

Munich Cancer Registry



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

Cancer statistics: Survival

C91-C95: Leukaemias

Year of diagnosis	1988-2013
Patients	9,737
Diseases	9,824
Cases evaluated	3,894
Creation date	05/13/2015
Export date	12/30/2014
Population	4.64 m



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

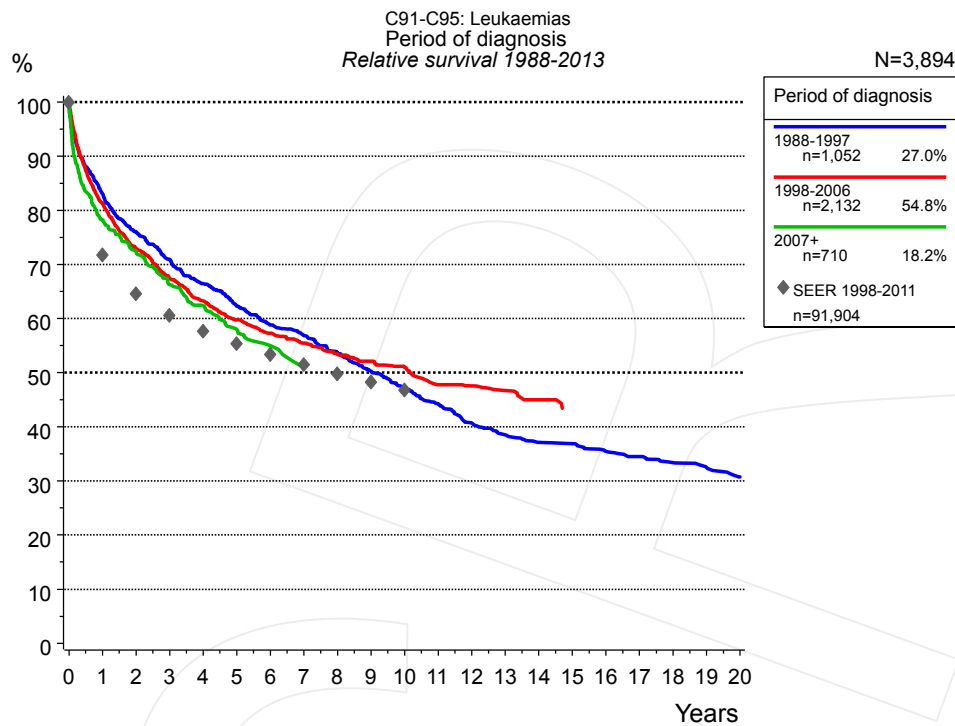


Figure 1a. Relative survival of patients with leukaemias by period of diagnosis. Included in the evaluation are 3,894 cases diagnosed between 1988 and 2013.

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 2011, and are represented by gray 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		1998-2006		2007+	
	n=1,052		n=2,132		n=710	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	81.3	83.0	79.4	81.3	76.2	78.3
2	73.2	76.0	69.9	73.0	69.1	72.4
3	67.0	70.9	63.3	67.4	61.9	66.3
4	61.6	66.4	58.4	63.3	57.2	62.4
5	56.6	62.3	54.2	59.8	52.2	58.0
6	52.5	58.8	51.1	57.3	49.0	55.0
7	49.9	56.9	48.7	55.5		
8	46.4	53.7	46.2	53.5		
9	42.6	50.3	44.3	52.2		
10	39.4	47.3	42.5	51.0		
11	36.3	44.3	39.1	47.8		
12	32.8	40.7	38.3	47.6		
13	30.6	38.6	36.9	46.8		
14	29.0	37.1	35.1	45.0		
15	28.5	36.9				
16	26.9	35.5				
17	25.8	34.5				
18	24.6	33.4				
19	23.5	32.5				
20	21.8	30.8				

Table 1b. Observed (obs.) and relative (rel.) survival of patients with leukaemias by period of diagnosis for period 1988-2013 (N=3,894).

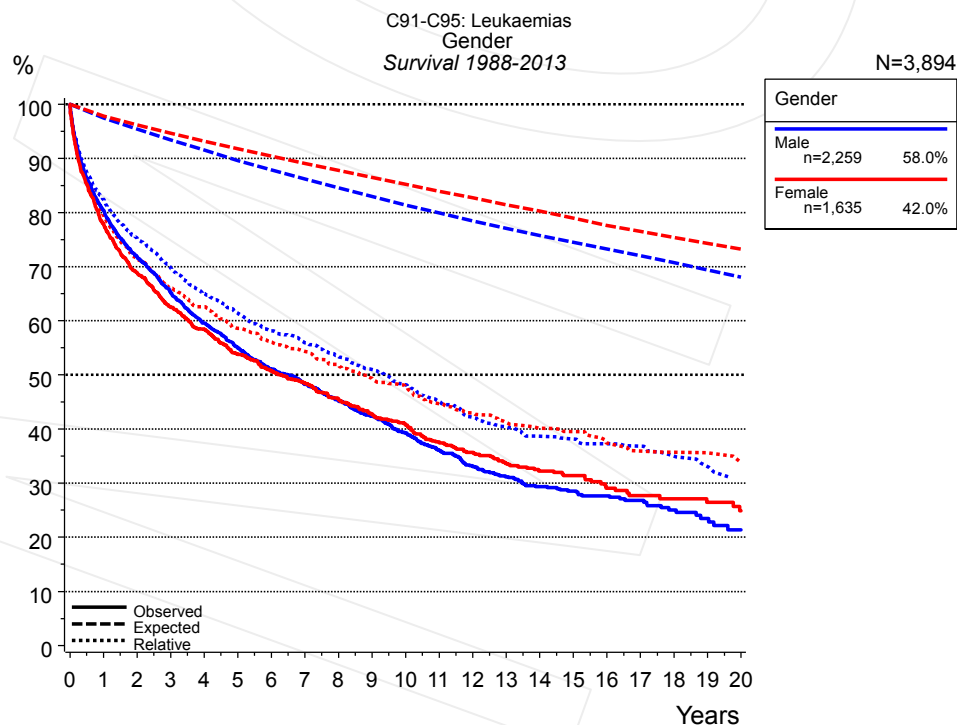


Figure 2a. Survival of patients with leukaemias by gender. Included in the evaluation are 3,894 cases diagnosed between 1988 and 2013.

Years	Gender			
	Male n=2,259		Female n=1,635	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	80.4	82.4	78.0	79.6
2	71.9	75.3	68.9	71.6
3	65.3	69.8	62.5	66.0
4	59.6	65.0	58.4	62.6
5	55.0	61.3	53.8	58.6
6	51.1	58.1	50.8	56.1
7	48.3	56.0	48.5	54.4
8	45.3	53.4	45.6	51.9
9	42.4	51.0	42.8	49.4
10	39.3	48.2	40.7	47.8
11	36.1	45.1	37.6	44.7
12	33.1	42.1	35.7	43.0
13	31.2	40.4	33.7	41.2
14	29.4	38.7	32.3	40.2
15	28.5	38.1	31.4	39.5
16	27.7	37.3	29.1	37.4
17	26.8	36.9	27.7	35.9
18	25.0	35.0	27.2	35.7
19	23.5	33.0	26.5	35.6
20	21.4	31.0	24.9	34.0

Table 2b. Observed (obs.) and relative (rel.) survival of patients with leukaemias by gender for period 1988-2013 (N=3,894).

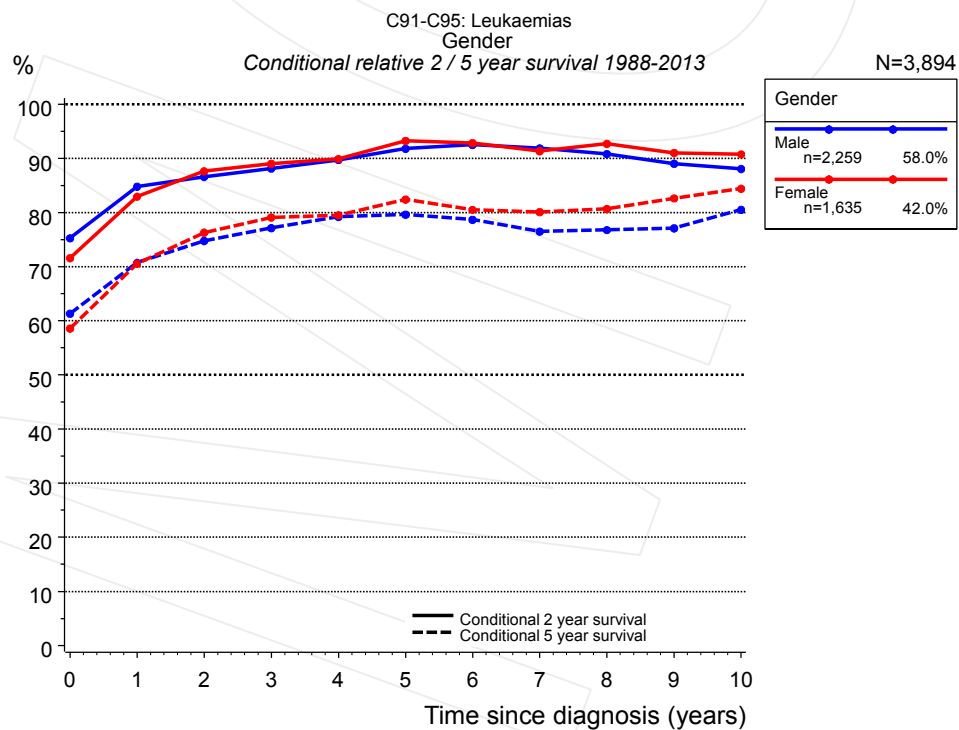


Figure 2c. Conditional relative 2 / 5-year survival of patients with leukaemias by gender. For 3,894 of 3,894 cases diagnosed between 1988 and 2013 valid data could be obtained for this item.

Years	Gender					
	Male			Female		
	n	Cond. surv. % 2 yrs	Cond. surv. % 5 yrs	n	Cond. surv. % 2 yrs	Cond. surv. % 5 yrs
0	2,259	75.3	61.3	1,635	71.6	58.6
1	1,720	84.8	70.7	1,216	83.0	70.6
2	1,441	86.6	74.8	1,013	87.7	76.3
3	1,201	88.2	77.1	848	89.0	79.1
4	994	89.7	79.2	716	89.9	79.5
5	819	91.8	79.6	594	93.2	82.4
6	681	92.5	78.7	505	92.8	80.5
7	593	91.9	76.5	439	91.4	80.1
8	503	90.8	76.8	377	92.7	80.7
9	429	89.1	77.1	317	91.0	82.6
10	355	88.1	80.5	276	90.8	84.4

Table 2d. Conditional relative 2 / 5-year survival of patients with leukaemias by gender for period 1988-2013 (N=3,894).

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 88.2% (n=1,201).

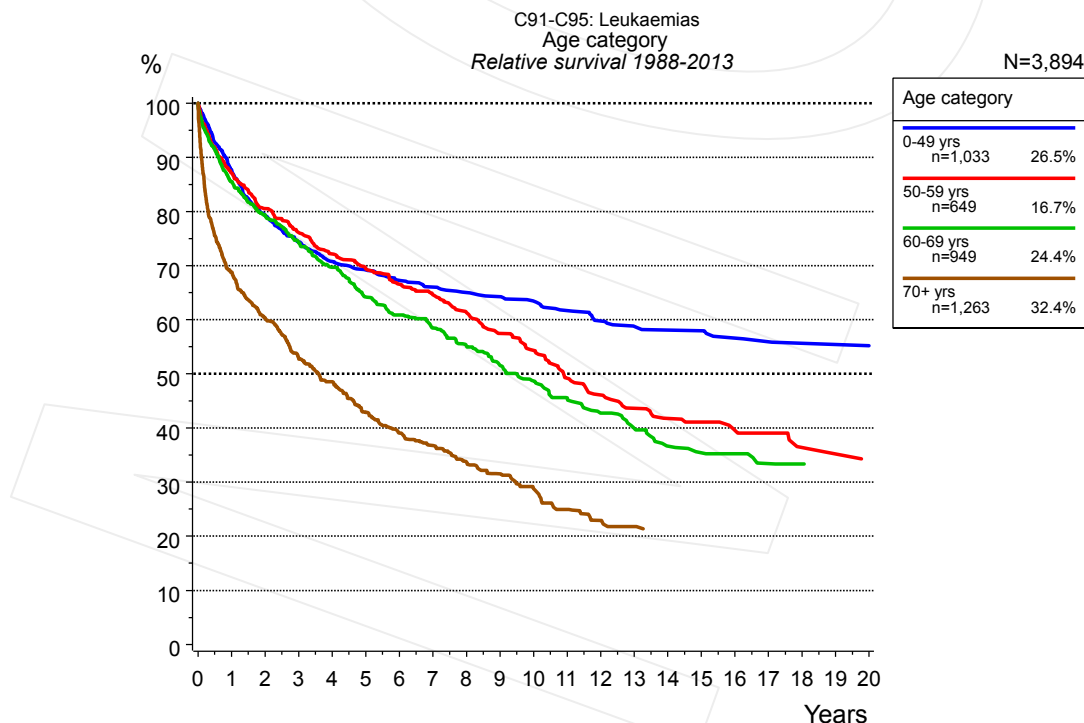


Figure 3a. Relative survival of patients with leukaemias by age category. Included in the evaluation are 3,894 cases diagnosed between 1988 and 2013.

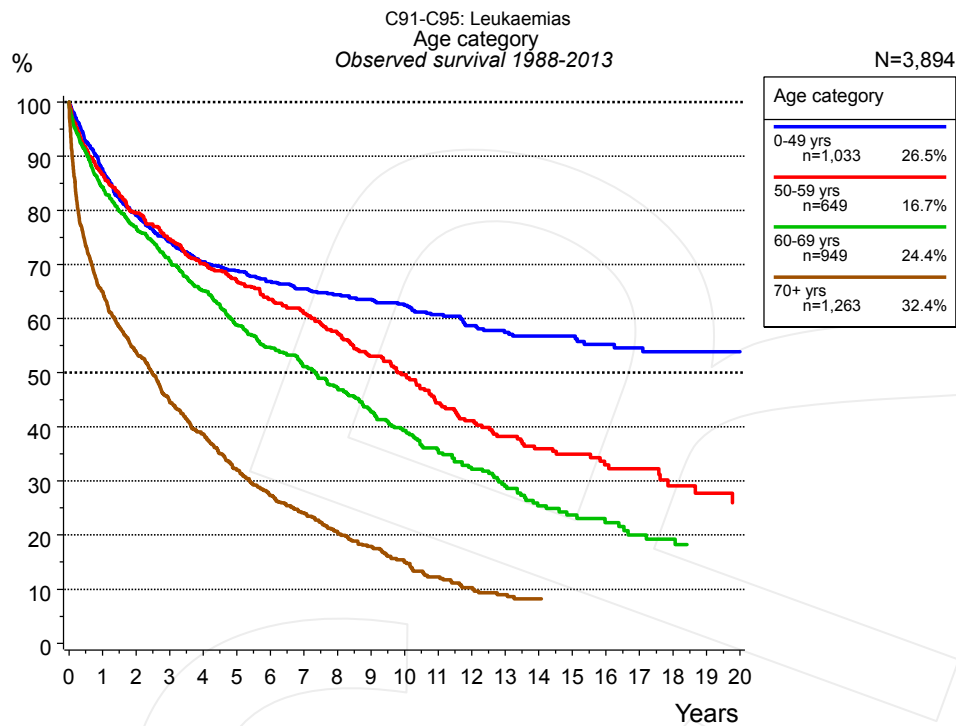


Figure 3b. Observed survival of patients with leukaemias by age category. Included in the evaluation are 3,894 cases diagnosed between 1988 and 2013.

Years	Age category							
	0-49 yrs n=1,033		50-59 yrs n=649		60-69 yrs n=949		70+ yrs n=1,263	
	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	87.6	86.6	87.1	84.2	85.5	65.1	68.9
2	79.1	79.3	79.5	80.5	77.0	79.4	53.8	60.3
3	74.2	74.4	74.7	76.1	70.6	74.2	44.8	53.0
4	70.5	70.8	70.2	72.2	65.1	69.7	38.7	48.5
5	68.8	69.2	66.8	69.4	58.8	64.2	32.0	42.9
6	66.8	67.3	63.5	66.6	54.7	60.9	27.3	39.0
7	65.5	66.0	61.0	64.6	51.2	58.4	24.1	36.8
8	64.4	65.1	57.4	61.3	47.3	55.1	20.5	33.7
9	63.6	64.3	53.0	57.5	43.0	51.6	17.9	31.6
10	62.4	63.4	49.6	54.3	39.4	48.7	15.0	28.8
11	60.7	61.7	44.4	49.2	35.8	45.6	12.3	25.0
12	58.7	59.8	41.1	46.1	32.2	42.8	10.3	22.9
13	57.4	58.8	38.2	43.6	29.0	39.9	9.0	21.8
14	56.7	58.1	36.0	41.8	25.4	36.7	8.2	21.4
15	56.7	58.0	34.9	41.1	23.7	35.4		
16	55.2	56.6	32.9	39.6	22.3	35.2		
17	54.6	55.9	32.2	39.0	20.0	33.4		
18	53.8	55.7	29.1	36.4	19.2	33.3		
19	53.8	55.4	27.7	35.2				
20	53.8	55.2						

Table 3c. Observed (obs.) and relative (rel.) survival of patients with leukaemias by age category for period 1988-2013 (N=3,894).

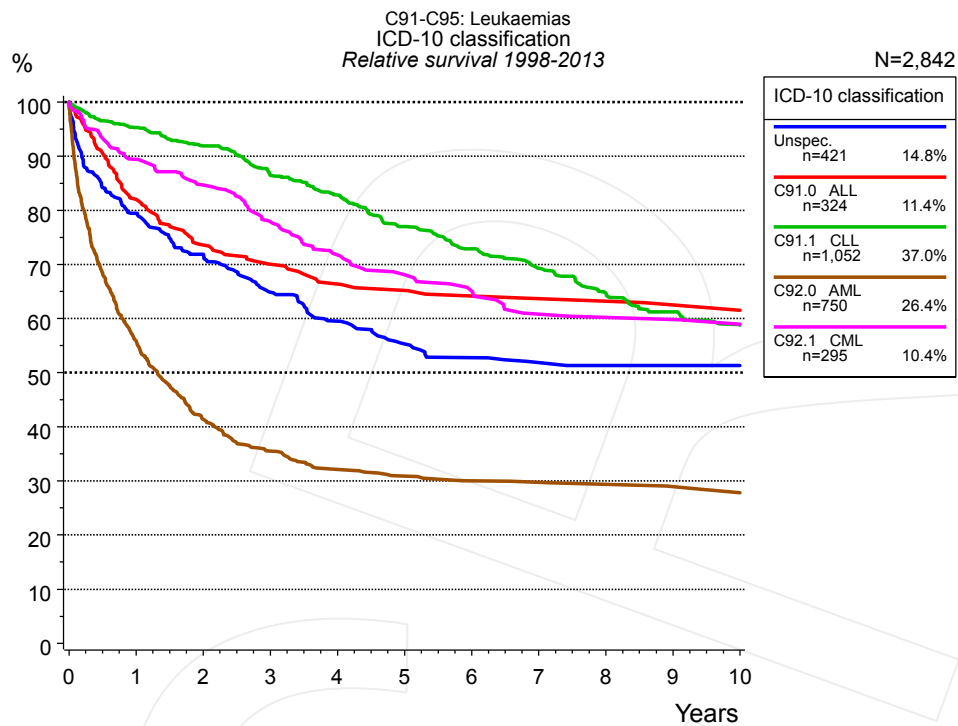


Figure 4a. Relative survival of patients with leukaemias by ICD-10 classification. Included in the evaluation are 2,842 cases diagnosed between 1998 and 2013.

		ICD-10 classification									
		Unspec. n=421		C91.0 ALL n=324		C91.1 CLL n=1,052		C92.0 AML n=750		C92.1 CML n=295	
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		77.2	79.4	81.7	82.0	92.6	95.3	54.8	55.9	87.9	89.4
2		67.9	71.8	73.3	73.6	86.8	91.9	39.9	41.4	81.9	84.6
3		60.1	64.9	69.6	70.1	79.5	86.5	34.0	35.5	74.0	77.9
4		54.1	59.5	66.2	66.4	74.3	82.8	30.5	32.1	67.3	71.7
5		49.0	55.3	65.1	65.2	67.4	77.0	29.1	30.9	62.7	68.1
6		46.0	52.7	63.8	64.2	62.3	72.9	28.0	30.1	59.8	65.1
7		44.4	51.9	63.0	63.7	57.7	69.3	27.7	29.8	54.9	60.8
8		43.2	51.3	63.0	63.2	52.7	64.7	26.8	29.4	53.9	60.2
9		42.5	51.3	61.9	62.5	48.9	61.3	26.2	28.9	53.9	59.8
10		41.6	51.3	61.9	61.5	45.4	58.8	25.5	27.8	52.3	58.9

Table 4b. Observed (obs.) and relative (rel.) survival of patients with leukaemias by ICD-10 classification for period 1998-2013 (N=2,842).

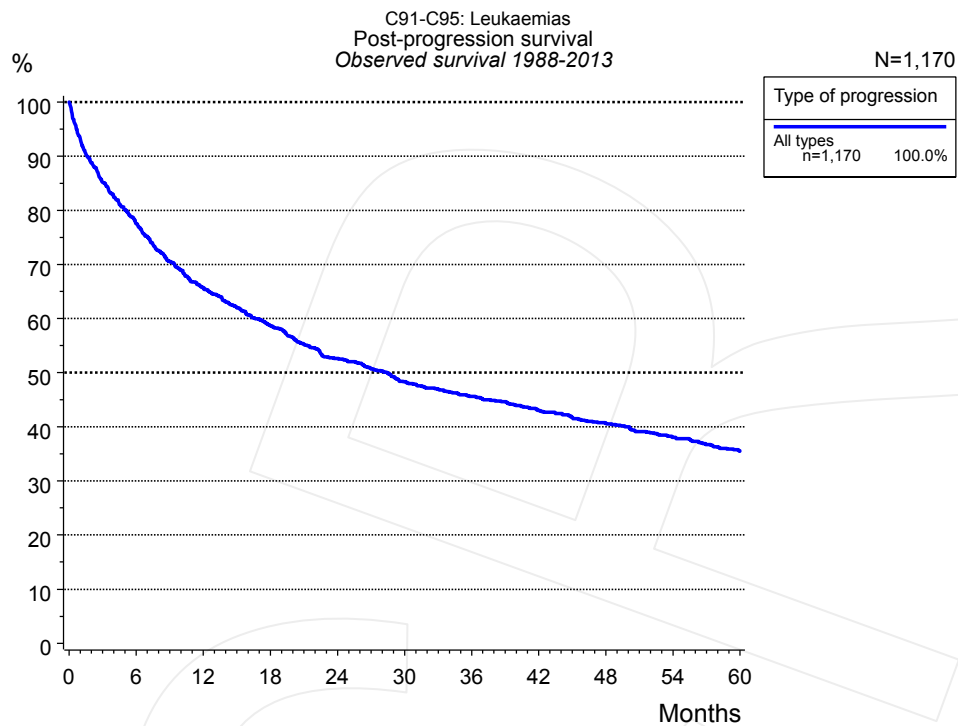


Figure 5a. Observed post-progression survival of 1,170 patients with leukaemias diagnosed between 1988 and 2013 (incl. M1). These 1,170 patients with documented progression events during their course of disease represent 30.0% of the totally 3,894 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=712, 18.3%).

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=1,170	
Months	%
0	100.0
12	65.7
24	52.6
36	45.6
48	40.6
60	35.5

Table 5b. Observed post-progression survival of patients with leukaemias for period 1988-2013 (N=1,170).

Shortcuts

MCR	Munich Cancer Registry, Germany (Tumorregister München)
NCI	National Cancer Institute, USA
SEER	Surveillance, Epidemiology, and End Results, USA
UICC	Union for International Cancer Control, Geneva
DCO	Death certificate only. The death certificate provides the only notification to the registry.
NA	Not available
NOS	Not otherwise specified
OS	Observed/overall survival (Kaplan-Meier estimate)
RS	Relative survival, compared to the general population, ratio of observed to expected survival (Ederer II method), reflecting excess mortality among cancer patients
AS	Assembled survival chart (observed, expected, relative)
PPS	Post-progression survival, survival since first relapse (Kaplan-Meier estimate)
progression	Date of entry: Date of first locoregional recurrence, distant metastasis, unspecified
	Event: Death of all causes
CS	Conditional survival, survival probability under the condition of surviving a given period of time

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