Munich Cancer Registry

GIST: Gastroint. stromal tumor

Survival

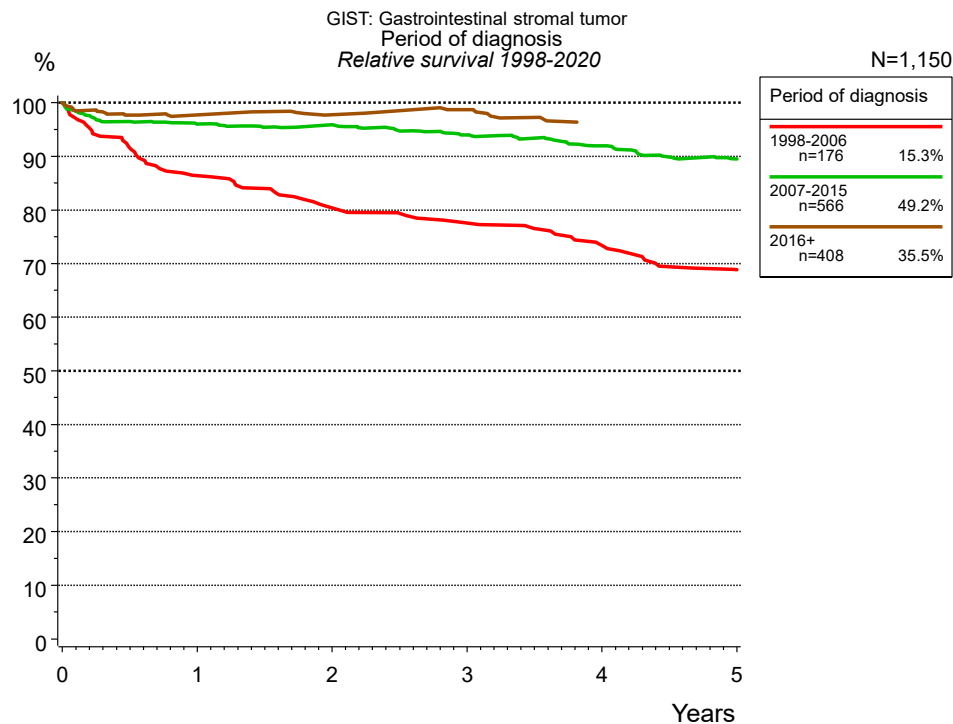| Year of diagnosis	1998-2020
Patients	1,638
Diseases	1,642
Cases evaluated	1,155
Creation date	04/27/2022
Database export	12/20/2021
Population	4.92 m

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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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GIST: Gastrointestinal stromal tumor
Period of diagnosis
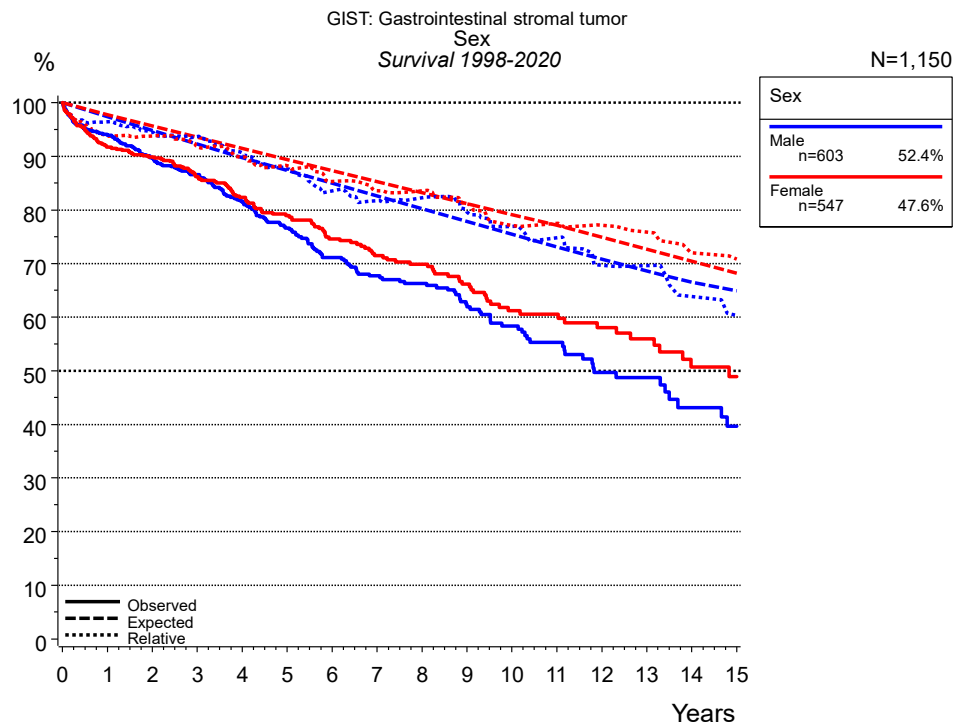*Relative survival 1998-2020*

Figure 1a. Relative survival of patients with gastroint. stromal tumor by period of diagnosis. Included in the evaluation are 1,150 cases diagnosed between 1998 and 2020.

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.

| | Period of diagnosis | | | | | |
| | 1998-2006 n=176 | | 2007-2015 n=566 | | 2016+ n=408 | |
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	84.4	86.4	93.7	96.0	95.5	97.7
2	77.5	80.3	91.5	95.8	93.0	97.8
3	72.8	77.5	87.4	94.0	91.7	98.7
4	68.1	73.4	83.4	91.9		
5	62.2	68.9	79.2	89.5		
Median	10.2		13.5			

Table 1b. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by period of diagnosis for period 1998-2020 (N=1,150).

GIST: Gastrointestinal stromal tumor
Sex
Survival 1998-2020

Figure 2a. Survival of patients with gastroint. stromal tumor by sex. Included in the evaluation are 1,150 cases diagnosed between 1998 and 2020.

	Sex			
	Male n=603		Female n=547	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	93.9	96.5	91.7	93.8
2	89.8	94.5	89.9	93.8
3	86.6	93.7	86.2	91.9
4	81.6	90.7	82.3	89.9
5	76.6	87.6	78.9	88.2
6	71.1	83.5	74.6	85.3
7	67.7	81.7	71.4	83.6
8	66.3	82.3	69.9	83.5
9	61.9	79.5	66.2	81.1
10	58.4	76.9	61.2	77.1
11	55.3	74.8	60.5	77.5
12	49.7	69.7	58.0	77.2
13	48.7	69.6	56.0	75.9
14	43.1	63.9	50.7	71.9
15	39.7	60.3	49.0	70.8
Median	11.8		14.8	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by sex for period 1998-2020 (N=1,150).
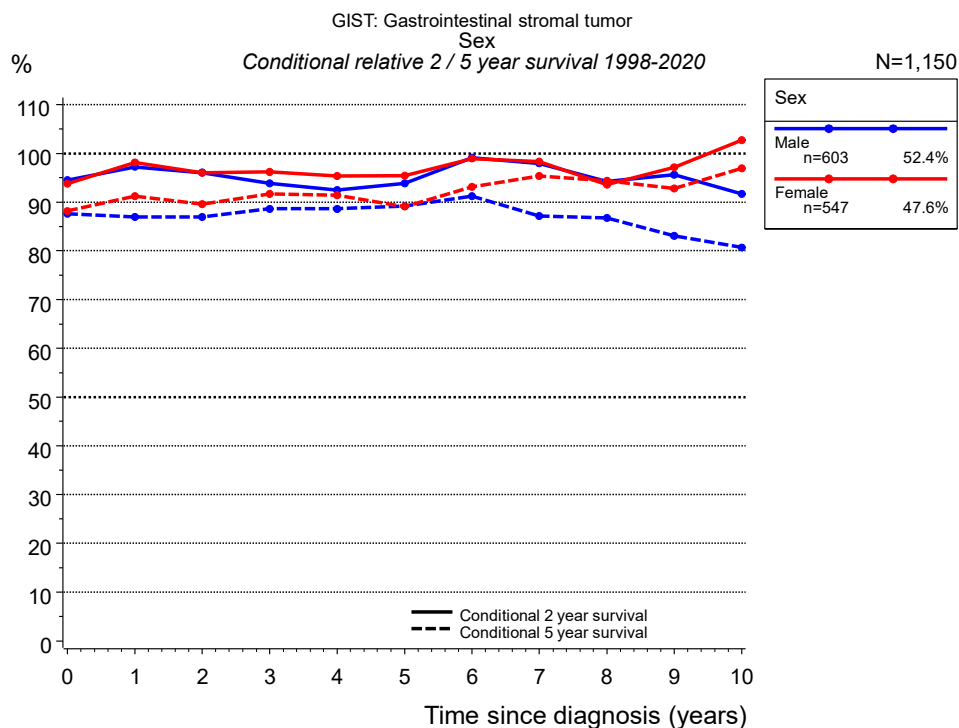
Figure 2c. Conditional relative 2 / 5-year survival of patients with gastroint. stromal tumor by sex. For 1,150 of 1,150 cases diagnosed between 1998 and 2020 valid data could be obtained for this item.

	Sex					
		Male			Female	
		Cond. surv. %			Cond. surv. %	
Years	n	2 yrs	5 yrs	n	2 yrs	5 yrs
0	603	94.5	87.6	547	93.8	88.2
1	538	97.3	86.9	472	98.2	91.3
2	475	96.1	86.9	434	96.0	89.6
3	408	93.8	88.6	385	96.2	91.7
4	340	92.5	88.6	327	95.4	91.4
5	286	93.8	89.2	283	95.4	89.1
6	244	99.1	91.2	229	98.9	93.1
7	201	97.9	87.1	196	98.3	95.4
8	169	94.3	86.8	161	93.6	94.4
9	133	95.6	83.1	133	97.2	92.8
10	103	91.7	80.7	100	102.7	96.9

Table 2d. Conditional relative 2 / 5-year survival of patients with gastroint. stromal tumor by sex for period 1998-2020 (N=1,150).

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 93.8% (n=408).

GIST: Gastrointestinal stromal tumor
Age category
Relative survival 1998-2020
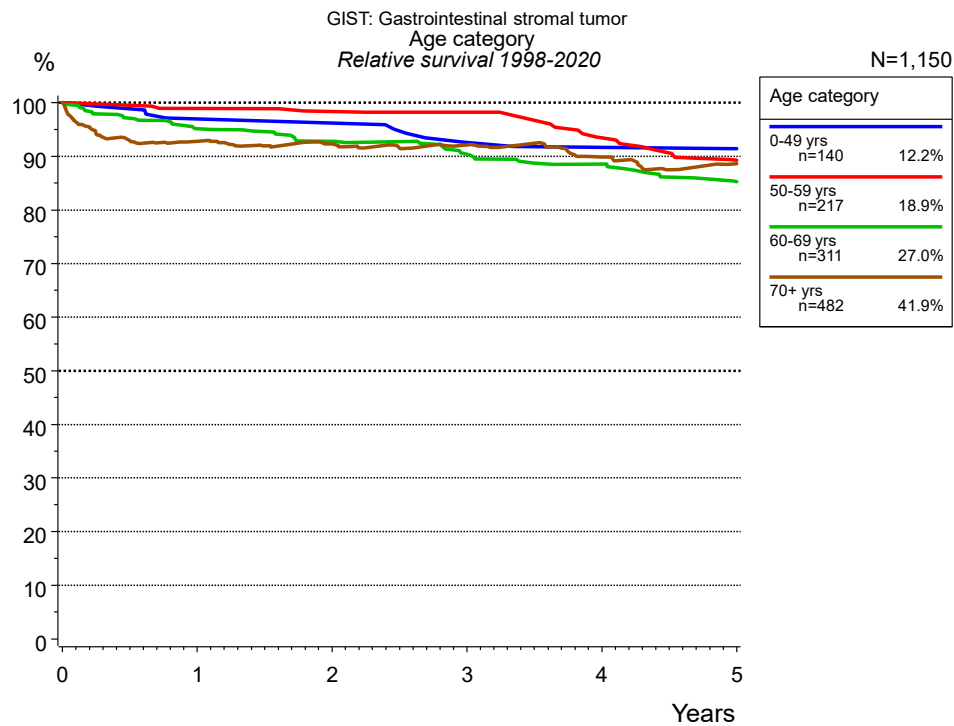
Figure 3a. Relative survival of patients with gastroint. stromal tumor by age category. Included in the evaluation are 1,150 cases diagnosed between 1998 and 2020.

|	Age category							
	0-49 yrs n=140		50-59 yrs n=217		60-69 yrs n=311		70+ yrs n=482	
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	97.1	97.0	98.6	98.9	94.1	95.1	88.3	92.8
2	96.3	96.2	97.5	98.4	90.9	92.8	83.8	92.3
3	92.2	92.6	97.0	98.2	87.3	90.4	79.4	92.1
4	91.4	91.7	91.4	93.4	84.3	88.5	73.4	89.8
5	91.4	91.4	86.6	89.3	79.6	85.2	68.3	88.6
Median					14.7		8.8	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by age category for period 1998-2020 (N=1,150).

GIST: Gastrointestinal stromal tumor
Histology
Relative survival 1998-2020
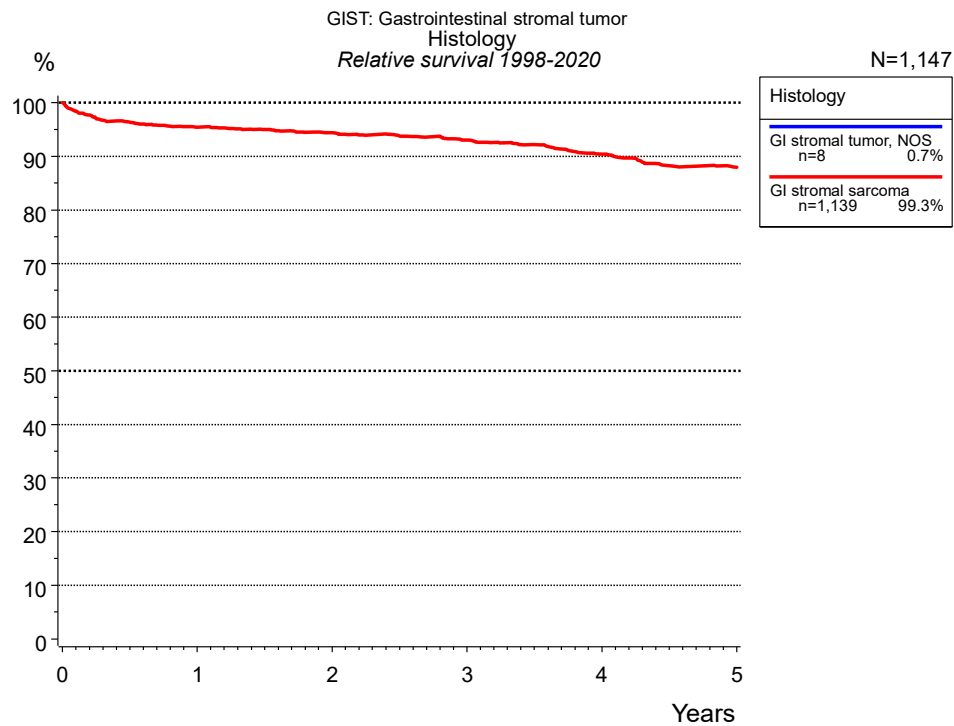
Figure 4a. Relative survival of patients with gastroint. stromal tumor by histology. For 1,147 of 1,150 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. Subgroups with sample size <20 are omitted from the chart.

| | **Histology** | |
| | GI stromal sarcoma n=1,139 | |
Years	obs. %	rel. %
0	100.0	100.0
1	93.1	95.4
2	90.0	94.4
3	86.5	93.0
4	82.1	90.4
5	77.8	87.9
Median	13.4	

Table 4b. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by histology for period 1998-2020 (N=1,147).

GIST: Gastrointestinal stromal tumor
Extent of disease
Relative survival 1998-2020
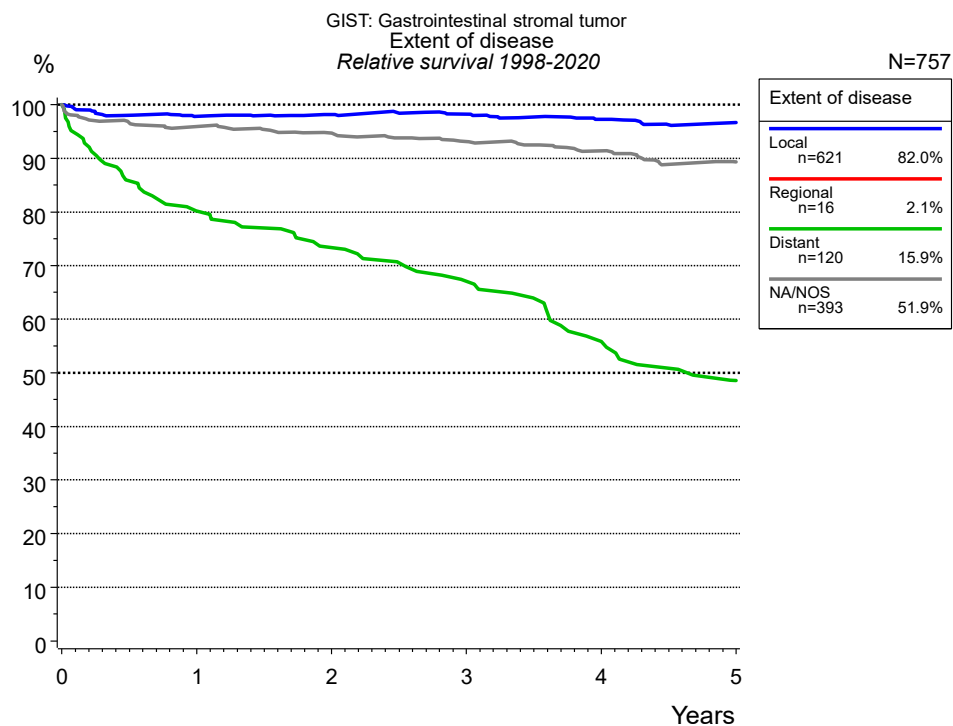
Figure 4c. Relative survival of patients with gastroint. stromal tumor by extent of disease. For 784 of 1,150 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 757 cases an evaluable classification was established. The grey line represents the subgroup of 393 patients with missing values regarding extent of disease (34.2 % of 1,150 patients, the percent values of all other categories are related to n=757). Subgroups with sample size <20 are omitted from the chart.

| | Extent of disease | | | | | |
| | Local n=621 | | Distant n=120 | | NA/NOS n=393 | |
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	95.7	97.9	78.1	80.1	93.5	95.9
2	93.8	98.2	70.1	73.3	90.1	94.7
3	91.7	98.3	62.6	67.0	86.3	93.1
4	88.5	97.3	51.7	55.8	82.6	91.4
5	85.9	96.7	43.2	48.5	78.4	89.3
Median			4.0		13.7	

Table 4d. Observed (obs.) and relative (rel.) survival of patients with gastroint. stromal tumor by extent of disease for period 1998-2020 (N=757).

GIST: Gastrointestinal stromal tumor
Progressionsform
Time to first progression (TTP) 1998-2020
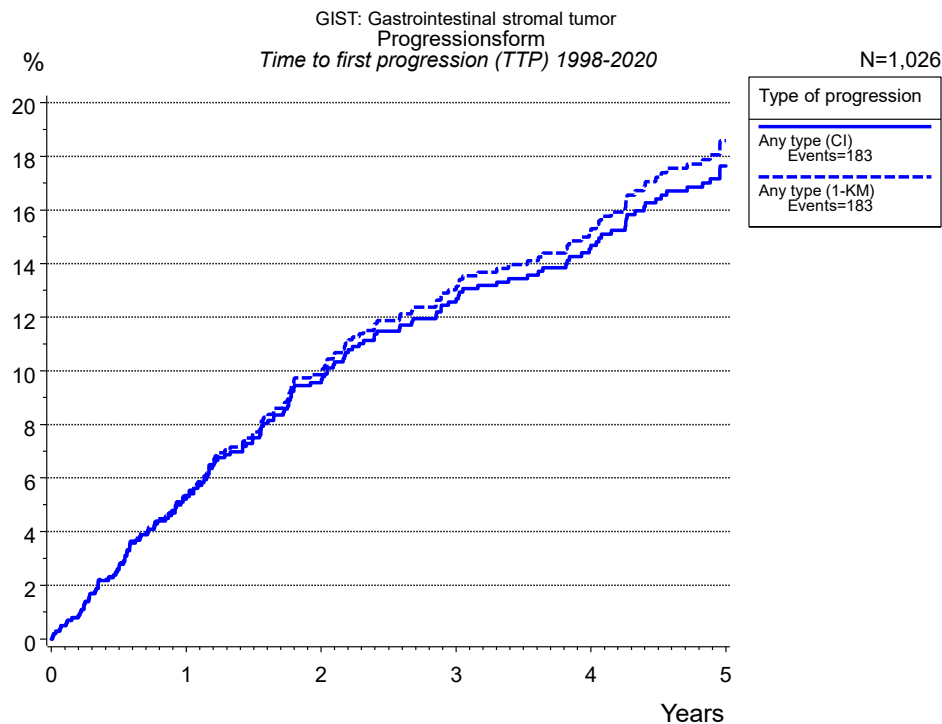
Figure 5a. Time to first progression of 1,026 patients with gastroint. stromal tumor diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

Type of progression		
	Any type (CI)	Any type (1-KM)
N	1,026	1,026
Events	155	155
compet.	84	
Years	%	%
0	0.0	0.0
1	5.3	5.4
2	9.6	9.9
3	12.6	13.0
4	14.5	15.1
5	17.6	18.6

Table 5b. Time to first progression of patients with gastroint. stromal tumor for period 1998-2020 (N=1,026), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

GIST: Gastrointestinal stromal tumor
Progression type
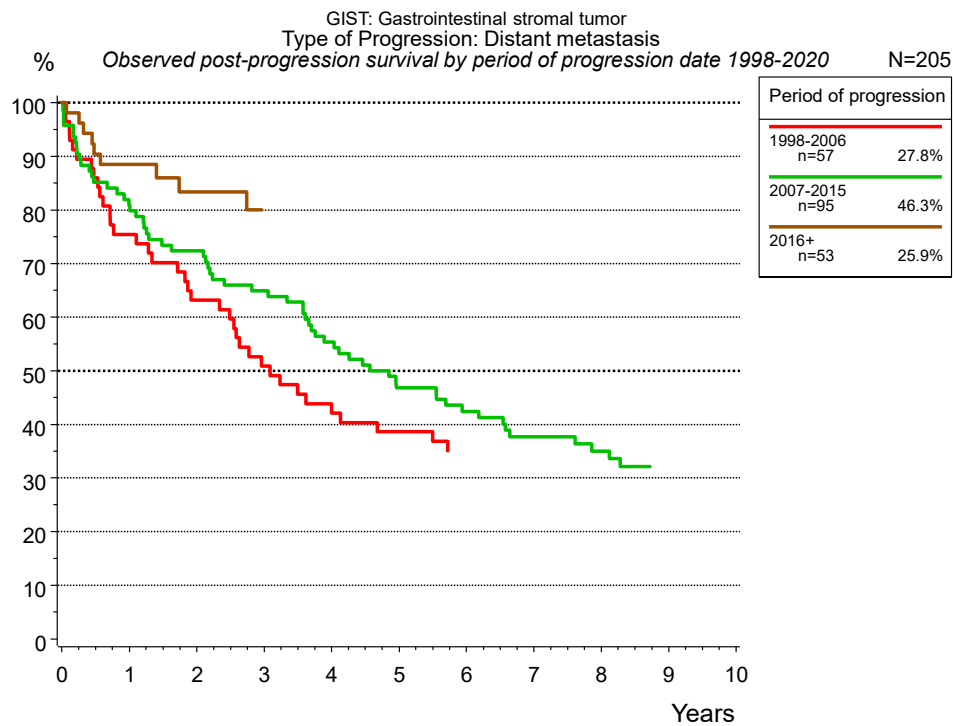*Observed post-progression survival 1998-2020*   N=260
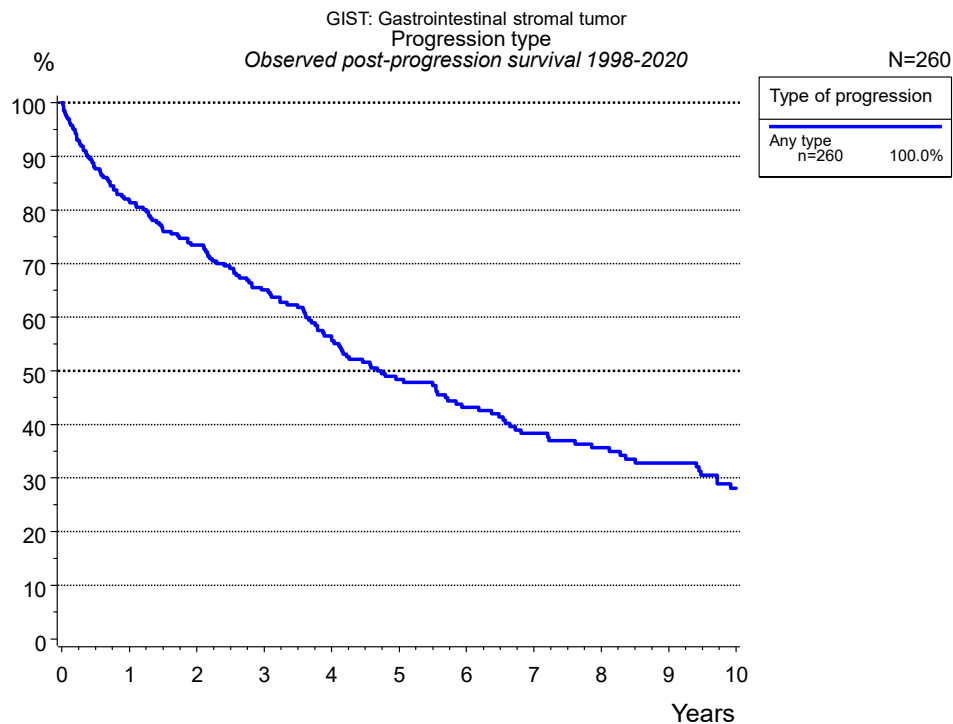
Figure 5c. Observed post-progression survival of 260 patients with gastroint. stromal tumor diagnosed between 1998 and 2020. These 260 patients with documented progression events during their course of disease represent 22.7 % of the totally 1,145 evaluated cases (incl. M1, n=119, 10.4 %). Patients with cancer relapse documented via death certificates only were excluded (n=42, 3.7 %).

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 progression
	Any type
	n=260
Years	%
0	100.0
1	81.7
2	73.5
3	65.1
4	56.5
5	48.4
6	43.2
7	38.3
8	35.6
9	32.8
10	28.1

Table 5d. Observed post-progression survival of patients with gastroint. stromal tumor for period 1998-2020 (N=260).

GIST: Gastrointestinal stromal tumor
Type of Progression: Distant metastasis
Observed post-progression survival by period of progression date 1998-2020 N=205

Figure 5e. Observed post-progression (distant metastasis) survival of 205 patients with gastroint. stromal tumor diagnosed between 1998 and 2020 by period of progression.

	Period of progression		
	1998-2006	2007-2015	2016+
	n=57	n=95	n=53
Years	%	%	%
0	100.0	100.0	100.0
1	75.4	80.9	88.5
2	63.2	72.3	83.4
3	50.9	64.9	80.1
4	43.9	55.3	
5	38.6	46.8	
6		42.4	
7		37.7	
8		35.0	

Table 5f. Observed post-progression (distant metastasis) survival of patients with gastroint. stromal tumor for period 1998-2020 by period of progression (N=205).

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

Munich Cancer Registry. Survival GIST: Gastroint. stromal tumor [Internet]. 2022 [updated 2022 Apr 27; cited 2022 Jun 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/surv/shGISTE-GIST-Gastroint.-stromal-tumor-survival.pdf

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