

Munich Cancer Registry



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GI-NET: Gastroint. neuroend. tumor

Survival

Year of diagnosis	1988-1997	1998-2014
Patients	135	1,973
Diseases	135	1,990
Cases evaluated	123	1,550
Creation date	03/02/2016	
Export date	12/23/2015	
Population	4.64 m	



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

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

<http://www.tumorregister-muenchen.de/en/facts/surv/shGNETE-GI-NET-Gastroint.-neuroend.-tumor-survival.pdf>

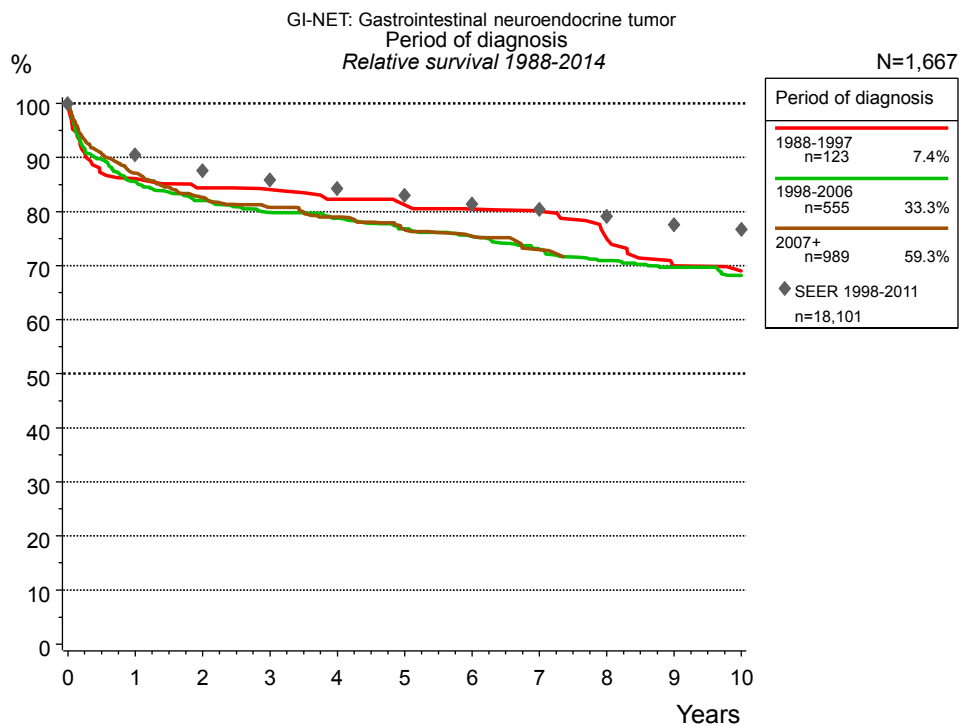


Figure 1a. Relative survival of patients with gastroint. neuroend. tumor by period of diagnosis. Included in the evaluation are 1,667 cases diagnosed between 1988 and 2014.

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					
	1988-1997 n=123		1998-2006 n=555		2007+ n=989	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	83.6	86.1	83.9	85.6	85.5	87.1
2	80.3	84.4	79.0	82.0	79.8	82.6
3	78.7	84.1	75.4	79.9	76.9	80.8
4	75.4	82.3	73.1	78.8	74.0	79.0
5	72.9	81.2	69.9	76.8	70.7	76.6
6	71.3	80.4	67.4	75.4	68.1	75.4
7	69.6	80.1	64.0	73.0	65.0	72.9
8	64.6	74.9	60.9	70.9		
9	58.6	69.9	58.8	69.7		
10	56.9	68.9	56.0	68.1		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with gastroint. neuroend. tumor by period of diagnosis for period 1988-2014 (N=1,667).

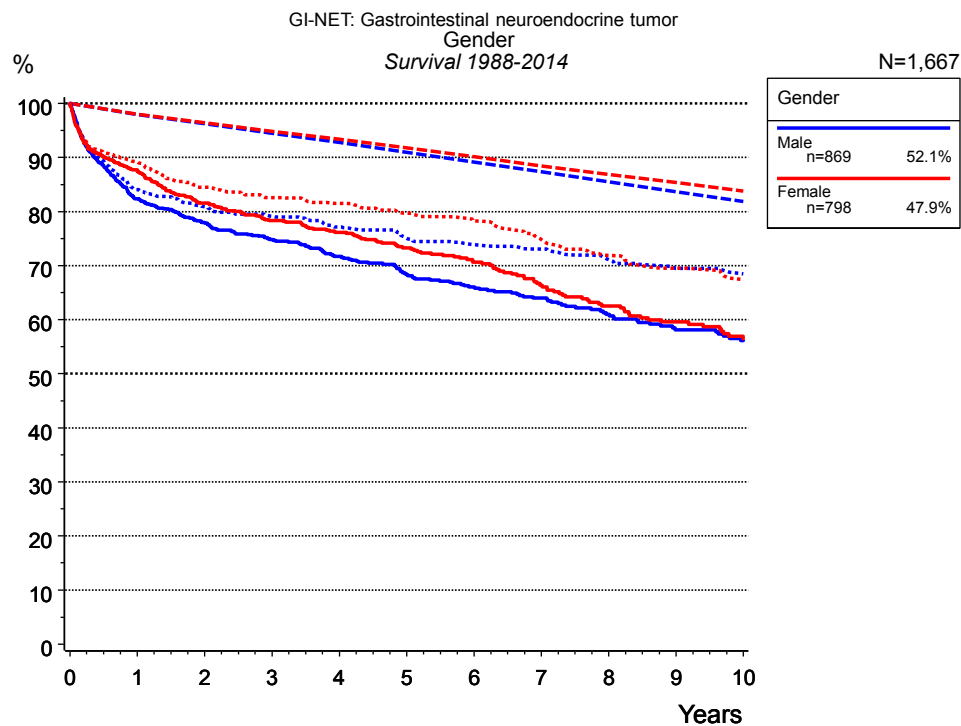


Figure 2a. Survival of patients with gastroint. neuroend. tumor by gender. Included in the evaluation are 1,667 cases diagnosed between 1988 and 2014.

Years	Gender			
	Male n=869		Female n=798	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	82.4	84.0	87.4	89.2
2	77.9	80.9	81.6	84.5
3	74.8	79.1	78.4	82.6
4	71.7	77.2	76.2	81.5
5	68.3	75.1	73.3	79.7
6	66.1	73.9	70.6	78.3
7	64.0	73.1	66.4	74.8
8	61.0	71.1	62.6	71.9
9	58.2	69.5	59.6	69.5
10	56.1	68.4	56.5	67.4

Table 2b. Observed (obs.) and relative (rel.) survival of patients with gastroint. neuroend. tumor by gender for period 1988-2014 (N=1,667).

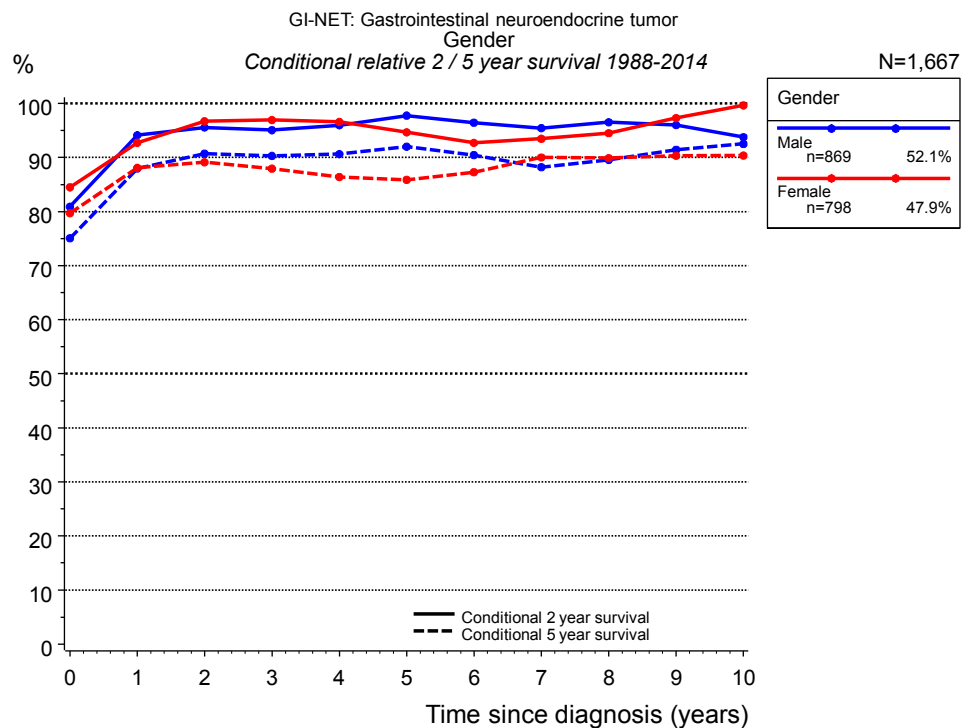


Figure 2c. Conditional relative 2 / 5-year survival of patients with gastroint. neuroend. tumor by gender. For 1,667 of 1,667 cases diagnosed between 1988 and 2014 valid data could be obtained for this item.

Years	Gender					
	Male			Female		
	n	Cond. surv. % 2 yrs	5 yrs	n	Cond. surv. % 2 yrs	5 yrs
0	869	80.9	75.1	798	84.5	79.7
1	665	94.1	88.0	648	92.7	88.1
2	563	95.6	90.7	545	96.7	89.1
3	486	95.1	90.3	465	96.9	87.9
4	413	96.0	90.7	394	96.6	86.4
5	350	97.7	92.0	325	94.7	85.9
6	305	96.4	90.4	273	92.7	87.3
7	254	95.4	88.2	220	93.5	90.0
8	206	96.5	89.6	176	94.5	89.9
9	166	96.0	91.4	147	97.3	90.3
10	138	93.8	92.5	119	99.6	90.4

Table 2d. Conditional relative 2 / 5-year survival of patients with gastroint. neuroend. tumor by gender for period 1988-2014 (N=1,667).

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 95.1% (n=486).

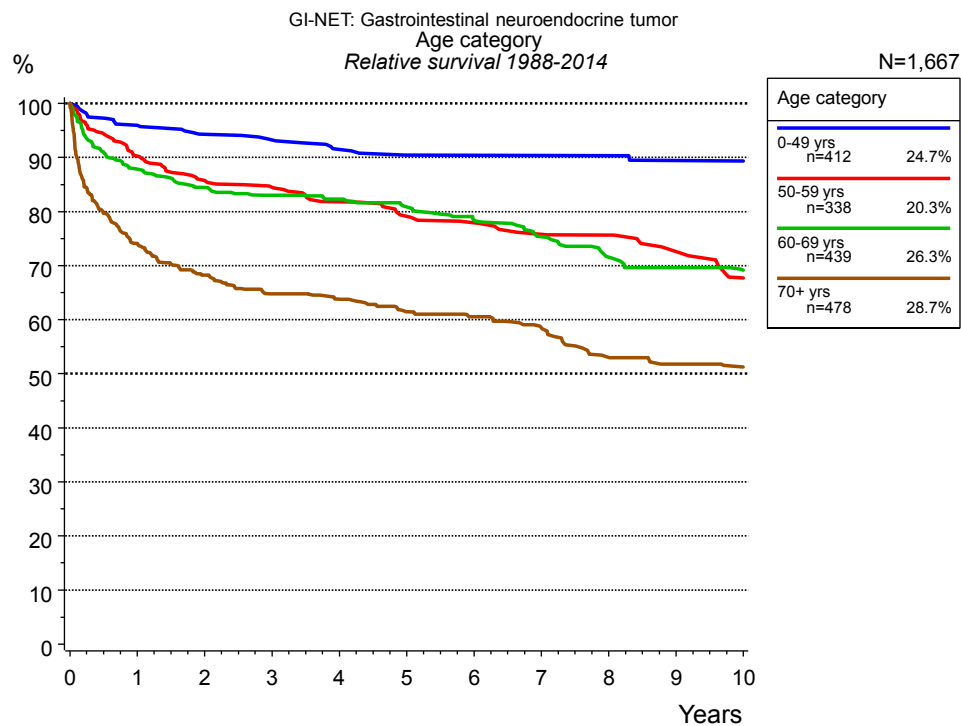


Figure 3a. Relative survival of patients with gastroint. neuroend. tumor by age category. Included in the evaluation are 1,667 cases diagnosed between 1988 and 2014.

Years	Age category							
	0-49 yrs n=412		50-59 yrs n=338		60-69 yrs n=439		70+ yrs n=478	
	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	95.9	96.0	89.9	90.2	86.8	87.9	70.2	74.1
2	94.1	94.3	84.7	85.7	82.4	84.5	61.6	68.2
3	93.0	93.2	83.2	84.5	79.7	83.0	55.4	64.8
4	91.0	91.5	79.9	81.8	77.9	82.3	51.9	63.8
5	89.7	90.4	76.8	79.1	75.2	80.9	46.9	61.5
6	89.7	90.4	75.1	77.9	71.6	78.4	43.6	60.5
7	89.7	90.4	72.5	75.8	67.3	75.3	39.5	58.5
8	89.7	90.3	71.7	75.6	62.5	71.5	33.7	53.0
9	88.1	89.4	67.5	72.6	59.6	69.6	30.8	51.8
10	88.1	89.3	62.4	67.7	57.4	69.2	27.7	51.3

Table 3b. Observed (obs.) and relative (rel.) survival of patients with gastroint. neuroend. tumor by age category for period 1988-2014 (N=1,667).

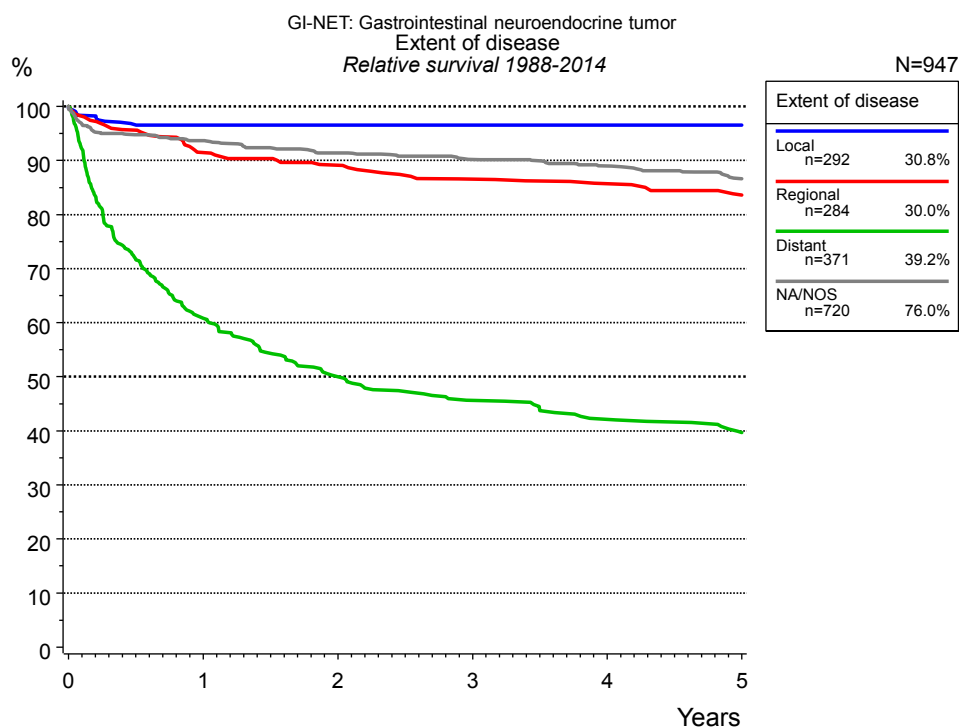


Figure 4a. Relative survival of patients with gastroint. neuroend. tumor by extent of disease. For 1,202 of 1,667 cases diagnosed between 1988 and 2014 valid data could be obtained for this item. For a total of 947 cases an evaluable classification was established. The grey line represents the subgroup of 720 patients with missing values regarding extent of disease (43.2% of 1,667 patients, the percent values of all other categories are related to n=947).

Years	Extent of disease							
	Local n=292		Regional n=284		Distant n=371		NA/NOS n=720	
	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	95.7	96.5	89.8	91.5	59.5	60.8	91.9	93.7
2	94.5	96.5	86.3	89.1	48.2	50.0	87.9	91.3
3	94.0	96.5	82.3	86.6	43.3	45.7	85.2	90.2
4	92.1	96.5	80.1	85.7	39.6	42.1	82.6	89.0
5	91.3	96.5	76.9	83.6	36.7	39.7	78.9	86.6

Table 4b. Observed (obs.) and relative (rel.) survival of patients with gastroint. neuroend. tumor by extent of disease for period 1988-2014 (N=947).

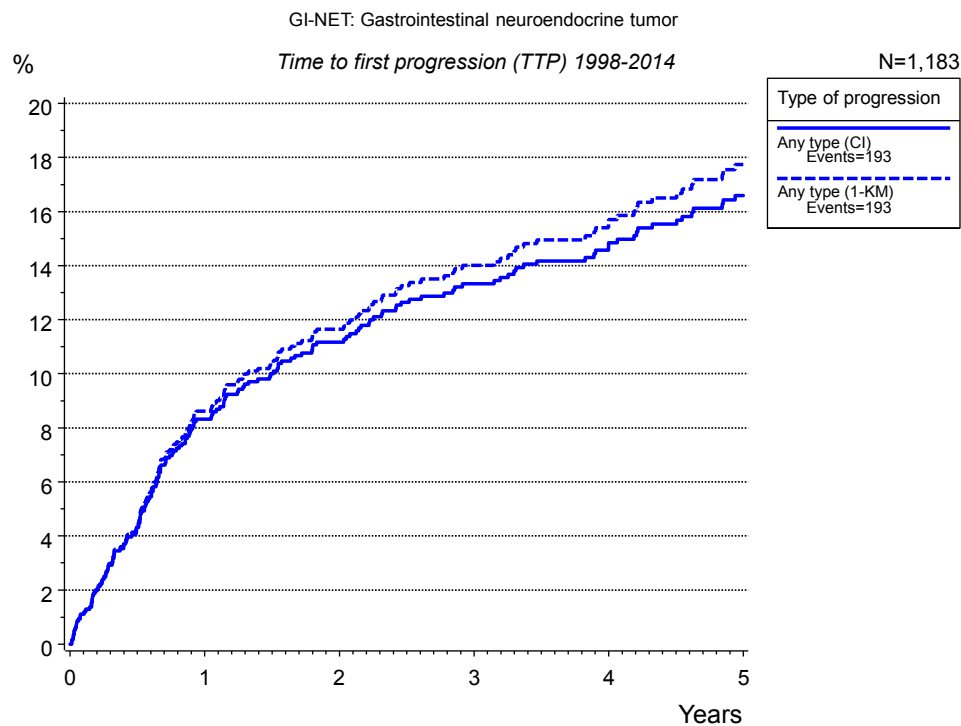


Figure 5a. Time to first progression of 1,183 patients with gastroint. neuroend. tumor diagnosed between 1998 and 2014 (M0 only in solid cancers) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

Years	Type of progression	
	Any type (CI)	Any type (1-KM)
	n=1,183 %	n=1,183 %
0	0.0	0.0
1	8.3	8.6
2	11.2	11.7
3	13.3	14.0
4	14.6	15.4
5	16.6	17.7

Table 5b. Time to first progression of patients with gastroint. neuroend. tumor for period 1998-2014 (N=1,183).

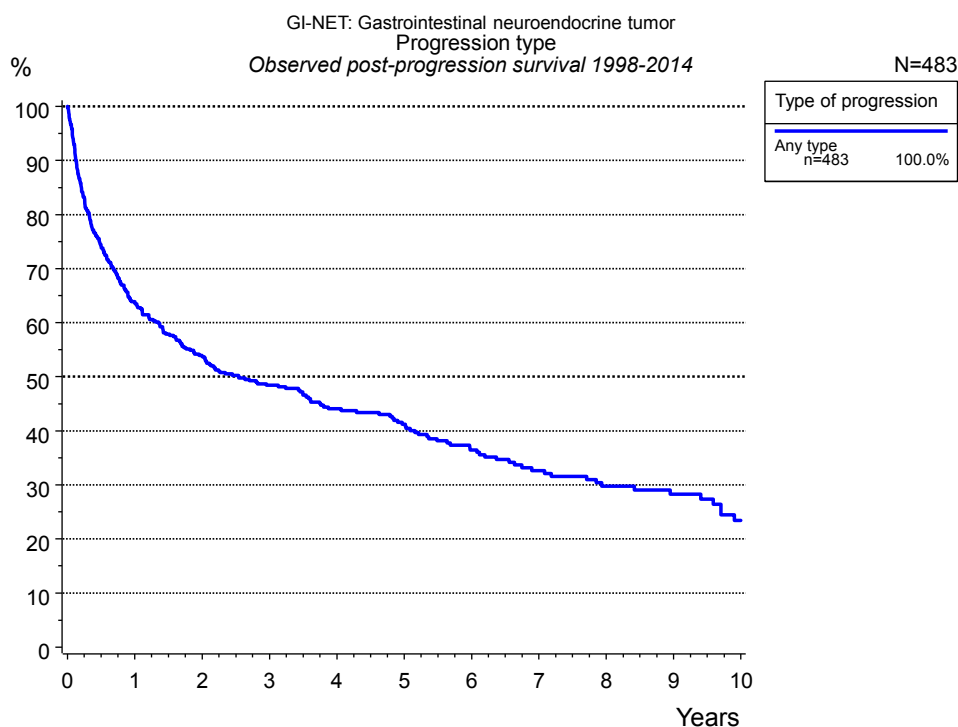


Figure 5c. Observed post-progression survival of 483 patients with gastroint. neuroend. tumor diagnosed between 1998 and 2014. These 483 patients with documented progression events during their course of disease represent 31.7 % of the totally 1,522 evaluated cases (incl. M1, n=339, 22.3 %). Patients with cancer relapse documented via death certificates only were excluded (n=49, 3.2 %).

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=483	
Years	%
0	100.0
1	63.7
2	53.7
3	48.4
4	44.1
5	41.2
6	36.5
7	32.7
8	29.8
9	28.3
10	23.5

Table 5d. Observed post-progression survival of patients with gastroint. neuroend. tumor for period 1998-2014 (N=483).

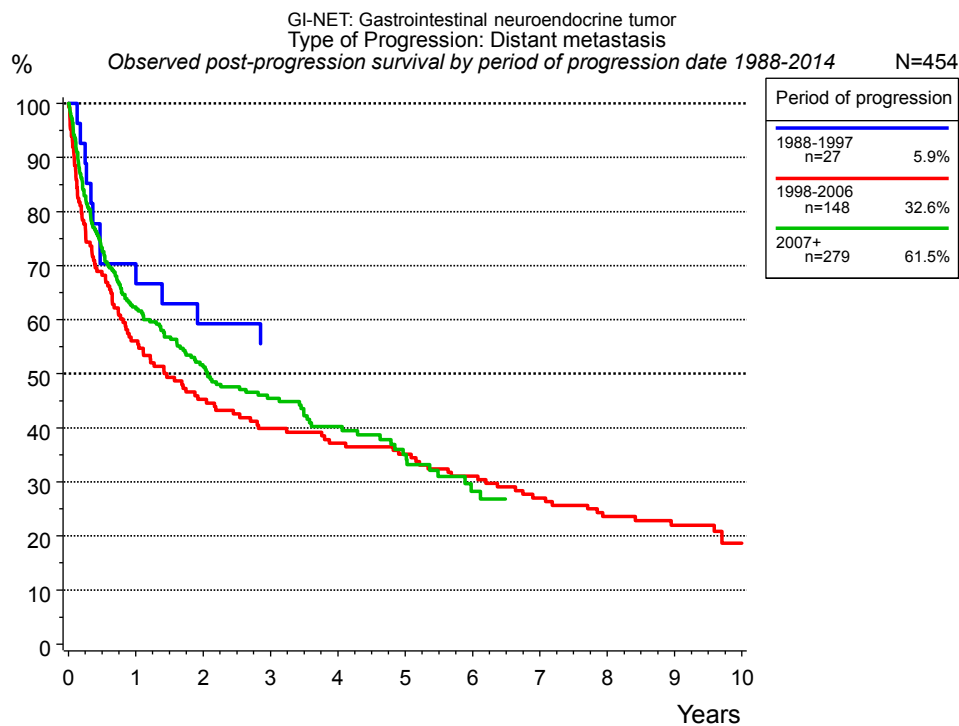


Figure 5e. Observed post-progression (distant metastasis) survival of 454 patients with gastroint. neuroend. tumor diagnosed between 1988 and 2014 by period of progression.

Years	Period of progression		
	1988-1997 n=27 %	1998-2006 n=148 %	2007+ n=279 %
0	100.0	100.0	100.0
1	66.7	56.1	62.0
2	59.3	45.3	51.2
3	55.6	39.9	45.5
4		37.2	40.2
5		35.1	35.0
6		31.1	28.2
7		27.0	
8		23.6	
9		22.0	
10		18.7	

Table 5f. Observed post-progression (distant metastasis) survival of patients with gastroint. neuroend. tumor for period 1988-2014 by period of progression (N=454).

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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