

Munich Cancer Registry



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

ICD-10 C73: Papillary thyroid ca.

Survival

Year of diagnosis	1988-1997	1998-2020
Patients	580	6,943
Diseases	581	6,950
Cases evaluated	545	6,323
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/sC73P_E-ICD-10-C73-Papillary-thyroid-ca.-survival.pdf

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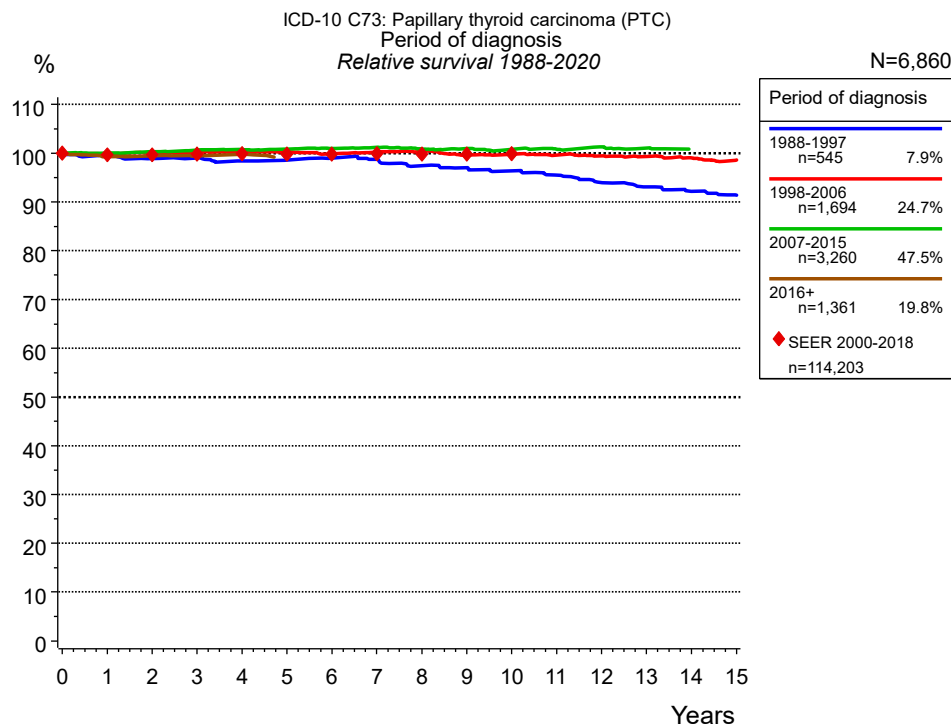


Figure 1a. Relative survival of patients with papillary thyroid ca. by period of diagnosis. Included in the evaluation are 6,860 cases diagnosed between 1988 and 2020.

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=545		1998-2006 n=1,694		2007-2015 n=3,260		2016+ n=1,361	
	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	98.8	99.6	99.2	99.9	99.5	100.0	98.8	99.2
2	97.0	98.9	98.8	100.1	99.2	100.3	98.6	99.5
3	96.2	99.0	98.1	100.2	98.9	100.6	98.1	99.5
4	94.6	98.4	97.4	100.1	98.4	100.8	98.1	99.8
5	93.8	98.6	96.7	100.2	97.8	100.9		
6	93.2	99.0	95.6	99.8	97.2	100.9		
7	92.1	98.7	95.2	100.2	96.7	101.2		
8	89.8	97.4	94.5	100.4	95.5	100.8		
9	88.6	97.0	92.8	99.6	94.8	101.0		
10	86.9	96.4	92.1	99.7	93.7	100.8		
11	85.1	95.5	91.0	99.6	92.7	100.8		
12	82.9	94.0	89.8	99.4	92.2	101.3		
13	81.1	93.1	88.7	99.3	90.9	101.0		
14	79.3	92.2	87.3	99.0				
15	77.7	91.4	85.7	98.6				
Median								

Table 1b. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by period of diagnosis for period 1988-2020 (N=6,860).

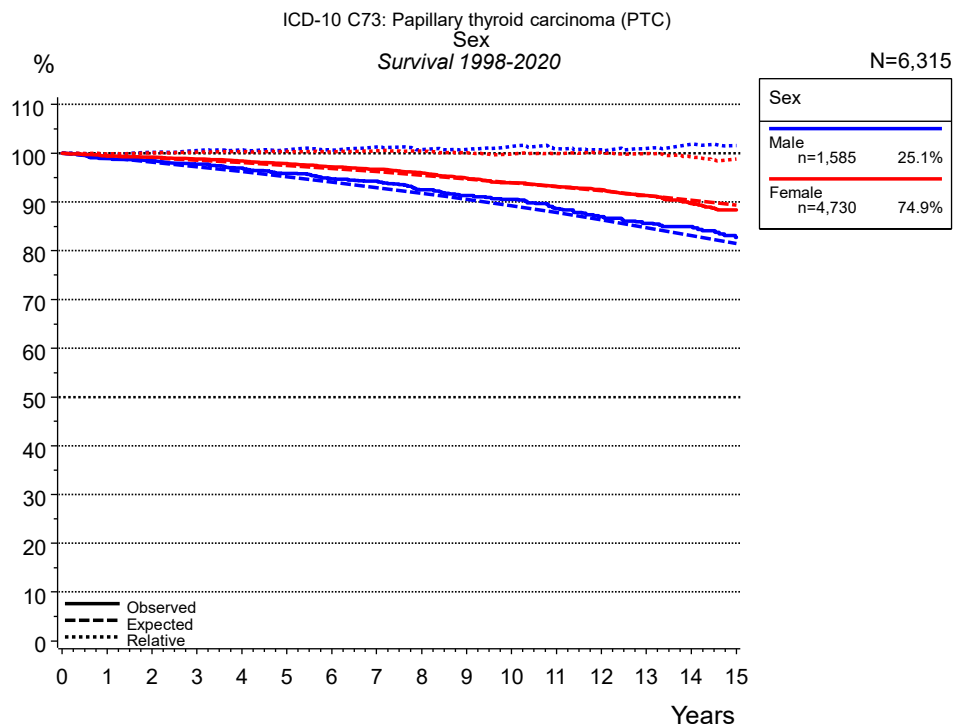


Figure 2a. Survival of patients with papillary thyroid ca. by sex. Included in the evaluation are 6,315 cases diagnosed between 1998 and 2020.

Years	Sex			
	Male n=1,585		Female n=4,730	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	98.9	99.7	99.4	99.8
2	98.4	100.2	99.2	100.1
3	97.7	100.5	98.8	100.2
4	97.0	100.7	98.4	100.3
5	95.9	100.7	97.9	100.4
6	94.7	100.6	97.2	100.3
7	94.2	101.3	96.7	100.5
8	92.5	100.7	96.0	100.4
9	91.3	100.8	94.9	100.1
10	90.5	101.4	93.9	99.8
11	88.6	100.9	93.1	99.9
12	87.0	100.7	92.5	100.2
13	85.7	101.0	91.3	99.9
14	84.9	101.8	89.7	99.2
15	82.7	101.5	88.4	98.8
Median				

Table 2b. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by sex for period 1998-2020 (N=6,315).

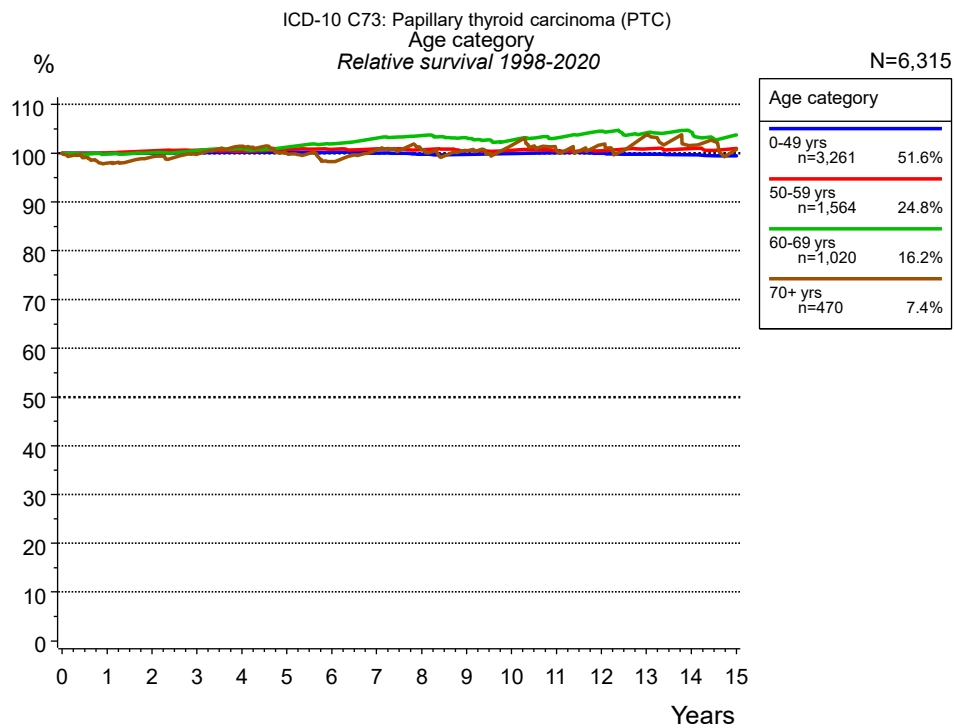


Figure 3a. Relative survival of patients with papillary thyroid ca. by age category. Included in the evaluation are 6,315 cases diagnosed between 1998 and 2020.

Years	Age category							
	0-49 yrs n=3,261		50-59 yrs n=1,564		60-69 yrs n=1,020		70+ yrs n=470	
	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	99.9	99.9	99.7	100.1	98.9	99.8	94.8	97.9
2	99.8	100.0	99.7	100.5	98.1	100.1	93.0	99.3
3	99.8	100.1	99.3	100.6	97.5	100.6	90.0	99.8
4	99.7	100.1	98.6	100.4	96.6	100.9	88.3	101.4
5	99.6	100.2	98.3	100.7	95.6	101.3	83.4	99.9
6	99.4	100.2	97.7	100.8	94.9	102.0	78.5	98.3
7	99.1	100.0	97.2	100.9	94.5	103.1	76.8	100.6
8	98.7	99.8	96.3	100.7	93.2	103.6	73.0	100.8
9	98.5	99.7	95.3	100.5	91.2	103.2	69.0	100.5
10	98.4	99.9	94.6	100.6	88.8	102.7	65.3	101.6
11	98.3	100.1	93.6	100.5	87.2	103.2	60.4	100.6
12	98.0	100.0	92.7	100.5	86.2	104.5	56.6	101.8
13	97.5	99.8	92.0	100.9	83.6	104.2	53.4	103.7
14	97.1	99.7	91.1	101.0	81.1	104.4	47.4	101.6
15	96.6	99.5	90.0	101.0	77.9	103.8	42.7	100.8
Median							13.4	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by age category for period 1998-2020 (N=6,315).

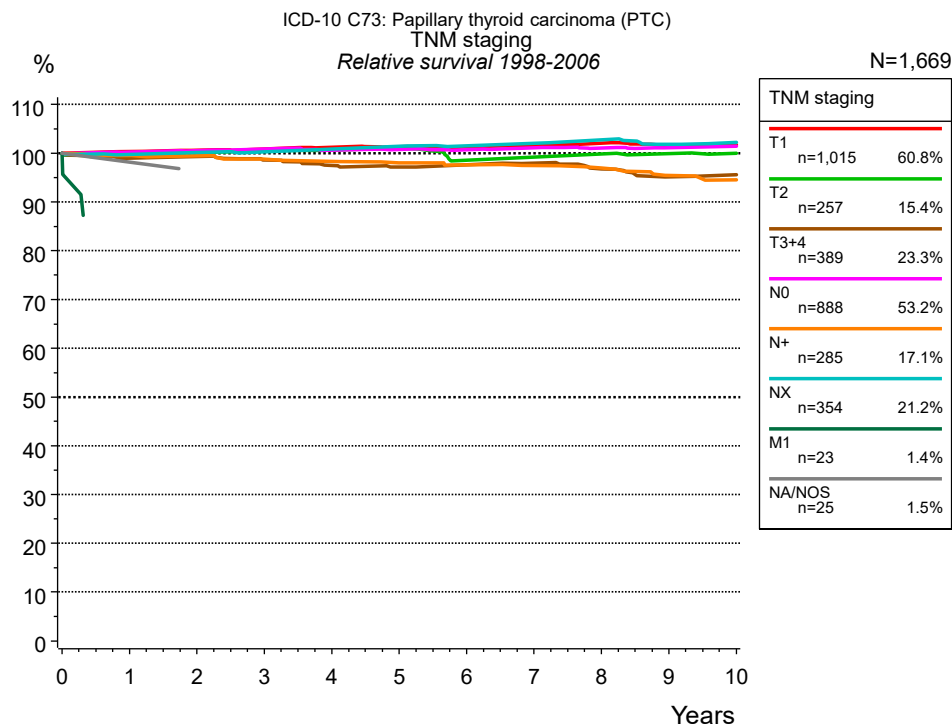


Figure 4c. Relative survival of patients with papillary thyroid ca. by TNM staging. For 1,669 of 1,694 cases diagnosed between 1998 and 2006 valid data could be obtained for this item. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 25 patients with missing values regarding TNM staging (1.5 % of 1,694 patients, the percent values of all other categories are related to n=1,669).

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

TNM staging														
Years	T1 n=1,015		T2 n=257		T3+4 n=389		N0 n=888		N+ n=285		NX n=354		M1 n=23	
	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	99.9	100.3	99.2	99.7	98.1	99.0	99.6	100.2	99.3	99.5	99.1	99.7		
2	99.5	100.6	99.2	100.1	97.6	99.3	99.3	100.5	98.5	99.5	98.8	100.2		
3	99.1	100.9	98.7	100.5	95.9	98.6	99.0	100.8	97.0	98.8	98.2	100.3		
4	98.8	101.2	97.9	100.6	94.2	97.5	98.0	100.6	96.2	98.3	97.9	100.8		
5	98.2	101.3	97.4	101.1	93.0	97.2	97.3	100.7	95.0	98.0	97.9	101.4		
6	97.4	101.3	94.3	98.6	92.7	97.7	96.6	100.7	94.2	97.6	97.0	101.5		
7	97.0	101.6	94.3	99.2	92.2	98.0	96.2	101.1	93.3	97.5	96.7	102.0		
8	96.5	102.0	94.3	99.9	90.4	96.8	95.2	101.0	92.5	97.0	96.3	102.7		
9	95.2	101.6	93.3	99.9	87.7	95.2	94.5	101.1	90.0	95.4	94.4	101.8		
10	94.3	101.7	92.4	100.0	87.4	95.6	93.8	101.4	88.7	94.6	93.7	102.2		
Median														

TNM staging		
cont'd	NA/NOS	
	n=25	
Years	obs. %	rel. %
0	100.0	100.0
1	100.0	98.2
2	95.5	96.7
3	95.5	96.1
4	95.5	95.6
5	95.5	95.0
Median		

Table 4d. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by TNM staging for period 1998-2006 (N=1,669).

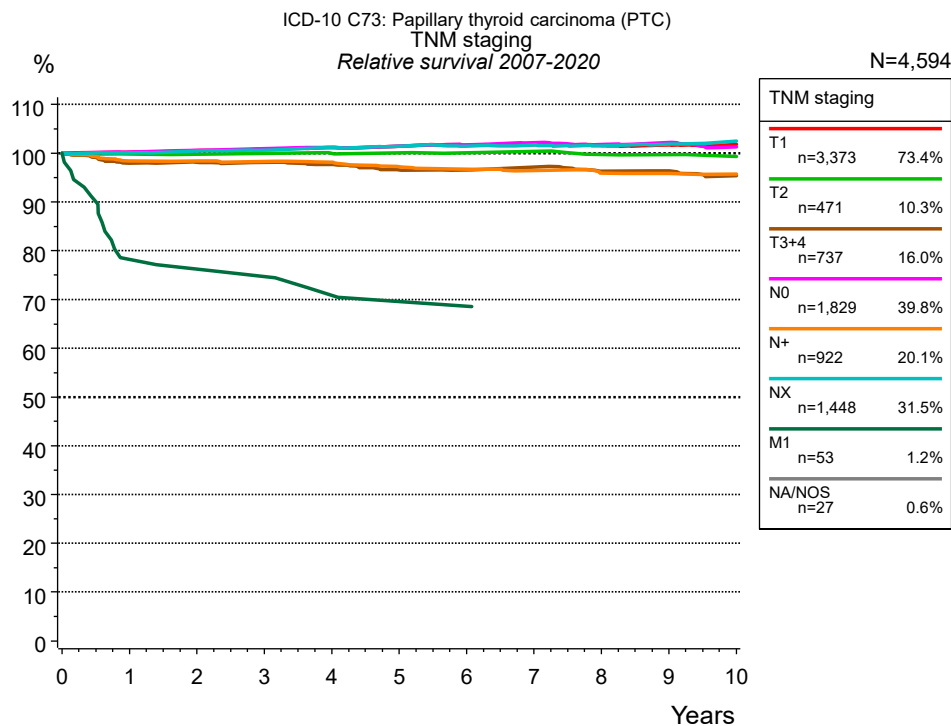


Figure 4e. Relative survival of patients with papillary thyroid ca. by TNM staging. For 4,595 of 4,621 cases diagnosed between 2007 and 2020 valid data could be obtained for this item. For a total of 4,594 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 27 patients with missing values regarding TNM staging (0.6 % of 4,621 patients, the percent values of all other categories are related to n=4,594).

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

TNM staging														
Years	T1 n=3,373		T2 n=471		T3+4 n=737		N0 n=1,829		N+ n=922		NX n=1,448		M1 n=53	
	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	99.7	100.2	99.6	99.8	97.2	97.9	99.8	100.2	98.0	98.4	99.4	100.0	77.4	78.2
2	99.6	100.5	99.1	99.8	96.8	98.2	99.7	100.6	97.6	98.4	99.2	100.5	75.4	76.3
3	99.3	100.8	98.8	100.0	96.0	98.1	99.6	100.9	97.1	98.3	98.7	100.6	73.4	74.7
4	99.0	101.1	98.6	100.0	95.0	97.7	99.2	101.1	96.6	98.2	98.5	101.2	69.3	70.8
5	98.6	101.4	98.3	100.0	93.1	96.6	98.9	101.4	95.1	97.2	97.9	101.4	67.0	69.6
6	98.1	101.6	97.6	100.1	92.4	96.6	98.5	101.7	94.2	96.7	97.0	101.4	67.0	68.7
7	97.4	101.7	97.6	100.4	92.2	97.2	98.3	102.1	93.3	96.5	96.4	101.7		
8	96.4	101.6	96.2	99.7	90.4	96.3	97.2	101.8	92.3	96.0	95.2	101.5		
9	95.7	101.7	95.7	99.7	89.9	96.4	96.8	102.2	92.0	95.9	94.5	101.9		
10	94.8	101.8	94.5	99.3	88.1	95.4	95.1	101.3	91.4	95.8	93.8	102.5		
Median														

TNM staging		
cont'd	NA/NOS	
	n=27	
Years	obs. %	rel. %
0	100.0	100.0
1	100.0	100.1
2	100.0	100.1
3	100.0	100.2
4	100.0	100.3
5	100.0	100.4
6	100.0	100.4
Median		

Table 4f. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by TNM staging for period 2007-2020 (N=4,594).

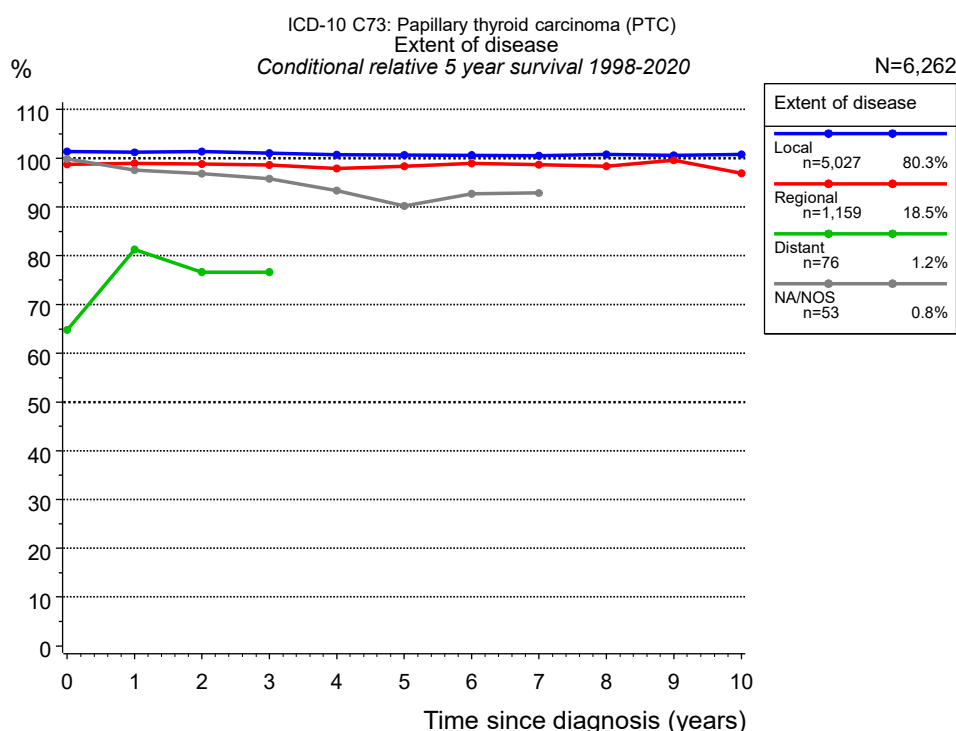


Figure 4g. Conditional relative 5-year survival of patients with papillary thyroid ca. by extent of disease. For 6,264 of 6,315 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 6,262 cases an evaluable classification was established. The grey line represents the subgroup of 53 patients with missing values regarding extent of disease (0.8 % of 6,315 patients, the percent values of all other categories are related to n=6,262).

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	5,027	101.3	1,159	98.8	76	64.8	53	99.9
1	4,671	101.2	1,084	98.9	59	81.2	49	97.6
2	4,496	101.4	1,032	98.8	55	76.7	46	96.8
3	4,219	101.0	934	98.6	52	76.7	46	95.8
4	3,956	100.7	846	97.9			44	93.4
5	3,688	100.6	765	98.3			44	90.2
6	3,417	100.6	690	99.0			39	92.7
7	3,202	100.5	634	98.7			38	92.9
8	2,926	100.7	565	98.3				
9	2,667	100.6	500	99.6				
10	2,409	100.8	427	96.9				

Table 4h. Conditional relative 5-year survival of patients with papillary thyroid ca. by extent of disease for period 1998-2020 (N=6,262).

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 101.0% (n=4,219).

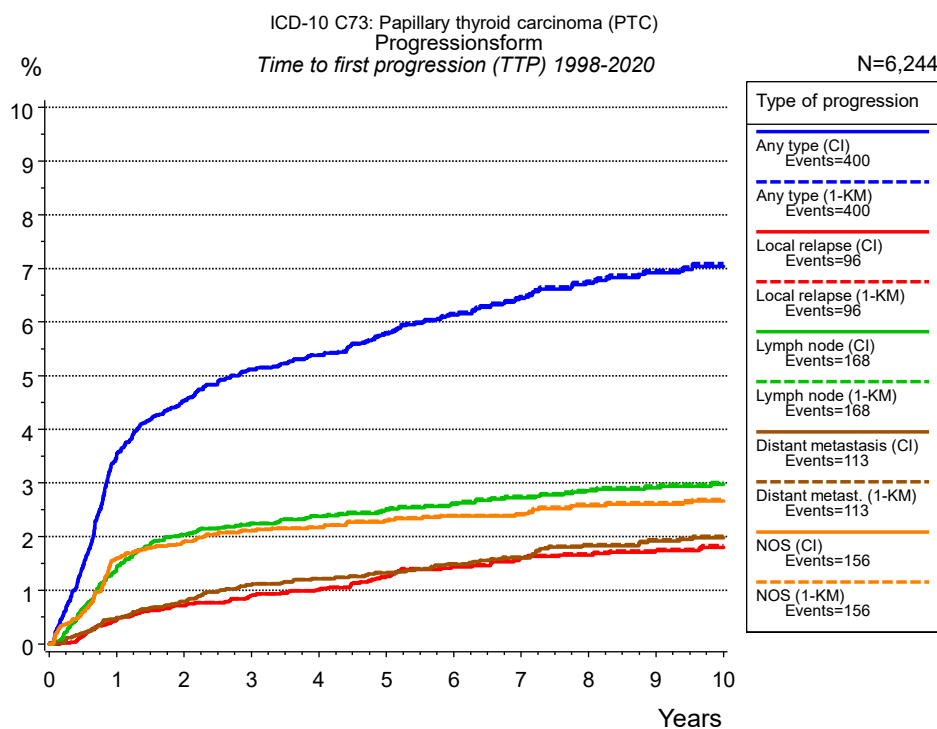


Figure 5a. Time to first progression of 6,244 patients with papillary thyroid ca. diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

Type of progression							
	Any type (CI)	Any type (1-KM)	Local relapse (CI)	Local relapse (1-KM)	Lymph node (CI)	Lymph node (1-KM)	Distant metastasis (CI)
N	6,169	6,169	6,244	6,244	6,244	6,244	6,169
Events	382	382	92	92	164	164	100
compet.	207		287		286		232
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3.5	3.5	0.4	0.4	1.4	1.4	0.5
2	4.5	4.5	0.7	0.7	2.0	2.0	0.8
3	5.1	5.1	0.9	0.9	2.2	2.2	1.1
4	5.4	5.4	1.0	1.0	2.4	2.4	1.2
5	5.8	5.8	1.3	1.3	2.5	2.5	1.3
6	6.1	6.2	1.4	1.5	2.6	2.6	1.5
7	6.4	6.5	1.6	1.6	2.7	2.8	1.6
8	6.7	6.8	1.7	1.7	2.9	2.9	1.8
9	6.9	7.0	1.7	1.8	2.9	2.9	1.9
10	7.0	7.1	1.8	1.8	3.0	3.0	2.0

<i>cont'd</i>	Type of progression		
	Distant metast. (1-KM)	NOS (CI)	NOS (1-KM)
N	6,169	6,244	6,244
Events	100	149	149
compet.		289	
Years	%	%	%
0	0.0	0.0	0.0
1	0.5	1.6	1.6
2	0.8	1.9	1.9
3	1.1	2.1	2.1
4	1.2	2.2	2.2
5	1.3	2.3	2.3
6	1.5	2.4	2.4
7	1.6	2.4	2.4
8	1.9	2.6	2.6
9	1.9	2.6	2.6
10	2.0	2.7	2.7

Table 5b. Time to first progression of patients with papillary thyroid ca. for period 1998-2020 (N=6,244), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

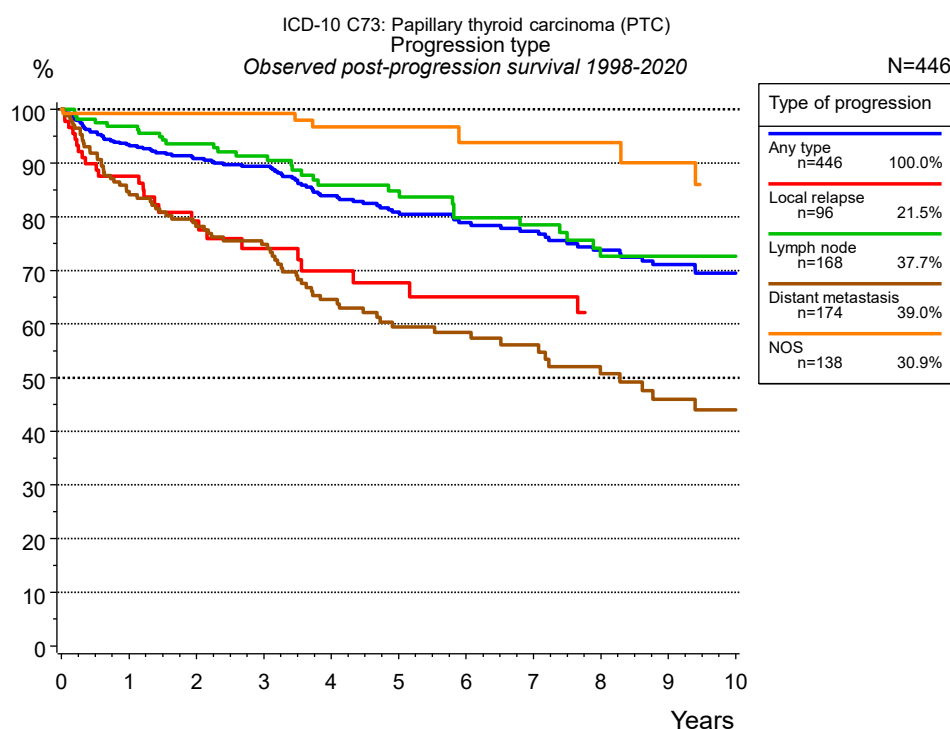


Figure 5c. Observed post-progression survival of 446 patients with papillary thyroid ca. diagnosed between 1998 and 2020. These 446 patients with documented progression events during their course of disease represent 7.1 % of the totally 6,244 evaluated cases (incl. M1, n=75, 1.2 %). Patients with cancer relapse documented via death certificates only were excluded (n=29, 0.5 %). 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=446 %	Local relapse n=96 %	Lymph node n=168 %	Distant metastasis n=174 %	NOS n=138 %
0	100.0	100.0	100.0	100.0	100.0
1	93.4	87.6	96.9	84.7	99.2
2	90.8	79.2	93.6	78.2	99.2
3	89.4	74.0	91.3	74.8	99.2
4	83.9	69.9	85.9	64.6	96.7
5	80.9	67.7	84.8	59.4	96.7
6	78.9	65.1	79.8	58.4	93.8
7	77.3	65.1	78.5	56.1	93.8
8	73.7	62.1	72.7	50.7	93.8
9	71.1		72.7	45.9	90.1
10	69.5		72.7	44.0	

Table 5d. Observed post-progression survival of patients with papillary thyroid ca. for period 1998-2020 (N=446).

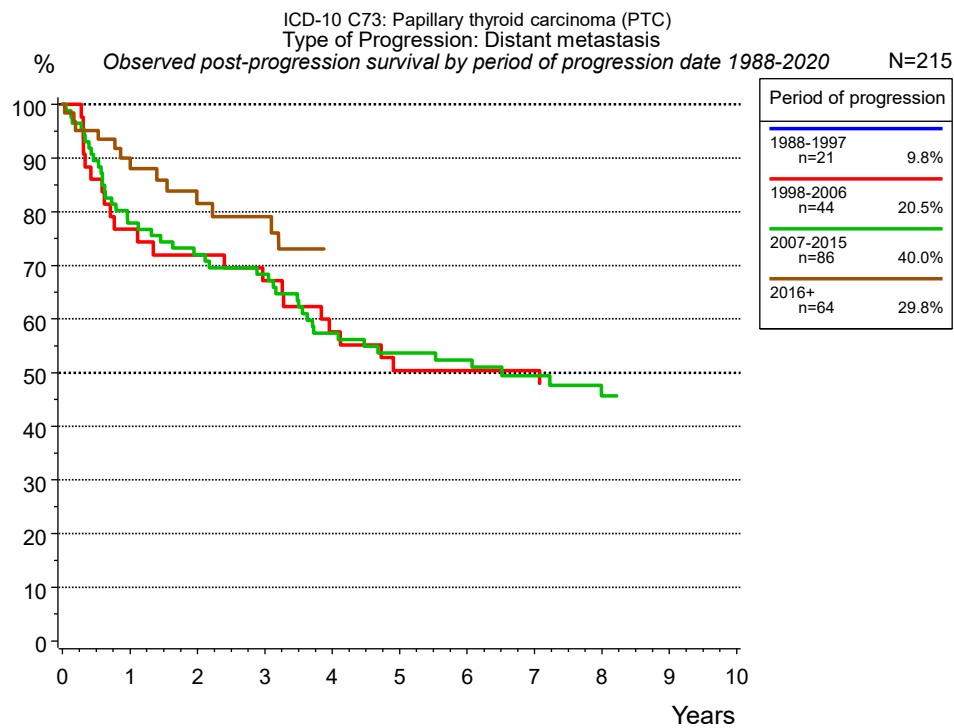


Figure 5e. Observed post-progression (distant metastasis) survival of 215 patients with papillary thyroid ca. diagnosed between 1988 and 2020 by period of progression.

Years	Period of progression			
	1988-1997 n=21 %	1998-2006 n=44 %	2007-2015 n=86 %	2016+ n=64 %
0	100.0	100.0	100.0	100.0
1		76.7	77.9	90.0
2		71.9	72.0	81.5
3		67.2	68.3	79.1
4		57.6	57.4	
5		50.4	53.7	
6		50.4	52.4	
7		50.4	49.4	
8			45.7	

Table 5f. Observed post-progression (distant metastasis) survival of patients with papillary thyroid ca. for period 1988-2020 by period of progression (N=215).

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

Munich Cancer Registry. Survival ICD-10 C73: Papillary thyroid ca. [Internet]. 2022 [updated 2022 Apr 15; cited 2022 Jun 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/surv/sC73P_E-ICD-10-C73-Papillary-thyroid-ca.-survival.pdf

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