

Munich Cancer Registry



- ▶ Incidence and Mortality
- ▶ Selection Matrix
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ICD-10 C03: Gum cancer

Survival

Year of diagnosis	1988-1997	1998-2020
Patients	65	432
Diseases	65	436
Cases evaluated	56	332
Creation date	04/15/2022	
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/sC03__E-ICD-10-C03-Gum-cancer-survival.pdf

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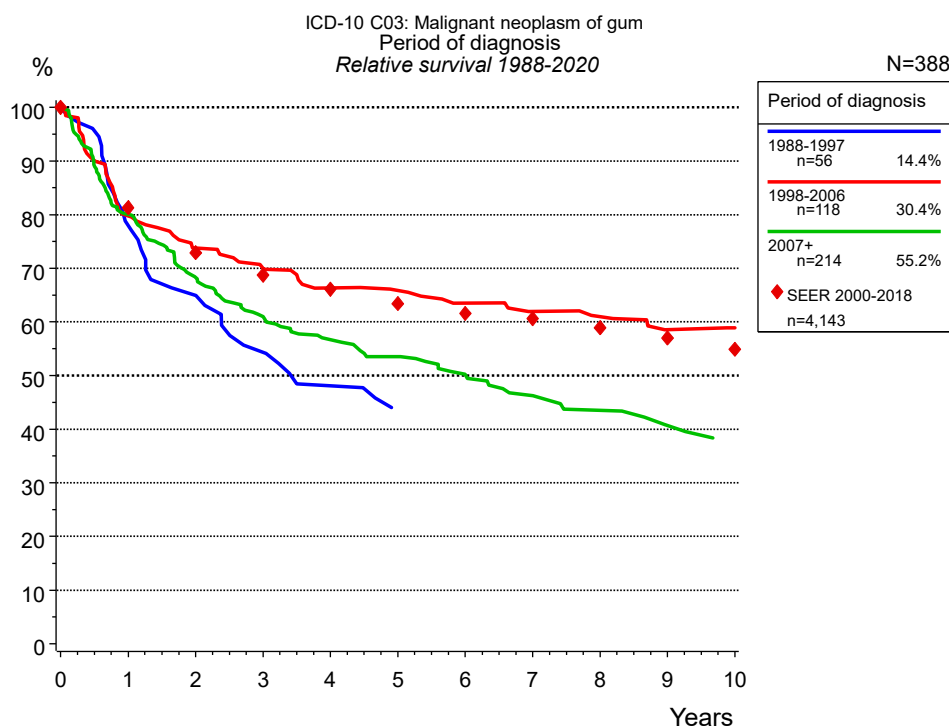


Figure 1a. Relative survival of patients with gum cancer by period of diagnosis. Included in the evaluation are 388 cases diagnosed between 1988 and 2020.

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 2000 to 2018, and are represented by colored 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 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=56		1998-2006 n=118		2007+ n=214	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	76.4	77.9	78.3	79.8	77.8	80.1
2	63.3	64.9	70.4	73.8	64.7	68.3
3	51.8	54.3	66.0	70.0	56.7	61.0
4	44.1	48.1	60.6	66.4	51.5	56.7
5	38.4	43.8	58.8	65.9	47.6	53.5
6			55.3	63.5	43.8	50.2
7			52.5	62.0	39.5	46.2
8			50.7	61.0	36.1	43.5
9			47.1	58.6	32.4	40.7
10			46.2	58.9	29.7	38.0
Median	3.0		8.2		4.3	

Table 1b. Observed (obs.) and relative (rel.) survival of patients with gum cancer by period of diagnosis for period 1988-2020 (N=388).

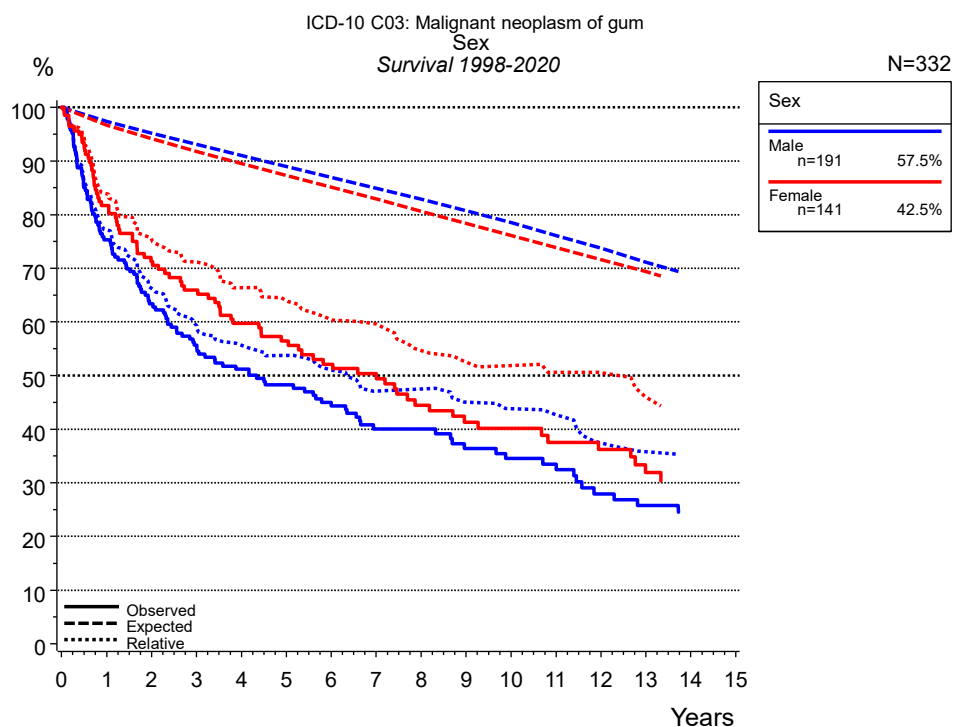


Figure 2a. Survival of patients with gum cancer by sex. Included in the evaluation are 332 cases diagnosed between 1998 and 2020.

Years	Sex			
	Male n=191		Female n=141	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	75.3	77.1	81.7	83.9
2	63.4	66.2	71.3	75.4
3	55.7	59.3	66.0	71.1
4	51.2	55.7	59.7	66.4
5	48.3	53.7	56.5	64.0
6	45.0	51.0	52.2	60.4
7	40.0	47.1	50.4	59.6
8	40.0	47.5	44.5	54.7
9	36.4	45.0	41.3	52.4
10	34.5	43.8	40.2	51.9
11	33.5	42.6	37.6	50.6
12	28.0	37.4	36.3	50.5
13	25.7	35.8	31.9	45.9
14	24.5	34.1		
Median	4.3		7.0	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with gum cancer by sex for period 1998-2020 (N=332).

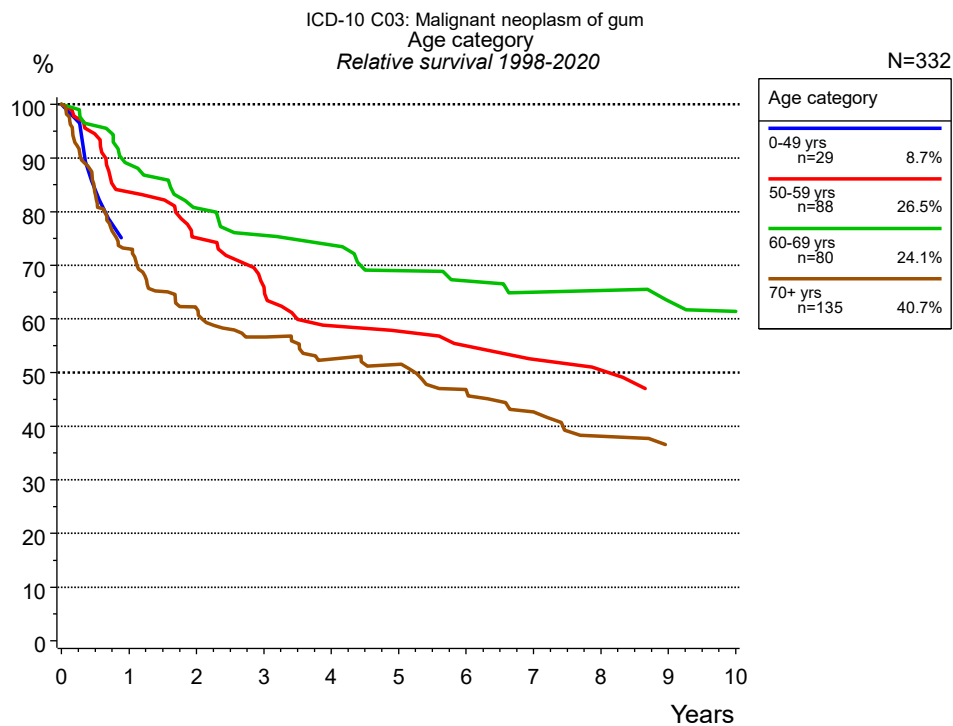


Figure 3a. Relative survival of patients with gum cancer by age category. Included in the evaluation are 332 cases diagnosed between 1998 and 2020.

Years	Age category							
	0-49 yrs n=29		50-59 yrs n=88		60-69 yrs n=80		70+ yrs n=135	
	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	75.0	74.4	83.8	83.7	88.0	88.8	69.3	73.1
2			74.5	75.1	78.7	80.7	55.5	61.9
3			66.0	66.0	73.4	75.6	48.6	56.6
4			57.4	58.7	71.9	73.8	42.3	52.5
5			56.1	57.7	64.5	69.0	39.8	51.5
6			53.4	55.0	61.4	67.1	34.4	46.9
7			50.1	52.4	58.2	65.0	29.5	42.6
8			48.2	50.4	58.2	65.3	24.5	38.1
9			44.1	46.4	54.3	63.3	21.3	36.7
10					52.3	61.4		
Median			7.9		10.7		2.7	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with gum cancer by age category for period 1998-2020 (N=332).

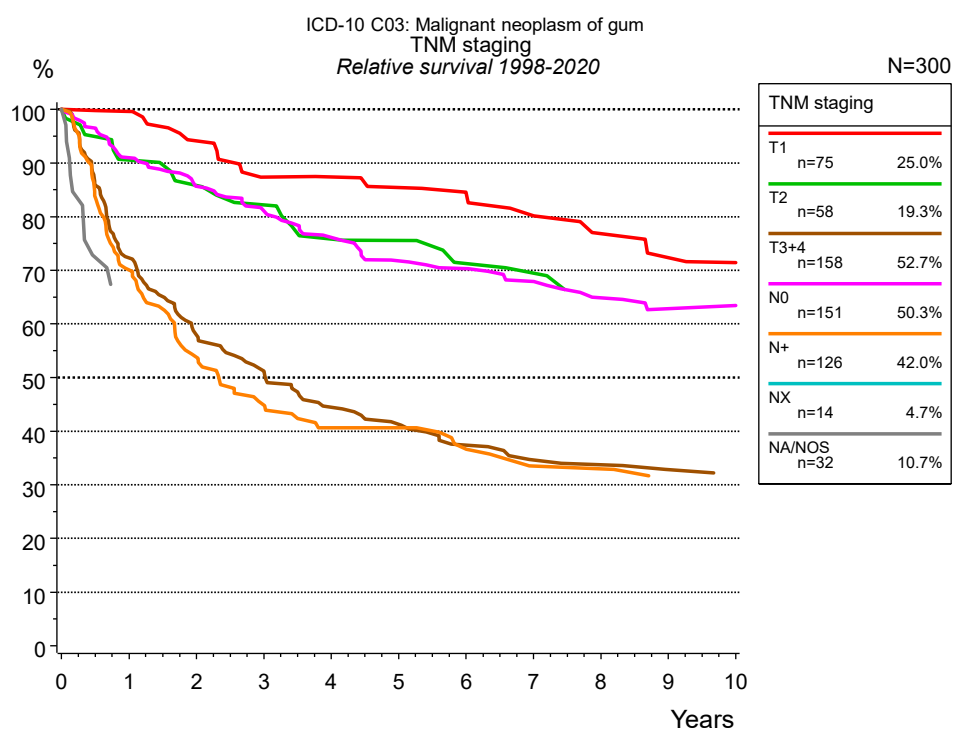


Figure 4a. Relative survival of patients with gum cancer by TNM staging. For 302 of 332 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 300 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 32 patients with missing values regarding TNM staging (9.6 % of 332 patients, the percent values of all other categories are related to n=300). Subgroups with sample size <20 are omitted from the chart.

Years	TNM staging											
	T1 n=75		T2 n=58		T3+4 n=158		N0 n=151		N+ n=126		NA/NOS n=32	
	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
1	98.6	99.6	88.8	90.6	70.8	72.3	89.1	91.0	68.8	70.0		
2	90.2	94.1	83.0	85.8	55.4	57.9	81.5	85.7	52.2	53.8		
3	81.5	87.3	77.2	82.2	48.2	51.2	75.9	81.1	43.0	44.9		
4	79.9	87.4	69.5	75.8	40.8	44.5	69.5	76.1	37.7	40.7		
5	76.8	85.4	67.6	75.6	37.3	41.3	63.5	71.7	37.7	40.7		
6	75.0	84.5	61.0	71.2	32.9	37.4	61.1	70.3	33.6	36.7		
7	69.8	80.1	58.7	69.4	29.5	34.6	57.7	67.9	29.3	33.5		
8	64.1	76.8			28.6	33.8	53.0	64.9	29.3	33.0		
9	59.8	72.4			26.6	32.8	49.8	62.8				
10	57.7	71.4			25.6	32.2	48.7	63.5				
Median					2.7		8.7		2.1			

Table 4b. Observed (obs.) and relative (rel.) survival of patients with gum cancer by TNM staging for period 1998-2020 (N=300).

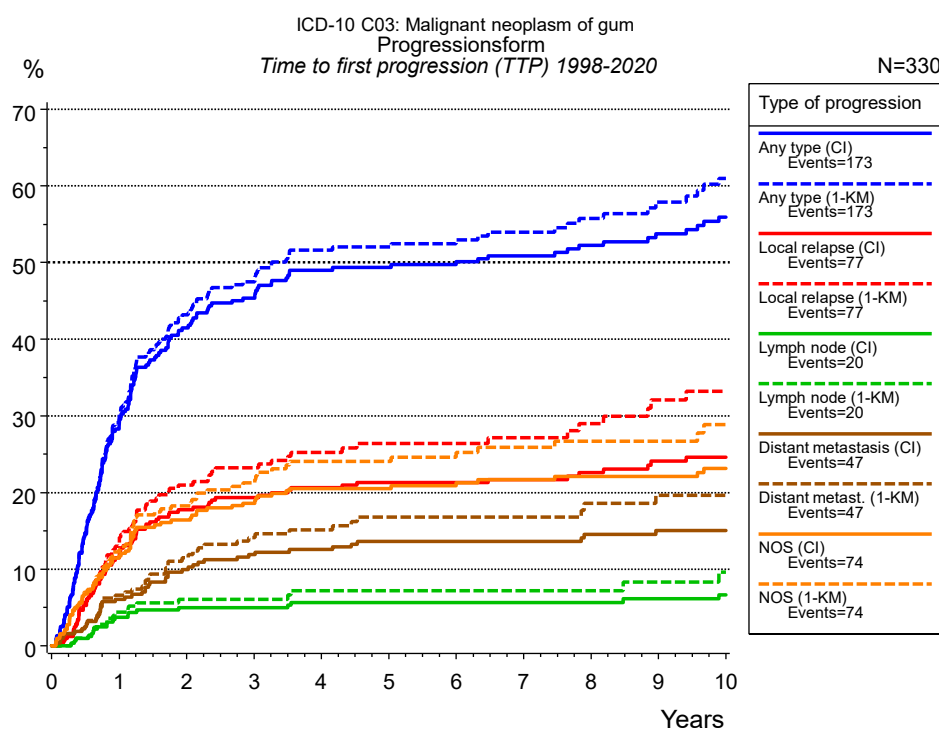


Figure 5a. Time to first progression of 330 patients with gum cancer diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

		Type of progression						Distant metastasis (CI)
		Any type (CI)	Any type (1-KM)	Local relapse (CI)	Local relapse (1-KM)	Lymph node (CI)	Lymph node (1-KM)	
N	Events	321	321	330	330	330	330	321
compet.	Years	168	168	75	75	20	20	45
		48		139		174		137
		%	%	%	%	%	%	%
0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
1		29.3	30.1	12.1	13.8	3.7	4.4	6.1
2		41.5	43.2	17.7	21.0	5.0	6.1	9.9
3		45.4	47.5	19.3	23.2	5.0	6.1	11.9
4		49.0	51.6	20.6	25.3	5.6	7.2	12.6
5		49.3	52.0	21.3	26.4	5.6	7.2	13.6
6		49.7	52.5	21.3	26.4	5.6	7.2	13.6
7		50.9	54.0	21.7	27.2	5.6	7.2	13.6
8		52.2	55.8	22.6	29.0	5.6	7.2	14.5
9		53.8	57.9	24.1	32.1	6.1	8.3	15.1
10		55.9	61.0	24.6	33.2	6.6	9.6	15.1

<i>cont'd</i>	Type of progression		
	Distant metast. (1- KM)	NOS (CI)	NOS (1-KM)
N	321	330	330
Events	45	72	72
compet.		126	
Years	%	%	%
0	0.0	0.0	0.0
1	6.6	11.7	12.6
2	11.5	16.4	18.3
3	14.1	18.6	21.3
4	15.1	20.5	24.1
5	16.8	20.5	24.1
6	16.8	20.9	24.6
7	16.8	21.7	25.9
8	18.6	22.1	26.7
9	19.6	22.1	26.7
10	19.6	23.1	28.8

Table 5b. Time to first progression of patients with gum cancer for period 1998-2020 (N=330), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

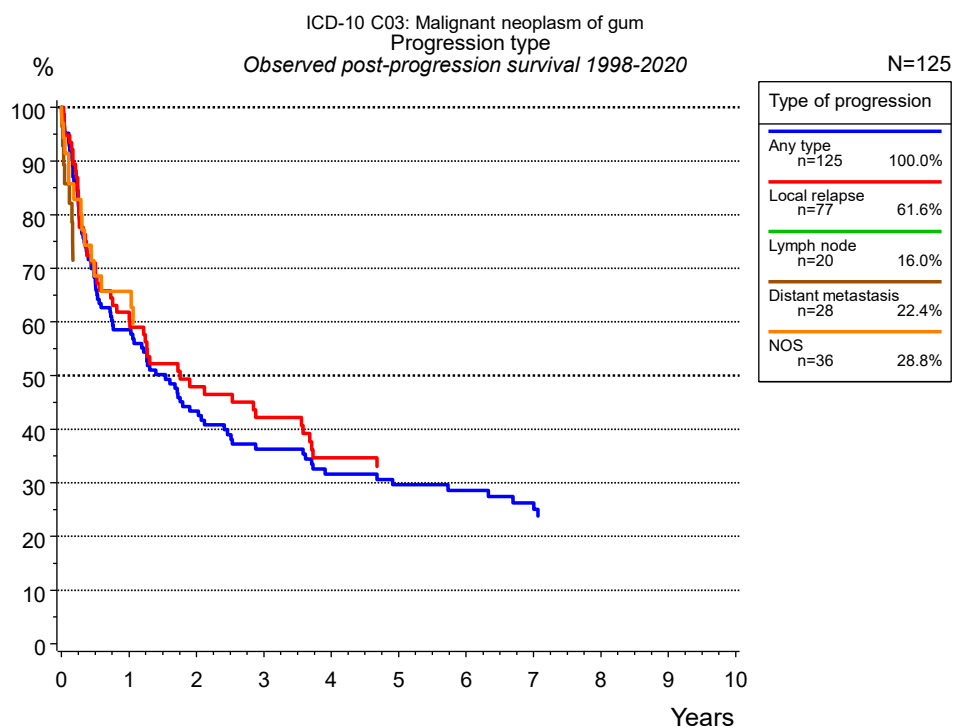


Figure 5c. Observed post-progression survival of 125 patients with gum cancer diagnosed between 1998 and 2020. These 125 patients with documented progression events during their course of disease represent 37.9 % of the totally 330 evaluated cases (incl. M1, n=9, 2.7 %). Patients with cancer relapse documented via death certificates only were excluded (n=57, 17.3 %). 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 “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.

Years	Type of progression				
	Any type n=125 %	Local relapse n=77 %	Lymph node n=20 %	Distant metastasis n=28 %	NOS n=36 %
0	100.0	100.0	100.0	100.0	100.0
1	58.5	61.8			65.7
2	43.4	47.9			
3	36.3	42.2			
4	31.6	34.7			
5	29.6				
6	28.5				
7	26.2				

Table 5d. Observed post-progression survival of patients with gum cancer for period 1998-2020 (N=125).

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

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