Munich Cancer Registry

- Survival
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- *Deutsch*

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

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

Cancer statistics: Baseline statistics

C73: Thyroid cancer

Year of diagnosis	1998-2013
Patients	6,157
Diseases	6,199
Creation date	05/19/2015
Export date	12/30/2014
Population	4.64 m

http://www.tumorregister-muenchen.de/en/facts/base/base_C73__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 4.64 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, May 2015

[#] 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 2014 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 (ICD-10 2015) used for specifying cancer site

Code	Description
C73	Malignant neoplasm of thyroid gland

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	209	9	4.3	25.8	32.5	93.3	
1999	200	5	2.5	24.0	23.5	95.5	
2000	233	5	2.1	24.0	23.2	97.4	
2001	196	5	2.6	19.4	21.9	98.0	
2002	312	14	4.5	23.7	26.6	95.2	#
2003	302	8	2.6	19.2	20.5	93.0	
2004	354	9	2.5	15.5	15.5	92.7	
2005	370	7	1.9	19.7	14.6	89.2	
2006	420	9	2.1	19.3	13.3	85.2	
2007	580	7	1.2	16.2	12.1	64.1	# ##
2008	660	13	2.0	13.9	10.8	45.0	
2009	622	4	0.6	16.7	7.9	42.6	
2010	511	15	2.9	16.0	9.8	41.3	
2011	457	8	1.8	17.3	9.6	44.2	
2012	426	1	0.2	14.1	8.7	47.7	
2013	347	13	3.7	13.3	9.5	99.1	###
1998-2013	6199	132	2.1	17.6	14.1	69.3	

\# 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	209	43	166	20.6
1999	200	54	146	27.0
2000	233	61	172	26.2
2001	196	53	143	27.0
2002	312	80	232	25.6
2003	302	84	218	27.8
2004	354	107	247	30.2
2005	370	81	289	21.9
2006	420	116	304	27.6
2007	580	172	408	29.7
2008	660	170	490	25.8
2009	622	180	442	28.9
2010	511	118	393	23.1
2011	457	137	320	30.0
2012	426	136	290	31.9
2013	347	130	217	37.5
1998-2013	6199	1722	4477	27.8

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 4.64 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	43	166	3.9	14.1	2.7	9.7	3.5	12.1	4.0	13.4
1999	54	146	4.8	12.3	3.3	9.1	4.4	11.0	5.4	11.9
2000	61	172	5.4	14.3	3.6	10.4	4.9	12.7	5.6	13.4
2001	53	143	4.6	11.8	3.1	7.9	4.1	10.0	4.4	10.8
2002	80	232	4.3	11.8	3.0	8.4	3.8	10.4	4.2	11.3
2003	84	218	4.5	11.1	2.9	8.1	3.9	9.9	4.4	10.4
2004	107	247	5.7	12.5	3.9	8.9	5.0	11.0	5.7	11.8
2005	81	289	4.3	14.5	2.7	10.0	3.7	12.6	4.2	13.4
2006	116	304	6.1	15.1	4.0	10.5	5.2	13.3	5.7	14.1
2007	172	408	7.8	17.7	5.2	12.5	6.7	15.6	7.3	16.5
2008	170	490	7.6	21.1	5.3	14.5	6.8	18.3	7.4	19.6
2009	180	442	8.1	19.0	5.6	13.9	7.1	17.0	7.6	18.1
2010	118	393	5.2	16.8	3.2	11.7	4.3	14.6	4.9	15.5
2011	137	320	6.0	13.6	4.0	9.6	5.1	11.6	5.6	12.6
2012	136	290	6.0	12.3	4.0	9.1	5.1	11.1	5.6	11.7
2013	130	217	5.7	9.2	3.9	6.2	5.0	7.8	5.3	8.5
1998-2013	1722	4477	5.8	14.4	3.9	10.1	5.0	12.6	5.5	13.4

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	209	55.0	16.2	13.0	89.6	33.4	43.0	54.4	67.3	77.1
1999	200	53.4	16.0	16.8	88.4	30.2	43.1	54.1	62.7	76.5
2000	233	53.9	16.8	11.3	93.7	32.1	42.4	55.2	65.5	76.1
2001	196	54.3	14.9	17.6	95.4	35.2	42.4	55.0	65.0	73.4
2002	312	55.3	16.3	7.8	91.2	34.6	44.7	55.9	66.5	75.0
2003	302	54.2	16.1	7.6	100	33.6	43.1	55.0	64.7	73.5
2004	354	53.5	15.9	14.8	91.6	32.3	41.9	53.2	64.7	75.1
2005	370	55.0	15.5	13.5	98.2	36.4	43.3	54.7	66.0	74.3
2006	420	54.3	14.5	15.1	94.9	35.0	43.5	55.2	65.1	73.1
2007	580	52.9	14.8	9.3	92.0	34.2	42.1	52.5	63.9	72.3
2008	660	54.4	15.2	12.7	97.7	34.5	43.1	55.0	65.2	73.6
2009	622	52.6	15.7	12.7	93.1	31.9	41.8	52.5	63.9	72.3
2010	511	54.6	15.9	14.3	94.5	34.8	43.0	54.4	65.8	76.2
2011	457	53.7	16.8	10.1	91.5	31.9	40.9	53.1	67.6	75.3
2012	426	52.4	15.4	13.3	91.7	32.3	41.3	51.5	64.0	72.5
2013	347	54.0	16.1	14.2	93.9	32.8	41.8	53.6	65.8	75.9
1998-2013	6199	53.9	15.7	7.6	100	33.6	42.6	54.1	65.1	74.4

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	43	54.7	13.9	27.2	81.5	37.2	46.2	55.2	66.2	76.2
1999	54	58.5	16.1	17.5	88.4	34.1	50.1	58.4	72.6	79.0
2000	61	58.2	17.8	15.9	93.7	32.7	47.5	57.7	69.9	79.8
2001	53	54.7	12.5	29.9	78.5	39.7	44.4	55.4	65.0	71.3
2002	80	54.9	16.8	7.8	88.6	34.8	43.0	56.5	65.8	75.4
2003	84	58.7	14.1	24.0	87.9	36.2	50.6	59.7	67.5	77.0
2004	107	55.9	15.4	16.1	88.1	36.4	45.2	57.4	66.5	75.8
2005	81	58.4	14.2	20.1	91.3	41.7	48.3	57.7	67.6	78.2
2006	116	56.3	14.0	19.6	93.4	37.4	46.2	58.1	65.8	72.3
2007	172	54.1	14.0	23.1	84.6	36.7	43.3	53.6	65.1	72.6
2008	170	55.3	14.6	12.7	89.5	34.9	46.6	56.8	64.8	72.9
2009	180	54.6	15.0	13.4	84.7	33.5	46.2	57.6	66.0	71.2
2010	118	58.5	14.6	24.1	88.5	38.4	47.5	57.8	70.5	76.4
2011	137	54.4	15.5	17.3	86.7	35.7	42.8	53.2	67.2	74.6
2012	136	55.7	15.3	19.6	91.7	36.8	44.5	57.4	66.7	74.3
2013	130	54.8	14.4	14.2	89.9	35.7	45.7	55.5	64.9	73.5
1998-2013	1722	55.8	14.9	7.8	93.7	36.1	45.6	56.6	66.5	74.5

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	166	55.0	16.8	13.0	89.6	33.0	42.2	54.4	68.4	77.2
1999	146	51.5	15.5	16.8	86.8	28.5	41.0	52.3	61.5	73.2
2000	172	52.4	16.2	11.3	91.0	31.9	41.5	53.7	64.5	72.4
2001	143	54.1	15.7	17.6	95.4	34.4	40.6	54.8	65.0	74.3
2002	232	55.4	16.1	10.0	91.2	34.5	46.4	55.8	66.8	75.0
2003	218	52.4	16.5	7.6	100	32.8	40.2	53.3	63.2	73.5
2004	247	52.4	16.0	14.8	91.6	31.6	40.0	52.6	63.6	74.3
2005	289	54.1	15.7	13.5	98.2	34.2	42.4	54.0	65.3	73.4
2006	304	53.5	14.7	15.1	94.9	34.8	42.3	54.5	63.7	73.2
2007	408	52.3	15.1	9.3	92.0	33.2	41.4	51.8	63.9	72.2
2008	490	54.1	15.4	16.2	97.7	34.3	42.4	54.4	65.2	74.2
2009	442	51.8	16.0	12.7	93.1	31.6	39.7	51.3	62.8	73.0
2010	393	53.4	16.1	14.3	94.5	34.0	41.9	52.6	63.9	76.1
2011	320	53.3	17.3	10.1	91.5	30.4	40.6	52.8	67.8	75.6
2012	290	50.8	15.2	13.3	90.3	31.0	39.3	50.4	61.8	70.3
2013	217	53.5	17.0	20.7	93.9	32.0	41.1	53.0	66.5	78.3
1998-2013	4477	53.1	15.9	7.6	100	32.8	41.4	53.1	64.5	74.3

Table 4

Age distribution by 5-year age group and gender for period 1998-2013 (incl. DCO)

Age at diagnosis Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
5-9	3	0.0	0.0	1	0.1	0.1	2	0.0	0.0
10-14	29	0.5	0.5	4	0.2	0.3	25	0.6	0.6
15-19	48	0.8	1.3	13	0.8	1.0	35	0.8	1.4
20-24	125	2.0	3.3	27	1.6	2.6	98	2.2	3.6
25-29	190	3.1	6.4	44	2.6	5.2	146	3.3	6.8
30-34	351	5.7	12.0	62	3.6	8.8	289	6.5	13.3
35-39	509	8.2	20.2	107	6.2	15.0	402	9.0	22.3
40-44	627	10.1	30.4	152	8.8	23.8	475	10.6	32.9
45-49	659	10.6	41.0	182	10.6	34.4	477	10.7	43.5
50-54	694	11.2	52.2	198	11.5	45.9	496	11.1	54.6
55-59	721	11.6	63.8	221	12.8	58.7	500	11.2	65.8
60-64	676	10.9	74.7	214	12.4	71.1	462	10.3	76.1
65-69	578	9.3	84.0	194	11.3	82.4	384	8.6	84.7
70-74	416	6.7	90.8	140	8.1	90.5	276	6.2	90.8
75-79	296	4.8	95.5	91	5.3	95.8	205	4.6	95.4
80-84	155	2.5	98.0	45	2.6	98.4	110	2.5	97.9
85+	122	2.0	100.0	27	1.6	100.0	95	2.1	100.0
All ages	6199	100.0		1722	100.0		4477	100.0	

Included in the statistics are 24.2% multiple primaries in males and 19.1% in females.

Table 5

Age-specific incidence, DCO rate and proportion of all cancers
for period 1998-2013

Age at diagnosis Years	Males n	Females n	Males Age-spec. incid.	Females Age-spec. incid.	Males DCO rate n=42 %	Females DCO rate n=90 %	Males Prop.all cancers n=158258 %	Females Prop.all cancers n=153136 %
0- 4			0.0	0.0				
5- 9	1	2	0.1	0.1			0.6	1.6
10-14	4	25	0.3	1.7			2.4	14.7
15-19	13	35	0.8	2.4			3.7	12.0
20-24	27	98	1.5	5.5			4.4	18.5
25-29	44	146	2.2	7.2			4.6	13.2
30-34	62	287	2.7	13.0			4.1	13.9
35-39	106	398	4.3	16.8			4.7	10.7
40-44	151	474	5.8	19.0	0.7	0.2	4.7	7.6
45-49	179	473	7.6	20.5			3.3	5.4
50-54	198	496	9.8	24.1	1.5	0.2	2.3	4.5
55-59	220	497	12.0	25.8	0.9	1.0	1.5	3.6
60-64	213	455	12.0	24.3	2.3	0.9	1.0	2.6
65-69	190	383	12.0	22.2	1.6	0.3	0.7	2.0
70-74	139	274	10.9	18.0	4.3	3.6	0.5	1.5
75-79	91	203	11.0	17.1	7.7	6.9	0.4	1.2
80-84	45	110	9.0	11.8	13.3	16.4	0.3	0.7
85+	27	95	7.9	10.6	33.3	37.9	0.3	0.6
All ages	1710	4451			2.5	2.0	1.1	2.9
Incidence								
Raw			5.8	14.3				
WS			3.8	10.1				
ES			5.0	12.5				
BRD-S			5.5	13.3				

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 1998-2013
MALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C15	Oesophagus	4	1.0	3.8	1.0	9.8	#	6.1	
C16	Stomach	2	1.9	1.0	0.1	3.8		0.2	
C18	Colon	9	4.6	1.9	0.9	3.7		9.0	
C19-C20	Rectum	10	3.0	3.4	1.6	6.2	#	14.5	
C22	Liver	2	1.4	1.4	0.2	5.1		1.2	
C32	Larynx	3	0.6	4.8	1.0	14.0		4.9	
C33-C34	Lung	10	6.1	1.6	0.8	3.0		7.9	10.0
C43	Malign. melanoma	7	2.4	3.0	1.2	6.1	#	9.5	
C61	Prostate	24	14.9	1.6	1.0	2.4	#	18.7	
C67	Bladder	5	2.0	2.5	0.8	5.9		6.2	20.0
C73	Thyroid	7	0.5	14.4	5.8	29.6	#	13.4	
C76-C79	CUP	3	0.8	3.6	0.7	10.6		4.5	
C82-C85	NHL	4	2.0	2.0	0.5	5.1		4.1	
C90	Mult. myeloma	2	0.6	3.3	0.4	11.9		2.9	
C91-C96	Leukaemia	2	0.8	2.6	0.3	9.4		2.5	
Other primaries		8	5.9	1.4	0.6	2.7		4.3	
Not observed		0	3.7	0.0	0.0	1.0		-7.5	
All mult. primaries		102	52.2	2.0	1.6	2.4	#	102.3	2.0

Patients	1066
Median age at second malignancy (years)	68.4
Person-years	4861
Mean observation time (years)	4.6
Median observation time (years)	3.7

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 1998-2013
FEMALES

Diagnosis		Observed n	Expected n	SIR	LCL 95%	UCL 95%		EAR	DCO %
C07-C08	Salivary gland	2	0.2	11.9	1.4	42.9	#	1.2	
C16	Stomach	4	3.0	1.3	0.4	3.4		0.7	
C18	Colon	16	8.5	1.9	1.1	3.1	#	5.0	
C19-C20	Rectum	10	4.1	2.4	1.2	4.4	#	3.9	
C22	Liver	3	1.0	2.9	0.6	8.6		1.3	33.3
C23-C24	Bile	2	1.2	1.7	0.2	6.1		0.5	
C25	Pancreas	5	3.6	1.4	0.4	3.2		0.9	
C33-C34	Lung	21	7.8	2.7	1.7	4.1	#	8.7	9.5
C38,C45	Mesothelioma	5	0.2	28.7	9.3	67.0	#	3.2	
C43	Malign. melanoma	7	4.8	1.5	0.6	3.0		1.5	
C46,C49	Soft tissue	3	0.6	4.8	1.0	13.9		1.6	
C48	Peritoneal	2	0.4	4.9	0.6	17.9		1.1	
C50	Breast	85	38.4	2.2	1.8	2.7	#	31.0	1.2
C51	Vulva	2	0.9	2.3	0.3	8.4		0.8	
C54	Corpus uteri	8	6.2	1.3	0.6	2.6		1.2	
C56	Ovary	11	4.5	2.5	1.2	4.4	#	4.3	
C64	Kidney	11	2.4	4.5	2.3	8.1	#	5.7	
C67	Bladder	3	1.5	2.0	0.4	5.9		1.0	
C70-C72	CNS cancer	4	1.6	2.5	0.7	6.5		1.6	
C73	Thyroid	17	3.1	5.5	3.2	8.8	#	9.3	
C74-C80	Cancer others	2	0.3	7.4	0.9	26.8		1.2	
C76-C79	CUP	5	1.5	3.4	1.1	8.0	#	2.4	
C82-C85	NHL	9	3.7	2.4	1.1	4.6	#	3.5	
C90	Mult. myeloma	2	1.1	1.8	0.2	6.6		0.6	
C91-C96	Leukaemia	15	1.5	10.1	5.6	16.6	#	9.0	13.3
Other primaries		9	5.4	1.7	0.8	3.2		2.4	11.1
Not observed		0	2.1	0.0	0.0	1.8		-1.4	
All mult. primaries		263	109.4	2.4	2.1	2.7	#	102.1	2.7

Patients	2909
Median age at second malignancy (years)	63.8
Person-years	15039
Mean observation time (years)	5.2
Median observation time (years)	4.7

The occurrence of second malignancy is statistically significant.

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

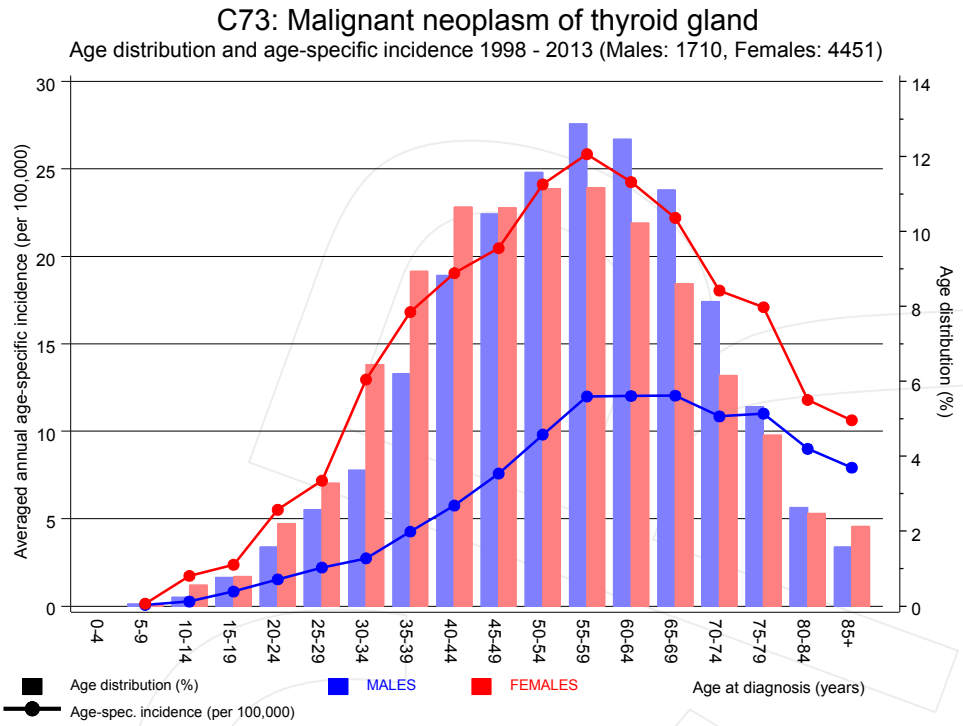


Figure 7. Age distribution and age-specific incidence

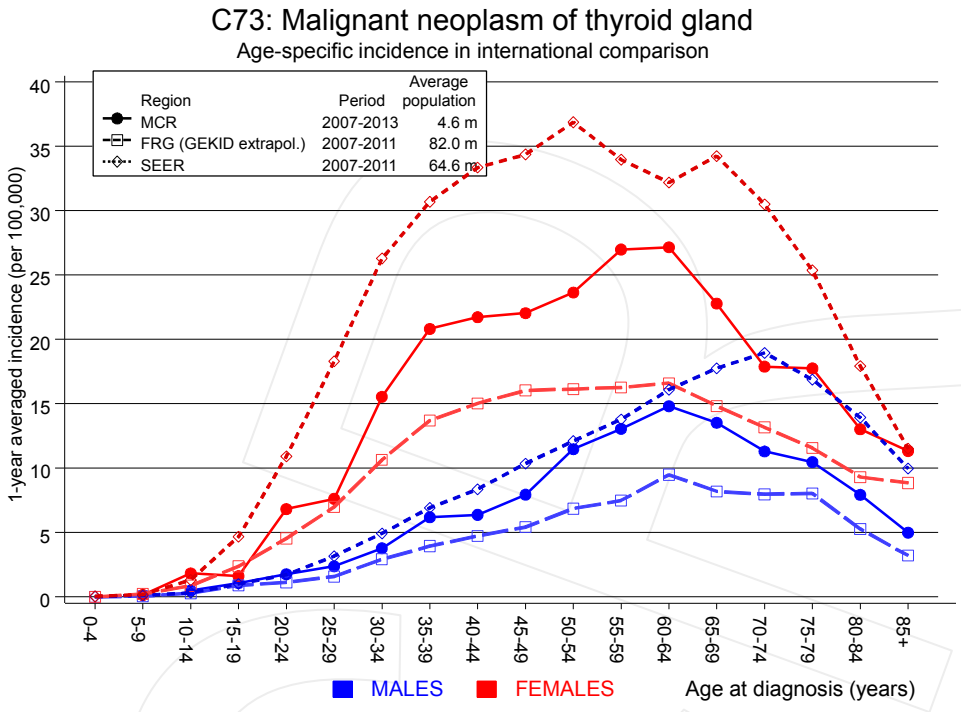


Figure 7a. Age-specific incidence in MCR registry areas compared to Germany (FRG, GEKID extrapolation) and SEER (Surveillance, Epidemiology, and End Results, USA).

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, 2014. http://www.gekid.de. Last access: 02/11/2015

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 18 Regs Research Data, released April 2014, based on the November 2013 submission. http://www.seer.cancer.gov.

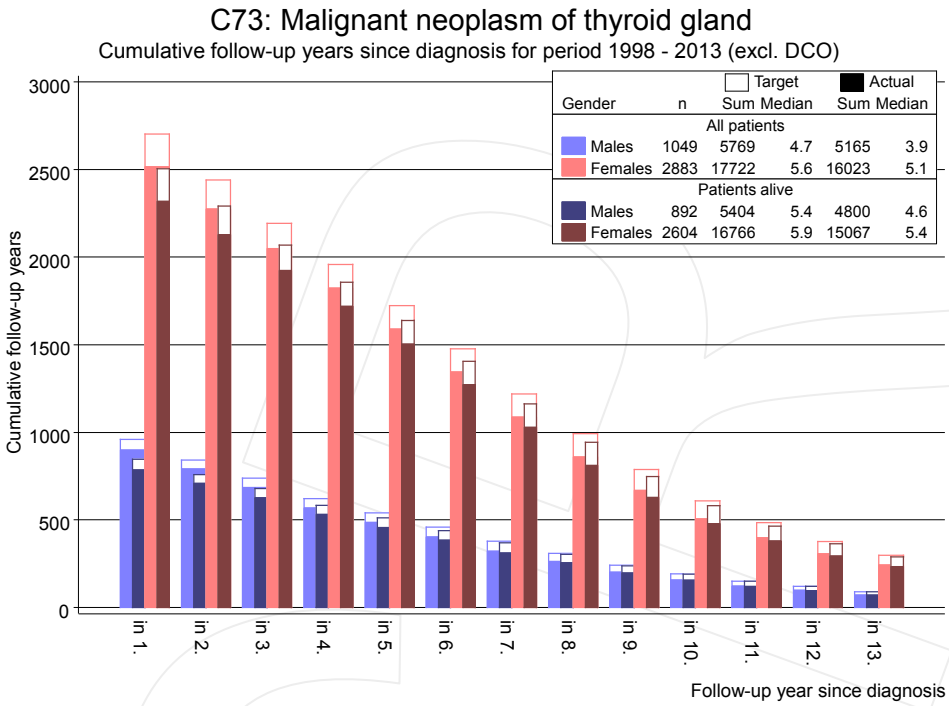
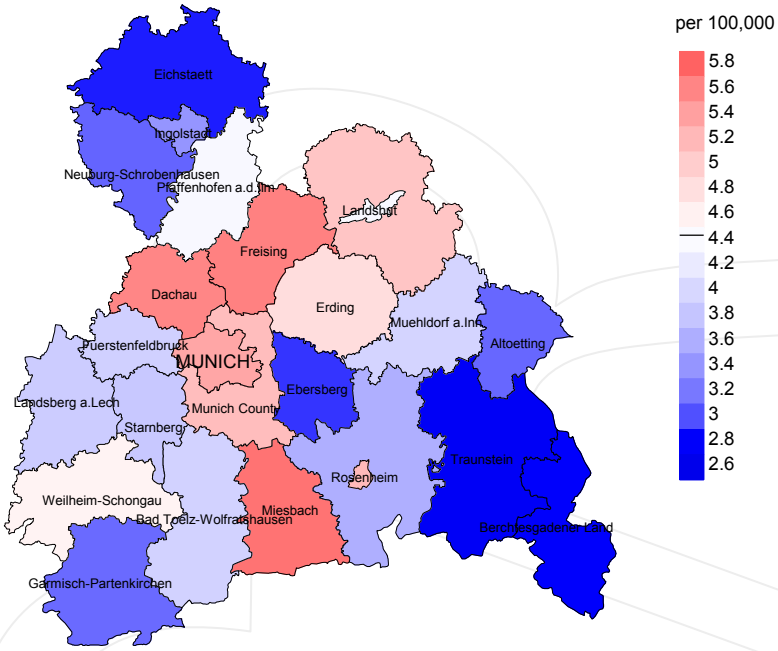


Figure 8. Cumulative follow-up years depending on time since diagnosis

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) 2007 - 2013: Males



Average incidence (world standard population) 2007 - 2013: Females

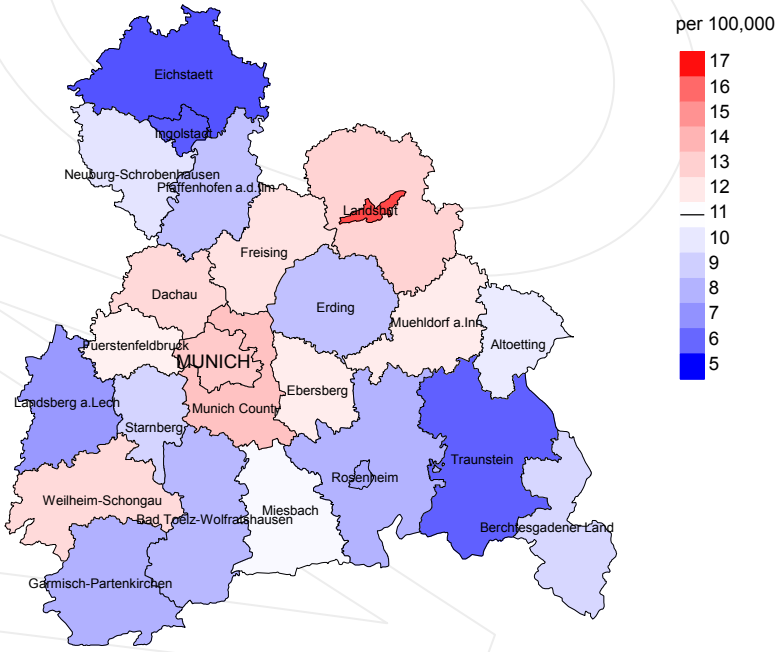
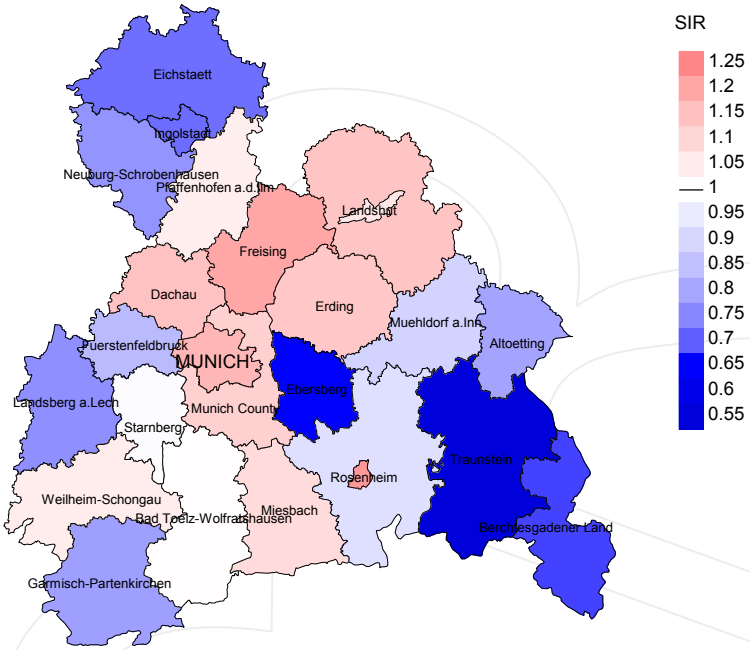


Figure 9a. Map of cancer incidence (world standard population, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual incidence rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 4.4/100,000 WS N=1,032, females 11.0/100,000 WS N=2,540).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,928 female residents (averaged) in the period from 2007 to 2013 a total of 75 women were identified with newly diagnosed thyroid cancer. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 11.8/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 8.3 and 16.4/100,000.

Standardized incidence ratio (SIR) 2007 - 2013: Males



Standardized incidence ratio (SIR) 2007 - 2013: Females

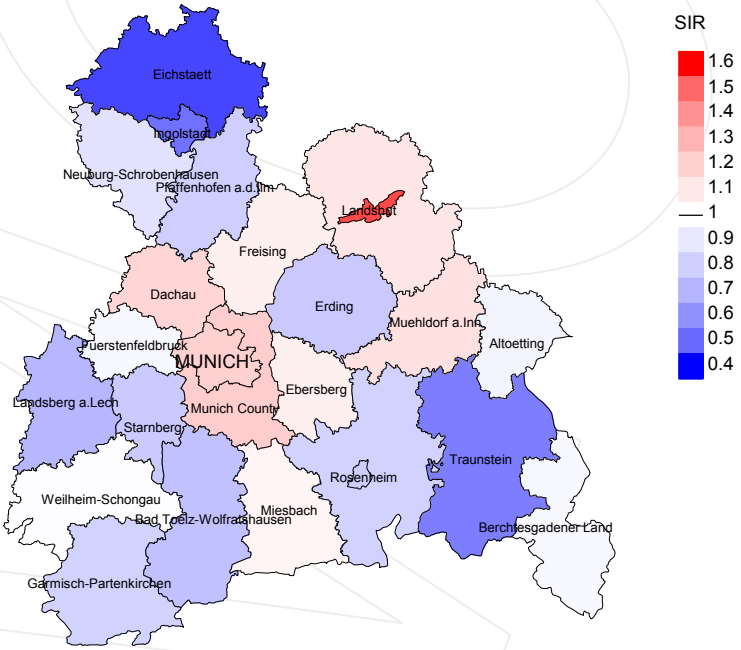


Figure 9b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SIR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=1,032, females N=2,540).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,642 female residents (averaged) in the period from 2007 to 2013 a total of 75 women were identified with newly diagnosed thyroid cancer. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.06. Though, the value of this parameter may vary with an underlying probability of 99% between 0.77 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 4.64 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	209	93.3	4.3	68	32.5	95.6
1999	200	95.5	2.5	47	23.5	93.6
2000	233	97.4	2.1	54	23.2	98.1
2001	196	98.0	2.6	43	21.9	95.3
2002	312	95.2	4.5	83	26.6	97.6
2003	302	93.0	2.6	62	20.5	93.5
2004	354	92.7	2.5	55	15.5	100.0
2005	370	89.2	1.9	54	14.6	96.3
2006	420	85.2	2.1	56	13.3	100.0
2007	580	64.1	1.2	70	12.1	92.9
2008	660	45.0	2.0	71	10.8	97.2
2009	622	42.6	0.6	49	7.9	98.0
2010	511	41.3	2.9	50	9.8	92.0
2011	457	44.2	1.8	44	9.6	97.7
2012	426	47.7	0.2	37	8.7	97.3
2013	347	99.1	3.7	33	9.5	93.9
1998-2013	6199	69.3	2.1	876	14.1	96.2

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 4.64 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	209	53	96.2	18	8.6
1999	200	45	88.9	12	6.0
2000	233	48	91.7	13	5.6
2001	196	38	86.8	13	6.6
2002	312	69	98.6	26	8.3
2003	302	81	93.8	18	6.0
2004	354	68	95.6	20	5.6
2005	370	83	100.0	20	5.4
2006	420	100	98.0	18	4.3
2007	580	92	93.5	24	4.1
2008	660	72	98.6	25	3.8
2009	622	87	97.7	19	3.1
2010	511	114	98.2	30	5.9
2011	457	134	100.0	32	7.0
2012	426	119	95.8	17	4.0
2013	347	116	100.0	26	7.5
1998-2013	6199	1319	96.7	331	5.3

Table 10c

Annual cohorts of deaths, proportion of cancer-related and non-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 4.64 m as of 2007, respectively)

Year of death	Deaths n	Prop. cancer-related %	Prop. non-cancer-related %	Prop. cancer recorded on death certificate %
1998	53	79.2	20.8	94.1
1999	45	71.1	28.9	87.5
2000	48	75.0	25.0	88.6
2001	38	68.4	31.6	87.9
2002	69	84.1	15.9	98.5
2003	81	66.7	33.3	84.2
2004	68	70.6	29.4	81.5
2005	83	77.1	22.9	78.3
2006	100	71.0	29.0	82.7
2007	92	73.9	26.1	83.7
2008	72	68.1	31.9	87.3
2009	87	74.7	25.3	87.1
2010	114	71.9	28.1	75.9
2011	134	66.4	33.6	80.6
2012	119	61.3	38.7	67.5
2013	116	61.2	38.8	69.0
1998-2013	1319	70.4	29.6	81.4

Table 11a

Medians 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 (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	18	73.3	73.3	59.1	73.3
1999	18	68.9	69.2	63.7	70.5
2000	22	76.8	76.8	76.5	76.8
2001	14	72.2	70.7	75.0	71.1
2002	21	74.8	74.7	87.0	75.5
2003	26	74.8	74.9	73.2	74.9
2004	27	72.3	73.8	71.3	70.7
2005	29	79.1	79.4	68.6	76.6
2006	36	72.2	71.1	80.1	71.5
2007	35	73.3	73.3	66.6	73.3
2008	19	77.1	77.7	70.8	77.7
2009	26	73.0	68.7	79.2	70.6
2010	41	72.3	71.5	81.1	71.6
2011	44	71.6	67.7	78.0	70.4
2012	45	75.0	75.1	75.0	75.0
2013	45	76.6	69.0	81.8	73.1
1998-2013	466	73.4	72.8	77.0	73.3

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

Medians 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 (non-cancer-related) Years	Age at death (according to death certificate) Years
1998	35	78.1	77.4	79.8	79.3
1999	27	74.7	72.0	76.9	71.7
2000	26	77.0	71.2	89.6	76.5
2001	24	79.1	67.3	80.0	78.9
2002	48	76.6	76.7	75.2	76.6
2003	55	76.9	77.7	74.8	78.4
2004	41	79.4	78.4	80.3	76.5
2005	54	78.3	76.1	83.7	76.1
2006	64	76.6	75.3	83.5	75.4
2007	57	78.0	78.0	75.9	78.1
2008	53	76.9	73.2	81.2	76.7
2009	61	77.5	76.9	82.5	80.0
2010	73	77.0	72.3	82.8	73.4
2011	90	78.5	78.1	81.3	78.1
2012	74	79.3	79.1	80.0	77.9
2013	71	78.5	75.9	79.2	75.9
1998-2013	853	77.8	76.3	80.4	76.7

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	16	1.4	0.37	0.8	0.30	1.3	0.37	1.9	0.48
1999	13	1.2	0.24	0.7	0.21	1.0	0.24	1.4	0.26
2000	18	1.6	0.30	0.8	0.24	1.4	0.30	2.1	0.38
2001	10	0.9	0.19	0.5	0.16	0.8	0.19	1.0	0.23
2002	18	1.0	0.23	0.5	0.16	0.8	0.21	1.1	0.27
2003	20	1.1	0.24	0.5	0.19	0.9	0.22	1.2	0.28
2004	20	1.1	0.19	0.5	0.14	0.8	0.17	1.2	0.22
2005	22	1.2	0.27	0.6	0.20	0.9	0.25	1.3	0.32
2006	29	1.5	0.25	0.8	0.19	1.2	0.23	1.6	0.28
2007	26	1.2	0.15	0.6	0.11	0.9	0.13	1.2	0.17
2008	14	0.6	0.08	0.3	0.05	0.5	0.07	0.7	0.09
2009	19	0.9	0.11	0.4	0.08	0.6	0.09	0.8	0.11
2010	32	1.4	0.27	0.7	0.21	1.0	0.23	1.3	0.26
2011	30	1.3	0.22	0.7	0.17	1.0	0.19	1.2	0.22
2012	34	1.5	0.25	0.7	0.17	1.1	0.21	1.5	0.27
2013	26	1.1	0.20	0.6	0.15	0.9	0.17	1.1	0.22
1998-2013	347	1.2	0.20	0.6	0.15	0.9	0.18	1.2	0.22

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	26	2.2	0.16	0.8	0.08	1.3	0.11	1.9	0.14
1999	19	1.6	0.13	0.7	0.08	1.1	0.10	1.4	0.12
2000	18	1.5	0.11	0.8	0.07	1.1	0.08	1.3	0.10
2001	16	1.3	0.11	0.6	0.07	0.8	0.08	1.0	0.10
2002	40	2.0	0.17	0.8	0.09	1.2	0.12	1.7	0.15
2003	34	1.7	0.16	0.7	0.08	1.0	0.10	1.3	0.13
2004	28	1.4	0.11	0.5	0.06	0.8	0.07	1.1	0.09
2005	42	2.1	0.15	0.8	0.08	1.2	0.10	1.6	0.12
2006	42	2.1	0.14	0.8	0.08	1.3	0.09	1.7	0.12
2007	42	1.8	0.10	0.7	0.05	1.0	0.07	1.4	0.09
2008	35	1.5	0.07	0.5	0.04	0.8	0.05	1.2	0.06
2009	46	2.0	0.10	0.7	0.05	1.1	0.06	1.3	0.07
2010	50	2.1	0.13	0.8	0.07	1.3	0.09	1.6	0.11
2011	59	2.5	0.19	0.8	0.08	1.3	0.11	1.8	0.15
2012	39	1.7	0.14	0.6	0.06	0.9	0.08	1.2	0.11
2013	45	1.9	0.21	0.7	0.12	1.1	0.14	1.4	0.17
1998-2013	581	1.9	0.13	0.7	0.07	1.1	0.09	1.4	0.11

Table 13

Age distribution of age at death (cancer-related) for period 1998-2013
(**incl. multiple primaries**)

Age at death Years	Cases n	%	Cum.%	Males n	%	Cum.%	Females n	%	Cum.%
15-19	1	0.1	0.1			0.0	1	0.2	0.2
20-24	0	0.0	0.1			0.0			0.2
25-29	3	0.3	0.4			0.0	3	0.5	0.7
30-34	1	0.1	0.5			0.0	1	0.2	0.9
35-39	4	0.4	1.0	4	1.1	1.1			0.9
40-44	4	0.4	1.4			1.1	4	0.7	1.5
45-49	18	1.9	3.3	7	2.0	3.1	11	1.9	3.4
50-54	33	3.5	6.9	13	3.7	6.9	20	3.4	6.8
55-59	49	5.2	12.1	22	6.3	13.1	27	4.6	11.5
60-64	104	11.1	23.2	54	15.4	28.6	50	8.6	20.0
65-69	97	10.4	33.6	41	11.7	40.3	56	9.6	29.6
70-74	164	17.6	51.2	65	18.6	58.9	99	17.0	46.6
75-79	170	18.2	69.4	69	19.7	78.6	101	17.3	63.9
80-84	144	15.4	84.8	46	13.1	91.7	98	16.8	80.7
85+	142	15.2	100.0	29	8.3	100.0	113	19.3	100.0
All ages	934	100.0		350	100.0		584	100.0	

Included in the statistics are 24.2% multiple primaries in males and 19.1% in females.

Table 14

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2013
(**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		1	0.0		0.1	0.03		2.7
20-24			0.0		0.0			
25-29		3	0.0		0.1	0.02		2.6
30-34		1	0.0		0.0	0.00		0.4
35-39	4		0.2	0.04	0.0		1.0	
40-44		4	0.0		0.2	0.01		0.4
45-49	7	11	0.3	0.04	0.5	0.02	0.4	0.5
50-54	13	20	0.6	0.07	1.0	0.04	0.4	0.6
55-59	22	27	1.2	0.10	1.4	0.05	0.4	0.6
60-64	54	50	3.0	0.25	2.7	0.11	0.6	0.8
65-69	41	56	2.6	0.21	3.2	0.15	0.3	0.7
70-74	65	99	5.1	0.46	6.5	0.36	0.5	1.0
75-79	69	101	8.3	0.76	8.5	0.49	0.5	0.9
80-84	46	98	9.2	1.02	10.5	0.89	0.4	0.9
85+	29	113	8.5	1.07	12.6	1.19	0.3	0.8
All ages	350	584					0.4	0.8
Mortality								
Raw			1.2	0.20	1.9	0.13		
WS			0.6	0.15	0.7	0.07		
ES			0.9	0.18	1.1	0.09		
BRD-S			1.2	0.22	1.5	0.11		
PYLL-70								
per 100,000			4.8		6.7			
ES			4.2		5.8			
AYLL-70			9.2		10.3			

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

Table 15a

Multiple primaries in deaths in period 1998-2013
MALES

Diagnosis	Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C03-C06 Oral cavity	2	1.1					2	100.0
C09-C10 Oropharynx	6	3.2	3	50.0			3	50.0
C15 Oesophagus	6	3.2	2	33.3	1	16.7	3	50.0
C16 Stomach	4	2.2					4	100.0
C18 Colon	10	5.4	6	60.0	2	20.0	2	20.0
C19-C20 Rectum	7	3.8	2	28.6			5	71.4
C22 Liver	3	1.6					3	100.0
C25 Pancreas	4	2.2	1	25.0			3	75.0
C32 Larynx	5	2.7	3	60.0	1	20.0	1	20.0
C33-C34 Lung	27	14.6	4	14.8	1	3.7	22	81.5
C43 Malign. melanoma	10	5.4	6	60.0			4	40.0
C44 Skin others	7	3.8	2	28.6	2	28.6	3	42.9
C46,C49 Soft tissue	2	1.1					2	100.0
C61 Prostate	27	14.6	19	70.4			8	29.6
C64 Kidney	9	4.9	6	66.7			3	33.3
C67 Bladder	16	8.6	7	43.8	1	6.3	8	50.0
C69 Eye melanoma	2	1.1	2	100.0				
C70-C72 CNS cancer	3	1.6					3	100.0
C73 Thyroid	3	1.6			3	100.0		
C76-C79 CUP	7	3.8	1	14.3	1	14.3	5	71.4
C82-C85 NHL	7	3.8	1	14.3			6	85.7
C90 Mult. myeloma	3	1.6	1	33.3			2	66.7
C91-C96 Leukaemia	6	3.2					6	100.0
Other primaries	9	4.9	5	55.6			4	44.4
All mult. primaries	185	100.0	71	38.4	12	6.5	102	55.1

Multiple primaries with number of cases 1 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 1998-2013
FEMALES

Diagnosis		Total n	Total %↓	Pre n	Pre ←%	Syn-chron ±30d n	Syn-chron ±30d ←%	Post n	Post ←%
C15	Oesophagus	4	1.1					4	100.0
C16	Stomach	9	2.5	2	22.2			7	77.8
C18	Colon	20	5.6	7	35.0	2	10.0	11	55.0
C19-C20	Rectum	10	2.8	2	20.0	1	10.0	7	70.0
C22	Liver	7	1.9	1	14.3	1	14.3	5	71.4
C25	Pancreas	8	2.2					8	100.0
C33-C34	Lung	37	10.3	4	10.8	6	16.2	27	73.0
C43	Malign. melanoma	9	2.5	5	55.6			4	44.4
C44	Skin others	9	2.5	6	66.7			3	33.3
C50	Breast	93	25.8	45	48.4	1	1.1	47	50.5
C53	Cervix uteri	6	1.7	5	83.3			1	16.7
C54	Corpus uteri	10	2.8	6	60.0			4	40.0
C56	Ovary	21	5.8	4	19.0			17	81.0
C64	Kidney	20	5.6	10	50.0	1	5.0	9	45.0
C67	Bladder	9	2.5	2	22.2			7	77.8
C70-C72	CNS cancer	15	4.2	1	6.7	2	13.3	12	80.0
C76-C79	CUP	7	1.9	1	14.3			6	85.7
C82-C85	NHL	9	2.5	3	33.3			6	66.7
C90	Mult. myeloma	5	1.4	2	40.0			3	60.0
C91-C96	Leukaemia	23	6.4	1	4.3			22	95.7
Other primaries		29	8.1	7	24.1	6	20.7	16	55.2
All mult. primaries		360	100.0	114	31.7	20	5.6	226	62.8

Multiple primaries with number of cases 1 to 3 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 1998-2013
(**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			0.0		0.0			
25-29		3	0.0		0.1	0.02		2.8
30-34		1	0.0		0.0	0.00		0.5
35-39	4		0.2	0.04	0.0		1.1	
40-44		2	0.0		0.1	0.00		0.2
45-49	6	10	0.3	0.04	0.4	0.02	0.4	0.6
50-54	9	20	0.4	0.05	1.0	0.04	0.3	0.8
55-59	20	18	1.1	0.10	0.9	0.04	0.4	0.4
60-64	43	38	2.4	0.23	2.0	0.10	0.6	0.7
65-69	31	47	2.0	0.21	2.7	0.14	0.3	0.7
70-74	56	85	4.4	0.52	5.6	0.38	0.5	1.1
75-79	51	75	6.2	0.82	6.3	0.47	0.5	0.9
80-84	35	80	7.0	1.03	8.6	1.04	0.4	0.9
85+	17	91	5.0	1.31	10.2	1.32	0.3	0.8
All ages	272	470					0.4	0.8
Mortality								
Raw			0.9	0.18	1.5	0.12		
WS			0.5	0.13	0.6	0.06		
ES			0.7	0.16	0.9	0.08		
BRD-S			1.0	0.20	1.2	0.10		
PYLL-70								
per 100,000			4.0		5.4			
ES			3.5		4.6			
AYLL-70			9.5		10.2			

* See corresponding tables with multiple primaries.

Table 17

Age-specific mortality (cancer-related) and proportion of all cancers
for period 1998-2013
(**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			0.0		0.0			
25-29		3	0.0		0.1	0.02		2.9
30-34		1	0.0		0.0	0.00		0.5
35-39	4		0.2	0.04	0.0		1.1	
40-44		1	0.0		0.0	0.00		0.1
45-49	2	3	0.1	0.01	0.1	0.01	0.1	0.2
50-54	8	10	0.4	0.05	0.5	0.02	0.3	0.4
55-59	14	12	0.8	0.08	0.6	0.03	0.3	0.3
60-64	30	18	1.7	0.18	1.0	0.05	0.5	0.4
65-69	19	28	1.2	0.15	1.6	0.09	0.2	0.5
70-74	45	53	3.5	0.51	3.5	0.27	0.5	0.8
75-79	38	53	4.6	0.72	4.5	0.38	0.5	0.7
80-84	26	54	5.2	0.76	5.8	0.77	0.4	0.7
85+	13	72	3.8	1.08	8.1	1.07	0.2	0.8
All ages	199	308					0.4	0.6
Mortality								
Raw			0.7	0.15	1.0	0.08		
WS			0.3	0.10	0.3	0.04		
ES			0.5	0.13	0.5	0.05		
BRD-S			0.7	0.16	0.7	0.07		
PYLL-70								
per 100,000			2.8		3.0			
ES			2.5		2.6			
AYLL-70			9.9		10.4			

* See corresponding tables with multiple primaries.

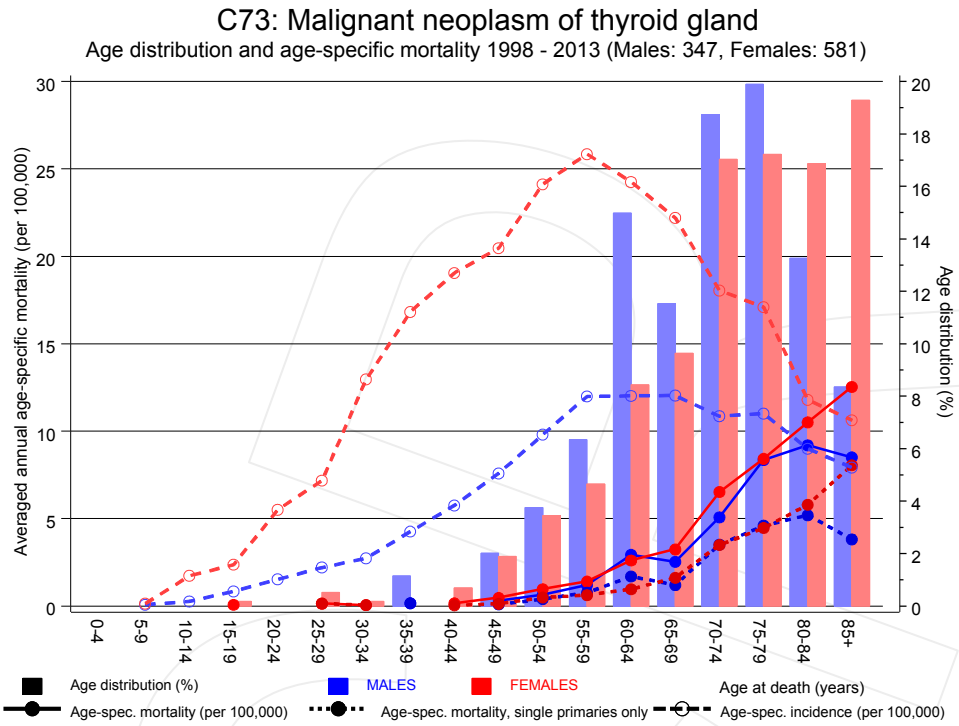
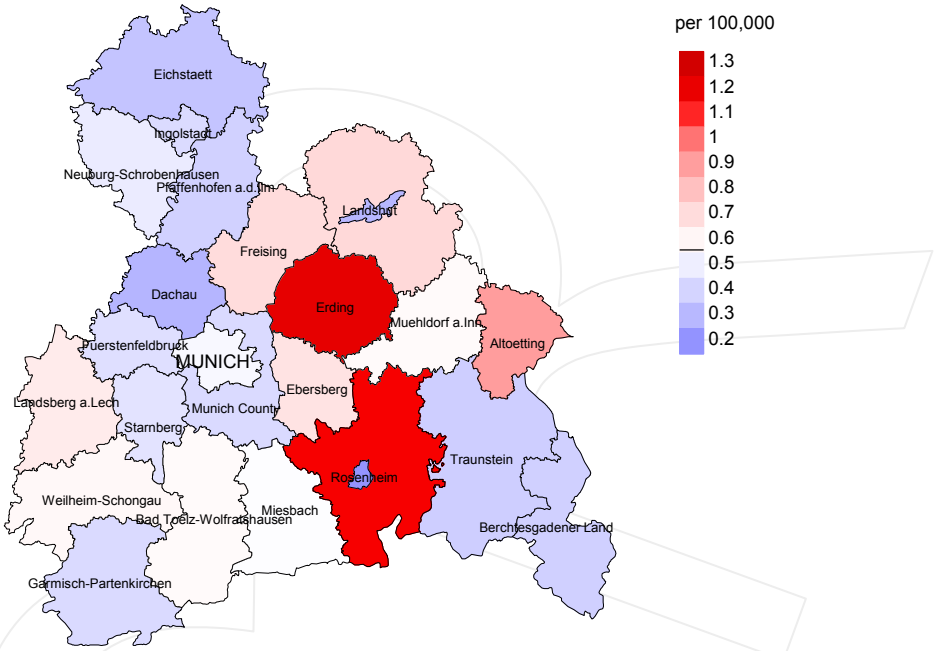


Figure 18. Distribution of age at death (bars) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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

Average mortality (world standard population) 2007 - 2013: Males



Average mortality (world standard population) 2007 - 2013: Females

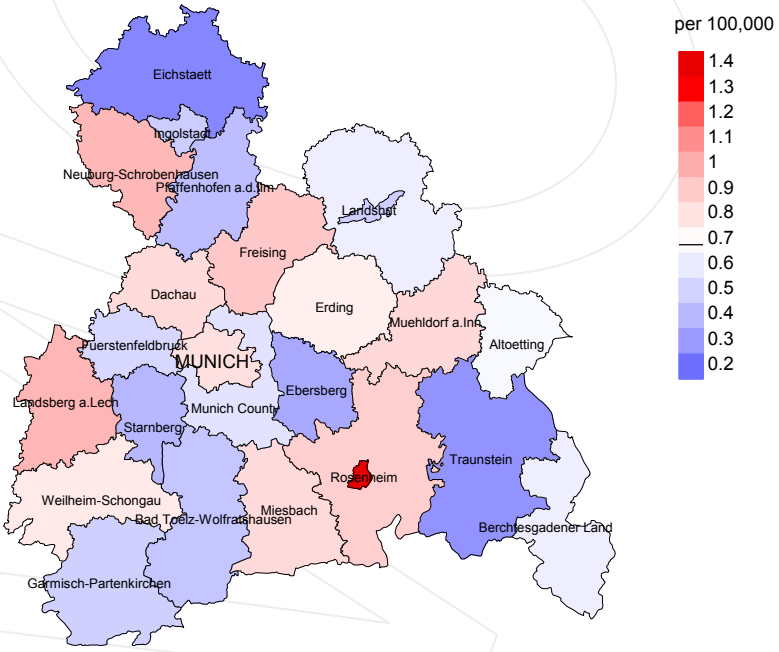
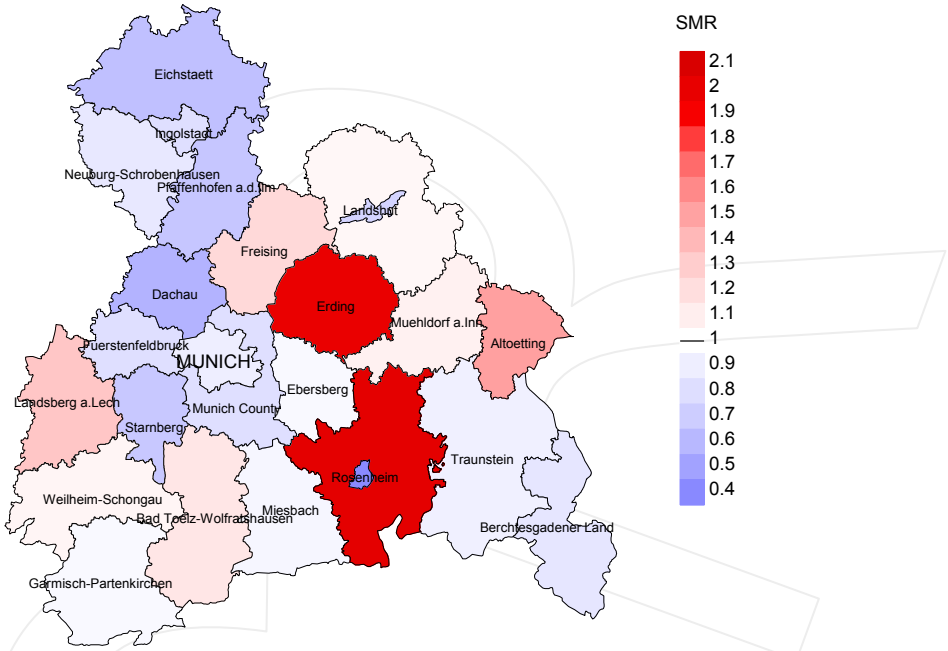


Figure 19a. Map of cancer mortality (world standard population) by county averaged for period 2007 to 2013. According to their individual mortality rates, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population mean (males 0.6/100,000 WS N=181, females 0.7/100,000 WS N=315).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,928 female residents (averaged) in the period from 2007 to 2013 a total of 5 women died from thyroid cancer. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.3/100,000 (world standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 1.4/100,000.

Standardized mortality ratio (SMR) 2007 - 2013: Males



Standardized mortality ratio (SMR) 2007 - 2013: Females

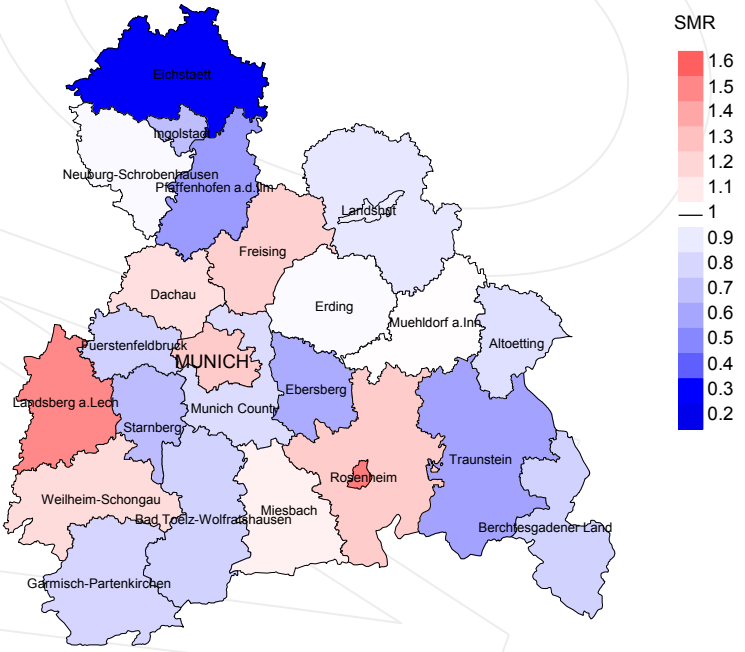


Figure 19b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2013. According to their individual SMR values, the counties are displayed in different red and blue color temperatures where the fine white color indicates the population overall of 1.0 (males N=181, females N=315).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 64,642 female residents (averaged) in the period from 2007 to 2013 a total of 5 women died from thyroid cancer. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.62. Though, the value of this parameter may vary with an underlying probability of 99% between 0.13 and 1.74, 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 cancer-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

FRG	Federal Republic of Germany
GEKID	Association of Population-based Cancer Registries in Germany (Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)
MCR	Munich Cancer Registry (Tumorregister München)
SEER	Surveillance, Epidemiology, and End Results (USA)
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)
LCL	Lower confidence limit
MI-index	Ratio between mortality and incidence
PYLL-70	Potential years of life lost prior to age 70 given a person dies before that age
SIR	Standardized incidence ratio
SMR	Standardized mortality ratio
UCL	Upper confidence limit
WS	World standard population

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