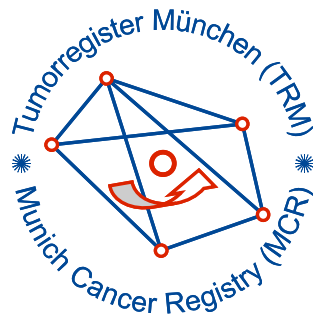


# Munich Cancer Registry



- ▶ Incidence and Mortality
- ▶ Selection Matrix
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- ▶ *Deutsch*

## ICD-10 C22.1: Cholangiocarcinoma

### Survival

Year of diagnosis	1998-2020
Patients	741
Diseases	741
Cases evaluated	585
Creation date	04/15/2022
Database export	12/20/2021
Population	4.92 m



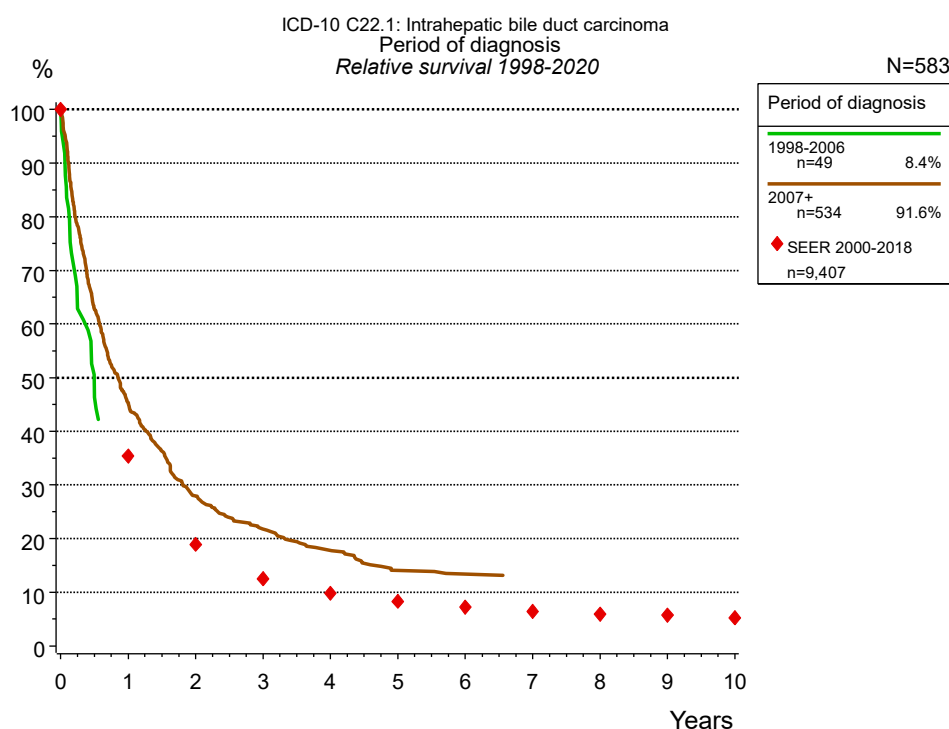
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<https://www.tumorregister-muenchen.de/en>

[https://www.tumorregister-muenchen.de/en/facts/surv/sC221\\_E-ICD-10-C22.1-Cholangiocarcinoma-survival.pdf](https://www.tumorregister-muenchen.de/en/facts/surv/sC221_E-ICD-10-C22.1-Cholangiocarcinoma-survival.pdf)

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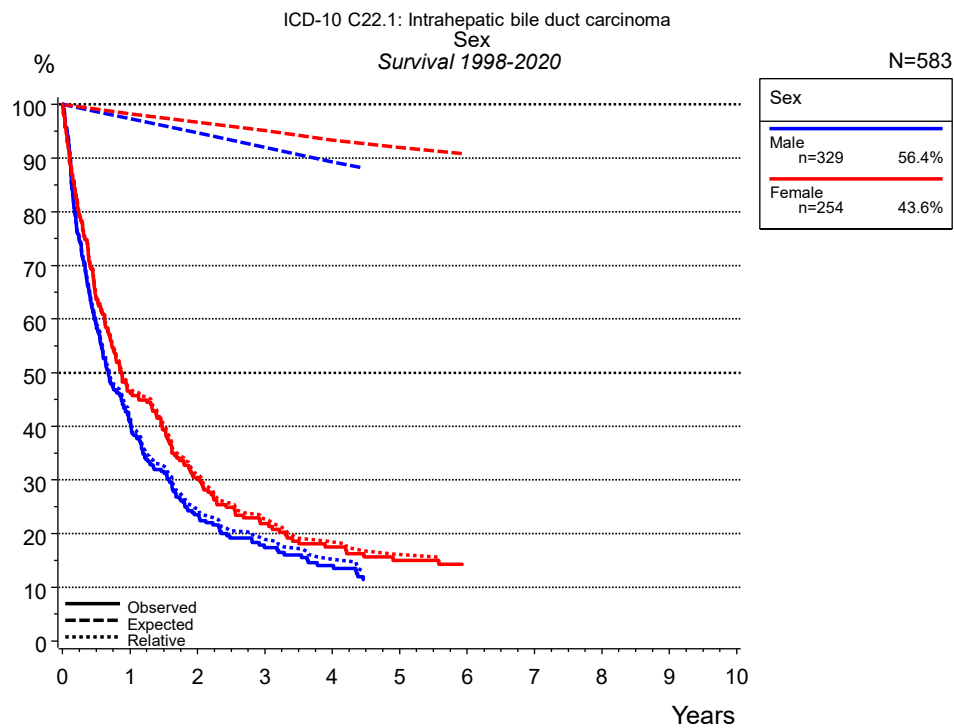
**Figure 1a.** Relative survival of patients with cholangiocarcinoma by period of diagnosis. Included in the evaluation are 583 cases diagnosed between 1998 and 2020.

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			
	1998-2006 n=49		2007+ n=534	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1			44.4	45.4
2			26.9	27.9
3			20.4	21.8
4			16.5	17.8
5			12.6	14.0
6			11.9	13.4
7			11.4	12.9
Median	0.5		0.8	

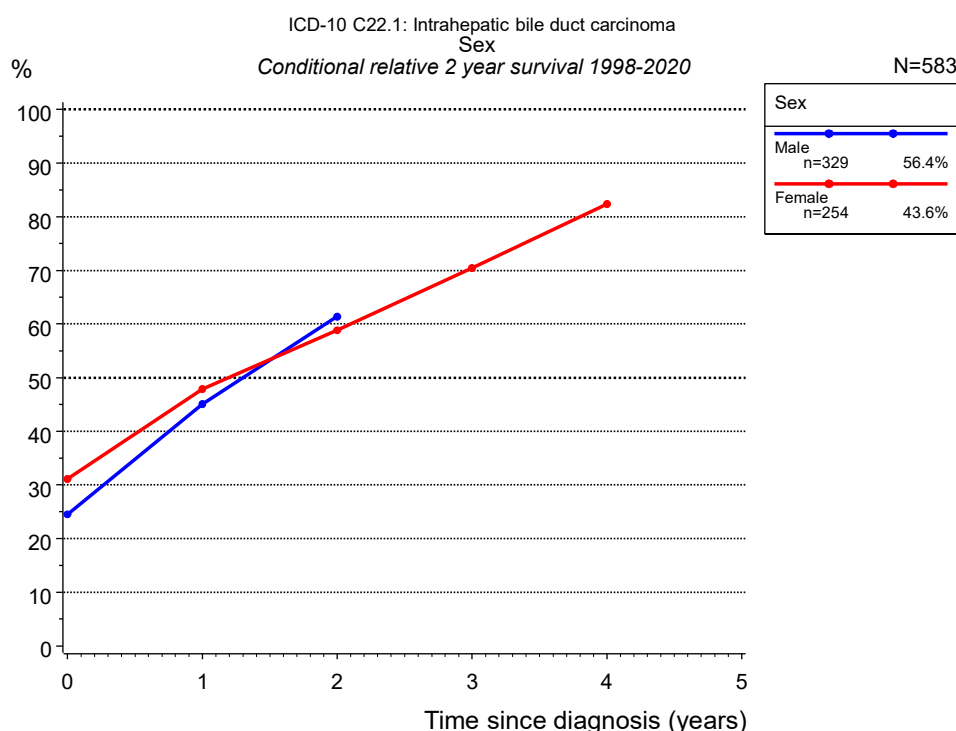
**Table 1b.** Observed (obs.) and relative (rel.) survival of patients with cholangiocarcinoma by period of diagnosis for period 1998-2020 (N=583).



**Figure 2a.** Survival of patients with cholangiocarcinoma by sex. Included in the evaluation are 583 cases diagnosed between 1998 and 2020.

Years	Sex			
	Male n=329		Female n=254	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	40.8	41.8	46.6	47.1
2	23.5	24.5	30.4	31.1
3	17.4	18.9	21.9	22.7
4	14.0	15.2	17.4	18.5
5			14.9	16.1
6			14.3	15.3
Median	0.7		0.9	

**Table 2b.** Observed (obs.) and relative (rel.) survival of patients with cholangiocarcinoma by sex for period 1998-2020 (N=583).

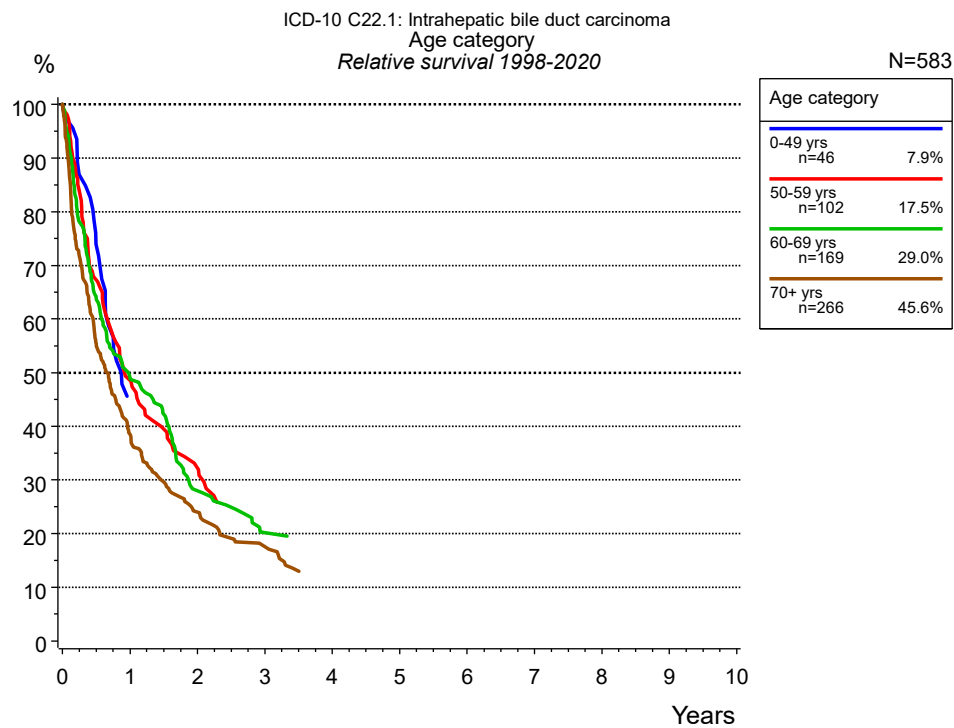


**Figure 2c.** Conditional relative 2-year survival of patients with cholangiocarcinoma by sex. For 583 of 583 cases diagnosed between 1998 and 2020 valid data could be obtained for this item.

Years	Sex		Sex	
	Male	Female	Male	Female
	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs
0	329	24.5	254	31.1
1	130	45.1	112	47.8
2	62	61.4	67	58.8
3			42	70.5
4			30	82.4

**Table 2d.** Conditional relative 2-year survival of patients with cholangiocarcinoma by sex for period 1998-2020 (N=583).

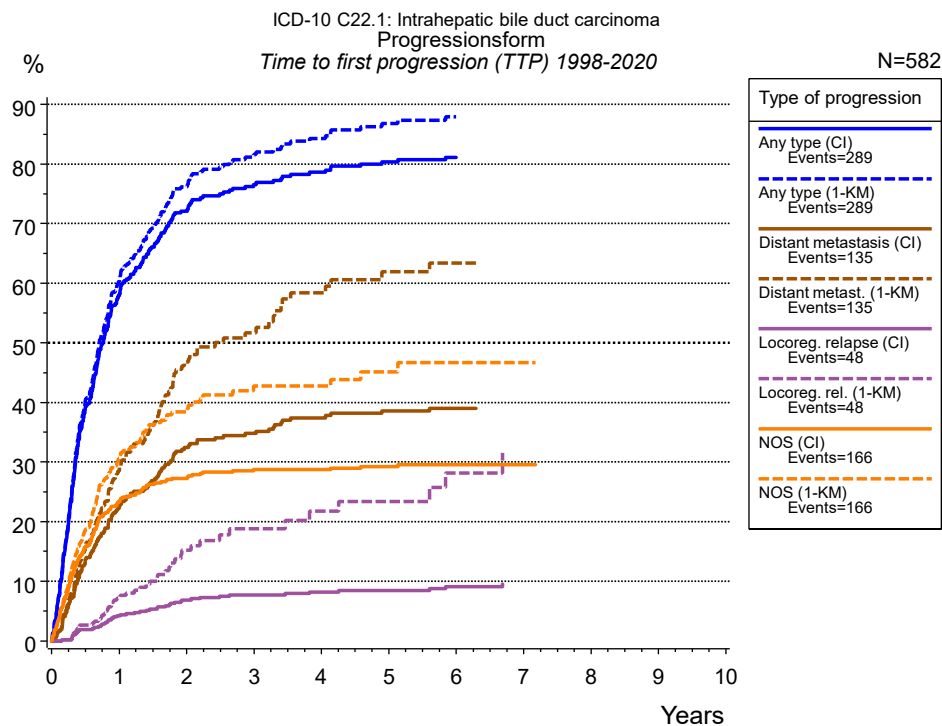
Conditional relative survival rates refer to the relative survival probability, in this case for 2 years after cancer diagnosis, compared to the age- and sex-matched population (=100 %) under the condition of being alive for a certain time period (x-axis in Figure 2a). The results illustrate to what 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="Female", who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 70.5% (n=42).



**Figure 3a.** Relative survival of patients with cholangiocarcinoma by age category. Included in the evaluation are 583 cases diagnosed between 1998 and 2020.

Years	Age category							
	0-49 yrs n=46		50-59 yrs n=102		60-69 yrs n=169		70+ yrs n=266	
	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	45.5	45.3	49.2	48.6	48.7	49.0	37.3	38.6
2			32.8	32.3	27.7	28.0	22.4	24.0
3					19.5	20.2	15.5	17.5
Median	0.9		0.9		0.9		0.6	

**Table 3b.** Observed (obs.) and relative (rel.) survival of patients with cholangiocarcinoma by age category for period 1998-2020 (N=583).



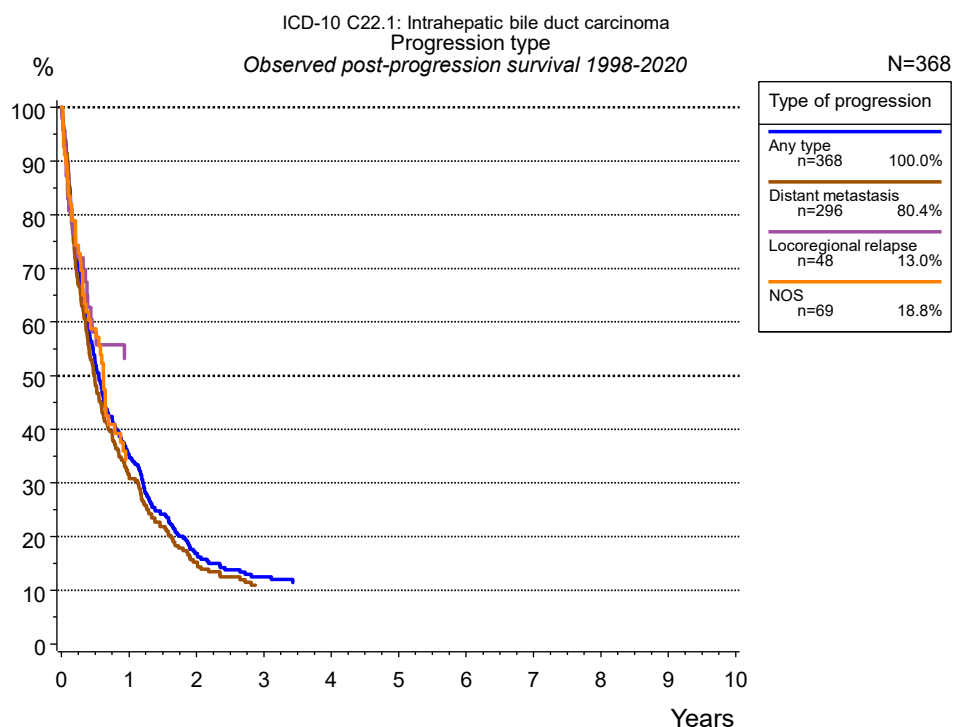
**Figure 5a.** Time to first progression of 582 patients with cholangiocarcinoma diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression						
	Any type (CI)	Any type (1-KM)	Distant metastasis (CI)	Distant metast. (1-KM)	Locoreg. relapse (CI)	Locoreg. rel. (1-KM)	NOS (CI)
N	368	368	368	368	582	582	582
Events	288	288	133	133	48	48	166
compet.	38		173		447		328
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	58.2	60.6	22.8	29.4	4.2	7.2	23.4
2	72.1	76.2	32.5	46.8	6.9	15.2	27.3
3	76.6	81.6	34.8	51.7	7.7	18.8	28.7
4	78.6	84.3	37.4	58.4	8.2	21.7	28.7
5	80.4	86.8	38.6	61.9	8.5	23.4	29.3
6	81.1	87.9	39.0	63.4	9.1	28.1	29.6
7					9.5	31.6	29.6

Type of progression	
cont'd	NOS (1-KM)
N	582
Events	166
compet.	
Years	%
0	0.0
1	30.6
2	38.4
3	42.7
4	42.7
5	45.2
6	46.7
7	46.7

**Table 5b.** Time to first progression of patients with cholangiocarcinoma for period 1998-2020 (N=582), also showing the total of progression events (Events) and of deaths as competing risk (compet.).



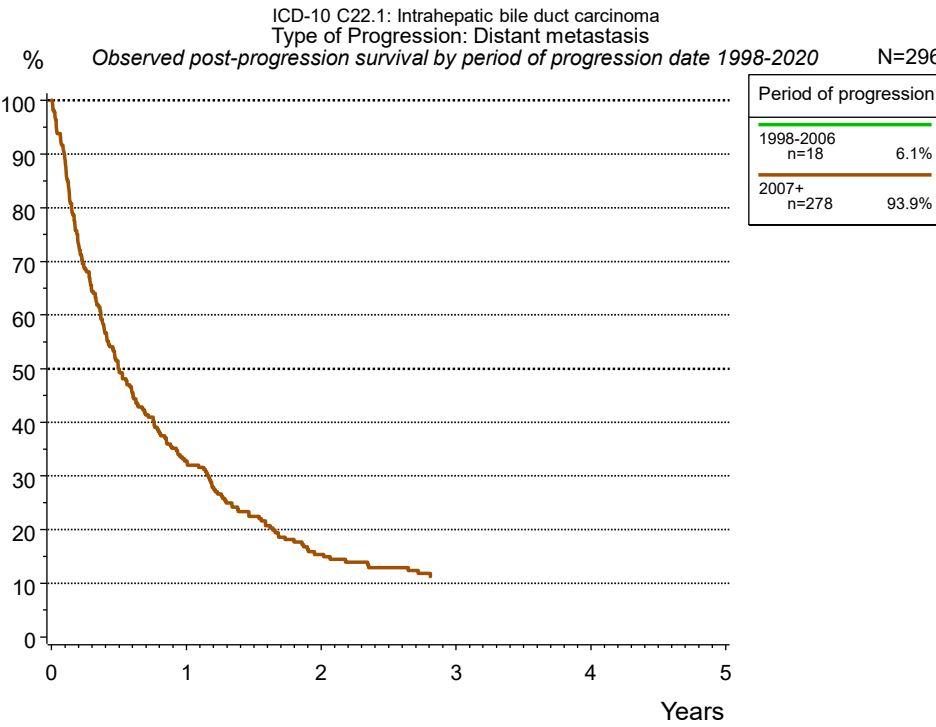


**Figure 5c.** Observed post-progression survival of 368 patients with cholangiocarcinoma diagnosed between 1998 and 2020. These 368 patients with documented progression events during their course of disease represent 63.2 % of the totally 582 evaluated cases (incl. M1, n=214, 36.8 %). Patients with cancer relapse documented via death certificates only were excluded (n=135, 23.2 %). 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=368 %	Distant metastasis n=296 %	Locoregional relapse n=48 %	NOS n=69 %
0	100.0	100.0	100.0	100.0
1	35.3	31.6		
2	16.9	15.2		
3	12.5			

**Table 5d.** Observed post-progression survival of patients with cholangiocarcinoma for period 1998-2020 (N=368).



**Figure 5e.** Observed post-progression (distant metastasis) survival of 296 patients with cholangiocarcinoma diagnosed between 1998 and 2020 by period of progression.

Period of progression	
Years	2007+
	n=278
	%
0	100.0
1	32.8
2	15.4

**Table 5f.** Observed post-progression (distant metastasis) survival of patients with cholangiocarcinoma for period 1998-2020 by period of progression (N=296).

## 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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