
Recent trends in incidence, survival and mortality of leukaemia 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 leukaemia diagnosed decreased between 2018-2019 and 2021 by 13.5% from 207 cases per year to 179 cases.

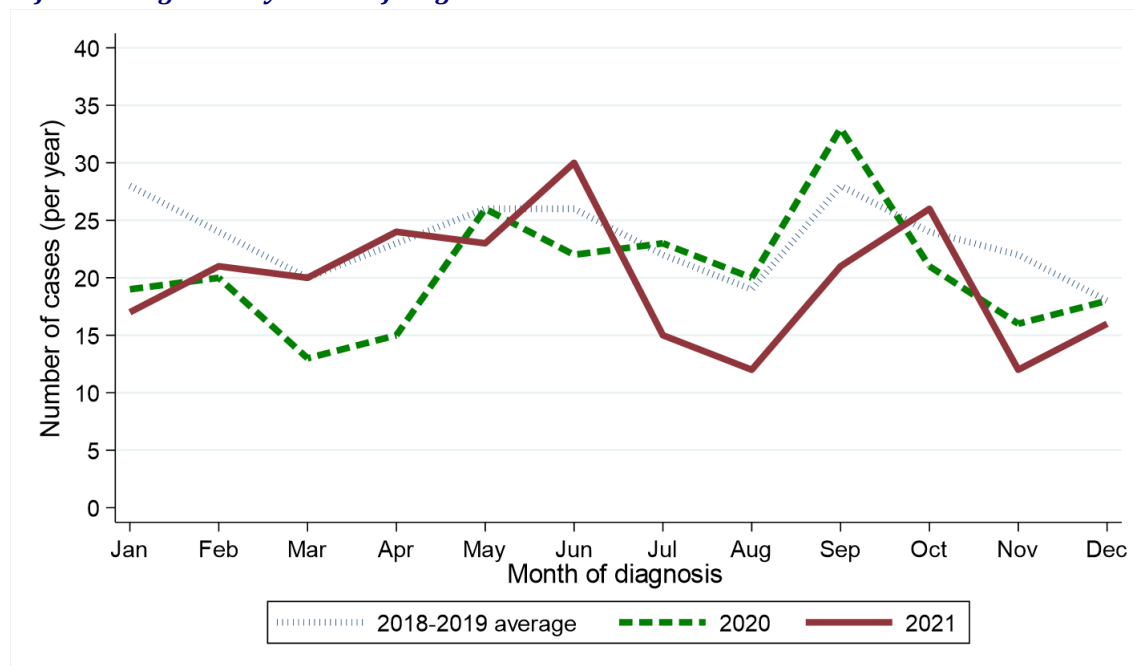
Table 1: Number of leukaemia cases diagnosed in 2018-2021 by month and year of diagnosis

Period of diagnosis	Annual total	Month diagnosed											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
2018-2019*	278	28	24	20	23	26	26	22	19	28	24	22	18
2020	246	19	20	13	15	26	22	23	20	33	21	16	18
2021	237	17	21	20	24	23	30	15	12	21	26	12	16

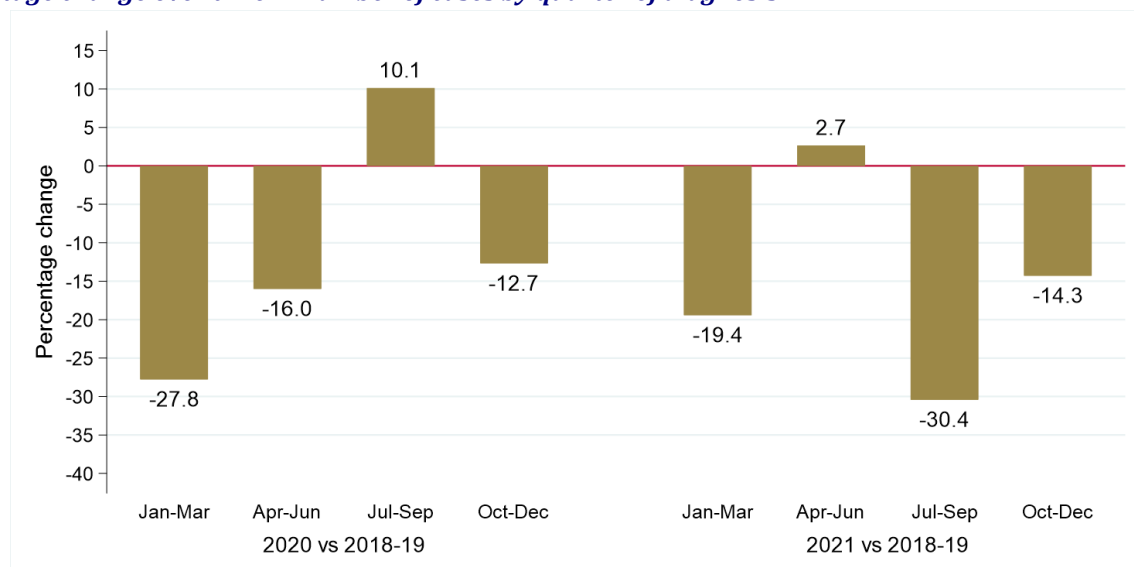
* Average cases per year rounded to the nearest integer. Row sums may thus differ slightly from the total.

Figure 1: Number of leukaemia 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

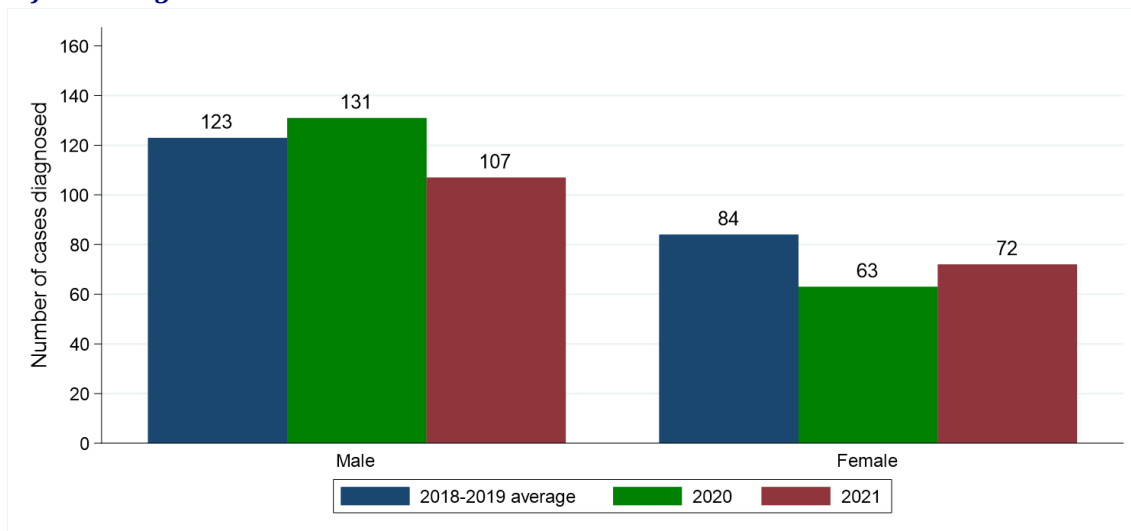
Excluding the first quarter of each year the number of male leukaemia cases diagnosed decreased by 13.0% from 123 per year in 2018-2019 to 107 in 2021. Between the same two time periods the number of female leukaemia cases diagnosed decreased by 14.3% from 84 per year in 2018-2019 to 72 in 2021. The change in case distribution by gender between 2018-2019 and 2021 was not statistically significant.

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

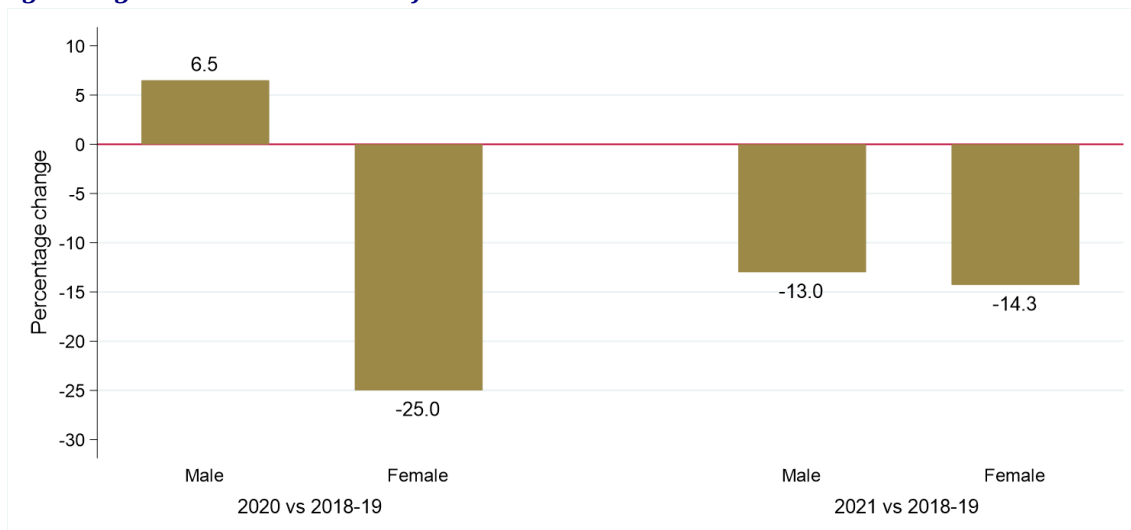
Gender	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All persons	207	194	179	-6.3%	-13.5%
Male	123 (59.4%)	131 (67.5%)	107 (59.8%)	+6.5%	-13.0%
Female	84 (40.6%)	63 (32.5%)	72 (40.2%)	-25.0%	-14.3%

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

Figure 2: Number of leukaemia 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

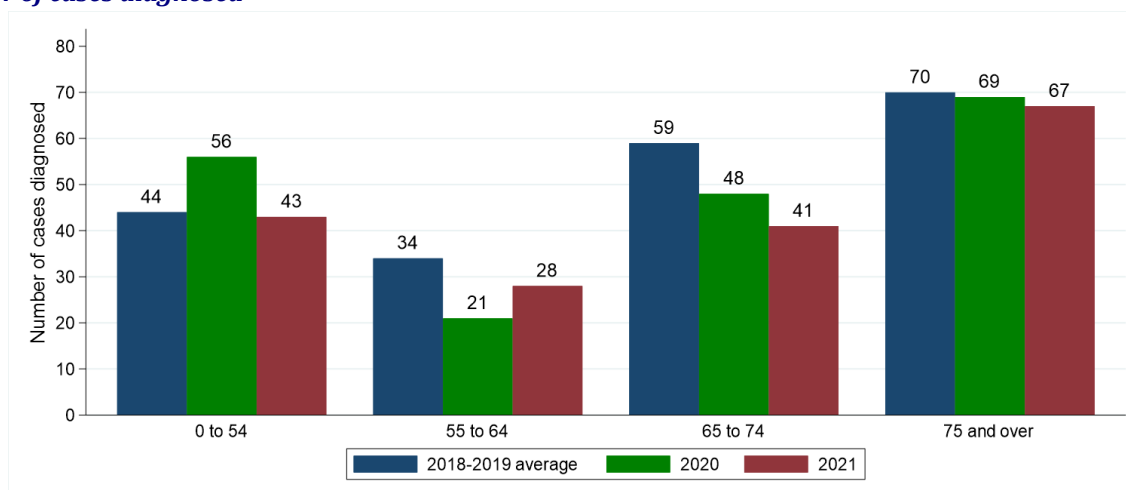
Excluding the first quarter of each year the number of cases of leukaemia diagnosed among those aged 65 to 74 decreased by 30.5% from 59 per year in 2018-2019 to 41 in 2021. Between the same two time periods the number of cases of leukaemia diagnosed among those aged 0 to 54 decreased by 2.3% from 44 per year in 2018-2019 to 43 in 2021. The change in case distribution by age between 2018-2019 and 2021 was not statistically significant.

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

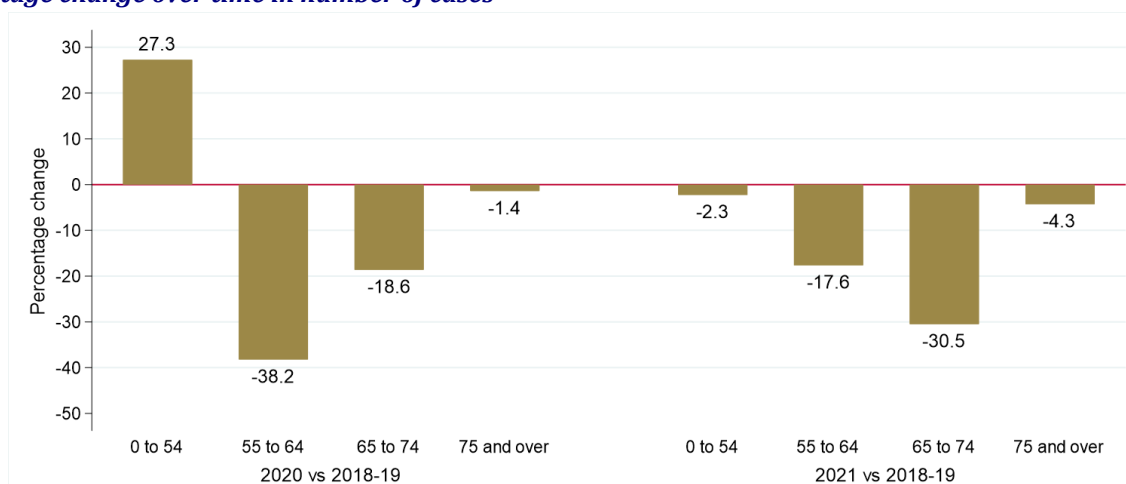
Age	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
All ages	207	194	179	-6.3%	-13.5%
0 to 54	44 (21.3%)	56 (28.9%)	43 (24.0%)	+27.3%	-2.3%
55 to 64	34 (16.4%)	21 (10.8%)	28 (15.6%)	-38.2%	-17.6%
65 to 74	59 (28.5%)	48 (24.7%)	41 (22.9%)	-18.6%	-30.5%
75 and over	70 (33.8%)	69 (35.6%)	67 (37.4%)	-1.4%	-4.3%

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

Figure 3: Number of leukaemia 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 leukaemia diagnosed among those resident in Northern HSCT decreased by 43.9% from 57 per year in 2018-2019 to 32 in 2021. Between the same two time periods the number of cases of leukaemia diagnosed among those resident in Western HSCT increased by 27.6% from 29 per year in 2018-2019 to 37 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 leukaemia cases diagnosed in April-December of 2018-2021 by Health and Social Care Trust and period of diagnosis

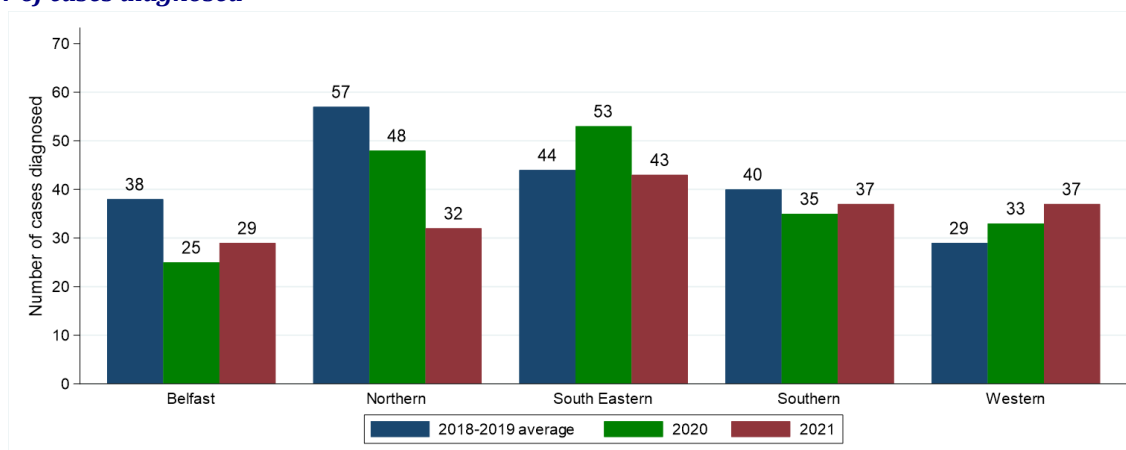
Health and Social Care Trust	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	207	194	179	-6.3%	-13.5%
Belfast	38 (18.4%)	25 (12.9%)	29 (16.2%)	-34.2%	-23.7%
Northern	57 (27.5%)	48 (24.7%)	32 (17.9%)	-15.8%	-43.9%
South Eastern	44 (21.3%)	53 (27.3%)	43 (24.0%)	+20.5%	-2.3%
Southern	40 (19.3%)	35 (18.0%)	37 (20.7%)	-12.5%	-7.5%
Western	29 (14.0%)	33 (17.0%)	37 (20.7%)	+13.8%	+27.6%

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

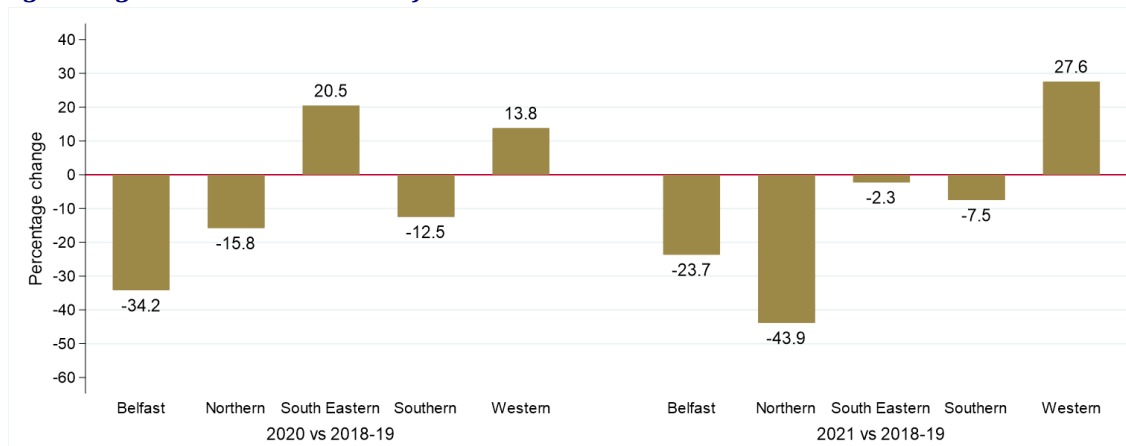
Note: Cases with unknown Health and Social Care Trust are included in totals.

Figure 4: Number of leukaemia 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 leukaemia diagnosed among those resident in the least deprived quintile decreased by 26.7% from 45 per year in 2018-2019 to 33 in 2021. Between the same two time periods the number of cases of leukaemia diagnosed among those resident in the most deprived quintile decreased by 18.8% from 32 per year in 2018-2019 to 26 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 leukaemia cases diagnosed in April-December of 2018-2021 by deprivation quintile and period of diagnosis

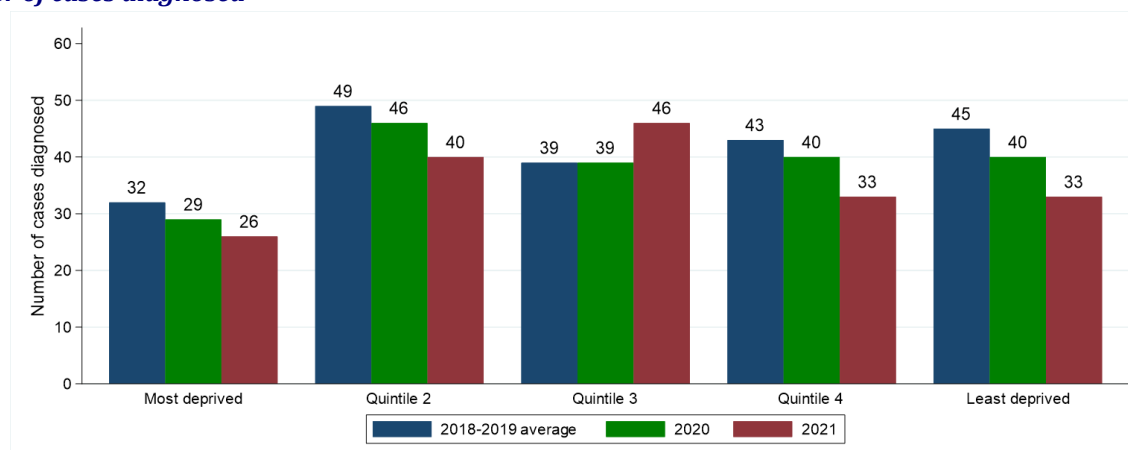
Deprivation quintile	Period of diagnosis (Apr-Dec)			Percentage change	
	2018-2019*	2020	2021	2020 vs 2018-2019	2021 vs 2018-2019
Northern Ireland	207	194	179	-6.3%	-13.5%
Most deprived	32 (15.5%)	29 (14.9%)	26 (14.5%)	-9.4%	-18.8%
Quintile 2	49 (23.7%)	46 (23.7%)	40 (22.3%)	-6.1%	-18.4%
Quintile 3	39 (18.8%)	39 (20.1%)	46 (25.7%)	0.0%	+17.9%
Quintile 4	43 (20.8%)	40 (20.6%)	33 (18.4%)	-7.0%	-23.3%
Least deprived	45 (21.7%)	40 (20.6%)	33 (18.4%)	-11.1%	-26.7%

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

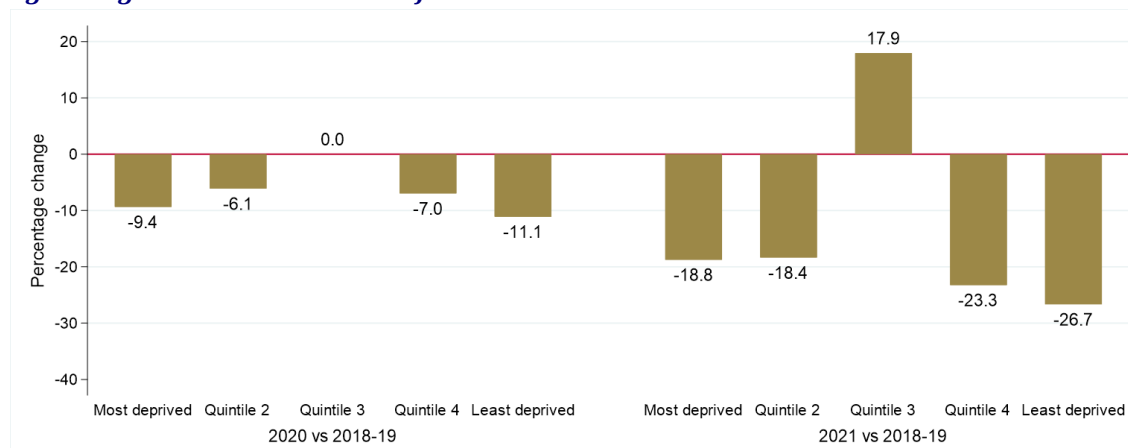
Note: Cases with unknown deprivation quintile are included in totals.

Figure 5: Number of leukaemia 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



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

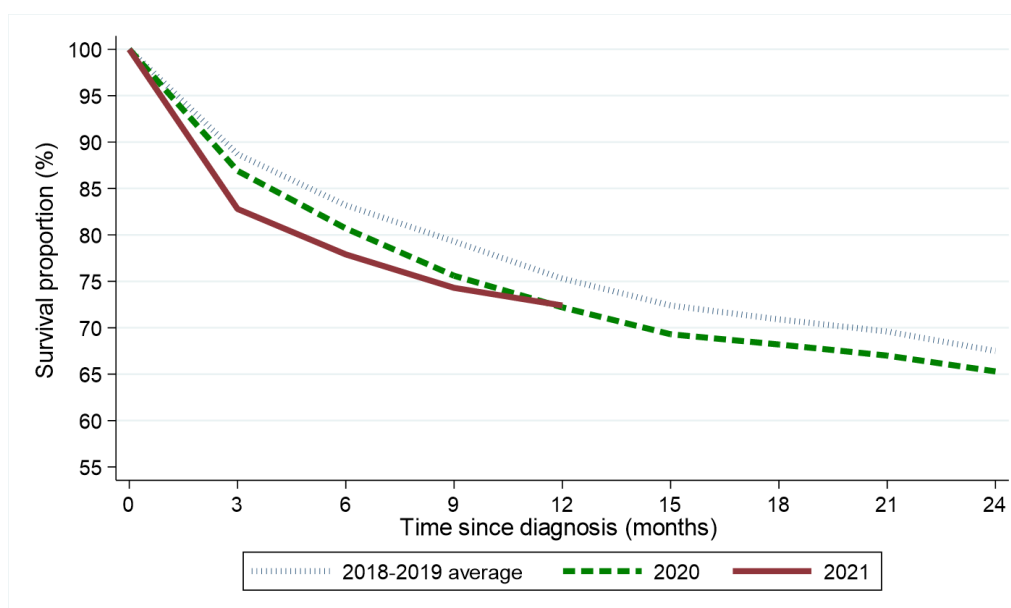
Survival among leukaemia patients six months after diagnosis decreased from 83.2% among those diagnosed in April-December of 2018-2019 to 77.9% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year survival decreased from 75.3% to 72.4%. 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 ($p=0.476$).

Table 6: Observed survival for patients with leukaemia diagnosed in April-December of 2018-2021 by period of diagnosis

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
Three months	88.7% (85.1% - 91.5%)	86.9% (81.0% - 91.1%)	82.8% (76.1% - 87.8%)
Six months	83.2% (79.1% - 86.6%)	80.7% (74.0% - 85.8%)	77.9% (70.8% - 83.6%)
One year	75.3% (70.7% - 79.3%)	72.2% (64.9% - 78.2%)	72.4% (64.9% - 78.6%)
Two years	67.5% (62.5% - 71.9%)	65.3% (57.8% - 71.9%)	-

No statistically significant reductions compared to 2018-2019

Figure 6: Observed survival for patients with leukaemia 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 leukaemia patients diagnosed at any point since 1993.

NET SURVIVAL

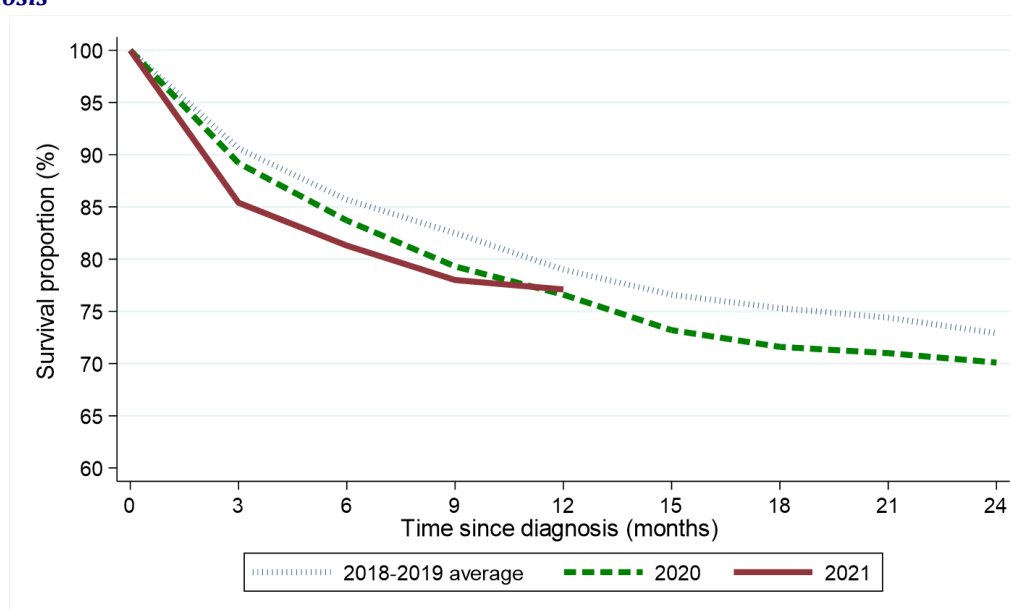
Net survival among leukaemia patients six months after diagnosis decreased from 85.7% among those diagnosed in April-December of 2018-2019 to 81.3% among those diagnosed in April-December of 2021. This change was not statistically significant. Between the same two diagnosis periods, one-year net survival decreased from 79.0% to 77.1%. This change was not statistically significant.

Table 7: Age-standardised net survival for patients with leukaemia diagnosed in April-December of 2018-2021 by period of diagnosis

Survival time	Period of diagnosis (Apr-Dec)		
	2018-2019	2020	2021
Three months	90.6% (87.6% - 93.7%)	89.2% (84.8% - 93.9%)	85.4% (80.2% - 90.9%)
Six months	85.7% (82.1% - 89.5%)	83.7% (78.2% - 89.6%)	81.3% (75.5% - 87.6%)
One year	79.0% (74.8% - 83.5%)	76.6% (70.3% - 83.5%)	77.1% (70.6% - 84.2%)
Two years	72.9% (68.1% - 78.1%)	70.1% (62.9% - 78.1%)	-

No statistically significant reductions compared to 2018-2019

Figure 7: Age-standardised net survival for patients with leukaemia 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 leukaemia decreased between 2018-2019 and 2021 by 2.4% from 83 deaths per year to 81 deaths.

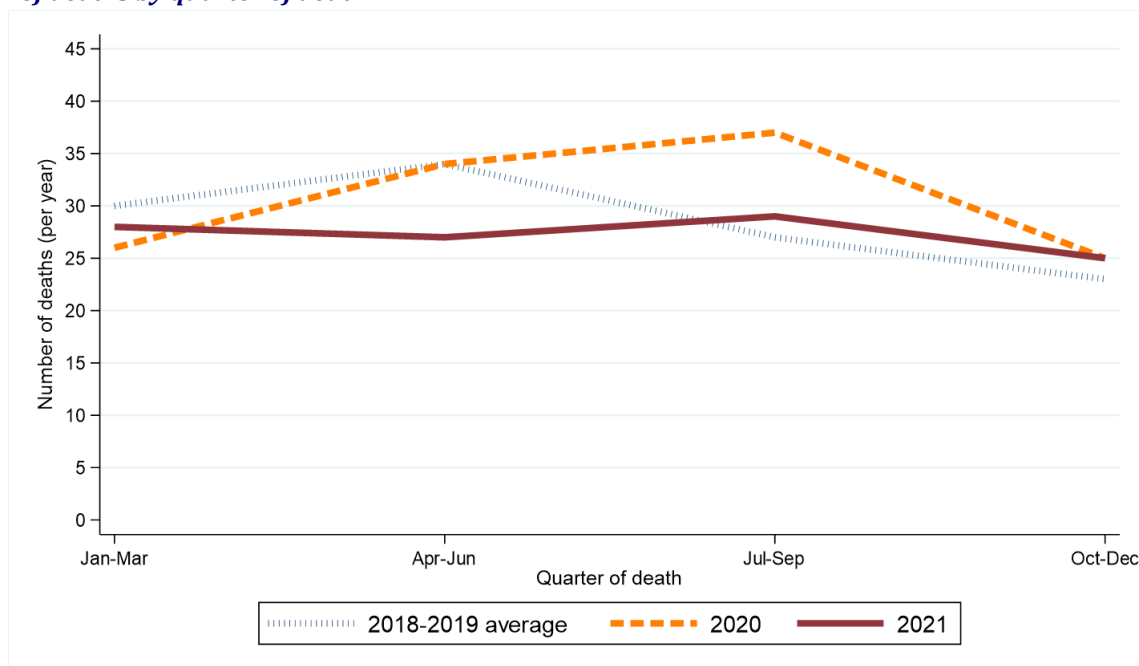
Table 8: Number of leukaemia deaths in 2018-2021 by quarter and year of death

Period of death	Annual total	Quarter of death			
		Jan-Mar	Apr-Jun	Jul-Sept	Oct-Dec
2018-2019*	113	30	34	27	23
2020	122	26	34	37	25
2021	109	28	27	29	25

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

Figure 8: Number of leukaemia 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

