Munich Cancer Registry

Munich Cancer Registry at Munich Cancer Center
Marchioninistr. 15
Munich, 81377
Germany

http://www.tumorregister-muenchen.de/en

Cancer statistics: Survival

C56: Ovarian cancer

Year of diagnosis	1988-2012
Patients	7,207
Diseases	7,209
Cases evaluated	4,057
Creation date	03/25/2014
Export date	02/12/2014
Population (females)	2.3 m

http://www.tumorregister-muenchen.de/en/facts/surv/surv_C56__E.pdf

C56: Malignant neoplasm of ovary (invasive)
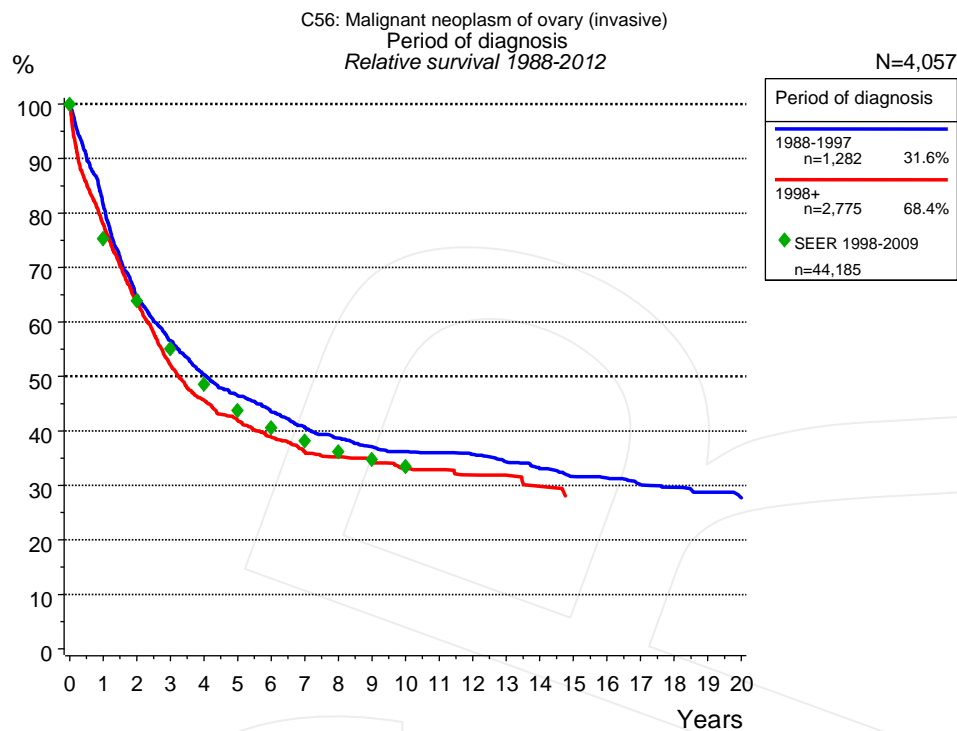Period of diagnosis
Relative survival 1988-2012

Figure 1a. Relative survival of patients with ovarian cancer by period of diagnosis. Included in the evaluation are 4,057 cases diagnosed between 1988 and 2012.

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 1998 to 2009, and are represented by green 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 1988, 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=1,282		1998+ n=2,775	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	79.9	81.3	76.2	77.9
2	62.8	64.9	61.4	63.8
3	54.0	56.6	49.4	52.1
4	47.3	50.3	42.6	45.6
5	43.1	46.5	38.6	41.9
6	39.7	43.5	35.3	38.9
7	36.6	40.6	32.4	36.1
8	34.3	38.7	31.1	35.2
9	32.4	37.1	30.0	34.5
10	31.3	36.2	28.3	33.1
11	30.7	36.0	27.6	32.9
12	29.8	35.7	26.3	31.9
13	28.2	34.3	25.6	31.9
14	26.8	33.1	23.9	29.8
15	25.3	31.6		
16	24.6	31.3		
17	23.4	30.1		
18	22.7	29.6		
19	21.7	28.7		
20	20.5	27.7		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with ovarian cancer by period of diagnosis for period 1988-2012 (N=4,057).

C56: Malignant neoplasm of ovary (invasive)
Total cohort
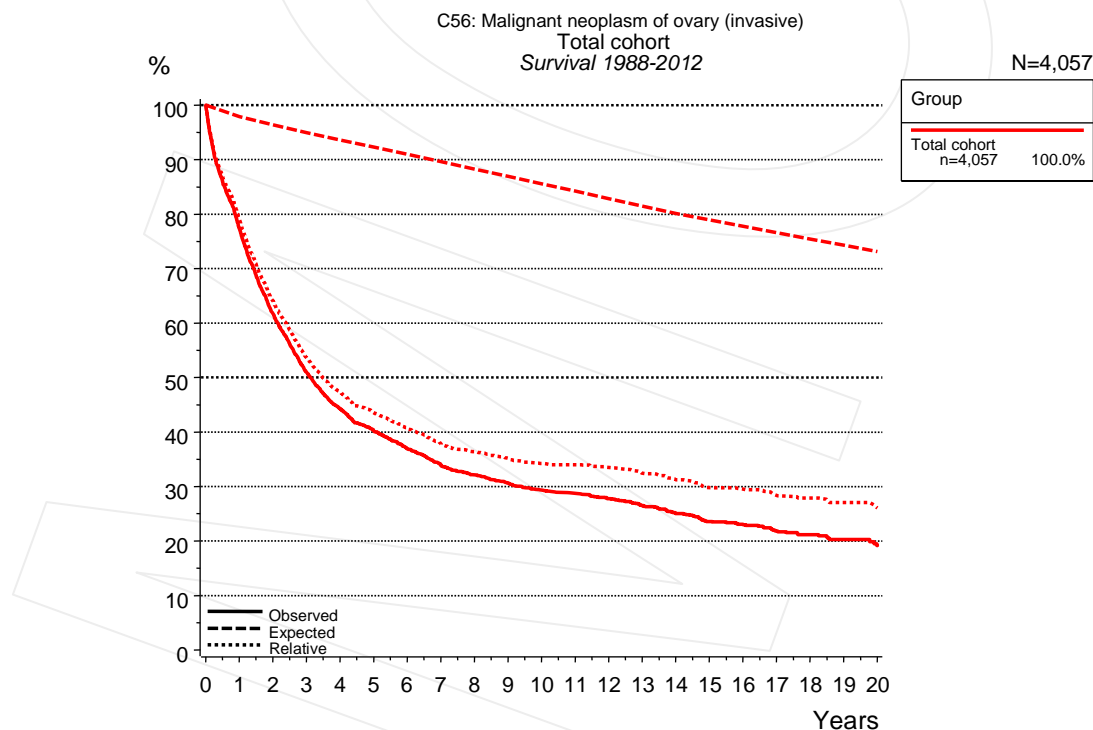*Survival 1988-2012*   N=4,057

Figure 2a. Observed, expected and relative survival of the total cohort with ovarian cancer. Included in the evaluation are 4,057 cases diagnosed between 1988 and 2012.

Group		
Total cohort n=4,057		
Years	obs. %	rel. %
0	100.0	100.0
1	77.4	79.0
2	61.8	64.1
3	51.0	53.7
4	44.3	47.3
5	40.2	43.6
6	36.9	40.6
7	33.9	37.8
8	32.1	36.4
9	30.6	35.2
10	29.3	34.2
11	28.7	34.0
12	27.8	33.5
13	26.5	32.5
14	25.0	31.2
15	23.6	29.8
16	23.0	29.5
17	21.8	28.4
18	21.2	27.9
19	20.2	27.1
20	19.1	26.1

Table 2b. Observed (obs.) and relative (rel.) survival of the total cohort with ovarian cancer for period 1988-2012 (N=4,057).
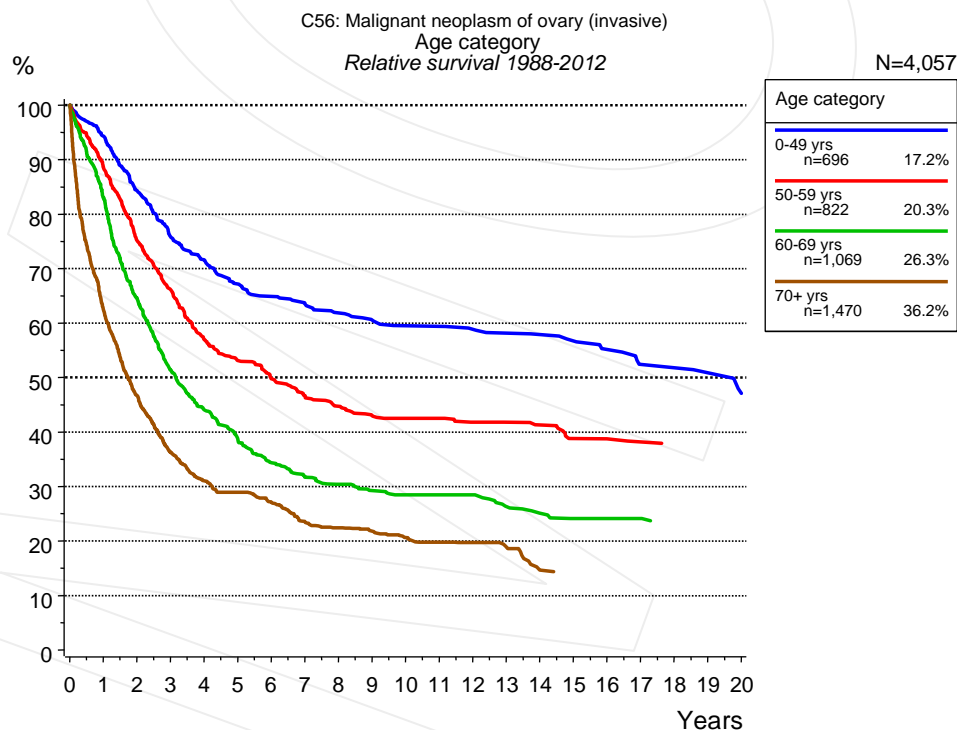

Figure 3a. Relative survival of patients with ovarian cancer by age category. Included in the evaluation are 4,057 cases diagnosed between 1988 and 2012.

C56: Malignant neoplasm of ovary (invasive)
Age category
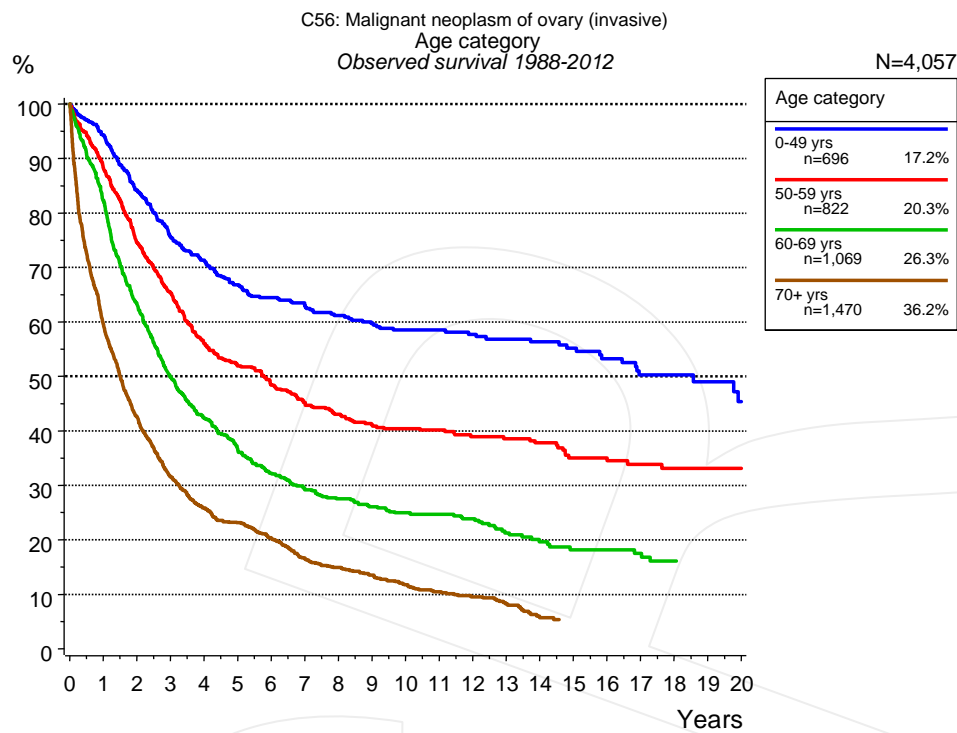*Observed survival 1988-2012*

Figure 3b. Observed survival of patients with ovarian cancer by age category. Included in the evaluation are 4,057 cases diagnosed between 1988 and 2012.

	0-49 yrs n=696		50-59 yrs n=822		60-69 yrs n=1,069		70+ yrs n=1,470	
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	94.3	94.3	88.4	88.6	82.3	83.0	59.5	62.5
2	84.3	84.3	74.6	75.2	63.3	64.5	42.6	46.7
3	75.7	75.9	65.4	66.1	49.9	51.4	31.7	36.3
4	71.4	71.6	56.0	57.0	42.3	44.1	25.8	31.0
5	66.8	67.2	51.9	53.1	36.6	38.6	23.1	29.0
6	64.5	64.9	48.4	49.8	32.2	34.4	20.3	27.1
7	63.0	63.6	45.2	46.7	29.2	31.7	16.5	23.4
8	61.2	61.9	43.1	44.7	27.5	30.4	14.9	22.5
9	59.7	60.6	41.1	43.0	26.1	29.3	13.5	21.8
10	58.5	59.5	40.4	42.5	24.9	28.4	11.7	20.7
11	58.5	59.4	40.2	42.5	24.7	28.4	10.5	19.8
12	57.7	58.9	38.9	41.8	23.8	28.4	9.5	19.7
13	56.9	58.2	38.6	41.8	21.3	26.3	8.2	18.9
14	56.3	57.9	37.8	41.3	19.6	25.1	5.7	14.6
15	55.2	56.7	35.1	38.8	18.1	24.1		
16	53.3	55.1	34.5	38.7	18.1	24.1		
17	50.3	52.4	33.9	38.2	17.5	24.1		
18	50.3	51.8	33.1	37.9	16.1	23.2		
19	49.0	50.9	33.1	37.8				
20	45.4	47.1	33.1	37.7				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with ovarian cancer by age category for period 1988-2012 (N=4,057).

C56: Malignant neoplasm of ovary (invasive)
FIGO
Relative survival 1988-2012   N=3,628
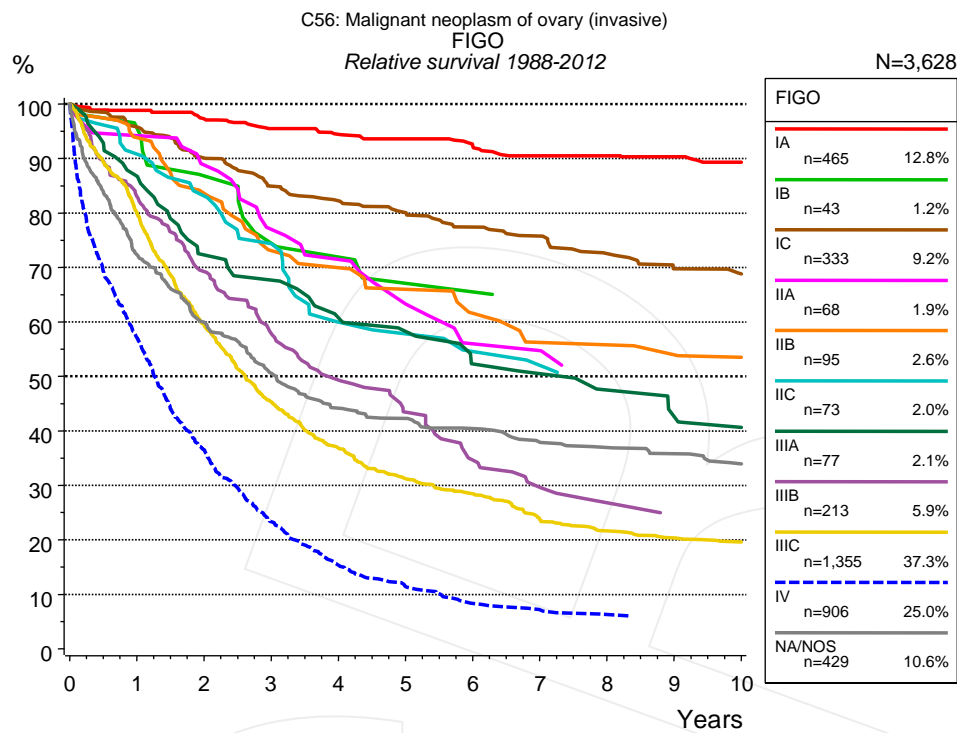

Figure 4a. Relative survival of patients with ovarian cancer by FIGO. For 3,778 of 4,057 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 3,628 cases an evaluable classification was established. The grey line represents the subgroup of 429 patients with missing values regarding FIGO (10.6% of 4,057 patients, the percent values of all other categories are related to n=3,628).

	FIGO													
	IA		IB		IC		IIA		IIB		IIC		IIIA	
	n=465		n=43		n=333		n=68		n=95		n=73		n=77	
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	97.8	98.8	94.9	95.6	94.5	95.8	92.6	94.2	92.2	93.8	90.3	90.8	86.8	86.7
2	94.8	97.3	84.3	86.8	87.6	90.1	85.9	88.8	81.4	83.6	81.6	83.1	70.5	72.3
3	91.9	95.5	73.2	74.4	81.3	84.9	73.4	77.0	69.7	73.1	72.3	74.4	66.1	67.6
4	89.8	94.4	70.4	71.9	77.9	82.2	67.8	71.4	66.8	70.0	56.3	60.0	58.2	60.8
5	88.1	93.6	64.0	67.1	75.0	80.1	57.8	63.3	61.5	66.0	54.5	57.8	55.0	58.2
6	85.2	92.2	64.0	65.5	71.5	77.4	50.5	56.0	55.9	61.6	50.3	54.6	48.0	52.3
7	82.6	90.5	60.2	62.3	69.1	75.7	50.5	54.7	50.2	56.2	48.1	52.0	46.1	50.5
8	81.8	90.5			65.1	72.5	45.2	50.6	50.2	55.8	45.8	50.3	42.2	47.5
9	79.9	90.3			61.6	69.7			48.1	53.9	45.8	49.6	38.0	42.5
10	77.8	89.3			60.2	68.8			45.9	53.5	45.8	49.0	35.9	40.6

cont'd	FIGO							
	IIIB n=213		IIIC n=1,355		IV n=906		NA/NOS n=429	
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	81.6	83.0	78.8	80.0	55.4	57.1	70.2	72.3
2	67.3	69.2	57.6	59.4	35.0	36.6	56.8	59.9
3	55.6	57.8	43.4	45.3	22.0	23.3	47.2	50.6
4	47.6	49.3	34.6	36.8	14.4	15.4	40.5	44.2
5	40.4	43.4	29.0	31.2	10.5	11.4	38.2	42.3
6	32.2	34.6	26.1	28.4	7.5	8.3	35.8	40.4
7	27.8	29.7	21.3	23.7	6.4	7.1	33.1	37.9
8	24.8	26.8	19.3	21.7	5.6	6.3	31.7	36.9
9	22.1	23.6	17.9	20.3	5.2	5.7	30.2	35.8
10			17.1	19.6			28.1	33.9

Table 4b. Observed (obs.) and relative (rel.) survival of patients with ovarian cancer by FIGO for period 1988-2012 (N=3,628).
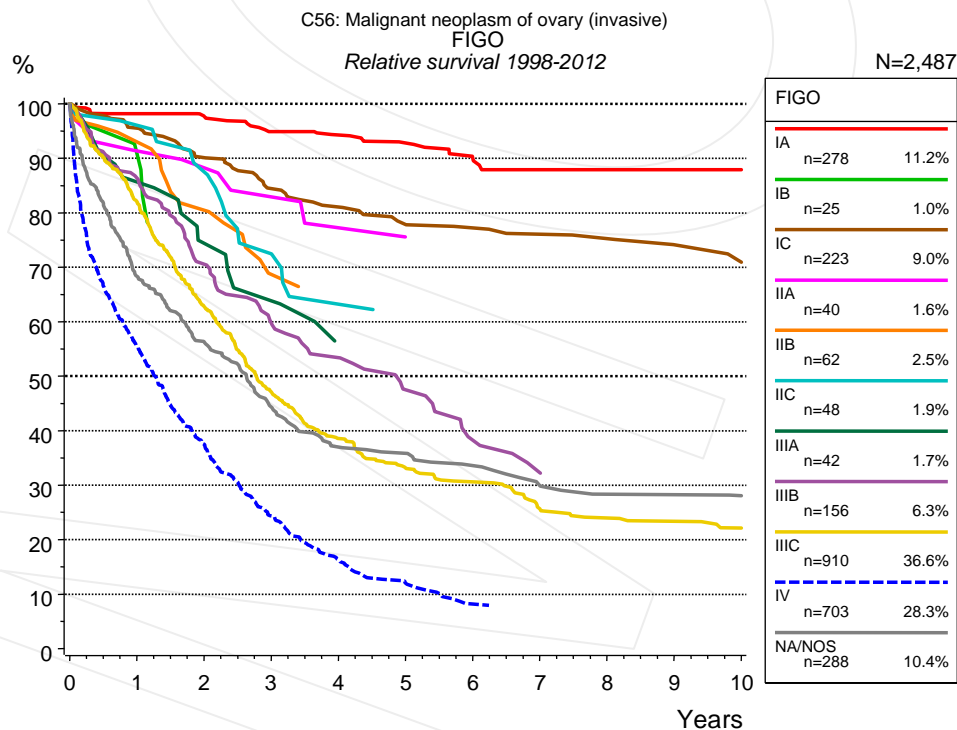

Figure 4c. Relative survival of patients with ovarian cancer by FIGO. For 2,576 of 2,775 cases diagnosed between 1998 and 2012 valid data could be obtained for this item. For a total of 2,487 cases an evaluable classification was established. The grey line represents the subgroup of 288 patients with missing values regarding FIGO (10.4% of 2,775 patients, the percent values of all other categories are related to n=2,487).

	FIGO												
	IA n=278		IB n=25		IC n=223		IIA n=40		IIB n=62		IIC n=48		IIIA n=42	
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	97.5	98.2	91.0	90.8	94.5	95.5	89.9	91.4	91.4	93.0	95.8	96.1	85.6	85.6
2	95.4	97.7	76.7	75.7	87.9	90.1	86.9	88.3	79.3	80.5	86.7	87.5	73.1	74.4
3	91.4	94.9			81.0	84.4	80.2	82.9	65.6	68.7	71.5	72.5	64.2	63.8
4	89.9	94.3			77.2	81.1	72.5	77.2	62.7	66.3	61.3	63.2	53.8	54.8
5	87.6	92.8			73.5	77.9	68.0	75.5	62.7	66.1	58.1	61.0		
6	84.0	89.9			71.9	77.2			62.7	66.0				
7	81.5	87.9			70.0	76.1			62.7	65.8				
8	81.5	87.9			68.8	75.3			62.7	65.6				
9	80.0	87.9			65.9	74.1								
10	78.2	87.9			63.6	70.9								

	FIGO							
cont'd	IIIB n=156		IIIC n=910		IV n=703		NA/NOS n=288	
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	85.2	86.4	80.8	82.1	53.9	55.4	66.0	68.3
2	68.8	70.6	60.8	62.7	35.8	37.5	52.9	56.3
3	57.6	59.7	45.1	47.1	22.8	24.3	41.0	44.3
4	51.2	53.4	36.3	38.6	15.2	16.3	33.5	37.0
5	44.3	47.5	30.9	33.2	11.0	12.0	32.1	35.8
6	35.7	38.3	28.2	30.6	7.4	8.2	29.3	33.6
7	31.0	32.3	23.0	25.6			26.0	29.8
8	29.1	30.4	21.4	24.0			23.7	28.3
9			20.6	23.4			23.7	28.3
10			19.0	22.1			22.5	28.1

Table 4d. Observed (obs.) and relative (rel.) survival of patients with ovarian cancer by FIGO for period 1998-2012 (N=2,487).

C56: Malignant neoplasm of ovary (invasive)
Extent of disease
Conditional relative 5 year survival 1988-2012   N=2,656
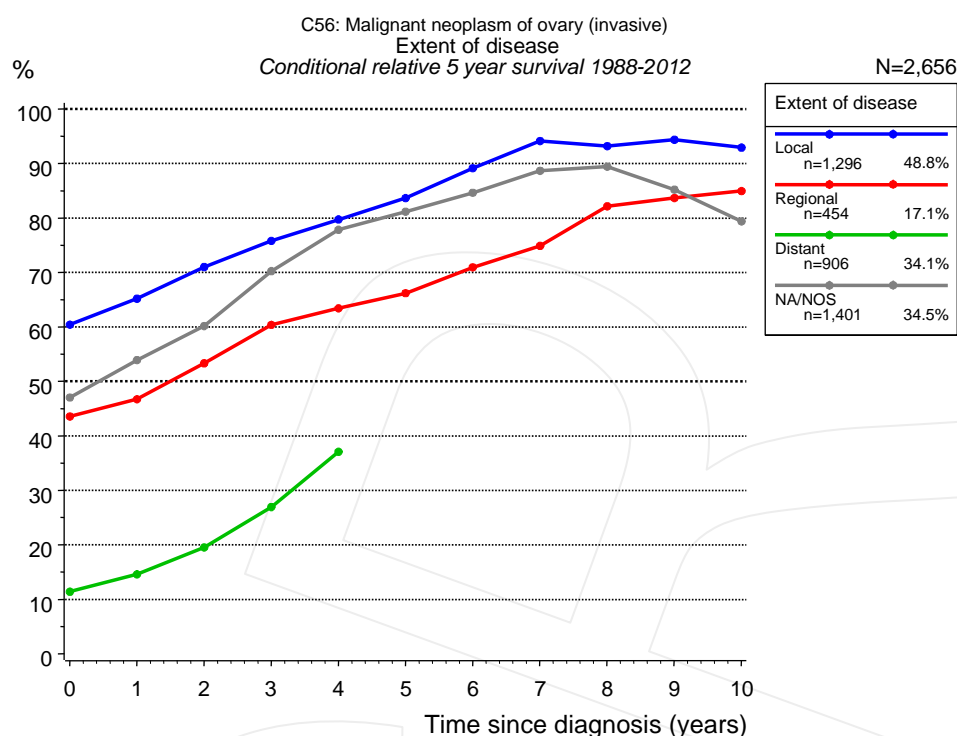
Figure 4e. Conditional relative 5-year survival of patients with ovarian cancer by extent of disease. For 3,778 of 4,057 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 2,656 cases an evaluable classification was established. The grey line represents the subgroup of 1,401 patients with missing values regarding extent of disease (34.5% of 4,057 patients, the percent values of all other categories are related to n=2,656).

	Extent of disease							
	Local		Regional		Distant		NA/NOS	
		Cond. surv. %		Cond. surv. %		Cond. surv. %		Cond. surv. %
Years	n	5 yrs	n	5 yrs	n	5 yrs	n	5 yrs
0	1,296	60.4	454	43.6	906	11.4	1,401	47.1
1	1,053	65.2	362	46.7	475	14.6	1,083	53.9
2	854	71.0	249	53.3	263	19.5	833	60.2
3	727	75.8	172	60.4	150	27.0	635	70.3
4	617	79.7	140	63.4	87	37.1	484	77.8
5	539	83.7	112	66.2			397	81.2
6	456	89.1	95	70.9			331	84.6
7	405	94.1	79	74.9			274	88.7
8	356	93.2	68	82.2			236	89.4
9	316	94.4	60	83.7			202	85.2
10	286	92.9	51	85.0			167	79.4

Table 4f. Conditional relative 5-year survival of patients with ovarian cancer by extent of disease for period 1988-2012 (N=2,656).

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 4c). 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 75.8% (n=727).
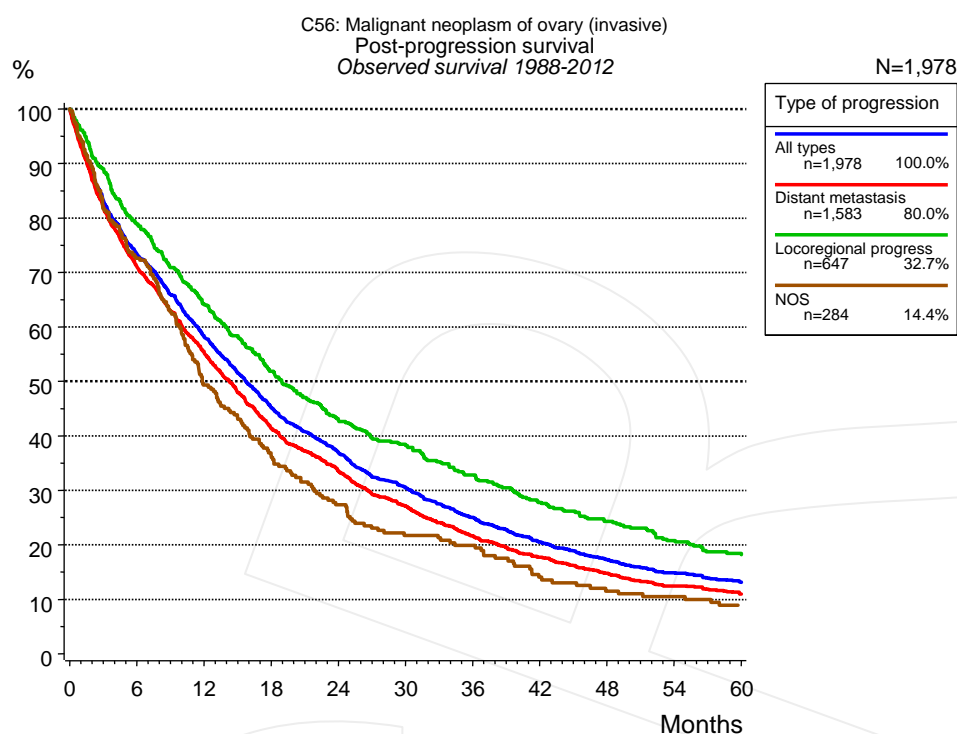
C56: Malignant neoplasm of ovary (invasive)
Post-progression survival
Observed survival 1988-2012

N=1,978

Type of progression

All types
n=1,978   100.0%

Distant metastasis
n=1,583   80.0%

Locoregional progress
n=647   32.7%

NOS
n=284   14.4%

Figure 5a. Observed post-progression survival of 1,978 patients with ovarian cancer diagnosed between 1988 and 2012 (incl. M1). These 1,978 patients with documented progression events during their course of disease represent 48.8% of the totally 4,057 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=494, 12.2%). 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.

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 "All types" 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			
	All types	Distant metastasis	Locoregional progress	NOS
	n=1,978	n=1,583	n=647	n=284
Months	%	%	%	%
0	100.0	100.0	100.0	100.0
12	58.2	55.3	64.2	49.3
24	37.0	33.6	43.0	27.3
36	25.0	21.7	32.8	19.9
48	17.3	14.8	24.3	11.5
60	13.1	11.0	18.2	8.9

Table 5b. Observed post-progression survival of patients with ovarian cancer for period 1988-2012 (N=1,978).

Shortcuts

AS	Assembled survival chart (observed, expected, relative)
CS	Conditional survival
DCO	Death certificate only. The death certificate provides the only notification to the registry.
MCR	Munich Cancer Registry, Germany (Tumorregister München)
NA	Not available
NCI	National Cancer Institute, USA
NOS	Not otherwise specified
OS	Observed/overall survival (Kaplan-Meier estimate)
PPS	Post-progression survival
RS	Relative Survival. Ratio of observed and expected survival (derived from the normal population)
SEER	Surveillance, Epidemiology, and End Results, USA
TTP	Time to progression
	Date of entry: Date of diagnosis
	Event (Progression): First local recurrence, lymph node relapse or distant metastasis, unspecified recurrence
	First all-cause recurrence is illustrated by survival curves (Kaplan-Meier estimate).
	First local recurrence, lymph node relapse or distant metastasis are depicted cumulatively, where applicable ("reverse" Kaplan-Meier estimate).
UICC	Union for International Cancer Control, Geneva

Recommended Citation

Copyright

Disclaimer

Index of figures and tables