

Munich Cancer Registry



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

ICD-10 C73: Papillary thyroid ca.

Survival

Year of diagnosis	1988-1997	1998-2019
Patients	579	6,732
Diseases	580	6,739
Cases evaluated	544	6,136
Creation date	01/27/2021	
Database export	01/07/2021	
Population	4.92 m	



Munich Cancer Registry
Cancer Registry Bavaria - Upper Bavaria Regional Center
at Klinikum Grosshadern/IBE
Marchioninstr. 15
Munich, 81377
Germany

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

https://www.tumorregister-muenchen.de/en/facts/surv/sC73P_E-ICD-10-C73-Papillary-thyroid-ca.-survival.pdf

Index of figures and tables

Fig./Tbl.		Page
1a	Relative survival by period of diagnosis (chart)	3
1b	Survival by period of diagnosis (table)	3
2a	Survival by sex (chart)	4
2b	Survival by sex (table)	4
3a	Relative survival by age category (chart)	5
3b	Survival by age category (table)	5
4c	Relative survival by TNM staging 1998+ (chart)	6
4d	Survival by TNM staging 1998+ (table)	6
4e	Relative survival by TNM staging 2007+ (chart)	8
4f	Survival by TNM staging 2007+ (table)	8
4g	Conditional survival by extent of disease (chart)	10
4h	Conditional survival by extent of disease (table)	10
5a	Time to first progression (chart)	11
5b	Time to first progression (table)	11
5c	Observed post-progression survival (chart)	13
5d	Observed post-progression survival (table)	13
5e	Observed post-progression survival by period of progression (chart)	14
5f	Observed post-progression survival by period of progression (table)	14

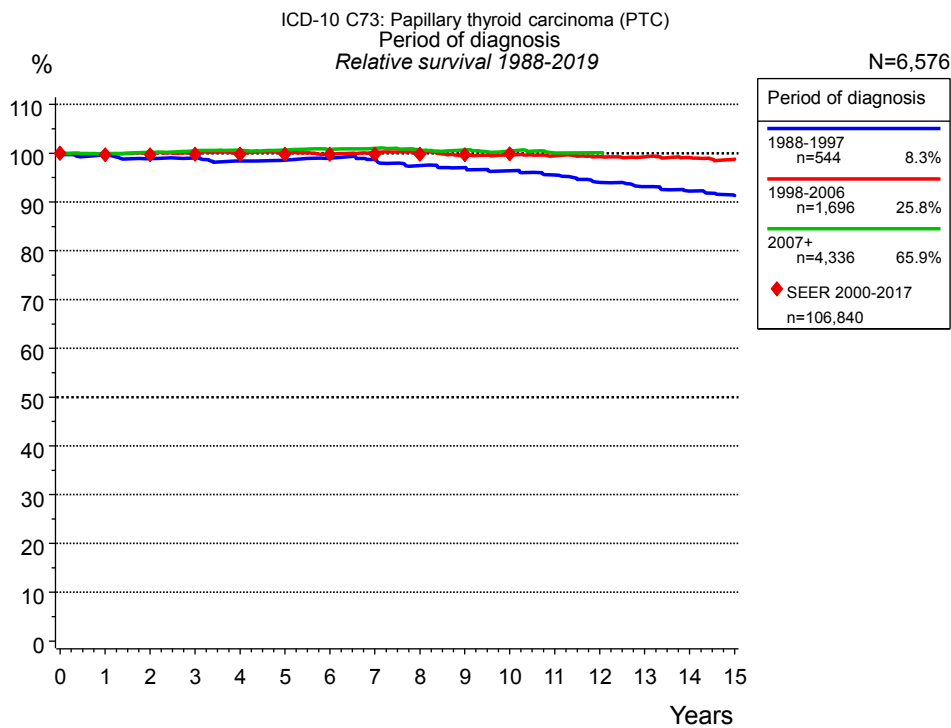


Figure 1a. Relative survival of patients with papillary thyroid ca. by period of diagnosis. Included in the evaluation are 6,576 cases diagnosed between 1988 and 2019.

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=544		1998-2006 n=1,696		2007+ n=4,336	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	98.8	99.6	99.2	99.9	99.4	99.9
2	97.0	98.9	98.8	100.1	99.1	100.2
3	96.2	99.0	98.1	100.2	98.8	100.5
4	94.6	98.4	97.4	100.1	98.3	100.6
5	93.8	98.6	96.7	100.2	97.7	100.7
6	93.2	99.0	95.6	99.8	97.1	100.8
7	92.1	98.8	95.1	100.2	96.5	101.0
8	89.8	97.4	94.5	100.3	95.4	100.6
9	88.6	97.0	92.8	99.5	94.6	100.7
10	86.9	96.4	92.0	99.6	93.4	100.5
11	85.1	95.5	90.9	99.5	92.2	100.1
12	82.9	94.0	89.7	99.3	91.9	100.1
13	81.1	93.1	88.6	99.3		
14	79.3	92.2	87.4	99.2		
15	77.7	91.3	85.9	98.8		
Median						

Table 1b. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by period of diagnosis for period 1988-2019 (N=6,576).

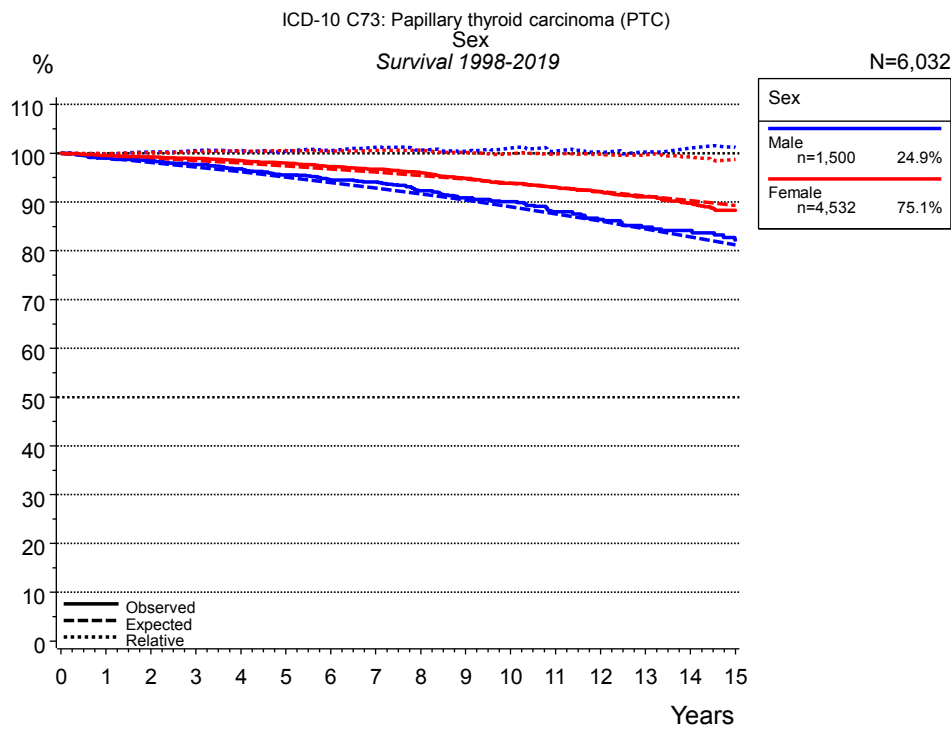


Figure 2a. Survival of patients with papillary thyroid ca. by sex. Included in the evaluation are 6,032 cases diagnosed between 1998 and 2019.

Years	Sex			
	Male n=1,500		Female n=4,532	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	99.0	99.8	99.5	99.9
2	98.4	100.2	99.2	100.1
3	97.7	100.5	98.9	100.4
4	96.8	100.6	98.5	100.4
5	95.6	100.4	98.0	100.5
6	94.5	100.5	97.2	100.4
7	94.1	101.3	96.7	100.6
8	92.3	100.7	96.0	100.6
9	90.9	100.4	94.8	100.1
10	90.1	101.0	93.8	99.9
11	88.0	100.4	93.0	99.8
12	86.4	100.2	92.1	99.8
13	84.9	100.3	91.0	99.7
14	84.1	101.0	89.7	99.3
15	82.2	101.1	88.3	98.8
Median				

Table 2b. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by sex for period 1998-2019 (N=6,032).

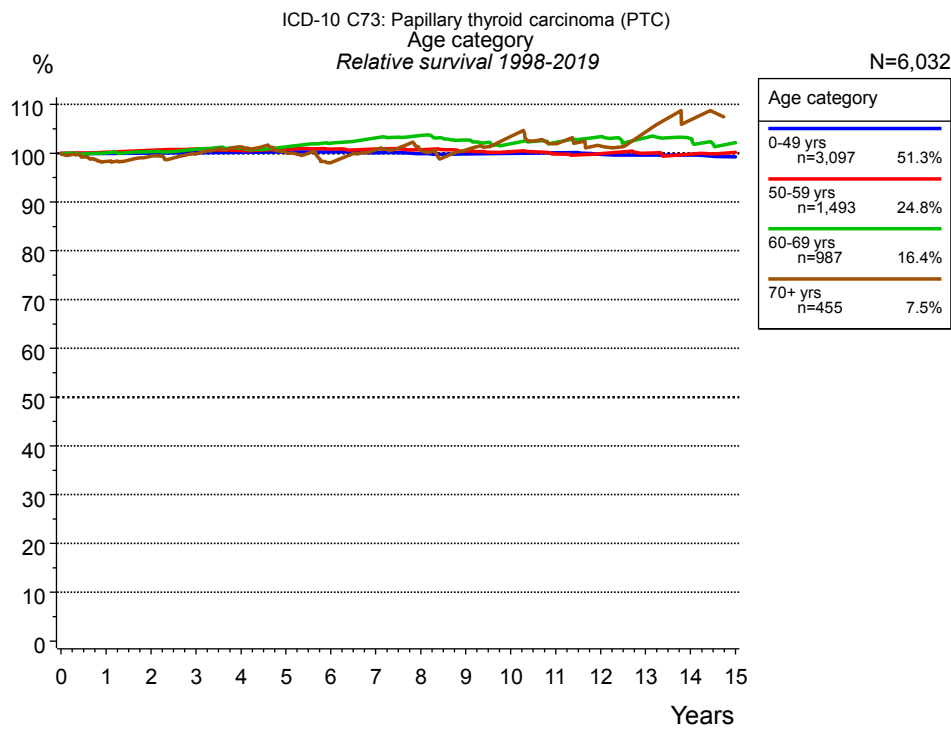


Figure 3a. Relative survival of patients with papillary thyroid ca. by age category. Included in the evaluation are 6,032 cases diagnosed between 1998 and 2019.

Years	Age category							
	0-49 yrs n=3,097		50-59 yrs n=1,493		60-69 yrs n=987		70+ yrs n=455	
	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	100.0	99.8	100.2	99.1	100.1	95.1	98.3
2	99.8	100.0	99.8	100.6	98.4	100.3	93.1	99.4
3	99.8	100.1	99.5	100.9	97.8	100.8	90.0	99.8
4	99.7	100.2	98.7	100.6	96.8	101.1	88.1	101.3
5	99.7	100.3	98.4	100.8	95.7	101.3	83.5	100.2
6	99.5	100.3	97.7	100.8	95.0	102.1	78.2	98.1
7	99.2	100.1	97.2	100.9	94.6	103.2	76.8	100.7
8	98.8	99.9	96.3	100.7	93.3	103.6	73.0	100.6
9	98.5	99.8	95.2	100.4	90.8	102.7	68.9	100.7
10	98.4	99.9	94.3	100.3	88.3	101.9	66.4	103.5
11	98.3	100.1	93.0	99.8	86.5	102.2	61.5	101.9
12	97.8	99.8	92.1	99.9	85.5	103.4	56.6	101.5
13	97.3	99.6	91.2	100.0	83.0	103.2	53.8	104.4
14	97.1	99.7	90.2	99.8	80.4	103.0	50.0	106.8
15	96.4	99.3	89.3	100.2	76.8	102.1	46.2	107.7
Median							13.8	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by age category for period 1998-2019 (N=6,032).

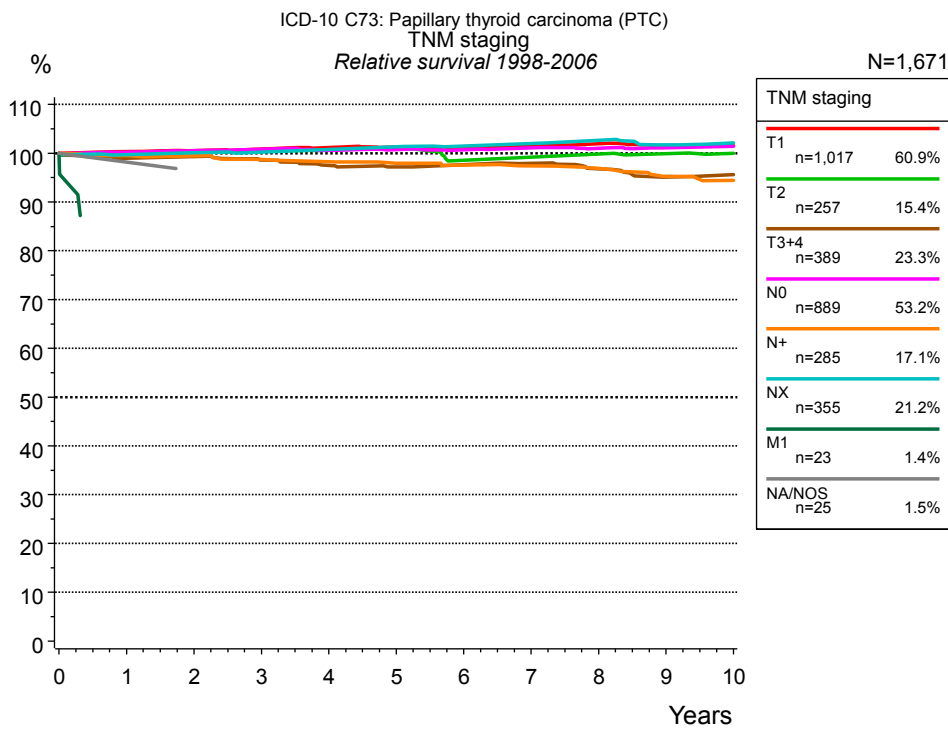


Figure 4c. Relative survival of patients with papillary thyroid ca. by TNM staging. For 1,696 cases diagnosed between 1998 and 2006 valid data could be obtained for this item. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 25 patients with missing values regarding TNM staging (1.5 % of 1,696 patients, the percent values of all other categories are related to n=1,671).

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

Years	TNM staging													
	T1 n=1,017		T2 n=257		T3+4 n=389		N0 n=889		N+ n=285		NX n=355		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	99.2	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	99.4	98.8	100.2		
3	99.1	100.8	98.7	100.5	95.9	98.6	99.0	100.8	96.9	98.8	98.2	100.2		
4	98.8	101.2	97.9	100.6	94.2	97.5	98.0	100.6	96.1	98.3	97.9	100.8		
5	98.2	101.3	97.4	101.1	93.0	97.2	97.3	100.7	94.9	98.0	97.9	101.4		
6	97.4	101.3	94.2	98.6	92.7	97.6	96.5	100.7	94.1	97.6	96.9	101.5		
7	97.0	101.6	94.2	99.2	92.1	98.0	96.2	101.1	93.3	97.4	96.6	102.0		
8	96.5	102.0	94.2	99.8	90.3	96.8	95.2	101.0	92.4	96.9	96.3	102.7		
9	95.2	101.6	93.3	99.9	87.7	95.1	94.4	101.1	89.8	95.3	94.3	101.7		
10	94.2	101.5	92.3	100.0	87.3	95.6	93.7	101.4	88.5	94.4	93.7	102.1		
Median														

TNM staging		
<i>cont'd</i>	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=1,671).

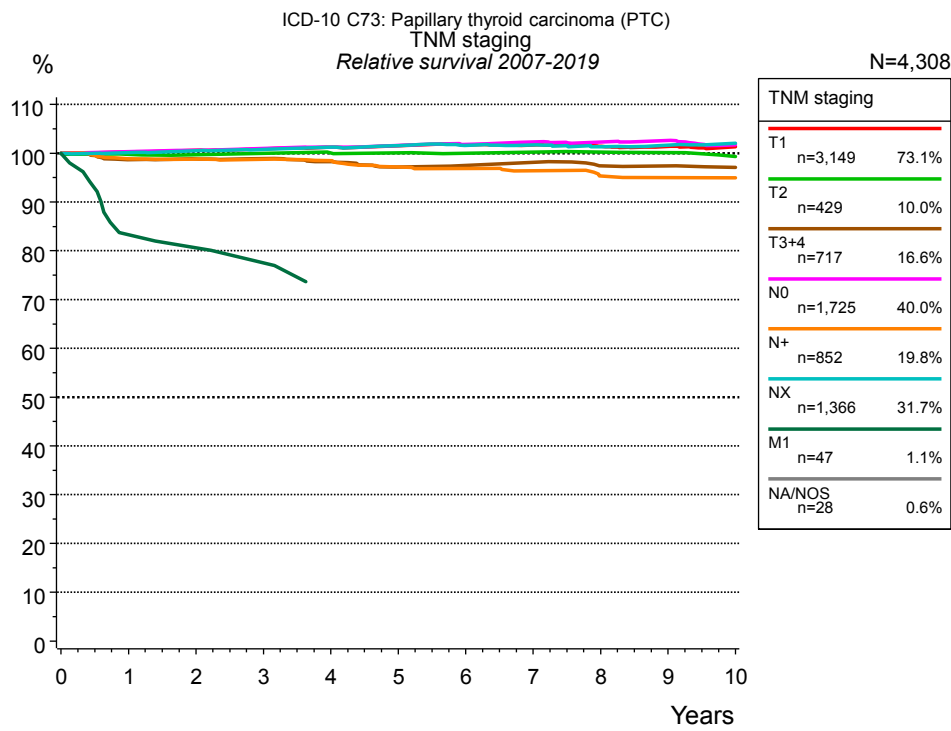


Figure 4e. Relative survival of patients with papillary thyroid ca. by TNM staging. For 4,309 of 4,336 cases diagnosed between 2007 and 2019 valid data could be obtained for this item. For a total of 4,308 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 28 patients with missing values regarding TNM staging (0.6 % of 4,336 patients, the percent values of all other categories are related to n=4,308).

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

Years	TNM staging													
	T1 n=3,149		T2 n=429		T3+4 n=717		N0 n=1,725		N+ n=852		NX n=1,366		M1 n=47	
	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	99.8	100.3	99.5	99.8	97.9	98.7	99.9	100.3	98.4	98.9	99.5	100.1	82.5	83.3
2	99.6	100.6	99.0	99.7	97.5	98.8	99.7	100.6	98.0	98.8	99.3	100.5	80.1	80.6
3	99.3	100.9	99.0	100.0	96.8	98.9	99.7	101.0	97.5	98.8	98.8	100.8	77.6	77.5
4	99.0	101.2	98.6	100.0	95.6	98.3	99.2	101.2	96.8	98.5	98.6	101.3		
5	98.7	101.5	98.2	100.1	93.7	97.2	99.1	101.6	94.9	97.2	98.0	101.6		
6	98.1	101.7	97.4	100.0	93.2	97.5	98.6	101.8	94.2	96.9	97.1	101.6		
7	97.3	101.7	97.4	100.2	93.2	98.1	98.4	102.3	93.3	96.4	96.3	101.7		
8	96.2	101.4	96.8	100.2	91.5	97.4	97.6	102.3	91.7	95.3	95.0	101.3		
9	95.3	101.4	96.1	100.1	91.1	97.4	97.2	102.7	91.3	95.0	94.2	101.7		
10	94.2	101.3	94.5	99.4	90.0	97.1	95.4	101.7	91.3	94.9	93.4	102.1		
Median														

TNM staging		
<i>cont'd</i>	NA/NOS	
	n=28	
Years	obs. %	rel. %
0	100.0	100.0
1	100.0	99.6
2	100.0	99.1
3	100.0	98.7
4	100.0	98.2
Median		

Table 4f. Observed (obs.) and relative (rel.) survival of patients with papillary thyroid ca. by TNM staging for period 2007-2019 (N=4,308).

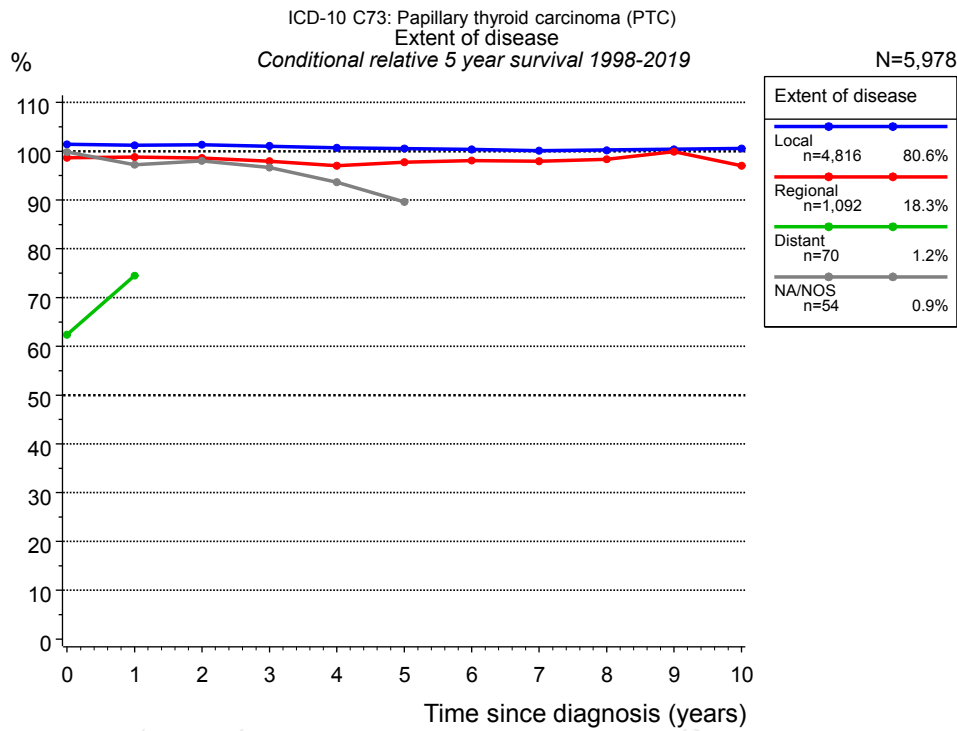


Figure 4g. Conditional relative 5-year survival of patients with papillary thyroid ca. by extent of disease. For 5,980 of 6,032 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 5,978 cases an evaluable classification was established. The grey line represents the subgroup of 54 patients with missing values regarding extent of disease (0.9 % of 6,032 patients, the percent values of all other categories are related to n=5,978).

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	4,816	101.4	1,092	98.7	70	62.3	54	99.8
1	4,268	101.2	951	98.8	54	74.5	49	97.2
2	3,994	101.4	861	98.6			45	98.0
3	3,726	101.1	777	98.0			45	96.7
4	3,462	100.7	702	97.1			41	93.7
5	3,244	100.5	644	97.8			40	89.6
6	2,965	100.4	571	98.1				
7	2,717	100.1	508	98.0				
8	2,454	100.2	434	98.3				
9	2,142	100.4	359	99.9				
10	1,813	100.5	296	97.0				

Table 4h. Conditional relative 5-year survival of patients with papillary thyroid ca. by extent of disease for period 1998-2019 (N=5,978).

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 101.1% (n=3,726).

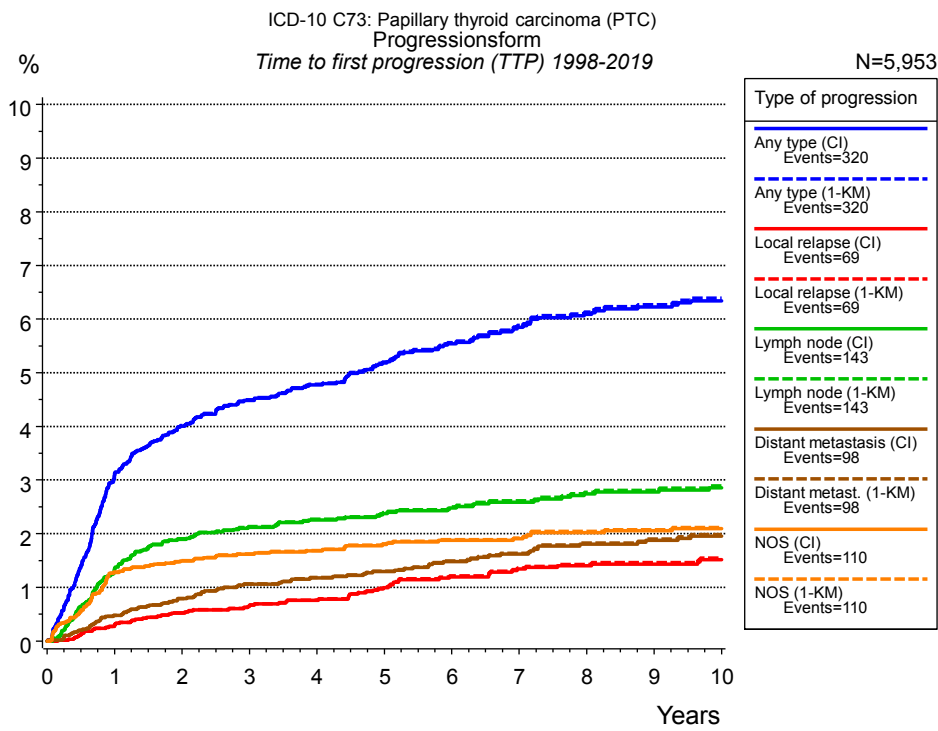


Figure 5a. Time to first progression of 5,953 patients with papillary thyroid ca. diagnosed between 1998 and 2019 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression						
	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	5,884	5,884	5,953	5,953	5,953	5,953	5,884
Events	309	309	67	67	141	141	87
compet.	183		248		248		201
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	3.1	3.1	0.3	0.3	1.3	1.3	0.5
2	4.0	4.0	0.5	0.5	1.9	1.9	0.8
3	4.5	4.5	0.6	0.6	2.1	2.1	1.1
4	4.8	4.8	0.8	0.8	2.3	2.3	1.2
5	5.2	5.2	1.0	1.0	2.4	2.4	1.3
6	5.5	5.6	1.2	1.2	2.5	2.5	1.5
7	5.8	5.9	1.3	1.4	2.6	2.6	1.6
8	6.1	6.1	1.4	1.4	2.7	2.8	1.8
9	6.2	6.3	1.4	1.5	2.8	2.8	1.9
10	6.3	6.4	1.5	1.5	2.9	2.9	2.0

<i>cont'd</i>	Type of progression		
	Distant metast. (1- KM)	NOS (CI)	NOS (1-KM)
N	5,884	5,953	5,953
Events	87	106	106
compet.		253	
Years	%	%	%
0	0.0	0.0	0.0
1	0.5	1.3	1.3
2	0.8	1.5	1.5
3	1.1	1.6	1.6
4	1.2	1.7	1.7
5	1.3	1.8	1.8
6	1.5	1.9	1.9
7	1.6	1.9	1.9
8	1.8	2.0	2.0
9	1.9	2.1	2.1
10	2.0	2.1	2.1

Table 5b. Time to first progression of patients with papillary thyroid ca. for period 1998-2019 (N=5,953), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

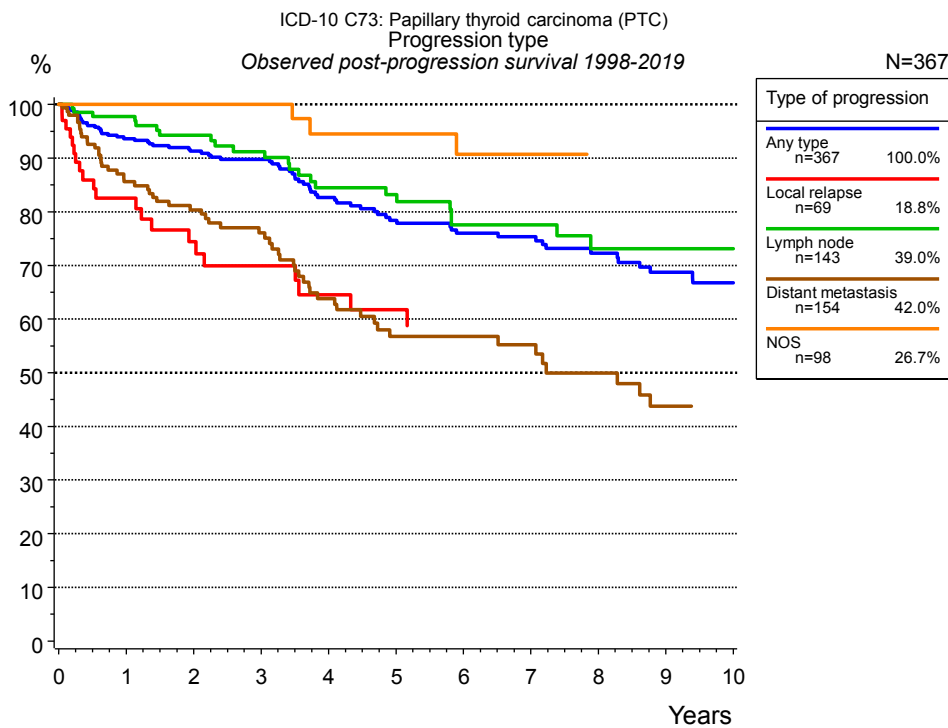


Figure 5c. Observed post-progression survival of 367 patients with papillary thyroid ca. diagnosed between 1998 and 2019. These 367 patients with documented progression events during their course of disease represent 6.2 % of the totally 5,953 evaluated cases (incl. M1, n=69, 1.2 %). Patients with cancer relapse documented via death certificates only were excluded (n=22, 0.4 %). 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=367 %	Local relapse n=69 %	Lymph node n=143 %	Distant metastasis n=154 %	NOS n=98 %
0	100.0	100.0	100.0	100.0	100.0
1	93.6	82.6	97.8	85.6	100.0
2	91.3	74.4	94.3	80.4	100.0
3	89.8	69.9	91.2	76.1	100.0
4	82.7	64.5	84.5	63.8	94.5
5	78.4	61.7	83.2	56.7	94.5
6	76.0		77.6	56.7	90.7
7	75.3		77.6	55.2	90.7
8	72.3		73.1	50.0	90.7
9	68.8		73.1	43.8	
10	66.8		73.1		

Table 5d. Observed post-progression survival of patients with papillary thyroid ca. for period 1998-2019 (N=367).

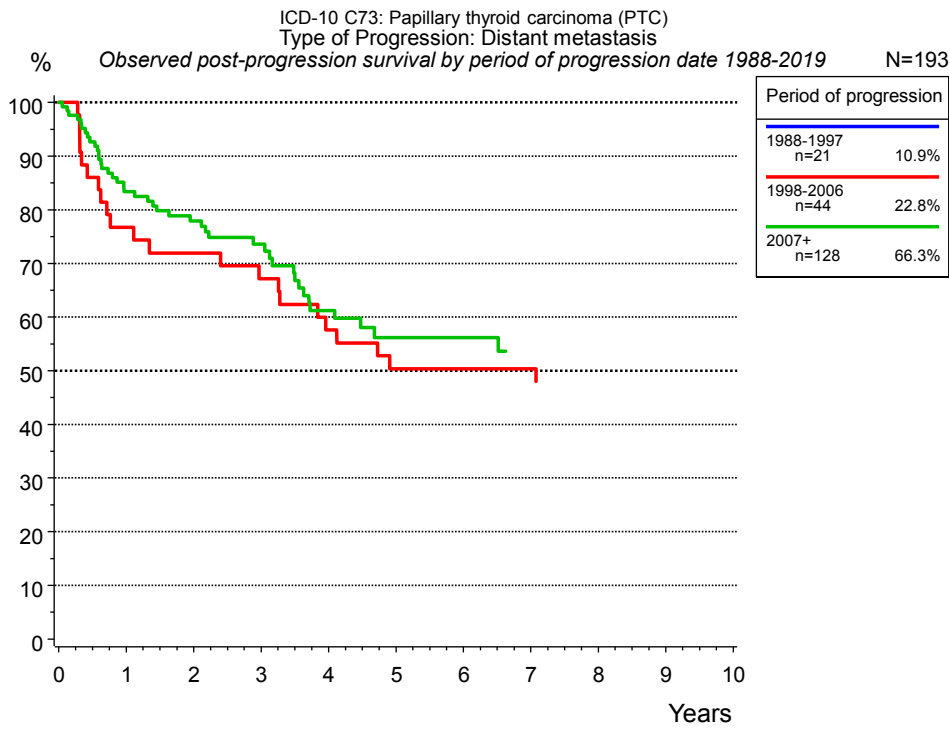


Figure 5e. Observed post-progression (distant metastasis) survival of 193 patients with papillary thyroid ca. diagnosed between 1988 and 2019 by period of progression.

Years	Period of progression		
	1988-1997 n=21 %	1998-2006 n=44 %	2007+ n=128 %
0	100.0	100.0	100.0
1		76.7	83.4
2		71.9	77.9
3		67.2	73.6
4		57.6	61.2
5		50.4	56.2
6		50.4	56.2
7		50.4	

Table 5f. Observed post-progression (distant metastasis) survival of patients with papillary thyroid ca. for period 1988-2019 by period of progression (N=193).

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]. 2021 [updated 2021 Jan 27; cited 2021 Mar 1]. Available from: https://www.tumorregister-muenchen.de/en/facts/surv/sC73P_E-ICD-10-C73-Papillary-thyroid-ca.-survival.pdf

Copyright

The content of the public web site provided by the Munich Cancer Registry is available worldwide and free of charge. All documents are free to download, utilize, copy, print-out and distribute, providing that the MCR is referenced.

Disclaimer

The Munich Cancer Registry reserves the right to not be responsible for the topicality, correctness, completeness or quality of the information provided. Liability claims regarding damage caused by the use of any information provided, including any kind of information which is incomplete or incorrect, will therefore be rejected.