# **Munich Cancer Registry**



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## ICD-10 C49: Soft tissue cancer

Year of diagnosis	1988-1997	1998-2014
Patients	488	2,051
Diseases	488	2,061
Cases evaluated	446	1,546
Creation date	03/02/2016	
Export date	12/23/2015	
Population	4.64 m	

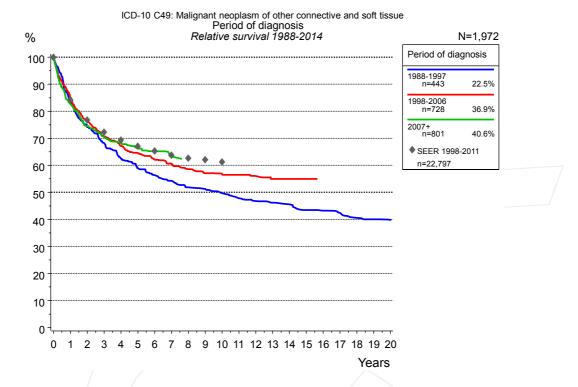


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http://www.tumorregister-muenchen.de/en

http://www.tumorregister-muenchen.de/en/facts/surv/sC49\_E-ICD-10-C49-Soft-tissue-cancer-survival.pdf

### Survival



**Figure 1a.** Relative survival of patients with soft tissue cancer by period of diagnosis. Included in the evaluation are 1,972 cases diagnosed between 1988 and 2014.

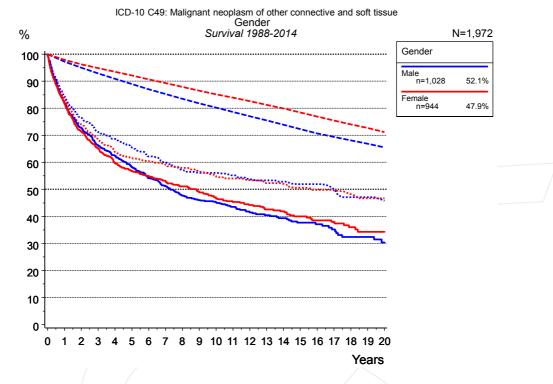
The survival results of the SEER program (Surveillance, Epidemiology, and End Results) of the American National Cancer Institute (NCI) are summarized as the period of diagnosis from 1998 to 2011, and are represented by gray diamonds in order to facilitate comparisons between MCR and SEER.

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 populationbased statistics since 1998, 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.

	F	Period	of diag	gnosis	;	
	1988-	-1997	1998-	2006	200	)7+
	n=4	143	n=7	728	n=8	301
Years	obs. %	rel. %	obs. %	rel. %	obs. $\%$	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	82.0	83.8	83.3	85.2	80.5	82.7
2	71.4	74.2	73.5	76.8	71.1	74.5
3	64.5	68.2	66.5	70.8	66.0	70.5
4	57.9	62.5	62.0	67.1	62.9	68.3
5	53.9	59.0	58.3	64.5	60.0	66.3
6	50.6	56.3	55.2	62.1	57.7	65.2
7	47.9	54.2	53.0	60.6	55.2	63.3
8	45.0	51.9	50.2	58.6		
9	43.8	51.2	47.9	57.1		
10	41.6	49.7	46.8	56.7		
11	39.4	47.9	46.1	56.5		
12	37.8	46.7	44.6	56.0		
13	36.8	46.2	43.0	55.0		
14	35.8	45.6	42.5	55.0		
15	33.4	43.4	42.5	55.0		
16	32.7	43.3				
17	31.6	42.4				
18	29.6	40.6				
19	28.9	40.1				
20	28.0	39.8				

**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with soft tissue cancer by period of diagnosis for period 1988-2014 (N=1,972).

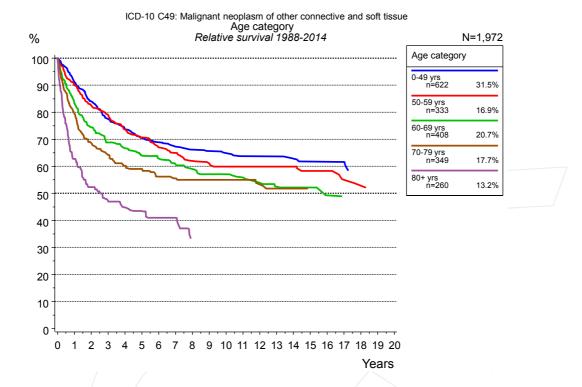
03/02/2016



**Figure 2a.** Survival of patients with soft tissue cancer by gender. Included in the evaluation are 1,972 cases diagnosed between 1988 and 2014.

	C	Gende	r	
	Ma	ale	Ferr	nale
	n=1,	028	n=9	944
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	82.0	84.3	81.7	83.5
2	72.7	76.5	71.3	74.0
3	66.2	71.3	65.2	68.6
4	62.4	68.6	59.8	63.8
5	58.3	65.4	56.8	61.6
6	54.1	62.2	55.0	60.5
7	51.2	60.0	53.2	59.2
8	47.8	57.1	51.1	58.0
9	46.1	56.1	49.0	56.5
10	45.2	56.1	46.6	54.7
11	43.5	55.2	45.3	54.0
12	41.5	53.8	44.2	53.4
13	40.4	53.3	42.6	52.3
14	39.3	52.9	41.9	52.1
15	37.7	51.9	40.0	50.6
16	37.1	51.9	38.5	49.8
17	35.2	50.0	38.0	49.6
18	32.4	47.1	36.0	48.2
19	32.4	47.1	34.3	46.7
20	30.4	45.8	34.3	46.7

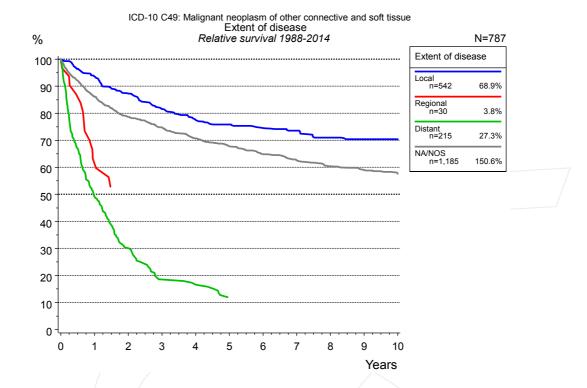
**Table 2b.** Observed (obs.) and relative (rel.) survival of patients with soft tissue cancer by gender for period 1988-2014 (N=1,972).



**Figure 3a.** Relative survival of patients with soft tissue cancer by age category. Included in the evaluation are 1,972 cases diagnosed between 1988 and 2014.

		Age category									
		0-49	yrs	50-59	9 yrs	60-6	9 yrs	70-79 yrs		80+	yrs
		n=6	622	n=3	333	n=4	108	n=3	349	n=2	260
	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	91.1	91.2	89.6	89.9	82.3	83.3	76.8	79.4	56.5	62.8
	2	83.8	84.0	81.6	82.4	72.5	74.4	64.1	68.6	42.3	52.3
	3	77.5	77.5	77.6	78.9	66.1	68.8	57.5	64.2	33.4	47.1
	4	73.5	73.7	71.9	73.6	62.8	66.7	51.7	60.2	28.0	44.8
	5	70.0	70.5	68.5	70.7	59.4	64.0	48.4	59.0	23.6	43.5
	6	68.4	68.9	64.3	67.0	57.3	62.9	43.7	56.2	19.8	41.0
	7	66.8	67.3	62.1	64.9	54.4	60.7	40.6	55.5	17.2	41.0
	8	65.4	66.2	58.6	62.0	51.4	59.0	38.6	55.0	11.4	33.5
	9	64.7	65.7	57.4	61.1	49.1	57.1	35.3	55.0		
	10	64.0	64.9	55.6	59.9	47.4	57.1	32.8	55.0		
	11	62.5	63.8	55.6	59.9	44.9	55.8	30.8	55.0		
	12	62.5	63.7	54.8	59.9	42.1	53.9	26.1	53.3		
	13	62.5	63.7	53.8	59.9	39.7	52.4	23.6	51.8		
	14	61.3	62.8	53.8	59.9	38.8	52.1	21.9	51.8		
	15	59.9	61.8	50.7	58.3	36.9	52.1	19.7	51.8		
	16	59.9	61.7	50.7	58.3	32.5	49.2				
	17	59.9	61.6	46.1	55.0	30.6	48.9				
	18			44.3	52.8	30.6	48.9				
	19			42.4	51.6						
	20			42.4	50.9						

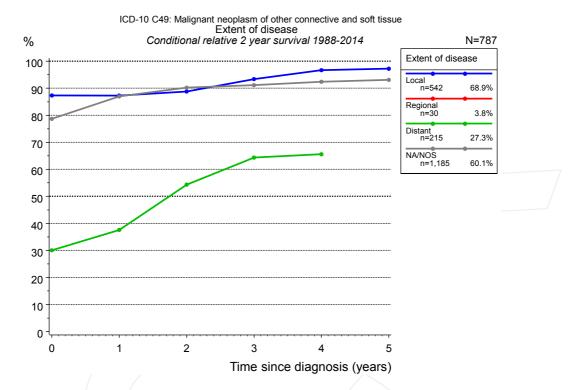
**Table 3b.** Observed (obs.) and relative (rel.) survival of patients with soft tissue cancer by age category for period 1988-2014 (N=1,972).



**Figure 4a.** Relative survival of patients with soft tissue cancer by extent of disease. For 1,147 of 1,972 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 787 cases an evaluable classification was established. The grey line represents the subgroup of 1,185 patients with missing values regarding extent of disease (60.1% of 1,972 patients, the percent values of all other categories are related to n=787).

				Exten	t of dis	sease			
		Lo	cal	Regi	onal	Dist	ant	NA/N	10S
		n=5	542	n=	30	n=2	215	n=1,185	
	Years	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	91.9	93.6	62.3	61.3	48.1	49.1	83.8	86.2
	2	84.5	87.3			29.4	30.1	74.8	78.7
	3	77.6	81.6			17.8	18.5	69.6	74.8
	4	72.6	77.5			16.4	16.6	64.5	70.7
	5	70.2	75.9			11.3	12.0	60.7	67.8
	6	67.8	74.5			11.3	11.3	56.9	64.8
	7	66.0	73.5					54.0	62.6
	8	62.9	71.0					50.9	60.4
	9	61.4	70.4					48.8	59.0
	10	60.2	70.4					46.7	57.6

**Table 4b.** Observed (obs.) and relative (rel.) survival of patients with soft tissue cancer by extent of disease for period 1988-2014 (N=787).



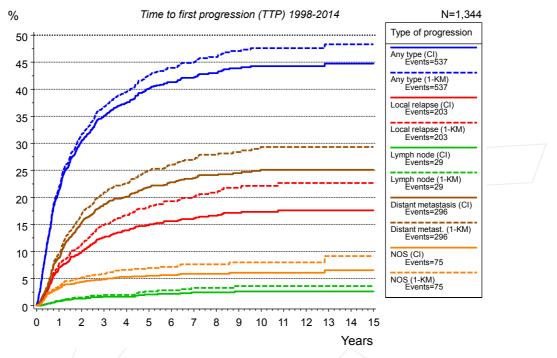
**Figure 4c.** Conditional relative 2-year survival of patients with soft tissue cancer by extent of disease. For 1,147 of 1,972 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 787 cases an evaluable classification was established. The grey line represents the subgroup of 1,185 patients with missing values regarding extent of disease (60.1% of 1,972 patients, the percent values of all other categories are related to n=787).

	Extent of disease								
		Loc	al	Regi	onal	Dist	ant	NA/N	IOS
			Cond.		Cond.		Cond.		Cond.
			surv. %		surv. %		surv. %		surv. %
	Years	n	2 yrs	n	2 yrs	n	2 yrs	n	2 yrs
	0	542	87.3	30		215	30.1	1,185	78.7
	1	482	87.3			97	37.6	969	87.0
	2	411	88.8			55	54.3	824	90.2
	3	342	93.4			30	64.4	722	91.1
	4	285	96.7			24	65.6	636	92.4
	5	249	97.2					564	93.1

**Table 4d.** Conditional relative 2-year survival of patients with soft tissue cancer by extent of disease for period 1988-2014 (N=787).

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 4a). 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 93.4% (n=342).

ICD-10 C49: Malignant neoplasm of other connective and soft tissue

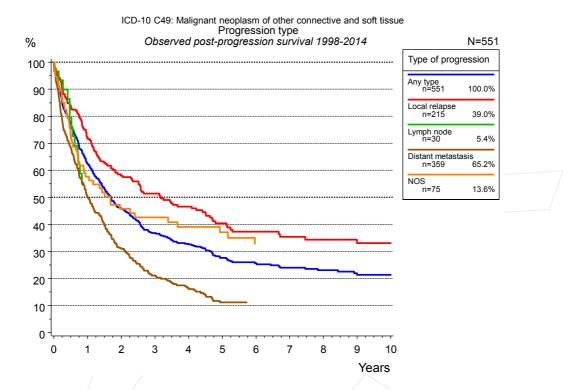


**Figure 5a.** Time to first progression of 1,344 patients with soft tissue cancer diagnosed between 1998 and 2014 (M0 only in solid cancers) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	<b>T</b> ime of any market law										
			Type of	f progressior	า						
							Distant				
	Any type (CI)	Any type (1-KM)	Local relapse (CI)	Local relapse (1-KM)	Lymph node (CI)	Lymph node (1-KM)	metastasis (CI)				
	n=1,344	n=1,344	n=1,344	n=1,344	n=1,344	n=1,344	n=1,344				
Years	%	%	%	%	%	%	%				
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0				
1	21.5	22.1	7.0	7.7	0.8	0.9	8.8				
2	30.4	31.6	9.9	11.2	1.3	1.5	15.3				
3	35.1	36.8	12.6	14.9	1.6	2.0	18.8				
4	37.5	39.5	13.9	16.7	1.6	2.0	20.2				
5	40.1	42.5	14.9	18.2	2.1	2.6	21.9				
6	41.3	43.9	15.6	19.3	2.2	2.8	22.8				
7	42.2	45.0	16.2	20.1	2.4	3.3	23.6				
8	43.0	46.0	16.6	20.9	2.4	3.3	24.1				
9	43.9	47.1	17.1	21.8	2.6	3.6	24.5				
10	44.3	47.6	17.3	22.1	2.6	3.6	25.1				
11	44.3	47.6	17.6	22.7	2.6	3.6	25.1				
12	44.3	47.6	17.6	22.7	2.6	3.6	25.1				
13	44.7	48.3	17.6	22.7	2.6	3.6	25.1				
14	44.7	48.3	17.6	22.7	2.6	3.6	25.1				
15	44.7	48.3	17.6	22.7	2.6	3.6	25.1				

	Type of	f progressior	า
cont'd	Distant metast. (1- KM)	NOS (CI)	NOS (1-KM)
	n=1,344	n=1,344	n=1,344
Years	%	%	%
0	0.0	0.0	0.0
1	9.5	3.3	3.7
2	16.9	4.4	5.2
3	21.0	4.8	5.9
4	22.7	5.3	6.6
5	24.9	5.5	7.0
6	26.1	5.6	7.2
7	27.1	5.9	7.6
8	27.9	5.9	7.6
9	28.4	6.1	8.0
10	29.3	6.1	8.0
11	29.3	6.1	8.0
12	29.3	6.1	8.0
13	29.3	6.6	9.1
14	29.3	6.6	9.1
15	29.3	6.6	9.1

**Table 5b.** Time to first progression of patients with soft tissue cancer for period 1998-2014 (N=1,344).

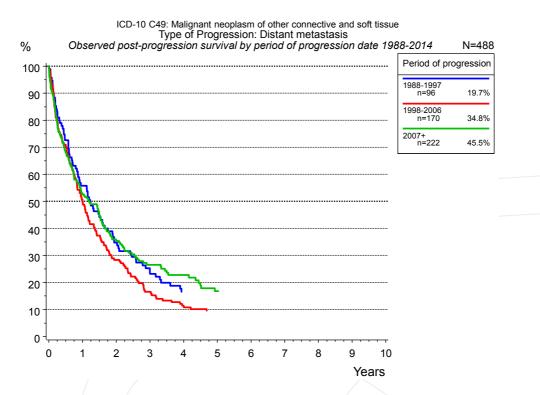


**Figure 5c.** Observed post-progression survival of 551 patients with soft tissue cancer diagnosed between 1998 and 2014. These 551 patients with documented progression events during their course of disease represent 36.3 % of the totally 1,517 evaluated cases (incl. M1, n=173, 11.4 %). Patients with cancer relapse documented via death certificates only were excluded (n=159, 10.5 %). Multiple progression types on different sites are included in the evaluation even when not occuring 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 "Any type" 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 potientially considered in more than one subgroup.

			Type of	f progressio	n	
		Any type	Local relapse	Lymph node	Distant metastasis	NOS
		n=551	n=215	n=30	n=359	n=75
	Years	%	%	%	%	%
	0	100.0	100.0	100.0	100.0	100.0
	1	62.3	72.0		50.0	57.6
	2	45.7	58.0		30.9	45.7
	3	36.8	51.4		21.1	42.6
	4	32.8	46.6		16.6	39.0
	5	27.6	40.4		11.2	37.1
	6	25.6	37.3		11.2	32.8
	7	24.0	35.4		11.2	
	8	23.1	34.3			
	9	21.4	33.1			
	10	21.4	33.1			

**Table 5d.** Observed post-progression survival of patients with soft tissue cancer for period 1998-2014 (N=551).



**Figure 5e.** Observed post-progression (distant metastasis) survival of 488 patients with soft tissue cancer diagnosed between 1988 and 2014 by period of progression.

	Period of	of progressio	n
	1988-1997	1998-2006	2007+
	n=96	n=170	n=222
Years	%	%	%
0	100.0	100.0	100.0
1	55.8	50.0	52.5
2	34.7	28.3	35.3
3	24.2	16.5	26.5
4	16.6	11.4	22.8
5			16.8
6			16.8
7			16.8

**Table 5f.** Observed post-progression (distant metastasis) survival of patients with soft tissue cancer for period 1988-2014 by period of progression (N=488).



#### Shortcuts

MCR	Munich Cancer Registry, G	ermany
NCI	National Cancer Institute, L	JSA
SEER	Surveillance, Epidemiology	r, and End Results, USA
UICC	Union for International Can	cer Control, Geneva
DCO	Death certificate only	Death certificate provides the only notification to the registry.
NA	Not available	
NOS	Not otherwise specified	
OS	Overall/Observed survival	Overall/Observed survival (Kaplan-Meier estimate) Date of entry: diagnosis Event: death from any cause
RS	Relative survival	Survival compared to "general population", ratio of observed to expected survival (Ederer II method), reflecting cancer specific survival
AS	Assembled survival	Assembled chart of observed, expected, relative survival
CS	Conditional survival	Survival probability under the condition of surviving a given period of time
TTP	Time to progression	Time to first progression / relapse Date of entry: diagnosis Event: (progression / relapse): first local-, lymph node recurrence, distant metastasis or unspecified progression
	1-KM	1 minus Kaplan-Meier estimator ("inverse" Kaplan-Meier estimator)
	CI	Cumulative incidence Death as competing risk (according to Kalbfleisch und Prentice)
PPS	Post-progression survival	Survival since first progression / relapse (Kaplan-Meier estimate) Date of entry (progression / relapse): first local-, lymph node recurrence, distant metastasis or unspecified progression Event: death from any cause

#### **Recommended Citation**

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