

Supplementary analysis for patients starting treatment for haematological cancer

Patients waiting over 104 days from urgent suspected cancer referral to starting treatment for haematological cancer

There was no evidence of a significant relationship between gender and waiting over 104 days for diffuse large B-cell lymphoma (DLBCL), follicular lymphoma, Hodgkin lymphoma or myeloma (Tables 1, 7, 13 & 19). Those aged 19–49 were less likely to be long waiters compared to those aged 60–69 for Hodgkin lymphoma, as were those aged 50–59 in original analyses. Those aged 80+ were more likely to be long waiters in original analyses for DLBCL, while those aged 70–79 were consistently more likely to be long waiters for follicular lymphoma. There were no significant differences by age for myeloma. Patients in the most deprived quintile were more likely to be a long waiter compared to those in the least deprived quintile for Hodgkin lymphoma, but this was only seen for the original cohort. There was no evidence of a significant relationship between deprivation quintiles and waiting over 104 days for other sites. All sites had increases in the likelihood of being a long waiter with later year, the highest adjusted odds ratios for Q1 & Q2 2022/2023 compared to the baseline year were for DLBCL (2.68 for original analyses and 2.88 for Rapid Cancer Registration Dataset (RCRD) linked). There was a general pattern of decreased likelihood of being a long waiter at stages higher than 1 for all sites, although this was only significant at stage 4 for DLBCL, and stage 3 had the lowest likelihood of being a long waiter for follicular lymphoma. Those with a comorbidity score of 1 were significantly more likely to be long waiters compared to those with a score of 0 for DLBCL. There were no individual significant relationships between comorbidity score and being a long waiter for follicular lymphoma, Hodgkin lymphoma and myeloma.

The longest subinterval among those waiting over 104 days was from referral to informed of diagnosis for all sites (Tables 2, 8, 14 & 20), with short intervals from decision to treat (DTT) to treatment. In Q1 & Q2 2022/2023, DLBCL, follicular lymphoma and Hodgkin lymphoma had a median time from DTT to treatment of around 10 days. Myeloma had a median of 6.5 days from DTT to treatment for Q1 & Q2 2022/2023, with this interval decreasing from 14 days in 2017/2018. There was a wide range of median intervals from informed of diagnosis to DTT, with follicular lymphoma having the longest median in Q1 & Q2 2022/2023 at 43 days, myeloma at 28 days, 25 for Hodgkin lymphoma and 21 for DLBCL.

The most common reason for delay from referral to treatment among those waiting over 104 days was medical reason for diagnosis delay for all sites (Tables 3, 9, 15 & 21). Only a very small number of patients met the 28-day referral to informed of diagnosis standard for each site. The percentage who met the 31-day standard from DTT to treatment was high across all sites, ranging from 91.4% for follicular lymphoma to 100% for myeloma.

Patients waiting over 62 days from urgent suspected cancer referral to starting treatment for haematological cancer

The associations between characteristic and waiting over 62 days were very similar to those seen for waiting over 104 days (Tables 4, 10, 16 & 22), with the exception of those with a comorbidity score of 3+ being significantly more likely to wait over 62 days for DLBCL and no consistent age associations for

follicular lymphoma. The general interval findings were also similar to patients waiting over 104 days (Tables 5, 11, 17, & 23), although the median intervals from referral to informed of diagnosis and informed of diagnosis to DTT were shorter. The median time from DTT to treatment was shorter for those waiting over 62 days compared to 104 days for follicular lymphoma but similar for DLBCL, Hodgkin lymphoma and myeloma. The delay findings were also similar (Tables 6, 12, 18 & 24), with slightly higher percentages meeting the 28 and 31-day standards.

Table 1: Regression analysis for likelihood of waiting over 104 days by characteristic for diffuse large B cell lymphoma. Results presented for both the original and Rapid Cancer Registration Dataset (RCRD) linked cohort. The results for the original cohort are presented unadjusted and adjusted and results for the RCRD linked cohort are presented unadjusted, with minimal adjustment to align with the original cohort analysis and with full adjustment

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Gender	Female	0.89 (0.71-1.1)	0.88 (0.7-1.09)	0.87 (0.69-1.11)	0.87 (0.69-1.1)	0.88 (0.69-1.11)
	Male (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
Age group	19-49	0.69 (0.42-1.15)	0.67 (0.4-1.11)	0.56 (0.31-0.99)	0.56 (0.31-0.99)	0.55 (0.31-0.99)
	50-59	0.92 (0.62-1.36)	0.87 (0.58-1.3)	0.89 (0.57-1.37)	0.84 (0.54-1.3)	0.83 (0.53-1.29)
	60-69 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	70-79	1.12 (0.83-1.5)	1.14 (0.84-1.54)	1.15 (0.83-1.59)	1.13 (0.81-1.57)	1.09 (0.78-1.51)
	80+	1.52 (1.12-2.06)*	1.58 (1.16-2.16)*	1.52 (1.09-2.12)	1.5 (1.07-2.11)	1.36 (0.96-1.92)
Deprivation quintile	1 - most deprived	1.23 (0.88-1.7)	1.32 (0.94-1.86)	0.91 (0.63-1.32)	0.97 (0.66-1.43)	0.94 (0.64-1.39)
	2	0.88 (0.63-1.23)	0.91 (0.64-1.28)	0.8 (0.56-1.16)	0.82 (0.56-1.19)	0.82 (0.56-1.19)
	3	0.72 (0.52-1.02)	0.74 (0.52-1.05)	0.71 (0.49-1.02)	0.73 (0.5-1.05)	0.72 (0.5-1.05)
	4	0.97 (0.71-1.32)	0.96 (0.7-1.33)	1.04 (0.75-1.43)	1.02 (0.73-1.41)	1 (0.72-1.4)
	5 - least deprived (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Financial year	Base year (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	2020/2021	1.29 (0.95-1.76)	1.31 (0.96-1.79)	1.32 (0.93-1.86)	1.34 (0.95-1.89)	1.28 (0.91-1.82)
	2021/2022	1.56 (1.16-2.11)*	1.57 (1.16-2.13)*	1.53 (1.09-2.15)	1.53 (1.09-2.15)	1.5 (1.07-2.12)
	Q1 & Q2 2022/2023	2.58 (1.87-3.56)*	2.68 (1.94-3.71)*	2.9 (2.04-4.11)*	2.95 (2.07-4.21)*	2.88 (2.01-4.11)*
Stage	1 (ref)			1 (ref)		1 (ref)
	2			0.61 (0.36-1.03)		0.63 (0.37-1.08)
	3			0.76 (0.46-1.25)		0.76 (0.46-1.25)
	4			0.53 (0.34-0.81)*		0.53 (0.34-0.82)*
	Not known			0.81 (0.57-1.16)		0.79 (0.54-1.15)
Comorbidity	0 (ref)			1 (ref)		1 (ref)
	1			1.82 (1.28-2.58)*		1.61 (1.12-2.32)*
	2			1.76 (1.12-2.77)		1.59 (1-2.53)
	3+			1.46 (0.84-2.51)		1.24 (0.71-2.18)

*significant at $p < 0.01$ level

Table 2: Median and interquartile range for the intervals in the diagnostic and treatment pathway for diffuse large B cell lymphoma patients who waited over 104 days from referral to treatment in each financial year of start of treatment

Interval	2017/2018 (Median and IQR)	2020/2021 (Median and IQR)	2021/2022 (Median and IQR)	Q1 & Q2 2022/2023 (Median and IQR)
Referral to first seen	11 (7 - 14)	8 (6 - 12)	10 (7 - 13)	11 (7 - 14)
First seen to informed of diagnosis	Data not available	87 (58 - 104)	78.5 (50.75 - 102)	76 (54 - 100.5)
Informed of diagnosis to decision to treat	Data not available	18 (7 - 38)	22.5 (10.75 - 44.25)	21 (8 - 36)
Decision to treat to treatment start	5 (1 - 12)	8 (2 - 14.25)	8 (1.5 - 15.5)	11 (3.25 - 16.75)
Referral to informed of diagnosis	Data not available	97 (68 - 112)	87 (61.5 - 108.25)	88 (68 - 112)
Referral to decision to treat	110.5 (103.25 - 133.75)	115 (103 - 137.25)	114 (100 - 132)	112.5 (101.75 - 130)
Referral to treatment start	118.5 (110.25 - 136)	124.5 (112 - 141.25)	124 (112 - 141)	122 (112.25 - 142.5)

Table 3: Breakdown of the reasons for delay in each financial year of start of treatment among diffuse large B cell lymphoma patients who waited over 104 days from referral to treatment, with delay overall between referral and treatment, from referral to informed of diagnosis or from decision to treat to treatment

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
Referral to treatment start	Healthcare provider-initiated delay	11 (14.1%)	11 (11.5%)	33 (30.8%)	20 (23.3%)
	Medical reason for diagnosis delay	47 (60.3%)	60 (62.5%)	58 (54.2%)	49 (57.0%)
	Medical reason for treatment delay	<5	<5	<5	<5
	Patient-initiated delay	<5	<10	<5	<5
	Other reason (not listed)	16 (20.5%)	18 (18.8%)	11 (10.3%)	15 (17.4%)
Referral to informed of diagnosis	Healthcare provider-initiated delay	Data not available	12 (15.6%)	25 (27.2%)	20 (29.0%)
	Medical reason for diagnosis delay	Data not available	38 (49.4%)	30 (32.6%)	28 (40.6%)
	Patient-initiated delay	Data not available	<5	<5	<5
	Other reason (not listed)	Data not available	16 (20.8%)	11 (12.0%)	11 (15.9%)
	No delay	Data not available	<5	<5	<5
	Unknown	Data not available	5 (6.5%)	23 (25.0%)	6 (8.7%)
Decision to treat to treatment start	Healthcare provider-initiated delay	<5	<5	<5	<5
	Medical reason for diagnosis delay	<5	<5	<5	<5

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
	Medical reason for treatment delay	<5	<5	<5	<5
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	<5	<5	<5
	No delay	75 (96.2%)	89 (92.7%)	105 (98.1%)	83 (96.5%)

Table 4: Regression analysis for likelihood of waiting over 62 days by characteristic for diffuse large B cell lymphoma. Results presented for both the original and RCRD linked cohort. The results for the original cohort are presented unadjusted and adjusted and results for the RCRD linked cohort are presented unadjusted, with minimal adjustment to align with the original cohort analysis and with full adjustment

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Gender	Female	0.91 (0.8-1.02)	0.9 (0.79-1.02)	0.96 (0.85-1.09)	0.97 (0.85-1.1)	0.97 (0.86-1.11)
	Male (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
Age group	19-49	0.72 (0.56-0.93)	0.7 (0.54-0.92)*	0.8 (0.62-1.03)	0.8 (0.61-1.04)	0.78 (0.59-1.01)
	50-59	1.05 (0.85-1.29)	1.01 (0.82-1.26)	1.01 (0.81-1.26)	0.97 (0.77-1.22)	0.97 (0.77-1.22)
	60-69 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	70-79	1.29 (1.1-1.51)*	1.29 (1.09-1.53)*	1.23 (1.04-1.46)	1.2 (1-1.44)	1.2 (1-1.44)
	80+	1.28 (1.08-1.53)*	1.32 (1.1-1.58)*	1.35 (1.13-1.62)*	1.35 (1.11-1.63)*	1.29 (1.06-1.57)
Deprivation quintile	1 - most deprived	1.08 (0.89-1.31)	1.15 (0.93-1.42)	1 (0.82-1.23)	1.07 (0.86-1.33)	1.06 (0.85-1.32)
	2	0.98 (0.82-1.18)	1.02 (0.84-1.24)	0.97 (0.8-1.18)	1.01 (0.82-1.24)	1.01 (0.82-1.25)
	3	0.92 (0.77-1.11)	0.94 (0.78-1.14)	0.91 (0.76-1.1)	0.93 (0.76-1.13)	0.93 (0.76-1.14)
	4	0.94 (0.79-1.12)	0.91 (0.75-1.09)	1 (0.84-1.2)	0.99 (0.82-1.2)	0.99 (0.82-1.2)
	5 - least deprived (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Financial year	Base year (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	2020/2021	1.23 (1.05-1.45)	1.23 (1.04-1.46)	1.08 (0.91-1.28)	1.07 (0.89-1.27)	1.05 (0.88-1.25)
	2021/2022	2.03 (1.73-2.38)*	2.08 (1.76-2.45)*	1.76 (1.49-2.08)*	1.8 (1.51-2.14)*	1.79 (1.5-2.14)*
	Q1 & Q2 2022/2023	2.49 (2.06-3.01)*	2.64 (2.17-3.22)*	2.18 (1.79-2.66)*	2.32 (1.89-2.85)*	2.29 (1.86-2.82)*
Stage	1 (ref)			1 (ref)		1 (ref)
	2			0.86 (0.66-1.14)		0.86 (0.64-1.15)
	3			0.72 (0.54-0.94)		0.68 (0.51-0.92)
	4			0.57 (0.45-0.72)*		0.54 (0.42-0.69)*
	Not known			0.78 (0.63-0.95)		0.73 (0.58-0.92)*
Comorbidity	0 (ref)			1 (ref)		1 (ref)
	1			1.21 (0.97-1.5)		1.1 (0.87-1.39)
	2			1.12 (0.84-1.48)		1.05 (0.78-1.42)
	3+			1.59 (1.17-2.16)*		1.58 (1.14-2.19)*

*significant at $p < 0.01$ level

Table 5: Median and interquartile range for the intervals in the diagnostic and treatment pathway for diffuse large B cell lymphoma patients who waited over 62 days from referral to treatment in each financial year of start of treatment

Interval	2017/2018 (Median and IQR)	2020/2021 (Median and IQR)	2021/2022 (Median and IQR)	Q1 & Q2 2022/2023 (Median and IQR)
Referral to first seen	10 (7 - 13)	9 (6 - 13)	10 (7 - 13)	11 (7.75 - 14)
First seen to informed of diagnosis	Data not available	52 (36 - 68)	49 (35 - 65.75)	50 (35 - 68)
Informed of diagnosis to decision to treat	Data not available	13.5 (0 - 28)	14 (1.5 - 28)	14 (1.75 - 27)
Decision to treat to treatment start	6 (2 - 12)	6 (2 - 11)	7 (2 - 14)	8 (3 - 15)
Referral to informed of diagnosis	Data not available	62.5 (49 - 77)	58 (46.5 - 76)	62 (47.75 - 80)
Referral to decision to treat	76 (64 - 90)	74 (63 - 91)	74 (64 - 91)	76 (64 - 97)
Referral to treatment start	83 (71 - 98)	81 (71 - 98)	83 (71 - 99)	85 (74 - 106.75)

Table 6: Breakdown of the reasons for delay in each financial year of start of treatment among diffuse large B cell lymphoma patients who waited over 62 days from referral to treatment, with delay overall between referral and treatment, from referral to informed of diagnosis or from decision to treat to treatment

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
Referral to treatment start	Healthcare provider-initiated delay	59 (15.8%)	83 (19.7%)	153 (28.0%)	90 (28.7%)
	Medical reason for diagnosis delay	211 (56.6%)	245 (58.2%)	288 (52.7%)	175 (55.7%)
	Medical reason for treatment delay	8 (2.1%)	<10	6 (1.1%)	<5
	Patient-initiated delay	12 (3.2%)	~15	15 (2.7%)	<10
	Other reason (not listed)	83 (22.3%)	71 (16.9%)	84 (15.4%)	41 (13.1%)
Referral to informed of diagnosis	Healthcare provider-initiated delay	Data not available	52 (16.1%)	80 (17.7%)	74 (30.8%)
	Medical reason for diagnosis delay	Data not available	151 (46.9%)	168 (37.3%)	94 (39.2%)
	Patient-initiated delay	Data not available	<10	6 (1.3%)	<5
	Other reason (not listed)	Data not available	56 (17.4%)	64 (14.2%)	35 (14.6%)
	No delay	Data not available	~30	33 (7.3%)	18 (7.5%)
	Unknown	Data not available	~30	100 (22.2%)	~15
Decision to treat to treatment start	Healthcare provider-initiated delay	<5	<5	<5	<5
	Medical reason for diagnosis delay	<5	<5	<5	<5

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
	Medical reason for treatment delay	<5	<10	<5	<5
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	<5	<5	<5
	No delay	369 (98.9%)	413 (98.1%)	542 (99.3%)	309 (98.4%)

Table 7: Regression analysis for likelihood of waiting over 104 days by characteristic for follicular lymphoma. Results presented for both the original and RCRD linked cohort. The results for the original cohort are presented unadjusted and adjusted and results for the RCRD linked cohort are presented unadjusted, with minimal adjustment to align with the original cohort analysis and with full adjustment

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Gender	Female	0.96 (0.8-1.15)	0.96 (0.79-1.16)	1.18 (0.98-1.42)	1.19 (0.99-1.44)	1.21 (0.99-1.46)
	Male (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
Age group	19-49	1.02 (0.72-1.45)	0.99 (0.69-1.42)	1.08 (0.77-1.53)	1.04 (0.73-1.48)	1.01 (0.71-1.45)
	50-59	0.9 (0.67-1.22)	0.89 (0.65-1.2)	0.87 (0.65-1.18)	0.86 (0.63-1.17)	0.91 (0.66-1.24)
	60-69 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	70-79	1.54 (1.2-1.97)*	1.57 (1.22-2.03)*	1.52 (1.19-1.95)*	1.55 (1.2-1.99)*	1.49 (1.15-1.94)*
	80+	1.4 (1.04-1.87)	1.4 (1.04-1.9)	1.32 (0.98-1.77)	1.3 (0.96-1.76)	1.24 (0.9-1.7)
Deprivation quintile	1 - most deprived	1.22 (0.9-1.64)	1.36 (0.99-1.88)	1.07 (0.79-1.44)	1.14 (0.83-1.57)	1.18 (0.85-1.64)
	2	1.11 (0.83-1.48)	1.28 (0.94-1.74)	1.08 (0.81-1.43)	1.18 (0.88-1.59)	1.18 (0.87-1.59)
	3	1.06 (0.81-1.4)	1.12 (0.83-1.49)	0.93 (0.7-1.22)	0.94 (0.71-1.26)	0.94 (0.7-1.26)
	4	0.98 (0.75-1.29)	1 (0.75-1.33)	0.82 (0.62-1.08)	0.81 (0.61-1.08)	0.81 (0.6-1.08)
	5 - least deprived (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Financial year	Base year (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	2020/2021	1.29 (0.98-1.7)	1.27 (0.96-1.69)	0.89 (0.69-1.16)	0.87 (0.67-1.14)	0.84 (0.64-1.1)
	2021/2022	2.11 (1.64-2.72)*	2.08 (1.6-2.7)*	1.45 (1.14-1.84)*	1.44 (1.13-1.84)*	1.44 (1.12-1.84)*
	Q1 & Q2 2022/2023	2.26 (1.68-3.04)*	2.31 (1.7-3.14)*	1.6 (1.2-2.12)*	1.6 (1.19-2.15)*	1.7 (1.25-2.29)*
Stage	1 (ref)			1 (ref)		1 (ref)
	2			0.34 (0.23-0.51)*		0.32 (0.21-0.49)*
	3			0.17 (0.12-0.24)*		0.16 (0.11-0.23)*
	4			0.27 (0.18-0.38)*		0.25 (0.17-0.37)*
	Not known			0.33 (0.25-0.44)*		0.31 (0.23-0.42)*
Comorbidity	0 (ref)			1 (ref)		1 (ref)
	1			1.42 (1.03-1.94)		1.3 (0.93-1.82)
	2			1.32 (0.84-2.1)		1.14 (0.7-1.86)
	3+			1.06 (0.59-1.9)		0.86 (0.46-1.59)

*significant at p<0.01 level

Table 8: Median and interquartile range for the intervals in the diagnostic and treatment pathway for follicular lymphoma patients who waited over 104 days from referral to treatment in each financial year of start of treatment

Interval	2017/2018 (Median and IQR)	2020/2021 (Median and IQR)	2021/2022 (Median and IQR)	Q1 & Q2 2022/2023 (Median and IQR)
Referral to first seen	11 (8 - 13)	11 (7 - 13.75)	10 (6 - 14)	10 (6 - 14)
First seen to informed of diagnosis	Data not available	65 (43.25 - 97.75)	70 (43 - 99)	64 (42.5 - 86)
Informed of diagnosis to decision to treat	Data not available	37.5 (12.25 - 58.75)	36.5 (20.25 - 58.5)	43 (14 - 63)
Decision to treat to treatment start	15 (6 - 27)	8 (0 - 20)	12.5 (0 - 22)	10 (0 - 23)
Referral to informed of diagnosis	Data not available	78 (53.25 - 106.75)	78 (53 - 110.75)	80 (49 - 98)
Referral to decision to treat	112 (100 - 132)	117 (105 - 134)	119 (106 - 142.75)	116 (103 - 143)
Referral to treatment start	126 (113 - 151)	126 (113 - 151.75)	132 (117.25 - 156)	128 (116 - 152)

Table 9: Breakdown of the reasons for delay in each financial year of start of treatment among follicular lymphoma patients who waited over 104 days from referral to treatment, with delay overall between referral and treatment, from referral to informed of diagnosis or from decision to treat to treatment

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
Referral to treatment start	Healthcare provider-initiated delay	21 (20.4%)	31 (23.1%)	53 (24.8%)	28 (26.7%)
	Medical reason for diagnosis delay	55 (53.4%)	68 (50.7%)	109 (50.9%)	51 (48.6%)
	Medical reason for treatment delay	<5	<5	<5	<5
	Patient-initiated delay	<10	<5	<5	<10
	Other reason (not listed)	21 (20.4%)	28 (20.9%)	46 (21.5%)	18 (17.1%)
Referral to informed of diagnosis	Healthcare provider-initiated delay	Data not available	18 (18.4%)	36 (20.7%)	23 (28.4%)
	Medical reason for diagnosis delay	Data not available	44 (44.9%)	74 (42.5%)	28 (34.6%)
	Patient-initiated delay	Data not available	<5	<5	<5
	Other reason (not listed)	Data not available	19 (19.4%)	22 (12.6%)	<10
	No delay	Data not available	<10	<10	<10
	Unknown	Data not available	11 (11.2%)	32 (18.4%)	12 (14.8%)
Decision to treat to treatment start	Healthcare provider-initiated delay	<5	<5	<10	<10
	Medical reason for diagnosis delay	<5	<5	<5	<5
	Medical reason for treatment delay	<5	<5	<5	<5

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	<5	<5	<5
	No delay	93 (90.3%)	132 (98.5%)	206 (96.3%)	96 (91.4%)

Table 10: Regression analysis for likelihood of waiting over 62 days by characteristic for follicular lymphoma. Results presented for both the original and RCRD linked cohort. The results for the original cohort are presented unadjusted and adjusted and results for the RCRD linked cohort are presented unadjusted, with minimal adjustment to align with the original cohort analysis and with full adjustment

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Gender	Female	0.94 (0.82-1.08)	0.94 (0.81-1.08)	1.08 (0.94-1.24)	1.09 (0.94-1.26)	1.09 (0.94-1.26)
	Male (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
Age group	19-49	0.91 (0.71-1.16)	0.88 (0.68-1.14)	1.04 (0.81-1.33)	1.01 (0.78-1.31)	1 (0.77-1.31)
	50-59	0.83 (0.68-1.02)	0.82 (0.66-1.02)	0.79 (0.64-0.97)	0.78 (0.63-0.97)	0.81 (0.65-1.01)
	60-69 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	70-79	1.12 (0.93-1.34)	1.12 (0.92-1.36)	1.19 (0.99-1.44)	1.23 (1.01-1.5)	1.21 (0.99-1.47)
	80+	1.29 (1.04-1.61)	1.31 (1.04-1.65)	1.39 (1.11-1.74)*	1.42 (1.12-1.79)*	1.37 (1.08-1.74)
Deprivation quintile	1 - most deprived	1.12 (0.89-1.41)	1.14 (0.89-1.47)	0.97 (0.77-1.22)	1.02 (0.79-1.31)	1.02 (0.79-1.31)
	2	1.01 (0.82-1.26)	1.12 (0.89-1.42)	0.97 (0.78-1.21)	1.1 (0.87-1.39)	1.1 (0.86-1.39)
	3	1.12 (0.91-1.37)	1.14 (0.92-1.42)	1 (0.82-1.23)	1.06 (0.85-1.32)	1.06 (0.85-1.33)
	4	1 (0.82-1.23)	1 (0.81-1.24)	0.88 (0.71-1.08)	0.89 (0.72-1.11)	0.89 (0.71-1.11)
	5 - least deprived (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Financial year	Base year (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	2020/2021	1.34 (1.11-1.61)*	1.37 (1.13-1.67)*	0.97 (0.81-1.17)	0.95 (0.79-1.16)	0.94 (0.77-1.14)
	2021/2022	1.98 (1.65-2.37)*	2.01 (1.66-2.43)*	1.43 (1.19-1.71)*	1.42 (1.18-1.72)*	1.45 (1.19-1.75)*
	Q1 & Q2 2022/2023	2.03 (1.62-2.55)*	2.12 (1.67-2.68)*	1.48 (1.18-1.85)*	1.48 (1.17-1.87)*	1.54 (1.21-1.95)*
Stage	1 (ref)			1 (ref)		1 (ref)
	2			0.41 (0.29-0.59)*		0.4 (0.27-0.59)*
	3			0.31 (0.23-0.42)*		0.3 (0.22-0.42)*
	4			0.32 (0.23-0.44)*		0.3 (0.21-0.43)*
	Not known			0.39 (0.29-0.51)*		0.34 (0.25-0.47)*
Comorbidity	0 (ref)			1 (ref)		1 (ref)
	1			1.27 (0.98-1.65)		1.17 (0.89-1.55)
	2			1.21 (0.84-1.76)		1.05 (0.71-1.57)
	3+			1.52 (0.97-2.37)		1.27 (0.79-2.03)

*significant at $p < 0.01$ level

Table 11: Median and interquartile range for the intervals in the diagnostic and treatment pathway for follicular lymphoma patients who waited over 62 days from referral to treatment in each financial year of start of treatment

Interval	2017/2018 (Median and IQR)	2020/2021 (Median and IQR)	2021/2022 (Median and IQR)	Q1 & Q2 2022/2023 (Median and IQR)
Referral to first seen	9 (7 - 13)	10 (6 - 13)	10 (7 - 13)	10 (7 - 14)
First seen to informed of diagnosis	Data not available	49 (28.75 - 69)	49 (33 - 73)	50 (30.5 - 70.5)
Informed of diagnosis to decision to treat	Data not available	21 (7.25 - 40)	26 (7.75 - 43)	21 (7 - 44)
Decision to treat to treatment start	7 (0 - 19)	6 (0 - 15)	6 (0 - 19)	5 (0 - 18.75)
Referral to informed of diagnosis	Data not available	59 (40.25 - 77.75)	61 (43 - 82)	63 (41 - 83)
Referral to decision to treat	83 (70 - 102.5)	84 (70 - 105)	86 (70 - 113)	88 (73.25 - 111.75)
Referral to treatment start	91 (77 - 112)	92 (76 - 113)	97 (78 - 124)	97 (78 - 123.75)

Table 12: Breakdown of the reasons for delay in each financial year of start of treatment among follicular lymphoma patients who waited over 62 days from referral to treatment, with delay overall between referral and treatment, from referral to informed of diagnosis or from decision to treat to treatment

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
Referral to treatment start	Healthcare provider-initiated delay	69 (21.6%)	99 (24.9%)	149 (28.6%)	71 (28.9%)
	Medical reason for diagnosis delay	162 (50.8%)	186 (46.9%)	257 (49.3%)	116 (47.2%)
	Medical reason for treatment delay	<5	<5	<10	<5
	Patient-initiated delay	19 (6.0%)	15 (3.8%)	19 (3.6%)	16 (6.5%)
	Other reason (not listed)	68 (21.3%)	94 (23.7%)	91 (17.5%)	41 (16.7%)
	Unknown	<5	<5	<5	<5
Referral to informed of diagnosis	Healthcare provider-initiated delay	Data not available	60 (19.9%)	88 (21.4%)	51 (25.9%)
	Medical reason for diagnosis delay	Data not available	128 (42.4%)	145 (35.2%)	71 (36.0%)
	Patient-initiated delay	Data not available	<5	8 (1.9%)	10 (5.1%)
	Other reason (not listed)	Data not available	54 (17.9%)	54 (13.1%)	23 (11.7%)
	No delay	Data not available	30 (9.9%)	37 (9.0%)	20 (10.2%)
	Unknown	Data not available	~25	80 (19.4%)	22 (11.2%)
Decision to treat to treatment start	Healthcare provider-initiated delay	<5	<5	<10	<10
	Medical reason for diagnosis delay	<5	<5	<5	<5

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
	Medical reason for treatment delay	<5	<5	<5	<5
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	<5	<5	<5
	No delay	306 (95.9%)	395 (99.5%)	510 (97.9%)	237 (96.3%)

Table 13: Regression analysis for likelihood of waiting over 104 days by characteristic for Hodgkin lymphoma. Results presented for both the original and RCRD linked cohort. The results for the original cohort are presented unadjusted and adjusted and results for the RCRD linked cohort are presented unadjusted, with minimal adjustment to align with the original cohort analysis and with full adjustment

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Gender	Female	0.91 (0.72-1.15)	0.9 (0.71-1.16)	0.9 (0.7-1.15)	0.92 (0.71-1.19)	0.9 (0.69-1.17)
	Male (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
Age group	19-49	0.38 (0.27-0.53)*	0.35 (0.25-0.49)*	0.41 (0.29-0.58)*	0.37 (0.26-0.54)*	0.38 (0.26-0.55)*
	50-59	0.56 (0.37-0.86)*	0.54 (0.35-0.83)*	0.82 (0.54-1.25)	0.79 (0.51-1.22)	0.79 (0.51-1.23)
	60-69 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	70-79	0.71 (0.47-1.08)	0.67 (0.44-1.03)	0.78 (0.5-1.23)	0.76 (0.48-1.2)	0.74 (0.47-1.18)
	80+	1.14 (0.72-1.79)	1.15 (0.71-1.84)	1.16 (0.72-1.87)	1.16 (0.7-1.91)	1.15 (0.69-1.91)
Deprivation quintile	1 - most deprived	1.58 (1.08-2.31)	1.73 (1.16-2.58)*	1.23 (0.83-1.81)	1.33 (0.87-2.02)	1.31 (0.86-2)
	2	1.16 (0.78-1.73)	1.3 (0.86-1.97)	0.97 (0.65-1.46)	1.1 (0.72-1.69)	1.06 (0.69-1.63)
	3	1.1 (0.74-1.64)	1.17 (0.77-1.77)	1.08 (0.72-1.6)	1.14 (0.76-1.73)	1.16 (0.76-1.76)
	4	1.16 (0.79-1.73)	1.17 (0.78-1.76)	0.99 (0.67-1.48)	1.04 (0.69-1.58)	1.04 (0.69-1.58)
	5 - least deprived (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Financial year	Base year (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	2020/2021	0.98 (0.69-1.38)	0.97 (0.68-1.38)	0.87 (0.61-1.24)	0.91 (0.63-1.31)	0.91 (0.63-1.31)
	2021/2022	1.51 (1.1-2.07)	1.46 (1.06-2.02)	1.31 (0.95-1.81)	1.35 (0.96-1.88)	1.38 (0.98-1.93)
	Q1 & Q2 2022/2023	1.84 (1.28-2.64)*	1.8 (1.24-2.62)*	1.74 (1.21-2.52)*	1.78 (1.21-2.61)*	1.83 (1.24-2.69)*
Stage	1 (ref)			1 (ref)		1 (ref)
	2			0.58 (0.36-0.92)		0.69 (0.42-1.13)
	3			0.4 (0.22-0.7)*		0.38 (0.21-0.69)*
	4			0.42 (0.25-0.71)*		0.38 (0.22-0.66)*
	Not known			0.61 (0.4-0.92)		0.55 (0.35-0.87)*
Comorbidity	0 (ref)			1 (ref)		1 (ref)
	1			2.1 (1.37-3.21)*		1.82 (1.15-2.88)
	2			1.97 (0.98-3.96)		1.1 (0.52-2.34)
	3+			1.44 (0.6-3.46)		0.91 (0.36-2.3)

*significant at $p < 0.01$ level

Table 14: Median and interquartile range for the intervals in the diagnostic and treatment pathway for Hodgkin lymphoma patients who waited over 104 days from referral to treatment in each financial year of start of treatment

Interval	2017/2018 (Median and IQR)	2020/2021 (Median and IQR)	2021/2022 (Median and IQR)	Q1 & Q2 2022/2023 (Median and IQR)
Referral to first seen	10 (7 - 13.5)	9 (6 - 12)	10 (7 - 13)	12 (7.25 - 14)
First seen to informed of diagnosis	Data not available	79 (57.5 - 98)	84 (63 - 113)	77.5 (51 - 98)
Informed of diagnosis to decision to treat	Data not available	23.5 (12.25 - 40.75)	18 (7 - 43)	25 (9 - 43)
Decision to treat to treatment start	13 (7 - 22)	11 (4 - 17)	12 (5 - 20)	11 (4 - 21)
Referral to informed of diagnosis	Data not available	86 (68.25 - 109)	95 (75 - 123)	93 (60 - 114)
Referral to decision to treat	106 (99 - 119)	112.5 (102.75 - 134)	115 (103 - 148)	119 (104.5 - 139)
Referral to treatment start	120 (112 - 134.5)	122.5 (112.5 - 149.75)	129 (113 - 162)	129 (117 - 152)

Table 15: Breakdown of the reasons for delay in each financial year of start of treatment among Hodgkin lymphoma patients who waited over 104 days from referral to treatment, with delay overall between referral and treatment, from referral to informed of diagnosis or from decision to treat to treatment

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
Referral to treatment start	Healthcare provider-initiated delay	<10	12 (16.7%)	31 (27.4%)	12 (19.0%)
	Medical reason for diagnosis delay	38 (53.5%)	39 (54.2%)	60 (53.1%)	39 (61.9%)
	Medical reason for treatment delay	<5	<5	<5	<5
	Patient-initiated delay	<10	<5	<5	<5
	Other reason (not listed)	15 (21.1%)	21 (29.2%)	17 (15.0%)	10 (15.9%)
Referral to informed of diagnosis	Healthcare provider-initiated delay	Data not available	7 (13.0%)	11 (12.4%)	10 (22.2%)
	Medical reason for diagnosis delay	Data not available	28 (51.9%)	32 (36.0%)	19 (42.2%)
	Patient-initiated delay	Data not available	<5	<5	<5
	Other reason (not listed)	Data not available	10 (18.5%)	<10	9 (20.0%)
	No delay	Data not available	<5	11 (12.4%)	<5
	Unknown	Data not available	5 (9.3%)	24 (27.0%)	<5
Decision to treat to treatment start	Healthcare provider-initiated delay	<5	<5	<5	<5
	Medical reason for diagnosis delay	<5	<5	<5	<5
	Medical reason for treatment delay	<5	<5	<5	<5

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	<5	<5	<5
	No delay	70 (98.6%)	71 (98.6%)	109 (96.5%)	59 (93.7%)

Table 16: Regression analysis for likelihood of waiting over 62 days by characteristic for Hodgkin lymphoma. Results presented for both the original and RCRD linked cohort. The results for the original cohort are presented unadjusted and adjusted and results for the RCRD linked cohort are presented unadjusted, with minimal adjustment to align with the original cohort analysis and with full adjustment

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Gender	Female	0.97 (0.83-1.13)	0.99 (0.84-1.17)	1 (0.86-1.17)	1.05 (0.89-1.24)	1.05 (0.88-1.24)
	Male (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
Age group	19-49	0.54 (0.43-0.69)*	0.5 (0.39-0.65)*	0.57 (0.45-0.73)*	0.53 (0.41-0.69)*	0.54 (0.41-0.7)*
	50-59	0.72 (0.53-0.97)	0.68 (0.49-0.94)	0.85 (0.62-1.15)	0.81 (0.59-1.12)	0.81 (0.58-1.12)
	60-69 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	70-79	0.81 (0.59-1.11)	0.76 (0.55-1.06)	0.85 (0.61-1.17)	0.81 (0.58-1.14)	0.8 (0.57-1.13)
	80+	0.95 (0.66-1.38)	0.91 (0.62-1.35)	0.95 (0.66-1.38)	0.93 (0.63-1.37)	0.91 (0.61-1.35)
Deprivation quintile	1 - most deprived	1.48 (1.16-1.89)*	1.52 (1.16-2)*	1.35 (1.05-1.73)	1.35 (1.02-1.79)	1.34 (1.01-1.77)
	2	1.25 (0.97-1.6)	1.38 (1.06-1.81)	1.17 (0.91-1.51)	1.29 (0.98-1.7)	1.26 (0.95-1.66)
	3	0.97 (0.75-1.24)	1 (0.77-1.31)	1.05 (0.82-1.35)	1.09 (0.83-1.42)	1.09 (0.83-1.43)
	4	1.02 (0.79-1.3)	1.01 (0.77-1.31)	0.93 (0.72-1.19)	0.94 (0.72-1.22)	0.93 (0.71-1.22)
	5 - least deprived (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Financial year	Base year (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	2020/2021	1.21 (0.98-1.5)	1.21 (0.97-1.52)	0.97 (0.79-1.2)	0.99 (0.79-1.23)	0.99 (0.79-1.24)
	2021/2022	1.74 (1.42-2.14)*	1.76 (1.42-2.19)*	1.42 (1.16-1.75)*	1.45 (1.17-1.8)*	1.5 (1.2-1.86)*
	Q1 & Q2 2022/2023	2.41 (1.87-3.09)*	2.54 (1.95-3.32)*	2.04 (1.58-2.62)*	2.13 (1.63-2.79)*	2.19 (1.67-2.88)*
Stage	1 (ref)			1 (ref)		1 (ref)
	2			0.55 (0.39-0.78)*		0.59 (0.41-0.84)*
	3			0.55 (0.38-0.8)*		0.55 (0.37-0.82)*
	4			0.42 (0.29-0.6)*		0.38 (0.26-0.56)*
	Not known			0.56 (0.41-0.76)*		0.53 (0.38-0.75)*
Comorbidity	0 (ref)			1 (ref)		1 (ref)
	1			1.38 (0.99-1.93)		1.3 (0.9-1.86)
	2			1.44 (0.84-2.47)		1.06 (0.59-1.91)
	3+			1.19 (0.64-2.2)		0.92 (0.47-1.8)

*significant at p<0.01 level

Table 17: Median and interquartile range for the intervals in the diagnostic and treatment pathway for Hodgkin lymphoma patients who waited over 62 days from referral to treatment in each financial year of start of treatment

Interval	2017/2018 (Median and IQR)	2020/2021 (Median and IQR)	2021/2022 (Median and IQR)	Q1 & Q2 2022/2023 (Median and IQR)
Referral to first seen	10 (7 - 13)	9 (6 - 12)	9 (7 - 13)	10 (6 - 13.75)
First seen to informed of diagnosis	Data not available	49 (33 - 64.5)	50 (34 - 70)	42 (28 - 64)
Informed of diagnosis to decision to treat	Data not available	18 (7 - 28)	15 (2 - 28)	18.5 (7 - 29.75)
Decision to treat to treatment start	10 (5 - 20)	8 (4 - 15)	9 (3 - 17)	10 (2 - 16.25)
Referral to informed of diagnosis	Data not available	56 (44 - 77)	61 (43 - 78.25)	54.5 (40.25 - 74.75)
Referral to decision to treat	77 (66 - 96.25)	75 (63 - 96.5)	77 (64 - 97.5)	76 (64 - 101)
Referral to treatment start	89 (75 - 109)	86 (71 - 104)	88 (73 - 111)	87.5 (72 - 111)

Table 18: Breakdown of the reasons for delay in each financial year of start of treatment among Hodgkin lymphoma patients who waited over 62 days from referral to treatment, with delay overall between referral and treatment, from referral to informed of diagnosis or from decision to treat to treatment

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
Referral to treatment start	Healthcare provider-initiated delay	40 (16.1%)	75 (25.8%)	113 (29.5%)	49 (23.1%)
	Medical reason for diagnosis delay	120 (48.4%)	134 (46.0%)	182 (47.5%)	117 (55.2%)
	Medical reason for treatment delay	<5	<5	7 (1.8%)	<5
	Patient-initiated delay	~20	<10	16 (4.2%)	<10
	Other reason (not listed)	68 (27.4%)	70 (24.1%)	65 (17.0%)	36 (17.0%)
Referral to informed of diagnosis	Healthcare provider-initiated delay	Data not available	37 (16.9%)	55 (17.9%)	42 (24.7%)
	Medical reason for diagnosis delay	Data not available	96 (43.8%)	107 (34.7%)	69 (40.6%)
	Patient-initiated delay	Data not available	8 (3.7%)	8 (2.6%)	<5
	Other reason (not listed)	Data not available	45 (20.5%)	41 (13.3%)	27 (15.9%)
	No delay	Data not available	15 (6.8%)	29 (9.4%)	18 (10.6%)
	Unknown	Data not available	18 (8.2%)	68 (22.1%)	~15
Decision to treat to treatment start	Healthcare provider-initiated delay	<5	<5	<10	<5
	Medical reason for diagnosis delay	<5	<5	<5	<5
	Medical reason for treatment delay	<5	<5	<5	<5

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	<5	<5	<5
	No delay	244 (98.4%)	289 (99.3%)	373 (97.4%)	206 (97.2%)

Table 19: Regression analysis for likelihood of waiting over 104 days by characteristic for myeloma. Results presented for both the original and RCRD linked cohort. The results for the original cohort are presented unadjusted and adjusted and results for the RCRD linked cohort are presented unadjusted, with minimal adjustment to align with the original cohort analysis and with full adjustment

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Gender	Female	0.83 (0.59-1.15)	0.82 (0.59-1.15)	0.92 (0.65-1.29)	0.91 (0.64-1.29)	0.91 (0.64-1.29)
	Male (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
Age group	19-49	1.82 (0.93-3.56)	1.76 (0.89-3.49)	1.55 (0.76-3.18)	1.41 (0.68-2.94)	1.42 (0.68-2.96)
	50-59	1.02 (0.57-1.81)	1 (0.56-1.79)	0.98 (0.55-1.74)	0.97 (0.54-1.73)	0.97 (0.54-1.74)
	60-69 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	70-79	0.98 (0.64-1.51)	0.99 (0.64-1.53)	0.82 (0.53-1.27)	0.82 (0.53-1.29)	0.82 (0.52-1.28)
	80+	0.82 (0.51-1.34)	0.85 (0.52-1.38)	0.78 (0.48-1.26)	0.79 (0.48-1.3)	0.78 (0.47-1.29)
Deprivation quintile	1 - most deprived	1.25 (0.75-2.09)	1.2 (0.71-2.04)	1.38 (0.8-2.38)	1.32 (0.75-2.32)	1.31 (0.74-2.31)
	2	1.12 (0.68-1.84)	1.12 (0.67-1.87)	1.26 (0.75-2.14)	1.28 (0.74-2.2)	1.27 (0.74-2.19)
	3	0.83 (0.5-1.37)	0.84 (0.5-1.39)	1 (0.59-1.69)	1.02 (0.6-1.73)	1.02 (0.6-1.73)
	4	0.91 (0.56-1.47)	0.92 (0.57-1.5)	1.07 (0.64-1.77)	1.1 (0.66-1.84)	1.1 (0.66-1.84)
	5 - least deprived (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Financial year	Base year (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	2020/2021	1.63 (1-2.65)	1.62 (0.99-2.65)	1.46 (0.89-2.4)	1.48 (0.9-2.45)	1.49 (0.9-2.46)
	2021/2022	1.53 (0.95-2.47)	1.53 (0.95-2.49)	1.48 (0.91-2.39)	1.49 (0.92-2.43)	1.5 (0.92-2.44)
	Q1 & Q2 2022/2023	2.06 (1.23-3.44)*	2.05 (1.22-3.44)*	2.01 (1.2-3.36)*	2.02 (1.2-3.41)*	2.04 (1.21-3.44)*
Comorbidity	0 (ref)			1 (ref)		1 (ref)
	1			1.13 (0.64-1.98)		1.2 (0.68-2.13)
	2			1.09 (0.5-2.37)		1.19 (0.54-2.63)
	3+			0.87 (0.35-2.16)		0.93 (0.37-2.35)

*significant at $p < 0.01$ level

Table 20: Median and interquartile range for the intervals in the diagnostic and treatment pathway for myeloma patients who waited over 104 days from referral to treatment in each financial year of start of treatment

Interval	2017/2018 (Median and IQR)	2020/2021 (Median and IQR)	2021/2022 (Median and IQR)	Q1 & Q2 2022/2023 (Median and IQR)
Referral to first seen	11 (6 - 13)	9 (6 - 13)	8 (7 - 12)	13 (10 - 16)
First seen to informed of diagnosis	Data not available	57 (41.5 - 83.25)	60 (41 - 92)	73 (38 - 96.5)
Informed of diagnosis to decision to treat	Data not available	39.5 (18 - 71.5)	28 (10 - 56)	28 (12 - 52)
Decision to treat to treatment start	14 (5 - 27.5)	10 (2.5 - 20)	7 (0 - 21.5)	6.5 (0 - 17)
Referral to informed of diagnosis	Data not available	67 (53.75 - 92.5)	72 (55 - 107)	84 (51 - 107)
Referral to decision to treat	112 (95.5 - 131.5)	116 (103.5 - 143.5)	113 (105 - 140)	110 (101 - 127)
Referral to treatment start	123 (115 - 134.5)	130 (116 - 151.5)	127 (111 - 143.5)	119 (111 - 128.75)

Table 21: Breakdown of the reasons for delay in each financial year of start of treatment among myeloma patients who waited over 104 days from referral to treatment, with delay overall between referral and treatment, from referral to informed of diagnosis or from decision to treat to treatment

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
Referral to treatment start	Healthcare provider-initiated delay	<5	8 (18.6%)	11 (23.4%)	5 (14.7%)
	Medical reason for diagnosis delay	17 (63.0%)	25 (58.1%)	18 (38.3%)	17 (50.0%)
	Medical reason for treatment delay	<5	<5	<5	<5
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	6 (14.0%)	13 (27.7%)	7 (20.6%)
Referral to informed of diagnosis	Healthcare provider-initiated delay	Data not available	6 (21.4%)	5 (12.2%)	<5
	Medical reason for diagnosis delay	Data not available	16 (57.1%)	14 (34.1%)	9 (36.0%)
	Patient-initiated delay	Data not available	<5	<5	<5
	Other reason (not listed)	Data not available	<5	7 (17.1%)	<5
	No delay	Data not available	<5	<5	5 (20.0%)
	Unknown	Data not available	<5	10 (24.4%)	<5
Decision to treat to treatment start	Healthcare provider-initiated delay	<5	<5	<5	<5
	Medical reason for diagnosis delay	<5	<5	<5	<5
	Medical reason for treatment delay	<5	<5	<5	<5

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	<5	<5	<5
	No delay	22 (81.5%)	40 (93.0%)	46 (97.9%)	34 (100.0%)

Table 22: Regression analysis for likelihood of waiting over 62 days by characteristic for myeloma. Results presented for both the original and RCRD linked cohort. The results for the original cohort are presented unadjusted and adjusted and results for the RCRD linked cohort are presented unadjusted, with minimal adjustment to align with the original cohort analysis and with full adjustment

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Gender	Female	0.91 (0.78-1.08)	0.93 (0.78-1.1)	0.95 (0.8-1.12)	0.95 (0.8-1.13)	0.95 (0.8-1.13)
	Male (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
Age group	19-49	1.22 (0.8-1.84)	1.13 (0.74-1.73)	0.99 (0.63-1.57)	0.89 (0.56-1.43)	0.9 (0.56-1.43)
	50-59	1.13 (0.84-1.52)	1.13 (0.83-1.53)	1.09 (0.81-1.47)	1.09 (0.8-1.48)	1.09 (0.8-1.49)
	60-69 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	70-79	1.24 (1-1.54)	1.25 (1-1.56)	1.21 (0.97-1.51)	1.2 (0.95-1.51)	1.19 (0.95-1.5)
	80+	1.11 (0.87-1.41)	1.17 (0.91-1.49)	1.11 (0.87-1.42)	1.16 (0.9-1.49)	1.16 (0.9-1.5)
Deprivation quintile	1 - most deprived	1.34 (1.02-1.75)	1.39 (1.04-1.85)	1.26 (0.95-1.66)	1.25 (0.93-1.68)	1.25 (0.93-1.69)
	2	1.24 (0.96-1.6)	1.38 (1.06-1.82)	1.15 (0.88-1.49)	1.24 (0.94-1.65)	1.25 (0.94-1.65)
	3	1.02 (0.8-1.31)	1.03 (0.79-1.33)	1.06 (0.82-1.36)	1.05 (0.81-1.37)	1.06 (0.81-1.37)
	4	1.13 (0.89-1.44)	1.17 (0.91-1.5)	1.24 (0.98-1.58)	1.3 (1.01-1.67)	1.3 (1.02-1.67)
	5 - least deprived (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)

		Original cohort		RCRD linked cohort		
Characteristic	Category	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs)	Unadjusted odds ratio (95% CIs)	Adjusted odds ratio (95% CIs) (minimal adjustment)	Adjusted odds ratio (95% CIs) (fully adjusted)
Financial year	Base year (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)	1 (ref)
	2020/2021	1.4 (1.08-1.82)	1.41 (1.08-1.83)	1.33 (1.02-1.73)	1.36 (1.04-1.78)	1.37 (1.05-1.79)
	2021/2022	2.16 (1.7-2.74)*	2.24 (1.75-2.85)*	2.17 (1.71-2.75)*	2.23 (1.75-2.84)*	2.24 (1.76-2.86)*
	Q1 & Q2 2022/2023	3.01 (2.33-3.9)*	3.18 (2.44-4.13)*	3.06 (2.37-3.96)*	3.23 (2.48-4.2)*	3.26 (2.51-4.24)*
Comorbidity	0 (ref)			1 (ref)		1 (ref)
	1			1.18 (0.89-1.55)		1.22 (0.92-1.63)
	2			1.16 (0.8-1.69)		1.18 (0.8-1.75)
	3+			0.76 (0.48-1.21)		0.73 (0.45-1.17)

*significant at p<0.01 level

Table 23: Median and interquartile range for the intervals in the diagnostic and treatment pathway for myeloma patients who waited over 62 days from referral to treatment in each financial year of start of treatment

Interval	2017/2018 (Median and IQR)	2020/2021 (Median and IQR)	2021/2022 (Median and IQR)	Q1 & Q2 2022/2023 (Median and IQR)
Referral to first seen	9.5 (6 - 13)	9 (6.5 - 12.5)	8.5 (6.75 - 13)	12 (8 - 14)
First seen to informed of diagnosis	Data not available	49 (32.25 - 65.75)	45 (28 - 63)	42 (28 - 59)
Informed of diagnosis to decision to treat	Data not available	26 (0 - 40.5)	20 (0 - 35)	17 (0 - 30.5)
Decision to treat to treatment start	7 (0 - 15)	4 (0 - 14)	4 (0 - 13)	6 (0 - 16)
Referral to informed of diagnosis	Data not available	59 (42 - 75)	54 (36 - 72)	54 (40 - 68.5)
Referral to decision to treat	77 (65 - 92)	81 (68.75 - 99.5)	73 (64 - 91)	73 (64 - 91)
Referral to treatment start	86.5 (73 - 102.75)	86.5 (73.5 - 108.25)	80 (70 - 95)	80 (70 - 99)

Table 24: Breakdown of the reasons for delay in each financial year of start of treatment among myeloma patients who waited over 62 days from referral to treatment, with delay overall between referral and treatment, from referral to informed of diagnosis or from decision to treat to treatment

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
Referral to treatment start	Healthcare provider-initiated delay	21 (19.1%)	35 (23.6%)	85 (34.1%)	71 (40.1%)
	Medical reason for diagnosis delay	52 (47.3%)	70 (47.3%)	80 (32.1%)	50 (28.2%)
	Medical reason for treatment delay	<10	<5	10 (4.0%)	<5
	Patient-initiated delay	<5	~15	30 (12.0%)	~15
	Other reason (not listed)	26 (23.6%)	26 (17.6%)	44 (17.7%)	36 (20.3%)
Referral to informed of diagnosis	Healthcare provider-initiated delay	Data not available	19 (18.4%)	39 (19.8%)	39 (26.5%)
	Medical reason for diagnosis delay	Data not available	42 (40.8%)	51 (25.9%)	40 (27.2%)
	Patient-initiated delay	Data not available	5 (4.9%)	12 (6.1%)	8 (5.4%)
	Other reason (not listed)	Data not available	17 (16.5%)	28 (14.2%)	20 (13.6%)
	No delay	Data not available	13 (12.6%)	26 (13.2%)	22 (15.0%)

Delay interval	Reason for delay	2017/2018 (Number and %)	2020/2021 (Number and %)	2021/2022 (Number and %)	Q1 & Q2 2022/2023 (Number and %)
	Unknown	Data not available	7 (6.8%)	41 (20.8%)	18 (12.2%)
Decision to treat to treatment start	Healthcare provider-initiated delay	<5	<5	<5	<5
	Medical reason for diagnosis delay	<5	<5	<5	<5
	Medical reason for treatment delay	<5	<5	<5	<5
	Patient-initiated delay	<5	<5	<5	<5
	Other reason (not listed)	<5	<5	<5	<5
	No delay	103 (93.6%)	145 (98.0%)	244 (98.0%)	175 (98.9%)