

Munich Cancer Registry



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<http://www.tumorregister-muenchen.de/en>

Cancer statistics: Survival

C91-C95: Leukaemias

Year of diagnosis	1988-2012
Patients	9,112
Diseases	9,185
Cases evaluated	3,792
Creation date	03/25/2014
Export date	02/12/2014
Population	4.5 m



http://www.tumorregister-muenchen.de/en/facts/surv/surv_C9195E.pdf

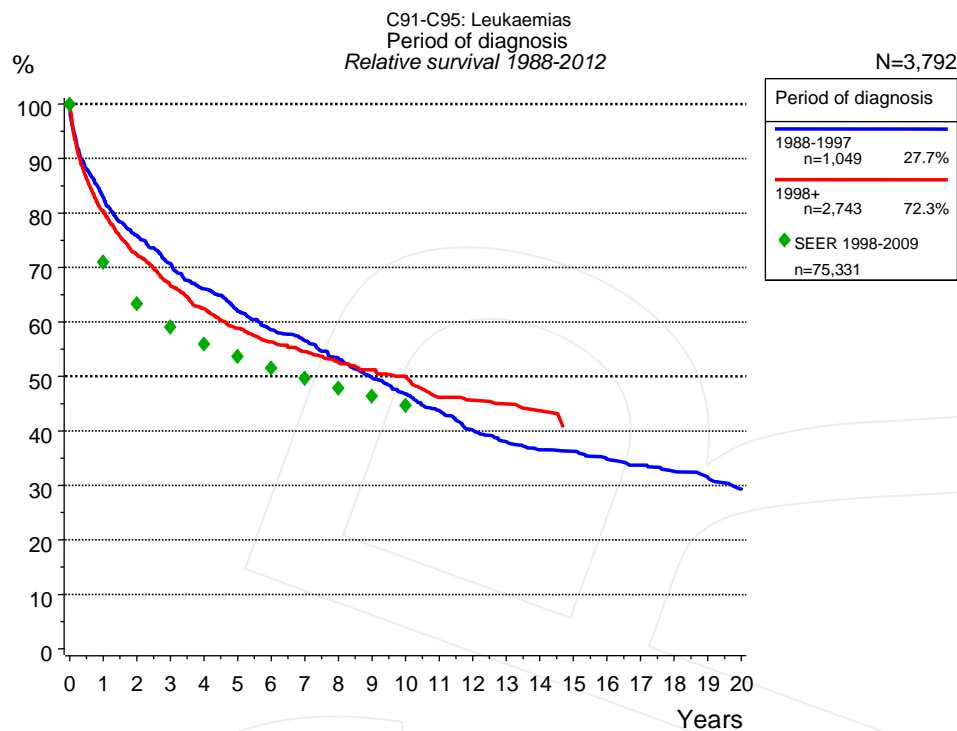


Figure 1a. Relative survival of patients with leukaemias by period of diagnosis. Included in the evaluation are 3,792 cases diagnosed between 1988 and 2012.

The survival results of the SEER program (Surveillance, Epidemiology, and End Results) of the American National Cancer Institute (NCI) are summarized as the period of diagnosis from 1998 to 2009, and are represented by green diamonds in order to facilitate comparisons between MCR and SEER.

The presented survival curves are derived from clinical records with valid follow-up informations, which means that death certificate cases (DCO) cases are omitted from the analysis. With this one restriction, the MCR has provided population-based statistics since 1988, collecting data on all cancer cases in the region of southern Bavaria. Historical data of previous time periods can be heavily selected, therefore, univariate survival comparisons of the presented time periods must be carefully considered. Nonetheless, all calculable survival curves are depicted to facilitate the comparison of long time follow-up analyses of relative survival between particular cancers.

Years	Period of diagnosis			
	1988-1997		1998+	
	n=1,049		n=2,743	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	81.2	82.9	78.3	80.3
2	73.0	75.9	69.1	72.3
3	66.8	70.7	62.4	66.5
4	61.2	66.0	57.5	62.4
5	56.3	62.0	53.2	58.8
6	52.2	58.5	50.1	56.3
7	49.6	56.5	47.7	54.5
8	45.9	53.3	45.4	52.6
9	42.2	49.8	43.6	51.2
10	38.9	46.8	41.4	49.8
11	35.9	43.7	37.7	46.1
12	32.3	40.1	36.8	45.6
13	30.1	38.0	35.7	44.9
14	28.5	36.5	34.6	43.7
15	27.9	36.3		
16	26.3	34.8		
17	25.2	33.7		
18	24.0	32.6		
19	22.7	31.4		
20	20.7	29.3		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with leukaemias by period of diagnosis for period 1988-2012 (N=3,792).

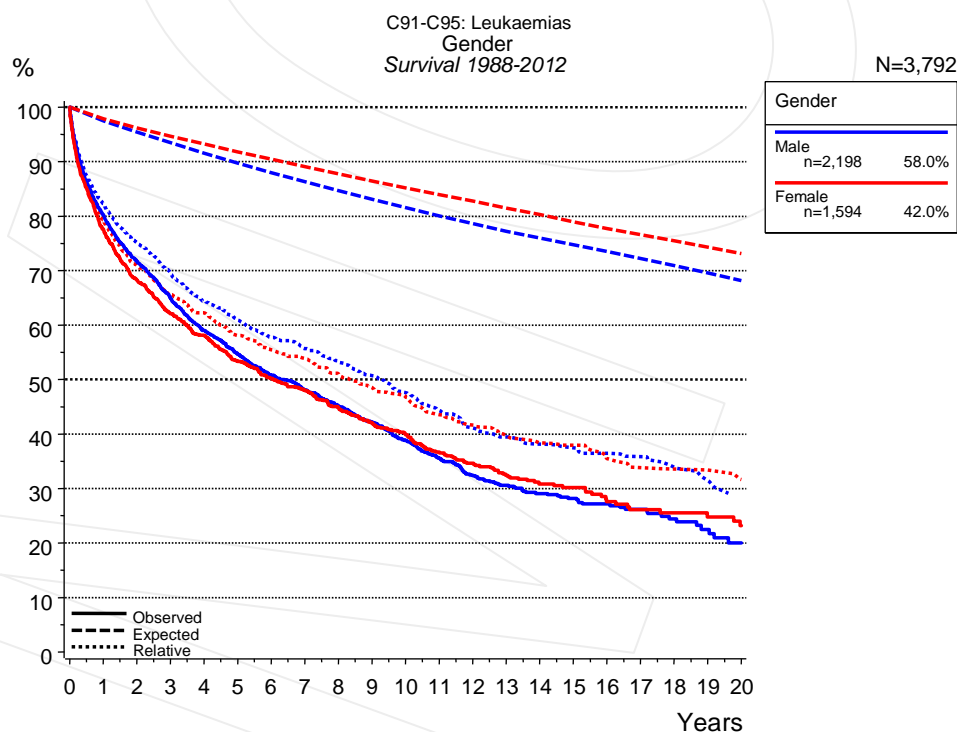


Figure 2a. Survival of patients with leukaemias by gender. Included in the evaluation are 3,792 cases diagnosed between 1988 and 2012.

Years	Gender			
	Male n=2,198		Female n=1,594	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	80.2	82.2	77.6	79.3
2	71.7	75.1	68.2	70.9
3	65.0	69.5	62.1	65.6
4	59.0	64.4	58.1	62.2
5	54.6	60.9	53.3	58.1
6	50.8	57.7	50.2	55.5
7	48.1	55.7	48.0	53.8
8	45.2	53.2	44.9	51.1
9	42.2	50.7	42.1	48.6
10	38.8	47.6	39.9	46.8
11	35.6	44.3	36.7	43.6
12	32.3	41.1	34.6	41.6
13	30.6	39.5	32.4	39.7
14	29.1	38.2	30.9	38.4
15	28.2	37.5	30.2	38.0
16	27.2	36.5	27.6	35.5
17	26.2	35.9	26.1	33.8
18	24.4	33.9	25.5	33.6
19	22.5	31.4	24.8	33.4
20			23.2	31.7

Table 2b. Observed (obs.) and relative (rel.) survival of patients with leukaemias by gender for period 1988-2012 (N=3,792).

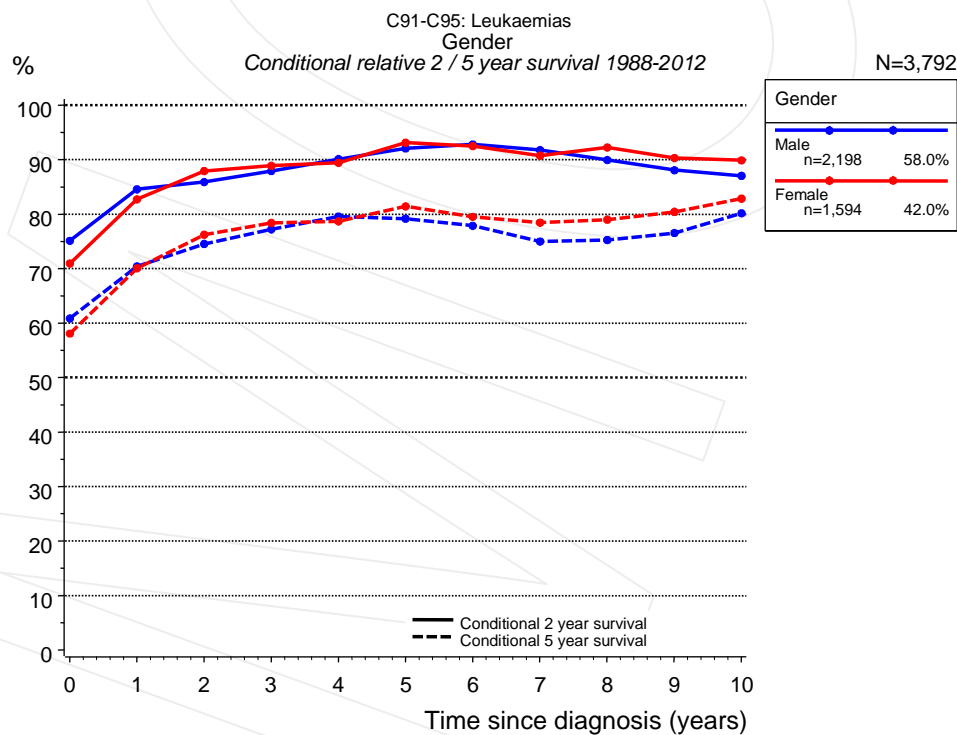


Figure 2c. Conditional relative 2 / 5-year survival of patients with leukaemias by gender. For 3,792 of 3,792 cases diagnosed between 1988 and 2012 valid data could be obtained for this item.

Years	Gender					
	Male			Female		
	n	Cond. surv. % 2 yrs	5 yrs	n	Cond. surv. % 2 yrs	5 yrs
0	2,198	75.1	60.9	1,594	70.9	58.1
1	1,671	84.6	70.4	1,178	82.7	70.1
2	1,383	85.9	74.5	970	87.9	76.2
3	1,148	87.9	77.2	813	88.9	78.4
4	941	90.1	79.6	683	89.4	78.7
5	777	92.1	79.2	565	93.1	81.4
6	645	92.8	77.9	480	92.5	79.5
7	557	91.8	75.0	420	90.7	78.4
8	473	89.9	75.2	351	92.2	79.0
9	400	88.1	76.5	298	90.3	80.4
10	327	87.0	80.2	252	89.9	82.9

Table 2d. Conditional relative 2 / 5-year survival of patients with leukaemias by gender for period 1988-2012 (N=3,792).

Conditional relative survival rates refer to the relative survival probability, in this case for 2 and 5 years after cancer diagnosis, compared to the age- and sex-matched population (=100%) under the condition of being alive for a certain time period (x-axis in Figure 2a). The results illustrate to what extent the cancer induced mortality of particular subgroups declines in the subsequent years after detection of the malignancy. For instance, according to the presented survival statistics, patients in the subgroup gender="Male", who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 87.9% (n=1,148).

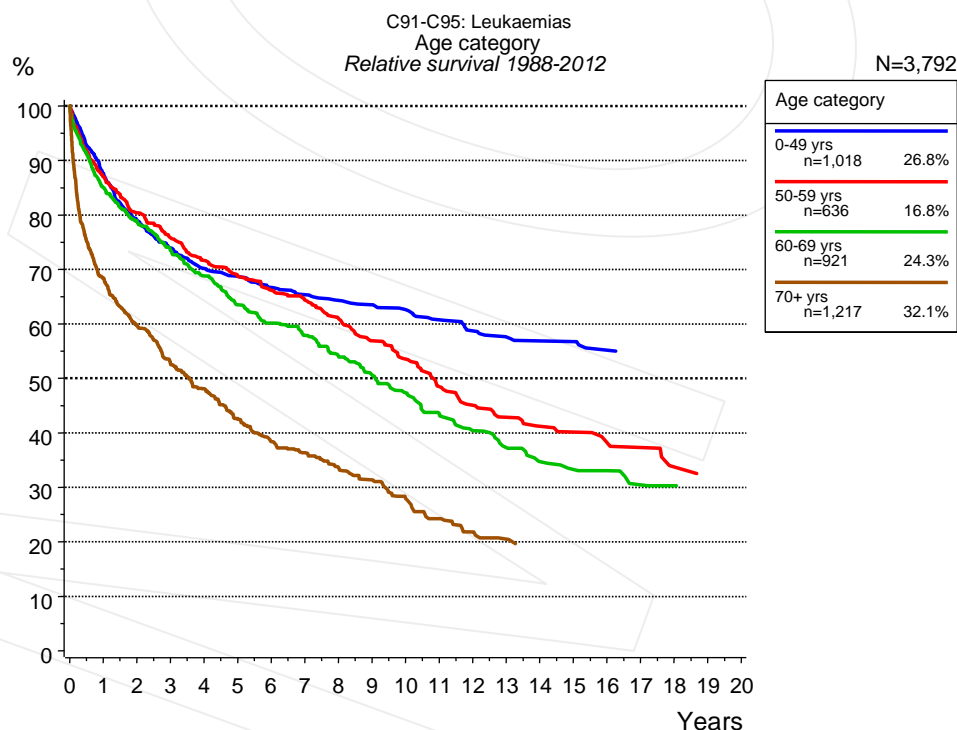


Figure 3a. Relative survival of patients with leukaemias by age category. Included in the evaluation are 3,792 cases diagnosed between 1988 and 2012.

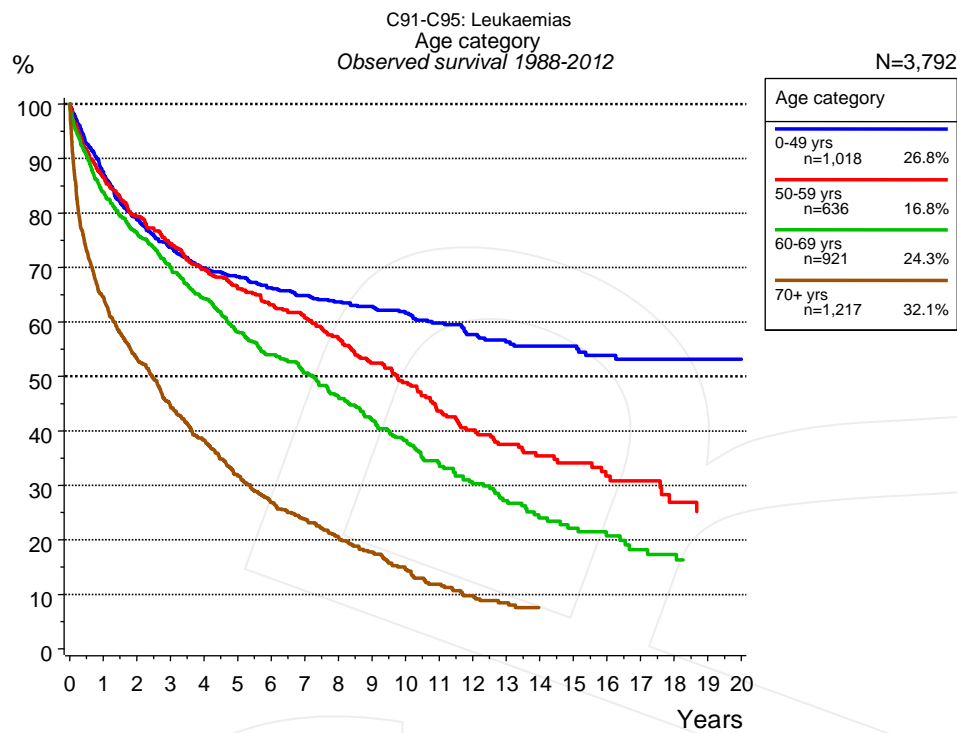


Figure 3b. Observed survival of patients with leukaemias by age category. Included in the evaluation are 3,792 cases diagnosed between 1988 and 2012.

Years	Age category							
	0-49 yrs n=1,018		50-59 yrs n=636		60-69 yrs n=921		70+ yrs n=1,217	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1	87.5	87.5	86.5	87.0	83.7	85.0	64.6	68.4
2	78.8	78.9	79.3	80.4	76.5	78.9	53.2	59.7
3	73.7	73.9	74.4	75.8	70.0	73.5	44.5	52.7
4	69.9	70.2	69.6	71.6	64.3	68.8	38.3	48.1
5	68.3	68.7	66.1	68.7	58.2	63.5	31.7	42.5
6	66.2	66.7	63.1	66.2	54.0	60.1	26.8	38.4
7	64.8	65.4	60.7	64.4	50.6	57.9	23.8	36.3
8	63.7	64.3	57.0	61.0	46.3	54.1	20.4	33.6
9	62.8	63.5	52.4	56.9	42.1	50.6	17.8	31.4
10	61.6	62.6	48.9	53.5	38.2	47.4	14.5	27.9
11	59.8	60.8	43.7	48.4	34.2	43.6	11.9	24.2
12	57.6	58.7	40.1	45.1	30.3	40.4	9.8	21.8
13	56.3	57.6	37.5	42.9	27.2	37.3	8.5	20.5
14	55.5	56.9	35.4	41.2	24.0	34.7	7.6	19.7
15	55.5	56.7	34.1	40.1	22.1	33.3		
16	53.9	55.2	31.7	38.2	20.7	33.0		
17			30.8	37.3	18.2	30.5		
18			26.9	33.7	17.3	30.3		
19			25.2	32.0				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with leukaemias by age category for period 1988-2012 (N=3,792).

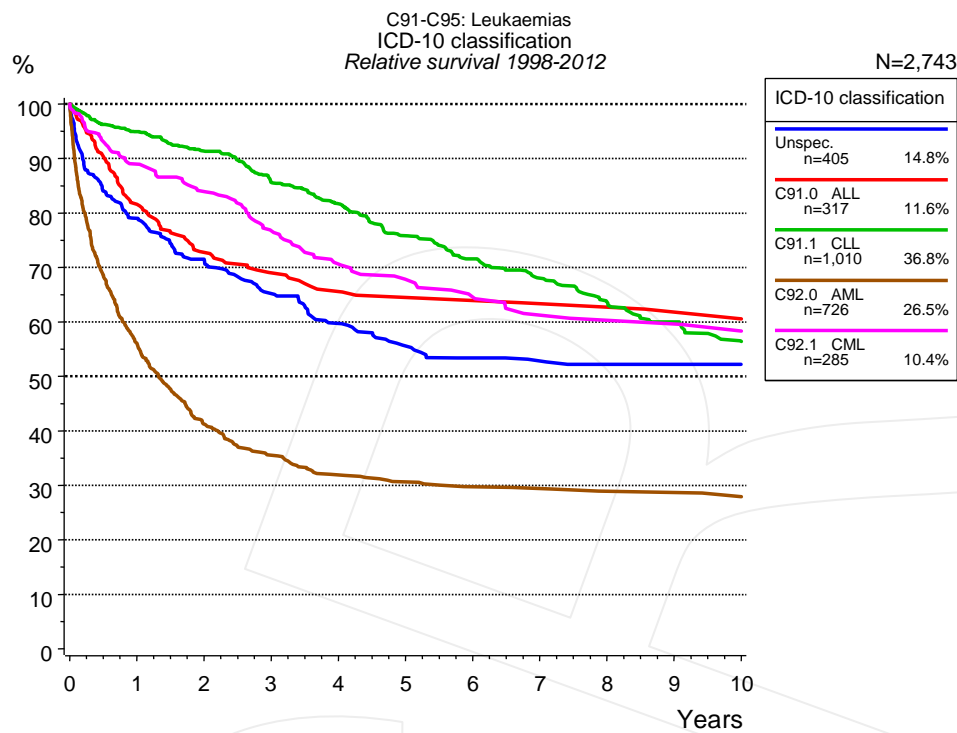


Figure 4a. Relative survival of patients with leukaemias by ICD-10 classification. Included in the evaluation are 2,743 cases diagnosed between 1998 and 2012.

		ICD-10 classification									
		Unspec. n=405		C91.0 ALL n=317		C91.1 CLL n=1,010		C92.0 AML n=726		C92.1 CML n=285	
Years		obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1		76.7	79.0	81.2	81.6	92.2	94.9	55.0	56.1	87.4	89.0
2		67.6	71.5	72.5	72.8	86.2	91.3	39.8	41.2	81.1	83.9
3		60.5	65.2	68.5	69.0	78.8	85.6	34.0	35.5	72.8	76.7
4		54.4	59.7	65.5	65.6	73.3	81.7	30.4	31.9	66.2	70.6
5		49.4	55.6	64.3	64.5	66.4	75.8	28.9	30.6	62.3	67.8
6		46.6	53.4	63.6	63.9	61.2	71.6	27.7	29.7	59.1	64.5
7		45.4	52.8	62.7	63.3	56.8	68.0	27.4	29.4	55.4	61.2
8		44.2	52.2	62.7	62.7	51.9	63.6	26.4	28.9	54.1	60.3
9		43.4	52.2	61.2	61.8	48.0	60.0	26.4	28.7	54.1	59.6
10		42.4	52.2	61.2	60.5	43.8	56.4	25.6	27.9	52.1	58.3

Table 4b. Observed (obs.) and relative (rel.) survival of patients with leukaemias by ICD-10 classification for period 1998-2012 (N=2,743).

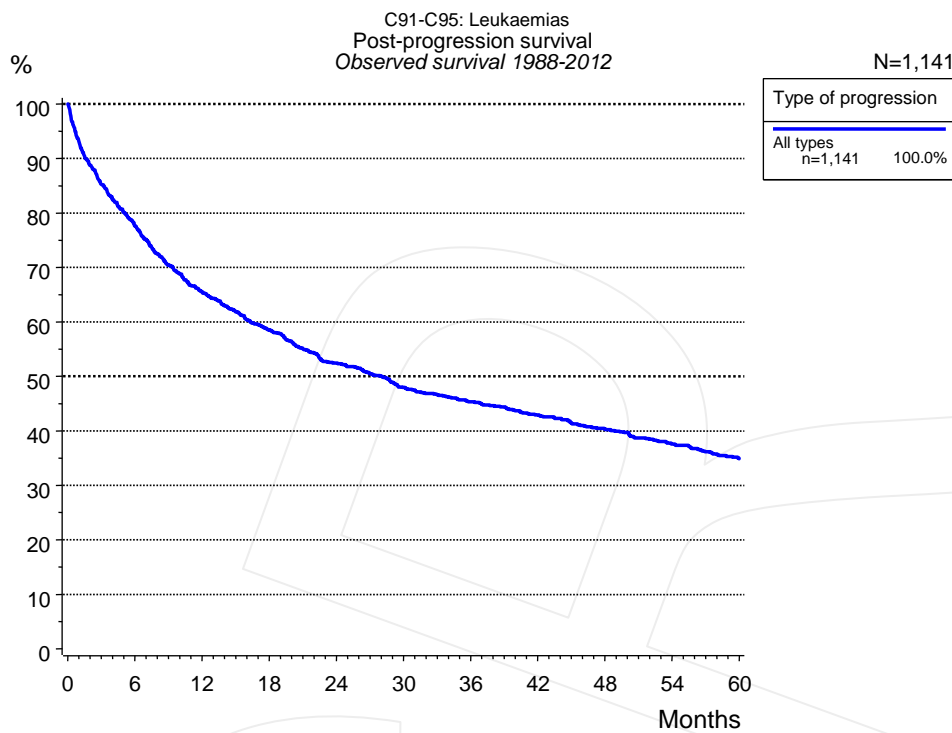


Figure 5a. Observed post-progression survival of 1,141 patients with leukaemias diagnosed between 1988 and 2012 (incl. M1). These 1,141 patients with documented progression events during their course of disease represent 30.1% of the totally 3,792 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=707, 18.6%).

Medical record documentation often lacks the linguistic severity to distinguish between local relapse, regional lymph node metastasis and distant spread in solid cancers. Frequently, the statement “not specified” is the only information in registries regarding relapse of the disease. The category “All types” denotes all cases who suffered from at least one relapse during the course of disease (incl. primary M1-status). Although, the real number of relapsed patients is likely to be much higher. The accumulated percentage of patients with local relapse or distant metastasis exceeds the 100% value because patients are potentially considered in more than one subgroup.

Type of progression	
	All types n=1,141
Months	%
0	100.0
12	65.5
24	52.4
36	45.3
48	40.3
60	34.9

Table 5b. Observed post-progression survival of patients with leukaemias for period 1988-2012 (N=1,141).

Shortcuts

AS	Assembled survival chart (observed, expected, relative)
CS	Conditional survival
DCO	Death certificate only. The death certificate provides the only notification to the registry.
MCR	Munich Cancer Registry, Germany (Tumorregister München)
NA	Not available
NCI	National Cancer Institute, USA
NOS	Not otherwise specified
OS	Observed/overall survival (Kaplan-Meier estimate)
PPS	Post-progression survival
RS	Relative Survival. Ratio of observed and expected survival (derived from the normal population)
SEER	Surveillance, Epidemiology, and End Results, USA
TTP	Time to progression Date of entry: Date of diagnosis Event (Progression): First local recurrence, lymph node relapse or distant metastasis, unspecified recurrence First all-cause recurrence is illustrated by survival curves (Kaplan-Meier estimate). First local recurrence, lymph node relapse or distant metastasis are depicted cumulatively, where applicable ("reverse" Kaplan-Meier estimate).
UICC	Union for International Cancer Control, Geneva

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