

Munich Cancer Registry



- ▶ Incidence and Mortality
- ▶ Selection Matrix
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GIST: Gastroint. stromal tumor

Survival

Year of diagnosis	1994-1997	1998-2016
Patients	6	1,080
Diseases	6	1,081
Cases evaluated	5	775
Creation date	08/22/2018	
Export date	08/09/2018	
Population	4.81 m	



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

<https://www.tumorregister-muenchen.de/en/facts/surv/shGISTE-GIST-Gastroint.-stromal-tumor-survival.pdf>

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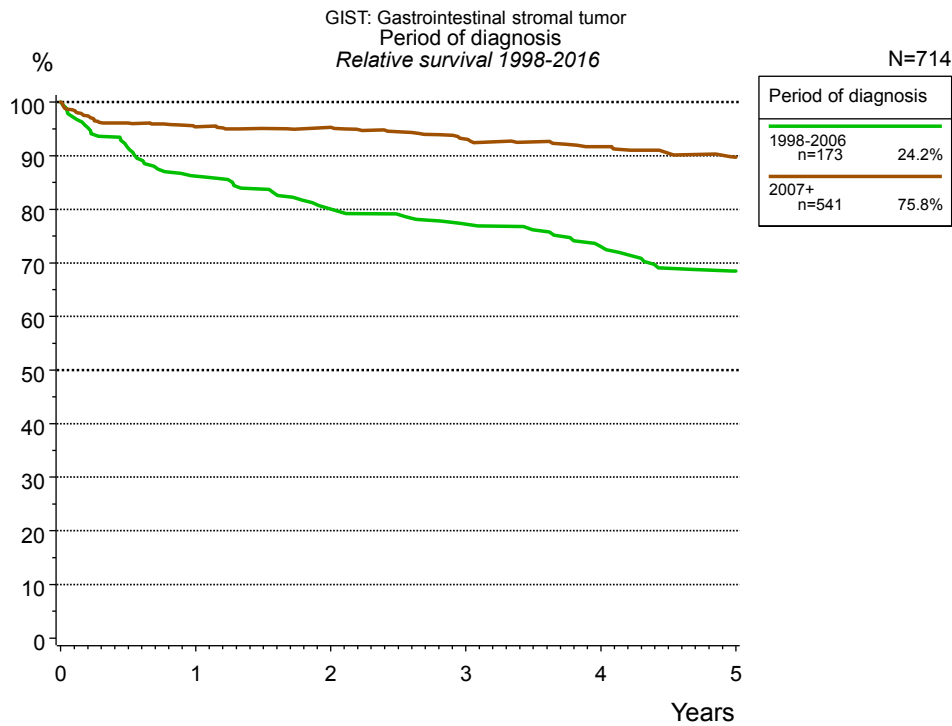


Figure 1a. Relative survival of patients with gastroint. stromal tumor by period of diagnosis. Included in the evaluation are 714 cases diagnosed between 1998 and 2016.

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 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.

Years	Period of diagnosis			
	1998-2006 n=173		2007+ n=541	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	84.2	86.2	93.1	95.4
2	77.2	80.1	91.0	95.3
3	72.5	77.2	86.6	93.1
4	67.8	73.1	83.1	91.7
5	61.8	68.5	79.0	89.7

Table 1b. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by period of diagnosis for period 1998-2016 (N=714).

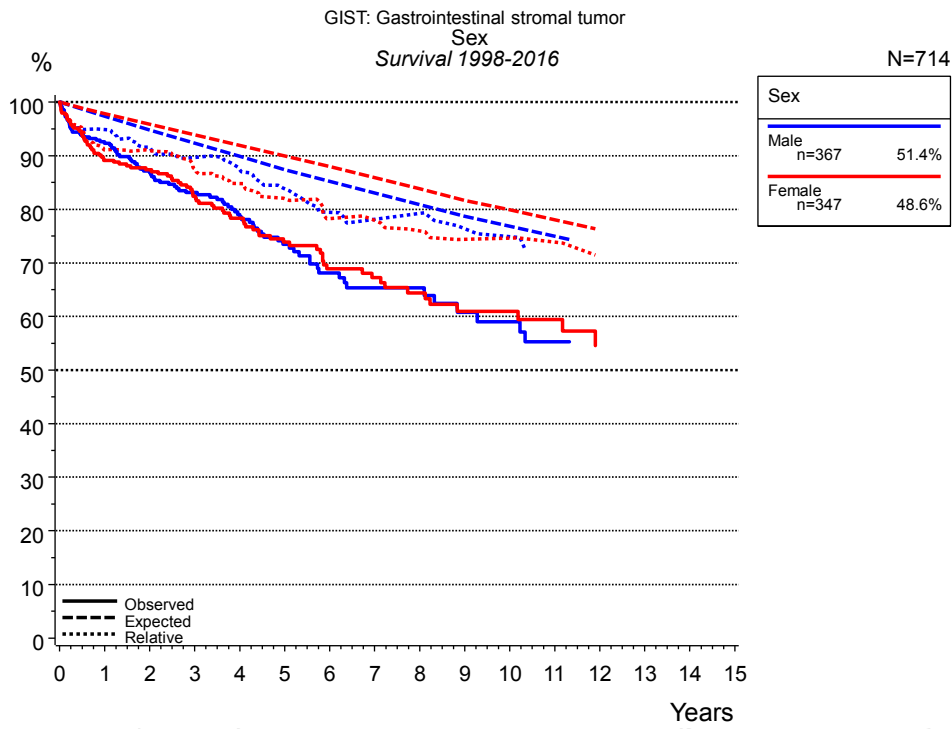


Figure 2a. Survival of patients with gastroint. stromal tumor by sex. Included in the evaluation are 714 cases diagnosed between 1998 and 2016.

Years	Sex			
	Male n=367		Female n=347	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	92.3	94.9	89.1	91.1
2	87.2	91.6	87.4	91.0
3	83.1	89.7	82.4	87.5
4	79.0	87.4	78.3	84.8
5	73.5	83.8	73.9	82.0
6	68.1	79.4	68.9	78.3
7	65.4	78.1	67.2	77.9
8	65.4	79.2	64.4	76.0
9	60.8	76.3	61.0	74.4
10	59.0	74.9	61.0	74.6
11	55.3	71.8	59.4	73.9
12			54.6	71.1

Table 2b. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by sex for period 1998-2016 (N=714).

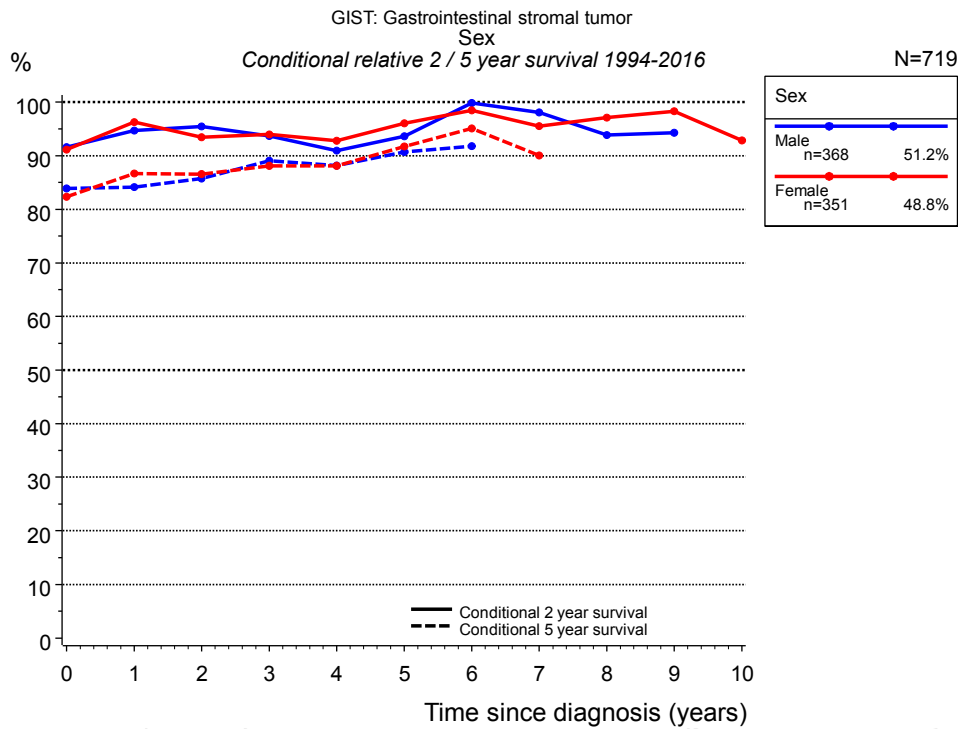


Figure 2c. Conditional relative 2 / 5-year survival of patients with gastroint. stromal tumor by sex. For 719 of 719 cases diagnosed between 1994 and 2016 valid data could be obtained for this item.

Years	Sex					
	n	Male		Female		
		Cond. surv. %	2 yrs	5 yrs	n	Cond. surv. %
0	368	91.6	83.9	351	91.1	82.4
1	306	94.7	84.2	275	96.3	86.7
2	249	95.4	85.7	235	93.4	86.6
3	204	93.7	89.0	195	94.0	88.1
4	166	90.9	88.2	157	92.8	88.1
5	109	93.6	90.7	124	96.1	91.7
6	80	99.8	91.8	98	98.5	95.1
7	58	98.0		80	95.5	90.0
8	48	93.9		64	97.1	
9	36	94.2		51	98.3	
10				43	92.9	

Table 2d. Conditional relative 2 / 5-year survival of patients with gastroint. stromal tumor by sex for period 1994-2016 (N=719).

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 sex="Male", who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 93.7% (n=204).

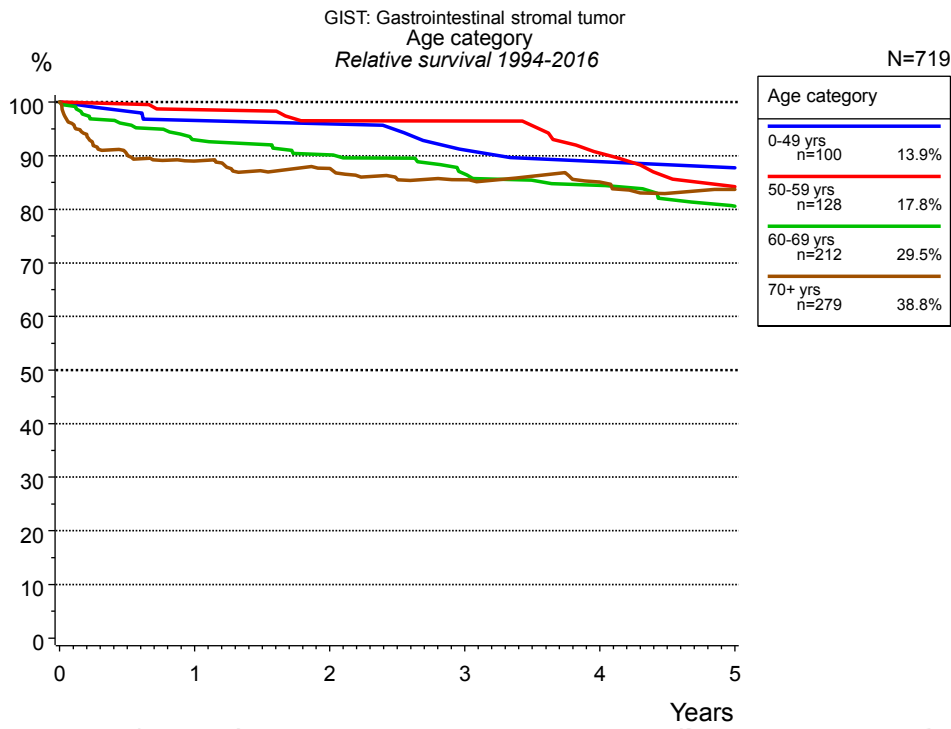


Figure 3a. Relative survival of patients with gastroint. stromal tumor by age category. Included in the evaluation are 719 cases diagnosed between 1994 and 2016.

Years	Age category							
	0-49 yrs n=100		50-59 yrs n=128		60-69 yrs n=212		70+ yrs n=279	
	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	96.7	96.6	98.3	98.6	91.9	93.0	84.5	89.0
2	96.7	95.9	95.5	96.5	88.5	90.2	79.4	87.6
3	90.8	91.1	95.5	96.5	83.8	86.6	73.4	85.5
4	89.1	88.9	88.5	90.5	80.8	84.4	69.3	85.1
5	89.1	87.7	81.7	84.2	75.3	80.6	64.2	83.7

Table 3b. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by age category for period 1994-2016 (N=719).

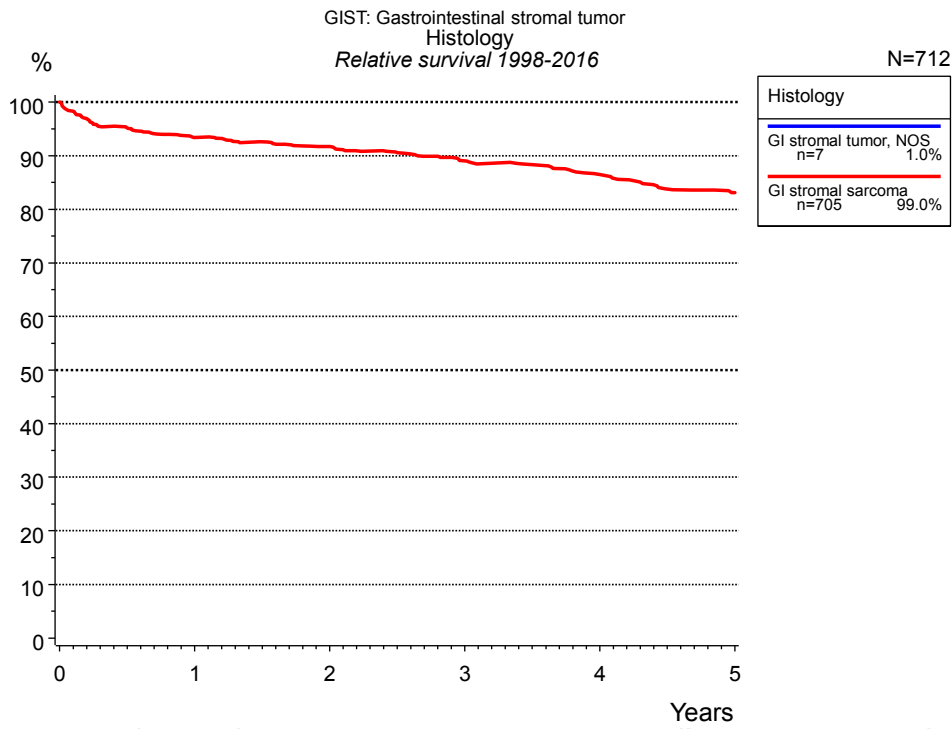


Figure 4a. Relative survival of patients with gastroint. stromal tumor by histology. For 712 of 714 cases diagnosed between 1998 and 2016 valid data could be obtained for this item. Subgroups with sample size <20 are omitted from the chart.

Histology		
GI stromal sarcoma n=705		
Years	obs. %	rel. %
0	100.0	100.0
1	91.1	93.4
2	87.6	91.7
3	83.0	89.0
4	78.8	86.5
5	73.7	83.1

Table 4b. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by histology for period 1998-2016 (N=712).

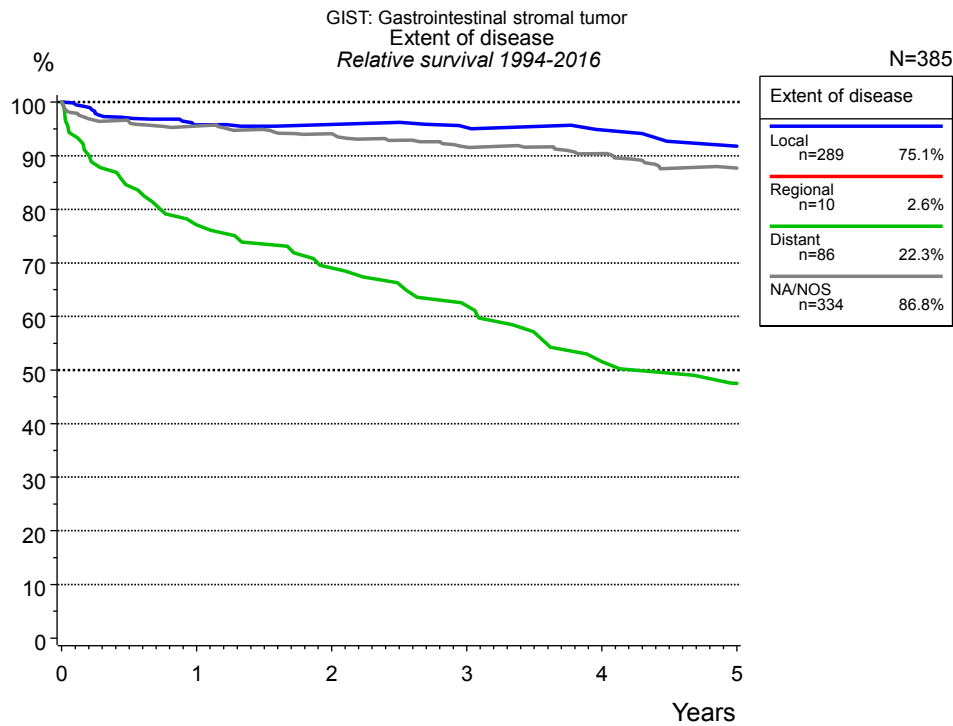


Figure 4c. Relative survival of patients with gastroint. stromal tumor by extent of disease. For 406 of 719 cases diagnosed between 1994 and 2016 valid data could be obtained for this item. For a total of 385 cases an evaluable classification was established. The grey line represents the subgroup of 334 patients with missing values regarding extent of disease (46.5 % of 719 patients, the percent values of all other categories are related to n=385). Subgroups with sample size <20 are omitted from the chart.

Years	Extent of disease					
	Local n=289		Distant n=86		NA/NOS n=334	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	93.8	95.8	75.2	77.1	93.2	95.5
2	92.4	95.8	66.5	69.1	89.6	94.1
3	89.6	95.3	58.5	62.0	85.1	91.6
4	86.8	94.9	48.8	51.6	82.0	90.4
5	83.7	91.8	42.9	47.5	77.4	87.7

Table 4d. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by extent of disease for period 1994-2016 (N=385).

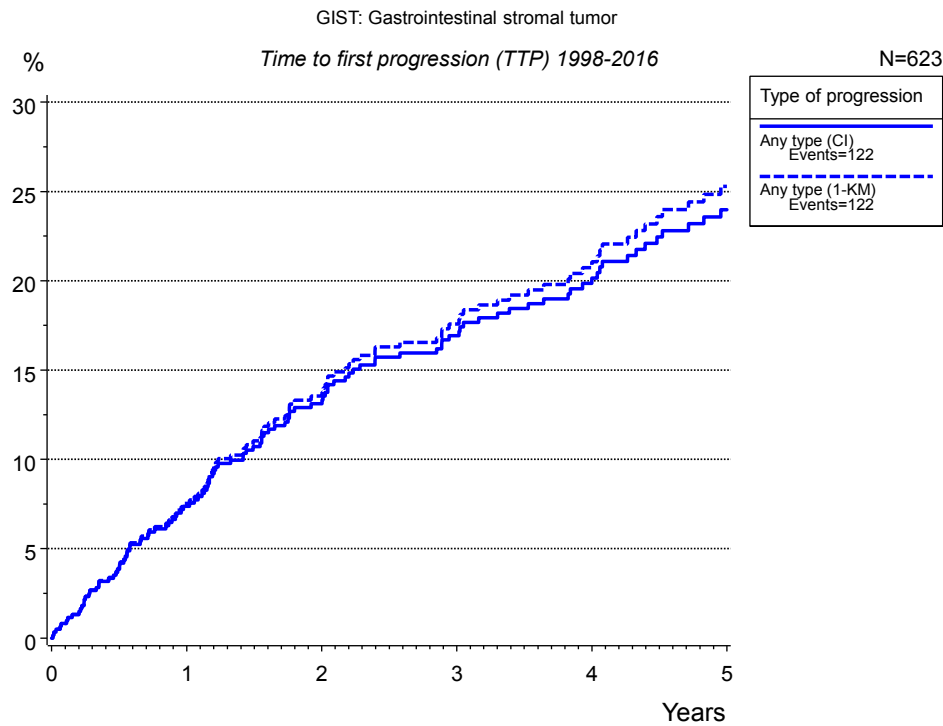


Figure 5a. Time to first progression of 623 patients with gastroint. stromal tumor diagnosed between 1998 and 2016 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

Years	Type of progression	
	Any type (CI)	Any type (1-KM)
	n=623 %	n=623 %
0	0.0	0.0
1	7.4	7.5
2	13.1	13.5
3	16.9	17.6
4	19.9	20.7
5	24.0	25.3

Table 5b. Time to first progression of patients with gastroint. stromal tumor for period 1998-2016 (N=623).

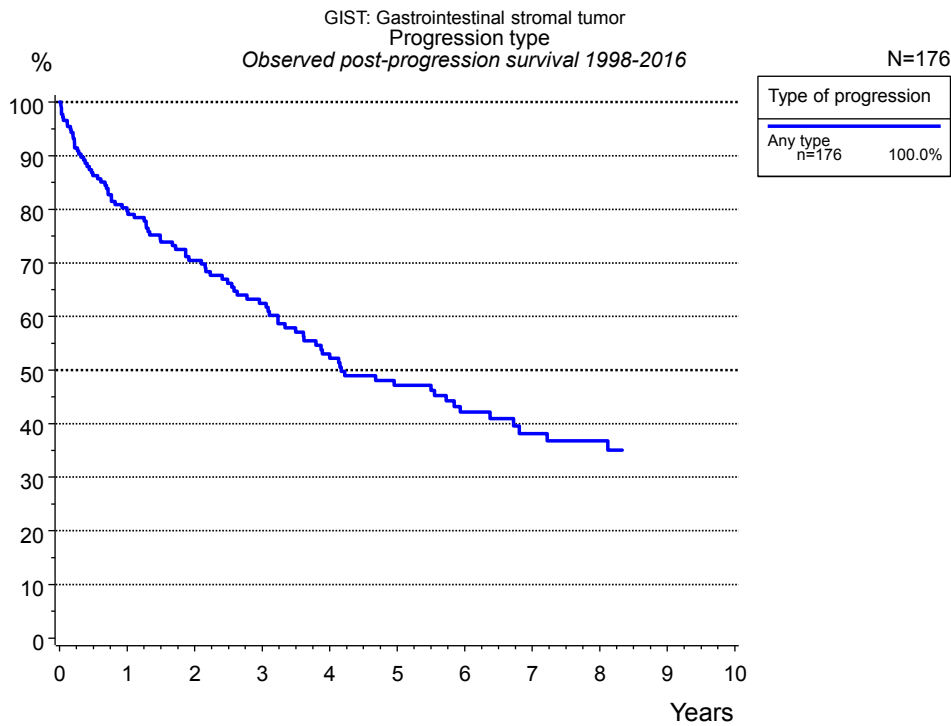


Figure 5c. Observed post-progression survival of 176 patients with gastroint. stromal tumor diagnosed between 1998 and 2016. These 176 patients with documented progression events during their course of disease represent 24.9 % of the totally 708 evaluated cases (incl. M1, n=85, 12.0 %). Patients with cancer relapse documented via death certificates only were excluded (n=31, 4.4 %).

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 potentially considered in more than one subgroup.

Type of progression	
Any type n=176	
Years	%
0	100.0
1	79.7
2	70.5
3	62.5
4	53.0
5	47.2
6	42.2
7	38.2
8	36.8

Table 5d. Observed post-progression survival of patients with gastroint. stromal tumor for period 1998-2016 (N=176).

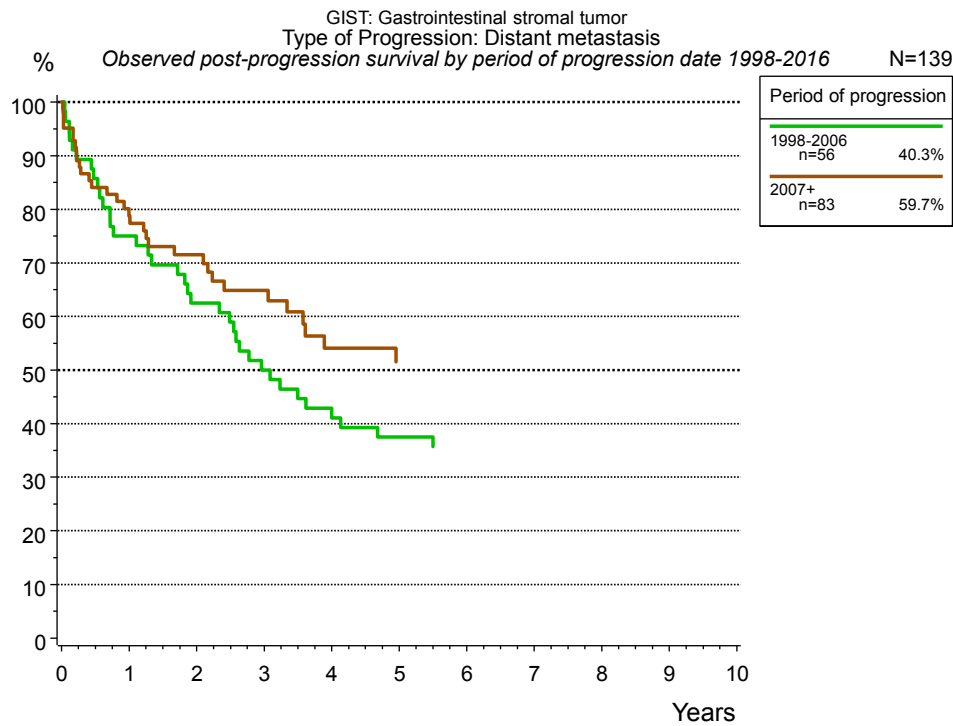


Figure 5e. Observed post-progression (distant metastasis) survival of 139 patients with gastroint. stromal tumor diagnosed between 1998 and 2016 by period of progression.

Years	Period of progression	
	1998-2006 n=56 %	2007+ n=83 %
0	100.0	100.0
1	75.0	78.7
2	62.5	71.5
3	50.0	64.9
4	42.9	54.1
5	37.5	51.5

Table 5f. Observed post-progression (distant metastasis) survival of patients with gastroint. stromal tumor for period 1998-2016 by period of progression (N=139).

Shortcuts

MCR Munich Cancer Registry, Germany

NCI National Cancer Institute, USA

SEER Surveillance, Epidemiology, and End Results, USA

UICC Union for International Cancer 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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