Munich Cancer Registry



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- ▶ Selection Matrix
- ▶ Homepage
- ▶ Deutsch

ICD-10 C92.1, C92.2: Chronic myel. leukaemia

Incidence and Mortality

Year of diagnosis	1998-2020
Patients	1,225
Diseases	1,225
Creation date	12/21/2021
Database export	12/20/2021
Population	4.95 m



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

https://www.tumorregister-muenchen.de/en/facts/base/bC9212E-ICD-10-C92.1-C92.2-Chronic-myel.-leukaemia-incidence-and-mortality.pdf

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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 4.69 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.

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, December 2021

- 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 2.65 million to 4.10 in 2002, and to 4.69 million in 2007).
- 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.

Some remarks regarding this cancer type

The results for leukemias should be interpreted with caution. As with other primarily non-surgically or non-radiologically treated cancer diseases, the MCR hardly manages to obtain even the simplest information on this cancer. The proportion of DCO cases indicates a situation that is far away from a satisfying cooperation. In the group of institutions that potentially participate in reporting are a few hospitals that refuse any contribution to MCR.

ICD-10 codes (ICD-10 2016) used for specifying cancer site

Code	Description
C92.1	Chronic myeloid leukaemia [CML], BCR/ABL-positive
C92.2	Atypical chronic myeloid leukaemia, BCR/ABL- negative

INCIDENCE

Table 1

Cases by year of diagnosis, proportions of DCO, further malignancies, deaths, and active follow-up (ALL PATIENTS) (incl. DCO)

				_			
				Prop.	/ _		
				at least	Prop.		
				1 further	at least		_
			_	malign.	1 further	_	Prop.
_	All	DCO	Prop.	prior +	malign.	Prop.	actively
Year of	cases	cases	DCO	synchron.	after	deaths	followed
diagnosis	n	n	%	96	ଚ	%	90
1000	1.0	-	F 6	0 0	100	00.0	100 0
1998	18	1	5.6	0.0	10.2	83.3	100.0
1999	35	6	17.1	1.9	10.2	71.4	100.0
2000	37	10	27.0	3.3	10.1	73.0	100.0
2001	41	20	48.8	6.1	10.0	78.0	97.6
2002	59	22	37.3	6.8	10.0	72.9	96.6 #
2003	72	26	36.1	7.6	9.7	72.2	98.6
2004	60	21	35.0	8.4	10.1	68.3	98.3
2005	52	18	34.6	9.1	9.6	63.5	96.2
2006	56	22	39.3	10.7	9.2	73.2	91.1
2007	62	20	32.3	11.6	8.7	59.7	95.2 #
2008	69	27	39.1	13.5	7.9	65.2	97.1
2009	60	14	23.3	14.0	7.8	56.7	95.0
2010	74	20	27.0	15.5	7.6	56.8	98.6
2011	58	16	27.6	16.1	7.3	65.5	98.3
2012	66	16	24.2	17.0	7.3	54.5	98.5
2013	70	20	28.6	17.8	7.8	52.9	95.7
2014	67	15	22.4	19.0	7.9	52.2	94.0
2015	68	13	19.1	19.4	7.6	47.1	89.7
2016	54	16	29.6	19.6	6.6	50.0	98.1
2017	60	15	25.0	19.7	3.5	41.7	98.3
2018	24	1	4.2	19.6	1.2	25.0	100.0
2019	24	1	4.2	19.6	1.6	25.0	100.0
2020	39			19.5	2.7	12.8	94.9 ##
1998-2020	1225	340	27.8	19.5	10.2	58.3	96.7

^{1,225} cases diagnosed 1998-2020 are related to a total of 1,225 patients. Currently, in 350 (28.6 %) of these 1,225 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 264 / 72 / 14 (21.6 % / 5.9 % / 1.1 %) patients exist having 2 / 3 / 4+ malignancies.

How to interpret:

In 2018, a subgroup of 24 cases has been diagnosed, of which 19.6 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.2 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

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

^{##} Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be retreived from the respective headings.

Cases by year of diagnosis, proportions of DCO, further malignancies, deaths, and active follow-up (MALES) (incl. DCO)

Table 1a

			DCO	Prop.	Prop. at least 1 further malign. prior +	Prop. at least 1 further malign.	Prop.	Prop.
Year of	Males	Males	cases	DCO	synchron.	after	deaths	followed
diagnosis	n	%	n	%	%	%	%	%
a_a_j1100_0		ŭ	/		,		Ü	· ·
1998	8	44.4			0.0	10.2	87.5	100.0
1999	19	54.3	2	10.5	0.0	10.0	63.2	100.0
2000	19	51.4	4	21.1	0.0	9.9	84.2	100.0
2001	19	46.3	7	36.8	3.1	9.8	68.4	94.7
2002	25	42.4	7	28.0	5.6	10.0	72.0	96.0 #
2003	34	47.2	9	26.5	6.5	9.7	73.5	97.1
2004	35	58.3	10	28.6	6.9	10.2	60.0	100.0
2005	22	42.3	6	27.3	7.2	9.5	77.3	95.5
2006	32	57.1	12	37.5	9.4	9.0	78.1	90.6
2007	35	56.5	10	28.6	10.5	8.8	57.1	94.3 #
2008	40	58.0	19	47.5	13.5	8.0	67.5	95.0
2009	31	51.7	8	25.8	13.5	7.8	54.8	96.8
2010	36	48.6	12	33.3	14.9	7.3	63.9	97.2
2011	35	60.3	9	25.7	15.4	7.2	60.0	97.1
2012	40	60.6	9	22.5	16.0	7.4	57.5	97.5
2013	43	61.4	13	30.2	17.1	8.2	58.1	100.0
2014	45	67.2	8	17.8	18.5	8.5	55.6	95.6
2015	38	55.9	8	21.1	18.9	8.3	55.3	94.7
2016	27	50.0	10	37.0	19.2	6.5	59.3	100.0
2017	32	53.3	6	18.8	19.8	5.0	34.4	96.9
2018	13	54.2	1	7.7	19.7	2.0	38.5	100.0
2019	16	66.7	1	6.3	19.9	2.7	37.5	100.0
2020	23	59.0			19.9	4.8	21.7	91.3 ##
1998-2020	667	54.4	171	25.6	19.9	10.2	59.8	96.7

667 cases diagnosed 1998-2020 are related to a total of 667 patients. Currently, in 194 (29.1 %) of these 667 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 143 / 41 / 10 (21.4 % / 6.1 % / 1.5 %) patients exist having 2 / 3 / 4+ malignancies.

- # The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.
- ## Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be retreived from the respective headings.

How to interpret:

In 2018, a subgroup of 13 cases has been diagnosed, of which 19.7 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 2.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 1b

Cases by year of diagnosis, proportions of DCO, further malignancies, deaths, and active follow-up (FEMALES) (incl. DCO)

					Prop.			
					at least	Prop.		
					1 further	at least		
					malign.	1 further		Prop.
			DCO	Prop.	prior +	malign.	Prop.	actively
Year of	Females	Females	cases	DCO	synchron.	after	deaths	followed
diagnosis	n	용	n	용	90	olo	୦	%
1000	1.0	55/6	1	10 0	0 0	100	0.0	100 0
1998	10	55.6	1	10.0	0.0	10.2	80.0	100.0
1999	16	45.7	4	25.0	3.8	10.4	81.3	100.0
2000	18	48.6	6	33.3	6.8	10.3	61.1	100.0
2001	22	53.7	13	59.1	9.1	10.3	86.4	100.0
2002	34	57.6	15	44.1	8.0	10.1	73.5	97.1 #
2003	38	52.8	17	44.7	8.7	9.8	71.1	100.0
2004	25	41.7	11	44.0	9.8	10.1	80.0	96.0
2005	30	57.7	12	40.0	10.9	9.8	53.3	96.7
2006	24	42.9	10	41.7	12.0	9.5	66.7	91.7
2007	27	43.5	10	37.0	12.7	8.7	63.0	96.3 #
2008	29	42.0	8	27.6	13.6	7.8	62.1	100.0
2009	29	48.3	6	20.7	14.6	7.9	58.6	93.1
2010	38	51.4	8	21.1	16.2	8.0	50.0	100.0
2011	23	39.7	7	30.4	16.8	7.5	73.9	100.0
2012	26	39.4	7	26.9	18.0	7.3	50.0	100.0
2013	27	38.6	7	25.9	18.5	7.2	44.4	88.9
2014	22	32.8	7	31.8	19.6	7.1	45.5	90.9
2015	30	44.1	5	16.7	20.1	6.7	36.7	83.3
2016	27	50.0	6	22.2	20.0	6.7	40.7	96.3
2017	28	46.7	9	32.1	19.5	1.6	50.0	100.0
2018	11	45.8			19.5	0.0	9.1	100.0
2019	8	33.3			19.2	0.0		100.0
2020	16	41.0			19.0	0.0		100.0 ##
1998-2020	558	45.6	169	30.3	19.0	10.2	56.5	96.6

558 cases diagnosed 1998-2020 are related to a total of 558 patients. Currently, in 156 (28.0 %) of these 558 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 121 / 31 / 4 (21.7 % / 5.6 % / 0.7 %) patients exist having 2 / 3 / 4+ malignancies.

- # The increases of incident cases in 2002 and 2007 reflect the expansion to additional registry areas.
- ## Please be aware that data of recent annual patient cohorts may not yet be fully processed. The years under evaluation can be retreived from the respective headings.

How to interpret:

In 2018, a subgroup of 11 cases has been diagnosed, of which 19.5 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 0.0 % of cases, at least one new malignancy has occurred during the follow-up period (all numbers refer to the date of the database export, see cover sheet).

Table 2

Incidence measures by year of diagnosis including DCO cases (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

				_		_ \		_		_
			Males		Males		Males		Males	
Year of		Females		Inc.	Inc.	Inc.	Inc.	Inc.		Inc.
diagnosis	n	n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
1000	0	1.0			٥	0 5		0 6	0 0	۰
1998	8	10	0.7	0.9	0.5	0.5	0.7	0.6	0.8	0.7
1999	19	16	1.7	1.3	1.2	0.7	1.5	1.0	1.7	1.2
2000	19	18	1.7	1.5	1.2	0.7	1.5	1.0	1.8	1.2
2001	19	22	1.6	1.8	1.2	0.8	1.5	1.1	1.8	1.5
2002	25	34	1.3	1.7	0.8	0.9	/ 1.1	1.3	1.5	1.5
2003	34	38	1.8	1.9	1.1	0.9	1.6	1.3	1.9	1.6
2004	35	25	1.9	1.3	1.1	0.7	1.5	0.9	1.9	1.1
2005	22	30	1.2	1.5	0.6	0.7	0.9	1.0	1.2	1.3
2006	32	24	1.7	1.2	0.9	0.5	1.3	0.8	1.7	1.0
2007	35	27	1.6	1.2	0.9	0.5	1.3	0.7	1.6	0.9
2008	40	29	1.8	1.2	0.9	0.5	1.3	0.7	1.8	1.0
2009	31	29	1.4	1.2	0.8	0.6	1.1	0.9	1.3	1.0
2010	36	38	1.6	1.6	0.9	0.8	_1.2	1.0	1.6	1.3
2011	35	23	1.6	1.0	0.9	0.4	1.2	0.6	1.5	0.8
2012	40	26	1.8	1.1	1.0	0.5	1.3	0.7	1.7	0.8
2013	43	27	1.9	1.1	1.0	0.5	1.3	0.7	1.7	0.9
2014	45	22	1.9	0.9	1.0	0.4	1.4	0.6	1.8	0.7
2015	38	30	1.6	1.2	0.7	0.6	1.1	0.8	1.5	1.0
2016	27	27	1.1	1.1	0.6	0.5	0.8	0.7	1.0	0.8
2017	32	28	1.3	1.1	0.7	0.5	1.0	0.7	1.2	0.9
2018	13	11	0.5	0.4	0.3	0.2	0.4	0.3	0.5	0.4
2019	16	8	0.7	0.3	0.4	0.2	0.5	0.3	0.6	0.3
2020	23	16	0.9	0.6	0.5	0.4	0.7	0.5	0.8	0.6
2020	25	10	0.3	0.0	0.5	0.1	0.7	0.5	0.0	0.0
1998-2020	667	558	1.4	1.2	0.8	0.5	1.1	0.8	1.4	0.9
1000 2020	007	330	1.1	1.2	0.0	0.5	+.+	0.0	±•4	0.5

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

Table 3 $\label{eq:Age_age} \mbox{Age distribution parameters by year of diagnosis (ALL PATIENTS) } \mbox{(incl. DCO)}$

Year of	Cases		Std.					Median			
diagnosis	n	Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%	
1998	18	58.8	22,7	27.0	87.4	27.0	36.6	64.7	81.5	86.5	
1999	35	61.5	18.0	1.5	88.5	35.3	54.9	68.2	72.5	79.7	
2000	37	63.5	19.9	16.5	97.6	34.7	49.8	66.7	78.1	88.0	
2001	41	62.7	21.6	9.8	96.4	32.9	51.2	65.3	79.8	85.9	
2002	59	65.2	16.1	27.4	96.1	38.8	54.3	67.3	76.1	83.8	
2003	72	64.3	18.7	21.0	98.9	38.1	49.8	68.1	80.4	85.1	
2004	60	65.2	15.4	19.4	93.3	45.0	55.5	66.0	75.8	84.6	
2005	52	65.9	16.7	25.2	92.9	41.6	56.1	69.4	78.5	84.3	
2006	56	68.1	16.3	28.0	92.5	40.9	60.3	71.5	79.0	86.5	
2007	62	64.8	19.0	18.0	94.2	37.6	46.8	68.8	81.9	86.0	
2008	69	69.9	17.2	11.3	98.1	41.7	62.5	74.3	81.5	87.2	
2009	60	64.6	16.6	28.3	100	42.2	52.9	65.8	76.0	85.9	
2010	74	67.3	17.2	15.7	91.4	47.6	54.9	71.8	79.2	86.9	
2011	58	65.8	16.1	16.6	91.4	43.6	54.3	68.7	78.5	84.1	
2012	66	66.4	20.8	5.4	98.7	35.7	57.0	72.4	80.9	88.4	
2013	70	67.2	16.4	21.7	92.6	48.4	53.3	71.7	78.3	84.5	
2014	67	67.1	17.5	20.5	92.7	38.9	57.6	71.2	81.4	86.7	
2015	68	68.9	16.7	24.5	92.1	41.7	57.1	73.9	81.1	87.3	
2016	54	69.0	18.2	26.2	96.0	41.9	56.9	72.9	83.1	88.4	
2017	60	67.9	17.8	22.8	96.0	40.6	58.3	71.7	82.1	86.9	
2018	24	66.3	14.3	24.5	87.7	52.2	61.2	66.6	77.9	81.5	
2019	24	59.4	20.7	17.1	84.4	27.4	44.7	60.5	78.2	82.9	
2020	39	59.1	18.0	22.6	83.6	31.7	43.5	61.9	73.1	82.9	
1998-2020	1225	65.8	17.8	1.5	100	39.6	54.3	69.6	79.5	85.9	

Table 3a

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

Year of	Cases		Std.					Median		
diagnosis	n	Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	8	57.9	20.7	32.4	86.5	32.4	38.6	58.9	74.4	86.5
1999	19	56.3	19.9	1.5	80.3	30.7	43.4	59.9	69.8	78.3
2000	19	59.6	19.0	16.5	97.6	34.7	48.2	60.5	72.4	79.6
2001	19	53.2	23.2	9.8	96.4	23.3	37.7	51.8	77.1	81.6
2002	25	61.5	16.2	32.7	83.8	38.0	49.7	62.4	75.5	78.7
2003	34	59.7	19.3	21.0	91.1	35.2	41.9	61.0	77.3	83.7
2004	35	63.7	16.1	19.4	90.1	41.8	51.0	65.7	75.5	84.6
2005	22	63.0	17.7	30.9	91.0	39.5	43.7	69.4	77.7	81.5
2006	32	68.6	14.7	37.3	92.5	48.2	60.3	70.7	77.0	86.5
2007	35	61.6	19.7	18.0	91.8	33.9	44.2	66.5	77.4	84.0
2008	40	68.4	17.2	11.3	98.1	44.7	61.5	72.6	80.5	84.0
2009	31	63.5	16.8	28.3	92.2	43.0	51.2	65.8	76.3	85.1
2010	36	66.1	18.4	15.7	89.2	38.5	62.4	71.9	78.0	80.2
2011	35	63.8	17.0	16.6	91.4	42.8	53.3	67.7	75.2	83.5
2012	40	64.9	21.3	10.4	94.0	30.6	54.4	72.2	80.9	84.9
2013	43	65.8	16.5	21.7	92.6	48.0	52.4	71.8	75.4	83.3
2014	45	66.9	16.7	20.5	92.7	39.7	59.1	70.6	78.3	85.9
2015	38	69.4	16.7	24.5	91.8	41.7	55.7	74.7	80.8	86.8
2016	27	67.1	18.6	28.4	96.0	31.1	56.9	69.7	79.8	88.3
2017	32	65.1	19.9	22.8	96.0	34.0	52.1	70.4	77.8	86.6
2018	13	66.8	16.5	24.5	87.1	52.4	63.0	68.4	79.2	81.3
2019	16	62.5	21.2	17.1	84.4	27.4	47.7	71.5	79.1	83.8
2020	23	61.7	16.4	31.9	83.6	36.9	50.2	64.7	76.6	83.1
1998-2020	667	64.1	18.2	1.5	98.1	38.0	51.8	68.2	78.0	84.1

Table 3b

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

Year of	Cases		Std.					Median		
diagnosis	n	Mean	dev.	Min.	Max.	10%	25%	50%	75%	90%
1998	10	59.5	25.3	27.0	87.4	27.0	33.6	65.8	81.7	86.5
1999	16	67.6	13.8	35.3	88.5	46.3	58.6	70.8	77.6	79.8
2000	18	67.6	20.5	27.4	93.9	32.2	54.5	73.4	86.2	89.0
2001	22	70.9	16.6	26.8	91.1	53.6	62.4	73.9	84.0	86.8
2002	34	67.9	15.8	27.4	96.1	51.9	55.4	68.6	78.6	88.4
2003	38	68.4	17.3	25.2	98.9	42.2	54.8	73.4	82.3	87.8
2004	25	67.3	14.3	28.0	93.3	49.3	57.6	68.7	76.5	84.7
2005	30	68.1	16.0	25.2	92.9	44.1	60.6	69.7	79.5	85.1
2006	24	67.6	18.6	28.0	92.2	33.3	60.9	73.5	79.8	84.1
2007	27	68.9	17.6	35.1	94.2	43.6	53.2	69.8	84.6	86.4
2008	29	71.9	17.3	26.6	94.9	41.4	62.6	74.9	84.5	88.6
2009	29	65.8	16.5	30.5	100	41.4	56.5	65.8	75.6	89.0
2010	38	68.3	16.2	29.0	91.4	47.6	53.9	71.8	83.4	89.3
2011	23	69.0	14.3	41.3	87.1	50.5	55.2	73.3	81.4	84.1
2012	26	68.6	20.0	5.4	98.7	44.8	57.0	73.1	80.9	90.1
2013	27	69.4	16.4	25.3	92.4	50.7	55.0	71.6	83.3	88.0
2014	22	67.4	19.5	27.9	92.3	38.9	48.9	74.2	84.0	86.9
2015	30	68.4	16.9	31.1	92.1	41.6	58.5	73.7	83.0	87.9
2016	27	70.8	17.9	26.2	94.8	49.9	53.6	78.6	87.9	89.2
2017	28	71.1	14.7	39.6	95.2	45.6	62.8	73.1	82.8	87.2
2018	11	65.7	12.0	46.7	87.7	52.2	60.8	62.5	75.0	81.5
2019	8	53.2	19.4	25.1	82.9	25.1	38.0	54.2	66.5	82.9
2020	16	55.5	20.0	22.6	82.9	27.2	37.5	60.2	72.9	79.3
1998-2020	558	67.9	17.1	5.4	100	42.2	55.6	71.3	81.9	87.7

Age at									
diagnosis	Cases			Males			Females		
Years	n	%	Cum.%	n	용	Cum.%	n	용	Cum.%
0-4									
5-9	1	0.1	0.1			0.0	1	0.3	0.3
10-14	2	0.3	0.4	2	0.4	0.4	_	•••	0.3
15-19	7	0.9	1.3	7	1.5	2.0			0.3
20-24	8	1.0	2.3	7	1.5	3.5/	1	0.3	0.6
25-29	17	2.1	4.4	10	2.2	5.7	7	2.1	2.6
30-34	15	1.9	6.3	9	2.0	7.7	6	1.8	4.4
35-39	22	2.8	9.1	14	3.1	10.8	8	2.3	6.7
40 - 44	35	4.4	13.5	22	4.8	15.6	13	3.8	10.6
45-49	39	4.9	18.4	18	4.0	19.6	21	6.2	16.7
50-54	55	6.9	25.3	26	5.7	25.3	29	8.5	25.2
55-59	49	6.2	31.4	28	6.2	31.5	21	6.2	31.4
60-64	56	7.0	38.5	29	6.4	37.9	27	7.9	39.3
65-69	86	10.8	49.3	55	12.1	50.0	31	9.1	48.4
70-74	103	13.0	62.3	64	14.1	64.1	39	11.4	59.8
75-79	96	12.1	74.3	62	13.7	77.8	34	10.0	69.8
80-84	109	13.7	88.1	60	13.2	91.0	49	14.4	84.2
85+	95	11.9	100.0	41	9.0	100.0	54	15.8	100.0
All ages	795	100.0		454	100.0		341	100.0	

Table 5 $\label{eq:Age-specific} \mbox{Age-specific incidence, DCO rate and proportion of all cancers} \\ \mbox{for period 2007-2020}$

							Males	Females
			Males	Females	Males	Females	Prop.all	Prop.all
Age at			Age-	Age-	DCO rate	DCO rate	cancers	cancers
diagnosis	Males	Females	spec.	spec.	n=114	n = 80	n=153686	n=155051
Years	n	n	incid.	incid.	%	%	용	%
0- 4								
5- 9		1		0.1				1.0
10-14	2		0.1				1.5	
15-19	7		0.4				2.2	
20-24	7	1	0.3	0.1			1.1	0.2
25-29	10	7	0.4	0.3			1.0	0.6
30-34	9	6	0.4	0.3			0.7	0.3
35-39	14	8	0.6	0.4			0.8	0.2
40 - 44	22	13	0.9	0.5	4.5		0.8	0.2
45-49	18	21	0.7	0.8	5.6		0.4	0.2
50-54	26	29	1.0	1.2	3.8		0.3	0.2
55-59	28	21	1.3	1.0	10.7	4.8	0.2	0.2
60-64	29	27	1.6	1.4	13.8	3.7	0.2	0.2
65-69	55	31/	3.4	1.7	14.5	12.9	0.2	0.2
70-74	64	39	4.3	2.3	31.3	15.4	0.2	0.2
75-79	62	34	5.1	2.3	30.6	29.4	0.3	0.2
80-84	60	49	8.3	4.6	51.7	40.8	0.4	0.3
85+	41	54	8.8	5.2	63.4	70.4	0.4	0.3
All ages	454	341			25.1	23.5	0.3	0.2
Incidence								
Raw			1.4	1.0				
WS			0.8	0.5				
ES			1.0	0.7				
BRD-S			1.3	0.8				

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).

ICD-10 C92.1, C92.2: Chronic myeloid leukaemia (CML) Age distribution and age-specific incidence 2007 - 2020 (Males: 454, Females: 341)

9

00000 1 d) 90 distribution (%)

Age distribution (%)

MALES

FEMALES

Age at diagnosis (years)

Figure 6. Age distribution (males: mean=65.5 yrs, median=70.0 yrs; females: mean=67.9 yrs, median=71.1 yrs) and age-specific incidence.



Age-spec. incidence (per 100,000)

ICD-10 C92.1, C92.2: Chronic myeloid leukaemia (CML)

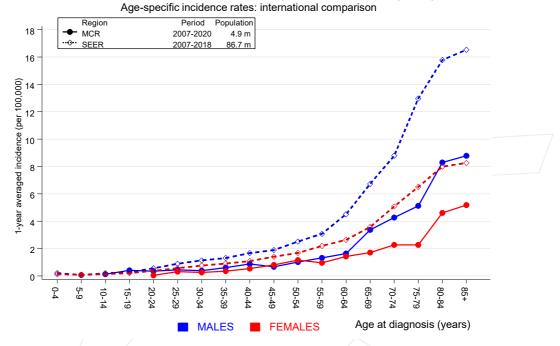


Figure 6a. Age-specific incidence in MCR registry areas compared to SEER (Surveillance, Epidemiology, and End Results, USA).



Reference:

Surveillance, Epidemiology, and End Results (SEER) Program SEER*Stat Database: Incidence - SEER 21 Regs Research Data, released April 2021, based on the November 2020 submission. http://www.seer.cancer.gov.

Table 7a

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998-2020

MALES

		Observed	Expected		CI	CI			DCO
Diagnosi	Ls	/ n /	n	SIR	95%	95%	E	AR	응
C09-C10	Oropharynx	/ 1 /	0.3	3.8	0.1	21.2	3	. 7	
C15	Oesophagus	3 /	0.5	6.2	1.3	18.2	# 12	.7	
C16	Stomach	/ 3/	0.9	3.3	0.7	9.7	10	.6	
C17	Small intestine /	2	0.1	13.5	1.6	48.9	# 9	.3	
C18	Colon	8	2.2	3.6	1.5	7.0	# 29	.1	
C19-C20	Rectum	2	1.3	1.6	0.2	5.8	3	.8	
C22	Liver	3	0.7	4.3	0.9	12.7	11	.6	
C23-C24	Bile	1	0.2	4.1	0.1	22.6	3	.8	
C25	Pancreas	3	0.9	3.3	0.7	9.6	10	.5	
C33-C34	Lung	4	2.8	1.4	0.4	3.7	6	.1	
C40-C41	Bone	1	0.0	44.0	1.1	245.3	# 4	.9	
C43	Malign. melanoma	7	1.1	6.1	2.5	12.6	# 29	.5	
C61	Prostate	14	6.6	2.1	1.2	3.6	# 37	.3	
C64	Kidney	4	0.8	4.8	1.3	12.3	# 16	.0	
C67	Bladder	3	1.1	2.8	0.6	8.2	9	. 7	
C76-C79	CUP	1	0.4	2.5	0.1	14.1	3	.1	
C81	Hodgkin lymphoma	1	0.1	14.4	0.4	80.2	4	.7	
C82-C85	NHL	4	1.0	3.9	1.1	10.1	# 15	.1	
C90	Mult. myeloma	1	0.3	3.2	0.1	18.0	3	.5	
C91-C96	Leukaemia	4	0.4	11.0	3.0	28.1	# 18	.3	25.0
Not obse	erved	0	2.3	0.0	0.0	1.6	/ -11	. 4	
All furt	ther malignancies	70	24.0	2.9	2.3	3.7	# 231	.9	1.4
Patients			542						
Median age	e at next malignar	ncy (years) 71.6						
Person-yea	ars		1983						
Mean obser	rvation time (year	rs)	3.7						
Median obs	servation time (ye	ears)	2.0						

The occurrence of further specified malignancy is statistically significant.

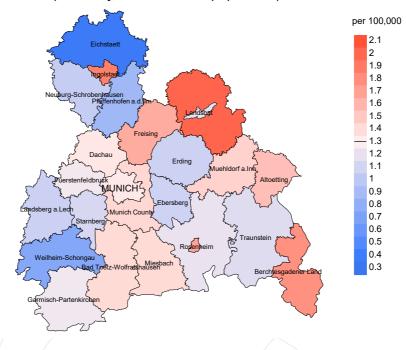
Table 7b

Standardized incidence ratio (SIR, with 95% confidence limits), excess absolute risk (EAR) and DCO rate of further malignancies for period 1998-2020 FEMALES

		Observed	Expected		CI	CI		DCO
Diagnosi	Ls	/ n /	n	SIR	95%	95%	EAR	용
C09-C10	Oropharynx	/ 1/	0.1	14.7	0.4	82.2	5.5	
C16	Stomach	2 3	0.5	3.9	0.5	14.2	8.9	
C18	Colon	3	1.4	2.1	0.4	6.1	9.3	
C19-C20	Rectum	1	0.6	/1.7	0.0	9.2	2.3	
C21	Anus/canal	1	0.1	11.3	0.3	63.2	5.4	100.0
C25	Pancreas	1	0.7	1.4	0.0	8.1	1.8	100.0
C33-C34	Lung	2	1.2	1.7	0.2	6.1	4.8	
C43	Malign. melanoma	1	0.6	1.5	0.0	8.6	2.1	
C46,C49	Soft tissue	1	0.1	11.0	0.3	61.3	5.4	
C50	Breast	13	5.0	2.6	1.4	4.5	# 47.8	
C51	Vulva	1	0.2	6.2	0.2	34.8	5.0	
C53	Cervix uteri	1	0.2	4.2	0.1	23.1	4.5	
C54	Corpus uteri	3	0.9	3.4	0.7	10.1	12.7	
C82-C85	NHL	3	0.6	5.0	1.0	14.7	# 14.3	33.3
C90	Mult. myeloma	2	0.2	10.7	1.3	38.8	# 10.8	
C91-C96	Leukaemia	4	0.2	17.6	4.8	45.0	# 22.4	25.0
Not obse	erved	0	3.3	0.0	0.0	1.1	-19.4	
All furt	ther malignancies	40	15.8	2.5	1.8	3.4	# 143.7	10.0
Patients			431					
Median age	at next malignand	cy (years)	68.8					
Person-year	as .		1682					
Mean observ	ation time (years	5)	3.9					
Median obse	ervation time (yea	ars)	2.5					

The occurrence of further specified malignancy is statistically significant.

Average incidence (Germany 1987 standard population) 2007 - 2020: Males



werage incidence (Germany 1987 standard population) 2007 - 2020: Females

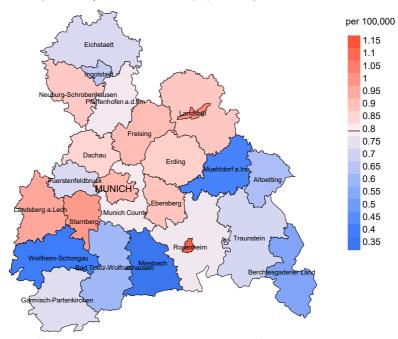
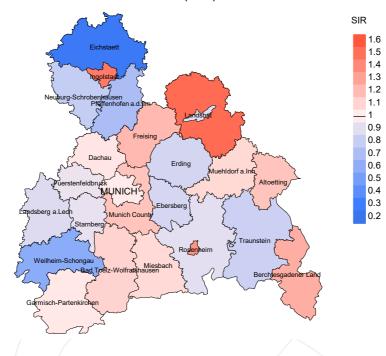


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 1.3/100,000 WS N=454, females 0.8/100,000 WS N=341).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 10 women were identified with newly diagnosed chronic myel. leukaemia. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 0.9/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.3 and 2.0/100,000.

Standardized incidence ratio (SIR) 2007 - 2020: Males



Standardized incidence ratio (SIR) 2007 - 2020: Females

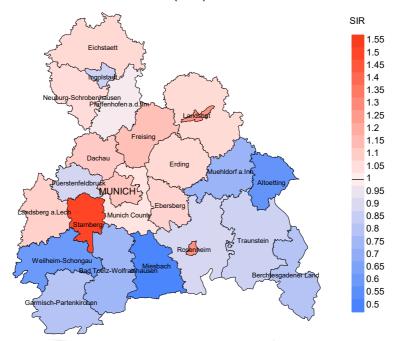


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=454, females N=341).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2020 a total of 10 women were identified with newly diagnosed chronic myel. leukaemia. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 1.08. Though, the value of this parameter may vary with an underlying probability of 99% between 0.40 and 2.30, and is therefore not statistically striking.

MORTALITY

Table 9a

Annual cohorts: Incident cancers, follow-up status, proportion of DCO, deaths among the annual cohorts and proportion of available death certificates (with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

		Prop.				Prop. deaths
	Incident	actively	Prop.		Prop.	with death
Year of	cases	followed	DCO	Deaths	deaths	certific.
diagnosis	n	%	%	n	90	%
1998	18	100.0	5.6	15	83.3	93.3
1999	35	100.0	17.1	25	71.4	96.0
2000	37	100.0	27.0	27	73.0	100.0
2001	41	97.6	48.8	32	78.0	96.9
2002	59	96.6	37.3	43	72.9	100.0
2003	72	98.6	36.1	52	72.2	98.1
2004	60	98.3	35.0	41	68.3	97.6
2005	52	96.2	34.6	33	63.5	100.0
2006	56	91.1	39.3	41	73.2	100.0
2007	62	95.2	32.3	37	59.7	97.3
2008	69	97.1	39.1	45	65.2	100.0
2009	60	95.0	23.3	34	56.7	97.1
2010	74	98.6	27.0	42	56.8	97.6
2011	58	98.3	27.6	38	65.5	94.7
2012	66	98.5	24.2	36	54.5	100.0
2013	70	95.7	28.6	37	52.9	91.9
2014	67	94.0	22.4	35	52.2	88.6
2015	68	89.7	19.1	32	47.1	87.5
2016	54	98.1	29.6	27	50.0	88.9
2017	60	98.3	25.0	25	41.7	92.0
2018	24	100.0	4.2	6	25.0	83.3
2019	24	100.0	4.2	6	25.0	100.0
2020	39	94.9		5	12.8	80.0
1998-2020	1225	96.7	27.8	714	58.3	96.1

Table 9b

Annual cohorts of incident cancers and deaths, proportion of death certificates and cases deceased within the same year of being diagnosed with cancer (incl. DCO)

(with respect to registry area expansion from 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

			Prop.		
			deaths		Prop.
Year of	Incident		with death	Deaths in	deaths in
diagnosis/	cases	Deaths	certific.	same year	same year
death	n /	n	%	n	%
1998	18	14	100.0	2	11.1
1999	35	14	92.9	/ 1	2.9
2000	37	27	92.6	10	27.0
2001	41	31	96.8	15	36.6
2002	59	37	100.0	24	40.7
2003	72	30	100.0	25	34.7
2004	60	37	97.3	20	33.3
2005	52	36	100.0	20	38.5
2006	56	35	100.0	28	50.0
2007	62	27	100.0	21	33.9
2008	69	29	93.1	27	39.1
2009	60	26	100.0	18	30.0
2010	74	22	100.0	17	23.0
2011	58	37	100.0	20	34.5
2012	66	32	96.9	18	27.3
2013	70	45	97.8	22	31.4
2014	67	44	100.0	17	25.4
2015	68	38	100.0	18	26.5
2016	54	23	100.0	15	27.8
2017	60	33	100.0	21	35.0
2018	24	27	59.3	2	8.3
2019	24	25	44.0	3	12.5
2020	39	25	92.0	3	7.7
1998-2020	1225	694	94.8	367	30.0

Table 9c

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 2.65 to 4.10 m as of 2002, and from 4.10 to 4.94 m as of 2007, respectively)

				Prop.
				cancer
		Prop.	Prop.	recorded
		cancer-	non-cancer-	on death
Year of	Deaths	related	related	certificate
death	n	96	96	90
1998	14	57.1	42.9	85.7
1999	14	50.0	50.0	92.3
2000	27	77.8	22.2	100.0
2001	31	71.0	29.0	93.3
2002	37	81.1	18.9	97.3
2003	30	76.7	23.3	100.0
2004	37	81.1	18.9	94.4
2005	36	86.1	13.9	100.0
2006	35	94.3	5.7	100.0
2007	27	85.2	14.8	100.0
2008	29	51.7	48.3	88.9
2009	26	65.4	34.6	96.2
2010	22	77.3	22.7	90.9
2011	37	75.7	24.3	91.9
2012	32	62.5	37.5	93.5
2013	45	64.4	35.6	88.6
2014	44	68.2	31.8	88.6
2015	38	65.8	34.2	86.8
2016	23	69.6	30.4	95.7
2017	33	57.6	42.4	97.0
2018	27	44.4	55.6	56.3
2019	25	32.0	68.0	81.8
2020	25	36.0	64.0	60.9
1998-2020	694	68.2	31.8	91.8

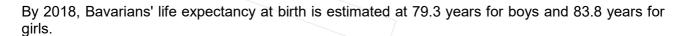
 $\begin{array}{c} \text{Table 10a} \\ \text{Medians of age at death according to the grouping in Table 9} \\ \text{MALES} \end{array}$

					700 0+
		7	7	7	Age at
		Age at death	Age at	Age at death	death
		/	death	\	(according
V	Daabba	(all	(cancer-	(non-cancer-	to death
Year of	Deaths	causes)	related)	related)	certificate)
death	n	Years	Years	Years	Years
1998	8	61.3	62.9	57.1	66.4
1999	11	69.4	56.3	74.9	62.8
2000	15	74.7	70.2	76.7	77.7
2001	7	62.5	61.4	64.0	62.5
2002	13	65.2	65.2	61.3	66.4
2003	14	74.5	72.4	76.5	74.5
2004	20	75.4	75.8	68.6	75.4
2005	22	72.9	72.3	73.5	72.9
2006	22	75.1	75.0	75.9	75.1
2007	11/	72.8	70.9	85.5	72.8
2008	1,5	72.0	77.1	53.5	72.5
2009	15	77.2	77.2	75.3	78.3
2010	16	78.9	78.4	80.0	78.9
2011	22	76.1	75.2	83.8	76.1
2012	23	75.8	73.4	81.4	75.4
2013	27	75.0	76.6	73.7	75.8
2014	27	74.1	73.2	75.6	74.1
2015	19	79.3	81.6	75.6	80.2
2016	15	77.5	77.5	77.0	77.5
2017	18	77.6	79.4	76.0	77.6
2018	19	76.5	76.4	76.9	76.9
2019	16	82.7	84.2	81.8	82.4
2020	18	79.2	72.6	82.0	72.6
1998-2020	393	75.5	74.9	76.3	75.1

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.

 $\begin{tabular}{ll} Table 10b \\ \hline \begin{tabular}{ll} Medians of age at death according to the grouping in Table 9 \\ \hline \begin{tabular}{ll} FEMALES \end{tabular}$

					Age at
		Age at	Age at	Age at	death
		death	death	death	(according
		(all	(cancer-	(non-cancer-	to death
Year of	Deaths	causes)	related)	related)	certificate)
death	n	Years	Years	Years	Years
1998	6	43.3	43.3	52.3	46.9
1999	3	81.1	79.1	81.2	79.1
2000	12	83.4	78.2	86.9	83.4
2001	24	80.3	77.0	87.3	79.3
2002	24	73.4	72.3	82.8	73.4
2003	16	80.6	77.7	83.3	80.6
2004	17	74.6	74.8	74.6	74.2
2005	14	78.7	73.6	87.5	78.7
2006	13	73.4	74.7	67.0	73.4
2007	16	80.4	77.5	86.4	80.4
2008	14	80.6	72.8	83.7	79.9
2009	11	84.9	86.3	67.7	84.9
2010	6	85.6	85.6		85.6
2011	15	79.5	76.6	86.8	80.0
2012	9	77.6	79.5	77.4	78.5
2013	18	83.9	77.6	88.6	82.5
2014	17	78.8	77.2	79.4	78.8
2015	19	79.5	78.9	81.2	79.3
2016	8	84.5	79.5	85.5	84.5
2017	15	82.8	83.6	82.4	83.2
2018	8	83.0	81.7	83.0	79.0
2019	9	86.0	81.4	86.2	81.4
2020	7	77.1	67.1	80.5	71.2
1998-2020	301	79.5	77.1	83.5	79.3



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 11a $\begin{tabular}{ll} Mortality measures (cancer-related death) and mortality-incidence-index \\ by year of death \\ MALES \end{tabular}$

Year of	Deaths	Mort.	MI-Index	Mort. N	/I-Index	Mort.	MI-Index	Mort.	MI-Index
death	n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
1998	4	0.4	0.50	0.2	0.43	0.3	0.45	0.4	0.48
1999	5	0.4	0.26	0.3	0.25	0.4	0.26	0.5	0.26
2000	13	1.1	0.68	0.7	0.60	1.0	0.68	1.4	0.78
2001	6	0.5	0.32	0.3	0.24	0.4	0.28	0.6	0.33
2002	9	0.5	0.36	0.3	0.37	0.4	0.35	0.5	0.33
2003	13	0.7	0.38	0.4	0.35	0.6	0.38	0.8	0.40
2004	16	0.9	0.46	0.4	0.39	0.7	0.46	1.0	0.51
2005	19	1.0	0.86	0.5	0.79	0.8	0.84	1.1	0.92
2006	21	1.1	0.66	0.5	0.61	0.9	0.64	1.2	0.70
2007	10	0.5	0.29	0.2	0.24	0.3	0.27	0.4	0.28
2008	9	0.4	0.23	0.2	0.20	0.3	0.24	0.4	0.24
2009	9	0.4	0.29	0.2	0.20	0.3	0.25	0.4	0.33
2010	11	0.5	0.31	0.2	0.22	0.3	0.27	0.5	0.31
2011	18	0.8	0.51	0.4	0.38	0.6	0.46	0.8	0.53
2012	15	0.7	0.38	0.3	0.27	0.4	0.32	0.6	0.37
2013	17	0.7	0.40	0.3	0.30	0.5	0.36	0.7	0.40
2014	20	0.9	0.44	0.4	0.39	0.6	0.42	0.8	0.43
2015	14	0.6	0.37	0.2	0.31	0.4	0.35	0.5	0.35
2016	11	0.5	0.41	0.2	0.29	0.3	0.34	0.4	0.40
2017	10	0.4	0.31	0.1	0.21	0.2	0.26	0.4	0.30
2018	10	0.4	0.77	0.2	0.56	0.3	0.65	0.4	0.75
2019	4	0.2	0.25	0.0	0.11	0.1	0.18	0.1	0.22
2020	6	0.2	0.26	0.1	0.22	0.2	0.24	0.2	0.26
1998-2020	270	0.6	0.40	0.3	0.33	0.4	0.37	0.6	0.41

Table 11b $\label{lem:mortality} \mbox{Mortality measures (cancer-related death) and mortality-incidence-index } \mbox{by year of death} \mbox{FEMALES}$

Deaths	Mort.	MI-Index						
n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
4	0.3	0.40	0.2	0.50	0.3	0.50	0.3	0.43
2	0.2	0.13	0.0	0.06	0.1	0.08	0.2	0.13
8	0.7	0.44	0.2	0.29	0.4	0.36	0.5	0.44
16	1.3	0.73	0.5	0.62	0.8	0.68	1.1	0.76
21	1.1	0.62	0.5	0.53	0.7	0.55	0.9	0.61
10	0.5	0.26	0.2	0.18	0.3	0.21	0.4	0.26
14	0.7	0.56	0.3	0.45	0.5	0.51	0.6	0.56
12	0.6	0.40	0.2	0.34	0.4	0.36	0.5	0.37
12	0.6	0.50	0.2	0.44	0.4	0.49	0.5	0.50
13	0.6	0.48	0.2	0.40	0.3	0.43	0.4	0.46
6	0.3	0.21	0.1	0.22	0.2	0.23	0.2	0.24
8	0.3	0.28	0.1	0.11	0.1	0.15	0.2	0.19
6	0.3	0.16	0.1	0.09	0.1	0.11	0.2	0.12
10	0.4	0.43	0.2	0.36	0.2	0.38	0.3	0.43
5	0.2	0.19	0.1	0.12	0.1	0.15	0.2	0.20
12	0.5	0.44	0.2	0.32	0.3	0.36	0.3	0.37
10	0.4	0.45	0.1	0.31	0.2	0.36	0.3	0.40
11	0.5	0.37	0.1	0.25	0.2	0.28	0.3	0.35
5	0.2	0.19	0.1	0.13	0.1	0.15	0.1	0.16
9	0.4	0.32	0.1	0.21	0.2	0.25	0.2	0.27
2	0.1	0.18	0.0	0.10	0.0	0.12	0.0	0.13
4	0.2	0.50	0.0	0.13	0.1	0.22	0.1	0.31
3	0.1	0.19	0.1	0.13	0.1	0.14	0.1	0.16
203	0.4	0.36	0.1	0.27	0.2	0.30	0.3	0.34
	n 4 2 8 16 21 10 14 12 12 13 6 8 6 10 5 12 10 11 5 9 2 4 3	n raw 4 0.3 2 0.2 8 0.7 16 1.3 21 1.1 10 0.5 14 0.7 12 0.6 13 0.6 6 0.3 8 0.3 6 0.3 10 0.4 5 0.2 12 0.5 10 0.4 11 0.5 5 0.2 9 0.4 2 0.1 4 0.2 3 0.1	n raw raw 4 0.3 0.40 2 0.2 0.13 8 0.7 0.44 16 1.3 0.73 21 1.1 0.62 10 0.5 0.26 14 0.7 0.56 12 0.6 0.40 12 0.6 0.50 13 0.6 0.48 6 0.3 0.21 8 0.3 0.21 8 0.3 0.28 6 0.3 0.16 10 0.4 0.43 5 0.2 0.19 12 0.5 0.44 10 0.4 0.45 11 0.5 0.37 5 0.2 0.19 9 0.4 0.32 2 0.1 0.18 4 0.2 0.50 3 0.1 0.19	n raw raw WS 4 0.3 0.40 0.2 2 0.2 0.13 0.0 8 0.7 0.44 0.2 16 1.3 0.73 0.5 21 1.1 0.62 0.5 10 0.5 0.26 0.2 14 0.7 0.56 0.3 12 0.6 0.40 0.2 12 0.6 0.40 0.2 12 0.6 0.50 0.2 13 0.6 0.48 0.2 6 0.3 0.21 0.1 8 0.3 0.28 0.1 10 0.4 0.43 0.2 5 0.2 0.19 0.1 10 0.4 0.43 0.2 5 0.2 0.19 0.1 12 0.5 0.44 0.2 10 0.4 0.45 0.1	n raw raw WS WS 4 0.3 0.40 0.2 0.50 2 0.2 0.13 0.0 0.06 8 0.7 0.44 0.2 0.29 16 1.3 0.73 0.5 0.62 21 1.1 0.62 0.5 0.53 10 0.5 0.26 0.2 0.18 14 0.7 0.56 0.3 0.45 12 0.6 0.40 0.2 0.34 12 0.6 0.40 0.2 0.34 12 0.6 0.40 0.2 0.34 12 0.6 0.40 0.2 0.34 12 0.6 0.48 0.2 0.40 6 0.3 0.21 0.1 0.22 8 0.3 0.28 0.1 0.11 6 0.3 0.16 0.1 0.09 10 0.4	n raw WS WS ES 4 0.3 0.40 0.2 0.50 0.3 2 0.2 0.13 0.0 0.06 0.1 8 0.7 0.44 0.2 0.29 0.4 16 1.3 0.73 0.5 0.62 0.8 21 1.1 0.62 0.5 0.53 0.7 10 0.5 0.26 0.2 0.18 0.3 14 0.7 0.56 0.3 0.45 0.5 12 0.6 0.40 0.2 0.34 0.4 12 0.6 0.50 0.2 0.44 0.4 13 0.6 0.48 0.2 0.40 0.3 6 0.3 0.21 0.1 0.22 0.2 8 0.3 0.28 0.1 0.11 0.1 6 0.3 0.16 0.1 0.09 0.1 10	n raw raw WS WS ES ES 4 0.3 0.40 0.2 0.50 0.3 0.50 2 0.2 0.13 0.0 0.06 0.1 0.08 8 0.7 0.44 0.2 0.29 0.4 0.36 16 1.3 0.73 0.5 0.62 0.8 0.68 21 1.1 0.62 0.5 0.53 0.7 0.55 10 0.5 0.26 0.2 0.18 0.3 0.21 14 0.7 0.56 0.3 0.45 0.5 0.51 12 0.6 0.40 0.2 0.34 0.4 0.36 12 0.6 0.50 0.2 0.44 0.4 0.49 13 0.6 0.48 0.2 0.40 0.3 0.43 6 0.3 0.21 0.1 0.22 0.2 0.23 8	4 0.3 0.40 0.2 0.50 0.3 0.50 0.3 2 0.2 0.13 0.0 0.06 0.1 0.08 0.2 8 0.7 0.44 0.2 0.29 0.4 0.36 0.5 16 1.3 0.73 0.5 0.62 0.8 0.68 1.1 21 1.1 0.62 0.5 0.53 0.7 0.55 0.9 10 0.5 0.26 0.2 0.18 0.3 0.21 0.4 14 0.7 0.56 0.3 0.45 0.5 0.51 0.6 12 0.6 0.40 0.2 0.34 0.4 0.36 0.5 12 0.6 0.50 0.2 0.44 0.4 0.49 0.5 13 0.6 0.48 0.2 0.40 0.3 0.43 0.4 6 0.3 0.21 0.1 0.22 0.23 0.2 8 0.3 0.28 0.1 0.11 0.1 0.1 0.

Table 12

Age distribution of age at death (cancer-related) for period 2007-2020 (incl. multiple malignancies)

Age at									
death	Cases			Males			Females		
Years	n	%	Cum.%	'n	%	Cum.%	n	응	Cum.%
0-4 5-9 10-14 15-19 20-24 25-29 30-34									
35-39	1	0.4	0.4	_1	0.6	0.6			0.0
40-44	2	0.7	1.1	2	1.2	1.8			0.0
45-49	3	1.1	2.2			1.8	3	2.9	2.9
50-54	7	2.6	4.9	5	3.0	4.9	2	1.9	4.8
55-59	16	6.0	10.8	10	6.1	11.0	6	5.8	10.6
60-64	12	4.5	15.3	9	5.5	16.5	3	2.9	13.5
65-69	27	10.1	25.4	17	10.4	26.8	10	9.6	23.1
70-74	44	16.4	41.8	30	18.3	45.1	14	13.5	36.5
75-79	56	20.9	62.7	36	22.0	67.1	20	19.2	55.8
80-84	43	16.0	78.7	26	15.9	82.9	17	16.3	72.1
85+	57	21.3	100.0	28	17.1	100.0	29	27.9	100.0
All ages	268	100.0		164	100.0		104	100.0	

Table 13

Age-specific mortality (cancer-related) and proportion of all cancers for period 2007-2020 (incl. multiple malignancies)

			Males		Females		Males	Females
Age at			Age-		Age-		Prop.all	Prop.all
death	Males	Females	spec.		spec.		cancers	cancers
Years	n	n		MI-index	mortal.	MI-index	%	%
0- 4								
5- 9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39	1		0.0	0.07			0.4	
40-44	2		0.1	0.09			0.3	
45-49		3			0.1	0.14		0.2
50-54	5	2	0.2	0.19	0.1	0.07	0.2	0.1
55-59	10	6	0.5	0.36	0.3	0.29	0.2	0.2
60-64	9 /	3	0.5	0.31	0.2	0.11	0.1	0.1
65-69	17	10	1.0	0.31	0.6	0.32	0.2	0.1
70-74	30	14	2.0	0.47	0.8	0.36	0.3	0.2
75-79	36	20	3.0	0.58	1.3	0.59	0.3	0.2
80-84	26	17	3.6	0.43	1.6	0.35	0.2	0.2
85+	28	29	6.0	0.68	2.8	0.54	0.3	0.2
All ages	164	104					0.2	0.2
- 3								
Mortality								
Raw			0.5	0.36	0.3	0.30		
WS			0.2	0.27	0.1	0.20		
ES			0.3	0.32	0.2	0.24		
BRD-S			0.5	0.35	0.2	0.27		
PYLL-70								
per 100,000			1.4		0.8			
ES			1.2		0.6			
AYLL-70			9.3		9.4			

					Syn- chron	Syn- chron		
	Total	Total	Pre	Pre	±30d	±30d	Post	Post
Diagnosis	n	%↓	n	← %	n	← %	n	% ←
C03-C06 Oral cavity	3	2.8					3	100.0
C09-C10 Oropharynx	2	1.9	1	50.0			1	50.0
C15 Oesophagus	5 /	4.7					5	100.0
C16 Stomach	4	3.7	3	75.0			1	25.0
C17 Small intestine	1	0.9					1	100.0
C18 Colon	7	6.5	3	42.9			4	57.1
C19-C20 Rectum	4	3.7	2	50.0	2	50.0		
C22 Liver	6	5.6	2	33.3	1	16.7	3	50.0
C25 Pancreas	4	3.7	1	25.0			3	75.0
C32 Larynx	1	0.9	1	100.0				
C33-C34 Lung	9	8.4	4	44.4	1	11.1	4	44.4
C40-C41 Bone	1	0.9					1	100.0
C43 Malign. melanoma	4	3.7	2	50.0			2	50.0
C44 Skin others	9	8.4	2	22.2	1	11.1	6	66.7
C61 Prostate	19	17.8	17	89.5			2	10.5
C62 Testis	1	0.9	1	100.0				
C64 Kidney	4	3.7	4	100.0				
C65 Renal pelvis	1	0.9	1	100.0				
C67 Bladder	3	2.8	2	66.7			1	33.3
C73 Thyroid	1	0.9	1	100.0				
C76-C79 CUP	2	1.9	1	50.0	1	50.0		
C82-C85 NHL	4	3.7	2	50.0			2	50.0
C90 Mult. myeloma	2	1.9	2	100.0				
C91-C96 Leukaemia	10	9.3			2	20.0	8	80.0
All further malignancies	107	100.0	52	48.6	8	7.5	47	43.9

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 further malignancy.

					Syn- chron	Syn- chron		
	Total	Total	Pre	Pre	±30d	±30d	Post	Post
Diagnosis	n	%↓	n	← %	n	←%	n	← %
C09-C10 Oropharynx	/ 1	1.5					1	100.0
C12-C13 Hypopharynx	/ 1	1.5	1	100.0				
C16 Stomach	/ 1 /	1.5					1	100.0
C18 Colon	1	1.5					1	100.0
C19-C20 Rectum	3	4.4	2	66.7	/ 1	33.3		
C21 Anus/canal	1	1.5					1	100.0
C23-C24 Bile	2	2.9	2	100.0				
C25 Pancreas	2	2.9			2	100.0		
C33-C34 Lung	4	5.9	1	25.0	1	25.0	2	50.0
C43 Malign. melanoma	1	1.5	1	100.0				
C44 Skin others	4	5.9	1	25.0			3	75.0
C50 Breast	18	26.5	13	72.2	1	5.6	4	22.2
C51 Vulva	2	2.9	1	50.0			/1	50.0
C52 Vagina	1	1.5	1	100.0				
C53 Cervix uteri	3	4.4	2	66.7	1	33.3		
C54 Corpus uteri	4	5.9	3	75.0			1	25.0
C56 Ovary	1	1.5					1	100.0
C61 Prostate	1	1.5	1	100.0				
C64 Kidney	1	1.5	1	100.0				
C67 Bladder	1	1.5	1	100.0				
C70-C72 CNS cancer	2	2.9	1	50.0			1	50.0
C82-C85 NHL	3	4.4	2	66.7			1	33.3
C90 Mult. myeloma	1	1.5					1	100.0
C91-C96 Leukaemia	9	13.2			1	11.1	8	88.9
All further malignancies	68	100.0	34	50.0	7	10.3	27	39.7

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 further malignancy.

Table 15

Age-specific mortality (cancer-related) and proportion of all cancers for period 2007-2020 (First primaries only *)

			Males		Females		Males	Females
Age at			Age-		Age-		Prop.all	Prop.all
death	Males	Females	spec.		spec.		cancers	cancers
Years	n	n	mortal.	MI-index	mortal.	MI-index	%	%
0- 4								
5- 9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44	2		0.1	0.10			0.4	
45-49		3			0.1	0.17		0.2
50-54	4	1	0.2	0.17	0.0	0.04	0.2	0.0
55-59	8	6	0.4	0.33	0.3	0.46	0.2	0.2
60-64	9	2	0.5	0.43	0.1	0.09	0.2	0.0
65-69	13	8	0.8	0.32	0.4	0.31	0.2	0.1
70-74	26	9	1.7	0.63	0.5	0.33	0.3	0.1
75-79	24	14	2.0	0.65	0.9	0.61	0.3	0.2
80-84	16	\9	2.2	0.41	0.8	0.30	0.2	0.1
85+	21	24	4.5	0.91	2.3	0.63	0.3	0.3
	21		1.0	0.31	2.0	0.00	0.3	0.0
All ages	123	76					0.2	0.2
TITT ageo	120	, 3					/ 0.2	0.2
Mortality								
Raw			0.4	0.37	0.2	0.30		
WS			0.2		0.1	0.19		
ES			0.3	0.32	0.1	0.22		
BRD-S			0.3	0.36	0.2	0.25		
מאמ במאמ			0.3	0.30	0.2	0.25		
PYLL-70								
per 100,000			1.1		0.7			
ES ES			1.0		0.6			
AYLL-70			9.0		9.8			
WITT-\0			9.0		9.8			

^{*} See corresponding tables with multiple malignancies.

Table 16

Age-specific mortality (cancer-related) and proportion of all cancers for period 2007-2020

(Single primaries only *)

			Males		Females		Males	Females
Age at			Age-		Age-		Prop.all	Prop.all
death	Males	Females	spec.		spec.		cancers	cancers
Years	n	n	mortal.	MI-index	mortal.	MI-index	ଚ	%
0- 4								
5- 9								
10-14								
15-19								
20-24								
25-29								
30-34								
35-39								
40-44								
45-49		3			0.1	0.20		0.2
50-54	3		0.1	0.13			0.1	
55-59	7 /	4	0.3	0.32	0.2	0.36	0.2	0.1
60-64	6	2	0.3	0.35	0.1	0.10	0.1	0.1
65-69	12	6	0.7		0.3	0.24	0.2	0.1
70-74	18	5	1.2	0.50	0.3	0.19	0.2	0.1
75-79	19	11	1.6		0.7	0.61	0.2	0.2
80-84	14	7	1.9		0.7	0.29	0.2	0.1
85+	17	22	3.6	0.77	2.1	0.58	0.3	0.2
	Ξ,	\	3.0	0.	2.1	0.00	0.3	0.2
All ages	96	60					0.2	0.1
TITT ages	30	00					/ 0.2	0.1
Mortality								
Raw			0.3	0.31	0.2	0.25		
WS			0.1		0.1	0.15		
ES			0.2	0.27	0.1	0.13		
BRD-S			0.2		0.1	0.10		
מ-מאם			0.3	0.30	0.1	0.21		
PYLL-70								
			0 0		0 5			
per 100,000			0.8		0.5			
ES			0.6		0.4			
AYLL-70			7.7		9.8			

^{*} See corresponding tables with multiple malignancies.

ICD-10 C92.1, C92.2: Chronic myeloid leukaemia (CML) Age distribution and age-specific mortality 2007 - 2020 (Males: 164, Females: 104)

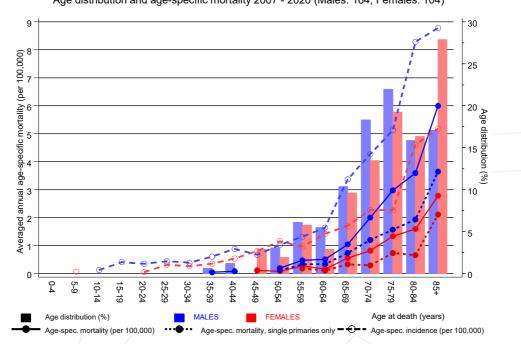
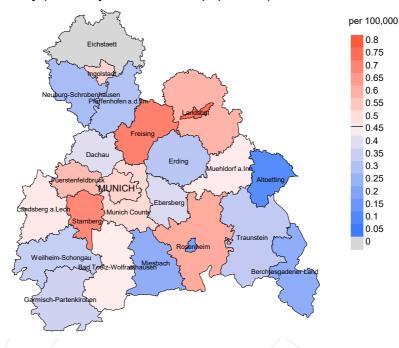


Figure 17. Distribution of age at death (bars; males: mean=71.3 yrs, median=73.7 yrs; females: mean=72.6 yrs, median=76.3 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

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



werage mortality (Germany 1987 standard population) 2007 - 2020: Males



Average mortality (Germany 1987 standard population) 2007 - 2020: Females

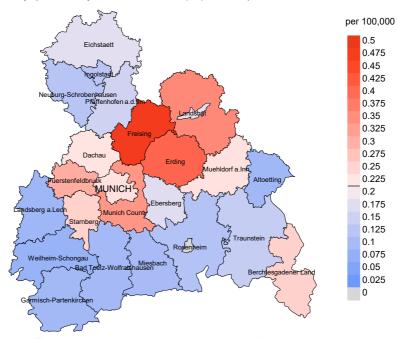
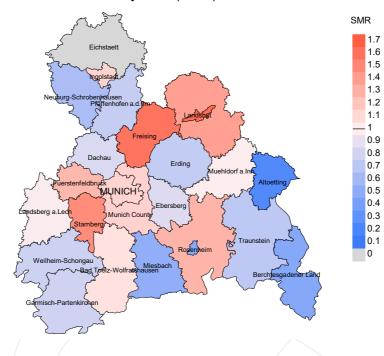


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2020. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 0.5/100,000 WS N=164, females 0.2/100,000 WS N=104).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,727 female residents (averaged) in the period from 2007 to 2020 a total of 2 women died from chronic myel. leukaemia. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 0.2/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.0 and 0.9/100,000.

Standardized mortality ratio (SMR) 2007 - 2020: Males



Standardized mortality ratio (SMR) 2007 - 2020: Females

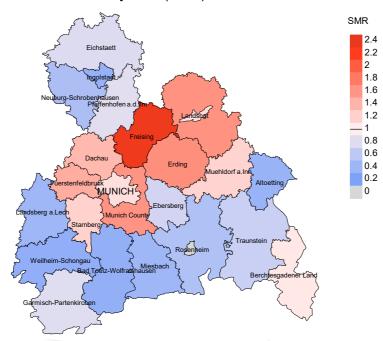


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=164, females N=104).

The results should be interpreted with caution! E.g., in county Ebersberg with a population of 67,153 female residents (averaged) in the period from 2007 to 2020 a total of 2 women died from chronic myel. leukaemia. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.72. Though, the value of this parameter may vary with an underlying probability of 99% between 0.04 and 3.35, 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, where applicable. 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 ratio of mortality and incidence (mortality-to-incidence ratio, **MIR**, **MI-Index**) is a statistical index 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 MIR. 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

MCR Munich Cancer Registry (Tumorregister München)

GEKID Association of Population-based Cancer Registries in Germany

(Gesellschaft der epidemiologischen Krebsregister in Deutschland e.V.)

SEER Surveillance, Epidemiology, and End Results (USA)

DCO Death certificate only

BRD-S German (FRG) standard population ES European standard population (old)

WS World standard population

SIR Standardized incidence ratio

CI Confidence interval EAR Excess absolute risk

= excess cancer cases (O - E) per 10,000 person-years

PYLL-70 Potential years of life lost prior to age 70 given a person dies before that age AYLL-70 Average years of life lost prior to age 70 given a person dies before that age

SMR Standardized mortality ratio

MI-index Ratio of mortality to incidence, MIR

FRG Federal Republic of Germany

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