Munich Cancer Registry

- Incidence and Mortality
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- *Deutsch*

ICD-10 C22: Liver cancer

Survival

Year of diagnosis	1988-1997	1998-2020
Patients	397	8,953
Diseases	397	8,958
Cases evaluated	357	5,366

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/sC22__E-ICD-10-C22-Liver-cancer-survival.pdf

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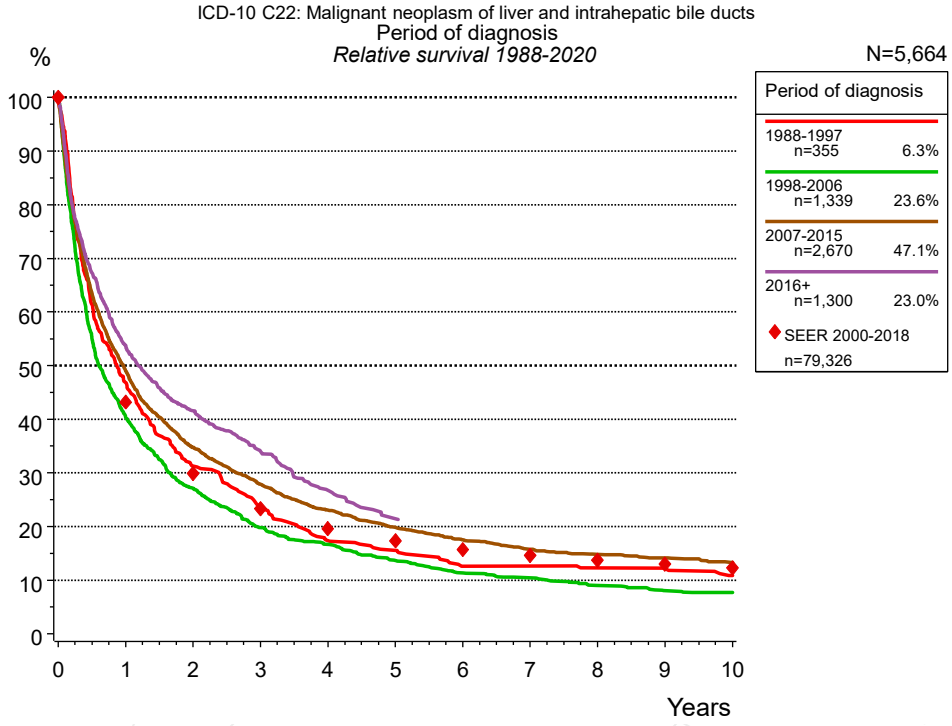

Figure 1a. Relative survival of patients with liver cancer by period of diagnosis. Included in the evaluation are 5,664 cases diagnosed between 1988 and 2020.

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.

	Period of diagnosis							
	1988-1997 n=355		1998-2006 n=1,339		2007-2015 n=2,670		2016+ n=1,300	
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	45.8	46.9	39.1	40.2	47.8	49.0	52.2	53.7
2	29.8	31.3	25.7	27.1	33.0	34.7	39.4	41.6
3	21.9	23.4	18.4	19.8	25.9	27.9	31.4	34.1
4	16.0	17.3	15.1	16.7	20.9	23.1	24.0	26.7
5	14.2	15.5	12.1	13.7	17.5	19.8	19.4	21.4
6	11.1	12.6	9.9	11.4	15.1	17.5		
7	11.1	12.6	8.9	10.5	13.2	15.8		
8	10.5	12.3	7.4	9.0	12.2	14.8		
9	10.2	12.2	6.5	8.0	11.4	14.2		
10	8.9	10.9	6.1	7.7	10.4	13.3		
Median	0.8		0.6		0.9		1.1	

Table 1b. Observed (obs.) and relative (rel.) survival of patients with liver cancer by period of diagnosis for period 1988-2020 (N=5,664).

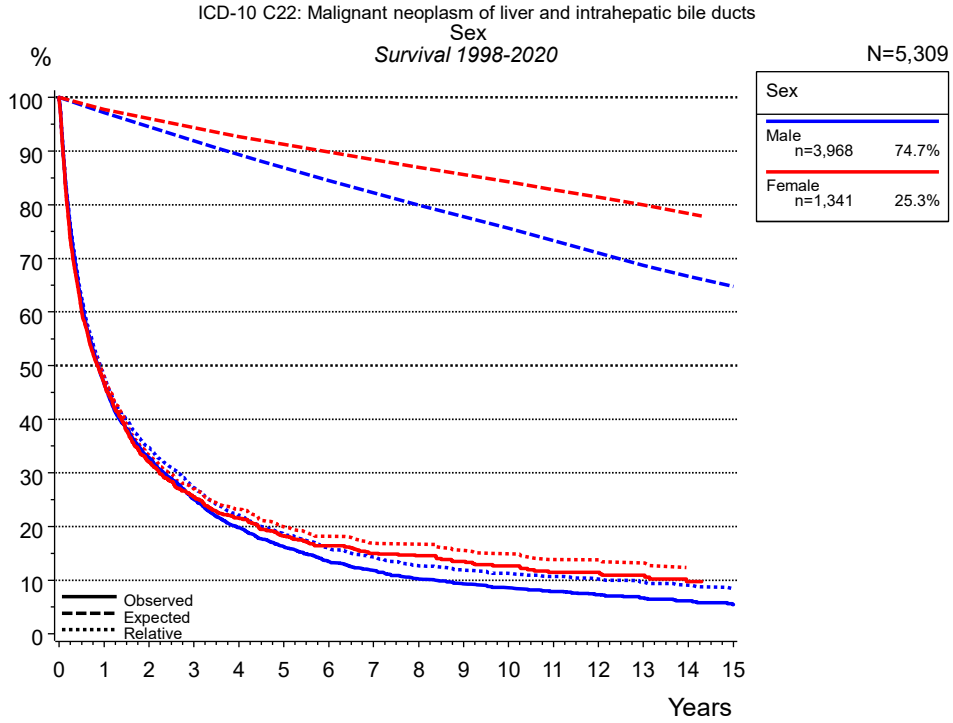

Figure 2a. Survival of patients with liver cancer by sex. Included in the evaluation are 5,309 cases diagnosed between 1998 and 2020.

	Sex			
	Male n=3,968		Female n=1,341	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	46.7	48.0	46.8	47.8
2	32.8	34.7	32.0	33.3
3	25.1	27.2	25.5	27.0
4	19.8	22.1	21.6	23.2
5	16.2	18.6	18.3	19.9
6	13.5	15.9	16.4	18.2
7	11.8	14.3	15.0	16.9
8	10.2	12.7	14.5	16.7
9	9.2	11.9	13.5	15.6
10	8.5	11.3	12.7	14.9
11	7.9	10.7	11.5	13.8
12	7.3	10.2	11.5	13.8
13	6.7	9.6	10.9	13.2
14	6.2	9.0	9.7	12.4
15	5.4	8.4		
Median	0.9		0.9	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with liver cancer by sex for period 1998-2020 (N=5,309).

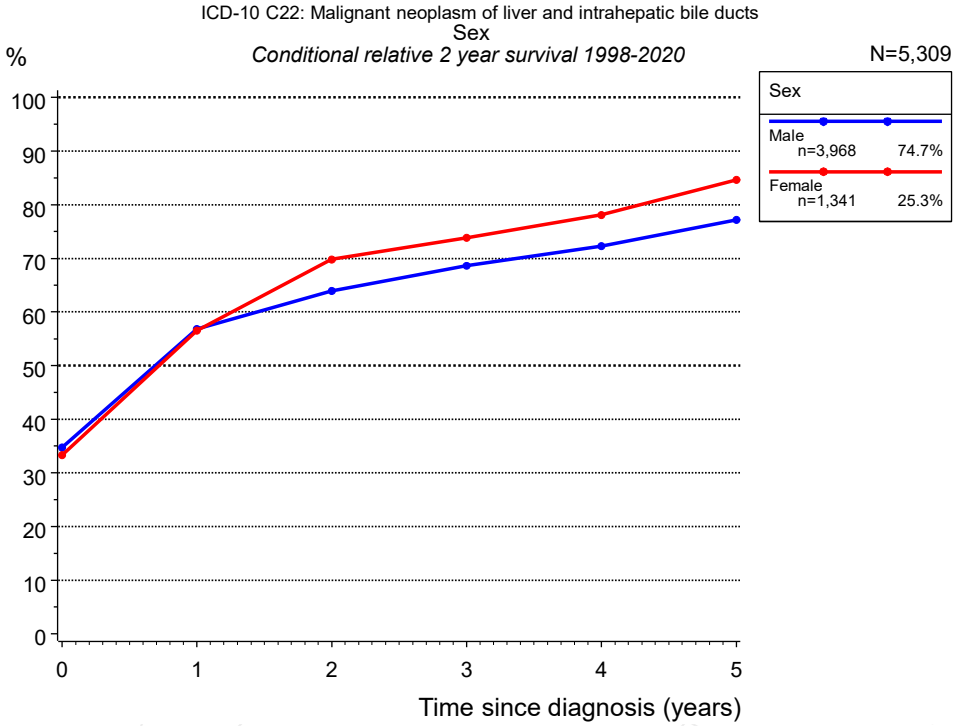

Figure 2c. Conditional relative 2-year survival of patients with liver cancer by sex. For 5,309 of 5,309 cases diagnosed between 1998 and 2020 valid data could be obtained for this item.

	Sex			
	Male		Female	
Years	n	Cond. surv. % 2 yrs	n	Cond. surv. % 2 yrs
0	3,968	34.7	1,341	33.3
1	1,798	56.8	602	56.5
2	1,188	63.9	391	69.8
3	841	68.6	284	73.8
4	608	72.3	218	78.1
5	469	77.1	164	84.6

Table 2d. Conditional relative 2-year survival of patients with liver cancer by sex for period 1998-2020 (N=5,309).

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="Male", who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 68.6% (n=841).

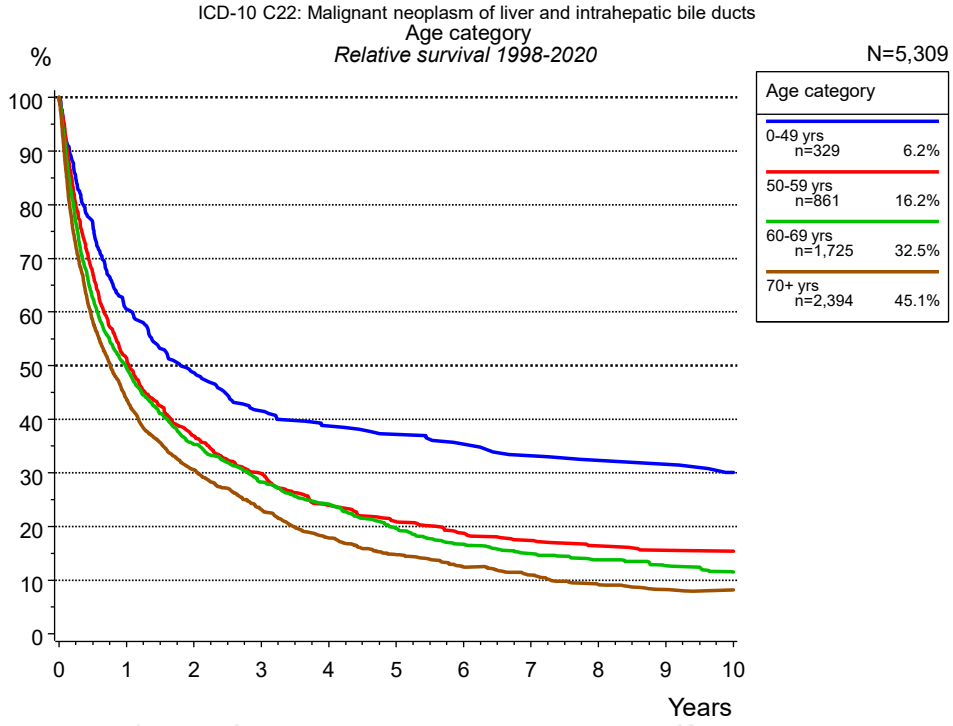

Figure 3a. Relative survival of patients with liver cancer by age category. Included in the evaluation are 5,309 cases diagnosed between 1998 and 2020.

	Age category							
	0-49 yrs n=329		50-59 yrs n=861		60-69 yrs n=1,725		70+ yrs n=2,394	
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	60.4	60.5	51.0	51.3	48.9	49.6	41.7	43.7
2	48.8	48.7	36.5	36.9	34.3	35.3	27.8	30.6
3	41.5	41.5	29.3	29.9	27.1	28.3	20.1	23.2
4	38.6	38.7	23.3	23.9	22.7	24.2	14.7	17.9
5	37.0	37.2	20.2	20.9	18.2	19.7	11.5	14.8
6	35.3	35.3	18.0	18.7	15.1	16.6	9.2	12.5
7	33.0	33.2	16.6	17.4	13.2	14.9	7.7	11.0
8	32.0	32.3	15.4	16.4	11.9	13.8	6.1	9.2
9	31.5	31.6	14.5	15.5	10.7	12.7	5.1	8.3
10	29.5	30.1	14.3	15.4	9.4	11.6	4.7	8.2
Median	1.8		1.0		0.9		0.7	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with liver cancer by age category for period 1998-2020 (N=5,309).

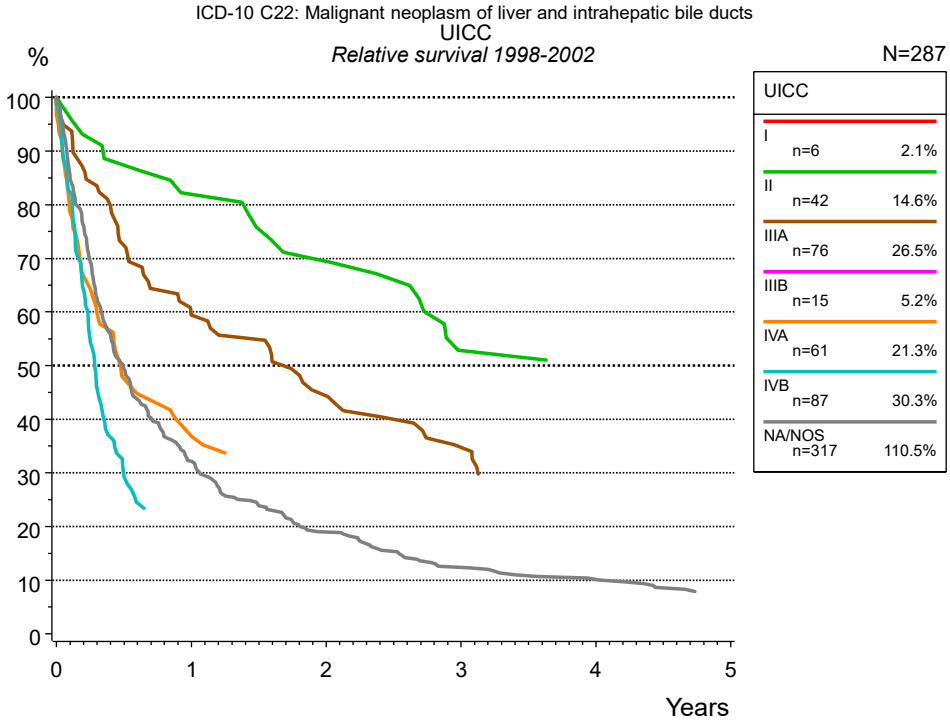

Figure 4a. Relative survival of patients with liver cancer by UICC. For 298 of 604 cases diagnosed between 1998 and 2002 valid data could be obtained for this item. For a total of 287 cases an evaluable classification was established. The grey line represents the subgroup of 317 patients with missing values regarding UICC (52.5 % of 604 patients, the percent values of all other categories are related to n=287). Subgroups with sample size <20 are omitted from the chart.

	UICC									
	II n=42		IIIA n=76		IVA n=61		IVB n=87		NA/NOS n=317	
Years	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
1	81.0	81.9	57.9	59.5	36.1	36.9			31.3	32.1
2	69.0	69.4	43.4	44.4					17.9	19.0
3	50.0	52.8	32.9	34.8					11.5	12.4
4									9.3	10.2
5									6.9	7.7
Median	3.3		1.6		0.5		0.3		0.5	

Table 4b. Observed (obs.) and relative (rel.) survival of patients with liver cancer by UICC for period 1998-2002 (N=287).

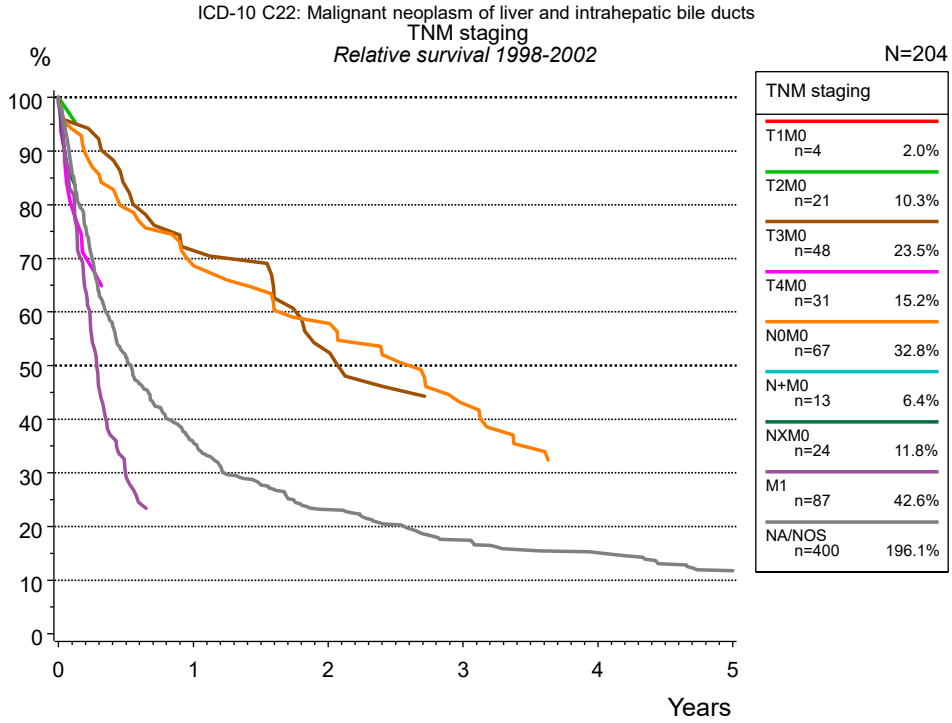

Figure 4c. Relative survival of patients with liver cancer by TNM staging. For 298 of 604 cases diagnosed between 1998 and 2002 valid data could be obtained for this item. For a total of 204 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potientially considered in more than one subgroup. The grey line represents the subgroup of 400 patients with missing values regarding TNM staging (66.2 % of 604 patients, the percent values of all other categories are related to n=204). Subgroups with sample size <20 are omitted from the chart.

	TNM staging													
	T2M0 n=21		T3M0 n=48		T4M0 n=31		N0M0 n=67		NXM0 n=24		M1 n=87		NA/NOS n=400	
Years	obs. %	rel. %	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	100.0	100.0
1			70.8	71.5			67.2	68.6					34.6	35.6
2			52.1	52.5			56.7	57.9					21.9	23.2
3							40.3	42.9					16.3	17.5
4													13.8	15.1
5													10.5	11.8
Median			2.0				2.4				0.3		0.5	

Table 4d. Observed (obs.) and relative (rel.) survival of patients with liver cancer by TNM staging for period 1998-2002 (N=204).

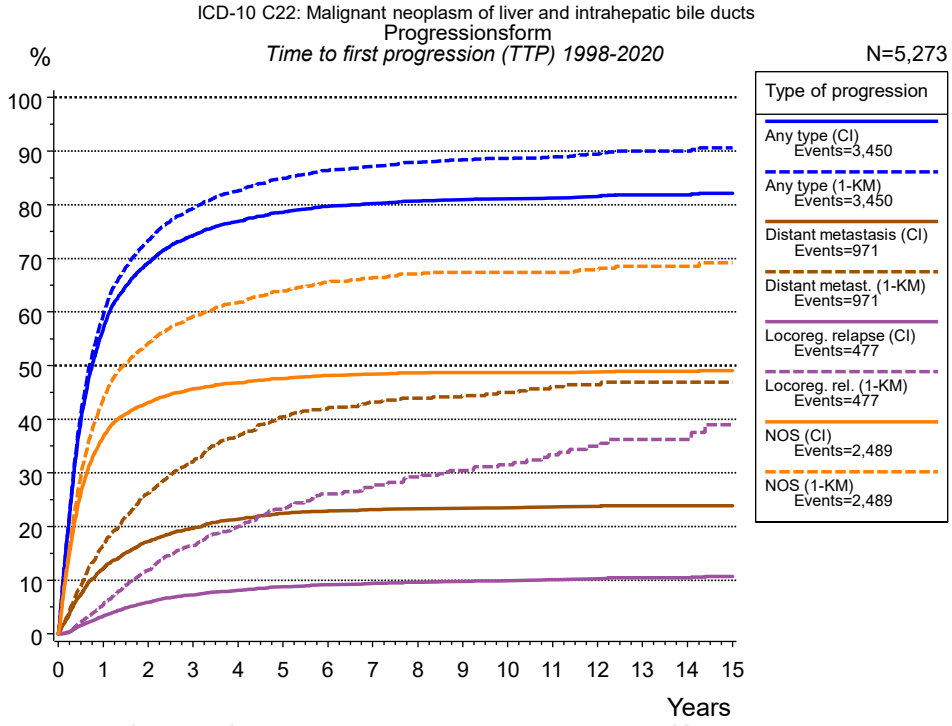

Figure 5a. Time to first progression of 5,273 patients with liver cancer diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression						
	Any type (CI)	Any type (1-KM)	Distant metastasis (CI)	Distant metast. (1-KM)	Locoreg. relapse (CI)	Locoreg. rel. (1-KM)	NOS (CI)
N	4,396	4,396	4,397	4,397	5,273	5,273	5,272
Events	3,450	3,450	971	971	477	477	2,489
compet.	504		2,754		4,098		2,153
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	56.8	59.4	12.3	16.6	3.3	5.4	36.7
2	69.2	73.4	17.2	26.2	5.9	12.0	43.1
3	74.3	79.3	19.7	32.0	7.2	16.4	45.7
4	76.8	82.5	21.4	36.8	8.1	20.0	46.8
5	78.6	84.9	22.4	40.4	8.7	23.2	47.6
6	79.7	86.4	22.9	41.9	9.2	26.1	48.2
7	80.3	87.2	23.2	43.2	9.4	27.5	48.4
8	80.7	87.9	23.3	44.0	9.7	29.3	48.6
9	81.0	88.4	23.4	44.4	9.8	30.4	48.7
10	81.1	88.6	23.5	45.0	9.9	31.5	48.7
11	81.3	88.9	23.7	46.1	10.1	33.3	48.7
12	81.5	89.4	23.8	46.5	10.3	34.9	48.8
13	81.8	90.0	23.8	46.9	10.4	36.3	49.0
14	81.8	90.0	23.8	46.9	10.4	36.3	49.0
15	82.1	90.6	23.8	46.9	10.7	38.9	49.1

Type of progression	
cont'd	NOS (1-KM)
N	5,272
Events	2,489
compet.	
Years	%
0	0.0
1	43.8
2	54.2
3	59.3
4	61.7
5	63.9
6	65.5
7	66.4
8	67.1
9	67.4
10	67.4
11	67.4
12	67.9
13	68.5
14	68.5
15	69.2

Table 5b. Time to first progression of patients with liver cancer for period 1998-2020 (N=5,273), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

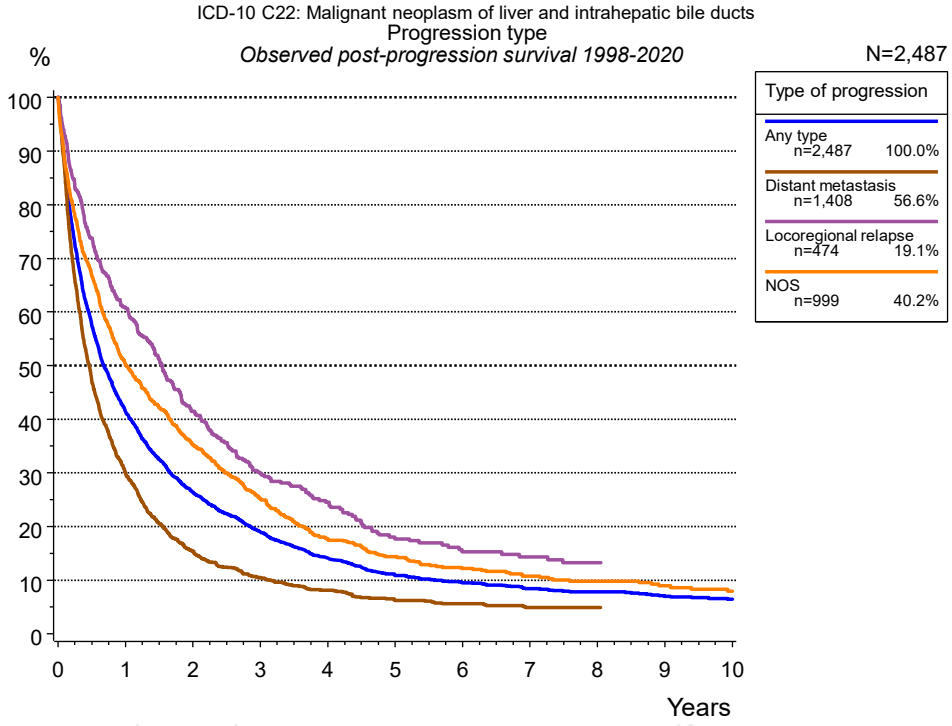

Figure 5c. Observed post-progression survival of 2,487 patients with liver cancer diagnosed between 1998 and 2020. These 2,487 patients with documented progression events during their course of disease represent 47.2 % of the totally 5,273 evaluated cases (incl. M1, n=877, 16.6 %). Patients with cancer relapse documented via death certificates only were excluded (n=1,840, 34.9 %). Multiple progression types on different sites are included in the evaluation even when not occuring 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 potientially considered in more than one subgroup.

	Type of progression			
Years	Any type n=2,487 %	Distant metastasis n=1,408 %	Locoregional relapse n=474 %	NOS n=999 %
0	100.0	100.0	100.0	100.0
1	41.4	29.9	60.7	50.2
2	26.3	15.4	41.5	35.3
3	19.0	10.5	29.9	25.3
4	14.1	8.1	24.5	17.6
5	10.9	6.2	17.7	14.4
6	9.5	5.6	15.2	12.2
7	8.4	4.9	14.3	10.8
8	7.8	4.9	13.2	9.8
9	7.0			9.0
10	6.4			8.0

Table 5d. Observed post-progression survival of patients with liver cancer for period 1998-2020 (N=2,487).

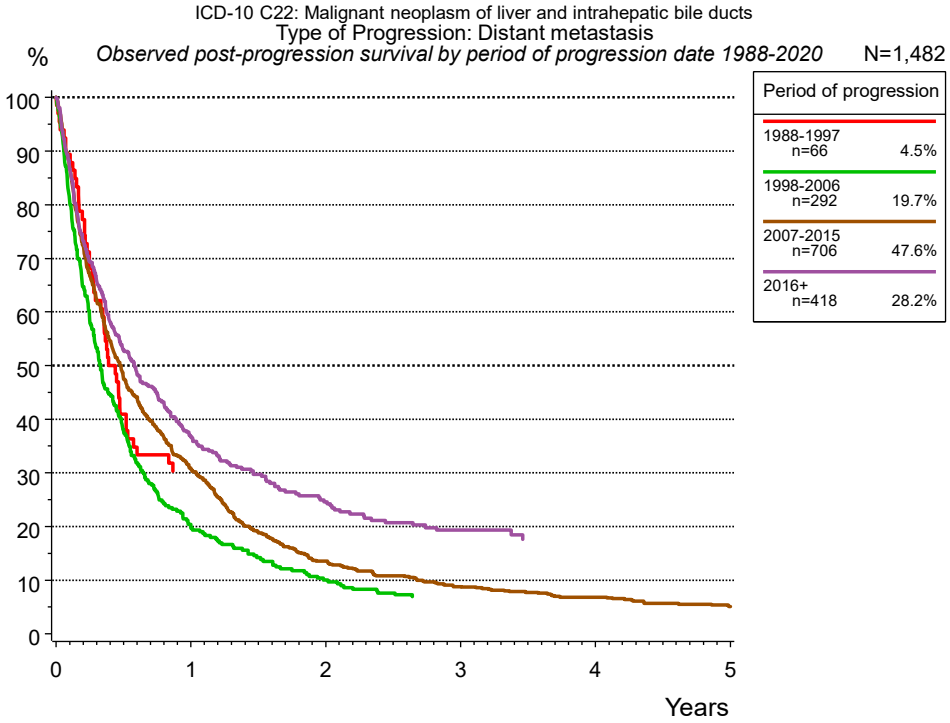

Figure 5e. Observed post-progression (distant metastasis) survival of 1,482 patients with liver cancer diagnosed between 1988 and 2020 by period of progression.

	Period of progression			
	1988-1997 n=66	1998-2006 n=292	2007-2015 n=706	2016+ n=418
Years	%	%	%	%
0	100.0	100.0	100.0	100.0
1		19.7	30.8	36.7
2		10.0	13.5	24.6
3			8.8	19.3
4			6.8	
5			5.1	

Table 5f. Observed post-progression (distant metastasis) survival of patients with liver cancer for period 1988-2020 by period of progression (N=1,482).

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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