Munich Cancer Registry

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- *Deutsch*

ICD-10 C90.0: Multiple myeloma

Survival

Year of diagnosis	1998-2020
Patients	2,761
Diseases	2,761
Cases evaluated	2,108
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/sC900_E-ICD-10-C90.0-Multiple-myeloma-survival.pdf

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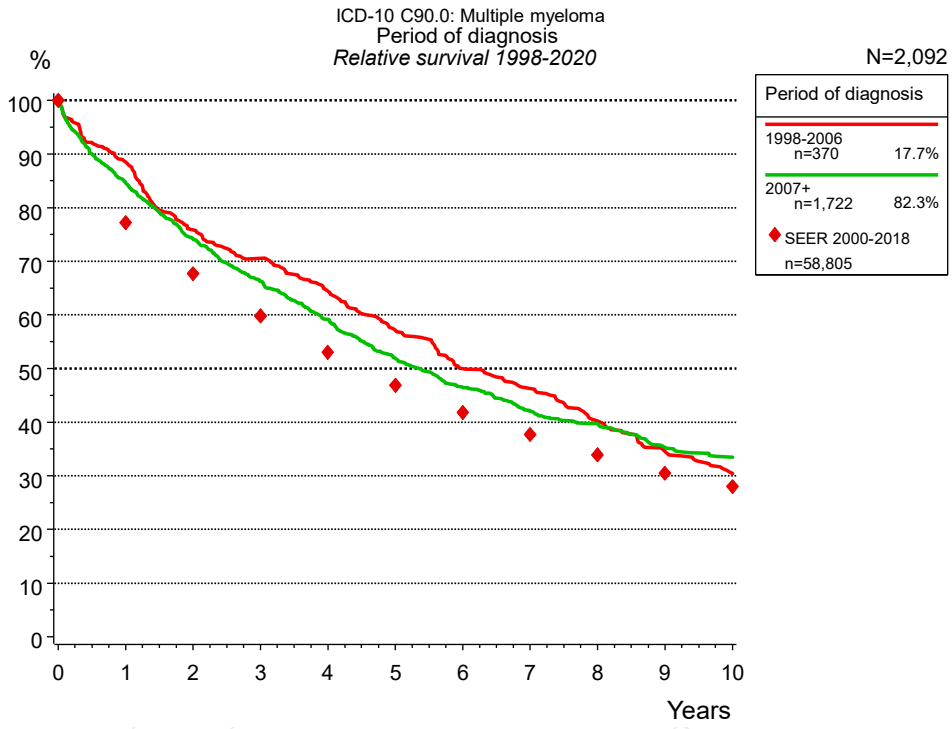

Figure 1a. Relative survival of patients with multiple myeloma by period of diagnosis. Included in the evaluation are 2,092 cases diagnosed between 1998 and 2020.

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			
	1998-2006 n=370		2007+ n=1,722	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	86.7	88.5	82.5	84.6
2	72.5	75.8	70.8	74.2
3	66.1	70.5	61.7	66.2
4	58.9	64.4	53.9	59.1
5	51.1	57.1	46.3	51.9
6	43.8	50.0	40.6	46.5
7	39.7	46.3	35.8	42.0
8	34.1	40.2	33.2	39.7
9	28.8	34.5	28.8	35.3
10	24.6	30.5	26.6	33.4
Median	5.1		4.5	

Table 1b. Observed (obs.) and relative (rel.) survival of patients with multiple myeloma by period of diagnosis for period 1998-2020 (N=2,092).

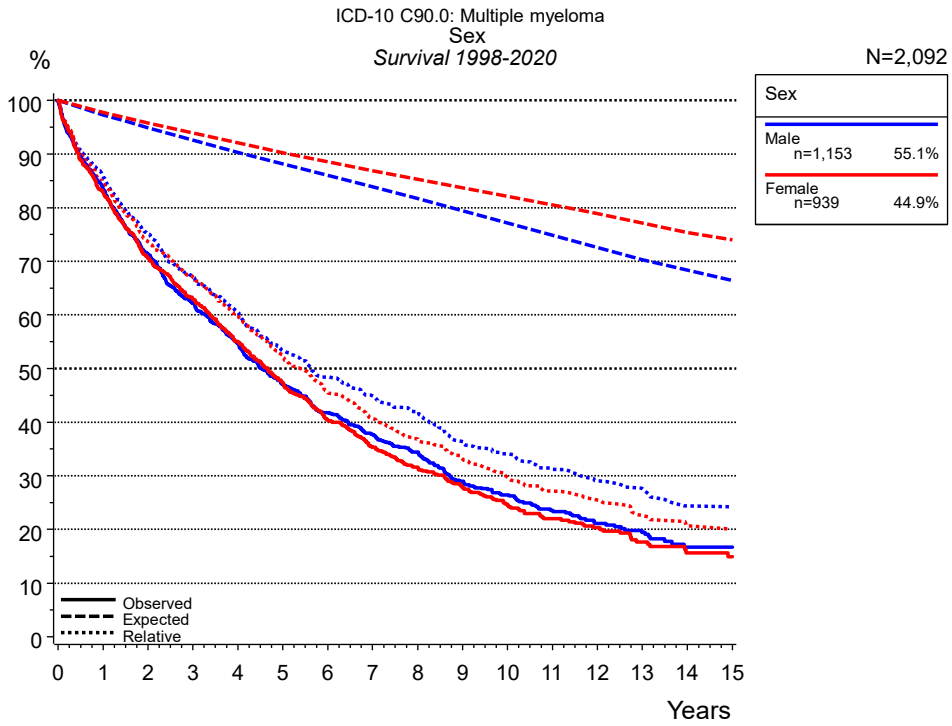

Figure 2a. Survival of patients with multiple myeloma by sex. Included in the evaluation are 2,092 cases diagnosed between 1998 and 2020.

	Sex			
	Male n=1,153		Female n=939	
Years	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	83.4	85.7	83.0	84.8
2	71.4	75.2	70.6	73.6
3	62.2	67.1	62.9	66.9
4	54.7	60.5	55.0	59.7
5	47.0	53.3	47.4	52.4
6	41.8	48.5	40.4	45.5
7	37.7	44.9	35.3	40.6
8	34.4	42.0	31.6	36.9
9	29.0	36.4	27.9	33.1
10	26.4	34.1	24.7	29.8
11	23.6	31.3	22.0	27.2
12	21.2	29.1	20.3	25.5
13	19.5	27.6	17.6	22.6
14	16.7	24.4	15.6	20.7
15	16.7	24.2	14.9	20.1
Median	4.5		4.7	

Table 2b. Observed (obs.) and relative (rel.) survival of patients with multiple myeloma by sex for period 1998-2020 (N=2,092).

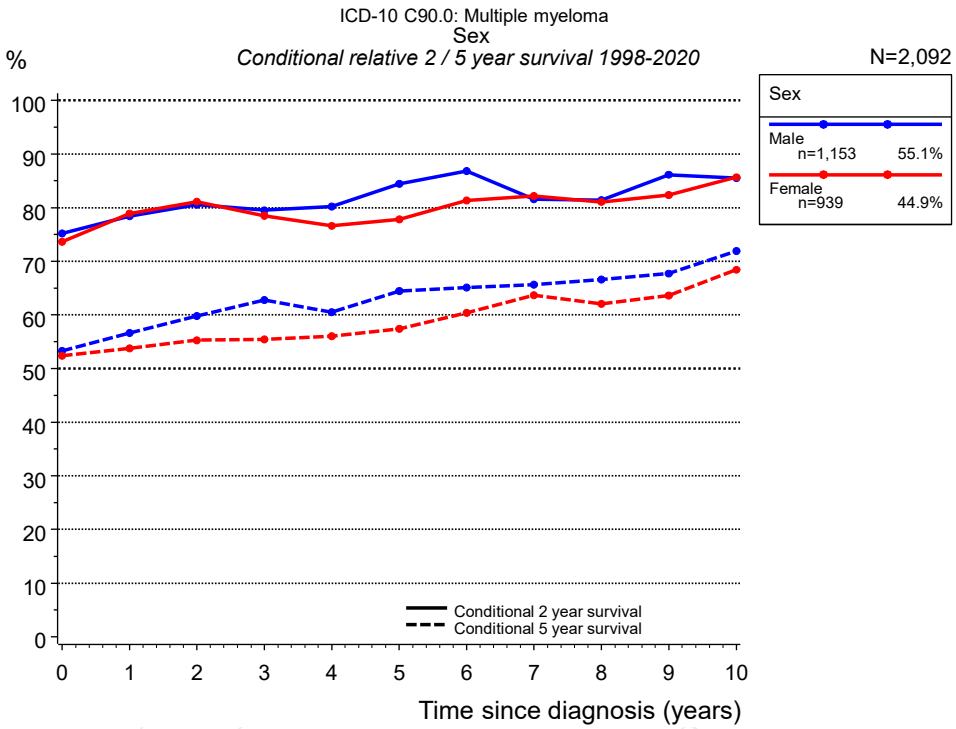

Figure 2c. Conditional relative 2 / 5-year survival of patients with multiple myeloma by sex. For 2,092 of 2,092 cases diagnosed between 1998 and 2020 valid data could be obtained for this item.

	Sex					
	Male			Female		
		Cond. surv. %			Cond. surv. %	
Years	n	2 yrs	5 yrs	n	2 yrs	5 yrs
0	1,153	75.2	53.3	939	73.6	52.4
1	939	78.4	56.6	763	78.9	53.8
2	768	80.6	59.8	618	81.1	55.3
3	638	79.5	62.8	532	78.5	55.5
4	529	80.2	60.5	438	76.6	56.0
5	420	84.4	64.4	353	77.8	57.4
6	341	86.8	65.1	282	81.4	60.4
7	282	81.6	65.6	223	82.2	63.7
8	224	81.4	66.6	177	81.0	62.1
9	163	86.1	67.7	141	82.4	63.6
10	132	85.5	71.9	105	85.7	68.4

Table 2d. Conditional relative 2 / 5-year survival of patients with multiple myeloma by sex for period 1998-2020 (N=2,092).

Conditional relative survival rates refer to the relative survival probability, in this case for 2 and 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 2a). 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 sex=“Male”, who are alive at least 3 years after cancer diagnosis, the conditional relative 2-year survival rate is 79.5% (n=638).

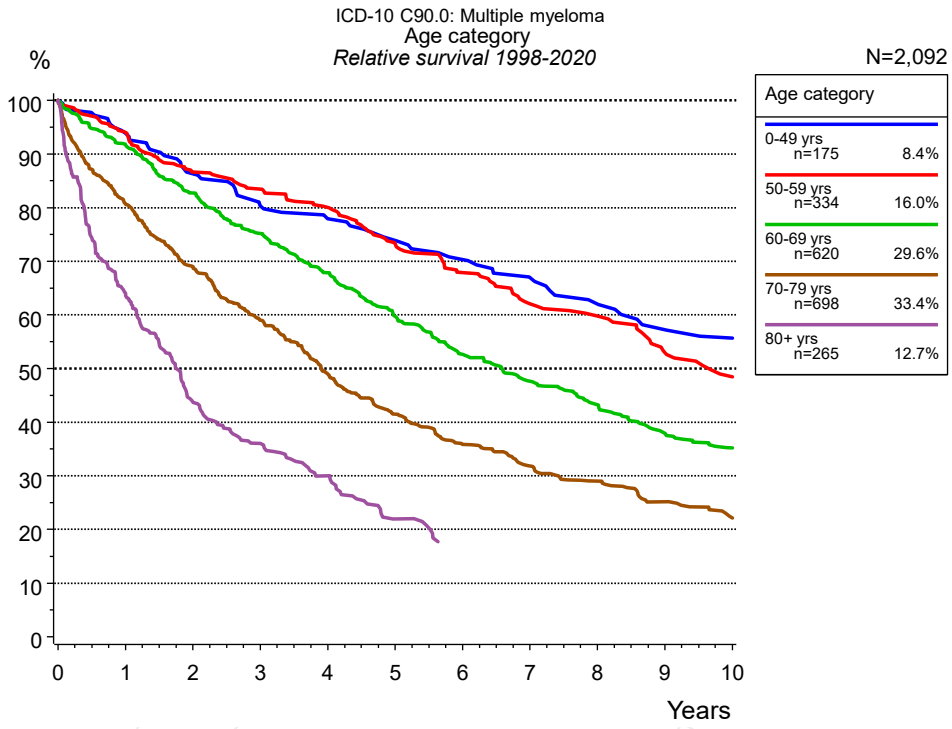

Figure 3a. Relative survival of patients with multiple myeloma by age category. Included in the evaluation are 2,092 cases diagnosed between 1998 and 2020.

	Age category									
	0-49 yrs n=175		50-59 yrs n=334		60-69 yrs n=620		70-79 yrs n=698		80+ yrs n=265	
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	94.2	93.8	93.6	94.0	90.7	91.7	78.3	80.7	58.7	63.9
2	86.3	86.3	85.7	86.6	80.7	82.7	65.0	69.0	37.0	43.7
3	79.9	80.4	82.3	83.4	72.3	75.2	53.6	59.0	27.9	36.1
4	77.2	77.9	78.4	80.0	64.2	67.8	42.9	49.0	21.0	30.0
5	73.7	73.9	71.2	73.3	55.5	59.7	35.0	41.5	13.4	22.0
6	69.9	70.4	65.4	67.9	48.2	52.6	28.8	35.8		
7	65.9	67.0	59.2	62.0	42.7	47.7	24.5	31.8		
8	61.6	62.0	57.1	59.8	38.3	43.2	21.2	29.0		
9	56.8	57.2	49.9	53.0	32.6	37.9	17.5	25.1		
10	54.5	55.7	45.4	48.5	29.4	35.2	14.5	22.1		
Median	11.9		9.0		5.8		3.4		1.4	

Table 3b. Observed (obs.) and relative (rel.) survival of patients with multiple myeloma by age category for period 1998-2020 (N=2,092).

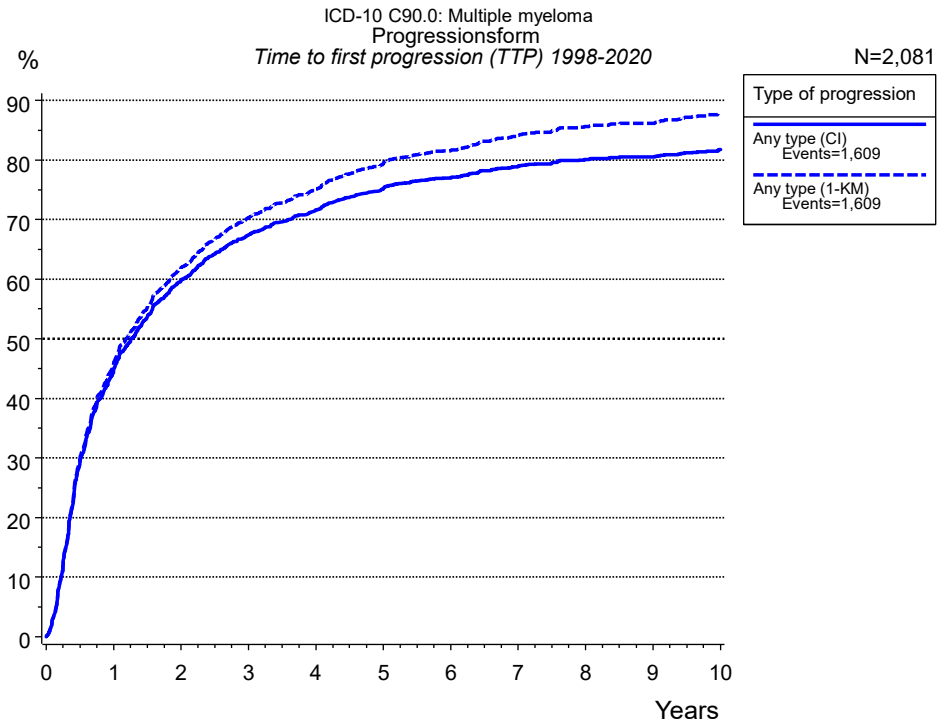

Figure 5a. Time to first progression of 2,081 patients with multiple myeloma diagnosed between 1998 and 2020 (in solid cancers M0 only) estimated by cumulative incidence function (CI, solid line) accounting for death as competing risk and by inverse Kaplan-Meier estimate (1-KM, dashed line). The frequency of events may be underestimated due to underreporting.

	Type of progression	
	Any type (CI)	Any type (1-KM)
N	2,081	2,081
Events	1,598	1,598
compet.	184	
Years	%	%
0	0.0	0.0
1	44.9	46.0
2	59.7	61.7
3	67.4	70.2
4	71.5	75.0
5	75.2	79.4
6	77.0	81.5
7	78.9	84.1
8	80.1	85.6
9	80.5	86.1
10	81.7	87.9

Table 5b. Time to first progression of patients with multiple myeloma for period 1998-2020 (N=2,081), also showing the total of progression events (Events) and of deaths as competing risk (compet.).

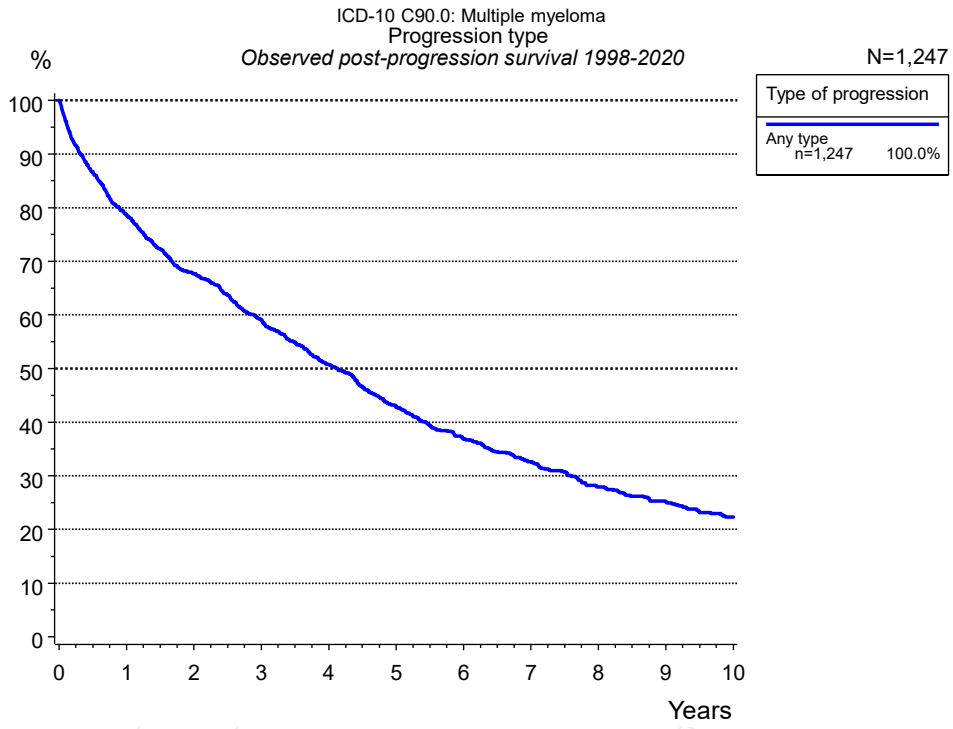

Figure 5c. Observed post-progression survival of 1,247 patients with multiple myeloma diagnosed between 1998 and 2020. These 1,247 patients with documented progression events during their course of disease represent 59.9 % of the totally 2,082 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=363, 17.4 %).

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	
	Any type n=1,247
Years	%
0	100.0
1	78.7
2	67.7
3	59.1
4	50.8
5	42.7
6	37.0
7	32.6
8	28.0
9	25.1
10	22.3

Table 5d. Observed post-progression survival of patients with multiple myeloma for period 1998-2020 (N=1,247).

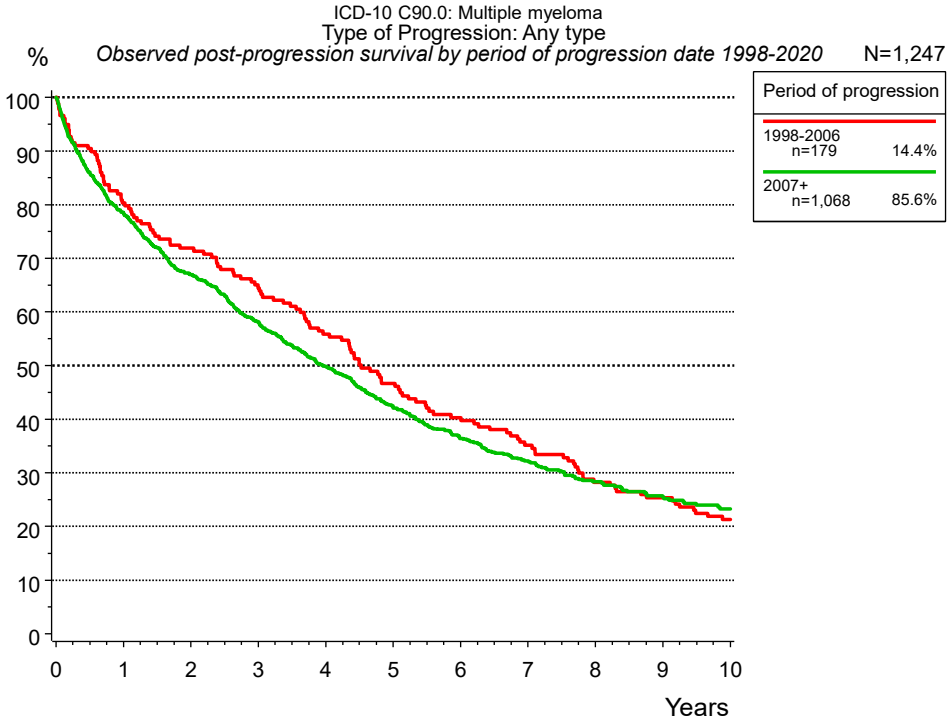

Figure 5e. Observed post-progression (any type) survival of 1,247 patients with multiple myeloma diagnosed between 1998 and 2020 by period of progression.

	Period of progression	
	1998-2006 n=179	2007+ n=1,068
Years	%	%
0	100.0	100.0
1	80.3	78.4
2	71.9	66.9
3	64.5	58.1
4	55.9	49.9
5	46.6	42.1
6	40.3	36.4
7	35.1	32.2
8	28.2	28.3
9	25.3	25.4
10	21.3	23.3

Table 5f. Observed post-progression (any type) survival of patients with multiple myeloma for period 1998-2020 by period of progression (N=1,247).

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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