
Recent trends in incidence, survival and mortality of non-Hodgkin's lymphoma in Northern Ireland

(A comparison between April-December of 2021, 2020 and 2018-2019)

Further information

Further information is available at: www.qub.ac.uk/research-centres/nicr

Phone: +44 (0)28 9097 6028 **e-mail:** nicr@qub.ac.uk

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INCIDENCE

During the April-December period the number of cases of non-Hodgkin's lymphoma diagnosed increased between 2018-2019 and 2021 by 16.0% from 263 cases per year to 305 cases.

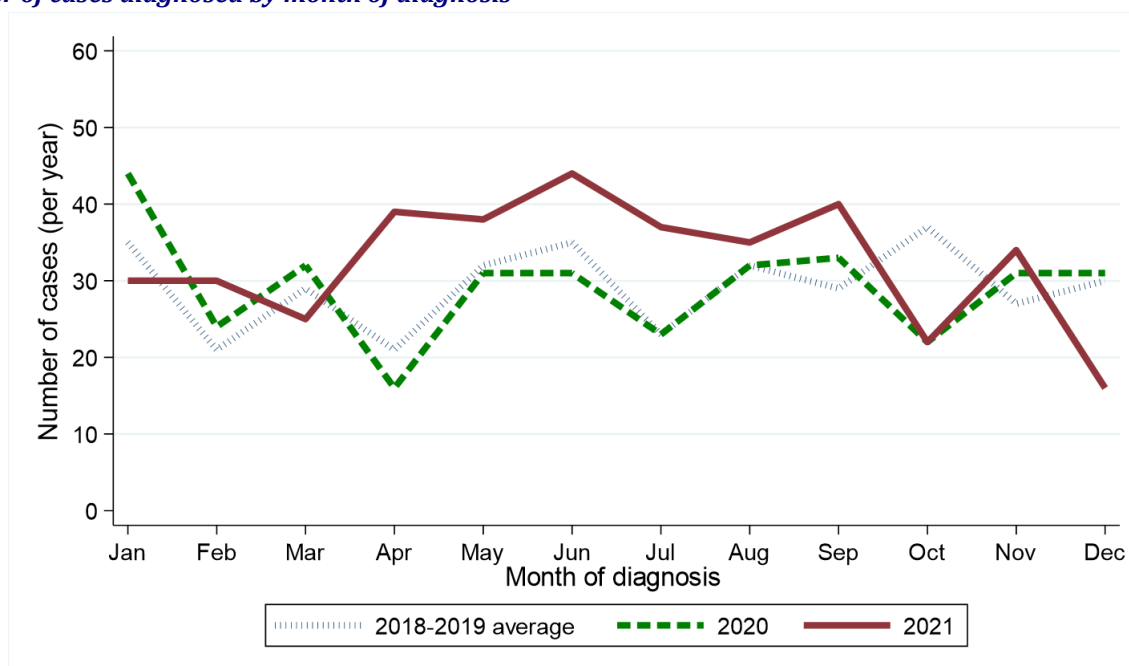
Table 1: Number of non-Hodgkin's lymphoma cases diagnosed in 2018-2021 by month and year of diagnosis

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	348	35	21	29	21	32	35	23	32	29	37	27	30
2020	350	44	24	32	16	31	31	23	32	33	22	31	31
2021	390	30	30	25	39	38	44	37	35	40	22	34	16

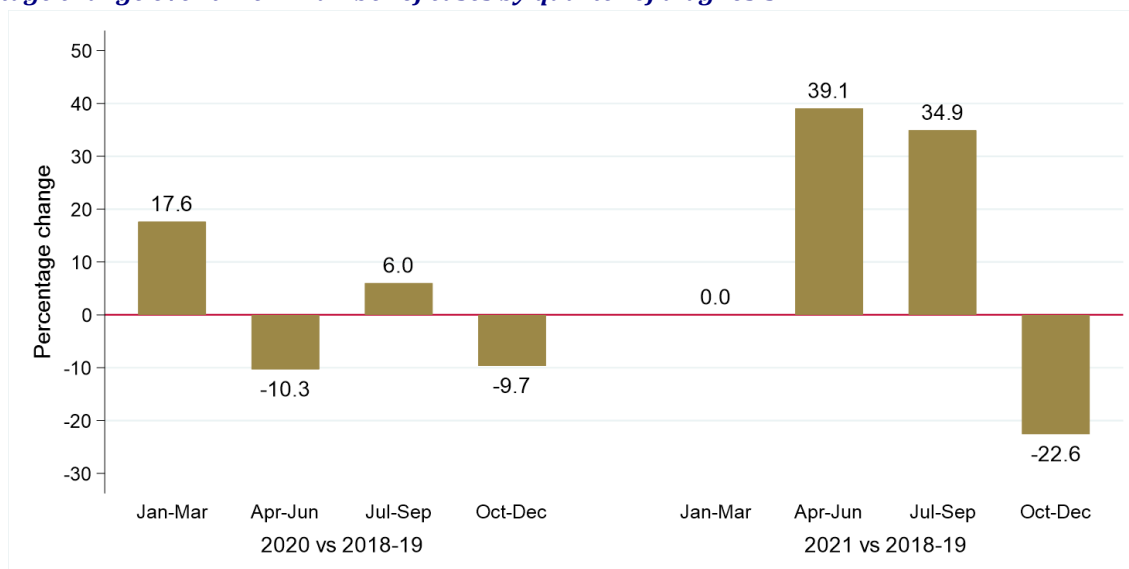
* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

Figure 1: Number of non-Hodgkin's lymphoma 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 non-Hodgkin's lymphoma cases diagnosed increased by 26.4% from 148 per year in 2018-2019 to 187 in 2021. Between the same two time periods the number of female non-Hodgkin's lymphoma cases diagnosed increased by 1.7% from 116 per year in 2018-2019 to 118 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

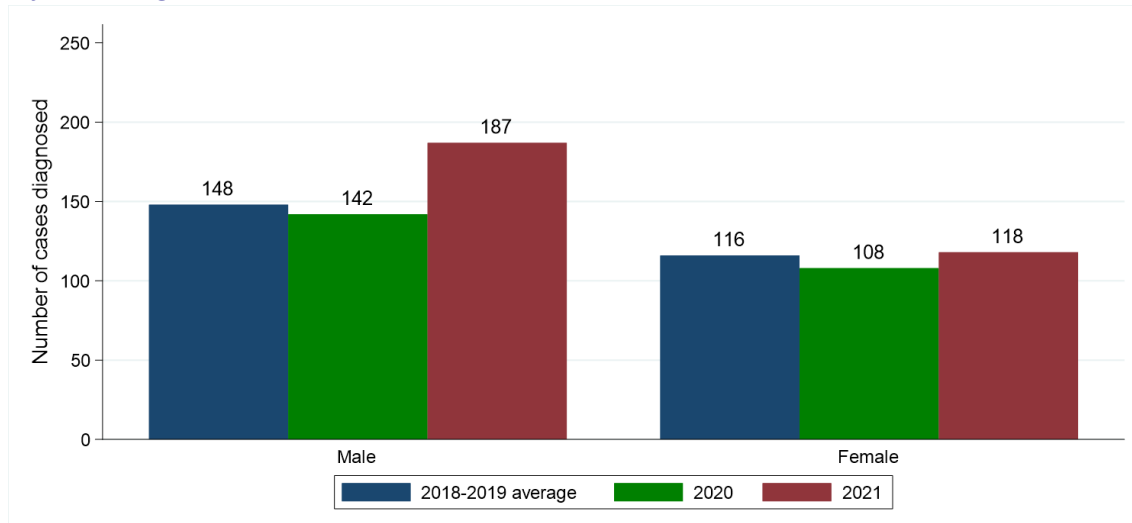
Table 2: Number and proportion of non-Hodgkin's lymphoma cases diagnosed in April-December of 2018-2021 by gender and period of diagnosis

Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All persons	263	250	305	-4.9%	+16.0%
Male	148 (56.3%)	142 (56.8%)	187 (61.3%)	-4.1%	+26.4%
Female	116 (44.1%)	108 (43.2%)	118 (38.7%)	-6.9%	+1.7%

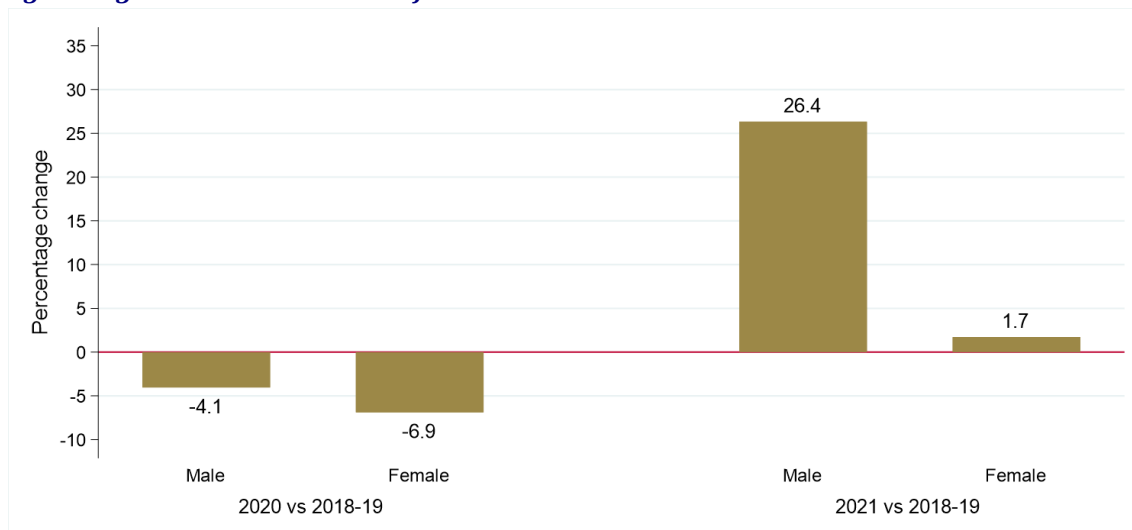
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 2: Number of non-Hodgkin's lymphoma 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 non-Hodgkin's lymphoma diagnosed among those aged 65 to 74 decreased by 12.0% from 83 per year in 2018-2019 to 73 in 2021. Between the same two time periods the number of cases of non-Hodgkin's lymphoma diagnosed among those aged 75 and over increased by 48.8% from 84 per year in 2018-2019 to 125 in 2021. The change in case distribution by age between 2018-2019 and 2021 was statistically significant ($p = 0.023$).

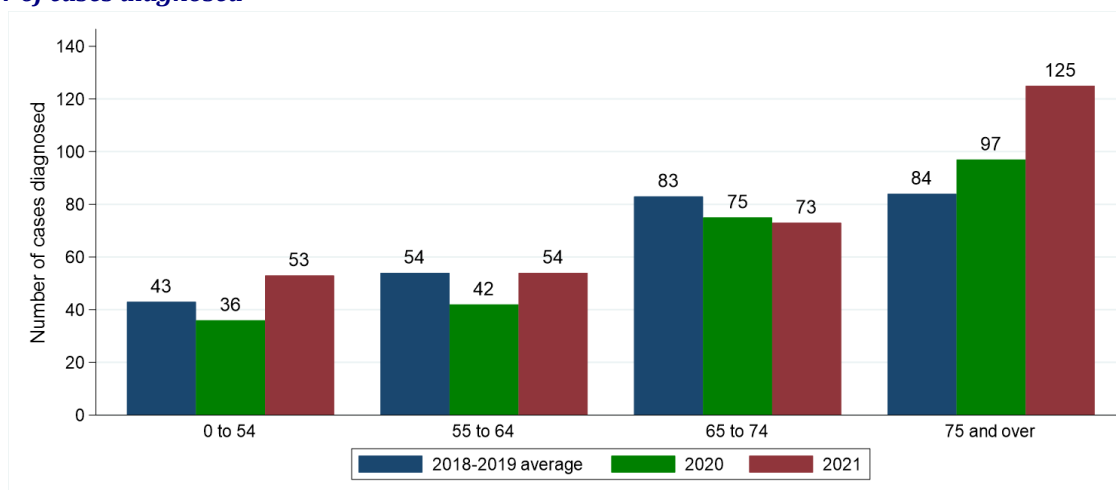
Table 3: Number and proportion of non-Hodgkin's lymphoma cases diagnosed in April-December of 2018-2021 by age and period of diagnosis

Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All ages	263	250	305	-4.9%	+16.0%
0 to 54	43 (16.3%)	36 (14.4%)	53 (17.4%)	-16.3%	+23.3%
55 to 64	54 (20.5%)	42 (16.8%)	54 (17.7%)	-22.2%	0.0%
65 to 74	83 (31.6%)	75 (30.0%)	73 (23.9%)	-9.6%	-12.0%
75 and over	84 (31.9%)	97 (38.8%)	125 (41.0%)	+15.5%	+48.8%

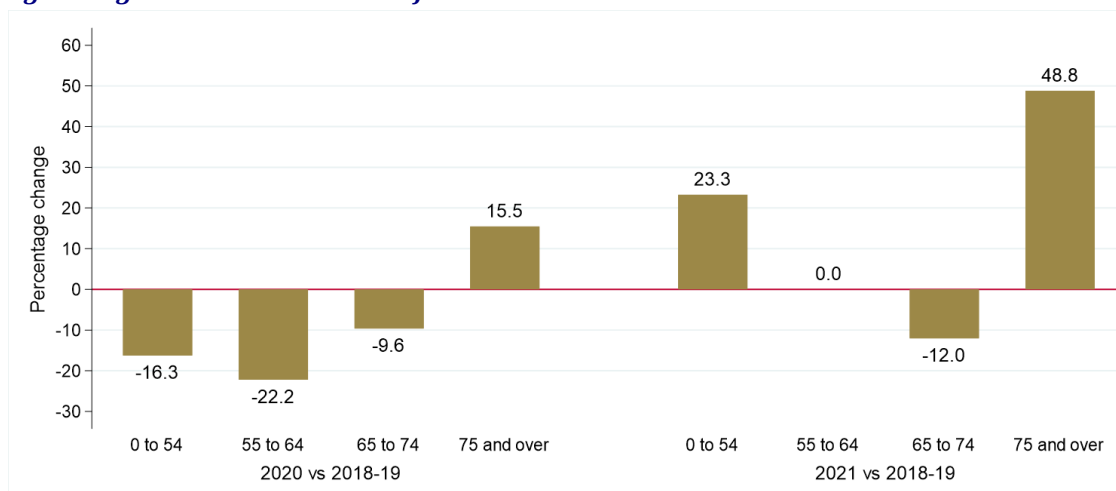
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 3: Number of non-Hodgkin's lymphoma 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 non-Hodgkin's lymphoma diagnosed among those resident in Western HSCT decreased by 7.1% from 42 per year in 2018-2019 to 39 in 2021. Between the same two time periods the number of cases of non-Hodgkin's lymphoma diagnosed among those resident in Southern HSCT increased by 32.0% from 50 per year in 2018-2019 to 66 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 non-Hodgkin's lymphoma cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

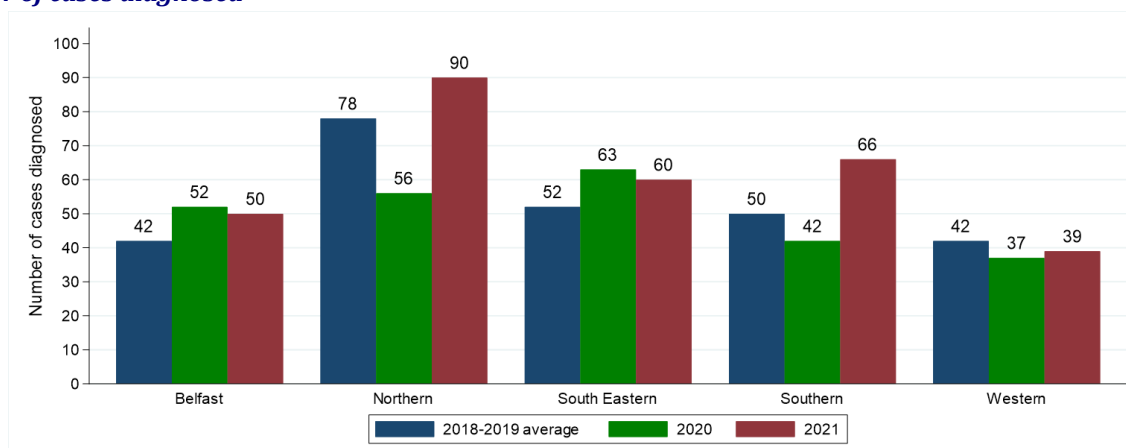
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	263	250	305	-4.9%	+16.0%
Belfast	42 (16.0%)	52 (20.8%)	50 (16.4%)	+23.8%	+19.0%
Northern	78 (29.7%)	56 (22.4%)	90 (29.5%)	-28.2%	+15.4%
South Eastern	52 (19.8%)	63 (25.2%)	60 (19.7%)	+21.2%	+15.4%
Southern	50 (19.0%)	42 (16.8%)	66 (21.6%)	-16.0%	+32.0%
Western	42 (16.0%)	37 (14.8%)	39 (12.8%)	-11.9%	-7.1%

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

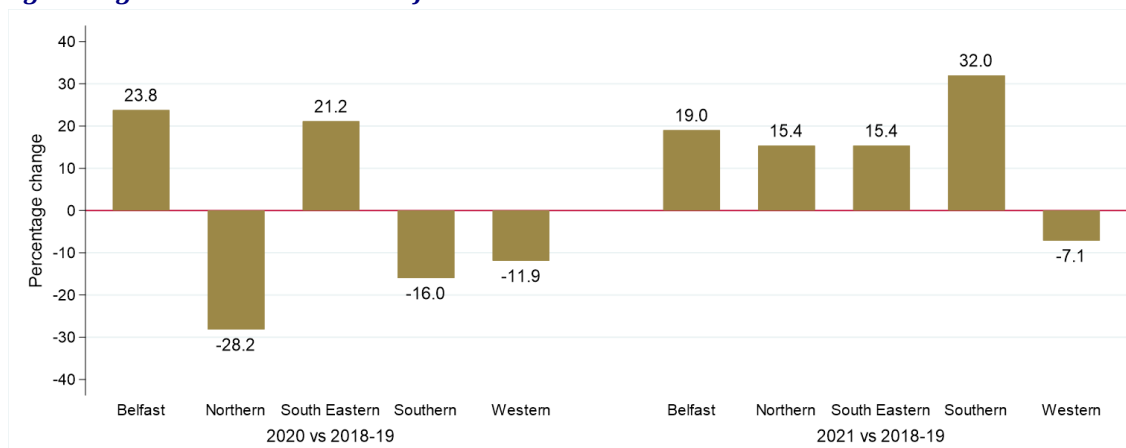
Note: Cases with unknown Health and Social Care Trust are included in totals.

Figure 4: Number of non-Hodgkin's lymphoma 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 non-Hodgkin's lymphoma diagnosed among those resident in the least deprived quintile increased by 10.0% from 60 per year in 2018-2019 to 66 in 2021. Between the same two time periods the number of cases of non-Hodgkin's lymphoma diagnosed among those resident in the most deprived quintile increased by 36.1% from 36 per year in 2018-2019 to 49 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 non-Hodgkin's lymphoma cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

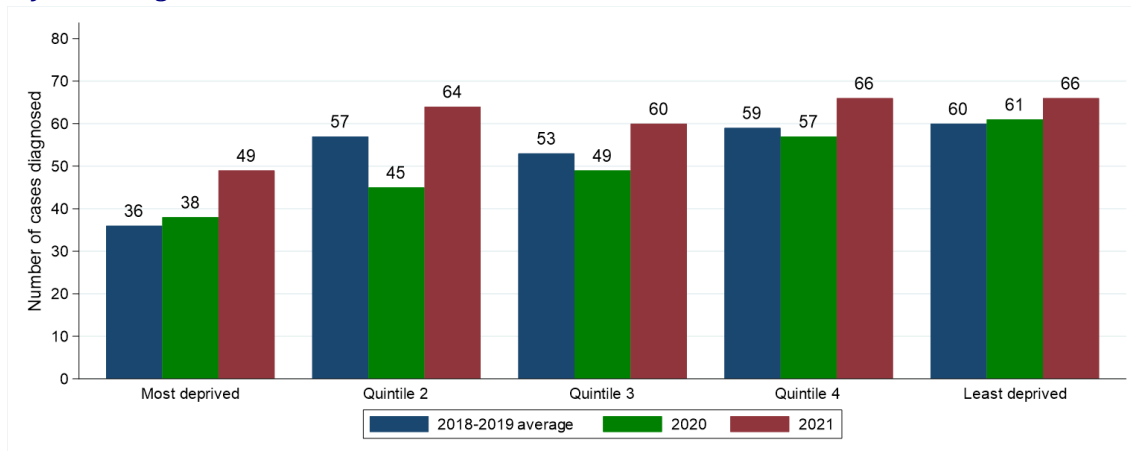
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	263	250	305	-4.9%	+16.0%
Most deprived	36 (13.7%)	38 (15.2%)	49 (16.1%)	+5.6%	+36.1%
Quintile 2	57 (21.7%)	45 (18.0%)	64 (21.0%)	-21.1%	+12.3%
Quintile 3	53 (20.2%)	49 (19.6%)	60 (19.7%)	-7.5%	+13.2%
Quintile 4	59 (22.4%)	57 (22.8%)	66 (21.6%)	-3.4%	+11.9%
Least deprived	60 (22.8%)	61 (24.4%)	66 (21.6%)	+1.7%	+10.0%

* 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 non-Hodgkin's lymphoma 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 non-Hodgkin's lymphoma cases diagnosed at stage I in April to December of each year increased by 10.5% from 38 per year in 2018-2019 to 42 in 2021. In addition the number of non-Hodgkin's lymphoma cases diagnosed at stage IV increased by 28.6% from 98 per year in 2018-2019 to 126 in 2021. As a proportion of all cases, stage IV diagnosis increased from 37.3% in 2018-2019 to 41.3% in 2021. The change in stage distribution diagnosed between 2018-2019 and 2021 was not statistically significant.

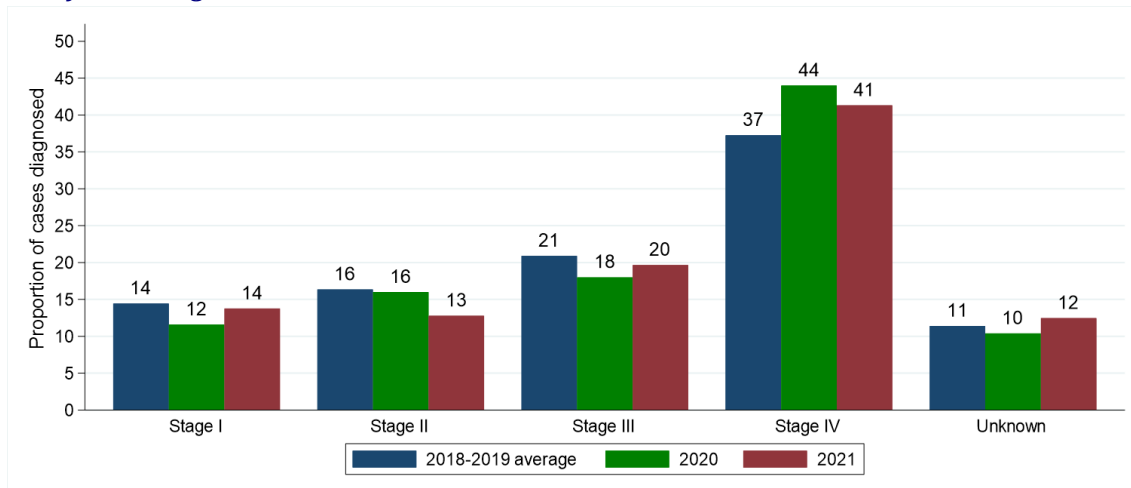
Table 6: Number and proportion of non-Hodgkin's lymphoma cases diagnosed in April-December of 2018-2021 by stage and period of diagnosis

Stage at diagnosis	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All stages	263	250	305	-4.9%	+16.0%
Stage I	38 (14.4%)	29 (11.6%)	42 (13.8%)	-23.7%	+10.5%
Stage II	43 (16.3%)	40 (16.0%)	39 (12.8%)	-7.0%	-9.3%
Stage III	55 (20.9%)	45 (18.0%)	60 (19.7%)	-18.2%	+9.1%
Stage IV	98 (37.3%)	110 (44.0%)	126 (41.3%)	+12.2%	+28.6%
Unknown	30 (11.4%)	26 (10.4%)	38 (12.5%)	-13.3%	+26.7%

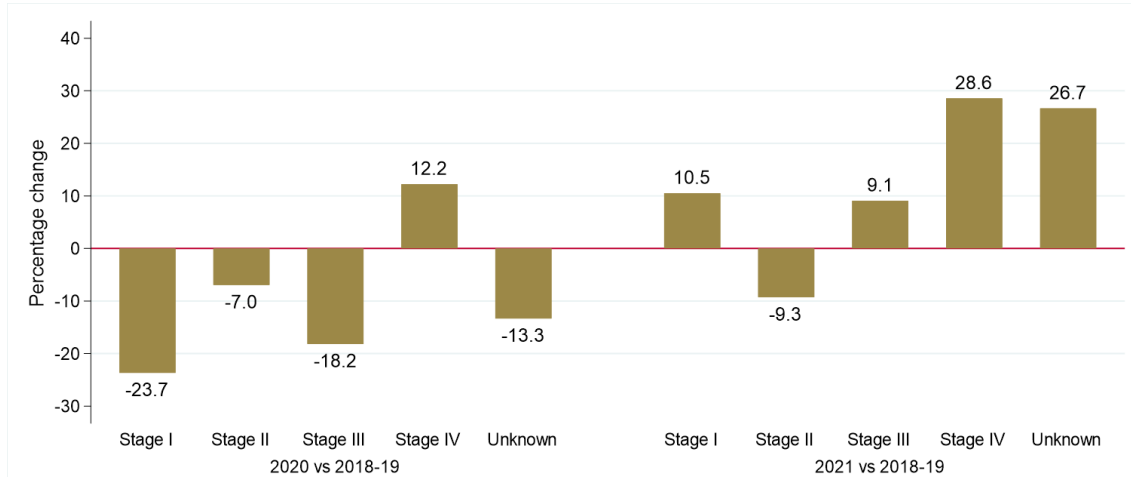
* Average cases per year rounded to the nearest integer. Column sums may thus differ slightly from the total.

Figure 6: Proportion of non-Hodgkin's lymphoma 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 non-Hodgkin's lymphoma cases resulting in treatment by systemic therapy within six months increased by 3.5% from 172 per year in 2018-2019 to 178 in 2021. The resulting decrease in the proportion receiving systemic therapy from 65.4% in 2018-2019 to 58.4% in 2021 was statistically significant ($p = 0.049$).

Between the same two time periods the number of non-Hodgkin's lymphoma cases resulting in treatment by radiotherapy increased by 41.9% from 31 per year in 2018-2019 to 44 in 2021. The resulting increase in the proportion receiving radiotherapy from 11.8% in 2018-2019 to 14.4% in 2021 was not statistically significant.

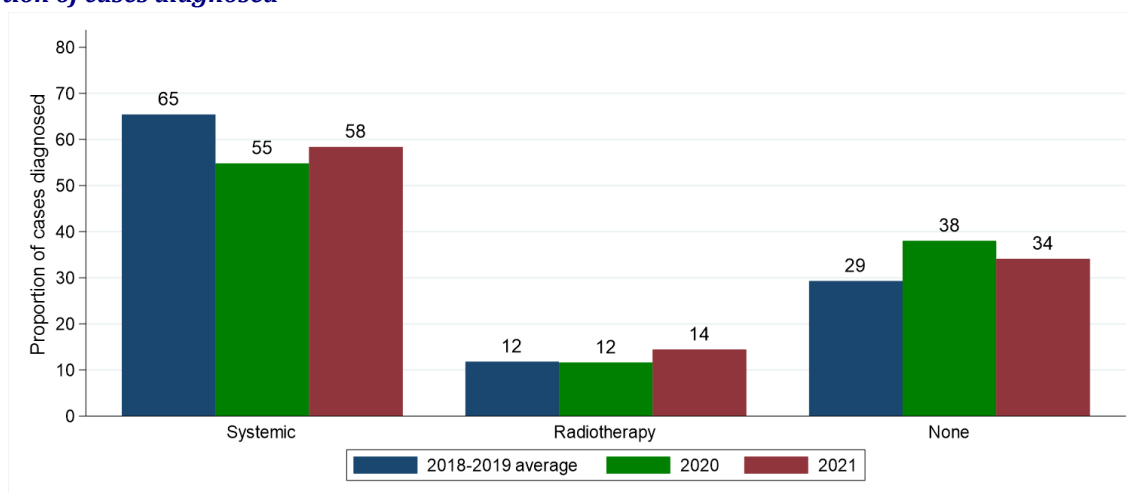
Excluding the first quarter of each year the number of non-Hodgkin's lymphoma cases receiving none of these treatments within six months of diagnosis increased by 35.1% from 77 per year in 2018-2019 to 104 in 2021. The resulting increase in the proportion receiving none of these treatments from 29.3% in 2018-2019 to 34.1% in 2021 was not statistically significant.

Table 7: Number and proportion of non-Hodgkin's lymphoma cases diagnosed in April-December of 2018-2021 by treatment type (within six months of diagnosis) and period of diagnosis

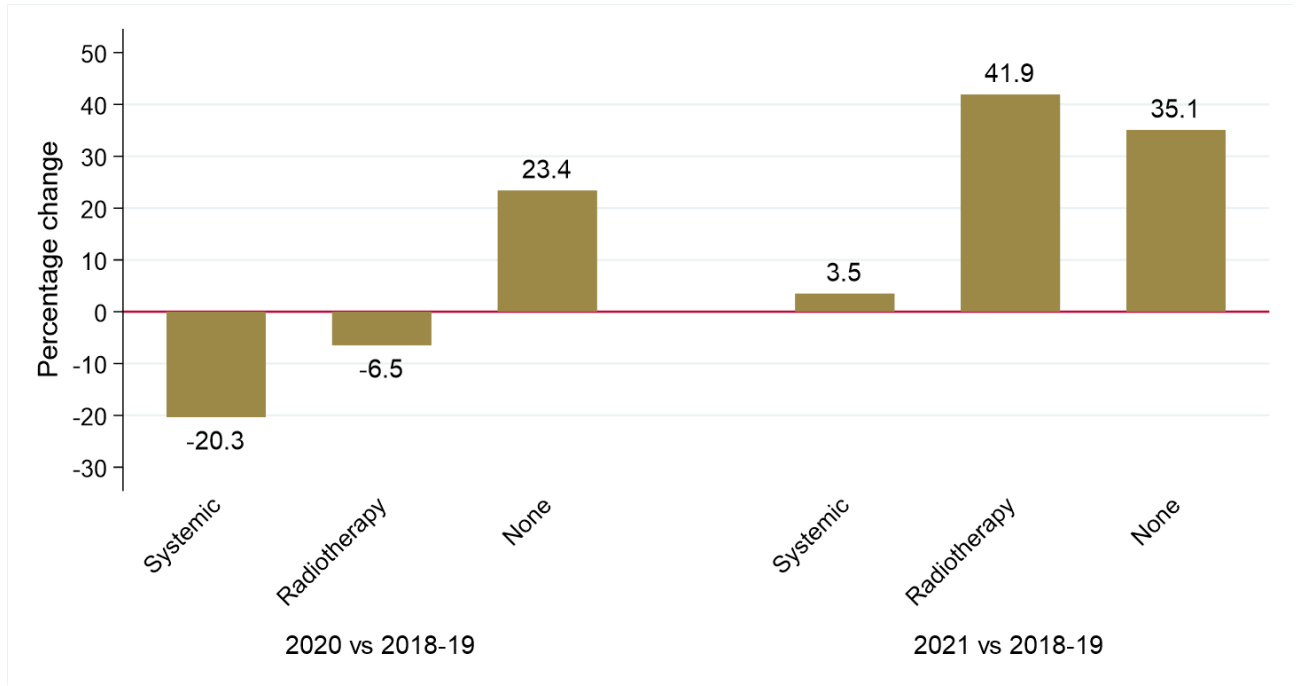
Treatment type	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Systemic therapy	172 (65.4%)	137 (54.8%)*	178 (58.4%)*	-20.3%	+3.5%
Radiotherapy	31 (11.8%)	29 (11.6%)	44 (14.4%)	-6.5%	+41.9%
None of these treatments	77 (29.3%)	95 (38.0%)*	104 (34.1%)	+23.4%	+35.1%

* Statistically significant change compared to 2018-2019

Figure 7: Proportion of non-Hodgkin's lymphoma 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

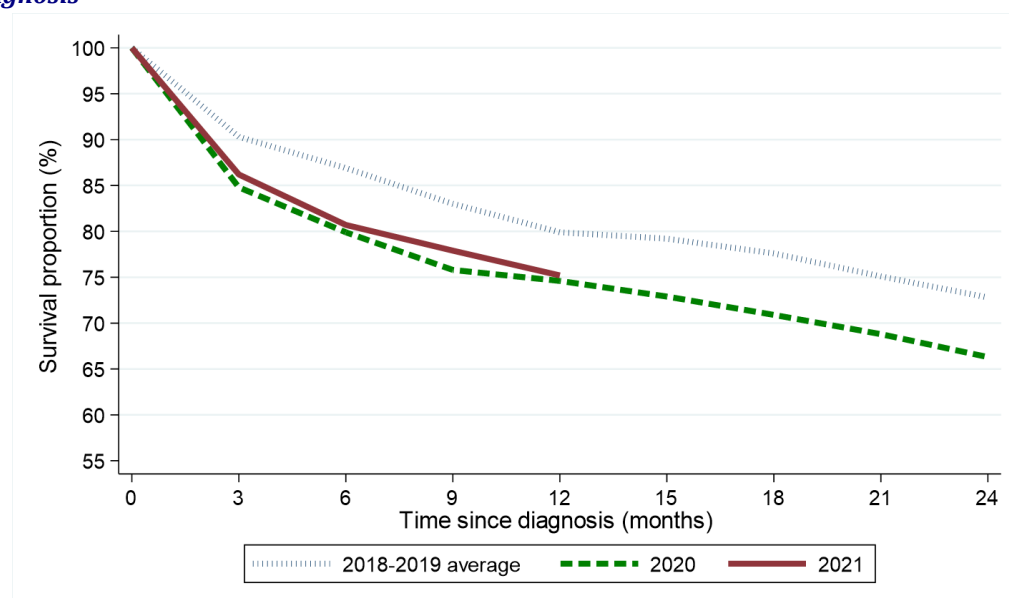
Survival among non-Hodgkin's lymphoma patients six months after diagnosis decreased from 86.9% among those diagnosed in April-December of 2018-2019 to 80.7% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival decreased from 79.9% to 75.2%. This change was not statistically significant. The log-rank test of equality indicates a statistically significant difference between the survival functions for 2018-2019 and 2021 ($p=0.036$).

Table 8: Observed survival for patients with non-Hodgkin's lymphoma diagnosed in April-December of 2018-2021 by period of diagnosis

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
Three months	90.3% (87.5% - 92.6%)	84.8% (79.7% - 88.8%)	86.2% (81.7% - 89.7%)
Six months	86.9% (83.7% - 89.5%)	79.9% (74.3% - 84.4%)	80.7% (75.7% - 84.8%)
One year	79.9% (76.2% - 83.1%)	74.6% (68.6% - 79.6%)	75.2% (69.8% - 79.7%)
Two years	72.8% (68.7% - 76.4%)	66.3% (60.0% - 71.9%)	-

No statistically significant reductions compared to 2018-2019

Figure 8: Observed survival for patients with non-Hodgkin's lymphoma diagnosed in April-December of 2018-2021 by period of diagnosis



DEATHS FROM COVID-19

During 2021 there were a total of 29 deaths from Covid-19 among non-Hodgkin's lymphoma patients diagnosed at any point since 1993. Among the patients who died of Covid-19, 5 were diagnosed with non-Hodgkin's lymphoma in 2021, 6 were diagnosed in 2020 and 18 were diagnosed in 1993-2019.

NET SURVIVAL

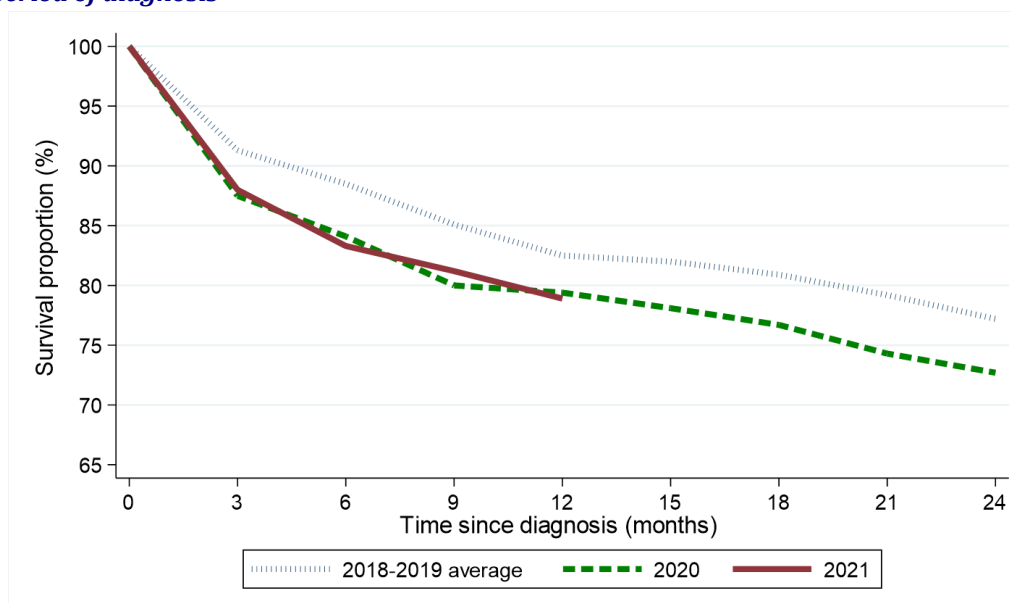
Net survival among non-Hodgkin's lymphoma patients six months after diagnosis decreased from 88.5% among those diagnosed in April-December of 2018-2019 to 83.3% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival decreased from 82.5% to 78.9%. This change was not statistically significant.

Table 9: Age-standardised net survival for patients with non-Hodgkin's lymphoma diagnosed in April-December of 2018-2021 by period of diagnosis

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
Three months	91.3% (88.8% - 93.8%)	87.5% (83.5% - 91.7%)	88.0% (84.3% - 91.9%)
Six months	88.5% (85.6% - 91.5%)	84.1% (79.6% - 88.8%)	83.3% (79.0% - 87.8%)
One year	82.5% (79.0% - 86.1%)	79.4% (74.3% - 84.9%)	78.9% (74.1% - 84.0%)
Two years	77.2% (73.2% - 81.4%)	72.7% (66.8% - 79.1%)	-

No statistically significant reductions compared to 2018-2019

Figure 9: Age-standardised net survival for patients with non-Hodgkin's lymphoma 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 non-Hodgkin's lymphoma increased between 2018-2019 and 2021 by 16.9% from 83 deaths per year to 97 deaths.

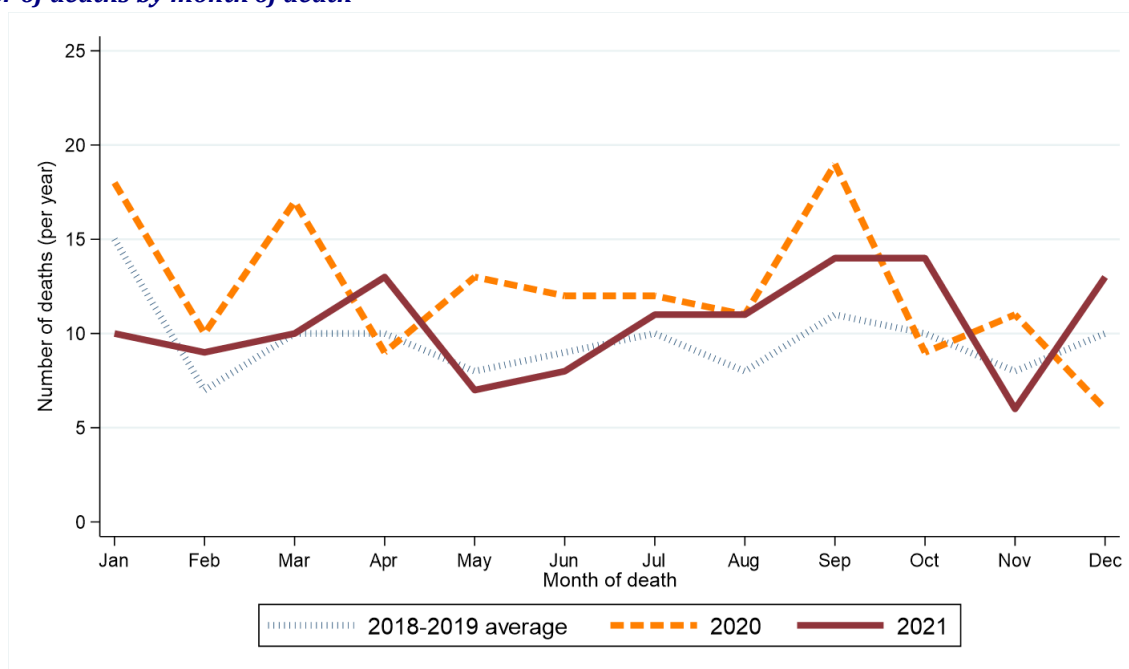
Table 10: Number of non-Hodgkin's lymphoma deaths in 2018-2021 by month and year of death

Period of death	Annual total	Month death occurred											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	114	15	7	10	10	8	9	10	8	11	10	8	10
2020	147	18	10	17	9	13	12	12	11	19	9	11	6
2021	126	10	9	10	13	7	8	11	11	14	14	6	13

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

Figure 10: Number of non-Hodgkin's lymphoma 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

