

Munich Cancer Registry



- Incidence and Mortality
- Selection Matrix
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- *Deutsch*

ICD-10 C60: Penile cancer

Survival

Year of diagnosis	1988-1997	1998-2020
Patients	79	606
Diseases	79	608
Cases evaluated	74	465
Creation date	04/15/2022	
Database export	12/20/2021	
Population (males)	2.43 m	



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

https://www.tumorregister-muenchen.de/en/facts/surv/sC60__E-ICD-10-C60-Penile-cancer-survival.pdf

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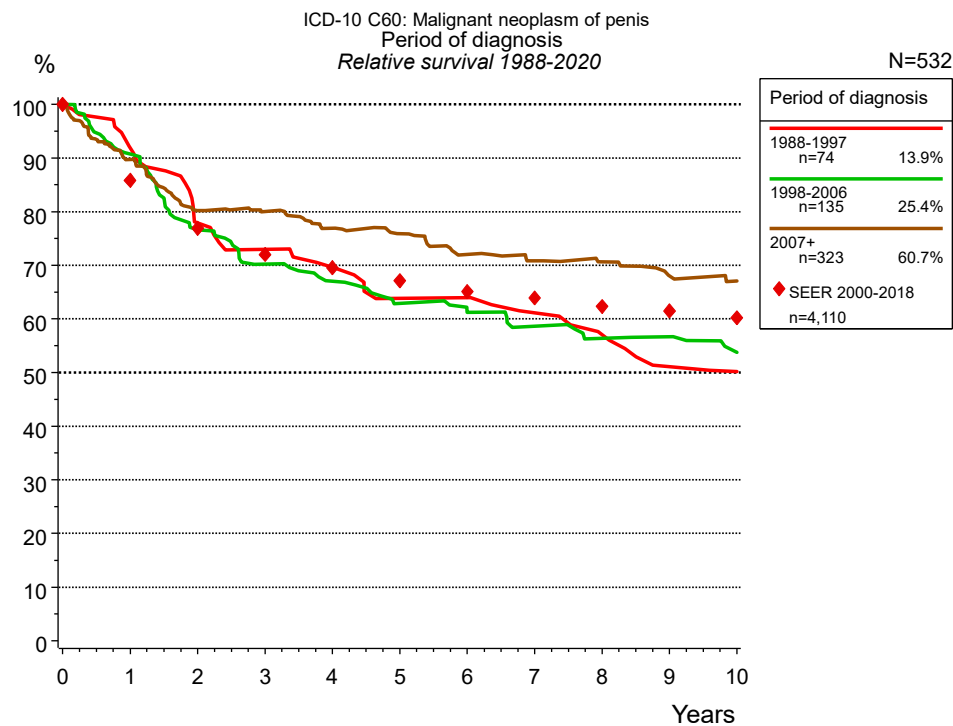


Figure 1a. Relative survival of patients with penile cancer by period of diagnosis. Included in the evaluation are 532 cases diagnosed between 1988 and 2020.

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						
Years	1988-1997 n=74		1998-2006 n=135		2007+ n=323	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	88.8	91.9	87.7	90.8	87.0	89.7
2	73.3	77.9	70.7	76.6	75.3	80.2
3	67.7	73.0	62.9	70.2	72.8	80.0
4	63.4	69.6	58.2	67.0	68.1	76.9
5	56.2	63.9	52.6	62.9	64.9	75.9
6	56.2	64.0	49.5	61.2	59.6	72.0
7	51.8	61.1	46.2	58.6	56.7	70.8
8	47.4	57.0	43.0	56.4	54.5	70.6
9	41.5	51.1	42.2	56.7	50.7	68.0
10	39.9	50.2	38.0	53.7	48.3	67.1
Median	7.5		6.0		9.1	

Table 1b. Observed (obs.) and relative (rel.) survival of patients with penile cancer by period of diagnosis for period 1988-2020 (N=532).

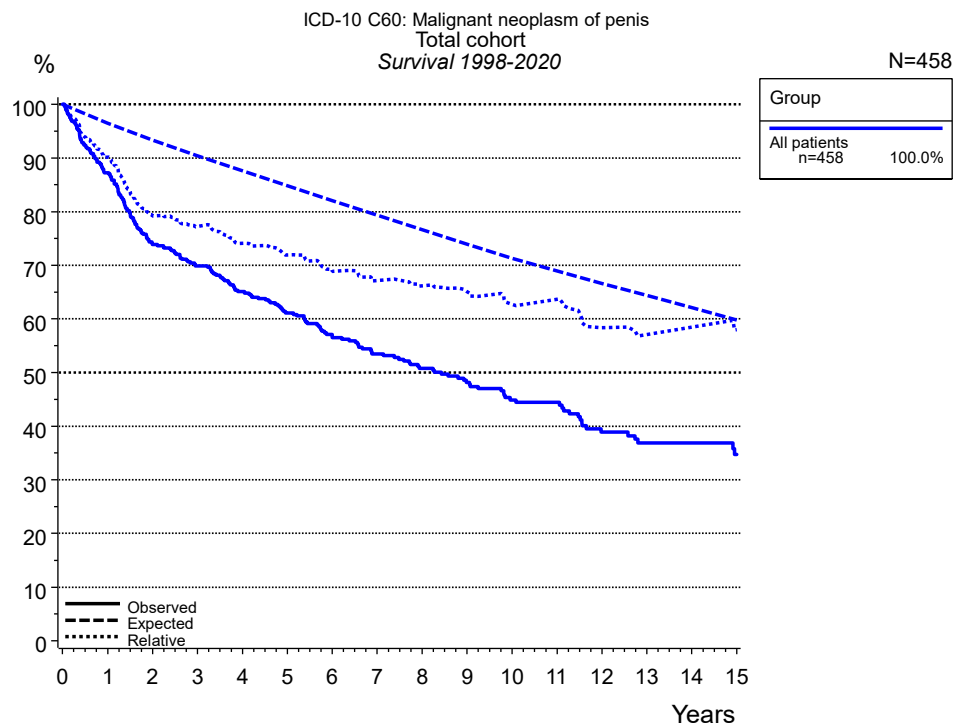


Figure 2a. Observed, expected and relative survival of the total cohort with penile cancer. Included in the evaluation are 458 cases diagnosed between 1998 and 2020.

Group		
All patients n=458		
Years	obs. %	rel. %
0	100.0	100.0
1	87.2	90.2
2	73.9	79.1
3	69.9	77.2
4	65.1	74.1
5	61.1	71.9
6	56.5	68.9
7	53.4	67.2
8	50.8	66.2
9	48.2	65.1
10	44.9	62.7
11	44.4	63.7
12	38.9	58.4
13	36.8	57.1
14	36.8	58.5
15	34.7	58.0
Median	8.4	

Table 2b. Observed (obs.) and relative (rel.) survival of the total cohort with penile cancer for period 1998-2020 (N=458).

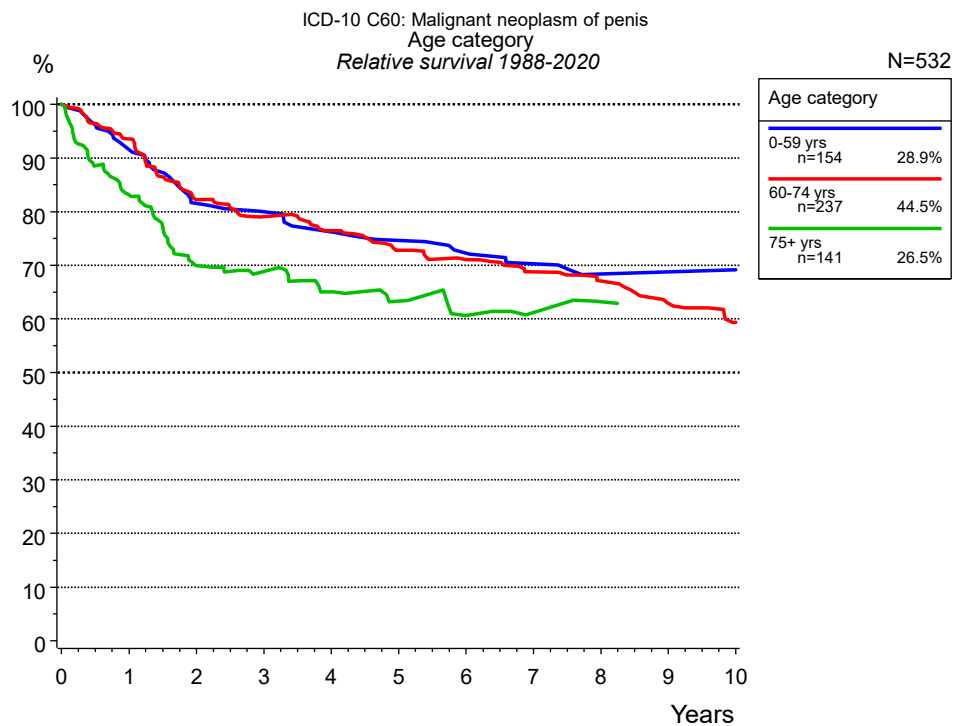


Figure 3a. Relative survival of patients with penile cancer by age category. Included in the evaluation are 532 cases diagnosed between 1988 and 2020.

Years	Age category					
	0-59 yrs n=154		60-74 yrs n=237		75+ yrs n=141	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	91.2	91.6	91.8	93.6	75.9	83.1
2	80.8	81.6	78.6	82.2	58.1	69.9
3	78.7	80.0	73.7	79.0	52.7	68.8
4	74.9	76.2	69.6	76.4	45.8	65.0
5	72.6	74.6	64.3	72.8	40.1	63.3
6	70.0	72.3	60.8	71.1	34.1	60.6
7	67.2	70.2	57.1	68.7	30.7	61.2
8	64.4	68.4	53.8	67.1	28.1	63.2
9	64.4	68.8	48.4	62.9		
10	64.4	69.2	43.8	59.4		
Median			8.8		3.4	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with penile cancer by age category for period 1988-2020 (N=532).

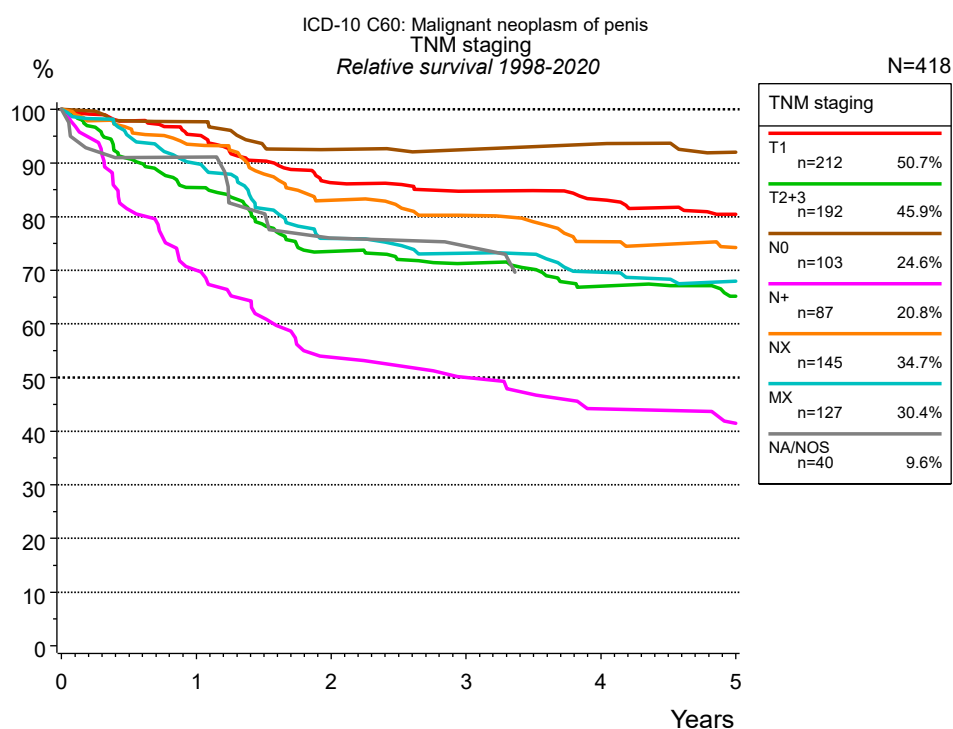


Figure 4a. Relative survival of patients with penile cancer by TNM staging. For 422 of 458 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 418 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 40 patients with missing values regarding TNM staging (8.7 % of 458 patients, the percent values of all other categories are related to n=418).

TNM staging														
	T1 n=212		T2+3 n=192		N0 n=103		N+ n=87		NX n=145		MX n=127		NA/NOS n=40	
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	92.7	95.2	82.4	85.4	96.1	97.7	68.9	70.0	89.9	93.4	87.1	89.9	89.5	91.1
2	81.3	86.3	68.3	73.5	88.1	92.5	51.3	53.7	76.5	83.1	70.8	76.0	69.9	76.0
3	77.7	84.8	63.9	71.3	86.1	92.5	46.4	50.0	71.2	80.2	66.6	73.2	67.0	74.5
4	74.4	83.2	58.0	67.0	85.0	93.6	39.8	44.1	64.9	75.3	61.6	69.6	60.9	69.3
5	69.8	80.4	54.1	65.2	80.5	92.0	36.5	41.4	61.7	74.2	58.3	68.0		
Median	11.3		5.8				2.5		7.6		8.4			

Table 4b. Observed (obs.) and relative (rel.) survival of patients with penile cancer by TNM staging for period 1998-2020 (N=418).

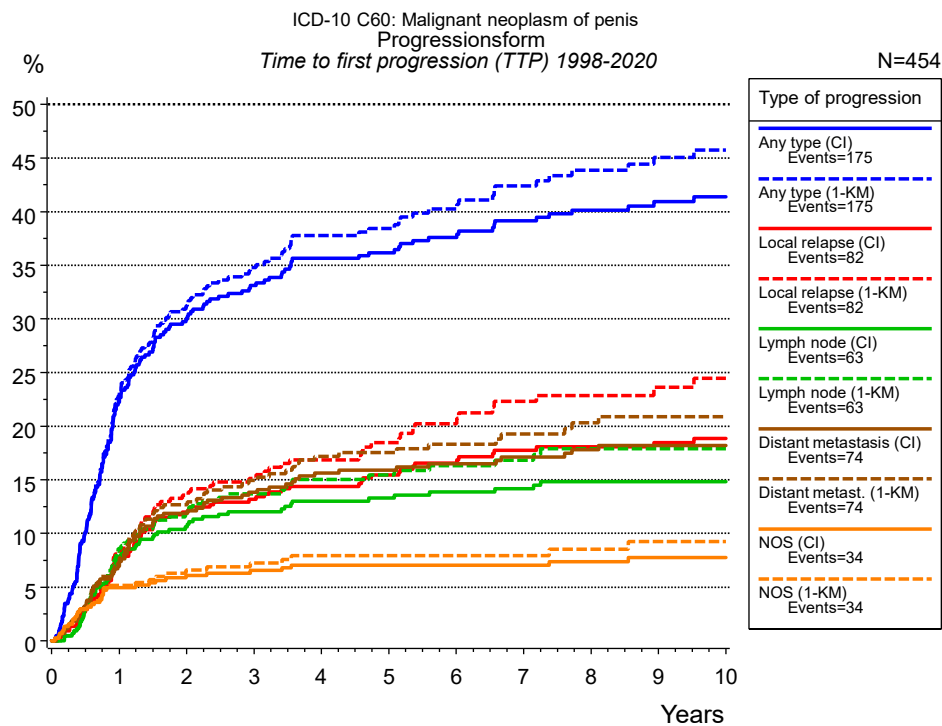


Figure 5a. Time to first progression of 454 patients with penile cancer diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

		Type of progression					
		Any type (CI)	Any type (1-KM)	Local relapse (CI)	Local relapse (1-KM)	Lymph node (CI)	Lymph node (1-KM)
N	441	441	441	454	454	454	454
Events	170	170	170	78	78	63	63
compet.	96	96	96	182	182	168	168
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	22.4	23.1	7.6	8.3	7.9	8.6	7.2
2	30.0	31.2	12.0	13.6	10.6	11.9	11.9
3	33.1	34.8	13.2	15.1	12.0	13.7	13.8
4	35.6	37.8	14.4	16.9	13.0	15.1	15.6
5	36.2	38.4	15.4	18.5	13.3	15.4	15.9
6	37.6	40.3	16.6	20.2	13.9	16.3	16.5
7	39.1	42.4	17.7	22.3	14.2	16.8	17.1
8	40.2	43.9	18.1	22.9	14.8	17.9	17.8
9	40.9	45.0	18.4	23.6	14.8	17.9	18.2
10	41.4	45.8	18.9	24.5	14.8	17.9	18.2

<i>cont'd</i>	Type of progression		
	Distant metast. (1- KM)	NOS (CI)	NOS (1-KM)
N	441	454	454
Events	74	33	33
compet.		194	
Years	%	%	%
0	0.0	0.0	0.0
1	7.5	4.9	5.2
2	12.7	6.1	6.6
3	15.0	6.6	7.2
4	17.2	7.1	7.9
5	17.5	7.1	7.9
6	18.3	7.1	7.9
7	19.3	7.1	7.9
8	20.3	7.4	8.5
9	20.9	7.7	9.2
10	20.9	7.7	9.2

Table 5b. Time to first progression of patients with penile cancer for period 1998-2020 (N=454), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

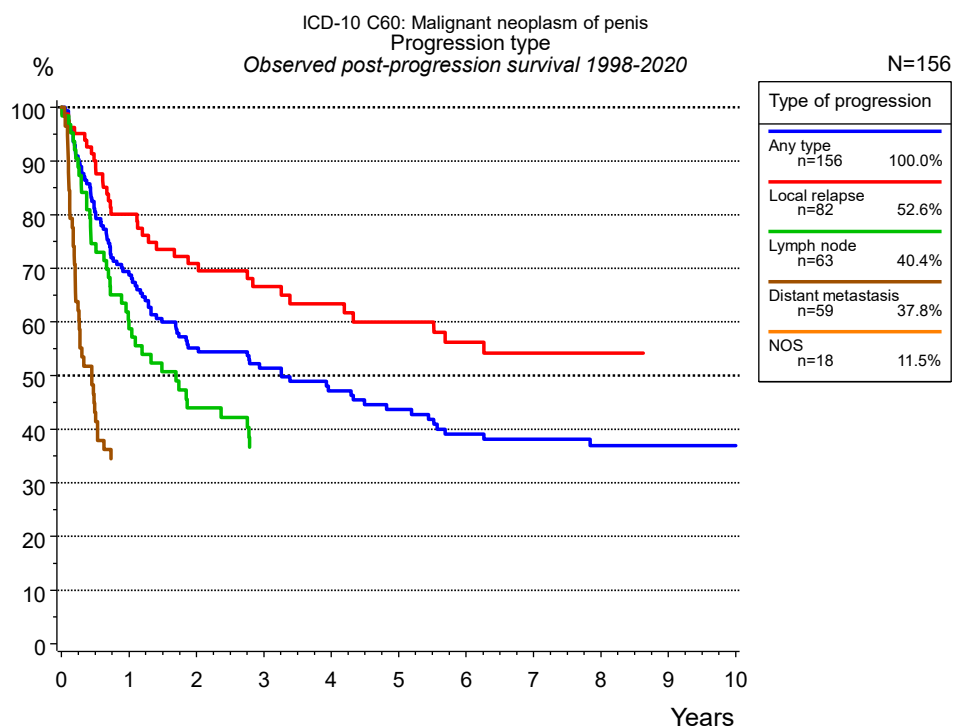


Figure 5c. Observed post-progression survival of 156 patients with penile cancer diagnosed between 1998 and 2020. These 156 patients with documented progression events during their course of disease represent 34.4 % of the totally 454 evaluated cases (incl. M1, n=13, 2.9 %). Patients with cancer relapse documented via death certificates only were excluded (n=32, 7.0 %). 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. Subgroups with sample size <20 are omitted from the chart.

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=156 %	Local relapse n=82 %	Lymph node n=63 %	Distant metastasis n=59 %
0	100.0	100.0	100.0	100.0
1	68.7	80.1	58.7	
2	55.1	70.9	43.9	
3	51.4	66.6		
4	47.2	63.4		
5	43.6	59.9		
6	39.1	56.2		
7	38.1	54.2		
8	37.0	54.2		
9	37.0	54.2		
10	37.0			

Table 5d. Observed post-progression survival of patients with penile cancer for period 1998-2020 (N=156).

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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