

Munich Cancer Registry



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ICD-10 C18.1: Appendix cancer

Survival

Year of diagnosis	1988-1997	1998-2019
Patients	52	902
Diseases	52	902
Cases evaluated	49	722
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/sC181_E-ICD-10-C18.1-Appendix-cancer-survival.pdf

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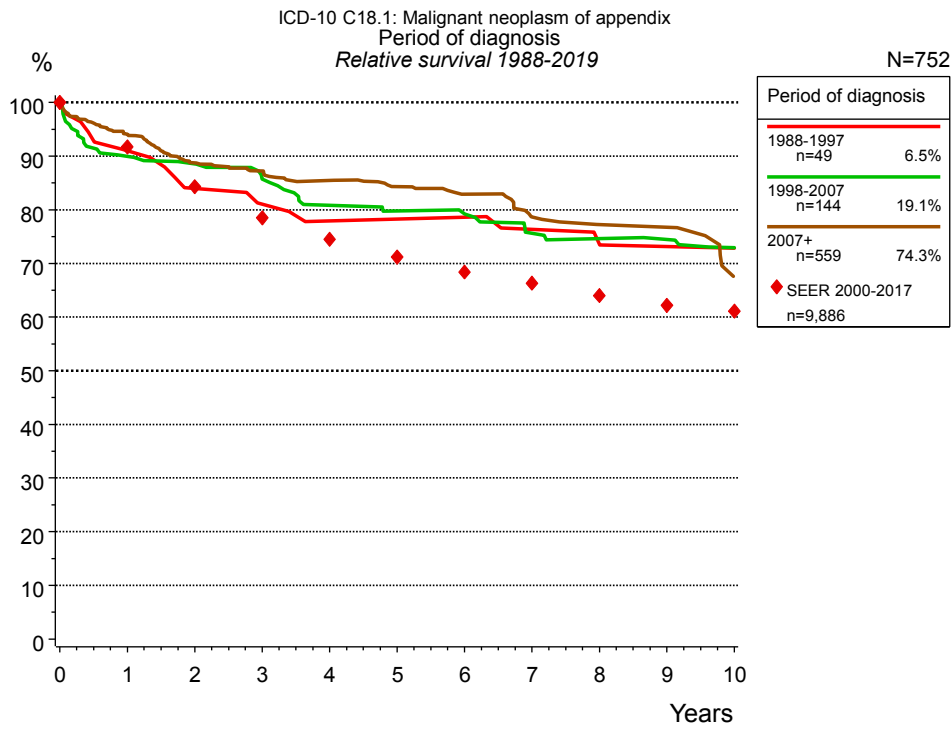


Figure 1a. Relative survival of patients with appendix cancer by period of diagnosis. Included in the evaluation are 752 cases diagnosed between 1988 and 2019.

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=49		1998-2007 n=144		2007+ n=559	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	89.6	91.0	89.1	90.0	92.8	94.1
2	81.3	84.0	86.9	88.6	86.7	88.7
3	77.1	81.0	82.5	85.7	84.2	87.2
4	72.9	77.9	77.2	80.8	81.6	85.5
5	72.9	78.3	74.9	79.8	79.3	84.3
6	72.9	78.6	74.1	79.3	77.0	82.9
7	68.6	76.4	69.4	75.6	72.2	78.6
8	66.5	73.6	67.8	74.6	70.0	77.3
9	64.3	73.2	67.0	74.5	70.0	76.7
10	64.3	72.9	64.5	72.9		
Median	15.5		18.5			

Table 1b. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by period of diagnosis for period 1988-2019 (N=752).

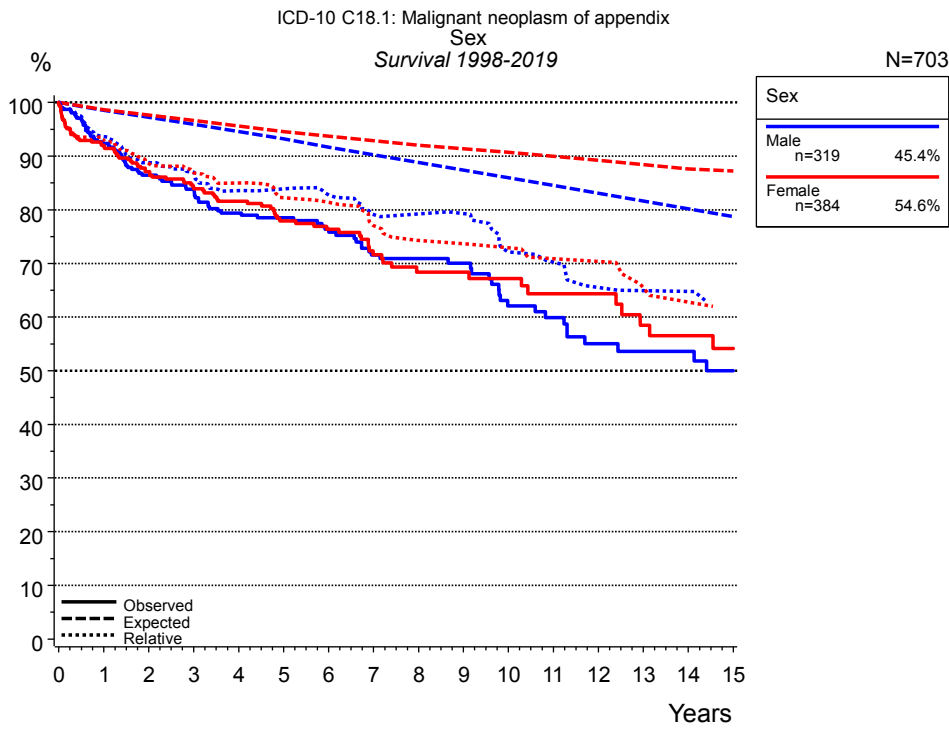


Figure 2a. Survival of patients with appendix cancer by sex. Included in the evaluation are 703 cases diagnosed between 1998 and 2019.

Years	Sex			
	Male n=319		Female n=384	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	92.4	93.6	91.7	93.0
2	86.5	88.7	87.1	88.6
3	83.8	87.0	83.9	86.8
4	79.4	83.6	81.6	85.0
5	78.5	83.9	77.9	82.3
6	76.4	82.7	76.4	81.4
7	71.5	79.1	71.6	77.1
8	70.9	79.2	68.4	74.3
9	70.0	79.3	68.4	73.7
10	62.1	72.2	67.2	72.9
11	59.9	70.2	64.3	70.9
12	55.0	65.5	64.3	70.4
13	53.6	64.9	58.5	65.4
14	53.6	64.8	56.5	62.8
15	50.0	62.7		
Median	18.5			

Table 2b. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by sex for period 1998-2019 (N=703).

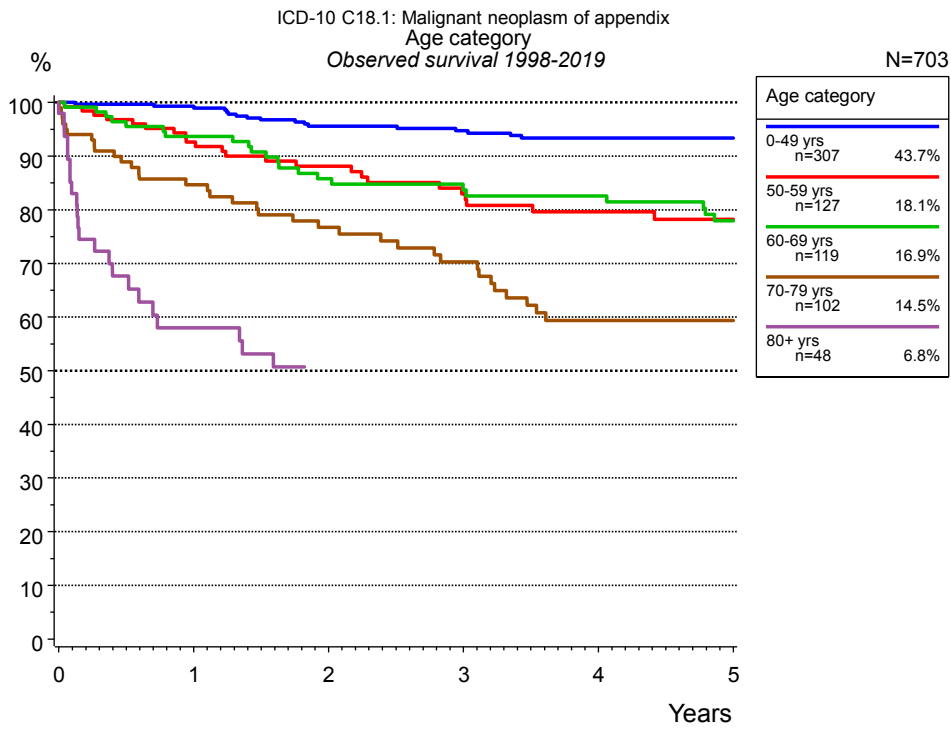


Figure 3a. Observed survival of patients with appendix cancer by age category. Included in the evaluation are 703 cases diagnosed between 1998 and 2019.

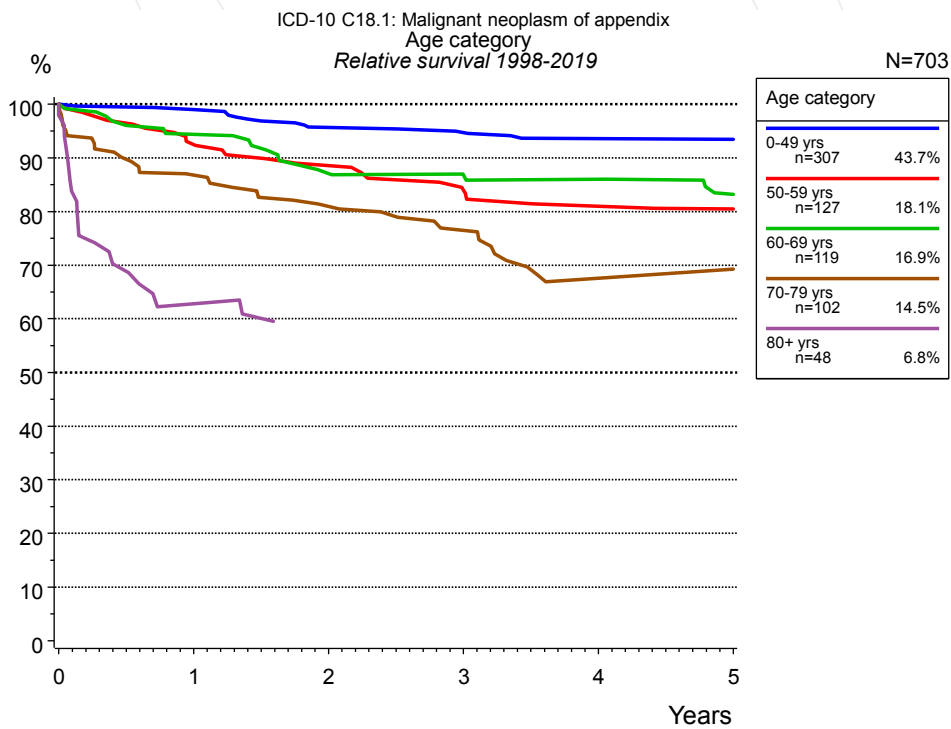


Figure 3b. Relative survival of patients with appendix cancer by age category. Included in the evaluation are 703 cases diagnosed between 1998 and 2019.

Years	Age category									
	0-49 yrs n=307		50-59 yrs n=127		60-69 yrs n=119		70-79 yrs n=102		80+ yrs n=48	
	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	98.9	99.0	92.6	92.4	93.7	94.4	84.6	86.8	58.0	62.8
2	95.6	95.7	88.1	88.5	85.8	87.1	76.7	80.9	50.7	59.3
3	94.7	94.7	82.9	84.0	83.7	86.9	70.2	76.5		
4	93.4	93.6	79.6	81.0	82.6	86.0	59.4	67.5		
5	93.4	93.4	78.2	80.4	78.0	83.2	59.4	69.3		
Median							6.2		2.0	

Table 3c. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by age category for period 1998-2019 (N=703).

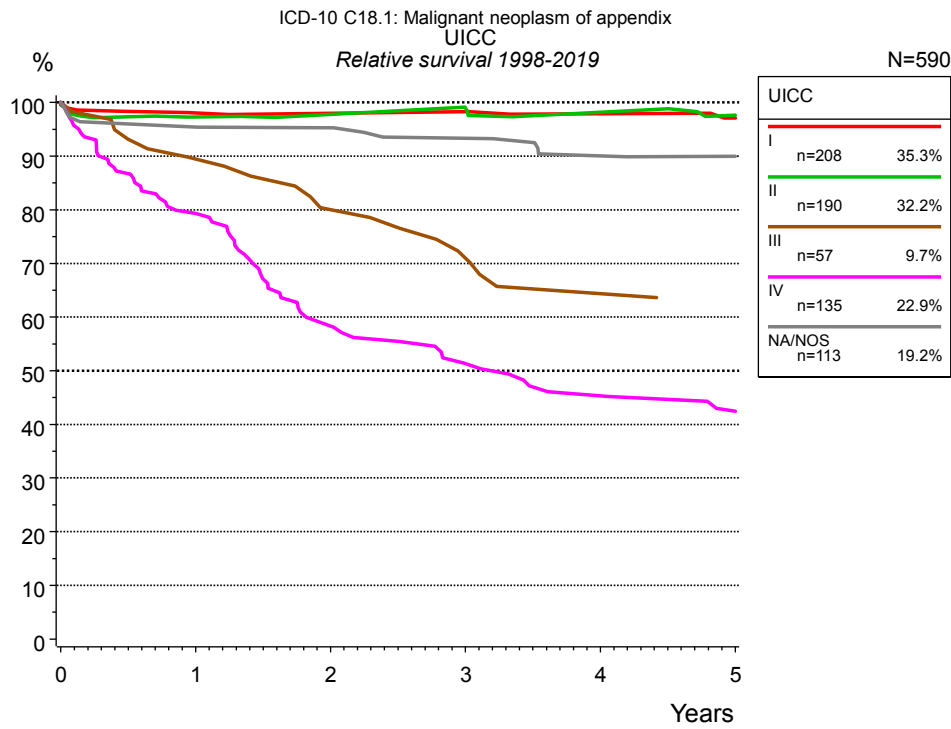


Figure 4a. Relative survival of patients with appendix cancer by UICC. For 610 of 703 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 590 cases an evaluable classification was established. The grey line represents the subgroup of 113 patients with missing values regarding UICC (16.1 % of 703 patients, the percent values of all other categories are related to n=590).

Years	UICC									
	I n=208		II n=190		III n=57		IV n=135		NA/NOS n=113	
	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	97.5	98.1	95.6	97.3	88.5	89.4	77.8	79.3	95.3	95.4
2	96.9	98.0	94.4	97.8	78.4	80.0	57.2	58.3	94.3	95.3
3	96.9	98.3	93.6	99.0	69.8	71.0	49.1	51.3	91.3	93.3
4	95.6	97.9	91.3	98.2	63.1	64.3	43.7	45.3	87.3	90.0
5	93.8	97.1	88.5	97.7			40.0	42.5	86.2	89.9
Median							3.0			

Table 4b. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by UICC for period 1998-2019 (N=590).

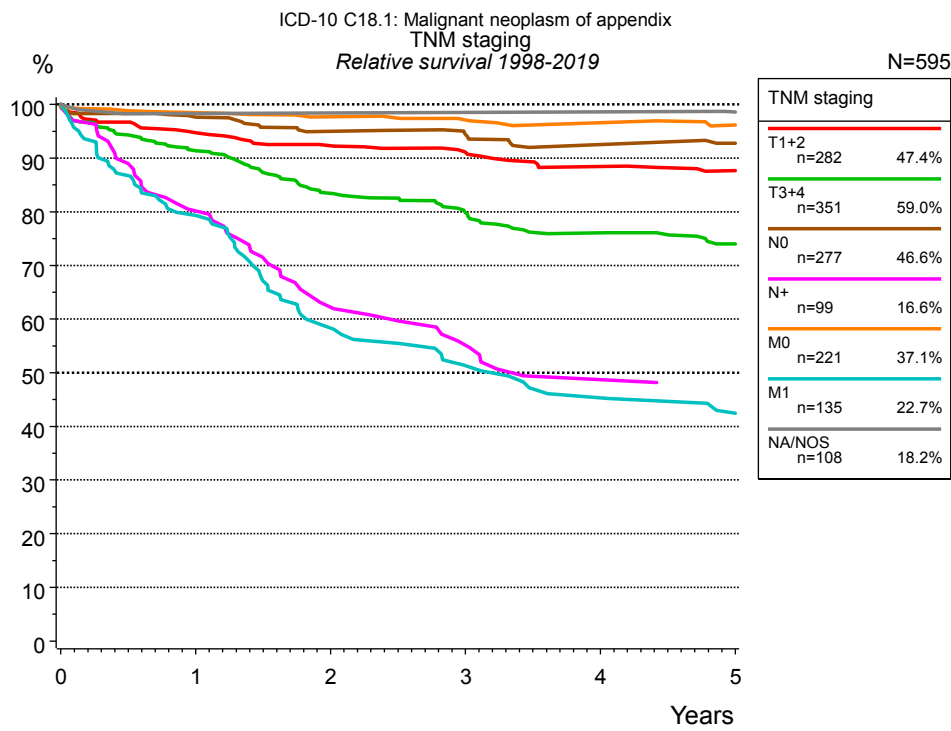


Figure 4c. Relative survival of patients with appendix cancer by TNM staging. For 703 of 703 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 595 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 108 patients with missing values regarding TNM staging (15.4 % of 703 patients, the percent values of all other categories are related to n=595).

Years	TNM staging													
	T1+2 n=282		T3+4 n=351		N0 n=277		N+ n=99		M0 n=221		M1 n=135		NA/NOS n=108	
	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	93.6	94.7	89.8	91.4	96.2	97.6	79.4	80.2	97.1	98.5	77.8	79.3	98.0	98.3
2	90.0	92.3	81.0	83.4	92.5	95.0	61.6	62.2	95.1	97.7	57.2	58.3	98.0	98.4
3	87.3	91.1	76.0	79.8	90.6	94.5	54.0	55.1	93.3	97.1	49.1	51.3	98.0	98.5
4	84.0	88.5	71.4	76.0	87.6	92.5	47.5	48.7	91.5	96.6	43.7	45.3	98.0	98.6
5	81.8	87.7	68.0	74.0	86.4	92.8	45.9	47.9	89.2	96.1	40.0	42.5	96.3	98.6
Median			11.2				3.2				3.0			

Table 4d. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by TNM staging for period 1998-2019 (N=595).

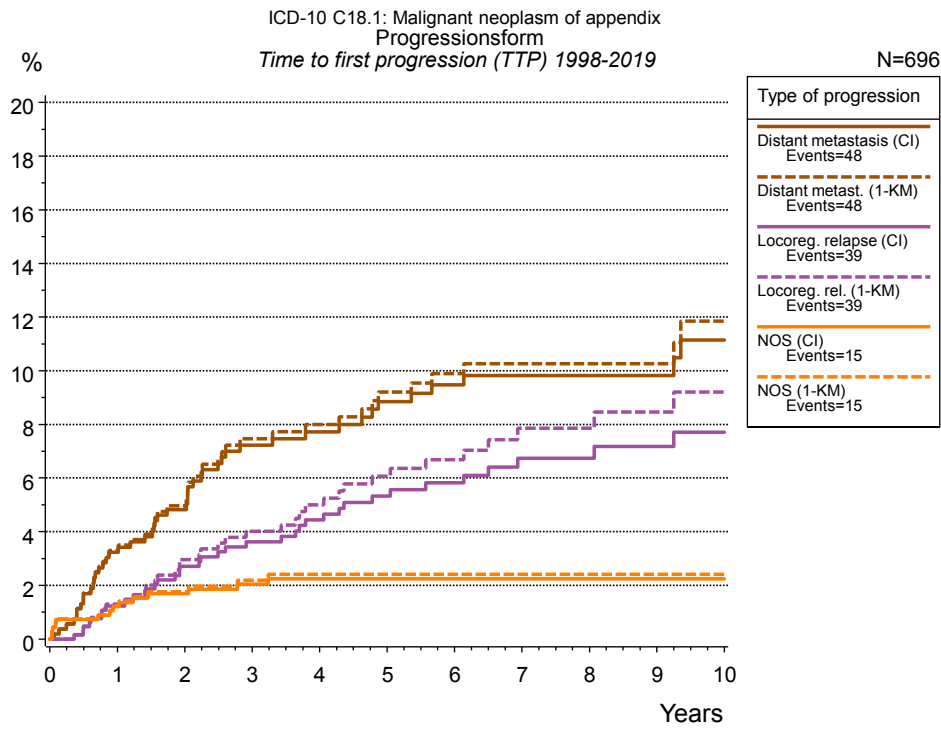


Figure 5a. Time to first progression of 696 patients with appendix cancer diagnosed between 1998 and 2019 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression					
	Distant metastasis (CI)	Distant metast. (1-KM)	Locoreg. relapse (CI)	Locoreg. rel. (1-KM)	NOS (CI)	NOS (1-KM)
N	562	562	696	696	696	696
Events	47	47	37	37	14	14
compet.	54		141		153	
Years	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0
1	3.2	3.3	1.2	1.3	1.2	1.2
2	4.8	5.0	2.7	3.0	1.7	1.8
3	7.2	7.5	3.6	4.0	2.0	2.2
4	7.7	8.0	4.4	5.0	2.2	2.4
5	8.9	9.2	5.3	6.1	2.2	2.4
6	9.5	9.9	5.8	6.7	2.2	2.4
7	9.8	10.3	6.7	7.9	2.2	2.4
8	9.8	10.3	6.7	7.9	2.2	2.4
9	9.8	10.3	7.2	8.5	2.2	2.4
10	11.1	11.9	7.7	9.2	2.2	2.4

Table 5b. Time to first progression of patients with appendix cancer for period 1998-2019 (N=696), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

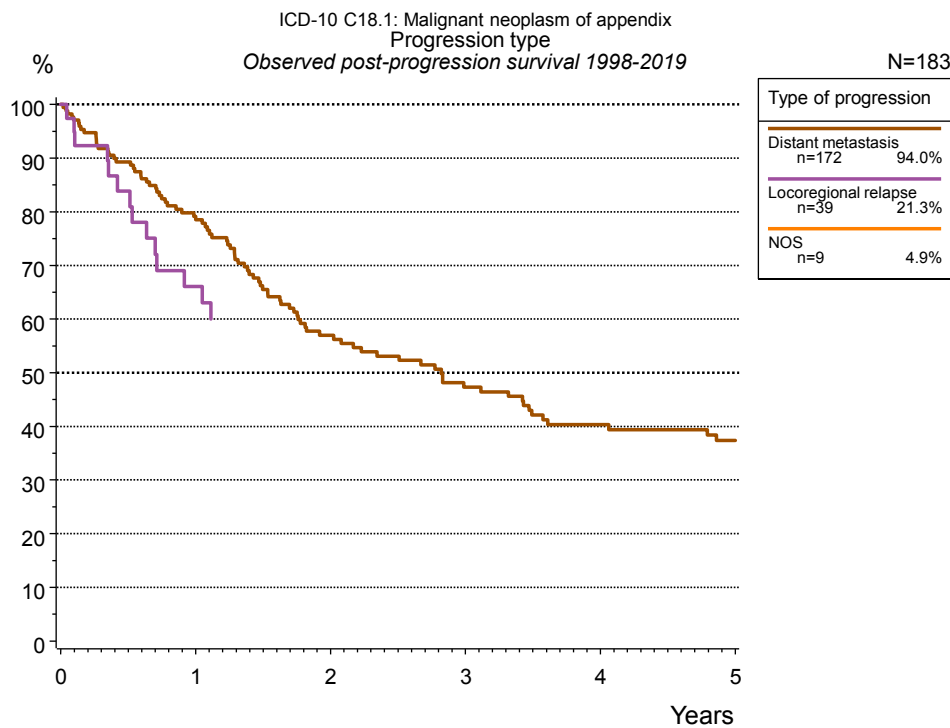


Figure 5c. Observed post-progression survival of 183 patients with appendix cancer diagnosed between 1998 and 2019. These 183 patients with documented progression events during their course of disease represent 26.3 % of the totally 696 evaluated cases (incl. M1, n=134, 19.3 %). Patients with cancer relapse documented via death certificates only were excluded (n=14, 2.0 %). 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	
	Distant metastasis n=172 %	Locoregional relapse n=39 %
0	100.0	100.0
1	78.5	66.0
2	57.0	
3	47.3	
4	40.3	
5	37.4	

Table 5d. Observed post-progression survival of patients with appendix cancer for period 1998-2019 (N=183).

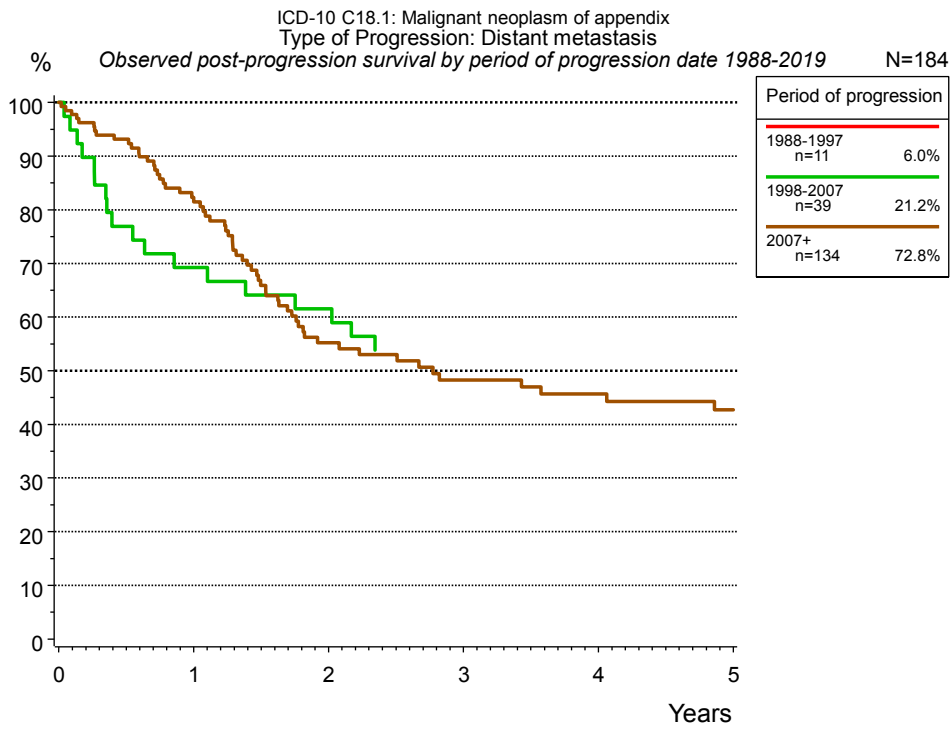


Figure 5e. Observed post-progression (distant metastasis) survival of 184 patients with appendix cancer diagnosed between 1988 and 2019 by period of progression.

Years	Period of progression	
	1998-2007 n=39 %	2007+ n=134 %
0	100.0	100.0
1	69.2	81.5
2	61.5	55.2
3		48.3
4		45.7
5		42.7

Table 5f. Observed post-progression (distant metastasis) survival of patients with appendix cancer for period 1988-2019 by period of progression (N=184).

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

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