

Munich Cancer Registry



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ICD-10 C73: Follicular thyroid ca.

Survival

Year of diagnosis	1988-1997	1998-2019
Patients	217	1,026
Diseases	218	1,026
Cases evaluated	203	880
Creation date	01/27/2021	
Database export	01/07/2021	
Population	4.92 m	



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

https://www.tumorregister-muenchen.de/en/facts/surv/sC73F_E-ICD-10-C73-Follicular-thyroid-ca.-survival.pdf

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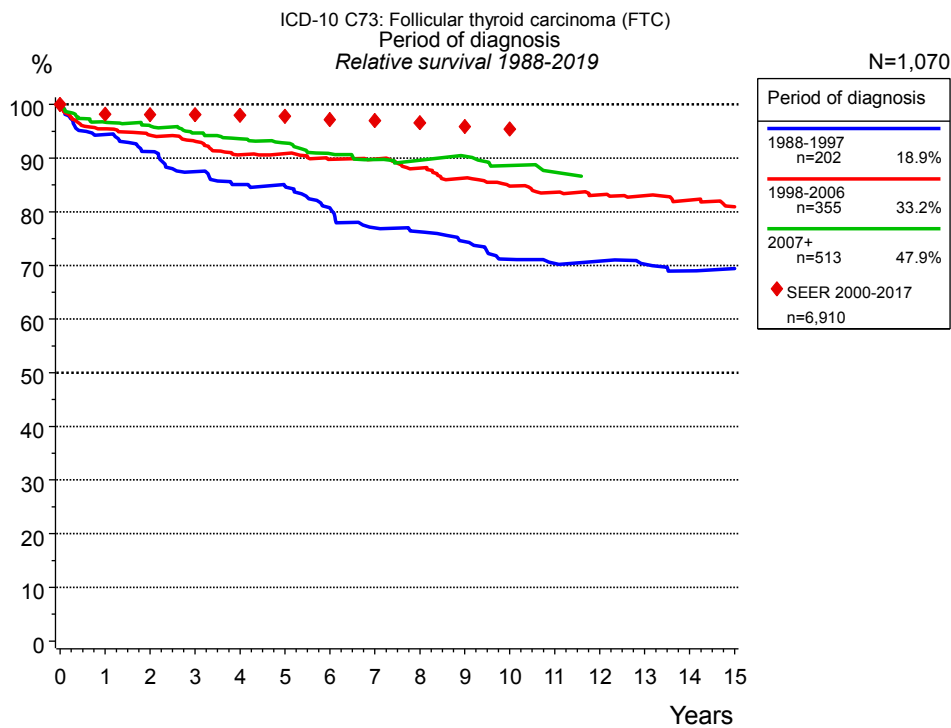


Figure 1a. Relative survival of patients with follicular thyroid ca. by period of diagnosis. Included in the evaluation are 1,070 cases diagnosed between 1988 and 2019.

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 2017, 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=202		1998-2006 n=355		2007+ n=513	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	92.9	94.4	94.3	95.5	95.7	96.7
2	88.2	91.2	91.6	94.3	93.9	96.0
3	82.9	87.5	89.3	93.1	91.4	94.7
4	79.2	85.1	85.4	90.6	89.2	93.6
5	77.7	84.9	84.5	90.8	87.3	92.8
6	72.9	80.8	82.1	89.8	84.2	90.8
7	68.1	77.0	80.9	89.8	82.2	89.7
8	66.5	76.3	78.1	88.1	80.8	89.6
9	63.8	74.5	75.3	86.3	80.2	90.4
10	60.0	71.1	72.4	84.8	77.7	88.6
11	58.3	70.4	70.5	83.6	75.5	87.4
12	57.8	70.8	68.9	83.1		
13	56.1	70.2	67.5	83.0		
14	54.4	69.0	65.6	82.2		
15	53.8	69.4	63.5	80.9		
Median	16.0					

Table 1b. Observed (obs.) and relative (rel.) survival of patients with follicular thyroid ca. by period of diagnosis for period 1988-2019 (N=1,070).

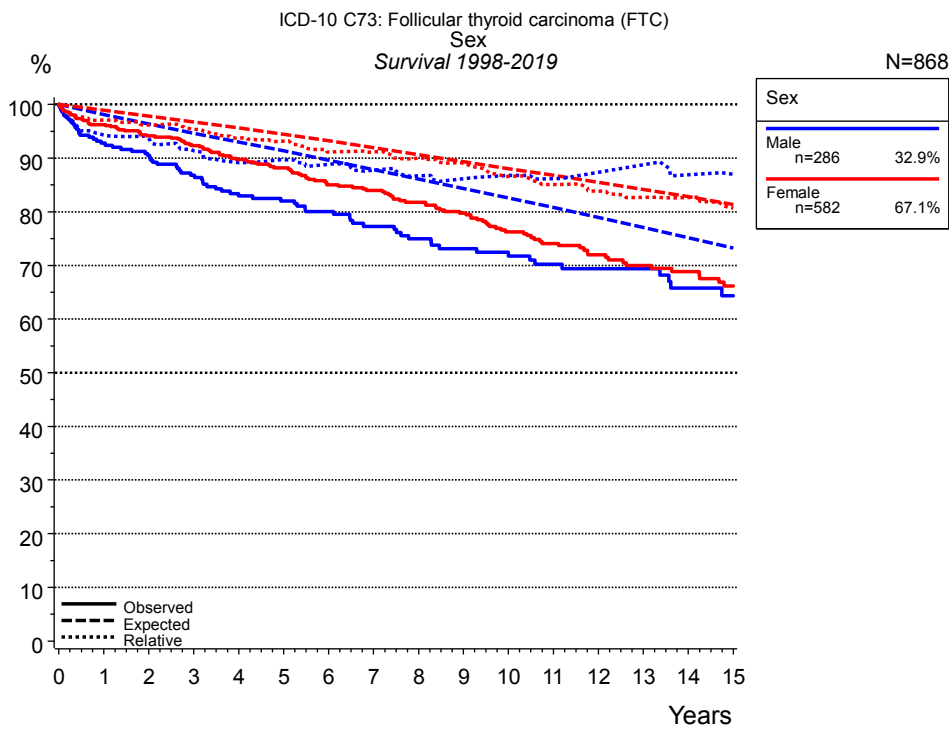


Figure 2a. Survival of patients with follicular thyroid ca. by sex. Included in the evaluation are 868 cases diagnosed between 1998 and 2019.

Years	Sex			
	Male n=286		Female n=582	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	92.8	94.3	96.2	97.1
2	90.4	93.6	94.1	96.2
3	86.8	91.4	92.3	95.3
4	82.9	89.2	89.7	93.8
5	82.0	89.7	88.2	93.2
6	80.1	88.8	85.0	91.1
7	77.3	87.7	84.0	91.2
8	75.0	86.7	81.8	90.0
9	73.1	86.2	79.8	89.1
10	71.7	86.8	76.3	86.6
11	70.2	86.2	74.1	85.1
12	69.4	87.4	72.0	83.9
13	69.4	88.8	70.0	82.7
14	65.8	86.9	68.8	82.7
15	64.3	87.0	66.2	80.7
Median				

Table 2b. Observed (obs.) and relative (rel.) survival of patients with follicular thyroid ca. by sex for period 1998-2019 (N=868).

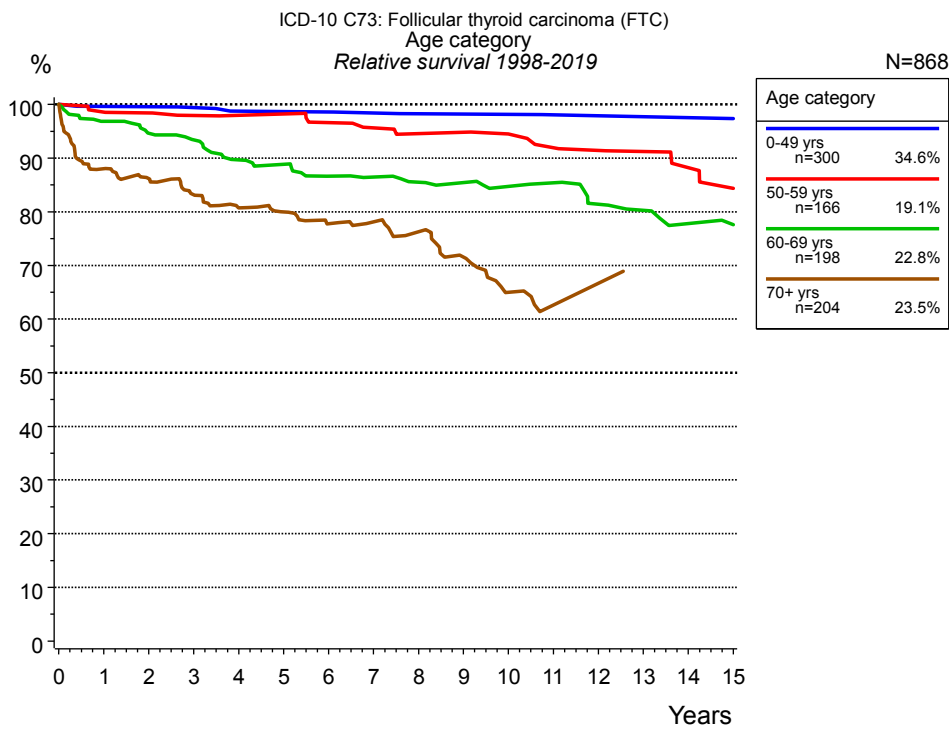


Figure 3a. Relative survival of patients with follicular thyroid ca. by age category. Included in the evaluation are 868 cases diagnosed between 1998 and 2019.

Years	Age category							
	0-49 yrs n=300		50-59 yrs n=166		60-69 yrs n=198		70+ yrs n=204	
	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	99.6	99.7	98.7	98.6	95.9	96.9	84.9	88.0
2	99.6	99.6	98.1	98.5	92.6	94.7	79.6	86.2
3	99.2	99.4	96.6	98.0	90.3	93.4	73.5	83.2
4	98.3	98.8	95.9	98.0	85.6	89.7	67.8	80.7
5	98.3	98.7	95.9	98.2	83.8	88.9	64.2	80.0
6	98.3	98.6	93.4	96.6	80.0	86.6	59.0	77.8
7	97.7	98.4	91.6	95.6	78.6	86.5	56.2	78.1
8	97.1	98.3	89.8	94.6	76.4	85.5	51.7	76.3
9	97.1	98.2	89.8	94.8	75.0	85.5	45.2	71.6
10	97.1	98.2	87.6	94.5	72.6	84.7	37.8	65.0
11	96.2	98.1	85.3	91.9	71.7	85.4	33.6	62.6
12	96.2	97.9	84.0	91.4	66.4	81.4	33.6	66.7
13	96.2	97.7	82.5	91.2	63.9	80.3		
14	96.2	97.6	78.9	88.3	59.6	77.8		
15	96.2	97.4	75.0	84.4	57.9	77.6		
Median							8.3	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with follicular thyroid ca. by age category for period 1998-2019 (N=868).

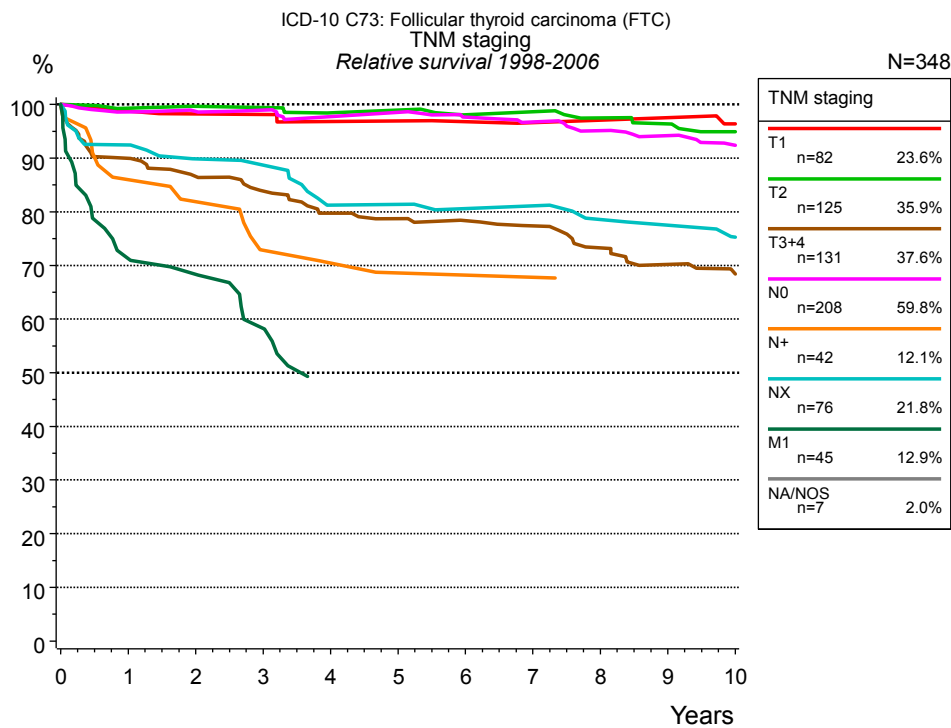


Figure 4c. Relative survival of patients with follicular thyroid ca. by TNM staging. For 348 of 355 cases diagnosed between 1998 and 2006 valid data could be obtained for this item. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 7 patients with missing values regarding TNM staging (2.0 % of 355 patients, the percent values of all other categories are related to n=348). Subgroups with sample size <20 are omitted from the chart.

Due to substantial changes in stage classification schemes long-term survival statistics over decades could not be created.

Years	TNM staging													
	T1 n=82		T2 n=125		T3+4 n=131		N0 n=208		N+ n=42		NX n=76		M1 n=45	
	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	98.7	98.8	98.3	99.3	88.5	90.0	97.5	98.6	85.6	86.0	91.9	92.4	71.1	71.2
2	97.4	98.3	97.5	99.6	83.1	86.6	96.5	98.7	80.8	81.9	86.5	89.9	66.7	68.3
3	97.4	98.2	96.7	99.5	78.5	83.9	95.5	99.0	70.7	72.8	85.2	88.7	55.6	58.2
4	94.7	96.8	94.2	98.4	73.1	79.7	93.0	97.8	68.1	70.4	75.6	81.2		
5	94.7	96.9	94.2	98.9	70.7	78.7	92.5	98.5	65.6	68.6	75.6	81.4		
6	93.2	96.8	91.7	98.1	68.4	78.3	89.9	97.6	65.6	68.2	72.8	80.6		
7	91.8	96.6	91.7	98.7	66.0	77.4	87.8	96.7	65.6	67.8	72.8	81.1		
8	91.8	97.1	89.1	97.5	61.1	73.3	85.2	95.1	63.1	68.0	68.5	78.5		
9	91.8	97.6	87.3	96.4	57.1	70.2	83.1	94.2	63.1	68.4	67.1	77.5		
10	88.8	96.4	84.6	94.9	53.8	68.4	79.9	92.4	63.1	68.8	62.6	75.2		
Median					10.7						17.2		3.2	

Table 4d. Observed (obs.) and relative (rel.) survival of patients with follicular thyroid ca. by TNM staging for period 1998-2006 (N=348).

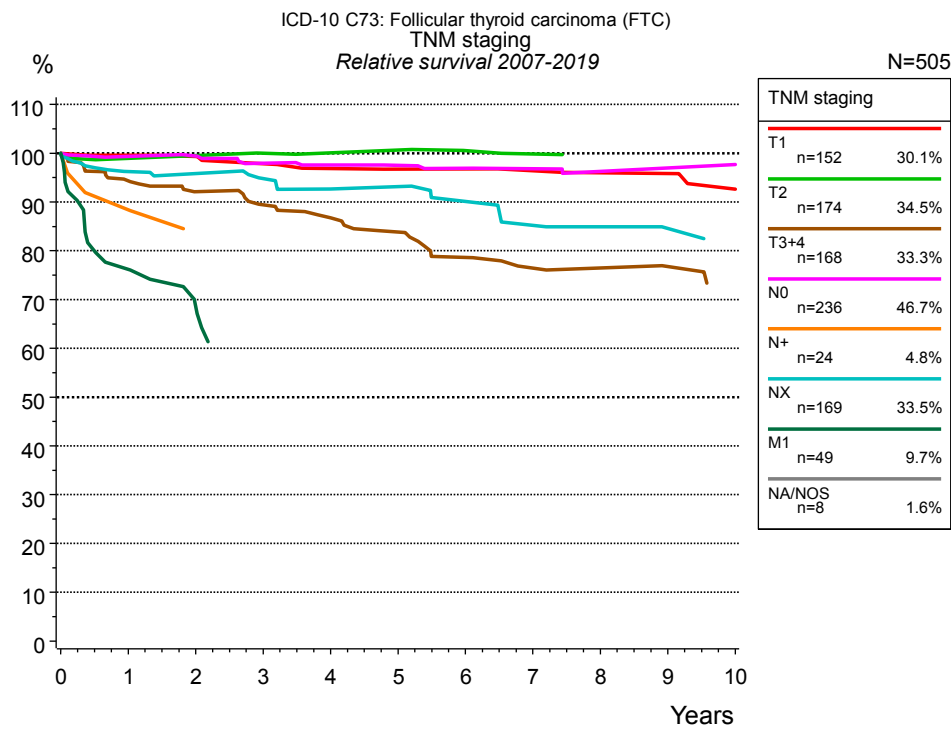


Figure 4e. Relative survival of patients with follicular thyroid ca. by TNM staging. For 505 of 513 cases diagnosed between 2007 and 2019 valid data could be obtained for this item. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 8 patients with missing values regarding TNM staging (1.6 % of 513 patients, the percent values of all other categories are related to n=505). Subgroups with sample size <20 are omitted from the chart.

Due to substantial changes in stage classification schemes long-term survival statistics over decades could not be created.

Years	TNM staging													
	T1 n=152		T2 n=174		T3+4 n=168		N0 n=236		N+ n=24		NX n=169		M1 n=49	
	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	99.2	99.6	98.2	98.9	93.2	94.4	98.6	99.4	91.7	88.4	94.9	96.2	76.0	76.2
2	98.4	99.3	98.2	99.5	89.1	92.1	98.1	99.4			93.4	95.9	65.5	68.7
3	95.9	97.8	97.5	100.0	85.3	89.4	95.5	98.0			90.9	94.8		
4	94.0	96.9	96.7	100.1	81.0	86.8	94.4	97.5			87.3	92.7		
5	92.8	96.7	96.7	100.6	77.5	83.9	93.2	97.5			87.3	93.2		
6	92.8	96.8	94.7	100.5	71.5	78.7	91.8	96.9			81.9	90.1		
7	91.4	96.4	93.5	99.8	67.9	76.5	90.3	96.9			77.2	85.2		
8	89.8	96.0			66.5	76.5	88.6	96.3			75.4	84.9		
9	89.8	95.8			64.9	76.8	88.6	97.0			72.8	84.6		
10	85.9	92.6			61.0	72.5	88.6	97.7			69.7	79.6		
Median														

Table 4f. Observed (obs.) and relative (rel.) survival of patients with follicular thyroid ca. by TNM staging for period 2007-2019 (N=505).

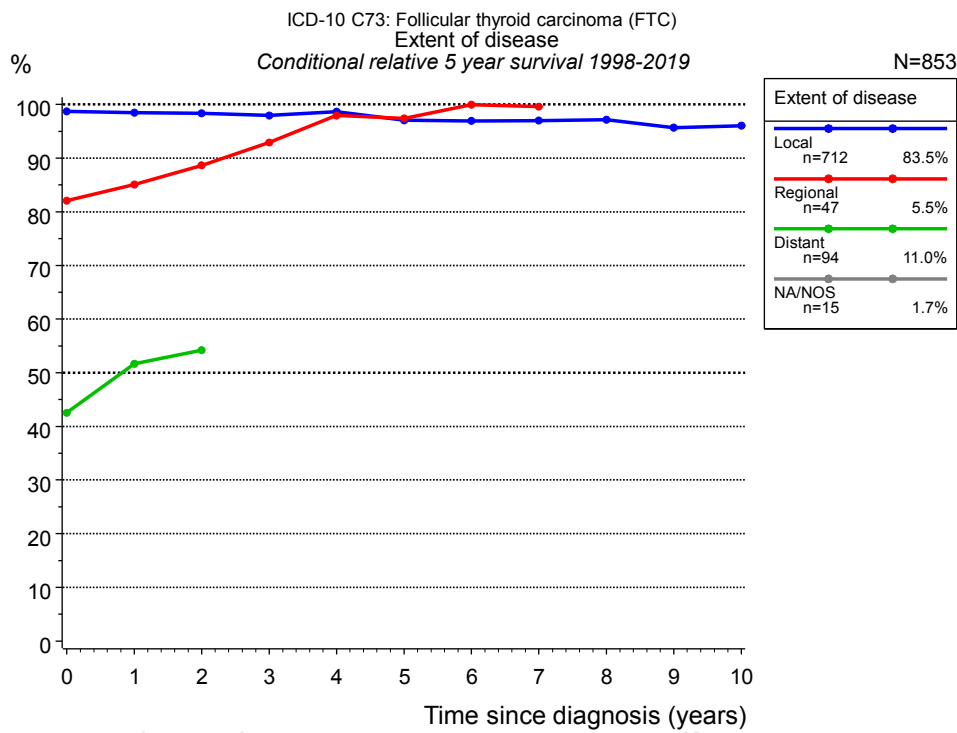


Figure 4g. Conditional relative 5-year survival of patients with follicular thyroid ca. by extent of disease. For 853 of 868 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. The grey line represents the subgroup of 15 patients with missing values regarding extent of disease (1.7 % of 868 patients, the percent values of all other categories are related to n=853). Subgroups with sample size <20 are omitted from the chart.

Years	Extent of disease							
	Local		Regional		Distant		NA/NOS	
	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs	n	Cond. surv. % 5 yrs
0	712	98.7	47	82.1	94	42.5	15	
1	643	98.5	44	85.1	62	51.6		
2	601	98.4	42	88.6	53	54.2		
3	568	97.9	37	92.9				
4	523	98.6	33	98.0				
5	490	97.1	33	97.4				
6	430	96.9	31	100.0				
7	393	97.0	30	99.6				
8	367	97.2						
9	332	95.7						
10	291	96.0						

Table 4h. Conditional relative 5-year survival of patients with follicular thyroid ca. by extent of disease for period 1998-2019 (N=853).

Conditional relative survival rates refer to the relative survival probability, in this case for 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 4e). 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 extent of disease="Local", who are alive at least 3 years after cancer diagnosis, the conditional relative 5-year survival rate is 97.9% (n=568).

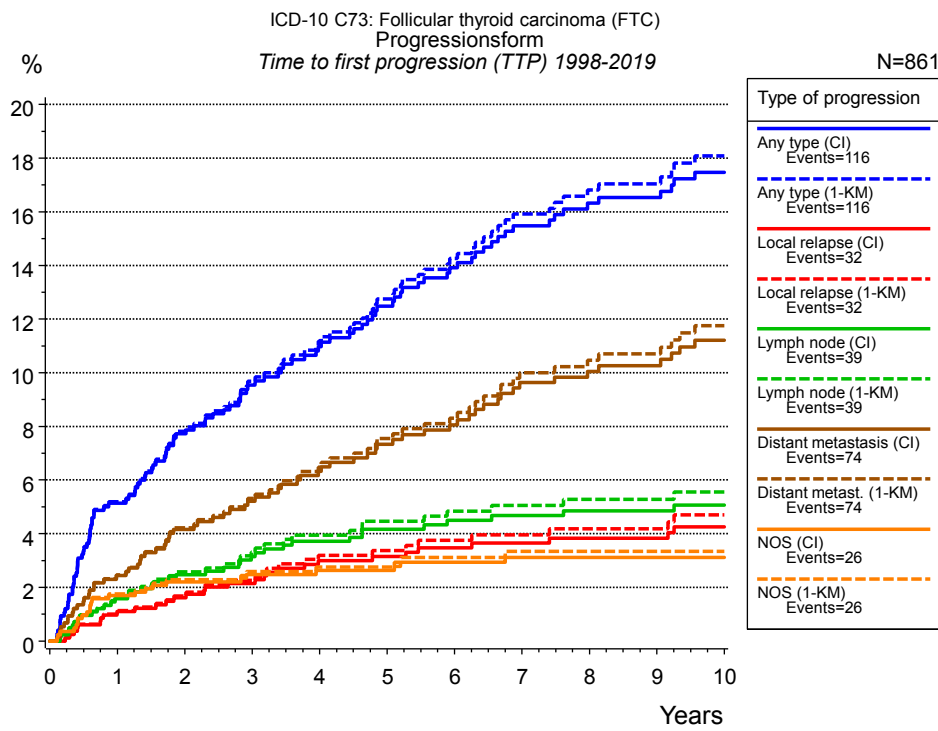


Figure 5a. Time to first progression of 861 patients with follicular thyroid ca. diagnosed between 1998 and 2019 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The 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	767	767	861	861	861	861	767	
Events	111	111	30	30	37	37	69	
compet.	55		151		155		66	
Years	%	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	5.1	5.2	1.1	1.1	1.6	1.6	2.4	
2	7.7	7.8	1.6	1.7	2.5	2.6	4.2	
3	9.5	9.7	2.1	2.3	3.2	3.3	5.2	
4	11.0	11.2	3.0	3.2	3.7	3.9	6.3	
5	12.5	12.7	3.1	3.4	4.2	4.5	7.3	
6	13.9	14.2	3.5	3.7	4.5	4.8	8.1	
7	15.5	15.9	3.6	4.0	4.7	5.1	9.6	
8	16.3	16.8	3.8	4.2	4.9	5.3	10.0	
9	16.5	17.0	3.8	4.2	4.9	5.3	10.3	
10	17.5	18.1	4.2	4.7	5.1	5.6	11.2	

<i>cont'd</i>	Type of progression		
	Distant metast. (1-KM)	NOS (CI)	NOS (1-KM)
N	767	861	861
Events	69	24	24
compet.		158	
Years	%	%	%
0	0.0	0.0	0.0
1	2.5	1.7	1.7
2	4.2	2.2	2.3
3	5.3	2.5	2.6
4	6.5	2.6	2.8
5	7.5	2.6	2.8
6	8.3	2.9	3.1
7	10.0	3.1	3.3
8	10.5	3.1	3.3
9	10.7	3.1	3.3
10	11.8	3.1	3.3

Table 5b. Time to first progression of patients with follicular thyroid ca. for period 1998-2019 (N=861), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

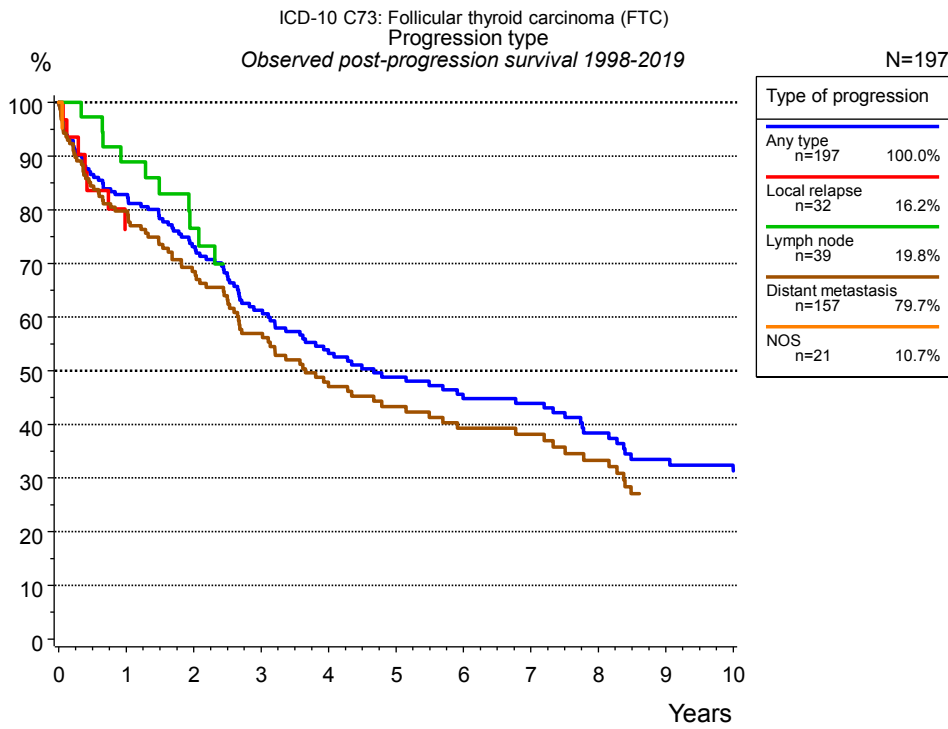


Figure 5c. Observed post-progression survival of 197 patients with follicular thyroid ca. diagnosed between 1998 and 2019. These 197 patients with documented progression events during their course of disease represent 22.9 % of the totally 861 evaluated cases (incl. M1, n=94, 10.9 %). Patients with cancer relapse documented via death certificates only were excluded (n=13, 1.5 %). 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=197 %	Local relapse n=32 %	Lymph node n=39 %	Distant metastasis n=157 %	NOS n=21 %
0	100.0	100.0	100.0	100.0	100.0
1	82.8	76.3	89.0	79.8	
2	73.1		76.5	68.5	
3	61.3			57.0	
4	53.2			47.0	
5	48.8			43.3	
6	44.8			39.2	
7	43.9			38.1	
8	38.4			33.3	
9	33.5			27.1	
10	31.3				

Table 5d. Observed post-progression survival of patients with follicular thyroid ca. for period 1998-2019 (N=197).

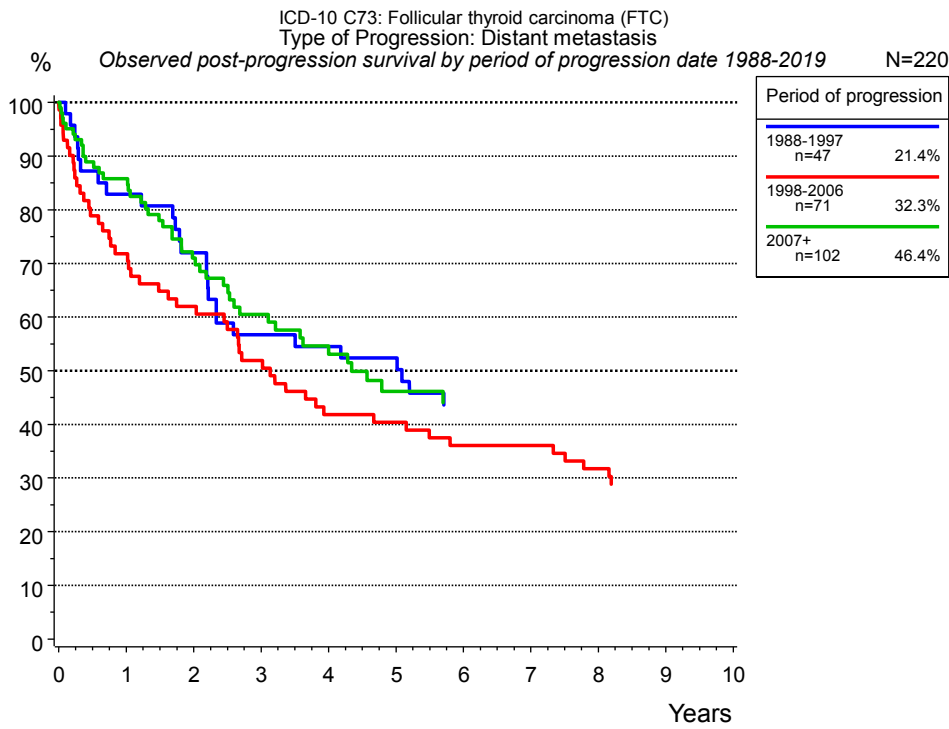


Figure 5e. Observed post-progression (distant metastasis) survival of 220 patients with follicular thyroid ca. diagnosed between 1988 and 2019 by period of progression.

Years	Period of progression		
	1988-1997 n=47 %	1998-2006 n=71 %	2007+ n=102 %
0	100.0	100.0	100.0
1	82.9	71.8	85.8
2	72.0	62.0	71.0
3	56.7	51.9	60.5
4	54.5	41.8	53.1
5	52.3	40.4	46.1
6		36.0	
7		36.0	
8		31.7	

Table 5f. Observed post-progression (distant metastasis) survival of patients with follicular thyroid ca. for period 1988-2019 by period of progression (N=220).

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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