

Munich Cancer Registry



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

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

Cancer statistics: Survival

C61: Prostate cancer

Year of diagnosis	1988-2012
Patients	47,835
Diseases	47,837
Cases evaluated	27,648
Creation date	03/25/2014
Export date	02/12/2014
Population (males)	2.2 m



http://www.tumorregister-muenchen.de/en/facts/surv/surv_C61__E.pdf

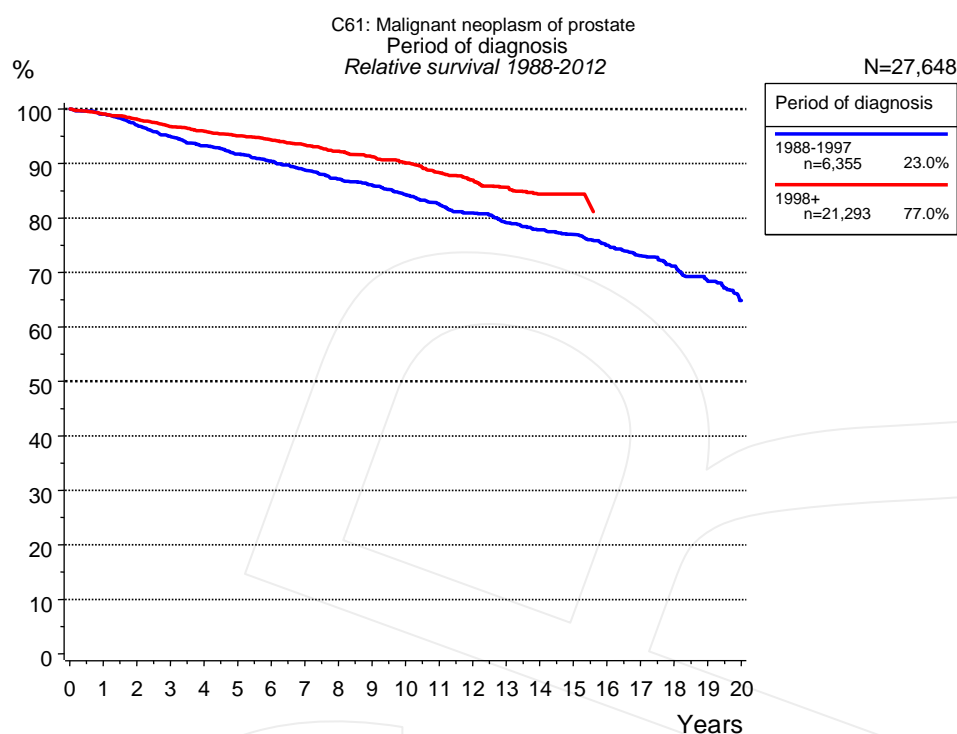


Figure 1a. Relative survival of patients with prostate cancer by period of diagnosis. Included in the evaluation are 27,648 cases diagnosed between 1988 and 2012.

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.

Years	Period of diagnosis			
	1988-1997 n=6,355		1998+ n=21,293	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	94.3	99.0	95.7	99.1
2	88.0	97.0	91.6	98.1
3	82.0	95.0	87.4	96.8
4	76.7	93.3	83.5	95.9
5	71.8	91.7	79.9	95.1
6	67.4	90.4	76.3	94.3
7	62.9	88.8	72.7	93.4
8	58.8	87.1	69.0	92.3
9	55.1	86.0	65.4	91.2
10	51.3	84.2	61.9	90.1
11	47.7	82.6	58.0	88.3
12	44.3	80.9	54.5	87.0
13	40.9	79.1	51.2	85.6
14	38.0	77.8	47.8	84.4
15	35.4	76.9	46.1	84.4
16	32.3	75.0		
17	29.4	73.0		
18	26.8	71.2		
19	23.9	68.4		
20	21.0	64.8		

Table 1b. Observed (obs.) and relative (rel.) survival of patients with prostate cancer by period of diagnosis for period 1988-2012 (N=27,648).

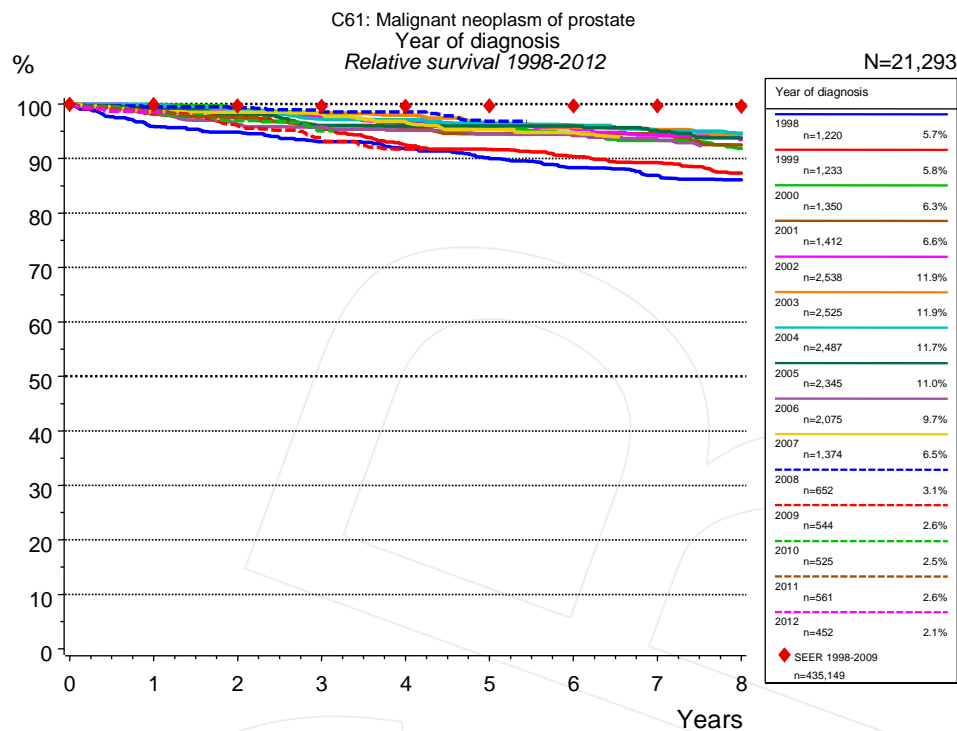


Figure 1c. Relative survival of patients with prostate cancer by year of diagnosis. Included in the evaluation are 21,293 cases diagnosed between 1998 and 2012.

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 red diamonds in order to facilitate comparisons between MCR and SEER.

Years	Year of diagnosis													
	1998		1999		2000		2001		2002		2003		2004	
	n=1,220		n=1,233		n=1,350		n=1,412		n=2,538		n=2,525		n=2,487	
	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	92.0	95.9	95.1	99.0	96.4	99.8	94.7	98.1	95.9	99.5	96.6	99.5	96.9	99.9
2	87.3	94.8	90.3	97.6	92.1	99.2	90.6	97.4	91.8	98.7	92.8	99.2	92.9	98.9
3	82.4	93.1	84.8	95.4	87.6	98.1	86.2	96.1	87.6	97.6	89.2	98.3	88.4	97.2
4	77.9	91.9	79.0	92.4	83.5	97.0	82.6	95.6	83.4	96.4	85.7	98.0	85.7	97.1
5	73.2	89.9	75.4	91.7	79.0	95.6	78.9	94.5	80.4	96.2	81.5	96.5	82.0	96.5
6	69.0	88.3	71.3	90.3	75.1	94.6	76.1	94.5	76.7	95.4	78.2	95.8	78.9	96.1
7	65.1	86.9	67.9	89.3	71.6	93.3	72.9	94.5	72.9	94.2	75.0	95.3	75.2	95.1
8	61.9	86.1	64.0	87.3	67.3	91.8	68.2	92.5	69.6	93.5	71.6	94.4	72.2	94.7

cont'd Years	Year of diagnosis													
	2005		2006		2007		2008		2009		2010		2011	
	n=2,345		n=2,075		n=1,374		n=652		n=544		n=525		n=561	
	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	96.1	99.3	95.0	98.1	95.4	98.6	96.9	99.5	95.6	98.3	95.8	98.5	96.3	98.6
2	92.0	98.1	90.3	96.3	92.8	98.5	93.9	99.3	90.6	96.0	91.6	96.9	92.7	97.6
3	87.2	96.0	87.2	95.7	89.2	98.1	90.3	98.5	86.0	93.8	87.0	95.0		
4	84.6	96.0	84.0	95.1	85.2	96.7	87.7	98.5	81.6	91.7				
5	82.3	96.0	80.6	94.5	81.7	95.3	83.3	96.8						
6	79.1	96.0	77.5	94.2	78.1	94.7								
7	75.2	95.1	74.0	93.4										
8	71.9	93.8												

Year of diagnosis		
<i>cont'd</i>		
2012		
n=452		
Years	obs. %	rel. %
0	100.0	100.0
1	96.2	98.5

Table 1d. Observed (obs.) and relative (rel.) survival of patients with prostate cancer by year of diagnosis for period 1998-2012 (N=21,293).

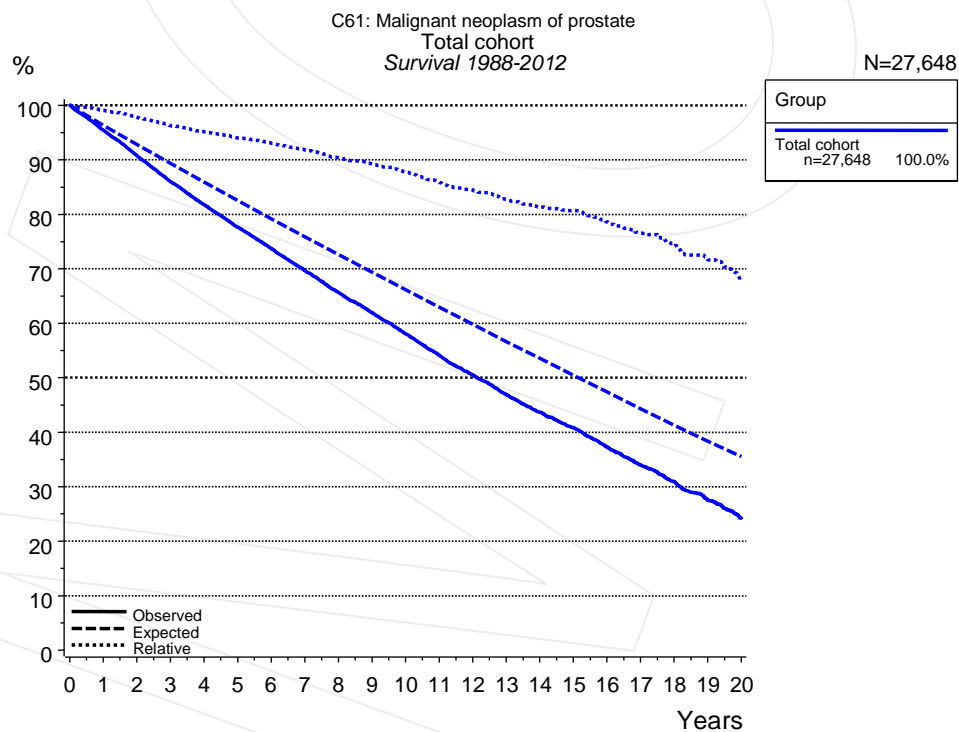


Figure 2a. Observed, expected and relative survival of the total cohort with prostate cancer. Included in the evaluation are 27,648 cases diagnosed between 1988 and 2012.

Years	Group	
	Total cohort n=27,648	
	obs. %	rel. %
0	100.0	100.0
1	95.4	99.1
2	90.7	97.8
3	86.0	96.3
4	81.7	95.1
5	77.6	94.0
6	73.7	93.0
7	69.7	91.8
8	65.7	90.4
9	61.9	89.3
10	58.0	87.7
11	54.2	86.0
12	50.5	84.5
13	46.9	82.7
14	43.6	81.3
15	40.8	80.7
16	37.3	78.6
17	33.9	76.6
18	31.0	74.6
19	27.6	71.7
20	24.2	68.0

Table 2b. Observed (obs.) and relative (rel.) survival of the total cohort with prostate cancer for period 1988-2012 (N=27,648).

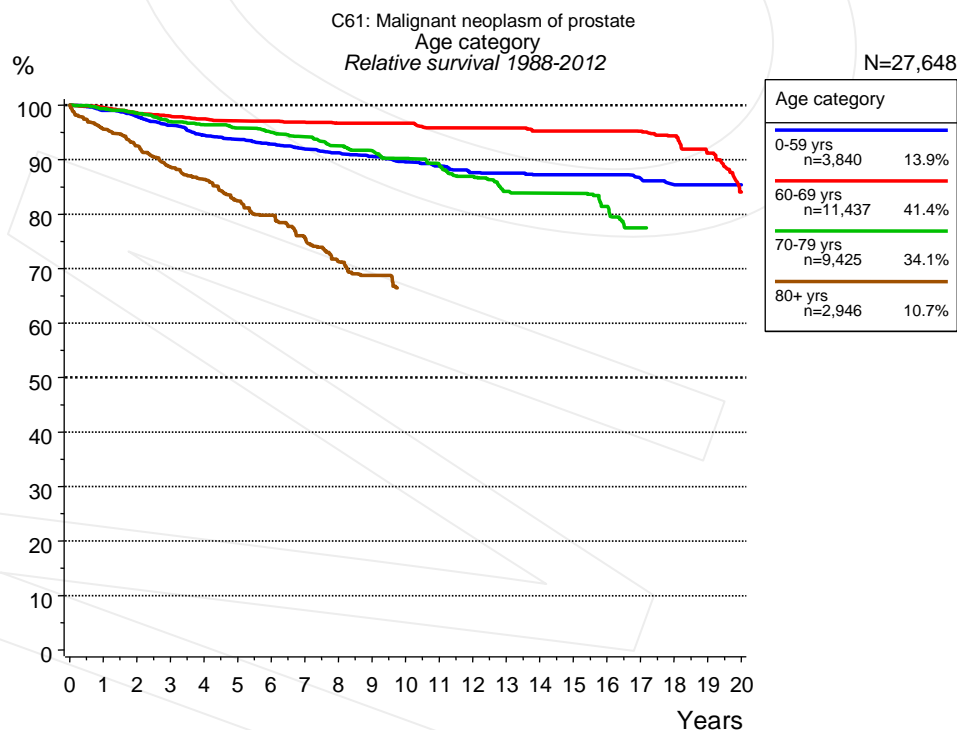


Figure 3a. Relative survival of patients with prostate cancer by age category. Included in the evaluation are 27,648 cases diagnosed between 1988 and 2012.

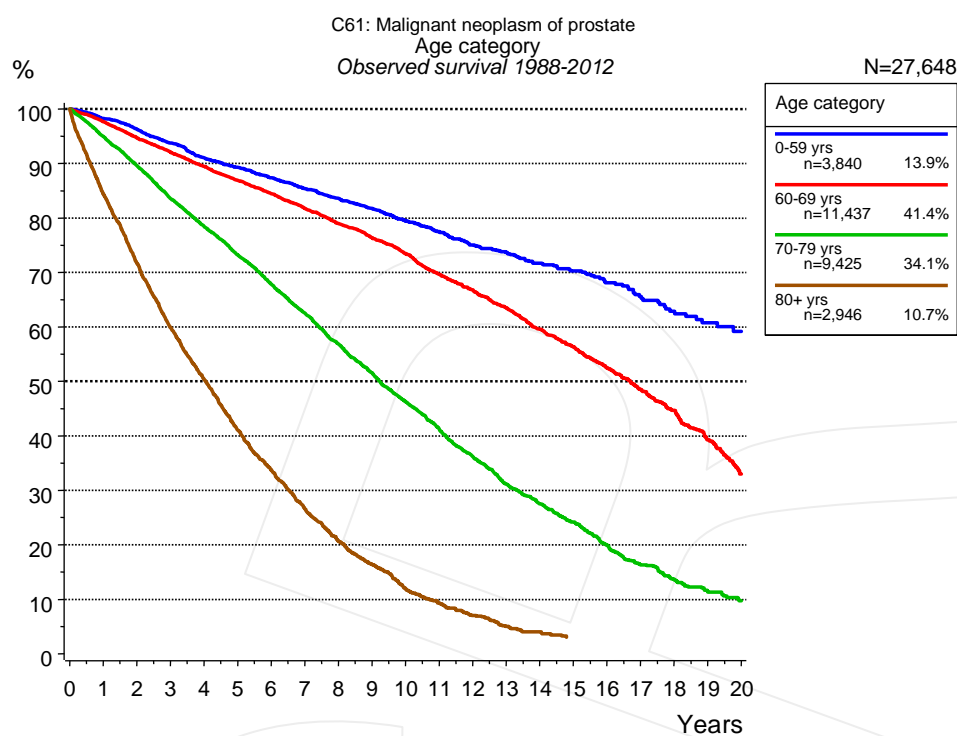


Figure 3b. Observed survival of patients with prostate cancer by age category. Included in the evaluation are 27,648 cases diagnosed between 1988 and 2012.

Years	Age category							
	0-59 yrs n=3,840		60-69 yrs n=11,437		70-79 yrs n=9,425		80+ yrs n=2,946	
	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	98.3	99.0	97.7	99.6	94.9	99.3	84.4	95.6
2	96.3	97.9	94.7	98.5	89.6	98.5	71.7	92.5
3	93.7	96.3	92.1	98.0	83.6	96.9	59.9	88.6
4	91.0	94.5	89.4	97.5	78.4	96.4	50.4	86.4
5	89.3	93.7	86.9	97.1	73.2	95.8	41.1	82.4
6	87.4	92.8	84.4	97.1	67.8	95.0	33.7	79.8
7	85.4	91.9	81.7	96.9	62.5	94.2	26.7	75.7
8	83.6	91.2	79.0	96.7	56.9	92.5	20.7	71.4
9	81.8	90.6	76.3	96.7	51.5	91.6	16.5	68.8
10	79.5	89.6	73.5	96.7	46.3	90.2		
11	77.5	88.9	69.6	95.8	41.3	89.1		
12	75.0	87.6	66.8	95.8	36.2	86.9		
13	73.7	87.5	63.5	95.8	31.1	84.1		
14	71.7	87.2	59.5	95.2	27.5	83.8		
15	70.3	87.2	56.3	95.2	24.2	83.8		
16	68.1	87.2	52.5	95.2	19.9	81.4		
17	65.6	86.5	48.5	95.2	16.3	77.5		
18	62.9	85.4	44.7	94.4				
19	60.8	85.4	39.3	91.2				
20	59.2	85.4	33.0	84.0				

Table 3c. Observed (obs.) and relative (rel.) survival of patients with prostate cancer by age category for period 1988-2012 (N=27,648).

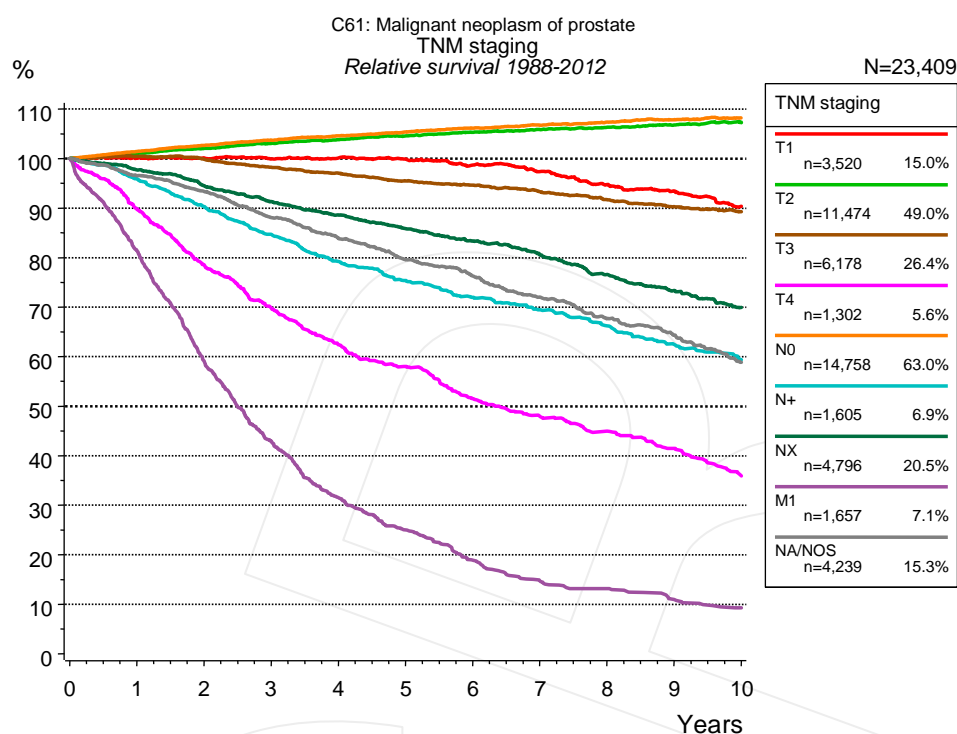


Figure 4a. Relative survival of patients with prostate cancer by TNM staging. For 23,481 of 27,648 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 23,409 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 4,239 patients with missing values regarding TNM staging (15.3% of 27,648 patients, the percent values of all other categories are related to n=23,409).

TNM staging															
Years	T1 n=3,520		T2 n=11,474		T3 n=6,178		T4 n=1,302		N0 n=14,758		N+ n=1,605		NX n=4,796		
	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	95.3	100.1	98.3	101.0	97.3	100.5	85.8	89.9	98.9	101.4	93.4	95.9	92.5	97.7	
2	90.8	100.1	96.6	102.0	93.7	99.9	71.6	78.5	97.5	102.6	85.5	90.3	84.8	94.5	
3	86.2	99.9	94.7	103.1	89.2	98.3	61.0	69.8	95.8	103.7	77.9	84.7	77.6	91.3	
4	82.0	100.1	92.5	103.8	85.1	97.0	52.0	62.4	93.8	104.6	70.8	79.2	71.2	88.6	
5	77.5	99.9	90.2	104.6	80.7	95.5	46.2	58.0	91.6	105.4	65.3	75.4	65.0	85.8	
6	72.5	98.7	87.8	105.3	77.0	94.6	39.2	51.5	89.2	106.1	60.3	71.9	59.4	83.3	
7	67.4	97.4	85.1	105.8	73.1	93.3	34.8	47.9	86.6	106.7	56.2	69.4	53.9	80.5	
8	61.8	94.7	82.5	106.3	68.9	91.7	31.2	45.0	84.0	107.3	51.6	66.2	48.3	76.6	
9	57.3	93.4	79.6	106.8	65.0	90.3	27.5	41.5	81.1	107.8	46.8	62.4	43.3	73.4	
10	52.1	90.4	76.7	107.3	61.5	89.3	22.6	35.9	78.0	108.1	42.7	59.4	38.7	69.9	

cont'd Years	TNM staging			
	M1 n=1,657		NA/NOS n=4,239	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	77.8	81.5	91.0	96.5
2	53.9	59.0	82.9	93.3
3	37.5	42.9	73.7	88.1
4	26.3	31.5	66.0	83.9
5	20.0	25.0	58.8	79.5
6	14.4	18.9	53.0	76.3
7	10.7	14.7	46.9	72.0
8	9.2	13.1	41.2	67.6
9	7.3	11.0	36.7	64.3
10	5.9	9.3	31.4	58.9

Table 4b. Observed (obs.) and relative (rel.) survival of patients with prostate cancer by TNM staging for period 1988-2012 (N=45,290).

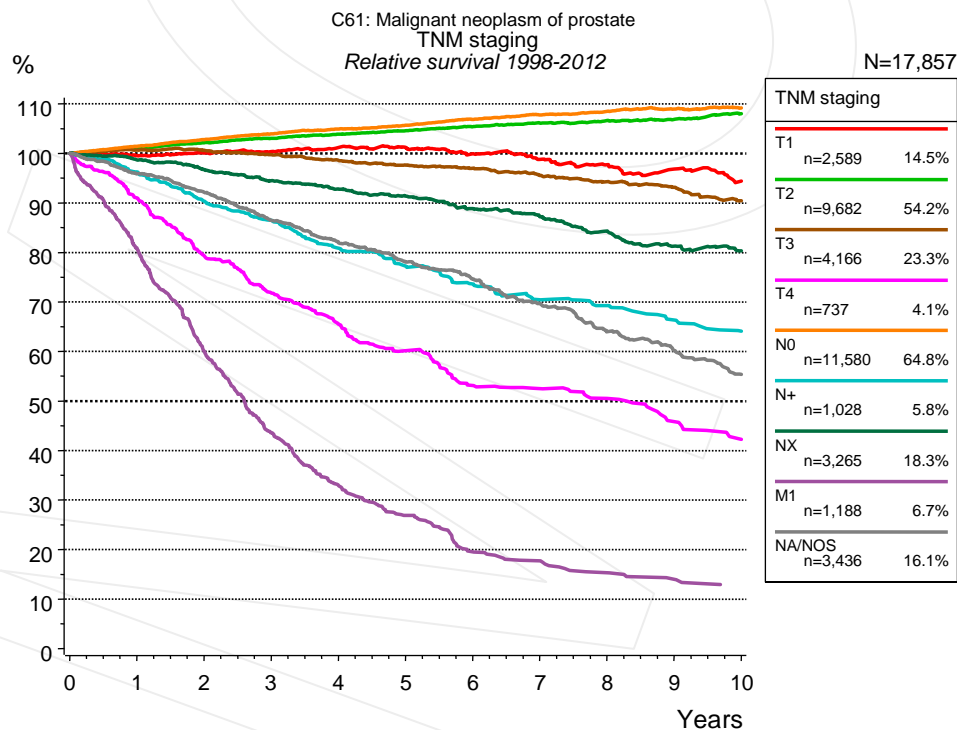


Figure 4c. Relative survival of patients with prostate cancer by TNM staging. For 17,918 of 21,293 cases diagnosed between 1998 and 2012 valid data could be obtained for this item. For a total of 17,857 cases an evaluable classification was established. The accumulated percentage exceeds the 100% value because patients are potentially considered in more than one subgroup. The grey line represents the subgroup of 3,436 patients with missing values regarding TNM staging (16.1% of 21,293 patients, the percent values of all other categories are related to n=17,857).

TNM staging														
	T1 n=2,589		T2 n=9,682		T3 n=4,166		T4 n=737		N0 n=11,580		N+ n=1,028		NX n=3,265	
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	95.2	99.5	98.6	101.1	98.0	100.7	87.8	91.0	99.2	101.4	94.1	96.2	94.3	98.7
2	91.6	100.1	97.0	102.2	95.3	100.6	73.8	79.3	98.1	102.8	86.1	90.3	88.5	96.7
3	87.8	100.3	95.2	103.0	91.8	99.7	64.6	71.8	96.7	103.9	80.4	86.5	82.5	94.4
4	84.5	101.2	93.3	103.8	88.1	98.6	56.7	65.4	95.1	104.9	73.4	80.9	77.3	92.8
5	80.4	101.2	91.1	104.6	84.6	97.6	50.2	60.1	93.1	105.7	68.2	77.2	72.4	91.4
6	75.5	99.9	88.9	105.4	81.4	97.0	43.0	53.1	91.4	106.8	63.2	73.6	66.9	88.8
7	70.7	98.8	86.6	106.1	77.5	95.5	41.0	52.5	89.3	107.7	58.7	70.4	62.4	87.2
8	66.1	97.7	84.1	106.6	73.8	94.3	37.8	50.5	86.9	108.5	55.9	69.2	57.3	84.3
9	61.7	96.9	81.2	106.8	70.2	93.2	33.2	45.8	84.3	109.0	51.8	66.3	52.3	81.2
10	56.7	94.4	78.9	108.0	65.5	90.4	29.1	42.2	81.3	109.2	48.1	64.1	48.9	80.3

TNM staging				
Years	M1 n=1,188		NA/NOS n=3,436	
	obs. %	rel. %	obs. %	rel. %
0	100.0	100.0	100.0	100.0
1	77.5	80.8	90.5	95.9
2	55.3	60.0	82.1	92.1
3	38.7	43.6	72.7	86.5
4	28.1	32.9	65.0	82.0
5	22.0	26.9	58.2	78.0
6	15.5	19.5	52.4	74.6
7	13.6	17.7	45.9	69.7
8	11.3	15.3	39.5	64.0
9	9.9	14.0	34.9	60.2
10	8.6	12.8	30.1	55.3

Table 4d. Observed (obs.) and relative (rel.) survival of patients with prostate cancer by TNM staging for period 1998-2012 (N=34,235).

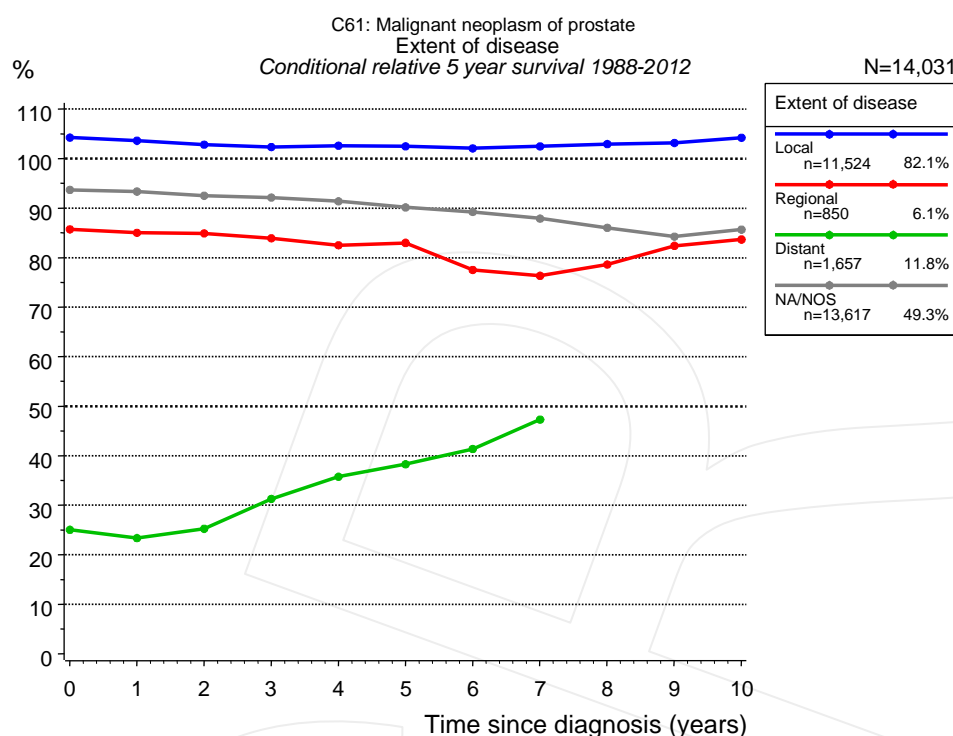


Figure 4e. Conditional relative 5-year survival of patients with prostate cancer by extent of disease. For 23,481 of 27,648 cases diagnosed between 1988 and 2012 valid data could be obtained for this item. For a total of 14,031 cases an evaluable classification was established. The grey line represents the subgroup of 13,617 patients with missing values regarding extent of disease (49.3% of 27,648 patients, the percent values of all other categories are related to n=14,031).

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	11,524	104.2	850	85.7	1,657	25.0	13,617	93.7
1	10,852	103.6	797	85.0	1,213	23.4	12,343	93.3
2	9,882	102.8	717	84.9	760	25.3	10,750	92.5
3	8,810	102.3	605	83.9	472	31.3	9,121	92.1
4	7,748	102.6	521	82.5	303	35.8	7,626	91.4
5	6,679	102.5	453	83.0	204	38.3	6,166	90.1
6	5,725	102.1	399	77.5	125	41.4	4,958	89.2
7	5,022	102.5	358	76.3	84	47.3	4,077	87.9
8	4,395	102.9	305	78.6			3,262	86.0
9	3,818	103.1	255	82.4			2,579	84.2
10	3,210	104.2	225	83.7			1,946	85.7

Table 4f. Conditional relative 5-year survival of patients with prostate cancer by extent of disease for period 1988-2012 (N=14,031).

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 102.3% (n=8,810).

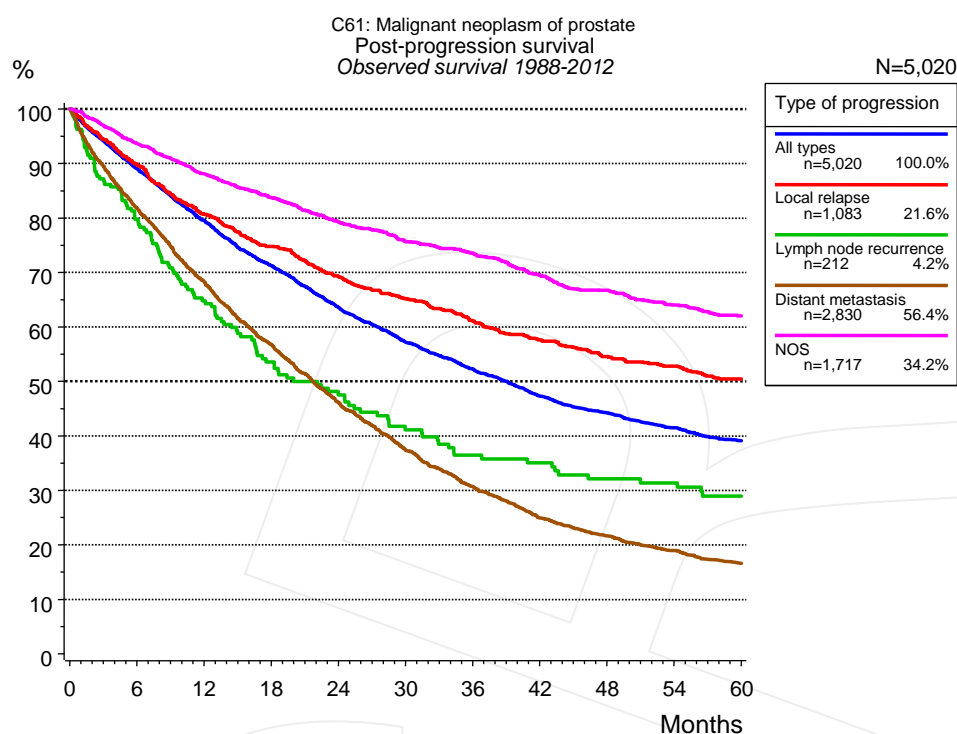


Figure 5a. Observed post-progression survival of 5,020 patients with prostate cancer diagnosed between 1988 and 2012 (incl. M1). These 5,020 patients with documented progression events during their course of disease represent 18.2% of the totally 27,648 evaluated cases. Patients with cancer relapse documented via death certificates only were excluded (n=910, 3.3%). 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 “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 potentially considered in more than one subgroup.

Months	Type of progression				
	All types n=5,020	Local relapse n=1,083	Lymph node recurrence n=212	Distant metastasis n=2,830	NOS n=1,717
	%	%	%	%	%
0	100.0	100.0	100.0	100.0	100.0
12	79.5	80.6	64.8	68.3	88.0
24	63.6	69.2	47.5	46.1	79.2
36	52.3	61.1	36.4	30.7	73.5
48	44.2	54.6	32.1	21.6	66.7
60	39.1	50.5	28.9	16.6	62.0

Table 5b. Observed post-progression survival of patients with prostate cancer for period 1988-2012 (N=5,020).

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

Munich Cancer Registry. Survival C61: Prostate cancer [Internet]. 2014 [updated 2014 Mar 25; cited 2014 May 1]. Available from: http://www.tumorregister-muenchen.de/en/facts/surv/surv_C61__E.pdf

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