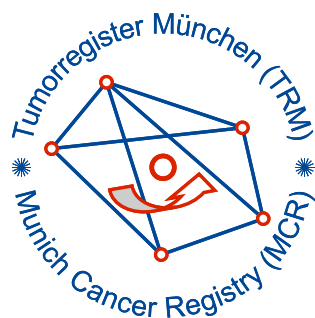


Munich Cancer Registry



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

ICD-10 C56: Ovarian cancer

Survival

Year of diagnosis	1988-1997	1998-2019
Patients	1,543	8,343
Diseases	1,543	8,346
Cases evaluated	1,343	5,944
Creation date	01/27/2021	
Database export	01/07/2021	
Population (females)	2.48 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/sC56__E-ICD-10-C56-Ovarian-cancer-survival.pdf

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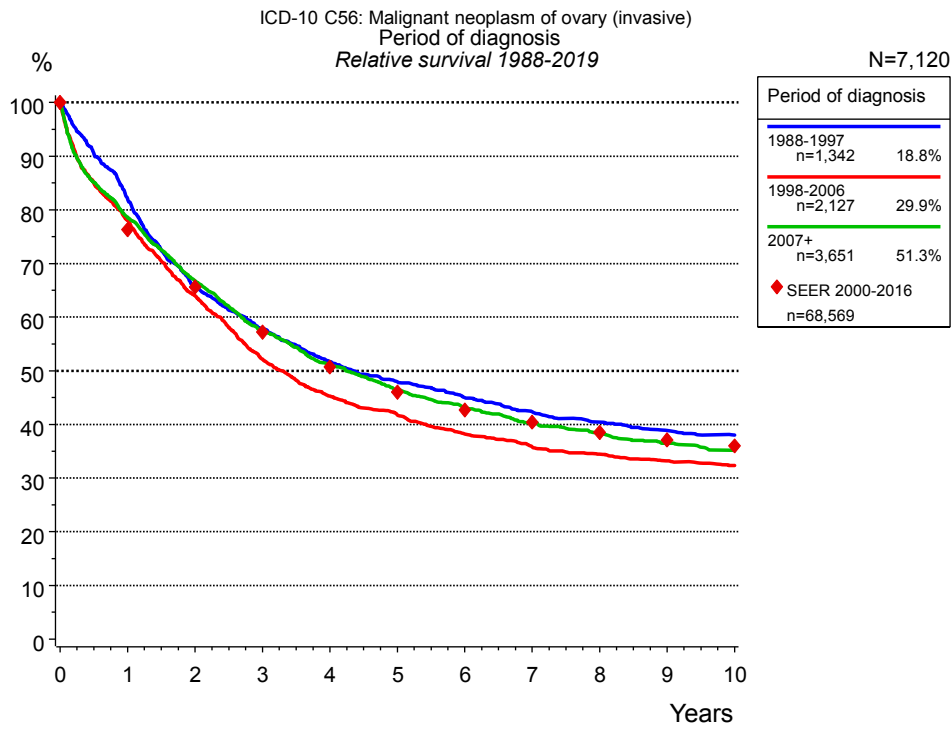


Figure 1a. Relative survival of patients with ovarian cancer by period of diagnosis. Included in the evaluation are 7,120 cases diagnosed between 1988 and 2019.

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 2016, 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=1,342		1998-2006 n=2,127		2007+ n=3,651	
	obs. %	rel. %	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0	100.0	100.0
1	80.6	82.0	76.3	78.0	77.0	78.6
2	63.9	66.0	61.6	64.0	64.5	66.8
3	55.3	57.9	49.5	52.2	54.8	57.5
4	48.7	51.7	42.3	45.3	47.9	51.1
5	44.5	48.0	38.5	41.8	42.9	46.4
6	41.2	45.0	34.8	38.2	39.3	43.1
7	38.2	42.4	32.1	35.8	36.1	40.3
8	36.0	40.4	30.4	34.5	33.9	38.4
9	34.1	38.9	28.9	33.2	31.7	36.5
10	32.9	38.1	27.7	32.3	30.2	35.2
Median	3.8		3.0		3.6	

Table 1b. Observed (obs.) and relative (rel.) survival of patients with ovarian cancer by period of diagnosis for period 1988-2019 (N=7,120).

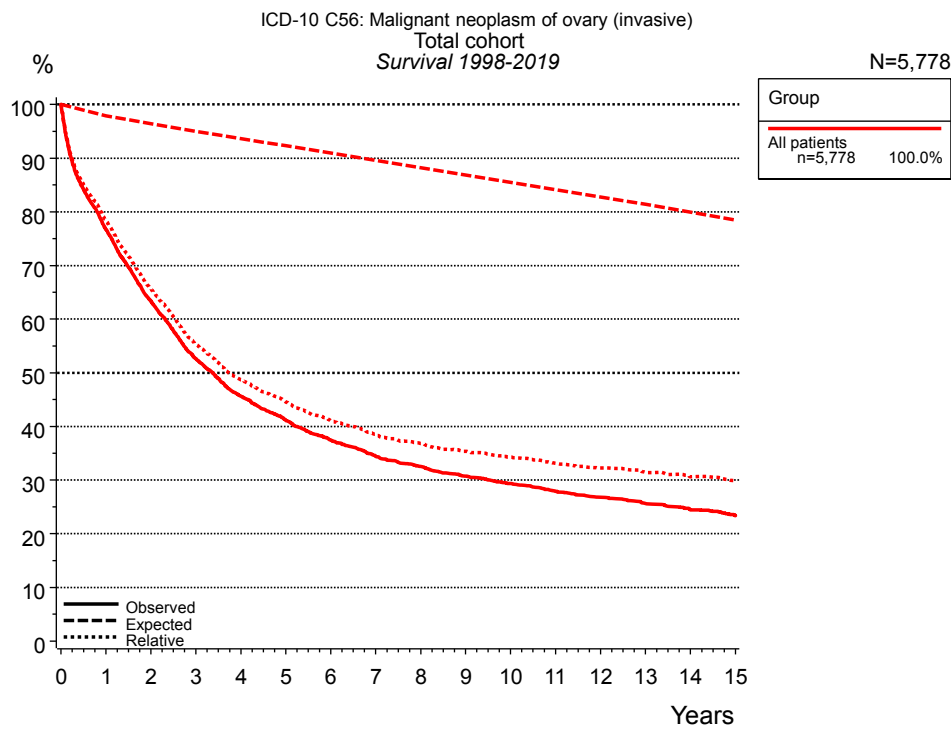


Figure 2a. Observed, expected and relative survival of the total cohort with ovarian cancer. Included in the evaluation are 5,778 cases diagnosed between 1998 and 2019.

Years	Group	
	obs. %	rel. %
0	100.0	100.0
1	76.8	78.4
2	63.4	65.7
3	52.7	55.4
4	45.6	48.7
5	41.1	44.6
6	37.4	41.1
7	34.5	38.4
8	32.5	36.9
9	30.7	35.3
10	29.3	34.3
11	27.9	33.1
12	26.7	32.3
13	25.6	31.4
14	24.5	30.6
15	23.4	29.8
Median	3.4	

Table 2b. Observed (obs.) and relative (rel.) survival of the total cohort with ovarian cancer for period 1998-2019 (N=5,778).

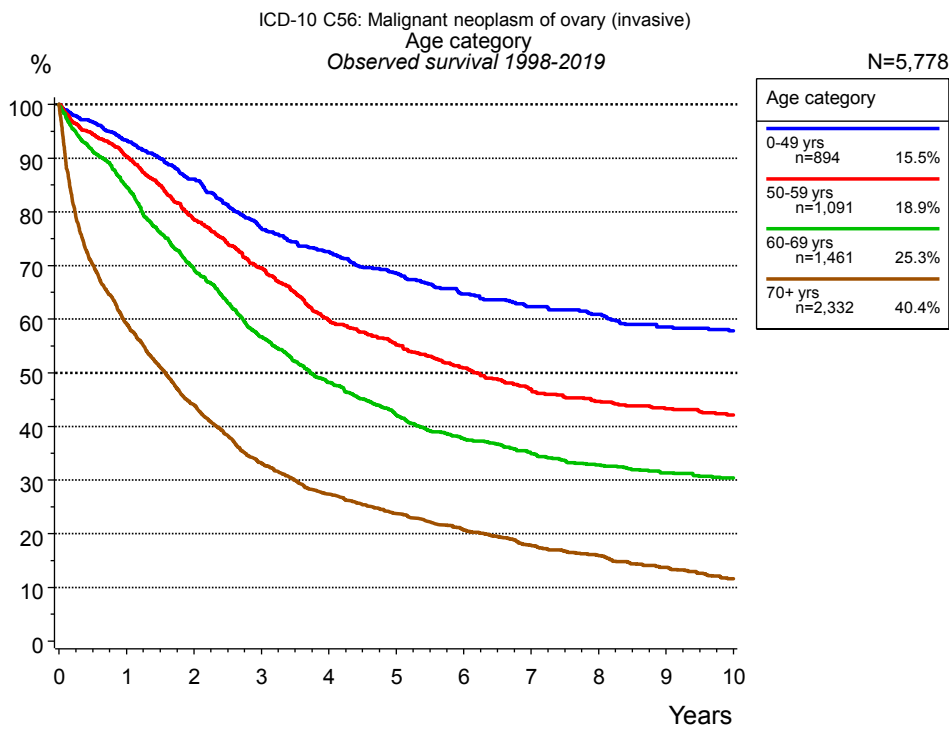


Figure 3a. Observed survival of patients with ovarian cancer by age category. Included in the evaluation are 5,778 cases diagnosed between 1998 and 2019.

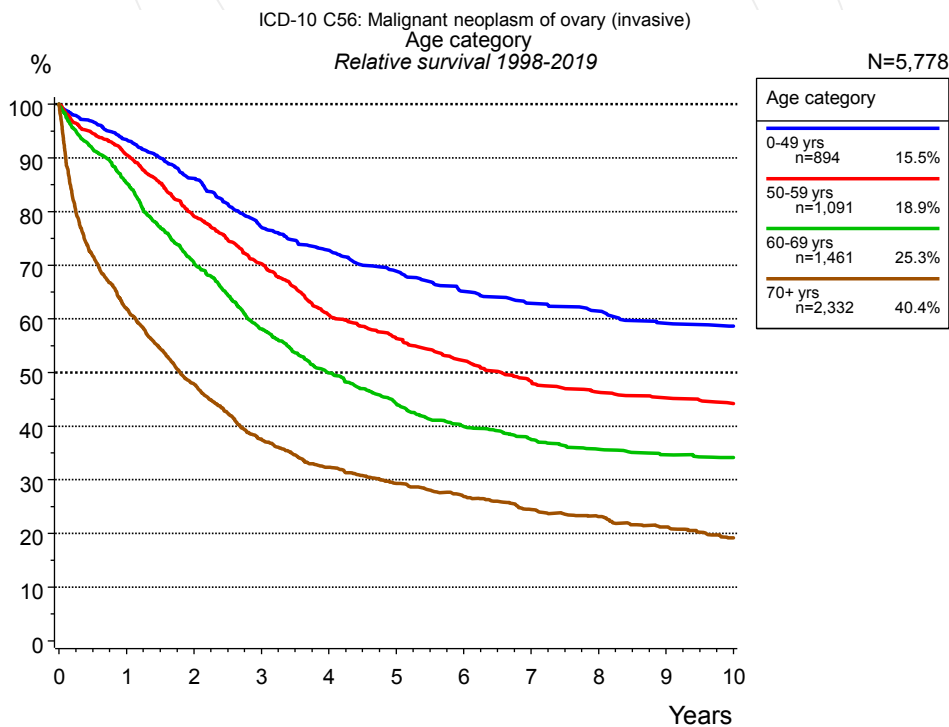


Figure 3b. Relative survival of patients with ovarian cancer by age category. Included in the evaluation are 5,778 cases diagnosed between 1998 and 2019.

Years	Age category							
	0-49 yrs n=894		50-59 yrs n=1,091		60-69 yrs n=1,461		70+ yrs n=2,332	
	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	93.3	93.4	90.3	90.6	84.8	85.4	59.2	61.9
2	86.1	86.1	78.6	79.1	69.4	70.5	44.0	47.9
3	77.0	77.1	69.5	70.3	56.7	58.1	33.2	37.6
4	72.6	72.8	59.7	60.7	48.2	49.9	27.4	32.3
5	68.5	68.9	55.2	56.3	42.2	44.2	23.7	29.3
6	64.7	65.1	50.9	52.2	37.7	40.0	20.7	26.9
7	62.3	62.9	46.9	48.3	34.9	37.5	17.9	24.4
8	60.9	61.4	44.7	46.3	32.8	35.7	15.9	23.2
9	58.5	59.2	43.3	45.3	31.3	34.7	13.7	21.2
10	57.8	58.6	42.1	44.2	30.4	34.1	11.6	19.2
Median			6.2		3.7		1.6	

Table 3c. Observed (obs.) and relative (rel.) survival of patients with ovarian cancer by age category for period 1998-2019 (N=5,778).

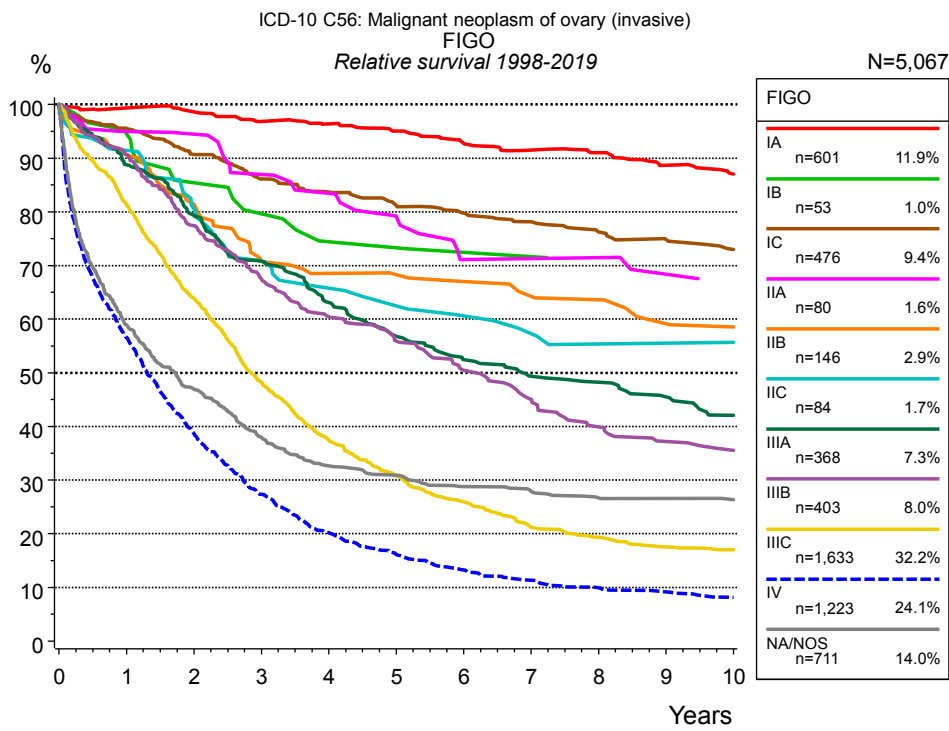


Figure 4a. Relative survival of patients with ovarian cancer by FIGO. For 5,384 of 5,778 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 5,067 cases an evaluable classification was established. The grey line represents the subgroup of 711 patients with missing values regarding FIGO (12.3 % of 5,778 patients, the percent values of all other categories are related to n=5,067).

Years	FIGO													
	IA n=601		IB n=53		IC n=476		IIA n=80		IIB n=146		IIC n=84		IIIA n=368	
	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	98.1	99.4	94.1	94.6	94.3	95.6	93.6	95.0	88.6	90.5	90.5	91.5	87.7	88.8
2	96.1	98.7	84.1	85.4	88.5	90.7	92.2	94.5	78.2	81.5	78.4	80.5	77.4	79.3
3	93.0	96.8	77.7	79.6	82.9	86.1	83.6	86.9	67.5	71.0	68.6	70.9	68.2	70.8
4	91.3	96.4	71.3	74.4	79.6	83.7	79.0	83.4	63.6	68.5	62.5	65.8	60.2	63.1
5	88.7	95.0	71.3	73.3	76.4	81.3	72.6	79.2	62.5	68.3	58.6	62.5	53.4	56.8
6	85.4	92.8	68.8	72.4	73.9	79.8	64.3	71.1	60.1	67.0	55.8	60.6	48.7	52.4
7	82.8	91.5	68.8	71.7	71.5	78.1	64.3	71.3	57.5	64.2	52.8	57.3	45.3	49.4
8	81.1	91.0			68.5	76.3	64.3	71.4	56.1	63.6	49.7	55.4	43.9	48.2
9	77.7	88.7			66.5	74.8	60.0	68.4	51.5	59.1	49.7	55.5	41.0	45.5
10	75.2	87.0			64.1	73.0	57.4	66.8	49.7	58.5	49.7	55.7	37.3	42.1
Median									9.1		7.3		5.8	

<i>cont'd</i>	FIGO							
	IIIB n=403		IIIC n=1,633		IV n=1,223		NA/NOS n=711	
Years	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	89.4	90.7	80.0	81.4	55.1	56.6	56.8	58.9
2	75.4	77.4	61.9	63.9	37.1	38.7	44.2	47.0
3	64.9	67.5	46.0	48.2	25.8	27.3	35.2	38.0
4	57.3	60.5	35.2	37.4	18.8	20.2	29.7	32.6
5	52.3	55.9	28.5	30.8	14.7	16.1	27.8	30.9
6	46.5	50.5	23.7	25.9	11.9	13.2	25.4	28.8
7	41.3	45.0	19.0	21.1	10.0	11.3	24.5	27.9
8	36.1	39.9	17.2	19.3	8.6	9.9	23.1	26.7
9	33.1	37.2	15.3	17.5	7.8	9.2	22.6	26.6
10	31.4	35.5	14.6	17.0	6.7	8.1	22.3	26.4
Median	5.5		2.7		1.2		1.4	

Table 4b. Observed (obs.) and relative (rel.) survival of patients with ovarian cancer by FIGO for period 1998-2019 (N=5,067).

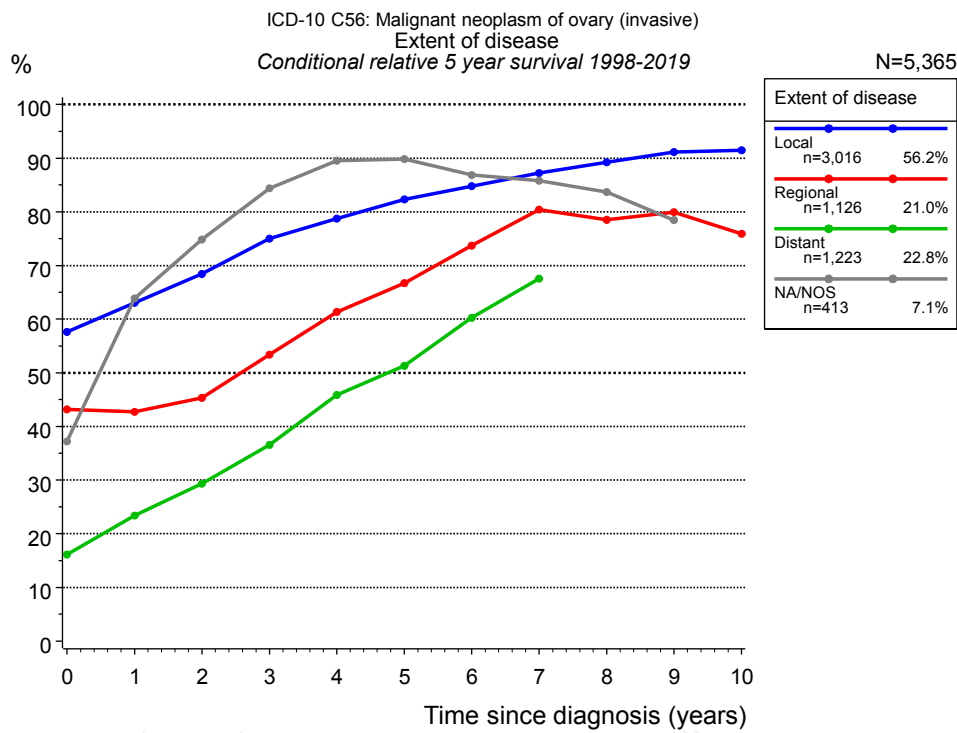


Figure 4c. Conditional relative 5-year survival of patients with ovarian cancer by extent of disease. For 5,384 of 5,778 cases diagnosed between 1998 and 2019 valid data could be obtained for this item. For a total of 5,365 cases an evaluable classification was established. The grey line represents the subgroup of 413 patients with missing values regarding extent of disease (7.1 % of 5,778 patients, the percent values of all other categories are related to n=5,365).

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	3,016	57.6	1,126	43.2	1,223	16.1	413	37.2
1	2,404	63.1	942	42.7	639	23.4	207	63.9
2	1,945	68.4	752	45.3	404	29.3	156	74.9
3	1,588	75.0	552	53.4	268	36.5	125	84.3
4	1,343	78.8	415	61.3	180	45.8	105	89.5
5	1,155	82.3	320	66.7	129	51.3	98	89.8
6	984	84.8	254	73.7	97	60.2	88	86.9
7	839	87.2	203	80.4	74	67.5	79	85.8
8	726	89.2	173	78.5			71	83.7
9	623	91.1	144	79.9			63	78.4
10	530	91.5	120	75.9				

Table 4d. Conditional relative 5-year survival of patients with ovarian cancer by extent of disease for period 1998-2019 (N=5,365).

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 4a). 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 75.0% (n=1,588).

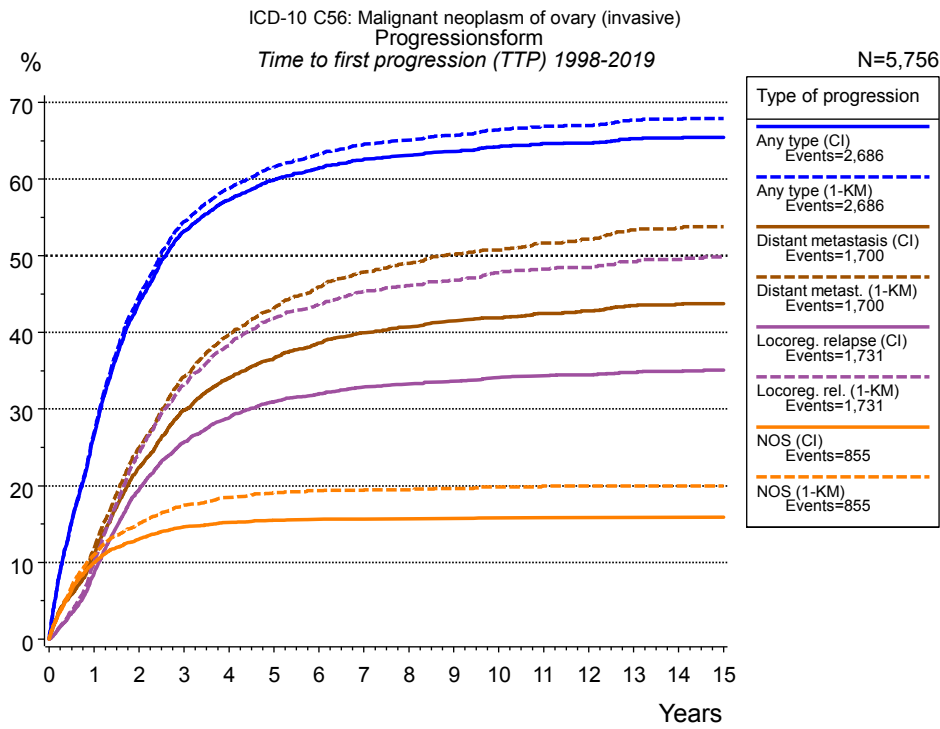


Figure 5a. Time to first progression of 5,756 patients with ovarian cancer diagnosed between 1998 and 2019 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression						
	Any type (CI)	Any type (1-KM)	Distant metastasis (CI)	Distant metast. (1-KM)	Locoreg. relapse (CI)	Locoreg. rel. (1-KM)	NOS (CI)
N	4,605	4,605	4,605	4,605	5,756	5,756	5,756
Events	2,685	2,685	1,699	1,699	1,731	1,731	855
compet.	306		1,106		2,130		2,813
Years	%	%	%	%	%	%	%
0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	26.6	27.0	11.0	11.8	8.6	10.0	10.0
2	43.8	44.7	22.4	25.0	19.4	24.1	13.0
3	53.2	54.4	29.8	34.2	25.7	33.2	14.6
4	57.3	58.7	34.0	39.7	28.9	38.3	15.2
5	59.9	61.6	36.6	43.1	31.0	41.8	15.5
6	61.5	63.3	38.6	46.0	32.0	43.7	15.6
7	62.6	64.5	40.0	47.9	32.9	45.4	15.6
8	63.1	65.1	40.7	49.0	33.3	46.1	15.7
9	63.6	65.7	41.5	50.2	33.7	46.8	15.7
10	64.2	66.4	41.9	50.8	34.1	47.8	15.8
11	64.6	66.9	42.5	51.7	34.4	48.3	15.9
12	64.7	67.0	42.8	52.2	34.5	48.5	15.9
13	65.3	67.7	43.5	53.4	34.8	49.2	15.9
14	65.4	67.8	43.7	53.6	34.9	49.5	15.9
15	65.4	67.9	43.8	53.8	35.1	49.9	15.9

Type of progression	
<i>cont'd</i>	NOS (1-KM)
N	5,756
Events	855
compet.	
Years	%
0	0.0
1	11.1
2	15.0
3	17.5
4	18.5
5	19.1
6	19.3
7	19.4
8	19.5
9	19.6
10	19.8
11	20.0
12	20.0
13	20.0
14	20.0
15	20.0

Table 5b. Time to first progression of patients with ovarian cancer for period 1998-2019 (N=5,756), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

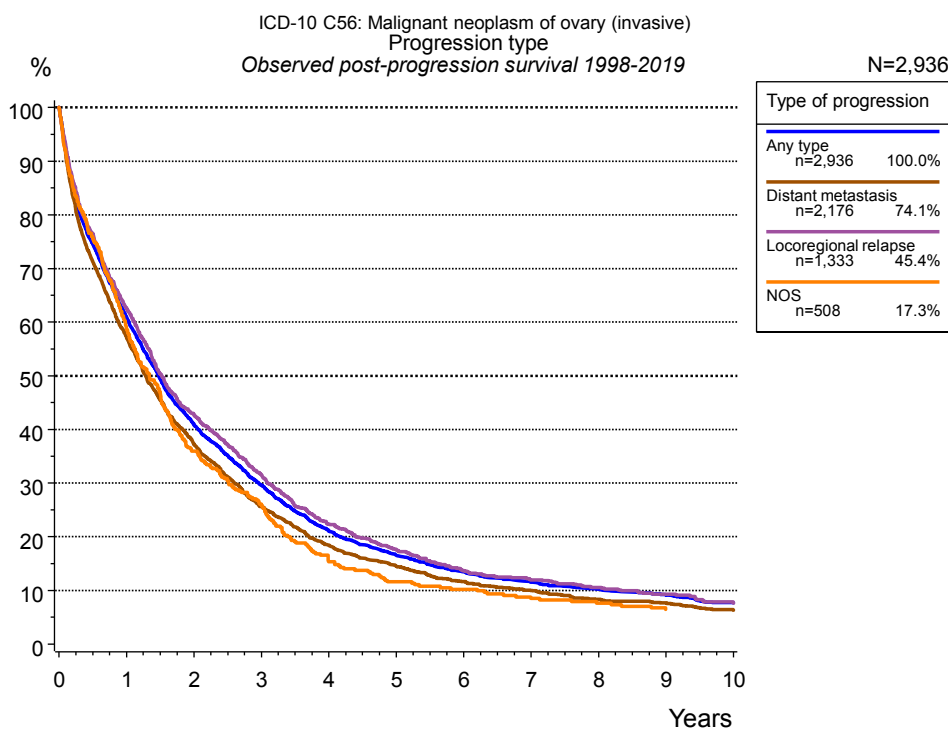


Figure 5c. Observed post-progression survival of 2,936 patients with ovarian cancer diagnosed between 1998 and 2019. These 2,936 patients with documented progression events during their course of disease represent 51.0 % of the totally 5,756 evaluated cases (incl. M1, n=1,151, 20.0 %). Patients with cancer relapse documented via death certificates only were excluded (n=901, 15.7 %). 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=2,936 %	Distant metastasis n=2,176 %	Locoregional relapse n=1,333 %	NOS n=508 %
0	100.0	100.0	100.0	100.0
1	61.0	57.2	62.7	59.0
2	41.0	37.3	42.8	36.0
3	29.6	25.6	31.6	25.9
4	21.1	18.4	22.3	15.3
5	16.5	14.5	17.6	11.6
6	13.4	11.6	13.7	10.2
7	11.5	10.0	12.0	8.5
8	10.2	8.3	10.5	7.6
9	9.2	7.7	9.3	6.4
10	7.7	6.3	7.6	

Table 5d. Observed post-progression survival of patients with ovarian cancer for period 1998-2019 (N=2,936).

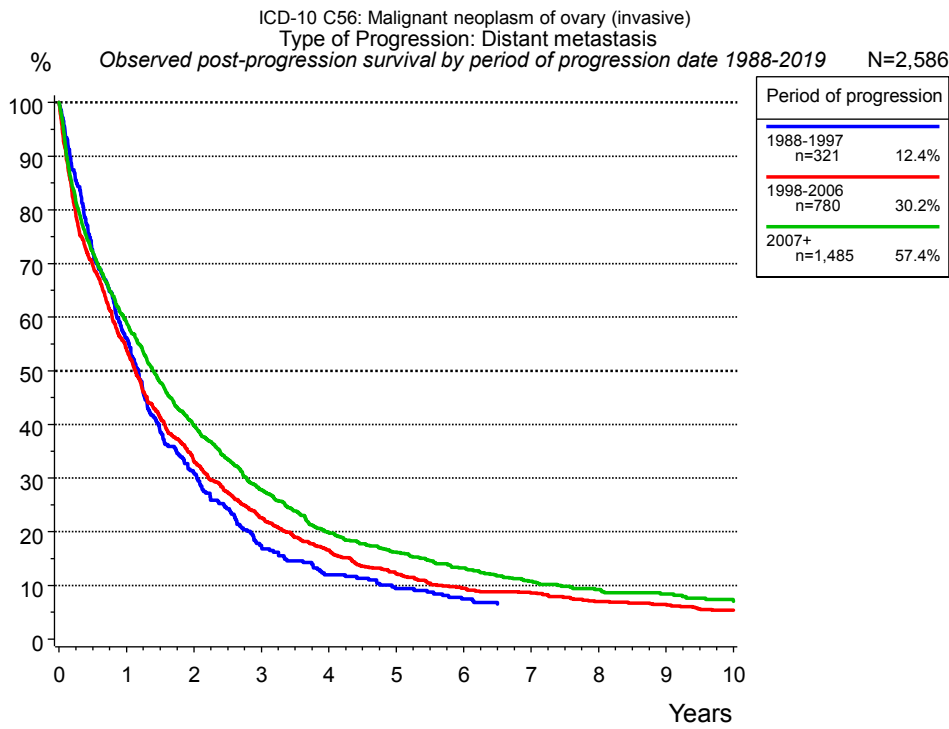


Figure 5e. Observed post-progression (distant metastasis) survival of 2,586 patients with ovarian cancer diagnosed between 1988 and 2019 by period of progression.

Years	Period of progression		
	1988-1997 n=321 %	1998-2006 n=780 %	2007+ n=1,485 %
0	100.0	100.0	100.0
1	55.9	54.1	59.0
2	31.1	33.2	39.9
3	17.5	22.6	27.8
4	12.0	16.6	19.8
5	9.4	12.1	16.2
6	7.4	9.5	13.3
7	6.5	8.6	10.8
8		7.0	9.2
9		6.4	8.4
10		5.4	7.0

Table 5f. Observed post-progression (distant metastasis) survival of patients with ovarian cancer for period 1988-2019 by period of progression (N=2,586).

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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