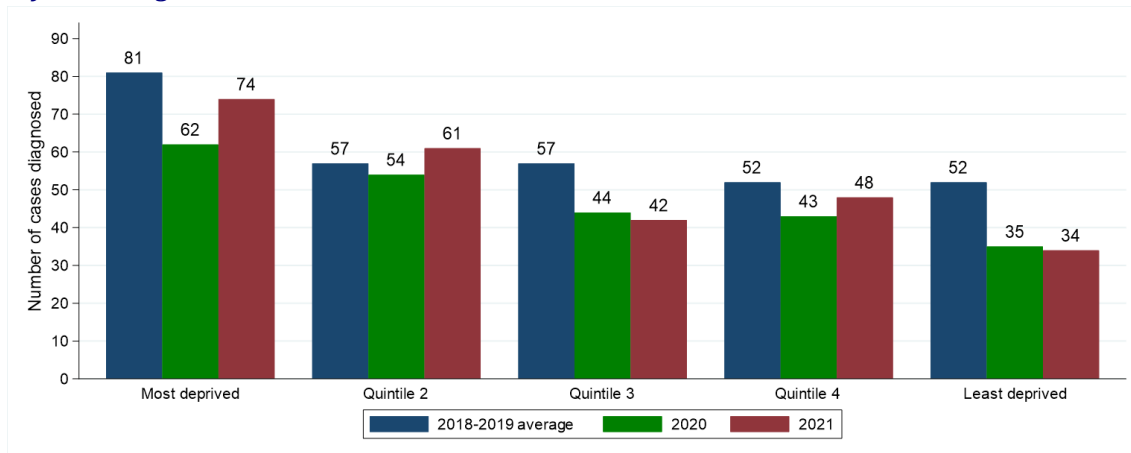
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	298	238	259	-20.1%	-13.1%
<b>Most deprived</b>	81 (27.2%)	62 (26.1%)	74 (28.6%)	-23.5%	-8.6%
<b>Quintile 2</b>	57 (19.1%)	54 (22.7%)	61 (23.6%)	-5.3%	+7.0%
<b>Quintile 3</b>	57 (19.1%)	44 (18.5%)	42 (16.2%)	-22.8%	-26.3%
<b>Quintile 4</b>	52 (17.4%)	43 (18.1%)	48 (18.5%)	-17.3%	-7.7%
<b>Least deprived</b>	52 (17.4%)	35 (14.7%)	34 (13.1%)	-32.7%	-34.6%

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

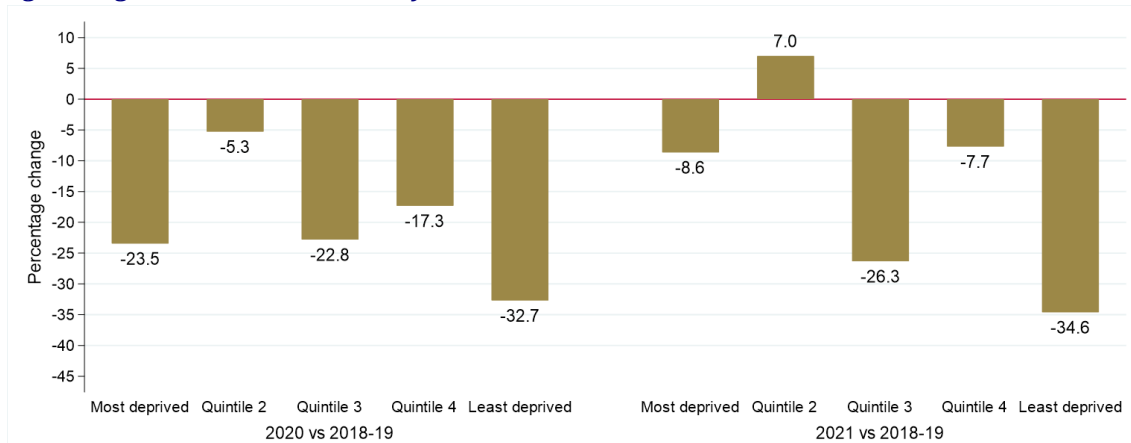
Note: Cases with unknown deprivation quintile are included in totals.

**Figure 5: Number of head and neck 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 head and neck cancer cases diagnosed at stage I in April to December of each year decreased by 20.0% from 75 per year in 2018-2019 to 60 in 2021. In addition the number of head and neck cancer cases diagnosed at stage IV decreased by 16.2% from 117 per year in 2018-2019 to 98 in 2021. As a proportion of all cases, stage IV diagnosis decreased from 39.3% in 2018-2019 to 37.8% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

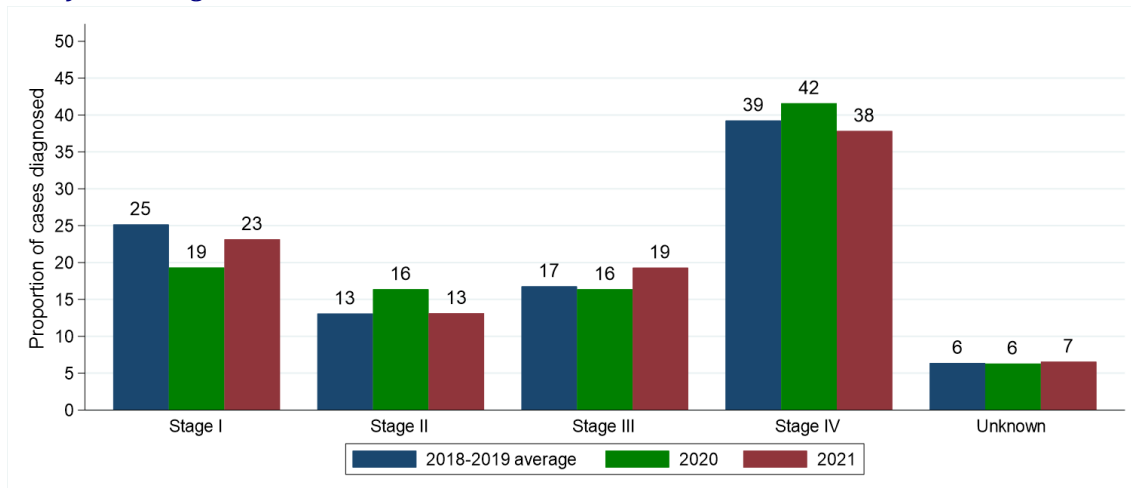
**Table 6: Number and proportion of head and neck cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis**

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	298	238	259	-20.1%	-13.1%
Stage I	75 (25.2%)	46 (19.3%)	60 (23.2%)	-38.7%	-20.0%
Stage II	39 (13.1%)	39 (16.4%)	34 (13.1%)	0.0%	-12.8%
Stage III	50 (16.8%)	39 (16.4%)	50 (19.3%)	-22.0%	0.0%
Stage IV	117 (39.3%)	99 (41.6%)	98 (37.8%)	-15.4%	-16.2%
Unknown	19 (6.4%)	15 (6.3%)	17 (6.6%)	-21.1%	-10.5%

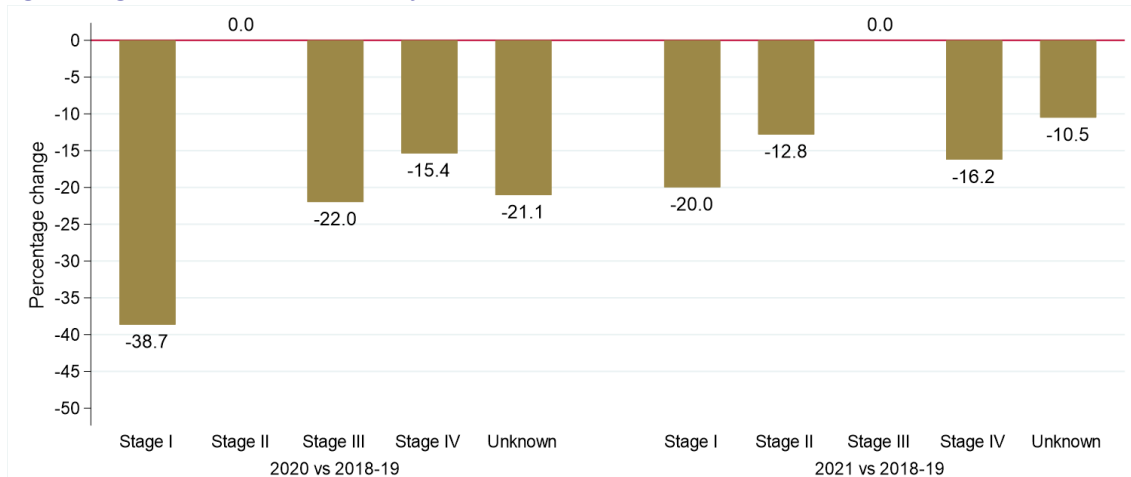
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 6: Proportion of head and neck 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 head and neck cancer cases resulting in treatment by surgery within six months decreased by 26.6% from 139 per year in 2018-2019 to 102 in 2021. The resulting decrease in the proportion receiving surgery from 46.6% in 2018-2019 to 39.4% in 2021 was statistically significant ( $p = 0.050$ ).

Between the same two time periods the number of head and neck cancer cases resulting in treatment by systemic therapy increased by 6.2% from 65 per year in 2018-2019 to 69 in 2021. The resulting increase in the proportion receiving systemic therapy from 21.8% in 2018-2019 to 26.6% in 2021 was not statistically significant.

The number of head and neck cancer cases treated with radiotherapy decreased by 17.4% from 184 per year in 2018-2019 to 152 in 2021. The resulting decrease in the proportion receiving radiotherapy from 61.7% in 2018-2019 to 58.7% in 2021 was not statistically significant.

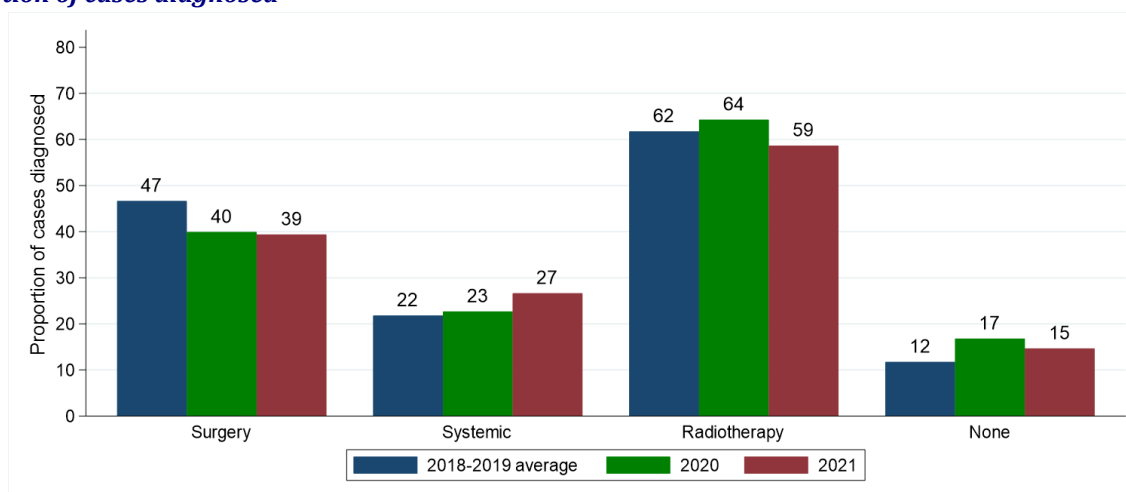
Excluding the first quarter of each year the number of head and neck cancer cases receiving none of these treatments within six months of diagnosis increased by 8.6% from 35 per year in 2018-2019 to 38 in 2021. The resulting increase in the proportion receiving none of these treatments from 11.7% in 2018-2019 to 14.7% in 2021 was not statistically significant.

**Table 7: Number and proportion of head and neck 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>	139 (46.6%)	95 (39.9%)	102 (39.4%)*	-31.7%	-26.6%
<b>Systemic therapy</b>	65 (21.8%)	54 (22.7%)	69 (26.6%)	-16.9%	+6.2%
<b>Radiotherapy</b>	184 (61.7%)	153 (64.3%)	152 (58.7%)	-16.8%	-17.4%
<b>None of these treatments</b>	35 (11.7%)	40 (16.8%)*	38 (14.7%)	+14.3%	+8.6%

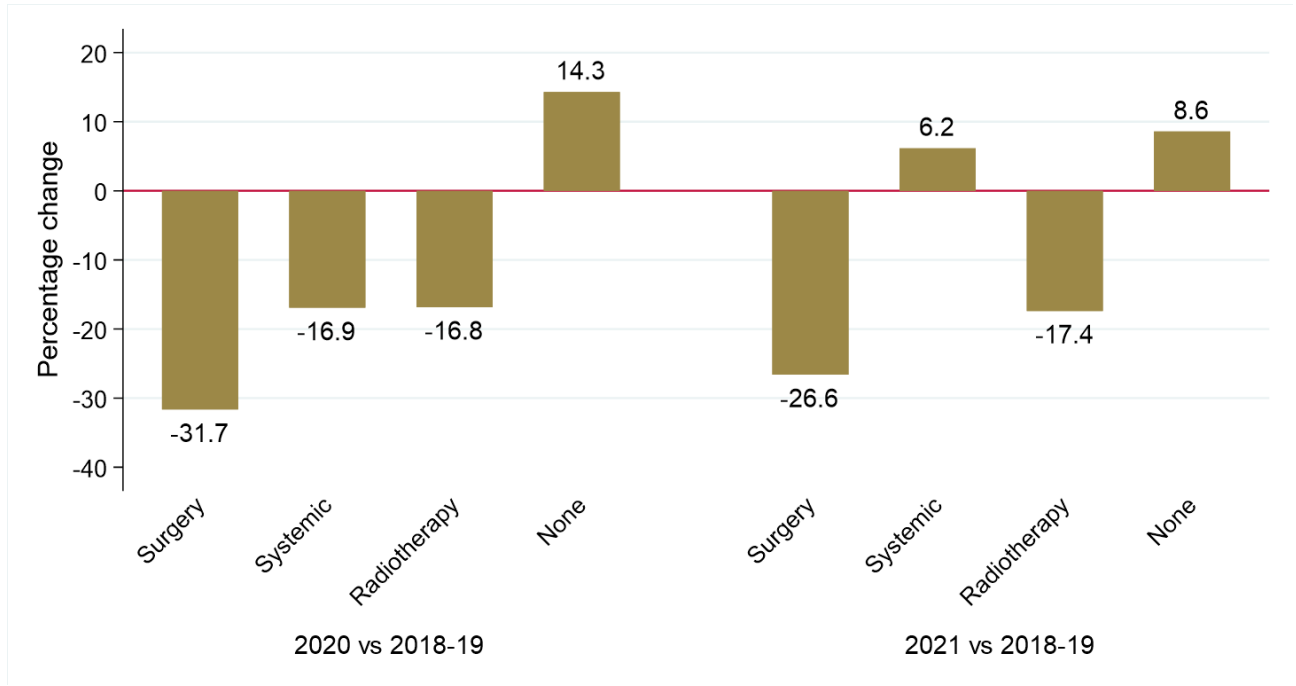
\* Statistically significant change compared to 2018-2019

**Figure 7: Proportion of head and neck 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

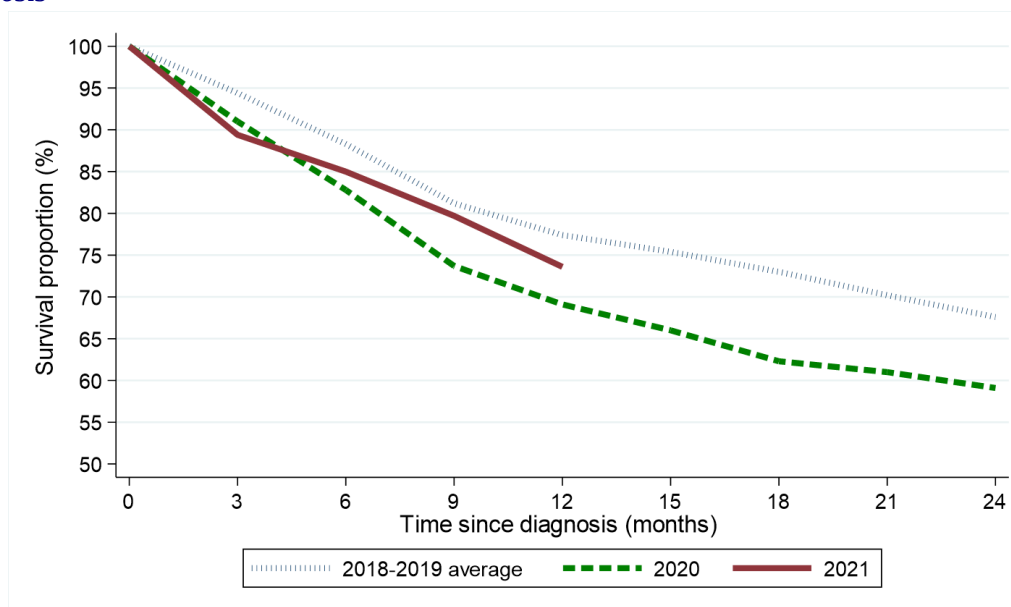
Survival among head and neck cancer patients six months after diagnosis decreased from 88.3% among those diagnosed in April-December of 2018-2019 to 85.0% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival decreased from 77.4% to 73.6%. 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 ( $p=0.502$ ).

**Table 8: Observed survival for patients with head and neck 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	94.4% (92.2% - 96.0%)	91.0% (86.3% - 94.1%)	89.4% (84.9% - 92.7%)
Six months	88.3% (85.3% - 90.6%)	82.8% (77.1% - 87.2%)	85.0% (79.9% - 88.9%)
One year	77.4% (73.7% - 80.6%)	69.1% (62.6% - 74.8%)	73.6% (67.6% - 78.6%)
Two years	67.6% (63.5% - 71.2%)	59.1% (52.3% - 65.3%)	-

*No statistically significant reductions compared to 2018-2019*

**Figure 8: Observed survival for patients with head and neck cancer diagnosed in April-December of 2018-2021 by period of diagnosis**



## DEATHS FROM COVID-19

During 2021 there were a total of 14 deaths from Covid-19 among head and neck cancer patients diagnosed at any point since 1993.

## NET SURVIVAL

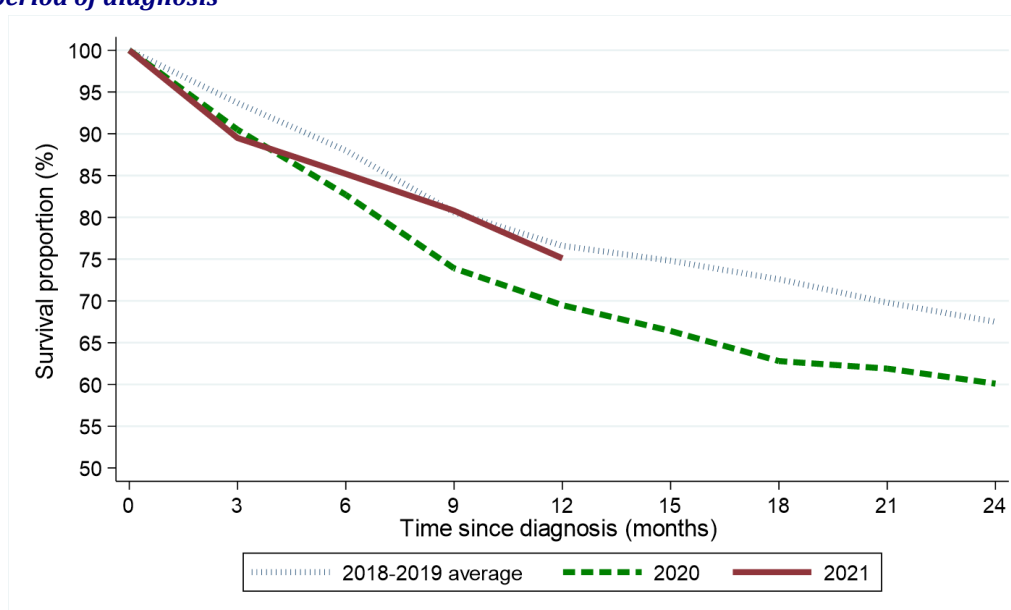
Net survival among head and neck cancer patients six months after diagnosis decreased from 88.0% among those diagnosed in April-December of 2018-2019 to 85.2% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival decreased from 76.6% to 75.1%. This change was not statistically significant.

**Table 9: Age-standardised net survival for patients with head and neck 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>	93.7% (91.3% - 96.1%)	90.5% (86.3% - 94.9%)	89.5% (85.6% - 93.6%)
<b>Six months</b>	88.0% (84.9% - 91.2%)	82.7% (77.1% - 88.7%)	85.2% (80.5% - 90.2%)
<b>One year</b>	76.6% (72.7% - 80.8%)	69.5% (62.9% - 76.8%)	75.1% (69.4% - 81.2%)
<b>Two years</b>	67.5% (62.9% - 72.4%)	60.1% (52.8% - 68.4%)	-

*No statistically significant reductions compared to 2018-2019*

**Figure 9: Age-standardised net survival for patients with head and neck 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 head and neck cancer increased between 2018-2019 and 2021 by 7.6% from 105 deaths per year to 113 deaths.

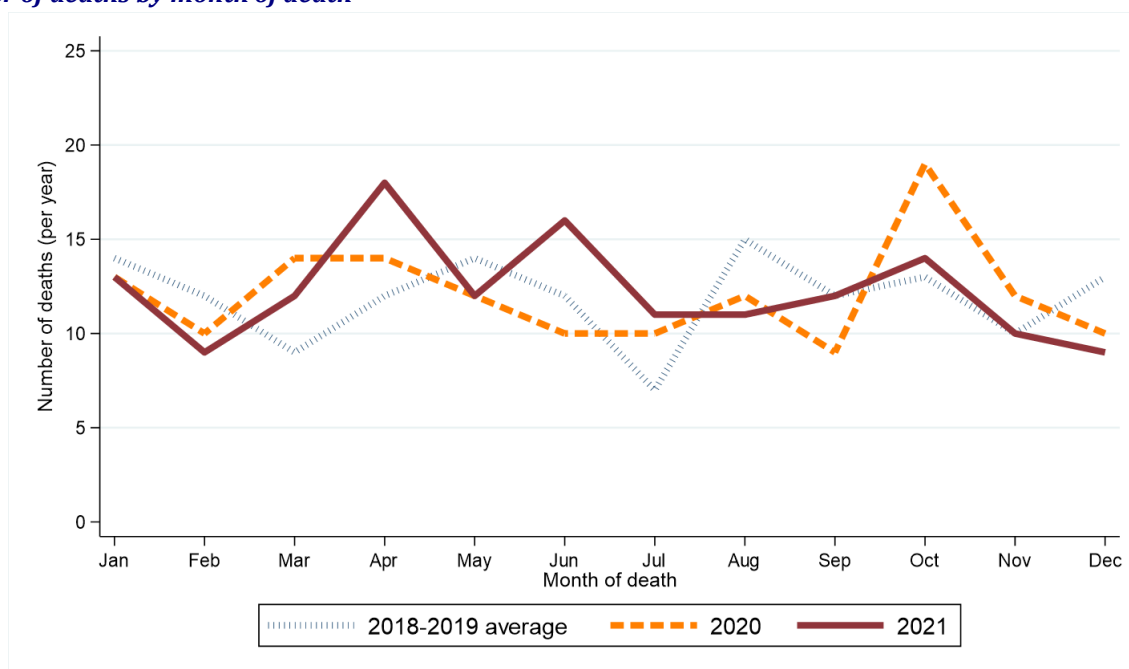
**Table 10: Number of head and neck cancer deaths in 2018-2021 by month and year of death**

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	139	14	12	9	12	14	12	7	15	12	13	10	13
2020	145	13	10	14	14	12	10	10	12	9	19	12	10
2021	147	13	9	12	18	12	16	11	11	12	14	10	9

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

**Figure 10: Number of head and neck 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**

