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# Recent trends in incidence, survival and mortality of malignant melanoma 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 malignant melanoma diagnosed increased between 2018-2019 and 2021 by 5.4% from 335 cases per year to 353 cases.

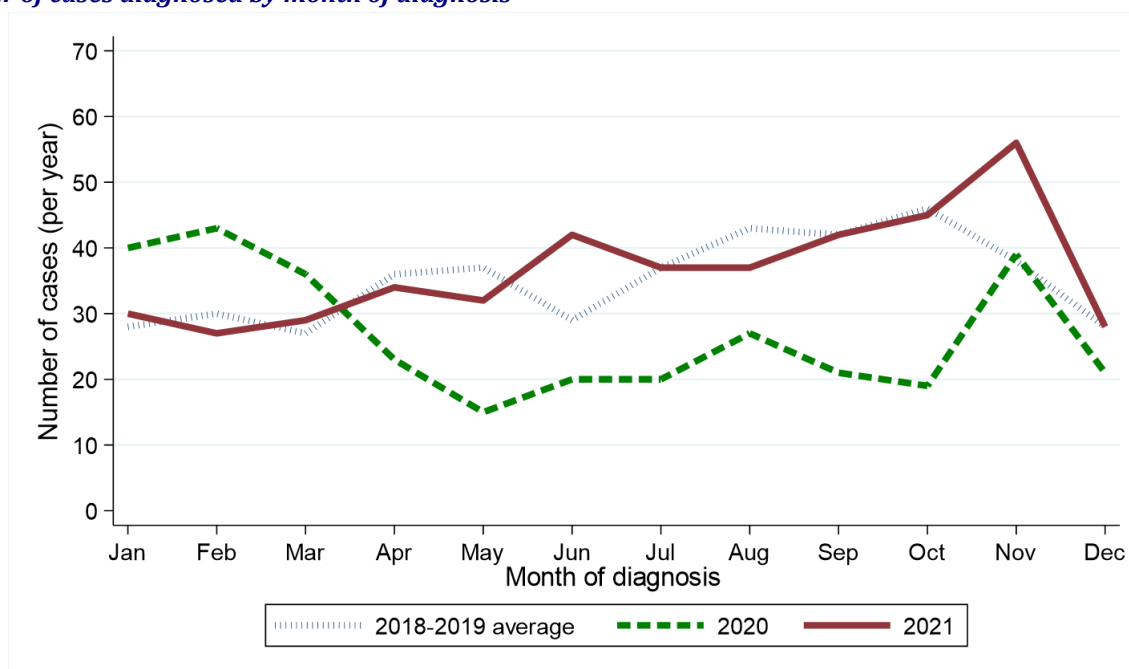
**Table 1: Number of malignant melanoma cases diagnosed in 2018-2021 by month and year of diagnosis**

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	419	28	30	27	36	37	29	37	43	42	46	38	28
2020	324	40	43	36	23	15	20	20	27	21	19	39	21
2021	439	30	27	29	34	32	42	37	37	42	45	56	28

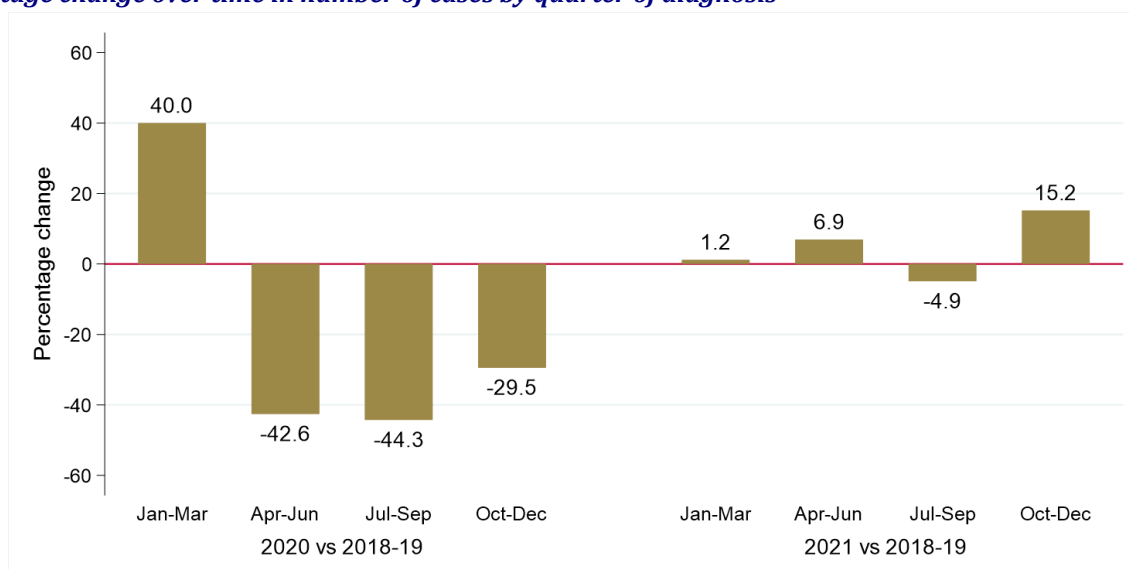
\* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

**Figure 1: Number of malignant melanoma 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 malignant melanoma cases diagnosed increased by 8.0% from 150 per year in 2018-2019 to 162 in 2021. Between the same two time periods the number of female malignant melanoma cases diagnosed increased by 3.2% from 185 per year in 2018-2019 to 191 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

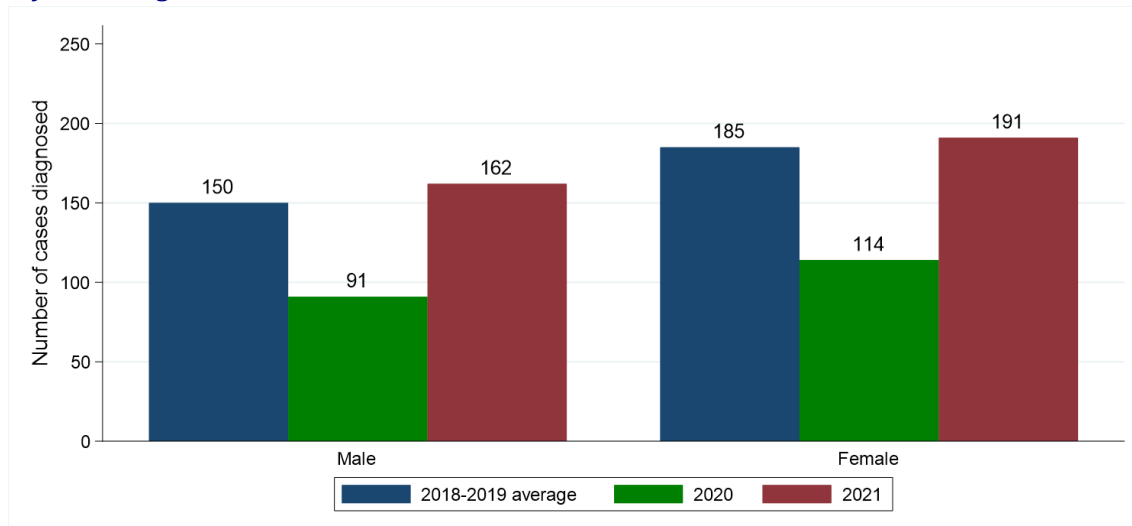
**Table 2: Number and proportion of malignant melanoma cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis**

Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>All persons</b>	335	205	353	-38.8%	+5.4%
<b>Male</b>	150 (44.8%)	91 (44.4%)	162 (45.9%)	-39.3%	+8.0%
<b>Female</b>	185 (55.2%)	114 (55.6%)	191 (54.1%)	-38.4%	+3.2%

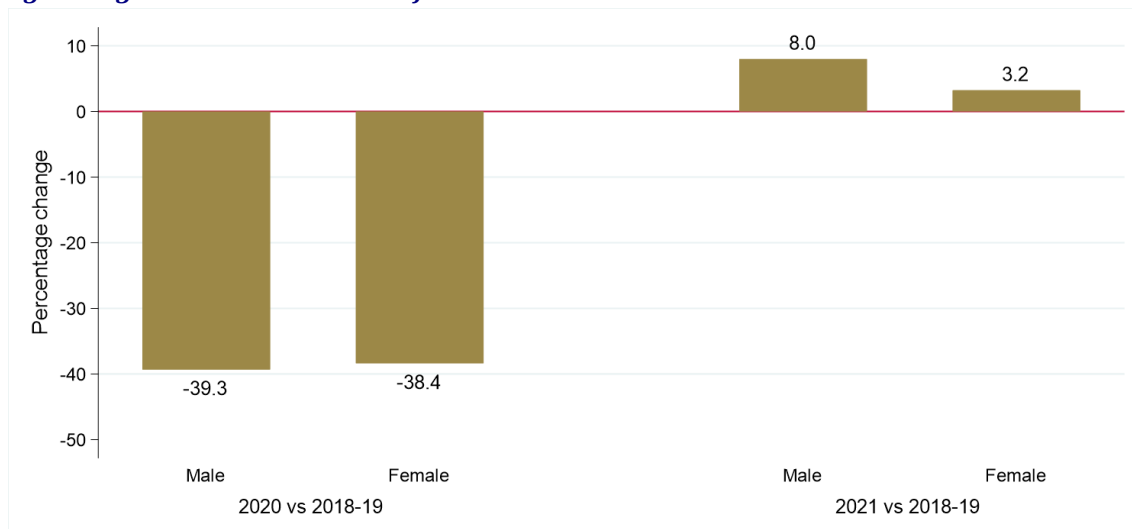
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 2: Number of malignant melanoma 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 malignant melanoma diagnosed among those aged 0 to 54 decreased by 13.7% from 124 per year in 2018-2019 to 107 in 2021. Between the same two time periods the number of cases of malignant melanoma diagnosed among those aged 65 to 74 increased by 20.0% from 75 per year in 2018-2019 to 90 in 2021. The change in case distribution by age between 2018-2019 and 2021 was not statistically significant.

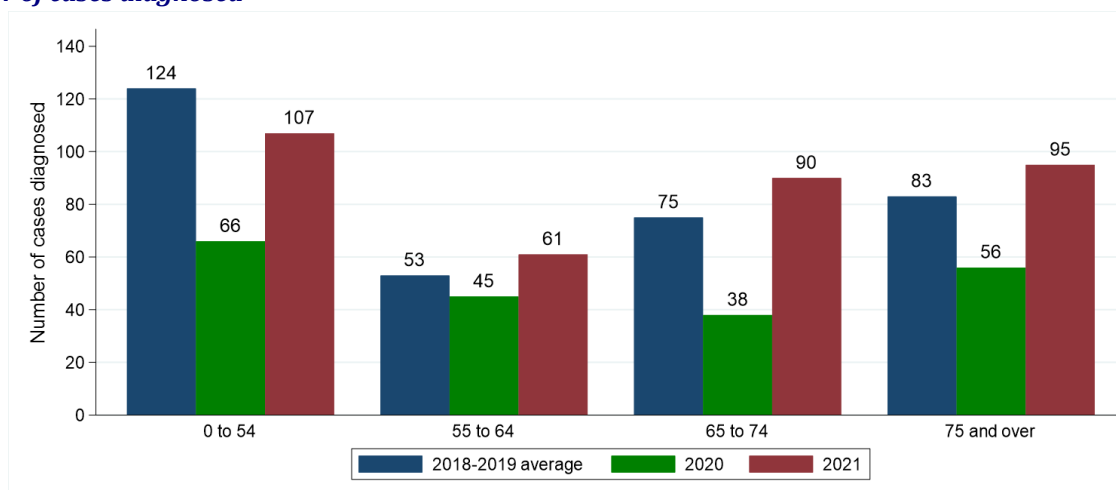
**Table 3: Number and proportion of malignant melanoma cases diagnosed in April-December of 2018-2021 by age and period of diagnosis**

Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>All ages</b>	335	205	353	-38.8%	+5.4%
<b>0 to 54</b>	124 (37.0%)	66 (32.2%)	107 (30.3%)	-46.8%	-13.7%
<b>55 to 64</b>	53 (15.8%)	45 (22.0%)	61 (17.3%)	-15.1%	+15.1%
<b>65 to 74</b>	75 (22.4%)	38 (18.5%)	90 (25.5%)	-49.3%	+20.0%
<b>75 and over</b>	83 (24.8%)	56 (27.3%)	95 (26.9%)	-32.5%	+14.5%

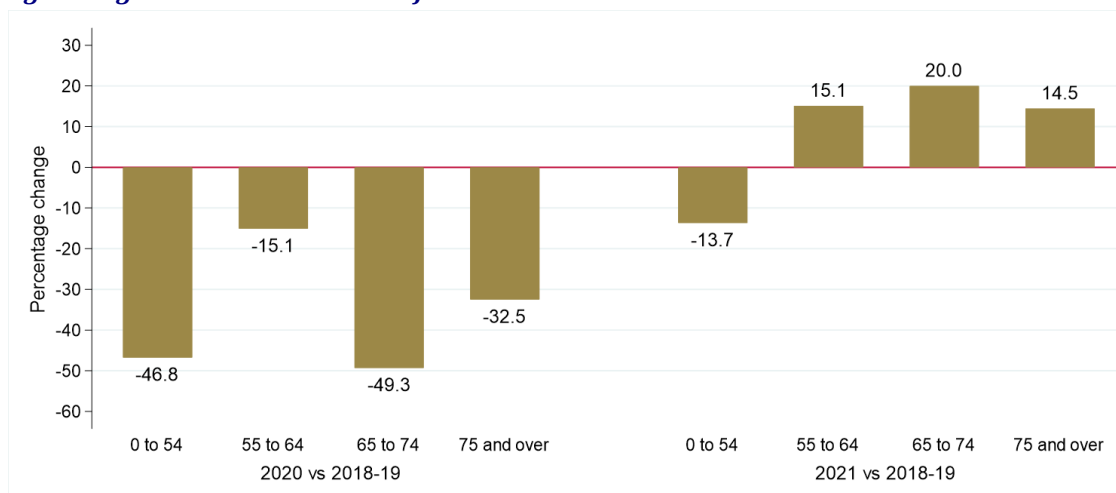
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 3: Number of malignant melanoma 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 malignant melanoma diagnosed among those resident in Southern HSCT decreased by 15.9% from 69 per year in 2018-2019 to 58 in 2021. Between the same two time periods the number of cases of malignant melanoma diagnosed among those resident in Belfast HSCT increased by 47.1% from 51 per year in 2018-2019 to 75 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 malignant melanoma cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis**

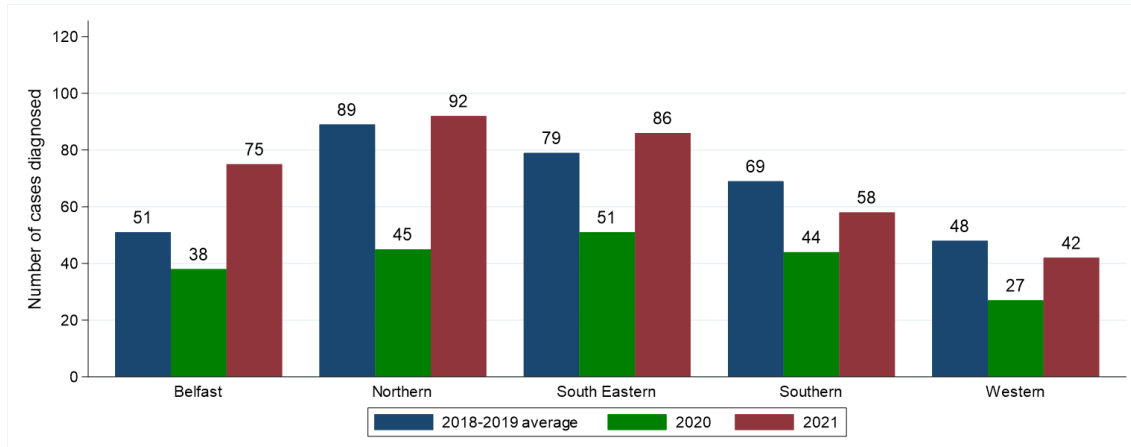
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	335	205	353	-38.8%	+5.4%
<b>Belfast</b>	51 (15.2%)	38 (18.5%)	75 (21.2%)	-25.5%	+47.1%
<b>Northern</b>	89 (26.6%)	45 (22.0%)	92 (26.1%)	-49.4%	+3.4%
<b>South Eastern</b>	79 (23.6%)	51 (24.9%)	86 (24.4%)	-35.4%	+8.9%
<b>Southern</b>	69 (20.6%)	44 (21.5%)	58 (16.4%)	-36.2%	-15.9%
<b>Western</b>	48 (14.3%)	27 (13.2%)	42 (11.9%)	-43.8%	-12.5%

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

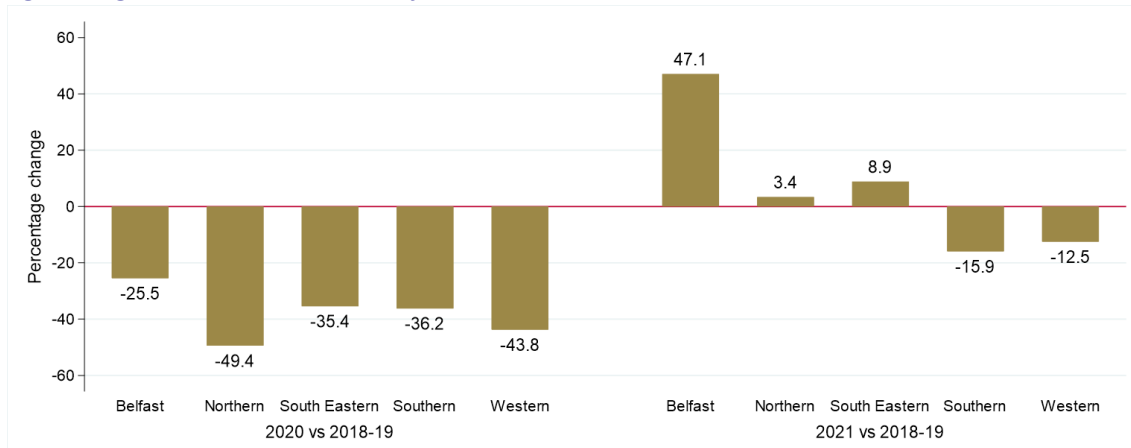
Note: Cases with unknown Health and Social Care Trust are included in totals.

**Figure 4: Number of malignant melanoma 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 malignant melanoma diagnosed among those resident in the most deprived quintile increased by 14.6% from 41 per year in 2018-2019 to 47 in 2021. Between the same two time periods the number of cases of malignant melanoma diagnosed among those resident in the least deprived quintile increased by 24.0% from 75 per year in 2018-2019 to 93 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 malignant melanoma cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis**

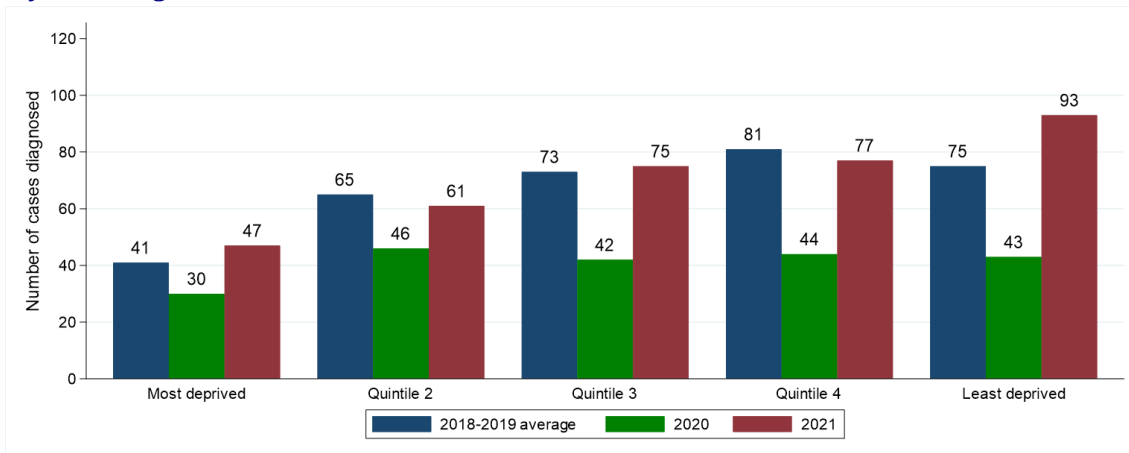
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	335	205	353	-38.8%	+5.4%
<b>Most deprived</b>	41 (12.2%)	30 (14.6%)	47 (13.3%)	-26.8%	+14.6%
<b>Quintile 2</b>	65 (19.4%)	46 (22.4%)	61 (17.3%)	-29.2%	-6.2%
<b>Quintile 3</b>	73 (21.8%)	42 (20.5%)	75 (21.2%)	-42.5%	+2.7%
<b>Quintile 4</b>	81 (24.2%)	44 (21.5%)	77 (21.8%)	-45.7%	-4.9%
<b>Least deprived</b>	75 (22.4%)	43 (21.0%)	93 (26.3%)	-42.7%	+24.0%

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

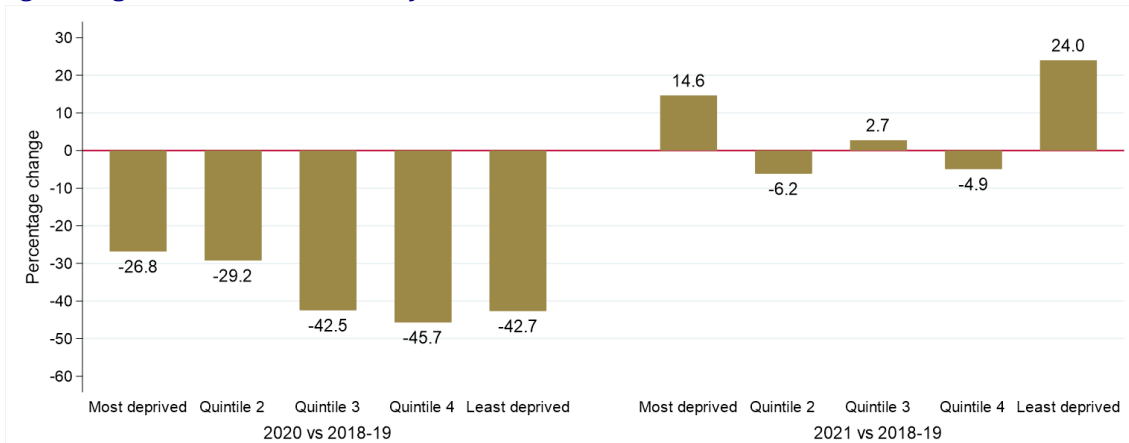
Note: Cases with unknown deprivation quintile are included in totals.

**Figure 5: Number of malignant melanoma 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 malignant melanoma diagnosed via histology/cytology increased by 5.7% from 334 per year in 2018-2019 to 353 in 2021. As a proportion of all cases, histology/cytology diagnosis increased from 99.7% in 2018-2019 to 100.0% in 2021. The change in case distribution by basis of diagnosis between 2018-2019 and 2021 was not statistically significant.

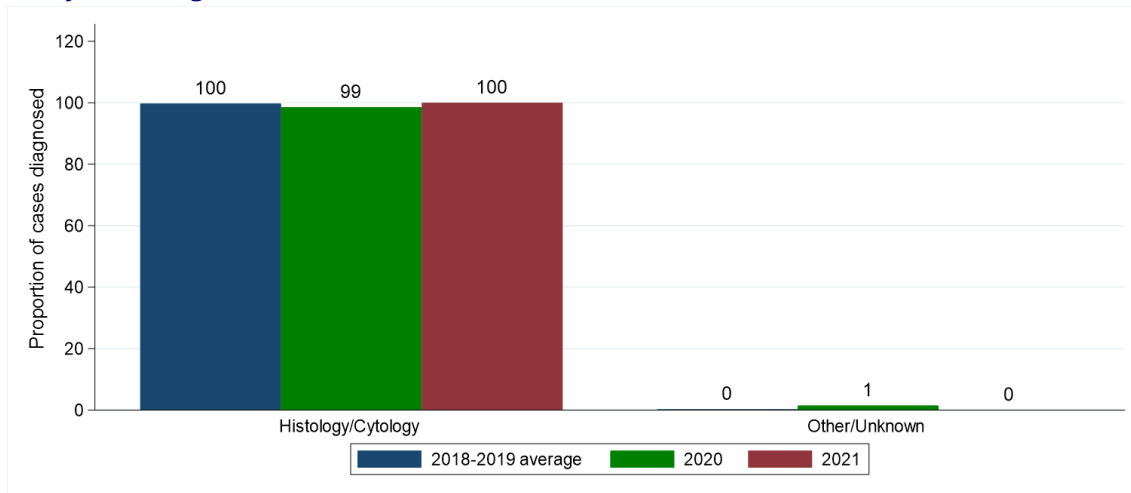
**Table 6: Number and proportion of malignant melanoma cases diagnosed in April-December of 2018-2021 by basis and period of diagnosis**

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>	335	205	353	-38.8%	+5.4%
<b>Histology/Cytology</b>	334 (99.7%)	202 (98.5%)	353 (100.0%)	-39.5%	+5.7%
<b>Other/Unknown</b>	1 (0.3%)	3 (1.5%)	0 (0.0%)	-	-

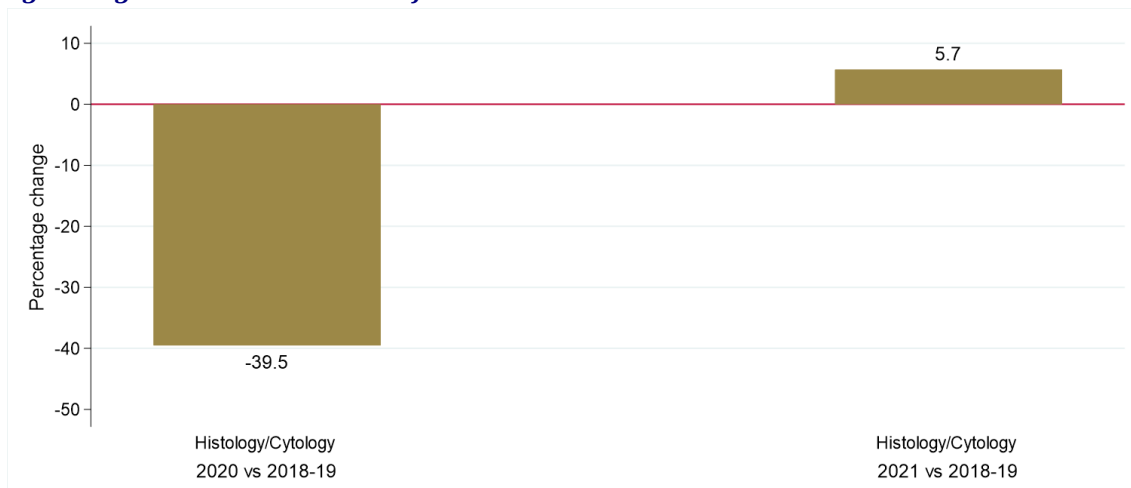
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 6: Proportion of malignant melanoma 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 malignant melanoma cases diagnosed at stage I in April to December of each year increased by 4.7% from 213 per year in 2018-2019 to 223 in 2021. In addition the number of malignant melanoma cases diagnosed at stage IV increased by 55.6% from 9 per year in 2018-2019 to 14 in 2021. As a proportion of all cases, stage IV diagnosis increased from 2.7% in 2018-2019 to 4.0% in 2021. The change in stage distribution between 2018-2019 and 2021 was statistically significant ( $p = 0.002$ ).

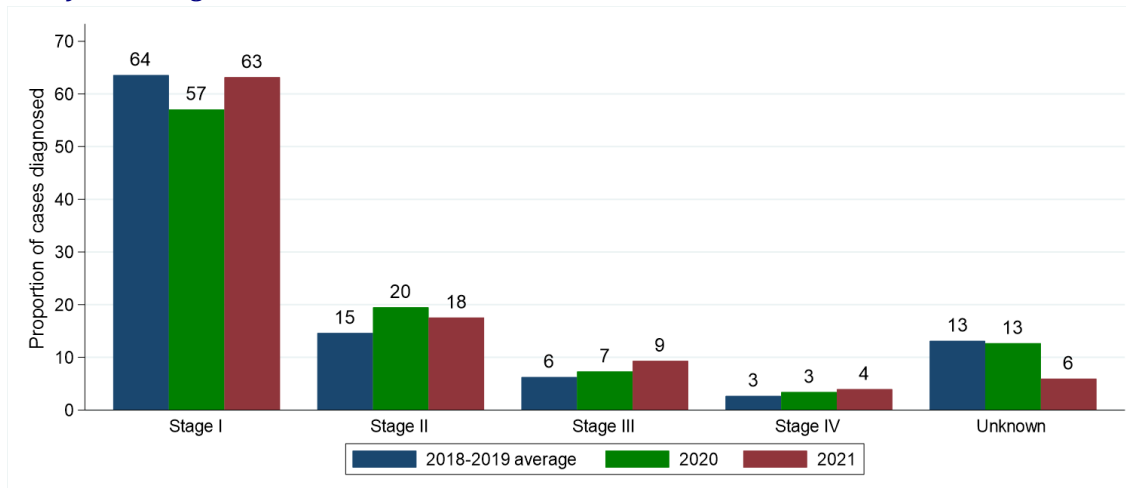
**Table 7: Number and proportion of malignant melanoma cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis**

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	335	205	353	-38.8%	+5.4%
Stage I	213 (63.6%)	117 (57.1%)	223 (63.2%)	-45.1%	+4.7%
Stage II	49 (14.6%)	40 (19.5%)	62 (17.6%)	-18.4%	+26.5%
Stage III	21 (6.3%)	15 (7.3%)	33 (9.3%)	-28.6%	+57.1%
Stage IV	9 (2.7%)	7 (3.4%)	14 (4.0%)	-22.2%	+55.6%
Unknown	44 (13.1%)	26 (12.7%)	21 (5.9%)	-40.9%	-52.3%

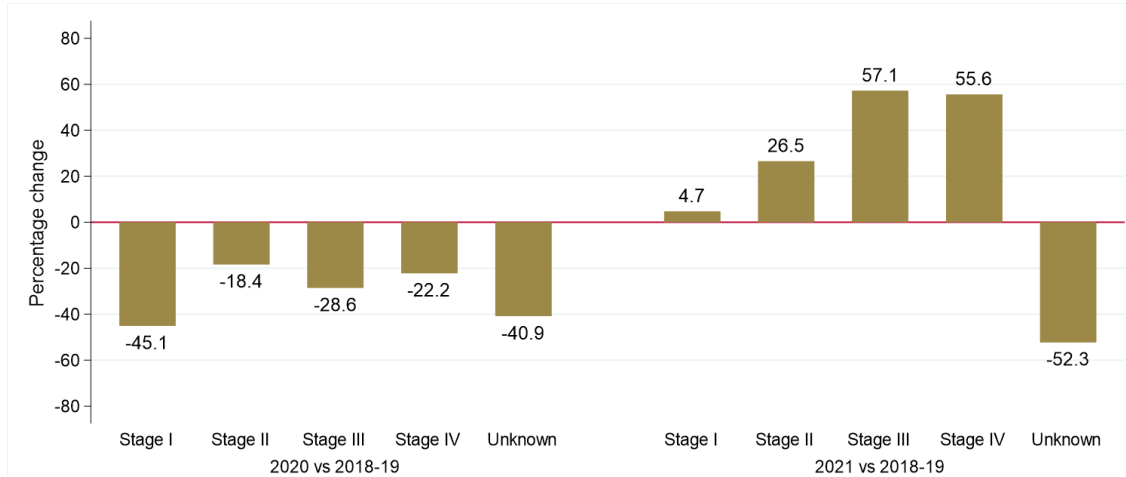
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 7: Proportion of malignant melanoma 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 malignant melanoma cases resulting in treatment by surgery within six months decreased by 18.1% from 259 per year in 2018-2019 to 212 in 2021. The resulting decrease in the proportion receiving surgery from 77.3% in 2018-2019 to 60.1% in 2021 was statistically significant ( $p < 0.001$ ).

Between the same two time periods the number of malignant melanoma cases resulting in treatment by systemic therapy increased by 100.0% from 13 per year in 2018-2019 to 26 in 2021. The resulting increase in the proportion receiving systemic therapy from 3.9% in 2018-2019 to 7.4% in 2021 was statistically significant ( $p = 0.011$ ).

Excluding the first quarter of each year the number of malignant melanoma cases receiving none of these treatments within six months of diagnosis increased by 78.4% from 74 per year in 2018-2019 to 132 in 2021. The resulting increase in the proportion receiving none of these treatments from 22.1% in 2018-2019 to 37.4% in 2021 was statistically significant ( $p < 0.001$ ).

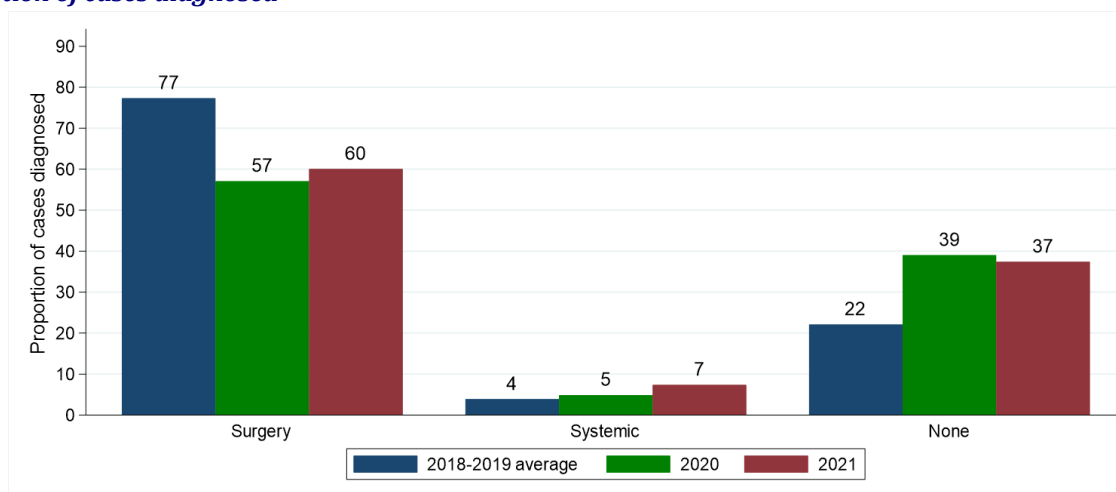
**Table 8: Number and proportion of malignant melanoma cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis**

Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Surgery</b>	259 (77.3%)	117 (57.1%)*	212 (60.1%)*	-54.8%	-18.1%
<b>Systemic therapy</b>	13 (3.9%)	10 (4.9%)	26 (7.4%)*	-23.1%	+100.0%
<b>None of these treatments</b>	74 (22.1%)	80 (39.0%)*	132 (37.4%)*	+8.1%	+78.4%

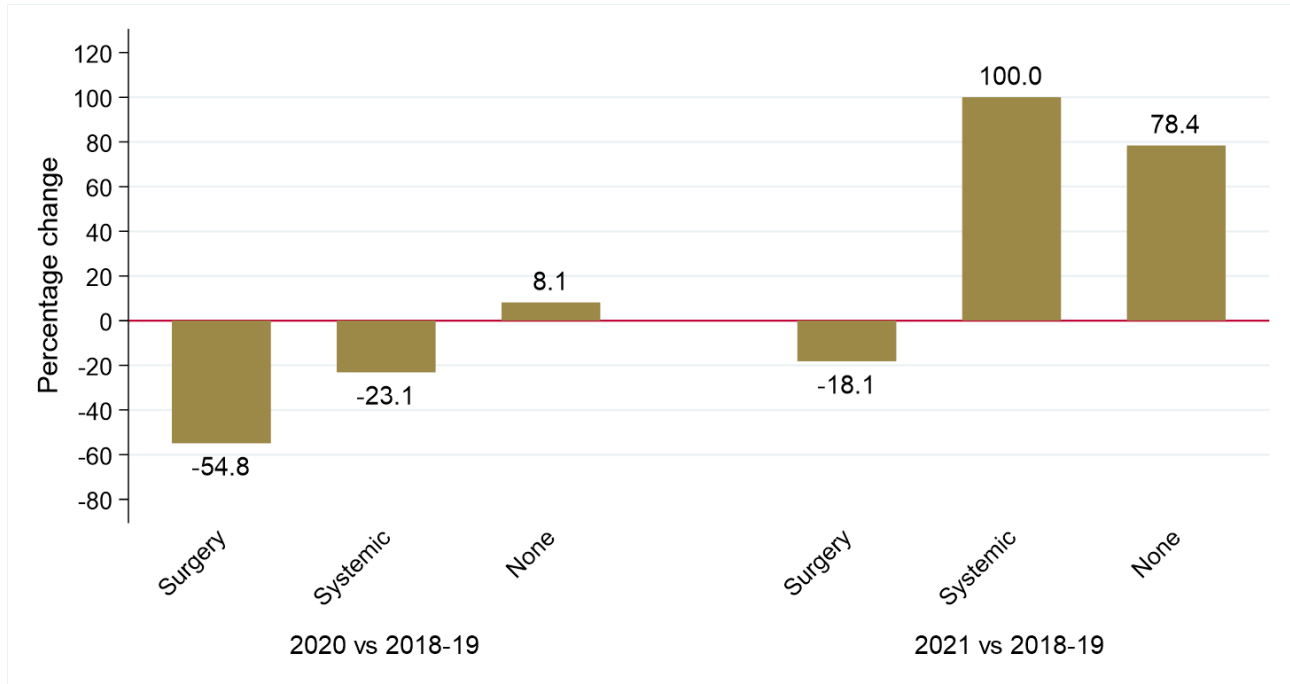
\* Statistically significant change compared to 2018-2019

**Figure 8: Proportion of malignant melanoma 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

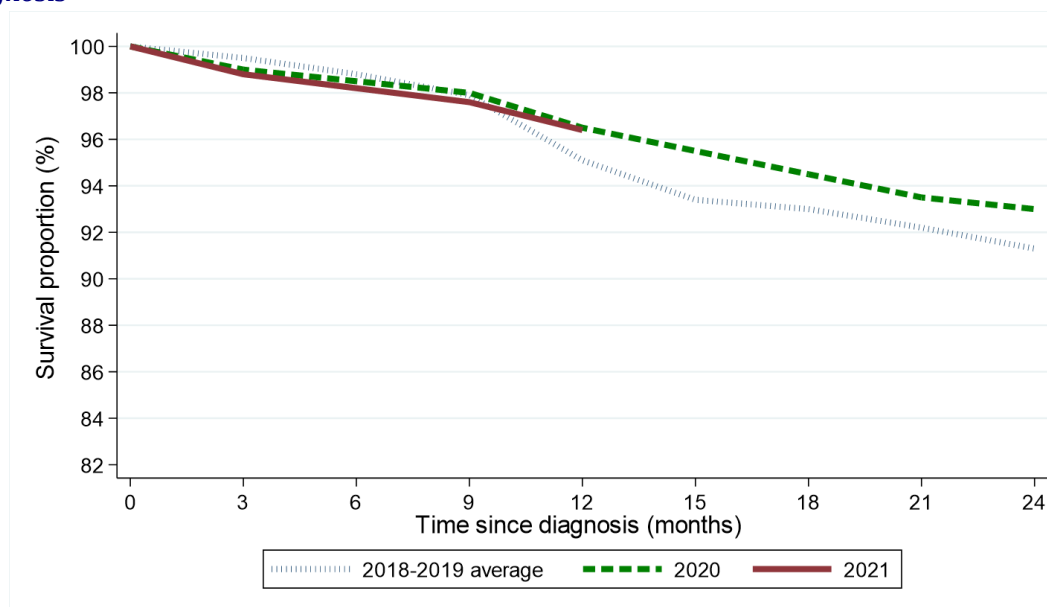
Survival among malignant melanoma patients six months after diagnosis decreased from 98.8% among those diagnosed in April-December of 2018-2019 to 98.2% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival increased from 95.1% to 96.4%. 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 ( $p=0.555$ ).

**Table 9: Observed survival for patients with malignant melanoma 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>	99.5% (98.6% - 99.9%)	99.0% (96.1% - 99.7%)	98.8% (96.9% - 99.6%)
<b>Six months</b>	98.8% (97.6% - 99.4%)	98.5% (95.4% - 99.5%)	98.2% (96.1% - 99.2%)
<b>One year</b>	95.1% (93.1% - 96.5%)	96.5% (92.8% - 98.3%)	96.4% (93.8% - 97.9%)
<b>Two years</b>	91.3% (88.8% - 93.2%)	93.0% (88.4% - 95.8%)	-

*No statistically significant reductions compared to 2018-2019*

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



## DEATHS FROM COVID-19

During 2021 there were a total of 15 deaths from Covid-19 among malignant melanoma patients diagnosed at any point since 1993.

## NET SURVIVAL

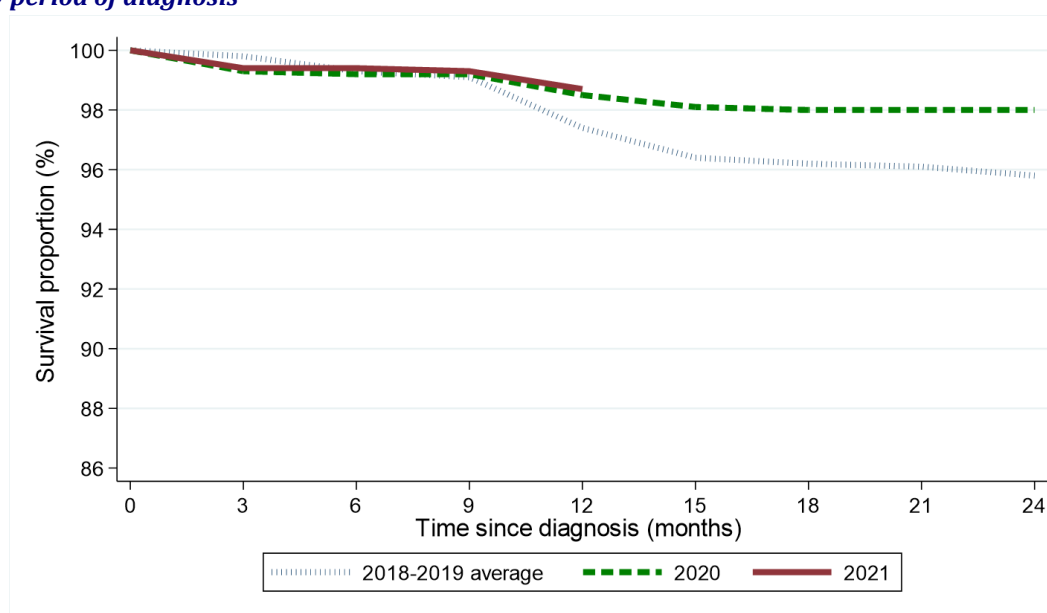
Net survival among malignant melanoma patients six months after diagnosis increased from 99.3% among those diagnosed in April-December of 2018-2019 to 99.4% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival increased from 97.4% to 98.7%. This change was not statistically significant.

**Table 10: Age-standardised net survival for patients with malignant melanoma 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>	99.8% (99.4% - 100.0%)	99.3% (98.1% - 100.0%)	99.4% (98.6% - 100.0%)
<b>Six months</b>	99.3% (98.5% - 100.0%)	99.2% (98.0% - 100.0%)	99.4% (98.4% - 100.0%)
<b>One year</b>	97.4% (95.9% - 98.9%)	98.5% (96.4% - 100.0%)	98.7% (97.2% - 100.0%)
<b>Two years</b>	95.8% (93.8% - 97.9%)	98.0% (95.2% - 100.0%)	-

*No statistically significant reductions compared to 2018-2019*

**Figure 10: Age-standardised net survival for patients with malignant melanoma 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 malignant melanoma increased between 2018-2019 and 2021 by 8.9% from 45 deaths per year to 49 deaths.

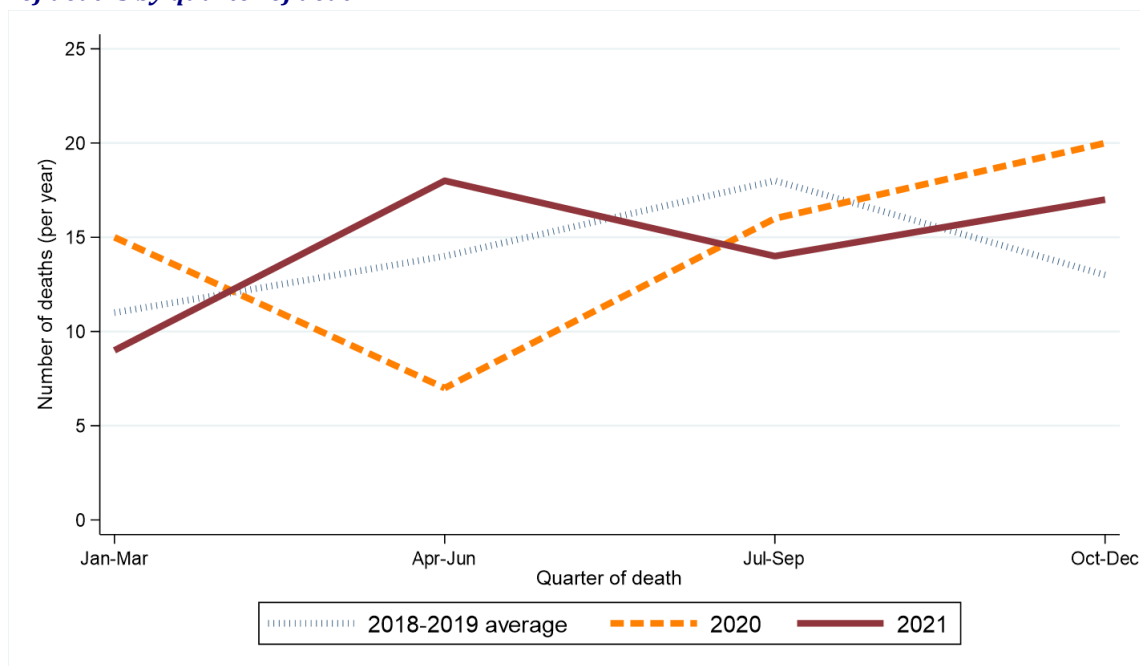
**Table 11: Number of malignant melanoma deaths in 2018-2021 by quarter and year of death**

Period of death	Annual total	Quarter of death			
		Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec
2018-2019*	56	11	14	18	13
2020	58	15	7	16	20
2021	58	9	18	14	17

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

**Figure 11: Number of malignant melanoma 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**

