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# Recent trends in incidence and survival of testicular 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 testicular cancer diagnosed decreased between 2018-2019 and 2021 by 17.6% from 51 cases per year to 42 cases.

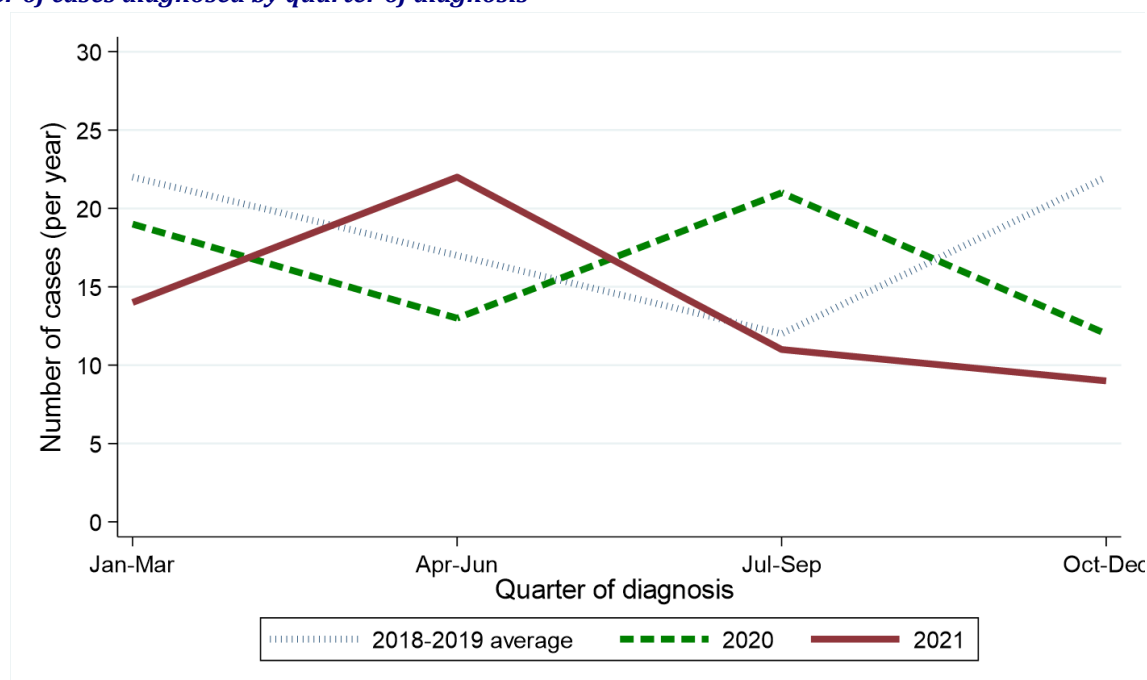
**Table 1: Number of testicular cancer cases diagnosed in 2018-2021 by quarter and year of diagnosis**

Period of diagnosis	Annual total	Quarter diagnosed			
		Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec
2018-2019*	73	22	17	12	22
2020	65	19	13	21	12
2021	56	14	22	11	9

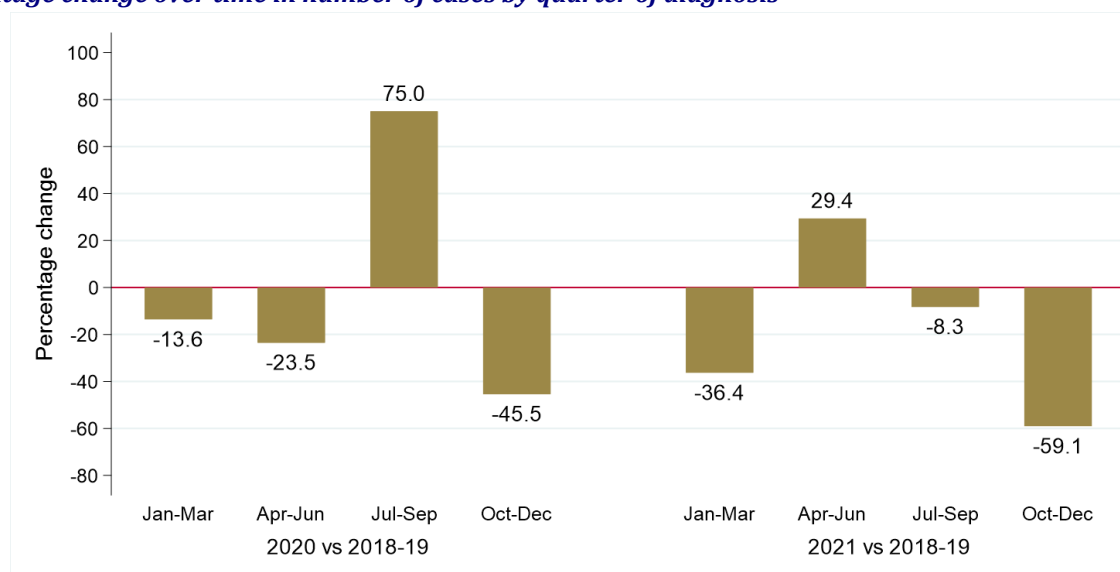
\* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

**Figure 1: Number of testicular cancer cases diagnosed in 2018-2021 by quarter and year of diagnosis**

**(a) Number of cases diagnosed by quarter of diagnosis**



**(b) Percentage change over time in number of cases by quarter of diagnosis**



## AGE

Excluding the first quarter of each year the number of cases of testicular cancer diagnosed among those aged 55 and over decreased by 40.0% from 5 per year in 2018-2019 to 3 in 2021. Between the same two time periods the number of cases of testicular cancer diagnosed among those aged 0 to 34 decreased by 8.7% from 23 per year in 2018-2019 to 21 in 2021. The change in case distribution by age between 2018-2019 and 2021 was not statistically significant.

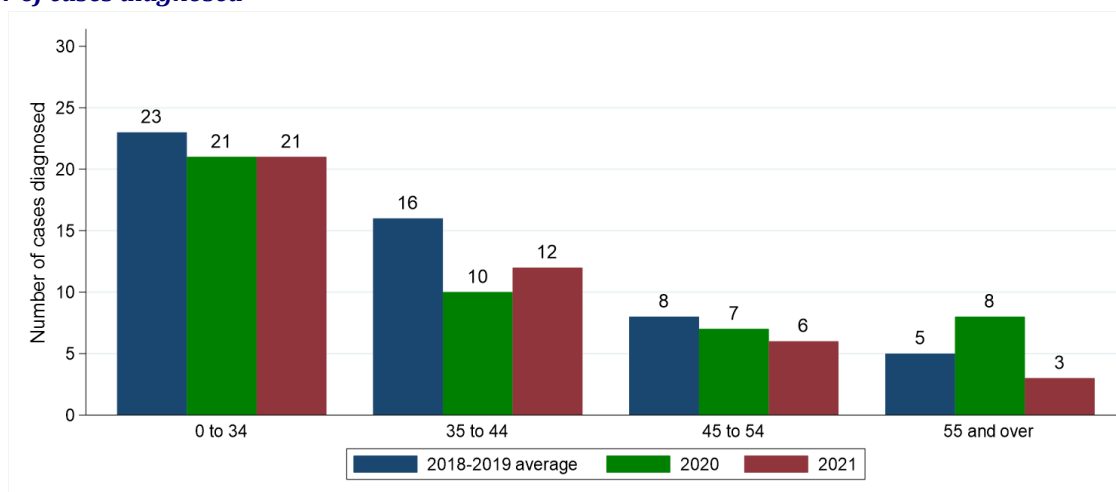
**Table 2: Number and proportion of testicular cancer cases diagnosed in April-December of 2018-2021 by age and period of diagnosis**

Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All ages	51	46	42	-9.8%	-17.6%
0 to 34	23 (45.1%)	21 (45.7%)	21 (50.0%)	-8.7%	-8.7%
35 to 44	16 (31.4%)	10 (21.7%)	12 (28.6%)	-37.5%	-25.0%
45 to 54	8 (15.7%)	7 (15.2%)	6 (14.3%)	-12.5%	-25.0%
55 and over	5 (9.8%)	8 (17.4%)	3 (7.1%)	+60.0%	-40.0%

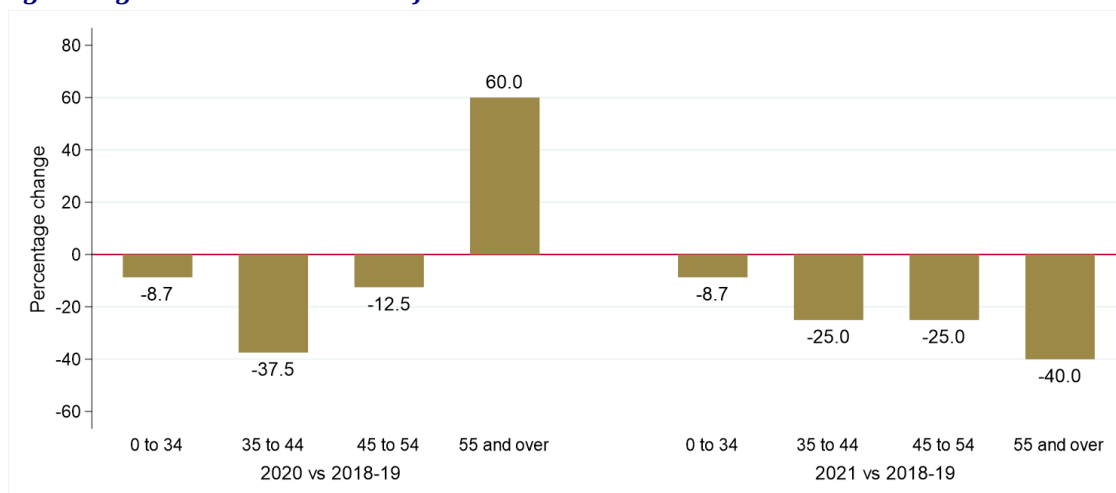
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 2: Number of testicular 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 testicular cancer diagnosed among those resident in Northern HSCT decreased by 63.2% from 19 per year in 2018-2019 to 7 in 2021. Between the same two time periods the number of cases of testicular cancer diagnosed among those resident in Southern HSCT increased by 100.0% from 7 per year in 2018-2019 to 14 in 2021. The change in case distribution by Health and Social Care Trust between 2018-2019 and 2021 was statistically significant ( $p = 0.033$ ).

**Table 3: Number and proportion of testicular cancer cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis**

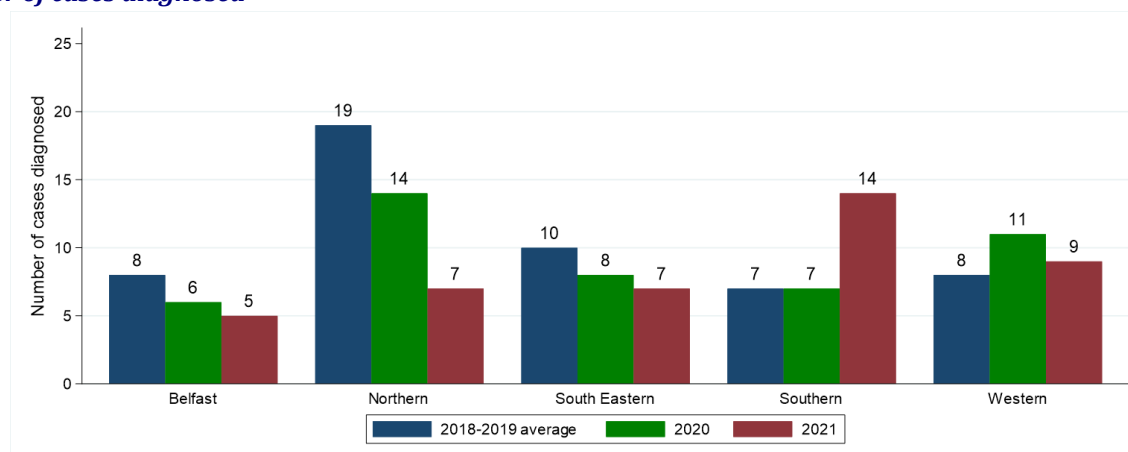
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	51	46	42	-9.8%	-17.6%
<b>Belfast</b>	8 (15.7%)	6 (13.0%)	5 (11.9%)	-25.0%	-37.5%
<b>Northern</b>	19 (37.3%)	14 (30.4%)	7 (16.7%)	-26.3%	-63.2%
<b>South Eastern</b>	10 (19.6%)	8 (17.4%)	7 (16.7%)	-20.0%	-30.0%
<b>Southern</b>	7 (13.7%)	7 (15.2%)	14 (33.3%)	0.0%	+100.0%
<b>Western</b>	8 (15.7%)	11 (23.9%)	9 (21.4%)	+37.5%	+12.5%

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

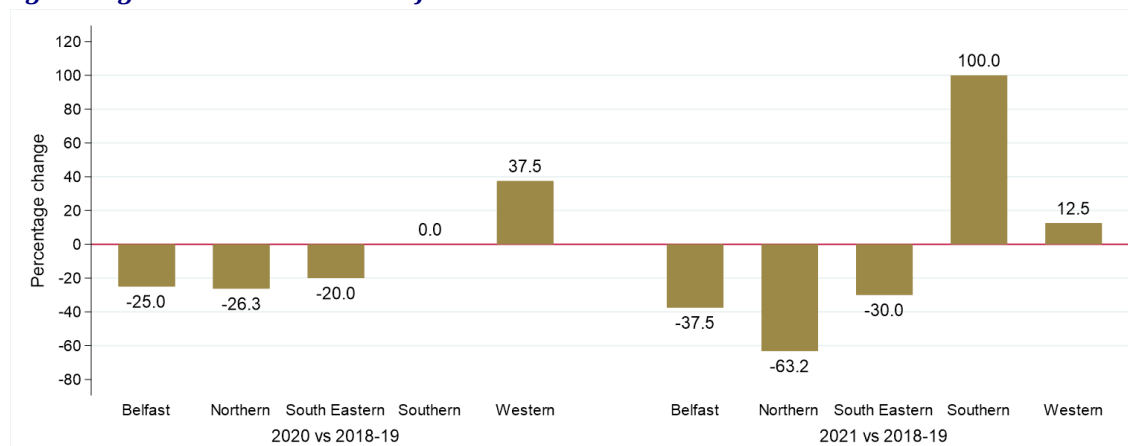
Note: Cases with unknown Health and Social Care Trust are included in totals.

**Figure 3: Number of testicular 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 testicular cancer diagnosed among those resident in the least deprived quintile decreased by 63.6% from 11 per year in 2018-2019 to 4 in 2021. Between the same two time periods the number of cases of testicular cancer diagnosed among those resident in the most deprived quintile decreased by 33.3% from 9 per year in 2018-2019 to 6 in 2021. The change in case distribution by deprivation quintile between 2018-2019 and 2021 was not statistically significant.

**Table 4: Number and proportion of testicular cancer cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis**

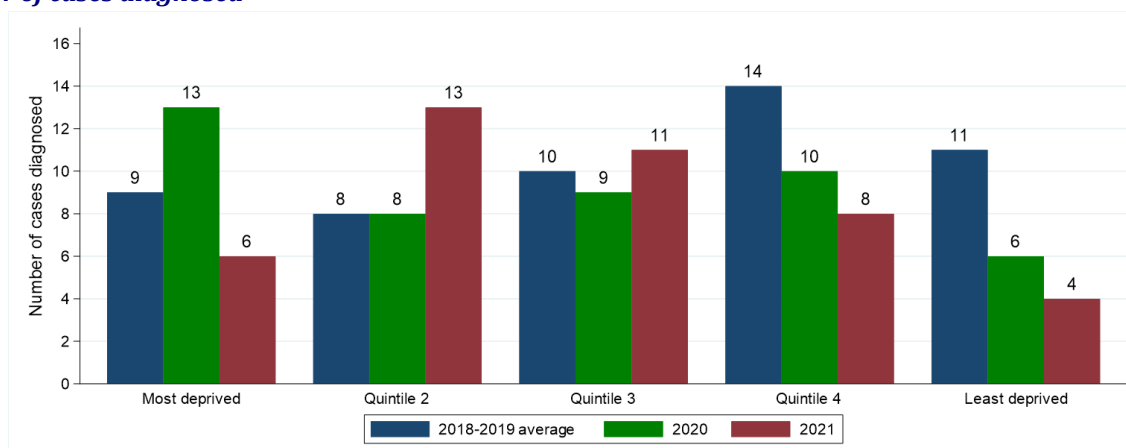
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Northern Ireland</b>	51	46	42	-9.8%	-17.6%
<b>Most deprived</b>	9 (17.6%)	13 (28.3%)	6 (14.3%)	+44.4%	-33.3%
<b>Quintile 2</b>	8 (15.7%)	8 (17.4%)	13 (31.0%)	0.0%	+62.5%
<b>Quintile 3</b>	10 (19.6%)	9 (19.6%)	11 (26.2%)	-10.0%	+10.0%
<b>Quintile 4</b>	14 (27.5%)	10 (21.7%)	8 (19.0%)	-28.6%	-42.9%
<b>Least deprived</b>	11 (21.6%)	6 (13.0%)	4 (9.5%)	-45.5%	-63.6%

\* 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 4: Number of testicular 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 testicular cancer cases diagnosed at stage I in April to December of each year decreased by 24.4% from 41 per year in 2018-2019 to 31 in 2021. In addition the number of testicular cancer cases diagnosed at stage III/IV increased by 25.0% from 4 per year in 2018-2019 to 5 in 2021. As a proportion of all cases, stage III/IV diagnosis increased from 7.8% in 2018-2019 to 11.9% in 2021. The change in stage distribution between 2018-2019 and 2021 was not statistically significant.

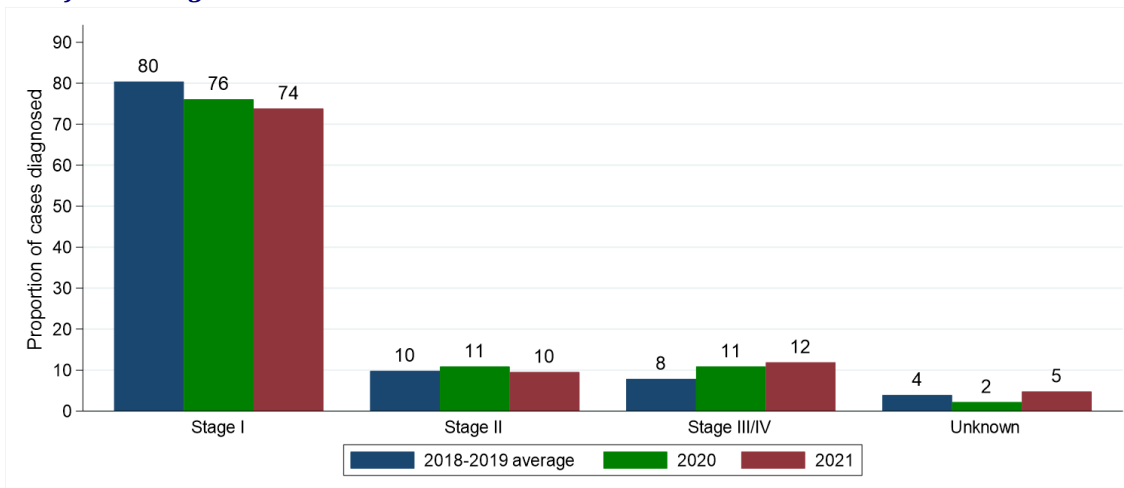
**Table 5: Number and proportion of testicular cancer cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis**

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	51	46	42	-9.8%	-17.6%
Stage I	41 (80.4%)	35 (76.1%)	31 (73.8%)	-14.6%	-24.4%
Stage II	5 (9.8%)	5 (10.9%)	4 (9.5%)	0.0%	-20.0%
Stage III/IV	4 (7.8%)	5 (10.9%)	5 (11.9%)	+25.0%	+25.0%
Unknown	2 (3.9%)	1 (2.2%)	2 (4.8%)	-50.0%	0.0%

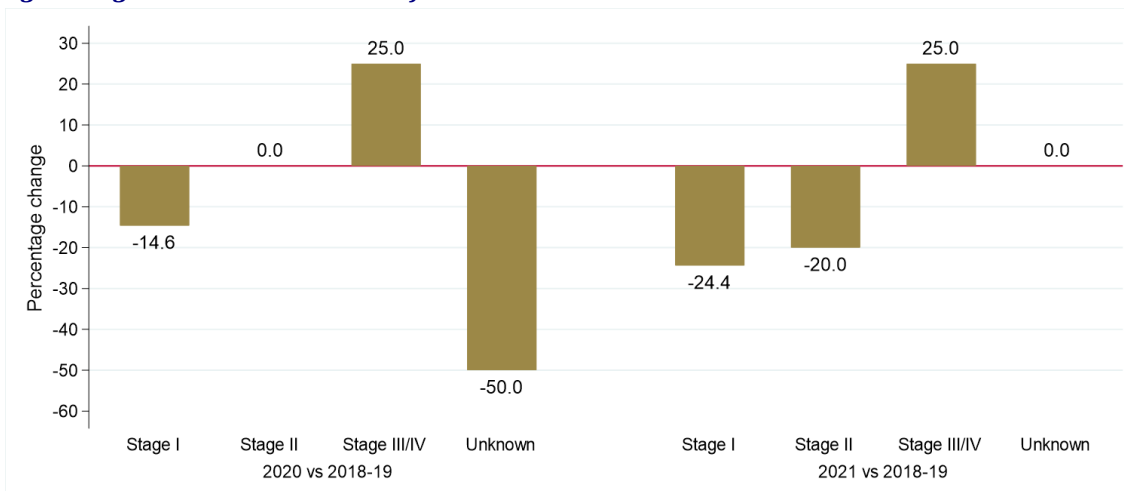
\* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

**Figure 5: Proportion of testicular 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 testicular cancer cases resulting in treatment by surgery within six months decreased by 18.2% from 44 per year in 2018-2019 to 36 in 2021. The resulting decrease in the proportion receiving surgery from 86.3% in 2018-2019 to 85.7% in 2021 was not statistically significant.

Between the same two time periods the number of testicular cancer cases resulting in treatment by systemic therapy decreased by 12.9% from 31 per year in 2018-2019 to 27 in 2021. The resulting increase in the proportion receiving systemic therapy from 60.8% in 2018-2019 to 64.3% in 2021 was not statistically significant.

Excluding the first quarter of each year the number of testicular cancer cases receiving none of these treatments within six months of diagnosis decreased by 33.3% from 3 per year in 2018-2019 to 2 in 2021. The resulting decrease in the proportion receiving none of these treatments from 5.9% in 2018-2019 to 4.8% in 2021 was not statistically significant.

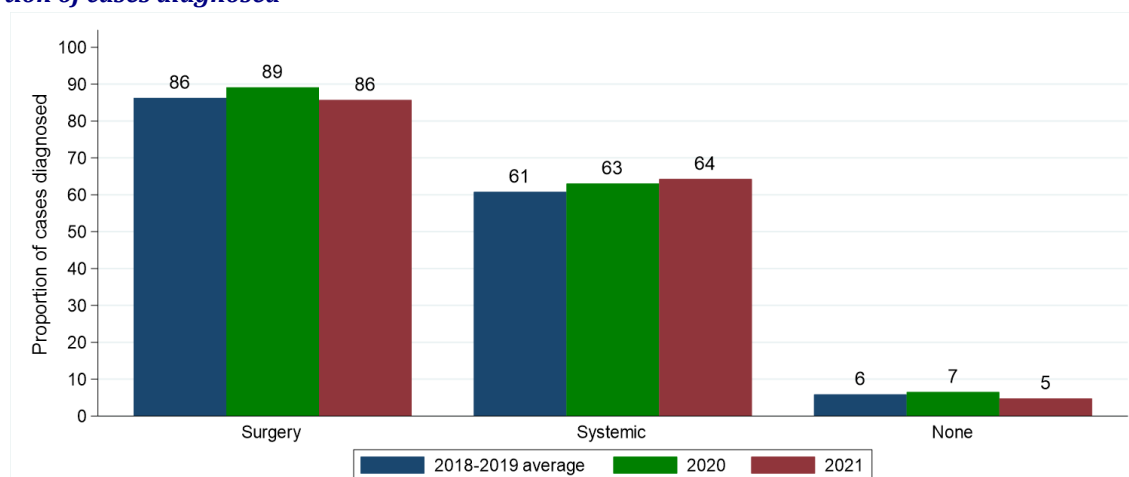
**Table 6: Number and proportion of testicular cancer cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis**

Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
<b>Surgery</b>	44 (86.3%)	41 (89.1%)	36 (85.7%)	-6.8%	-18.2%
<b>Systemic therapy</b>	31 (60.8%)	29 (63.0%)	27 (64.3%)	-6.5%	-12.9%
<b>None of these treatments</b>	3 (5.9%)	3 (6.5%)	2 (4.8%)	-	-

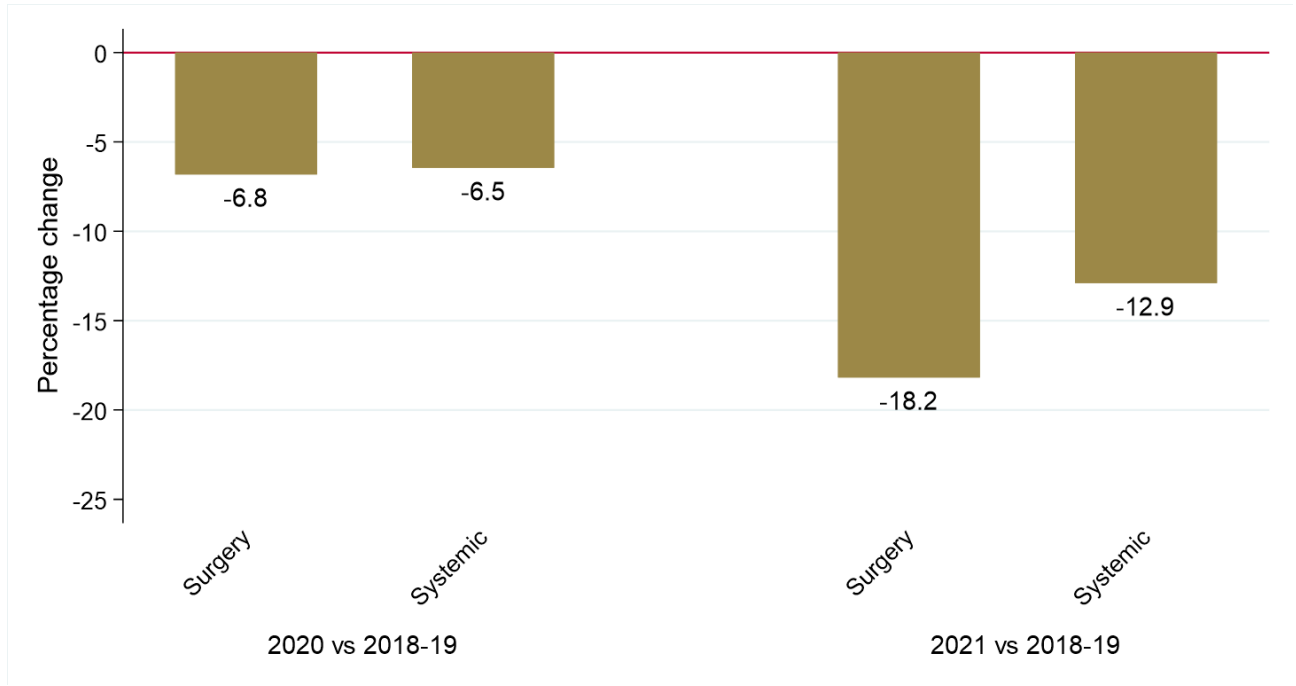
*No statistically significant change compared to 2018-2019*

**Figure 6: Proportion of testicular 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

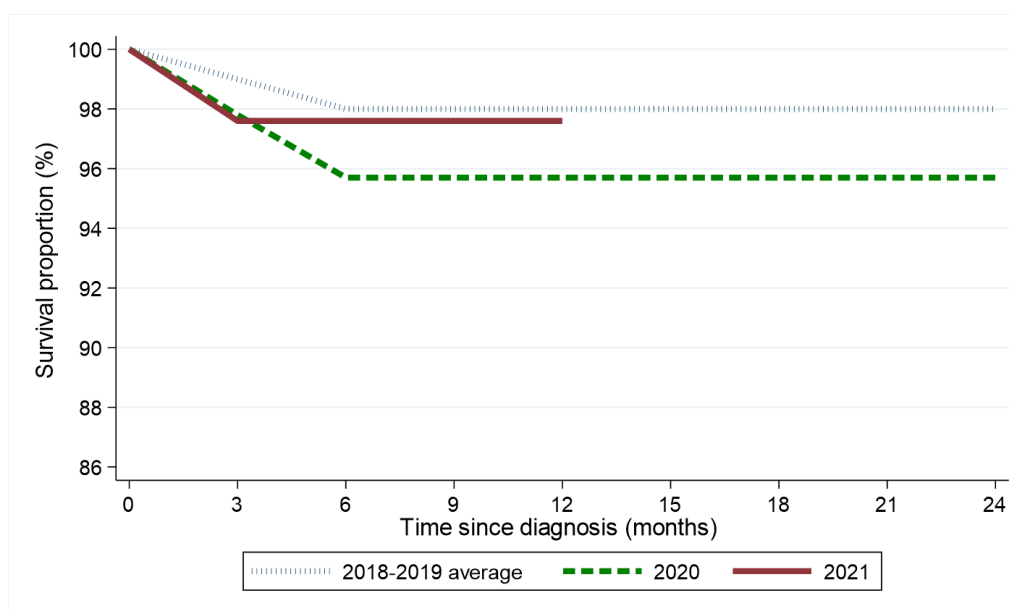
Survival among testicular cancer patients six months after diagnosis decreased from 98.0% among those diagnosed in April-December of 2018-2019 to 97.6% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival decreased from 98.0% to 97.6%. 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 ( $p=0.892$ ).

**Table 7: Observed survival for patients with testicular 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	99.0% (93.0% - 99.9%)	97.8% (85.6% - 99.7%)	97.6% (84.3% - 99.7%)
Six months	98.0% (92.2% - 99.5%)	95.7% (83.7% - 98.9%)	97.6% (84.3% - 99.7%)
One year	98.0% (92.2% - 99.5%)	95.7% (83.7% - 98.9%)	97.6% (84.3% - 99.7%)
Two years	98.0% (92.2% - 99.5%)	95.7% (83.7% - 98.9%)	-

*No statistically significant reductions compared to 2018-2019*

**Figure 7: Observed survival for patients with testicular cancer diagnosed in April-December of 2018-2021 by period of diagnosis**



## DEATHS FROM COVID-19

During 2021 there were no deaths from Covid-19 among testicular cancer patients diagnosed at any point since 1993.

## NET SURVIVAL

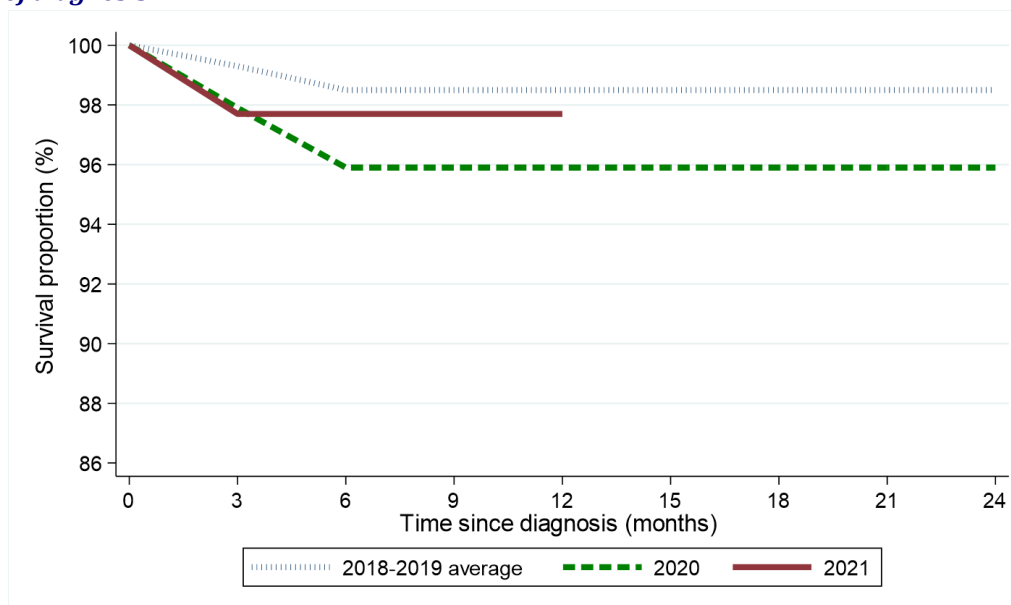
Net survival among testicular cancer patients six months after diagnosis decreased from 98.5% among those diagnosed in April-December of 2018-2019 to 97.7% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival decreased from 98.5% to 97.7%. This change was not statistically significant.

**Table 8: Age-standardised net survival for patients with testicular 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>	99.3% (97.9% - 100.0%)	97.9% (93.8% - 100.0%)	97.7% (93.2% - 100.0%)
<b>Six months</b>	98.5% (96.6% - 100.0%)	95.9% (90.2% - 100.0%)	97.7% (93.2% - 100.0%)
<b>One year</b>	98.5% (96.6% - 100.0%)	95.9% (90.2% - 100.0%)	97.7% (93.2% - 100.0%)
<b>Two years</b>	98.5% (96.6% - 100.0%)	95.9% (90.2% - 100.0%)	-

*No statistically significant reductions compared to 2018-2019*

**Figure 8: Age-standardised net survival for patients with testicular 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.*