Munich Cancer Registry

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

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

Cancer statistics: Baseline statistics

C16: Stomach cancer

Year of diagnosis	1998-2011
Patients	9892
Diseases	9899
Creation date	04/02/2013
Export date	01/03/2013
Population	4.5 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C16__E.pdf

Global Statements about the statistics on the Internet − Baseline Statistics (grey button), Survival (red button)

In these analyses, the clinics and physicians of Upper Bavaria and the city and county of Landshut[#], with a total of 4.5 million inhabitants, account for the frequency of cancer diseases[##] and the achieved long term results. Additionally, the long term survival evaluated by the Munich Cancer Registry (MCR) is compared with the results of the population-based registry in the USA (SEER), which is useful for checking the consistency of the data on an international level.

In comparing several tables, inconsistent figures may be detected. This is based on the fact that different patient cohorts are included in the base calculation, for example when proportions of multiple tumors or DCO-cases[###] are concerned. In other cases the individual tumor diagnosis is the basis for calculation, for example with incidence.

The foot notes describe the currentness of the data. The baseline statistics and survival data are updated annually. This yearly analysis comprises the Annual Report of the MCR. The time-delayed acquisition of data and the occasionally high DCO-rates indicate optimizing reserves, among others, because of current financial and legal conditions that hinder the analyses.

Clinics and physicians have access to essentially more detailed data, with which they can check, compare and in the best case optimize their own data and results.

We would be pleased to receive corrections, critique and useful suggestions. Just send an e-mail to tumor@ibe.med.uni-muenchen.de.

Munich Cancer Registry, April 2013

[#] Base data has been collected since 1998. An increase in new diseases is apparent, which is an effect of two extensions in the MCR catchment area (from a base population of 2.51 million to 3.96 in 2002, and to 4.52 million in 2007). Death certificates from 2011 are incorporated into these analyses.

[##] Due to the high frequency and good prognosis of non-malignant skin cancer (C44), no systematic ascertainment is performed for this diagnosis. C44 is not designated as a primary, but rather as a secondary tumor.

[###] DCO (death certificate only) identifies a cancer case that first becomes available to the MCR through the death certificate. A high proportion of DCO cases (≥5%) in particular cancer types indicate insufficient participation of specific cancer specializations.

ICD-10 codes used for specifying cancer site

ICD-10	Description
C16.-	Malignant neoplasm of stomach
C16.0	Cardia
C16.1	Fundus of stomach
C16.2	Body of stomach
C16.3	Pyloric antrum
C16.4	Pylorus
C16.5	Lesser curvature of stomach, unspecified
C16.6	reater curvature of stomach, unspecified
C16.8	Overlapping lesion of stomach
C16.9	Stomach, unspecified

INCIDENCE

Table 1

Patient cohorts by year of diagnosis including DCO cases and multiple primaries, and with proportion of deaths and active follow-up

Year of diagnosis	Cases # n	DCO cases n	Prop. DCO %	Prop. mult. primaries %	Prop. deaths %	Prop. actively followed %
1998	562	63	11.2	17.1	84.9	98.8
1999	508	58	11.4	17.5	85.8	98.4
2000	481	57	11.9	21.2	85.0	98.3
2001	516	63	12.2	17.6	82.4	97.9
2002	874	166	19.0	18.4	86.5	98.7
2003	759	102	13.4	20.7	83.3	99.1
2004	835	89	10.7	20.8	78.8	97.8
2005	765	92	12.0	22.9	77.5	96.6
2006	750	48	6.4	21.5	72.5	96.3
2007	865	79	9.1	23.0	74.5	88.8 ##
2008	863	63	7.3	22.1	70.0	82.0
2009	831	66	7.9	21.2	65.8	83.6
2010	698	55	7.9	23.8	59.3	94.6
2011	592	45	7.6	19.9	41.2	79.2 ###
1998-2011	9899	1046	10.6	20.8	74.6	93.2

The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.

Since 2007 the percentage of actively followed patients sharply declined compared to the previous years. This is a consequence of ambiguous data protection rules that currently forbid cancer registries in Bavaria to obtain the essential life status informations from competent registration offices.

Please be aware that data of recent annual patient cohorts may not yet be fully processed. Therefore, the presented figures and tables are potentially related to different time periods as pointed out in the respective headlines or legends.

Table 1a

Patient cohorts by year of diagnosis and gender
including DCO cases

Year of diagnosis	All n	Males n	Females n	Prop. males %
1998	562	293	269	52.1
1999	508	263	245	51.8
2000	481	262	219	54.5
2001	516	263	253	51.0
2002	874	455	419	52.1
2003	759	405	354	53.4
2004	835	468	367	56.0
2005	765	409	356	53.5
2006	750	420	330	56.0
2007	865	486	379	56.2
2008	863	488	375	56.5
2009	831	486	345	58.5
2010	698	422	276	60.5
2011	592	355	237	60.0
1998-2011	9899	5475	4424	55.3

Table 2

Incidence measures by year of diagnosis and gender including DCO cases
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002,
and from 3.96 to 4.52 m as of 2007, respectively)

Year of diagnosis	Males n	Females n	Males Inc. raw	Fem. Inc. raw	Males Inc. WS	Fem. Inc. WS	Males Inc. ES	Fem. Inc. ES	Males Inc. BRD-S	Fem. Inc. BRD-S
1998	293	269	26.4	22.9	15.7	8.8	24.5	13.8	33.5	18.9
1999	263	245	23.5	20.6	13.6	7.7	21.4	11.9	29.3	16.6
2000	262	219	23.0	18.2	13.4	6.7	20.7	10.6	27.7	14.8
2001	263	253	22.7	20.8	13.1	8.5	20.1	12.9	26.7	17.0
2002	455	419	24.4	21.4	13.2	8.1	20.7	12.5	28.3	16.8
2003	405	354	21.6	18.0	11.5	6.5	18.1	10.2	24.5	13.9
2004	468	367	24.9	18.6	13.1	7.8	20.2	11.7	27.4	15.1
2005	409	356	21.6	17.9	10.9	6.7	17.0	10.3	23.4	13.8
2006	420	330	21.9	16.4	11.1	6.2	17.0	9.5	23.0	12.6
2007	486	379	21.9	16.4	10.9	5.8	16.8	9.0	22.9	12.2
2008	488	375	21.9	16.2	11.0	6.1	16.5	9.3	21.9	12.4
2009	486	345	21.8	14.8	10.4	5.6	16.1	8.5	21.4	11.2
2010	422	276	18.7	11.8	9.3	4.3	14.0	6.6	18.0	8.9
2011	355	237	15.8	10.1	7.6	4.0	11.5	6.0	15.1	7.8
1998-2011	5475	4424	21.8	16.8	11.2	6.3	17.3	9.7	23.1	13.0

The computation of the incidence measures includes all primaries, irrespective of first or subsequent malignancy.

Table 3

Age distribution parameters by year of diagnosis (All)
(incl. DCO)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	562	72.2	13.3	25.0	98.1	52.1	64.3	74.5	82.5	87.4
1999	508	73.0	13.3	18.8	99.9	55.6	64.3	74.8	83.1	88.4
2000	481	72.4	13.2	28.8	98.7	54.0	64.1	74.8	81.2	88.4
2001	516	71.1	13.8	14.5	96.8	53.5	62.5	72.9	81.2	88.3
2002	874	72.9	12.8	19.3	102	55.5	65.0	74.7	81.9	88.6
2003	759	73.0	12.6	17.9	98.5	56.2	64.7	74.9	82.5	87.8
2004	835	70.9	12.7	28.0	98.8	52.9	62.6	72.5	80.8	85.5
2005	765	72.8	12.9	22.1	99.3	55.4	65.1	74.7	82.2	86.9
2006	750	72.1	13.0	21.9	99.1	55.4	63.5	73.8	82.0	86.9
2007	865	72.8	12.8	27.8	101	54.7	65.4	74.8	82.4	87.5
2008	863	71.8	12.9	24.2	101	53.7	64.0	73.2	81.3	86.3
2009	831	71.9	12.8	31.1	102	53.6	64.5	73.4	81.3	87.2
2010	698	71.7	12.5	24.4	103	54.8	63.3	72.3	81.6	87.2
2011	592	70.9	13.0	18.9	98.3	52.7	63.5	72.7	80.0	86.6
1998-2011	9899	72.1	12.9	14.5	103	54.2	64.1	73.8	81.8	87.4

Table 3a

Age distribution parameters by year of diagnosis (MALES)
(incl. DCO)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	293	70.0	13.4	25.0	94.1	50.0	59.3	72.3	79.2	86.9
1999	263	70.6	12.7	29.8	97.4	53.9	63.0	71.5	79.4	86.5
2000	262	70.0	12.8	28.8	97.2	53.5	62.4	71.2	78.3	86.7
2001	263	68.4	13.3	14.5	96.8	52.9	60.0	70.2	78.4	84.6
2002	455	71.2	11.9	32.8	95.8	55.5	63.7	72.6	79.3	85.8
2003	405	70.6	12.4	17.9	97.8	53.5	62.8	72.3	79.8	85.7
2004	468	70.3	11.9	33.1	97.4	53.5	62.5	71.3	78.9	84.6
2005	409	71.3	12.6	29.8	96.5	54.4	64.4	73.1	80.5	85.6
2006	420	70.3	12.1	29.5	99.1	55.2	62.5	71.6	79.2	84.4
2007	486	70.8	12.1	35.3	99.0	53.8	63.6	71.9	80.2	85.2
2008	488	70.0	11.9	24.2	99.5	53.9	63.5	71.2	78.4	84.0
2009	486	70.8	11.7	31.1	102	54.1	63.6	72.1	78.9	85.1
2010	422	69.9	11.7	24.4	96.4	54.9	60.9	69.9	79.5	84.2
2011	355	69.9	12.9	18.9	93.5	51.6	63.0	72.3	78.9	85.3
1998-2011	5475	70.4	12.3	14.5	102	53.7	62.8	71.8	79.2	85.1

Table 3b

Age distribution parameters by year of diagnosis (FEMALES)
(incl. DCO)

Year of diagnosis	Cases n	Mean	Std. dev.	Min.	Max.	10%	25%	Median 50%	75%	90%
1998	269	74.7	12.7	30.9	98.1	55.0	68.6	76.6	84.2	88.0
1999	245	75.6	13.4	18.8	99.9	59.4	68.5	78.4	85.2	89.8
2000	219	75.3	13.2	33.1	98.7	54.8	68.4	78.5	84.4	89.9
2001	253	73.9	13.9	26.4	96.7	54.4	65.4	75.7	84.0	90.6
2002	419	74.7	13.5	19.3	102	55.3	67.2	77.3	84.6	89.7
2003	354	75.7	12.3	30.3	98.5	59.7	68.5	77.9	83.9	89.6
2004	367	71.7	13.5	28.0	98.8	51.9	62.7	74.2	82.5	87.5
2005	356	74.6	13.1	22.1	99.3	56.6	65.8	77.4	83.9	90.8
2006	330	74.5	13.6	21.9	98.3	56.6	65.6	77.5	84.8	88.5
2007	379	75.4	13.2	27.8	101	56.7	68.3	78.3	85.4	88.9
2008	375	74.2	13.8	35.1	101	53.2	65.9	77.1	84.5	88.6
2009	345	73.4	14.1	32.6	101	51.6	65.9	76.5	84.5	88.4
2010	276	74.5	13.3	27.5	103	54.8	67.4	77.8	83.9	88.8
2011	237	72.4	13.0	28.6	98.3	53.8	65.8	73.5	81.2	88.5
1998-2011	4424	74.3	13.4	18.8	103	54.9	66.2	77.0	84.2	89.2

Table 4

Age distribution by 5-year age group and gender for period 1998-2011 (incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
10-14	1	0.0	0.0	1	0.0	0.0			0.0
15-19	4	0.0	0.1	2	0.0	0.1	2	0.0	0.0
20-24	5	0.1	0.1	2	0.0	0.1	3	0.1	0.1
25-29	18	0.2	0.3	7	0.1	0.2	11	0.2	0.4
30-34	42	0.4	0.7	19	0.3	0.6	23	0.5	0.9
35-39	90	0.9	1.6	54	1.0	1.6	36	0.8	1.7
40-44	159	1.6	3.2	92	1.7	3.2	67	1.5	3.2
45-49	297	3.0	6.2	180	3.3	6.5	117	2.6	5.9
50-54	465	4.7	10.9	274	5.0	11.5	191	4.3	10.2
55-59	663	6.7	17.6	438	8.0	19.5	225	5.1	15.3
60-64	916	9.3	26.9	595	10.9	30.4	321	7.3	22.5
65-69	1187	12.0	38.9	779	14.2	44.6	408	9.2	31.7
70-74	1439	14.5	53.4	886	16.2	60.8	553	12.5	44.2
75-79	1618	16.3	69.7	899	16.4	77.2	719	16.3	60.5
80-84	1448	14.6	84.4	679	12.4	89.6	769	17.4	77.9
85+	1547	15.6	100.0	568	10.4	100.0	979	22.1	100.0
All ages	9899	100.0		5475	100.0		4424	100.0	

Included in the statistics are 26.7% multiple primaries in males and 22.4% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 1998-2011

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=441 %	Females DCO rate n=604 %	Males Prop.all cancers n=132509 %	Females Prop.all cancers n=129521 %
0- 4			0.0	0.0				
5- 9			0.0	0.0				
10-14	1		0.1	0.0			0.8	
15-19	2	2	0.2	0.2			0.7	0.8
20-24	2	3	0.1	0.2	50.0		0.4	0.7
25-29	7	11	0.4	0.6			0.9	1.2
30-34	19	23	1.0	1.2	5.3	4.3	1.5	1.3
35-39	54	36	2.5	1.7	3.7	2.8	2.7	1.1
40-44	92	67	4.1	3.2	1.1	1.5	3.3	1.3
45-49	180	117	9.3	6.1	2.2	2.6	4.0	1.6
50-54	274	191	16.4	11.1	4.4	6.3	3.8	2.1
55-59	438	225	28.1	13.7	2.7	3.6	3.5	1.9
60-64	595	320	39.1	20.0	4.2	3.8	3.2	2.2
65-69	779	408	57.2	27.4	5.0	4.7	3.3	2.5
70-74	886	552	85.9	44.7	4.7	6.9	4.1	3.7
75-79	898	719	132.9	72.3	7.1	9.5	5.3	4.9
80-84	678	769	166.9	96.7	14.7	15.5	6.2	5.7
85+	568	979	204.8	131.8	24.3	32.9	6.9	6.7
All ages	5473	4422			8.1	13.7	4.1	3.4
Incidence								
Raw			21.8	16.8				
WS			11.2	6.3				
ES			17.3	9.7				
BRD-S			23.1	13.0				

The age-specific incidence characterizes the disease risk in a particular age group. The age distribution depends on the patient population frequency in each age group and reflects the tangible clinical picture of everyday patients care (see following chart).

Table 6a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2011
MALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C09-C10	Oropharynx	5	1.4	3.5	1.1	8.2	#	4.2	
C15	Oesophagus	8	2.6	3.1	1.3	6.1	#	6.4	12.5
C16	Stomach	2	7.5	0.3	0.0	1.0	#	-6.5	
C17	Small intestine	8	0.7	11.9	5.1	23.4	#	8.6	
C18	Colon	54	17.1	3.2	2.4	4.1	#	43.5	11.1
C19-C20	Rectum	21	8.9	2.4	1.5	3.6	#	14.3	
C21	Anus/canal	2	0.3	7.2	0.9	25.9		2.0	50.0
C22	Liver	13	4.3	3.0	1.6	5.2	#	10.3	30.8
C23-C24	Bile	6	1.6	3.8	1.4	8.2	#	5.2	33.3
C25	Pancreas	30	5.7	5.3	3.5	7.5	#	28.7	20.0
C32	Larynx	3	1.5	2.0	0.4	5.8		1.8	33.3
C33-C34	Lung	50	18.9	2.6	2.0	3.5	#	36.7	20.0
C38,C45	Mesothelioma	5	1.0	5.1	1.6	11.9	#	4.7	
C43	Malign. melanoma	8	5.6	1.4	0.6	2.8		2.9	
C61	Prostate	60	47.3	1.3	1.0	1.6		14.9	26.7
C62	Testis	2	0.3	5.8	0.7	21.0		2.0	
C64	Kidney	16	5.3	3.0	1.7	4.9	#	12.6	12.5
C65	Renal pelvis	2	0.7	3.0	0.4	10.9		1.6	
C67	Bladder	13	7.6	1.7	0.9	2.9		6.4	7.7
C70-C72	CNS cancer	4	2.0	2.0	0.5	5.0		2.3	75.0
C73	Thyroid	2	0.9	2.2	0.3	8.0		1.3	
C76-C79	CUP	5	2.9	1.7	0.6	4.0		2.5	
C81	Hodgkin lymphoma	2	0.3	7.5	0.9	27.2		2.0	50.0
C82-C85	NHL	15	6.3	2.4	1.3	3.9	#	10.2	6.7
C90	Mult. myeloma	2	2.1	1.0	0.1	3.5		-0.1	
C91-C96	Leukaemia	5	2.6	1.9	0.6	4.4		2.8	60.0
Other primaries		9	1.9	4.8	2.2	9.1	#	8.4	22.2
Not observed		0	4.6	0.0	0.0	0.8	#	-5.4	
All mult. primaries		352	161.8	2.2	2.0	2.4	#	224.4	17.0

Patients	3957
Mean age at second malignancy (years)	74.1
Person-years	8476
Mean observation time (years)	2.1
Median observation time (years)	1.0

The occurrence of second malignancy is statistically significant.

Observed second primaries with count 1 are pooled in category "Other primaries".

Table 6b

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of second primaries for period 1998-2011
FEMALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C09-C10	Oropharynx	2	0.3	6.7	0.8	24.4		2.5	
C16	Stomach	4	4.3	0.9	0.3	2.4		-0.4	50.0
C17	Small intestine	4	0.4	11.1	3.0	28.4	#	5.2	
C18	Colon	38	11.1	3.4	2.4	4.7	#	38.7	5.3
C19-C20	Rectum	11	4.5	2.4	1.2	4.4	#	9.3	27.3
C22	Liver	4	1.1	3.5	1.0	9.0		4.1	50.0
C23-C24	Bile	2	1.6	1.2	0.1	4.4		0.5	50.0
C25	Pancreas	15	4.5	3.3	1.9	5.5	#	15.1	53.3
C33-C34	Lung	15	6.0	2.5	1.4	4.1	#	13.0	13.3
C43	Malign. melanoma	2	2.8	0.7	0.1	2.6		-1.1	
C48	Peritoneal	2	0.2	8.1	1.0	29.3		2.5	100.0
C50	Breast	56	25.0	2.2	1.7	2.9	#	44.7	21.4
C53	Cervix uteri	2	1.1	1.8	0.2	6.4		1.3	50.0
C54	Corpus uteri	3	4.8	0.6	0.1	1.8		-2.6	
C56	Ovary	10	3.9	2.5	1.2	4.7	#	8.7	30.0
C64	Kidney	10	2.4	4.2	2.0	7.8	#	11.0	20.0
C67	Bladder	2	2.1	1.0	0.1	3.5		-0.1	50.0
C73	Thyroid	2	1.2	1.6	0.2	5.8		1.1	
C82-C85	NHL	10	3.7	2.7	1.3	5.0	#	9.1	10.0
C91-C96	Leukaemia	4	1.6	2.6	0.7	6.6		3.5	75.0
Other primaries		6	6.1	1.0	0.4	2.1		-0.2	33.3
Not observed		0	4.5	0.0	0.0	0.8	#	-6.5	
All mult. primaries		204	93.3	2.2	1.9	2.5	#	159.4	23.0

Patients	3184
Mean age at second malignancy (years)	75.5
Person-years	6944
Mean observation time (years)	2.2
Median observation time (years)	1.0

The occurrence of second malignancy is statistically significant.

Observed second malignancy with count 1 are pooled in category "Other primaries".

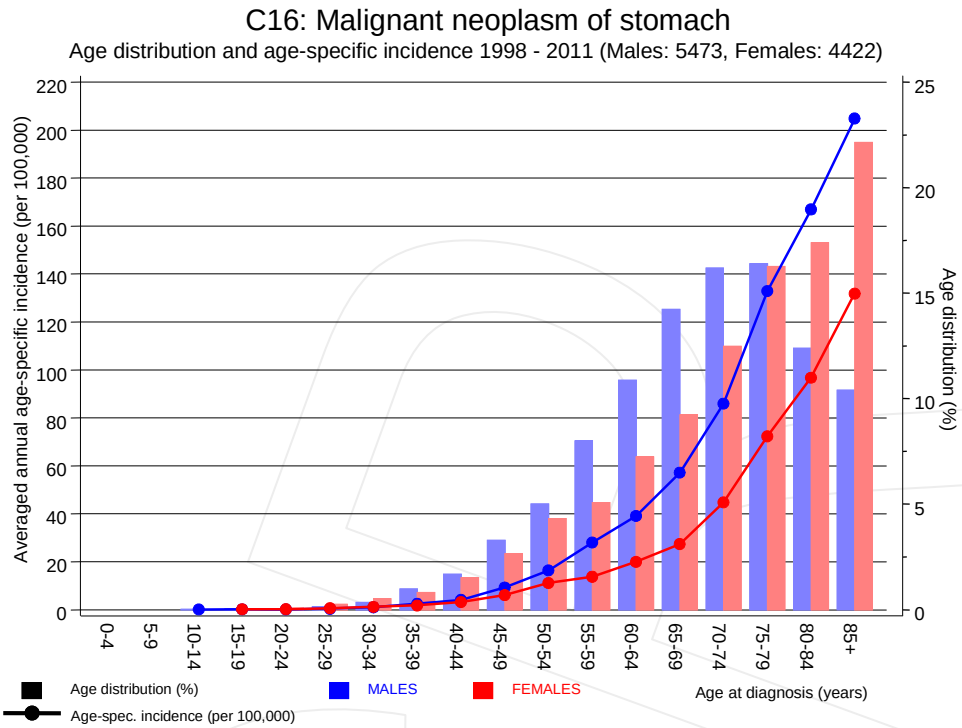


Figure 7. Age distribution and age-specific incidence

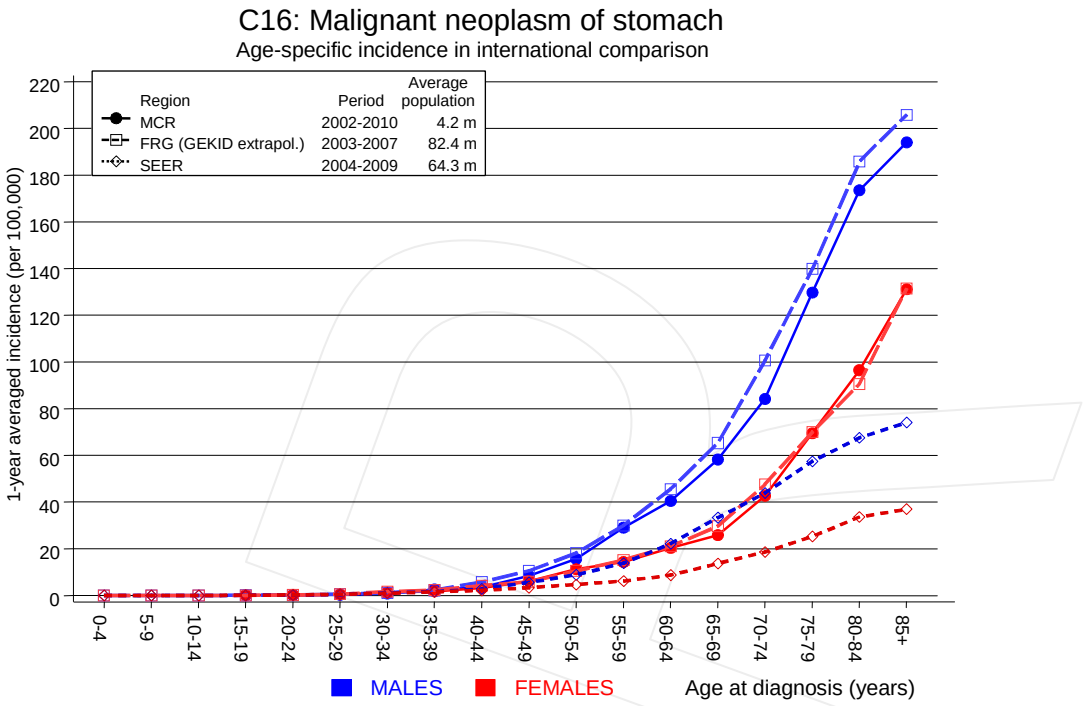


Figure 7a. Age-specific incidence in MCR registry areas compared to Germany (FRG, GEKID extrapolation) and SEER (Surveillance, Epidemiology, and End Results, USA).

Reference:

Extrapolated age-specific patient population of Germany, data status middle of 2010. Association of Population-based Cancer Registries in Germany (GEKID e.V.). Berlin, 2011. http://www.gekid.de. Last access: 05/12/2011

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2012, based on the November 2011 submission. http://www.seer.cancer.gov.

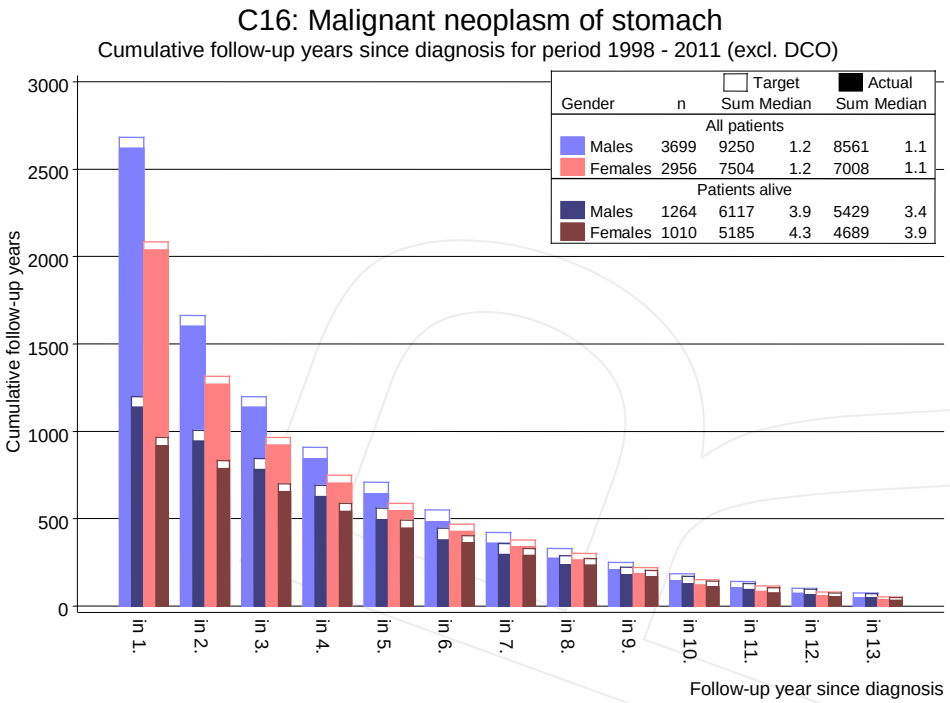
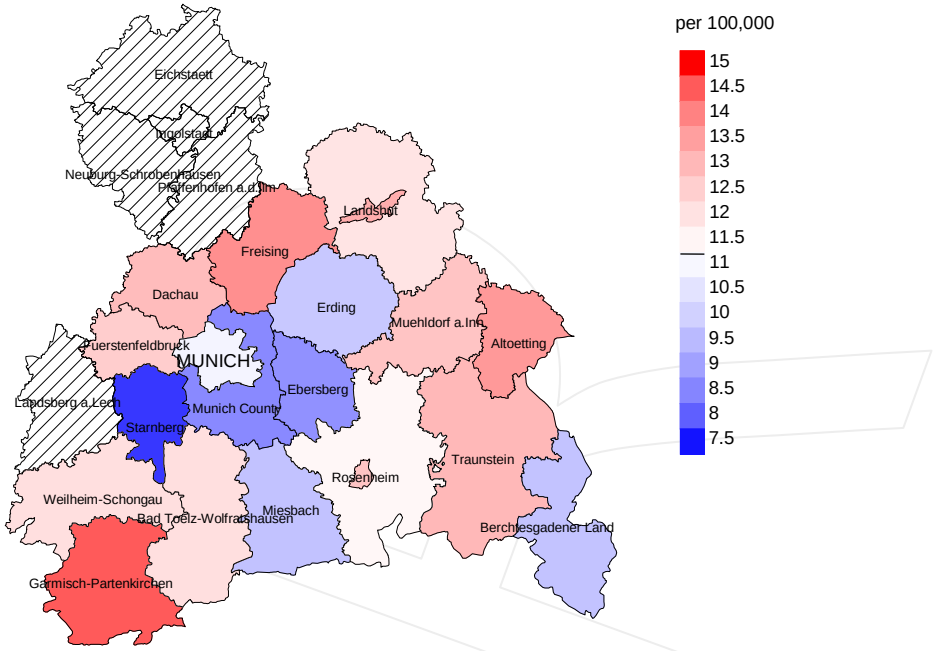


Figure 8. Cumulative follow-up years depending on time since diagnosis

The increase of the lost to follow-up rate can be interpreted as a consequence of a declining number of survivors over time.

Average incidence (world standard population) 2003 - 2008: Males



Average incidence (world standard population) 2003 - 2008: Females

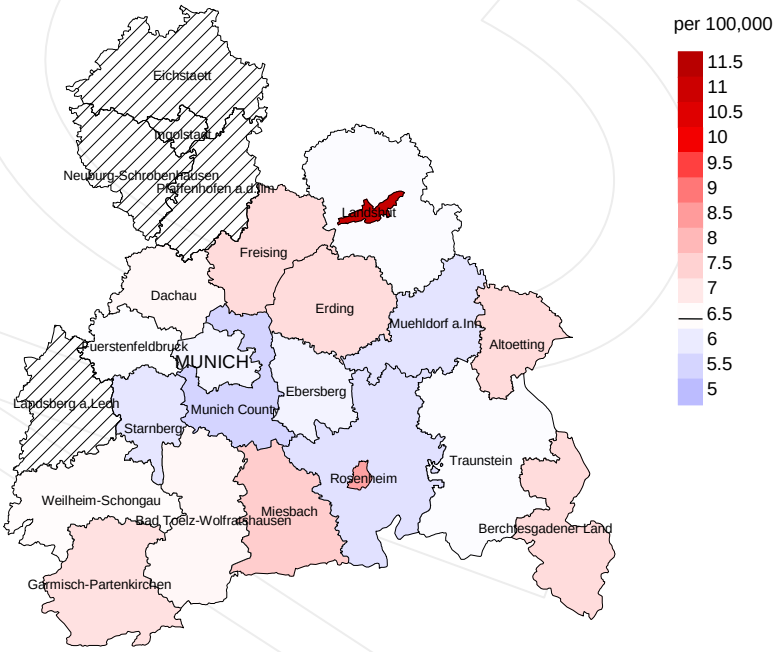
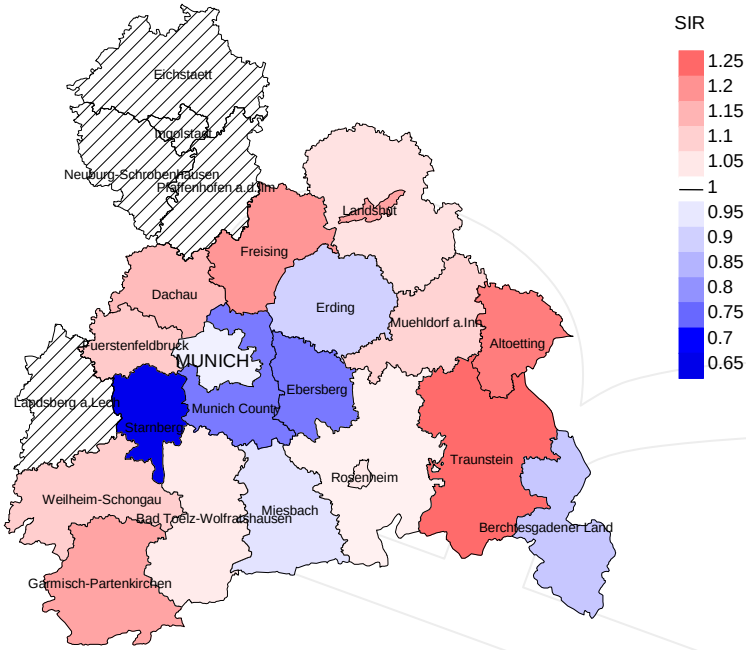


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 11.2/100,000 WS N=2,531, females 6.5/100,000 WS N=2,056). Since cancer data are not available in some counties until 2007, the local incidence rates were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 63,131 female residents (averaged) in the period from 2003 to 2008 a total of 60 women were identified with newly diagnosed stomach cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 6.2/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 4.1 and 9.1/100,000.

Standardized incidence ratio (SIR) 2003 - 2008: Males



Standardized incidence ratio (SIR) 2003 - 2008: Females

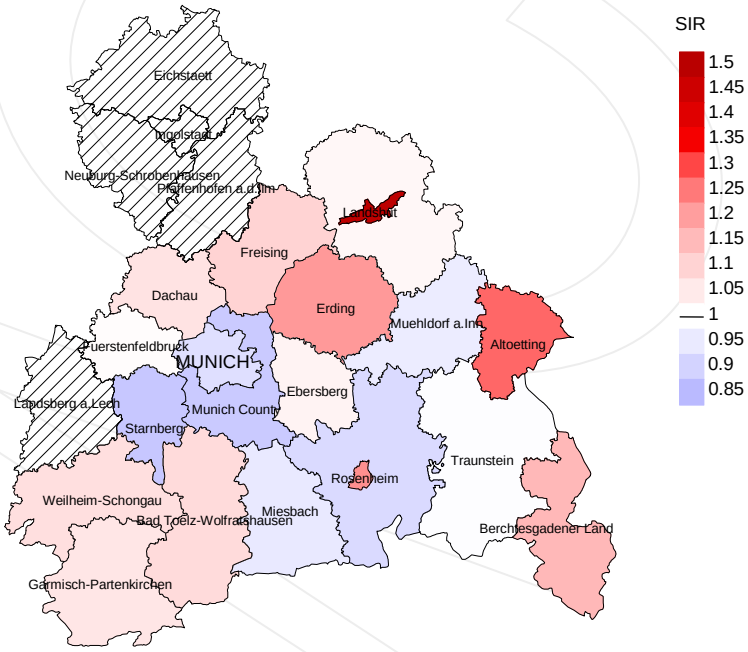


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=2,531, females N=2,056). Since cancer data are not available in some counties until 2007, the local SIR values were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 63,131 female residents (averaged) in the period from 2003 to 2008 a total of 60 women were identified with newly diagnosed stomach cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.03. Though, the value of this parameter may vary with an underlying probability of 99% between 0.72 and 1.42, and is therefore not statistically striking.

MORTALITY

Table 10a

Patient cohorts of incident cancers by year of diagnosis, follow-up status, proportion of DCO, deaths among the annual cohorts, and proportion of available death certificates (with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.52 m as of 2007, respectively)

Year of diagnosis	Incident cases n	Prop. actively followed %	Prop. DCO %	Deaths n	Prop. deaths %	Prop. deaths with death certific. %
1998	562	98.8	11.2	477	84.9	93.3
1999	508	98.4	11.4	436	85.8	92.7
2000	481	98.3	11.9	409	85.0	97.8
2001	516	97.9	12.2	425	82.4	92.7
2002	874	98.7	19.0	756	86.5	97.8
2003	759	99.1	13.4	632	83.3	98.6
2004	835	97.8	10.7	658	78.8	97.6
2005	765	96.6	12.0	593	77.5	98.8
2006	750	96.3	6.4	544	72.5	98.2
2007	865	88.8	9.1	644	74.5	99.4
2008	863	82.0	7.3	604	70.0	98.5
2009	831	83.6	7.9	547	65.8	99.5
2010	698	94.6	7.9	414	59.3	98.1
2011	592	79.2	7.6	244	41.2	97.1
1998-2011	9899	93.2	10.6	7383	74.6	97.4

Table 10b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased the same year of cancer diagnosis
(incl. DCO)
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.52 m as of 2007, respectively)

Year of diagnosis/ death	Incident cases n	Deaths n	Prop. deaths with death certific. %	Deaths in same year n	Prop. deaths in same year %
1998	562	452	92.9	220	39.1
1999	508	426	91.3	198	39.0
2000	481	409	95.8	167	34.7
2001	516	429	94.2	191	37.0
2002	874	611	98.0	350	40.0
2003	759	629	96.5	291	38.3
2004	835	631	97.8	265	31.7
2005	765	639	97.3	265	34.6
2006	750	615	96.7	219	29.2
2007	865	691	98.4	297	34.3
2008	863	710	98.3	280	32.4
2009	831	704	99.1	266	32.0
2010	698	658	98.8	224	32.1
2011	592	520	98.7	150	25.3
1998-2011	9899	8124	97.0	3383	34.2

Table 10c

Annual cohorts of deaths, proportion of cancer-related and not cancer-related deaths, and cancer recorded on death certificates (incl. DCO)
(with respect to registry area expansion from 2.51 to 3.96 m as of 2002, and from 3.96 to 4.52 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. not cancer-related %	Prop. cancer recorded on death certificate %
1998	452	70.6	29.4	92.9
1999	426	81.2	18.8	93.8
2000	409	82.9	17.1	93.4
2001	429	80.0	20.0	94.3
2002	611	83.0	17.0	92.5
2003	629	83.0	17.0	91.6
2004	631	82.6	17.4	91.6
2005	639	81.4	18.6	91.5
2006	615	82.8	17.2	92.4
2007	691	81.0	19.0	90.3
2008	710	82.3	17.7	89.7
2009	704	81.3	18.8	90.1
2010	658	79.6	20.4	89.5
2011	520	77.9	22.1	87.3
1998-2011	8124	80.9	19.1	91.3

Table 11a

Means of age at death according to the grouping in Table 10
MALES

Year of death	Deaths n	Age at death (all causes) Years	Age at death (cancer-related) Years	Age at death (not cancer-related) Years	Age at death (according to death certificate) Years
1998	219	73.3	71.0	79.0	73.3
1999	223	72.8	71.6	78.8	73.0
2000	206	72.6	71.3	77.7	71.7
2001	214	72.0	70.6	77.4	71.8
2002	320	73.2	72.2	77.9	73.0
2003	341	73.3	72.3	78.6	72.7
2004	345	74.5	73.0	82.1	73.7
2005	342	73.7	72.7	79.1	73.4
2006	342	74.6	72.8	81.7	74.1
2007	382	74.1	72.7	79.8	73.7
2008	373	74.0	72.8	80.6	73.5
2009	409	73.4	72.1	79.3	72.5
2010	386	73.3	71.5	80.5	72.6
2011	323	74.1	72.1	81.0	73.3
1998-2011	4425	73.6	72.2	79.7	73.1

Deaths of patients are considered to be cancer-related, in case that fact was recorded on the death certificate, or patients had suffered from metastasis or recurrence.

Table 11b

Means of age at death according to the grouping in Table 10
FEMALES

Year of death	Deaths n	Age at death (all causes) Years	Age at death (cancer-related) Years	Age at death (not cancer-related) Years	Age at death (according to death certificate) Years
1998	233	77.4	75.8	81.4	77.8
1999	203	76.6	74.7	84.0	77.1
2000	203	78.7	77.7	84.3	78.7
2001	215	77.9	76.5	83.7	77.8
2002	291	78.0	76.7	85.5	77.5
2003	288	77.1	75.6	84.2	76.5
2004	286	77.2	75.6	83.9	76.4
2005	297	76.9	75.4	81.8	76.1
2006	273	77.6	76.7	83.4	77.5
2007	309	77.9	76.3	84.9	77.1
2008	337	78.3	76.3	86.3	77.2
2009	295	78.5	76.9	85.2	77.7
2010	272	78.7	76.7	86.0	77.8
2011	197	77.4	75.0	86.1	76.0
1998-2011	3699	77.8	76.2	84.3	77.2

By 2010, life expectancy for a newborn male in Germany is 77.5 years compared with 82.6 years for his female counterpart.

Deaths of patients are considered to be cancer-related, in case that fact was recorded on the death certificate, or patients had suffered from metastasis or recurrence.

Table 12a

Mortality measures (cancer-related death) and mortality-incidence-index
by year of death
MALES

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	155	14.0	0.53	8.1	0.52	12.8	0.52	17.5	0.52
1999	185	16.5	0.71	9.5	0.70	15.1	0.71	20.6	0.71
2000	166	14.6	0.64	8.3	0.62	13.1	0.63	17.9	0.65
2001	170	14.7	0.65	8.3	0.64	13.2	0.66	18.1	0.68
2002	261	14.0	0.57	7.5	0.57	12.0	0.58	16.5	0.58
2003	284	15.2	0.70	7.9	0.68	12.7	0.70	17.6	0.72
2004	291	15.5	0.62	7.7	0.59	12.5	0.62	17.6	0.64
2005	290	15.3	0.71	7.5	0.69	11.9	0.70	16.9	0.72
2006	274	14.3	0.65	6.9	0.62	11.1	0.65	15.6	0.68
2007	308	13.9	0.63	6.7	0.61	10.6	0.63	14.7	0.64
2008	315	14.2	0.65	6.6	0.60	10.5	0.64	14.7	0.67
2009	335	15.0	0.69	7.1	0.68	11.0	0.68	14.8	0.69
2010	312	13.8	0.74	6.5	0.70	9.9	0.70	13.3	0.74
2011	251	11.1	0.71	5.3	0.70	8.3	0.72	10.9	0.72
1998-2011	3597	14.3	0.66	7.1	0.64	11.3	0.65	15.5	0.67

Table 12b

Mortality measures (cancer-related death) and mortality-incidence-index
by year of death
FEMALES

Year of death	Deaths n	Mort. raw	MI-Index raw	Mort. WS	MI-Index WS	Mort. ES	MI-Index ES	Mort. BRD-S	MI-Index BRD-S
1998	164	13.9	0.61	5.2	0.58	8.1	0.59	11.1	0.59
1999	161	13.6	0.66	5.3	0.68	8.1	0.68	11.0	0.67
2000	173	14.4	0.79	4.9	0.73	7.9	0.74	11.0	0.74
2001	173	14.2	0.68	5.1	0.61	8.2	0.63	11.1	0.65
2002	246	12.6	0.59	4.4	0.54	6.9	0.55	9.5	0.56
2003	238	12.1	0.67	4.5	0.69	7.0	0.69	9.5	0.69
2004	230	11.6	0.63	4.1	0.53	6.5	0.55	8.9	0.59
2005	230	11.6	0.65	4.3	0.64	6.6	0.64	8.8	0.64
2006	235	11.7	0.71	3.9	0.64	6.2	0.66	8.7	0.69
2007	252	10.9	0.66	3.8	0.65	5.8	0.65	7.7	0.63
2008	269	11.6	0.72	3.9	0.64	6.2	0.67	8.6	0.69
2009	237	10.2	0.69	3.3	0.59	5.3	0.62	7.4	0.66
2010	212	9.1	0.77	3.0	0.69	4.7	0.71	6.4	0.72
2011	154	6.6	0.65	2.4	0.59	3.7	0.61	4.8	0.62
1998-2011	2974	11.3	0.67	3.9	0.62	6.2	0.64	8.4	0.65

Table 13

Age distribution of age at death (cancer-related) for period 1998-2011
(**incl. multiple primaries**)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
20-24	3	0.0	0.0	1	0.0	0.0	2	0.1	0.1
25-29	7	0.1	0.2	2	0.1	0.1	5	0.2	0.2
30-34	18	0.3	0.4	6	0.2	0.2	12	0.4	0.6
35-39	44	0.7	1.1	25	0.7	0.9	19	0.6	1.3
40-44	77	1.2	2.3	43	1.2	2.1	34	1.1	2.4
45-49	155	2.4	4.6	90	2.5	4.6	65	2.2	4.6
50-54	246	3.7	8.4	150	4.2	8.8	96	3.2	7.8
55-59	380	5.8	14.1	249	6.9	15.7	131	4.4	12.2
60-64	576	8.8	22.9	371	10.3	26.0	205	6.9	19.1
65-69	720	10.9	33.8	482	13.4	39.4	238	8.0	27.1
70-74	905	13.8	47.6	558	15.5	54.9	347	11.7	38.8
75-79	1066	16.2	63.8	613	17.0	71.9	453	15.2	54.0
80-84	1070	16.3	80.0	526	14.6	86.5	544	18.3	72.2
85+	1314	20.0	100.0	487	13.5	100.0	827	27.8	100.0
All ages	6581	100.0		3603	100.0		2978	100.0	

Included in the statistics are 26.7% multiple primaries in males and 22.4% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2011
(**incl. multiple primaries**)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24	1	2	0.1	0.50	0.1	0.67	1.3	4.7
25-29	2	5	0.1	0.29	0.3	0.45	2.3	4.9
30-34	6	12	0.3	0.32	0.6	0.52	3.6	5.9
35-39	25	19	1.1	0.46	0.9	0.53	6.9	4.2
40-44	43	34	1.9	0.47	1.6	0.51	5.7	3.4
45-49	90	65	4.6	0.50	3.4	0.56	5.8	3.7
50-54	150	96	9.0	0.55	5.6	0.50	5.3	3.7
55-59	249	131	16.0	0.57	8.0	0.58	4.8	3.2
60-64	371	205	24.4	0.62	12.8	0.64	4.8	3.7
65-69	482	238	35.4	0.62	16.0	0.58	4.6	3.4
70-74	558	347	54.1	0.63	28.1	0.63	5.0	4.3
75-79	613	453	90.7	0.68	45.6	0.63	5.6	5.0
80-84	526	544	129.5	0.77	68.4	0.71	6.0	5.7
85+	487	827	175.6	0.86	111.4	0.84	6.8	7.3
All ages	3603	2978					5.4	4.9
Mortality								
Raw			14.3	0.66	11.3	0.67		
WS			7.1	0.64	3.9	0.62		
ES			11.3	0.65	6.2	0.64		
BRD-S			15.5	0.67	8.4	0.65		
PYLL-70								
per 100,000			62.0		40.9			
ES			54.5		35.2			
AYLL-70			9.9		11.4			

The rates underestimate the prognosis if other synchronous cancers are prognostic unfavorable.

Table 15a

Multiple primaries in deaths in period 1998-2011
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	10	0.9	9	90.0			1	10.0
C09-C10 Oropharynx	15	1.4	7	46.7	3	20.0	5	33.3
C15 Oesophagus	21	1.9	3	14.3	11	52.4	7	33.3
C18 Colon	141	12.9	62	44.0	36	25.5	43	30.5
C19-C20 Rectum	55	5.0	31	56.4	9	16.4	15	27.3
C22 Liver	20	1.8	3	15.0	5	25.0	12	60.0
C23-C24 Bile	14	1.3	2	14.3	2	14.3	10	71.4
C25 Pancreas	52	4.8	10	19.2	14	26.9	28	53.8
C32 Larynx	17	1.6	11	64.7	2	11.8	4	23.5
C33-C34 Lung	136	12.5	36	26.5	26	19.1	74	54.4
C43 Malign. melanoma	34	3.1	27	79.4			7	20.6
C44 Skin others	47	4.3	33	70.2	3	6.4	11	23.4
C61 Prostate	230	21.1	155	67.4	21	9.1	54	23.5
C64 Kidney	46	4.2	26	56.5	3	6.5	17	37.0
C67 Bladder	82	7.5	55	67.1	8	9.8	19	23.2
C70-C72 CNS cancer	11	1.0	6	54.5			5	45.5
C76-C79 CUP	11	1.0	6	54.5	2	18.2	3	27.3
C82-C85 NHL	40	3.7	20	50.0	8	20.0	12	30.0
C90 Mult. myeloma	12	1.1	6	50.0	2	16.7	4	33.3
C91-C96 Leukaemia	24	2.2	5	20.8	1	4.2	18	75.0
Other primaries	72	6.6	38	52.8	5	6.9	29	40.3
All mult. primaries	1090	100.0	551	50.6	161	14.8	378	34.7

Multiple primaries with number of cases n<10 are pooled in category "Other primaries".

ICD-10 C44 (Other malignant neoplasms of skin) is not systematically recorded by MCR and therefore not considered for evaluation as a particular primary but at least as a multiple malignancy.

Table 15b

Multiple primaries in deaths in period 1998-2011
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C16	Stomach	7	0.9			2	28.6	5	71.4
C18	Colon	106	13.7	47	44.3	24	22.6	35	33.0
C19-C20	Rectum	31	4.0	15	48.4	3	9.7	13	41.9
C22	Liver	7	0.9	1	14.3	1	14.3	5	71.4
C25	Pancreas	36	4.7	3	8.3	10	27.8	23	63.9
C33-C34	Lung	35	4.5	13	37.1	6	17.1	16	45.7
C43	Malign. melanoma	18	2.3	16	88.9	1	5.6	1	5.6
C44	Skin others	20	2.6	16	80.0			4	20.0
C50	Breast	248	32.1	178	71.8	24	9.7	46	18.5
C53	Cervix uteri	16	2.1	14	87.5	1	6.3	1	6.3
C54	Corpus uteri	38	4.9	32	84.2	3	7.9	3	7.9
C56	Ovary	44	5.7	23	52.3	8	18.2	13	29.5
C64	Kidney	21	2.7	8	38.1	7	33.3	6	28.6
C67	Bladder	20	2.6	13	65.0	2	10.0	5	25.0
C70-C72	CNS cancer	9	1.2	4	44.4	1	11.1	4	44.4
C73	Thyroid	8	1.0	7	87.5			1	12.5
C82-C85	NHL	30	3.9	18	60.0	3	10.0	9	30.0
C91-C96	Leukaemia	13	1.7	3	23.1	1	7.7	9	69.2
Other primaries		66	8.5	40	60.6	12	18.2	14	21.2
All mult. primaries		773	100.0	451	58.3	109	14.1	213	27.6

Multiple primaries with number of cases n<7 are pooled in category "Other primaries".

ICD-10 C44 (Other malignant neoplasms of skin) is not systematically recorded by MCR and therefore not considered for evaluation as a particular primary but at least as a multiple malignancy.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2011
(**Singular primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24		2	0.0		0.1	0.67		5.1
25-29	2	5	0.1	0.29	0.3	0.45	2.5	5.2
30-34	6	11	0.3	0.33	0.6	0.50	3.7	6.1
35-39	25	18	1.1	0.46	0.9	0.50	7.3	4.3
40-44	40	32	1.8	0.46	1.5	0.49	5.7	3.7
45-49	85	61	4.4	0.50	3.2	0.57	6.1	4.0
50-54	139	80	8.3	0.55	4.7	0.48	5.6	3.6
55-59	223	109	14.3	0.57	6.7	0.58	5.0	3.2
60-64	319	156	21.0	0.63	9.7	0.59	4.9	3.4
65-69	402	200	29.5	0.62	13.4	0.60	4.8	3.5
70-74	475	287	46.1	0.65	23.2	0.63	5.4	4.5
75-79	484	376	71.6	0.70	37.8	0.64	5.8	5.2
80-84	401	459	98.7	0.78	57.7	0.71	6.0	6.0
85+	386	696	139.2	0.87	93.7	0.84	7.0	7.5
All ages	2987	2492					5.5	5.0
Mortality								
Raw			11.9	0.66	9.5	0.67		
WS			6.0	0.64	3.3	0.62		
ES			9.4	0.66	5.2	0.63		
BRD-S			12.7	0.67	7.1	0.65		
PYLL-70								
per 100,000			56.1		35.4			
ES			49.3		30.6			
AYLL-70			10.3		11.9			

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2011
(**Single primaries only** *)

Age at death Years	Males n	Females n	Males Age-spec. mortal.	MI-index	Females Age-spec. mortal.	MI-index	Males Prop.all cancers %	Females Prop.all cancers %
0- 4			0.0		0.0			
5- 9			0.0		0.0			
10-14			0.0		0.0			
15-19			0.0		0.0			
20-24		2	0.0		0.1	0.67		5.6
25-29	2	5	0.1	0.29	0.3	0.45	2.7	5.6
30-34	6	11	0.3	0.33	0.6	0.50	3.8	6.7
35-39	24	17	1.1	0.45	0.8	0.49	7.4	4.5
40-44	40	31	1.8	0.47	1.5	0.48	6.0	3.9
45-49	84	60	4.3	0.50	3.1	0.57	6.4	4.4
50-54	133	79	8.0	0.55	4.6	0.50	5.9	4.0
55-59	215	104	13.8	0.57	6.3	0.58	5.3	3.4
60-64	292	148	19.2	0.62	9.2	0.58	5.1	3.7
65-69	368	187	27.0	0.61	12.6	0.59	5.0	3.8
70-74	427	262	41.4	0.63	21.2	0.61	5.7	4.8
75-79	425	347	62.9	0.66	34.9	0.62	6.2	5.7
80-84	345	426	84.9	0.71	53.6	0.69	6.4	6.6
85+	339	645	122.2	0.79	86.8	0.80	7.6	8.1
All ages	2700	2324					5.8	5.4
Mortality								
Raw			10.7	0.63	8.8	0.65		
WS			5.5	0.62	3.1	0.60		
ES			8.5	0.63	4.9	0.62		
BRD-S			11.5	0.64	6.6	0.63		
PYLL-70								
per 100,000			53.7		34.3			
ES			47.2		29.7			
AYLL-70			10.5		12.0			

* See corresponding tables with multiple primaries.

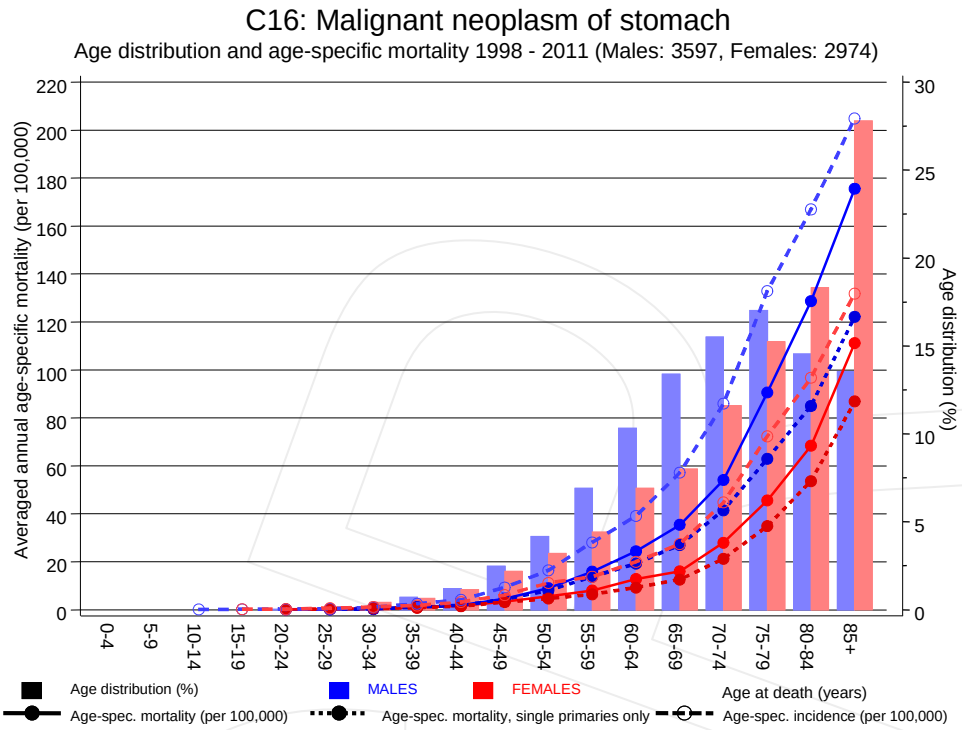
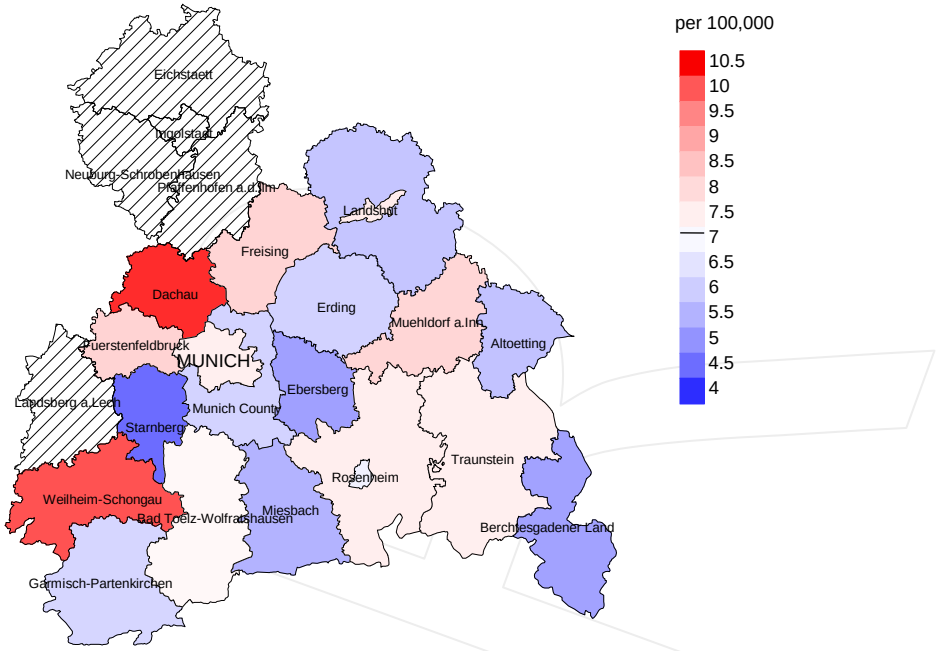


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at stomach cancer-related death (see Table 10) should be considered.

Average mortality (world standard population) 2003 - 2008: Males



Average mortality (world standard population) 2003 - 2008: Females

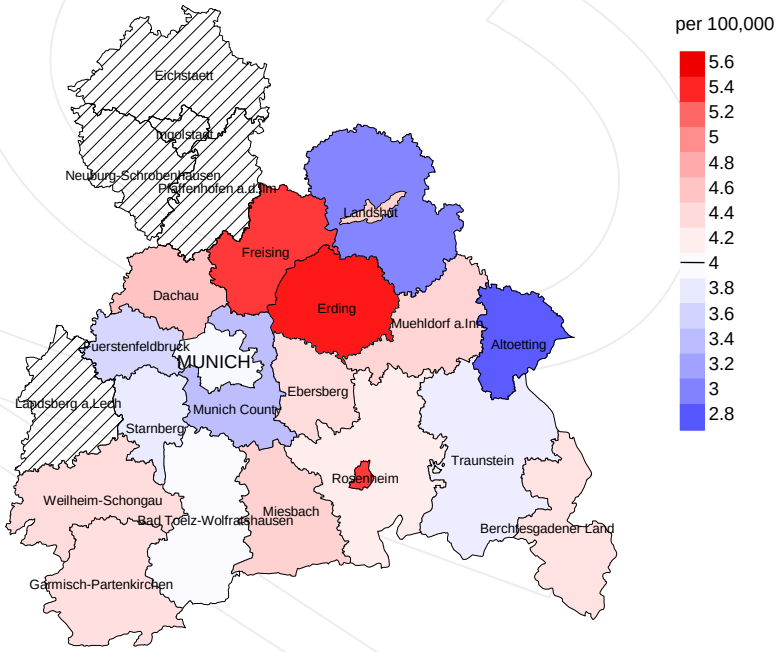
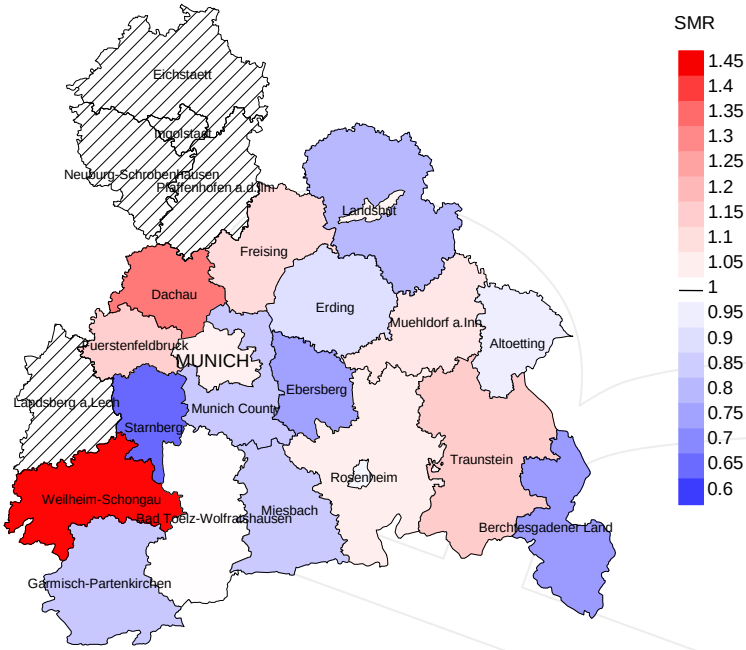


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2003 to 2008. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 7.1/100,000 WS N=1,679, females 4.0/100,000 WS N=1,382). Since cancer data are not available in some counties until 2007, the local mortality rates were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 63,131 female residents (averaged) in the period from 2003 to 2008 a total of 45 women died from stomach cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 4.4/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 2.7 and 6.8/100,000.

Standardized mortality ratio (SMR) 2003 - 2008: Males



Standardized mortality ratio (SMR) 2003 - 2008: Females

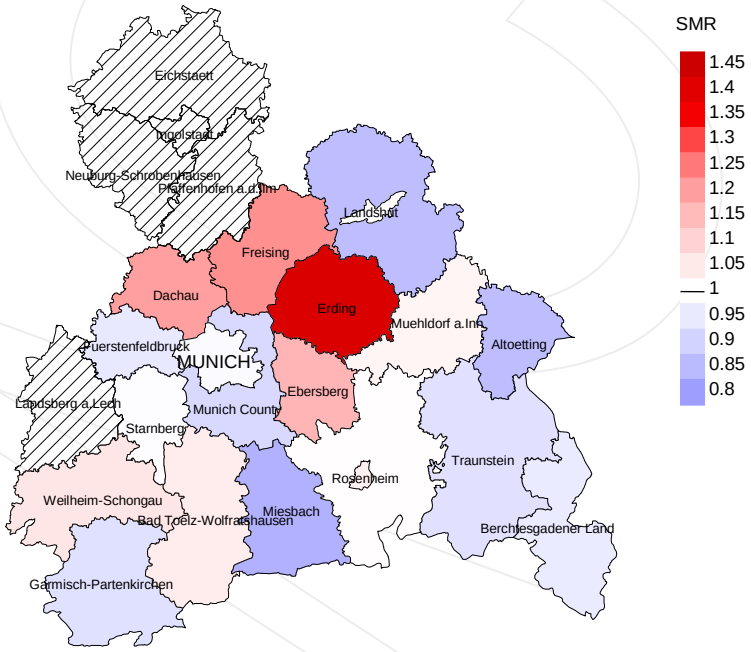


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2003 to 2008. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=1,679, females N=1,382). Since cancer data are not available in some counties until 2007, the local SMR values were not calculated, and the map tiles show as shaded.

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 63,131 female residents (averaged) in the period from 2003 to 2008 a total of 45 women died from stomach cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 1.16. Though, the value of this parameter may vary with an underlying probability of 99% between 0.76 and 1.69, and is therefore not statistically striking.

Statistical Notes

In all tables and figures the respective reference values should be carefully considered. The incidence rates include diagnoses (with multiple primary), and death certificate only (DCO) cases. For mortality statistics patients, diagnoses and progressive course of disease are presented. In the calculations, all courses of disease are considered whereby progressions occurred and/or death certificate identified progressive cancers were ascertained. Additionally there are three groups of disease course to consider:

1. **All multiple primaries included**

   The mortality statistic describes the tumor-specific death, independent of any malignancy. The patient perspective, induced secondary malignancies, and the problem of multiple malignancies from the same primary tumor all have reasons for their inclusion.

2. **First singular primary** (no information about other prior or synchronous malignancy)

   The mortality statistic describes the tumor-related death for patients who have no therapeutic restrictions due to a previous or synchronous cancer. These statistics are comparable to studies that have exclusion criteria based on a second malignancy.

3. **Single primary** (no information about other prior, syn- or metachronous malignancy)

   The mortality statistic describes the tumor-specific death that occurs without any impact through secondary primaries, earlier, synchronous, later or induced. Precisely the difference between disease group 1 and 2 highlight the magnitude of the problem of secondary malignancies.

For this reason differences appear concerning official mono-causal mortality statistics. To judge the maximum deviation, 2 further tables are presented. In the first table the distribution of secondary malignancies before, at or after the described cancer are shown, that could be an alternative cause of death. In the second table, the age-specific mortality rates for all courses of disease, without designation of secondary malignancies are shown.

A previously minimally acknowledged statistic is the **age at death**, which allows for a good assessment of the quality of classification of the apparent tumor-specific death. For assumed tumor-independent deaths, the age of death should be estimated from the age of diagnosis and the normal life expectancy, whereas tumor-dependent deaths can be estimated from the age of diagnosis plus the average tumor-specific life expectancy. The comparison of different tumors demonstrates this association, if the causes of cancer and the competing cause of death are independent of each other (e.g. breast and colon versus head/neck and lung).

The index from mortality and incidence (Mortality-Incidence ratio, **MI-index**) is a statistic that allows for the evaluation of the quality of data. For diseases with poor prognoses, comparable values are obtained from all age groups, because to a large extent, the numerator and denominator contain the same cases. For tumors with a good prognosis, increasing and decreasing incidence and age-specific differences in prognosis can more strongly alter the MI- index. Additionally, attention should be paid to the confidence intervals where fewer cases are reported.

The complexity of problems identified here emphasizes the importance of relative survival data for the appropriate analysis of long term results.

As a measurement of the burden of disease, the number of potential life years loss due to premature deaths in a cohort can be calculated (**PYLL**, potential years of life lost, standardized per 100,000 persons or per European standard) as well as the average loss of life years per individual (**AYLL**, average years of life lost). Depending upon the analytic aim (health economy, prevention, health care research) different methods exist for the generation of these measurements. In the results presented here, the age for a premature death is considered to be before 70 years, according to the guidelines of the OECD and the WHO (as seen in the abbreviation PYLL-70 or AYLL-70).

Shortcuts

AYLL-70	Average years of life lost prior to age 70 given a person dies before that age
BRD-S	German standard population
DCO	Death certificate only
EAR	Excess absolute risk = excess cancer cases (O - E) per 10,000 person-years
ES	European standard population (old)
FRG	Federal Republic of Germany
GEKID	Association of Population-based Cancer Registries in Germany (Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)
LCL	Lower confidence limit
MI-index	Ratio between mortality and incidence
MCR	Munich Cancer Registry (Tumorregister München)
PYLL-70	Potential years of life lost prior to age 70 given a person dies before that age
SEER	Surveillance, Epidemiology, and End Results (USA)
SIR	Standardized incidence ratio
SMR	Standardized mortality ratio
UCL	Upper confidence limit
WS	World standard population

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