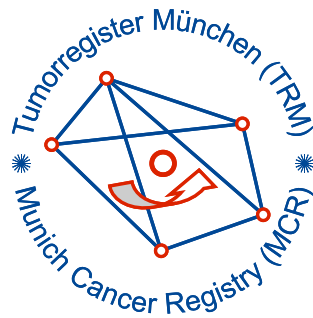


# Munich Cancer Registry



- ▶ Baseline statistics
- ▶ Selection Matrix
- ▶ Homepage
- ▶ *Deutsch*

Munich Cancer Registry at Munich Cancer Center  
Marchioninstr. 15  
Munich, 81377  
Germany

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

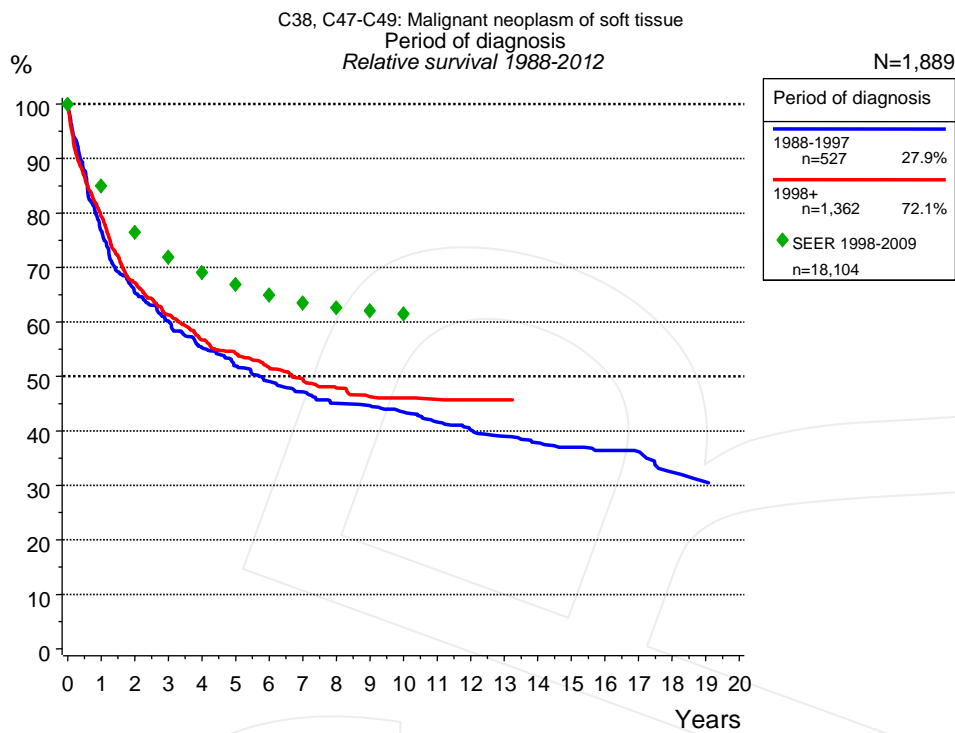
## Cancer statistics: Survival

### C38, C47-C49: Sarcoma

Year of diagnosis	1988-2012
Patients	3,402
Diseases	3,416
Cases evaluated	1,889
Creation date	03/25/2014
Export date	02/12/2014
Population	4.5 m



[http://www.tumorregister-muenchen.de/en/facts/surv/surv\\_C3849E.pdf](http://www.tumorregister-muenchen.de/en/facts/surv/surv_C3849E.pdf)



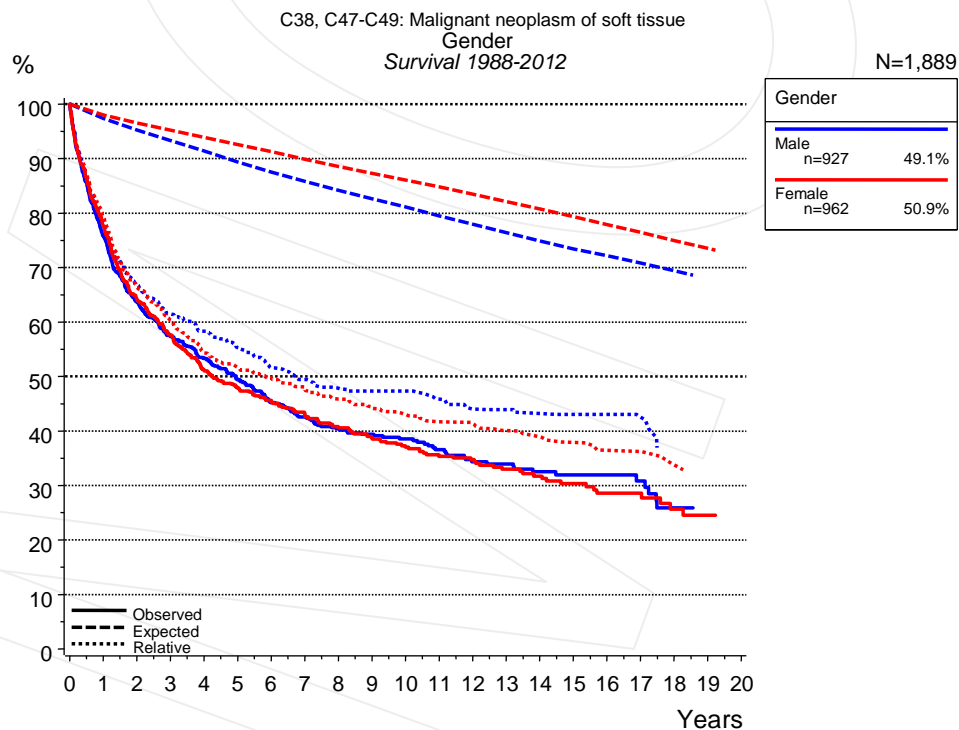
**Figure 1a.** Relative survival of patients with sarcoma by period of diagnosis. Included in the evaluation are 1,889 cases diagnosed between 1988 and 2012.

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 n=527		1998+ n=1,362	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	74.9	76.6	77.5	79.3
2	62.7	65.3	64.4	67.2
3	56.8	60.1	57.8	61.3
4	51.1	55.2	52.7	56.7
5	47.2	51.9	49.5	54.2
6	43.9	49.1	46.3	51.6
7	41.5	47.2	43.7	49.4
8	39.0	45.1	41.5	47.9
9	38.0	44.6	39.5	46.3
10	36.2	43.5	39.1	46.0
11	34.0	41.6	38.2	45.8
12	32.4	40.2	37.7	45.7
13	30.9	39.0	37.7	45.7
14	29.5	37.8		
15	28.4	37.0		
16	27.5	36.4		
17	27.0	36.1		
18	23.6	32.4		
19	22.3	30.6		

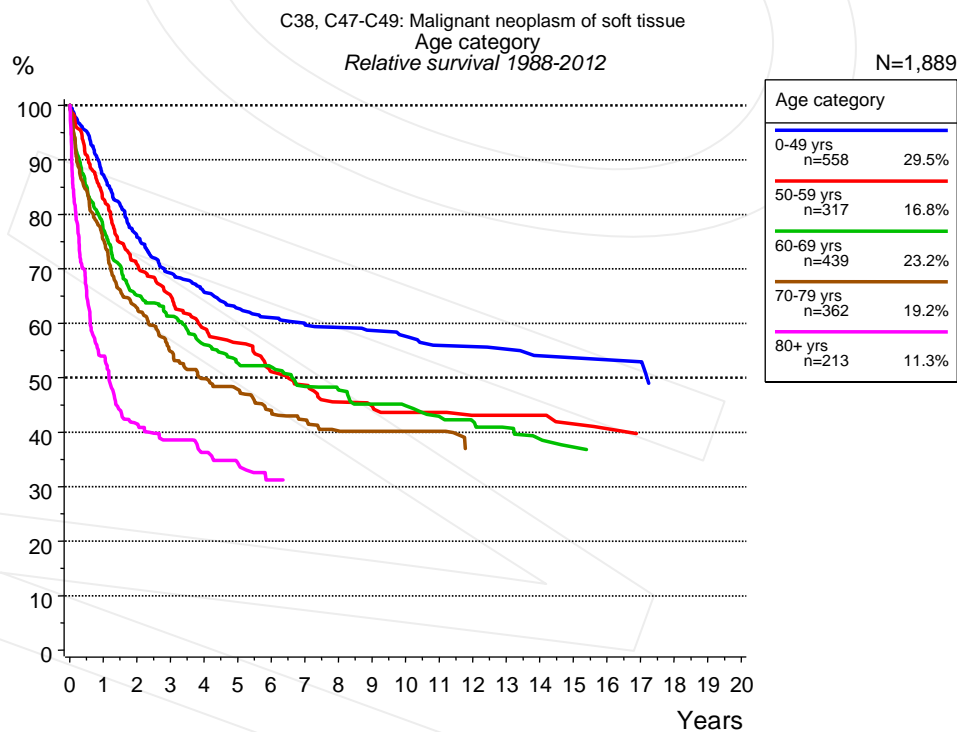
**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with sarcoma by period of diagnosis for period 1988-2012 (N=1,889).



**Figure 2a.** Survival of patients with sarcoma by gender. Included in the evaluation are 1,889 cases diagnosed between 1988 and 2012.

Years	Gender			
	Male n=927		Female n=962	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	75.8	77.8	77.6	79.2
2	63.7	66.8	64.2	66.4
3	57.4	61.5	57.6	60.4
4	53.3	58.3	51.2	54.3
5	49.5	55.3	48.0	51.7
6	45.2	51.6	45.6	49.8
7	42.6	49.4	43.2	47.7
8	40.4	47.8	40.6	45.8
9	39.4	47.3	38.8	44.2
10	38.6	47.3	37.0	43.0
11	36.6	45.9	35.4	41.7
12	34.4	44.1	34.7	41.4
13	33.9	43.9	33.0	40.1
14	32.5	43.2	31.7	38.9
15	31.9	43.0	30.3	37.9
16	31.9	43.0	28.6	36.4
17	30.8	42.5	28.6	36.2
18	25.9	36.2	25.7	33.8

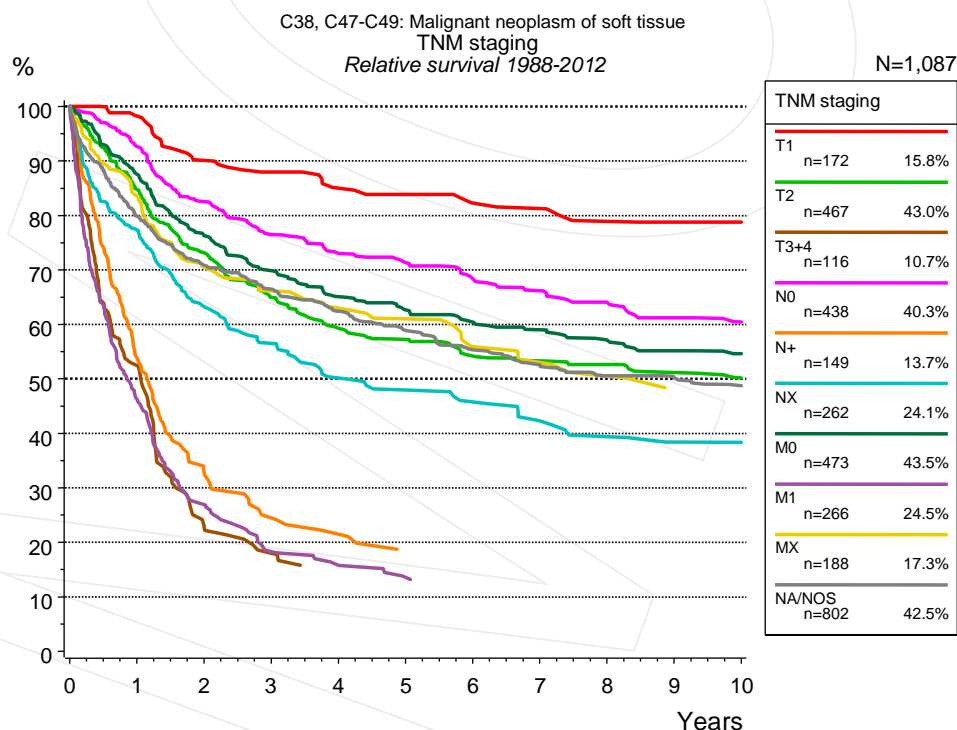
**Table 2b.** Observed (obs.) and relative (rel.) survival of patients with sarcoma by gender for period 1988-2012 (N=1,889).



**Figure 3a.** Relative survival of patients with sarcoma by age category. Included in the evaluation are 1,889 cases diagnosed between 1988 and 2012.

Years	Age category									
	0-49 yrs n=558		50-59 yrs n=317		60-69 yrs n=439		70-79 yrs n=362		80+ yrs n=213	
	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	87.1	87.2	82.4	82.8	76.1	77.1	72.9	75.2	48.7	54.0
2	75.6	75.8	70.1	70.8	63.3	65.1	58.6	62.7	33.6	41.5
3	69.1	69.2	64.0	65.1	58.8	61.3	49.0	54.8	27.9	38.6
4	65.5	65.7	57.7	59.0	52.8	56.1	42.7	49.8	22.5	36.3
5	62.4	62.7	54.6	56.4	48.9	52.7	38.9	47.9	18.3	34.3
6	60.7	61.0	49.0	51.1	47.3	52.0	34.1	44.0	14.4	31.2
7	59.4	59.7	46.5	48.6	43.3	48.4	30.9	42.2		
8	58.7	59.2	42.9	45.5	41.3	47.8	27.7	40.2		
9	57.8	58.6	42.3	44.8	38.5	45.2	27.0	40.2		
10	56.9	57.6	40.5	43.6	36.6	44.8	25.5	40.2		
11	54.9	55.9	40.5	43.6	33.9	42.8	22.6	40.2		
12	54.9	55.7	38.8	43.1	32.5	42.0	18.3	36.5		
13	54.2	55.2	38.8	43.1	30.3	40.8				
14	52.6	54.0	38.8	43.1	27.8	38.7				
15	52.6	53.7	36.5	41.5	25.6	37.3				
16	52.6	53.3	35.1	40.6	24.1	36.8				
17	52.6	52.9	33.2	39.4	24.1	36.8				

**Table 3b.** Observed (obs.) and relative (rel.) survival of patients with sarcoma by age category for period 1988-2012 (N=1,889).

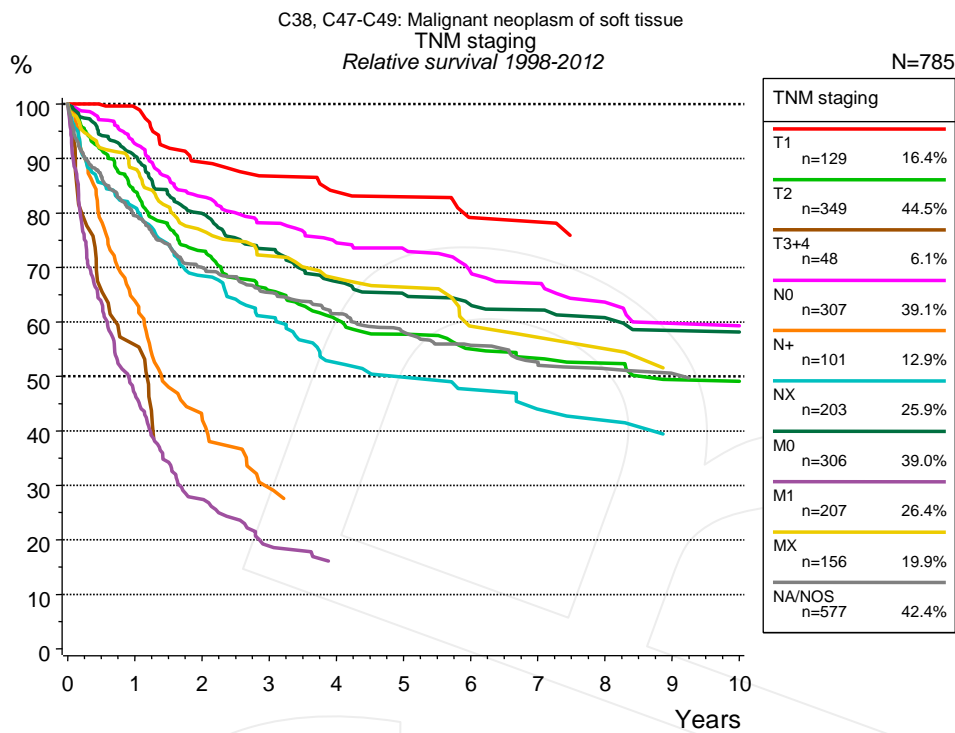


**Figure 4a.** Relative survival of patients with sarcoma by TNM staging. For 1,087 of 1,889 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 802 patients with missing values regarding TNM staging (42.5% of 1,889 patients, the percent values of all other categories are related to n=1,087).

TNM staging														
Years	T1 n=172		T2 n=467		T3+4 n=116		N0 n=438		N+ n=149		NX n=262		M0 n=473	
	obs. %	rel. %	obs. %	rel. %	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	100.0	100.0	100.0	100.0
1	96.4	98.2	83.2	84.7	51.6	52.4	91.2	92.6	53.7	53.8	75.3	77.3	86.1	87.5
2	87.0	90.1	70.7	73.1	22.0	22.7	80.0	82.5	32.4	32.7	60.4	63.2	73.9	76.3
3	83.6	88.0	61.8	65.0	17.2	18.0	73.0	76.5	24.4	24.4	53.0	56.5	66.6	69.8
4	79.6	85.0	55.8	59.3			69.0	73.0	21.4	21.5	46.1	50.1	61.2	65.1
5	77.9	83.9	53.0	57.2			66.2	71.3	17.9	17.9	43.5	47.9	58.0	62.7
6	74.7	82.3	49.4	54.2			62.7	68.4			40.5	45.8	55.2	60.4
7	73.7	81.3	47.9	53.3			59.8	66.2			36.4	42.3	53.1	59.0
8	70.2	78.9	46.7	52.6			56.7	64.0			33.8	39.4	50.4	57.1
9	68.9	78.7	44.4	51.1			53.8	61.2			31.7	38.4	48.2	55.2
10	68.9	78.7	42.8	50.2			52.1	60.4			31.7	38.3	46.8	54.6

TNM staging						
<i>cont'd</i>	M1 n=266		MX n=188		NA/NOS n=802	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	45.6	46.2	81.7	83.6	77.7	79.9
2	26.4	26.9	67.6	70.5	67.5	70.8
3	17.9	18.3	62.5	66.1	62.2	66.5
4	15.6	15.7	58.8	63.0	57.2	62.4
5	13.1	13.5	56.2	61.0	53.0	58.9
6	12.4	12.5	50.3	56.0	48.9	55.3
7			47.6	53.0	45.8	52.5
8			44.9	50.5	42.9	50.5
9			41.5	48.3	42.0	50.2
10			41.5	47.5	39.9	48.7

**Table 4b.** Observed (obs.) and relative (rel.) survival of patients with sarcoma by TNM staging for period 1988-2012 (N=2,531).

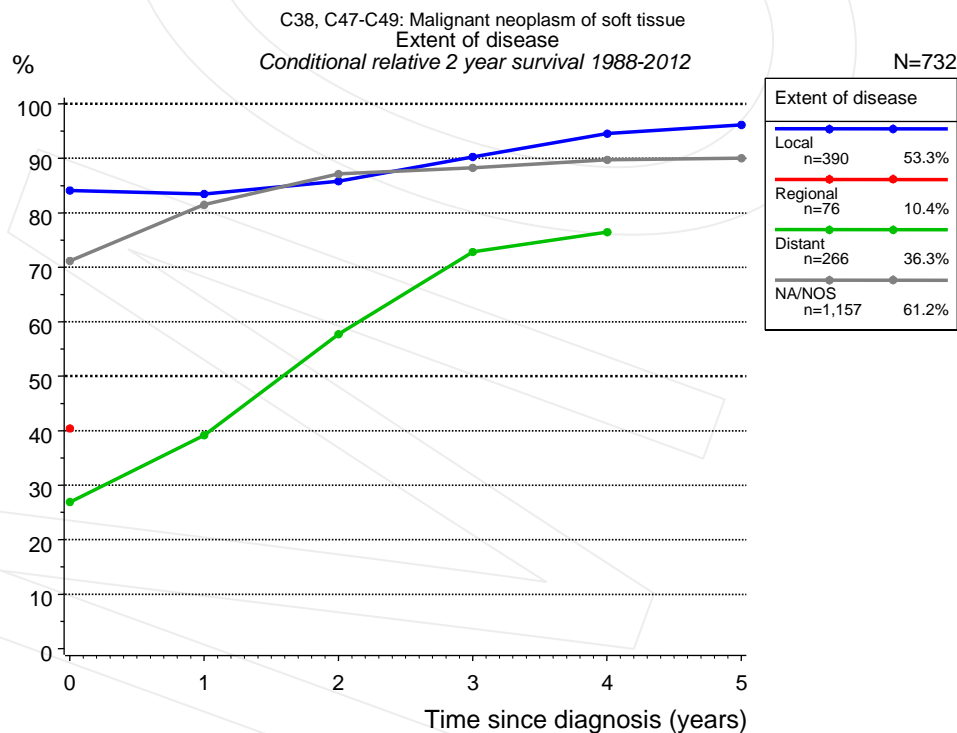


**Figure 4c.** Relative survival of patients with sarcoma by TNM staging. For 785 of 1,362 cases diagnosed between 1998 and 2012 valid data could be obtained for this item. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 577 patients with missing values regarding TNM staging (42.4% of 1,362 patients, the percent values of all other categories are related to n=785).

Years	TNM staging													
	T1 n=129		T2 n=349		T3+4 n=48		N0 n=307		N+ n=101		NX n=203		M0 n=306	
	obs. %	rel. %	obs. %	rel. %	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	100.0	100.0	100.0	100.0
1	97.6	99.4	82.4	83.9	56.1	55.7	91.3	92.7	64.2	63.9	79.0	81.0	89.0	90.4
2	86.5	89.3	70.6	73.0			80.6	83.0	42.4	42.6	65.4	68.5	77.5	79.9
3	82.5	86.7	62.5	65.7			74.9	78.1	29.8	29.5	57.3	60.9	70.4	73.4
4	79.0	83.9	56.9	60.4			70.8	74.5			48.6	52.5	63.6	67.4
5	77.6	82.9	53.5	57.7			68.5	73.4			45.8	49.9	60.6	65.2
6	72.2	79.1	49.9	55.0			64.0	69.1			42.3	47.6	58.5	63.1
7	72.2	78.3	47.9	53.3			61.6	67.1			38.1	44.0	56.9	62.2
8			46.4	52.4			56.8	63.6			36.7	41.9	54.1	60.8
9			42.6	49.4			53.3	59.7			32.7	39.4	51.8	58.4
10			42.6	49.1			53.3	59.3			32.7	38.6	51.8	58.1

cont'd	TNM staging					
	M1 n=207		MX n=156		NA/NOS n=577	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
Years						
0	100.0	100.0	100.0	100.0	100.0	100.0
1	46.3	46.8	86.3	88.1	77.4	79.5
2	27.1	27.4	74.0	76.8	66.6	70.0
3	18.6	18.8	68.4	72.1	61.1	65.4
4	15.4	15.1	63.9	68.0	56.3	61.5
5			61.7	66.4	52.3	58.1
6			53.6	59.2	49.2	55.7
7			51.8	57.1	45.6	52.6
8			49.8	55.1	43.5	51.4
9			44.6	51.3	42.0	50.6
10			44.6	49.6		

**Table 4d.** Observed (obs.) and relative (rel.) survival of patients with sarcoma by TNM staging for period 1998-2012 (N=1,806).



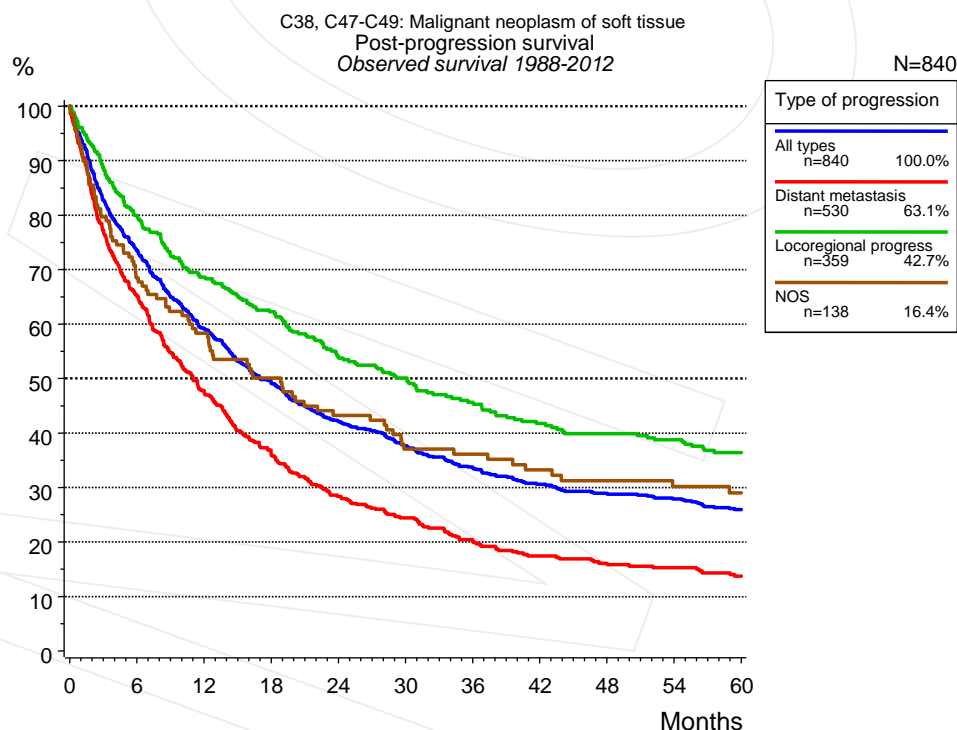
**Figure 4e.** Conditional relative 2-year survival of patients with sarcoma by extent of disease. For 1,087 of 1,889 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 732 cases an evaluable classification was established. The grey line represents the subgroup of 1,157 patients with missing values regarding extent of disease (61.2% of 1,889 patients, the percent values of all other categories are related to n=732).



Years	Extent of disease							
	Local		Regional		Distant		NA/NOS	
	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs
0	390	84.1	76	40.4	266	26.9	1,157	71.2
1	343	83.5			112	39.2	888	81.5
2	288	85.8			60	57.7	690	87.1
3	235	90.3			35	72.8	577	88.2
4	197	94.5			25	76.5	468	89.7
5	172	96.1					387	90.0

**Table 4f.** Conditional relative 2-year survival of patients with sarcoma by extent of disease for period 1988-2012 (N=732).

Conditional relative survival rates refer to the relative survival probability, in this case for 2 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 4c). 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 extent of disease="Local", who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 90.3% (n=235).



**Figure 5a.** Observed post-progression survival of 840 patients with sarcoma diagnosed between 1988 and 2012 (incl. M1). These 840 patients with documented progression events during their course of disease represent 44.5% of the totally 1,889 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=202, 10.7%). Multiple progression types on different sites are included in the evaluation even when not occurring

synchronously. The NOS (not otherwise specified) class is included under the condition, that it is the one and only progression type during the course of disease.

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.

Months	Type of progression			
	All types n=840 %	Distant metastasis n=530 %	Locoregional progress n=359 %	NOS n=138 %
0	100.0	100.0	100.0	100.0
12	59.1	47.6	68.6	58.3
24	42.2	28.4	54.1	43.2
36	33.6	20.2	45.6	36.1
48	29.0	16.1	39.9	31.2
60	26.0	13.7	36.4	29.0

**Table 5b.** Observed post-progression survival of patients with sarcoma for period 1988-2012 (N=840).

**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

**Recommended Citation**

Munich Cancer Registry. Survival C38, C47-C49: Sarcoma [Internet]. 2014 [updated 2014 Mar 25; cited 2014 May 1]. Available from: [http://www.tumorregister-muenchen.de/en/facts/surv/surv\\_C3849E.pdf](http://www.tumorregister-muenchen.de/en/facts/surv/surv_C3849E.pdf)

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