Munich Cancer Registry

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ICD-10 C18.1: Appendix cancer

Survival

Year of diagnosis	1988-1997	1998-2020
Patients	53	988
Diseases	53	989
Cases evaluated	50	792

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/sC181_E-ICD-10-C18.1-Appendix-cancer-survival.pdf

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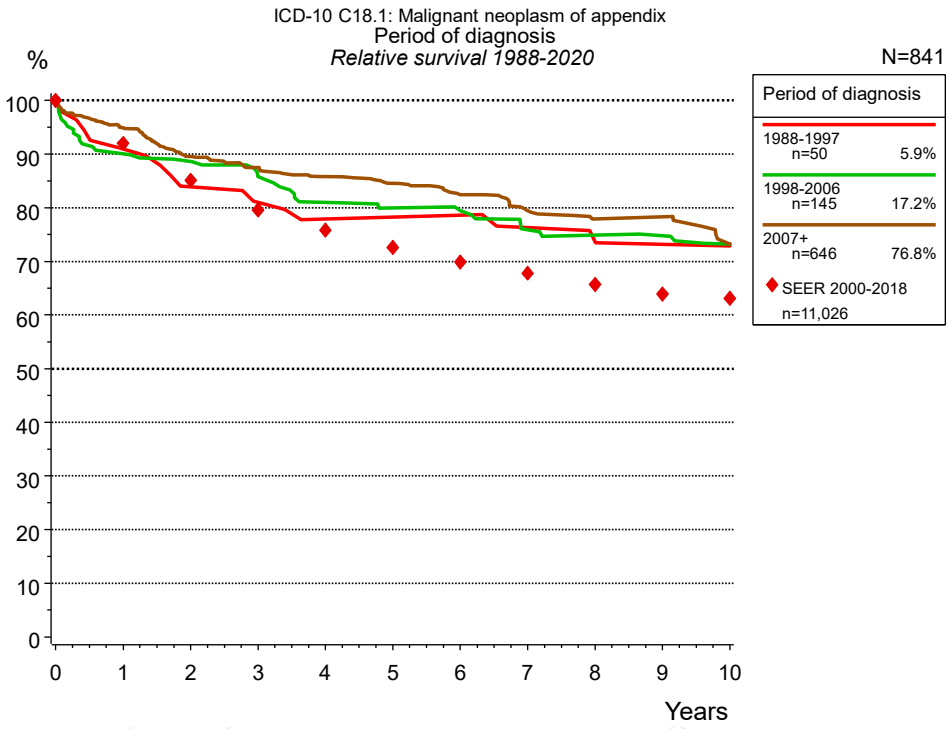

Figure 1a. Relative survival of patients with appendix cancer by period of diagnosis. Included in the evaluation are 841 cases diagnosed between 1988 and 2020.

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					
	1988-1997 n=50		1998-2006 n=145		2007+ n=646	
Years	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	89.6	90.9	89.2	90.1	93.6	94.9
2	81.3	83.9	87.0	88.7	87.4	89.5
3	77.1	81.0	82.6	85.9	84.5	87.5
4	72.9	77.9	77.4	81.0	81.9	85.8
5	72.9	78.3	75.1	80.0	79.7	84.5
6	72.9	78.6	74.3	79.5	76.7	82.4
7	68.6	76.3	69.6	75.9	73.1	79.4
8	66.5	73.6	68.0	74.9	70.9	78.0
9	64.3	73.2	67.2	74.8	70.9	78.3
10	64.3	72.9	64.8	73.2	65.0	73.3
Median	15.5		18.5			

Table 1b. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by period of diagnosis for period 1988-2020 (N=841).

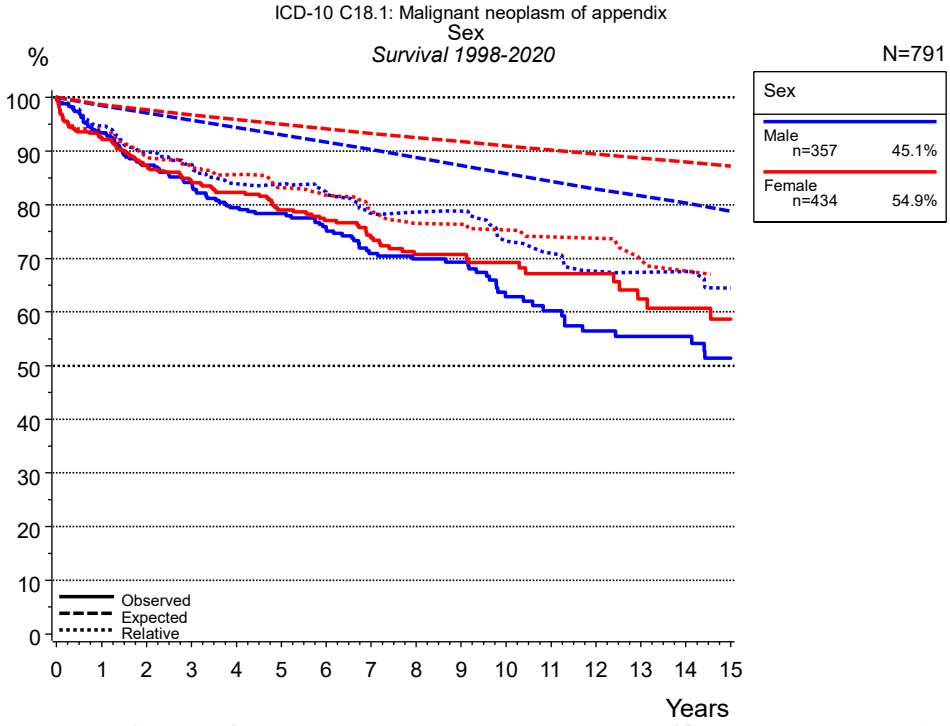

Figure 2a. Survival of patients with appendix cancer by sex. Included in the evaluation are 791 cases diagnosed between 1998 and 2020.

	Sex			
	Male n=357		Female n=434	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	93.4	94.7	92.4	93.6
2	87.4	89.8	87.3	89.0
3	84.2	87.5	84.1	86.9
4	79.4	83.9	82.3	85.6
5	78.4	83.9	79.1	83.2
6	75.5	82.3	77.0	81.8
7	70.9	78.5	73.8	79.0
8	69.9	78.7	70.8	76.5
9	69.3	78.8	70.8	76.4
10	62.9	73.2	69.2	75.3
11	60.3	71.0	67.1	74.0
12	56.5	67.5	67.1	73.7
13	55.4	67.4	62.4	69.8
14	55.4	67.5	60.8	67.6
15	51.4	64.5	58.7	65.8
Median	16.1		21.7	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by sex for period 1998-2020 (N=791).

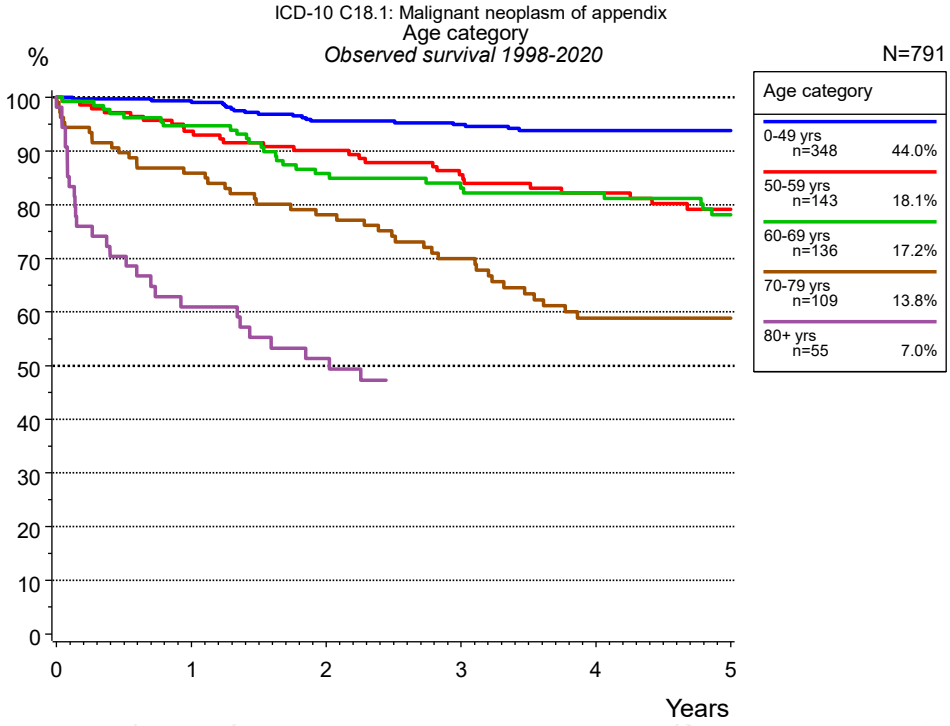

Figure 3a. Observed survival of patients with appendix cancer by age category. Included in the evaluation are 791 cases diagnosed between 1998 and 2020.

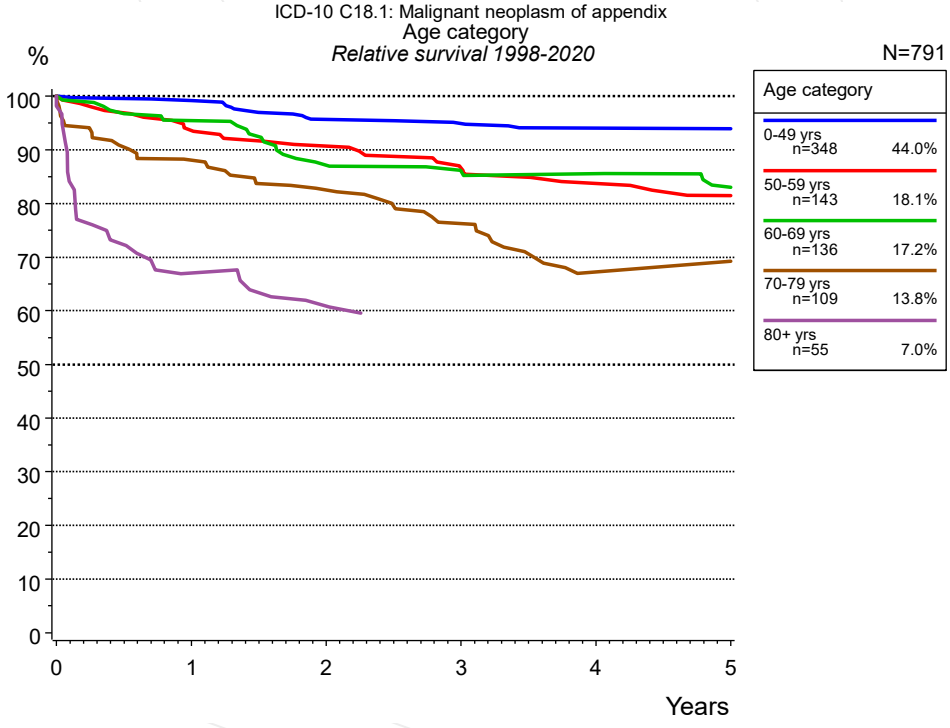

Figure 3b. Relative survival of patients with appendix cancer by age category. Included in the evaluation are 791 cases diagnosed between 1998 and 2020.

	Age category									
	0-49 yrs n=348		50-59 yrs n=143		60-69 yrs n=136		70-79 yrs n=109		80+ yrs n=55	
Years	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	99.1	99.2	93.7	93.6	94.7	95.5	85.9	88.1	61.0	67.1
2	95.6	95.7	90.1	90.7	85.8	87.1	78.1	82.5	51.3	60.9
3	94.9	94.9	85.5	86.7	83.1	86.1	69.9	76.2		
4	93.8	94.1	82.2	83.7	82.2	85.6	58.8	67.2		
5	93.8	94.0	79.2	81.5	78.1	83.0	58.8	69.2		
Median					12.5		6.7		2.0	

Table 3c. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by age category for period 1998-2020 (N=791).

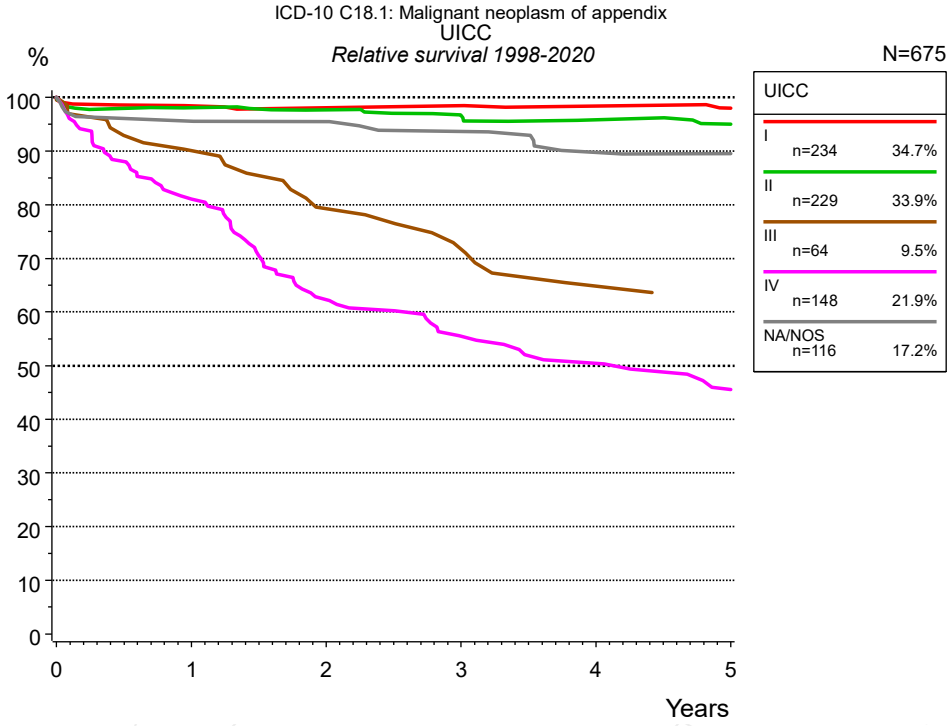

Figure 4a. Relative survival of patients with appendix cancer by UICC. For 695 of 791 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 675 cases an evaluable classification was established. The grey line represents the subgroup of 116 patients with missing values regarding UICC (14.7 % of 791 patients, the percent values of all other categories are related to n=675).

	UICC									
	I		II		III		IV		NA/NOS	
	n=234		n=229		n=64		n=148		n=116	
Years	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	97.8	98.4	96.4	98.1	88.9	90.1	79.5	81.1	95.4	95.6
2	96.9	98.1	94.5	97.7	77.2	79.3	60.9	62.3	94.5	95.5
3	96.9	98.5	91.9	96.7	69.9	71.7	53.1	55.5	91.7	93.7
4	95.8	98.4	89.6	95.9	62.1	64.8	48.5	50.5	86.9	89.7
5	94.5	98.0	87.5	95.1	60.0	63.1	42.9	45.5	85.9	89.5
Median							3.5			

Table 4b. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by UICC for period 1998-2020 (N=675).

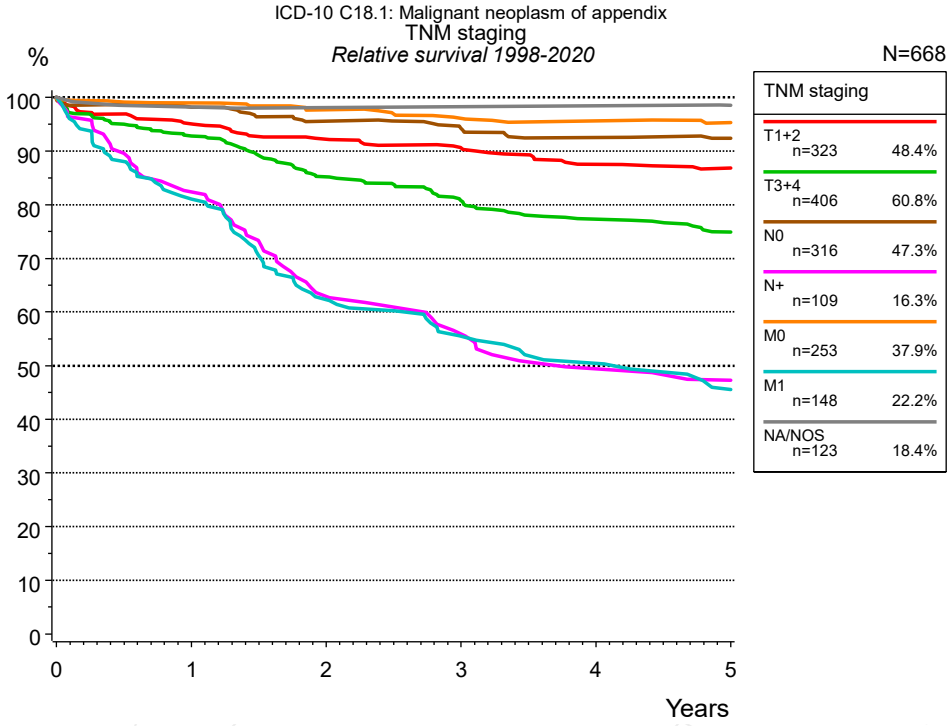

Figure 4c. Relative survival of patients with appendix cancer by TNM staging. For 791 of 791 cases diagnosed between 1998 and 2020 valid data could be obtained for this item. For a total of 668 cases an evaluable classification was established. The accumulated percentage exceeds the 100 % value because patients are potientially considered in more than one subgroup. The grey line represents the subgroup of 123 patients with missing values regarding TNM staging (15.5 % of 791 patients, the percent values of all other categories are related to n=668).

	TNM staging													
	T1+2 n=323		T3+4 n=406		N0 n=316		N+ n=109		M0 n=253		M1 n=148		NA/NOS n=123	
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	93.9	95.1	91.2	92.8	96.8	98.2	81.5	82.4	97.6	99.0	79.5	81.1	98.3	98.2
2	89.9	92.2	82.7	85.2	93.0	95.6	62.0	62.9	95.0	97.7	60.9	62.3	97.4	98.1
3	87.0	90.6	77.0	80.8	90.4	94.2	54.4	55.9	92.2	96.1	53.1	55.5	97.4	98.3
4	83.2	87.5	72.8	77.3	87.6	92.5	47.4	49.4	90.3	95.6	48.5	50.5	97.4	98.5
5	81.4	86.8	69.3	74.9	86.2	92.4	44.8	47.3	88.6	95.3	42.9	45.5	96.2	98.5
Median	21.7		11.3		19.0		3.2		21.9		3.5			

Table 4d. Observed (obs.) and relative (rel.) survival of patients with appendix cancer by TNM staging for period 1998-2020 (N=668).

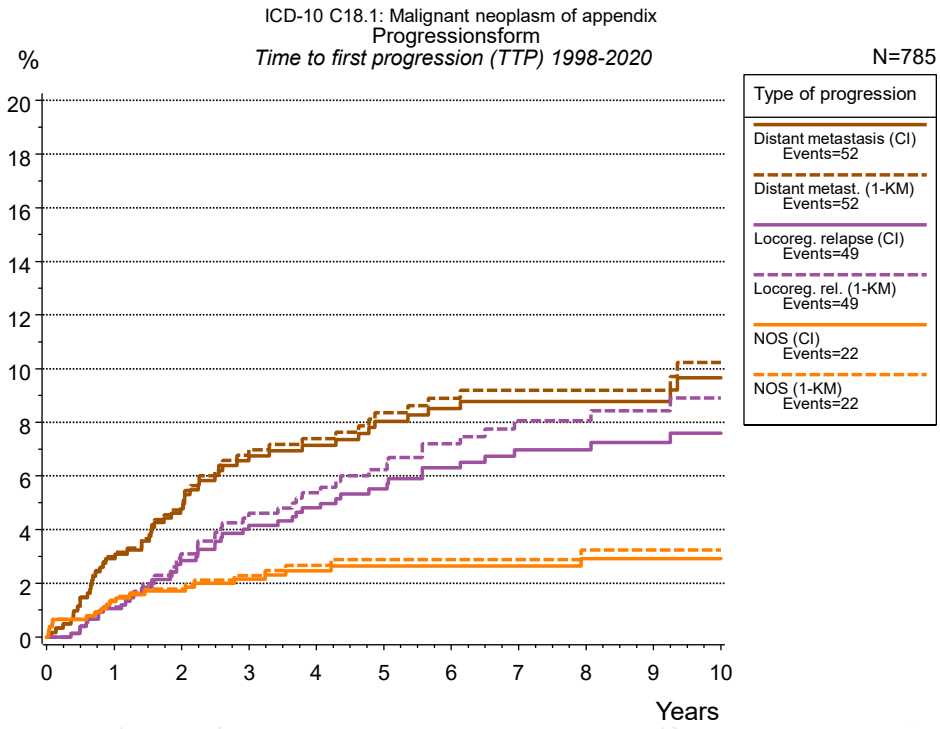

Figure 5a. Time to first progression of 785 patients with appendix cancer diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression					
	Distant metastasis (CI)	Distant metast. (1-KM)	Locoreg. relapse (CI)	Locoreg. rel. (1-KM)	NOS (CI)	NOS (1-KM)
N	638	638	785	785	785	785
Events	51	51	47	47	20	20
compet.	74		168		182	
Years	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0
1	2.9	3.0	1.1	1.1	1.3	1.4
2	4.8	4.9	2.8	3.1	1.7	1.8
3	6.8	7.0	4.2	4.6	2.1	2.3
4	7.1	7.4	4.8	5.4	2.5	2.7
5	8.0	8.4	5.5	6.2	2.6	2.9
6	8.5	8.9	6.3	7.2	2.6	2.9
7	8.8	9.2	7.0	8.1	2.6	2.9
8	8.8	9.2	7.0	8.1	2.9	3.2
9	8.8	9.2	7.2	8.4	2.9	3.2
10	9.7	10.2	7.6	8.9	2.9	3.2

Table 5b. Time to first progression of patients with appendix cancer for period 1998-2020 (N=785), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

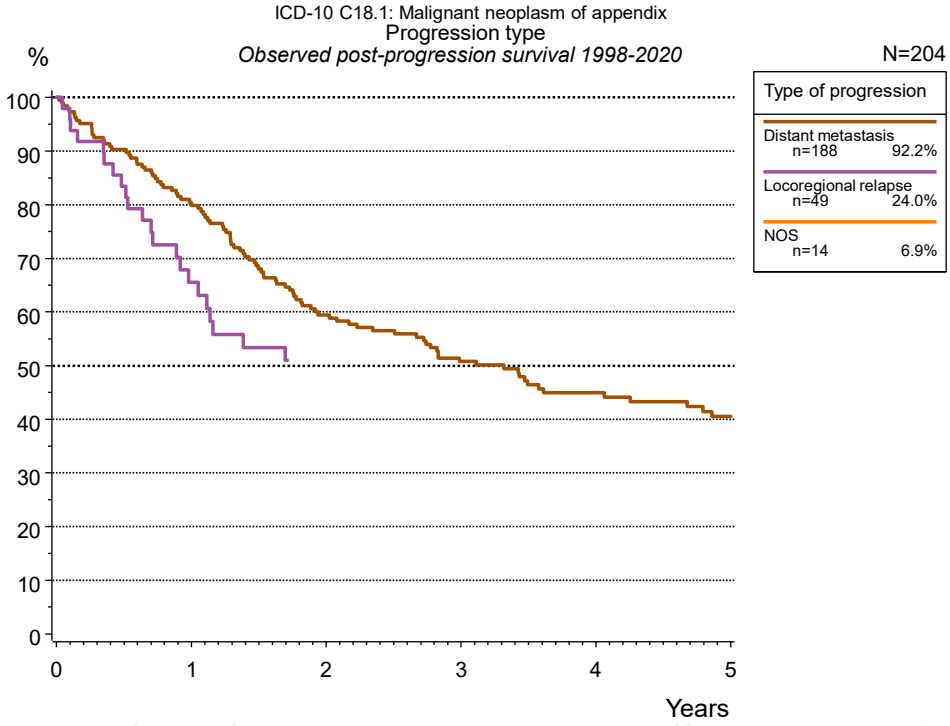

Figure 5c. Observed post-progression survival of 204 patients with appendix cancer diagnosed between 1998 and 2020. These 204 patients with documented progression events during their course of disease represent 26.0 % of the totally 785 evaluated cases (incl. M1, n=147, 18.7 %). Patients with cancer relapse documented via death certificates only were excluded (n=17, 2.2 %). Multiple progression types on different sites are included in the evaluation even when not occuring 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 potientially considered in more than one subgroup.

	Type of progression	
	Distant metastasis n=188	Locoregional relapse n=49
Years	%	%
0	100.0	100.0
1	79.9	65.5
2	59.5	
3	50.8	
4	45.0	
5	40.5	

Table 5d. Observed post-progression survival of patients with appendix cancer for period 1998-2020 (N=204).

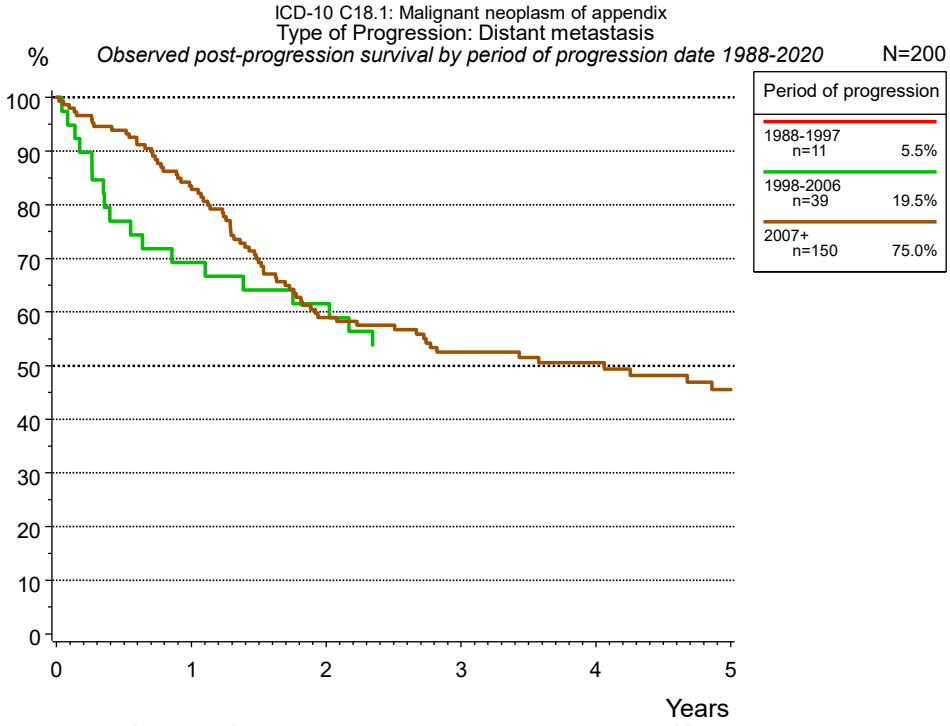

Figure 5e. Observed post-progression (distant metastasis) survival of 200 patients with appendix cancer diagnosed between 1988 and 2020 by period of progression.

	Period of progression	
	1998-2006 n=39	2007+ n=150
Years	%	%
0	100.0	100.0
1	69.2	82.8
2	61.5	59.0
3		52.5
4		50.5
5		45.6

Table 5f. Observed post-progression (distant metastasis) survival of patients with appendix cancer for period 1988-2020 by period of progression (N=200).

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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