Munich Cancer Registry



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ICD-10 C92: Myeloid leukaemia

Incidence and Mortality

Year of diagnosis	1998-2020
Patients	4,944
Diseases	4,964
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/bC92___E-ICD-10-C92-Myeloid-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 2015) used for specifying cancer site

Code	Description
C92	Myeloid leukaemia
C92.0	Acute myeloblastic leukaemia [AML]
C92.1	Chronic myeloid leukaemia [CML], BCR/ABL-positive
C92.2	Atypical chronic myeloid leukaemia, BCR/ABL-negative
C92.3	Myeloid sarcoma
C92.4	Acute promyelocytic leukaemia [PML]
C92.5	Acute myelomonocytic leukaemia
C92.6	Acute myeloid leukaemia with 11g23-abnormality
C92.7	Other myeloid leukaemia
C92.8	Acute myeloid leukaemia wiht multilineage dysplasia
C92.9	Myeloid leukaemia, unspecified



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	%	90	ଚ	%	%
1998	89	27	30.3	9.0	5.9	88.8	100.0
1999	109	38	34.9	11.1	5.9	84.4	99.1
2000	121	42	34.7	11.0	5.8	81.8	100.0
2001	135	65	48.1	11.7	5.8	85.9	97.8
2002	172	65	37.8	11.5	5.8	80.2	96.5 #
2003	227	90	39.6	12.9	5.7	82.4	98.7
2004	219	91	41.6	14.4	5.7	80.4	98.6
2005	206	77	37.4	15.5	5.5	78.2	97.6
2006	243	103	42.4	17.1	5.4	86.8	96.3
2007	236	77	32.6	17.6	5.3	79.2	97.5 #
2008	242	83	34.3	19.1	4.9	77.7	98.3
2009	250	59	23.6	20.0	4.8	76.8	98.4
2010	314	74	23.6	21.3	4.6	76.1	99.7
2011	240	54	22.5	22.1	4.4	76.3	98.8
2012	301	71	23.6	23.2	4.1	78.1	99.0
2013	295	82	27.8	24.0	4.0	76.3	98.3
2014	299	91	30.4	25.2	3.5	76.9	96.7
2015	291	67	23.0	25.4	3.0	79.7	97.3
2016	278	72	25.9	25.7	2.2	73.4	99.6
2017	272	59	21.7	26.0	1.2	70.6	99.3
2018	150	35	23.3	26.3	1.0	68.7	100.0
2019	118	7	5.9	26.5	1.1	55.1	100.0
2020	157	1	0.6	26.6	0.6	49.7	98.7 ##
1998-2020	4964	1430	28.8	26.6	5.9	76.8	98.4

4,964 cases diagnosed 1998-2020 are related to a total of 4,944 patients. Currently, in 1,585 (32.1 %) of these 4,944 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 1,241 / 282 / 62 (25.1 % / 5.7 % / 1.3 %) 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 150 cases has been diagnosed, of which 26.3 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.0 % 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 1a

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

			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	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	%	%	%	%
1998	43	48.3	15	34.9	7.0	6.5	90.7	100.0
1999	60	55.0	17	28.3	9.7	6.5	80.0	98.3
2000	62	51.2	22	35.5	9.7	6.4	87.1	100.0
2001	69	51.1	29	42.0	9.4	6.4	82.6	97.1
2002	82	47.7	27	32.9	9.5	6.5	79.3	98.8 #
2003	114	50.2	40	35.1	10.7	6.4	84.2	98.2
2004	106	48.4	39	36.8	11.9	6.5	80.2	100.0
2005	98	47.6	32	32.7	14.2	6.3	80.6	96.9
2006	139	57.2	59	42.4	16.4	6.2	88.5	96.4
2007	133	56.4	42	31.6	17.2	6.0	78.9	98.5 #
2008	126	52.1	46	36.5	19.2	5.6	72.2	97.6
2009	124	49.6	31	25.0	20.2	5.2	74.2	98.4
2010	161	51.3	45	28.0	21.2	5.0	82.0	99.4
2011	124	51.7	27	21.8	22.1	4.8	76.6	98.4
2012	152	50.5	32	21.1	23.0	4.8	77.0	99.3
2013	171	58.0	51	29.8	24.3	4.6	76.6	99.4
2014	156	52.2	46	29.5	25.7	4.0	76.3	96.8
2015	149	51.2	36	24.2	25.5	3.4	81.2	98.0
2016	148	53.2	34	23.0	25.9	2.4	73.0	100.0
2017	143	52.6	24	16.8	26.6	1.7	67.8	99.3
2018	77	51.3	19	24.7	27.0	1.4	71.4	100.0
2019	62	52.5	4	6.5	27.1	1.4	61.3	100.0
2020	86	54.8	1	1.2	27.4	1.2	57.0	97.7 ##
1998-2020	2585	52.1	718	27.8	27.4	6.5	77.2	98.6

2,585 cases diagnosed 1998-2020 are related to a total of 2,572 patients. Currently, in 849 (33.0 %) of these 2,572 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 656 / 155 / 38 (25.5 % / 6.0 % / 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 77 cases has been diagnosed, of which 27.0 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 1.4 % 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				
					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	- %	00	%	%	
1998	46	51.7	12	26.1	10.9	5.2	87.0	100.0	
1999	49	45.0	21	42.9	12.6	5.3	89.8	100.0	
2000	59	48.8	20	33.9	12.3	5.3	76.3	100.0	
2001	66	48.9	36	54.5	14.1	5.2	89.4	98.5	
2002	90	52.3	38	42.2	13.5	5.0	81.1	94.4 #	
2003	113	49.8	50	44.2	15.1	4.9	80.5	99.1	
2004	113	51.6	52	46.0	16.8	4.9	80.5	97.3	
2005	108	52.4	45	41.7	16.8	4.7	75.9	98.1	
2006	104	42.8	44	42.3	17.8	4.6	84.6	96.2	
2007	103	43.6	35	34.0	18.1	4.5	79.6	96.1 #	
2008	116	47.9	37	31.9	19.0	4.3	83.6	99.1	
2009	126	50.4	28	22.2	19.8	4.3	79.4	98.4	
2010	153	48.7	29	19.0	21.4	4.1	69.9	100.0	
2011	116	48.3	27	23.3	22.2	3.9	75.9	99.1	
2012	149	49.5	39	26.2	23.4	3.4	79.2	98.7	
2013	124	42.0	31	25.0	23.7	3.3	75.8	96.8	
2014	143	47.8	45	31.5	24.6	3.0	77.6	96.5	
2015	142	48.8	31	21.8	25.4	2.7	78.2	96.5	
2016	130	46.8	38	29.2	25.6	2.0	73.8	99.2	
2017	129	47.4	35	27.1	25.5	0.6	73.6	99.2	
2018	73	48.7	16	21.9	25.6	0.5	65.8	100.0	
2019	56	47.5	3	5.4	25.8	0.8	48.2	100.0	
2020	71	45.2			25.9	0.0	40.8	100.0 ##	
1000 0000	0070	47.6	710	000	05.0	F 0	7.6	0.0	
1998-2020	2379	47.9	712	29.9	25.9	5.2	76.3	98.2	

2,379 cases diagnosed 1998-2020 are related to a total of 2,372 patients. Currently, in 736 (31.0 %) of these 2,372 patients more than one malignancy of any cancer type has been registered. Hereby, groups of 585 / 127 / 24 (24.7 % / 5.4 % / 1.0 %) 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 73 cases has been diagnosed, of which 25.6 % previously and/or concurrently (synchronously) had at least one other malignancy of any cancer type. In 0.5 % 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
1998	43	46	3.9	3.9	2.7	2.4	3.7	3.0	4.7	3.4
1999	60	49	5.4	4.1	3.3	2.1	4.7	3.0	5.8	3.7
2000	62	59	5.4	4.9	4.0	2.8	5.1	3.7	6.1	4.4
2001	69	66	6.0	5.4	3.7	2.6	5.2	3.8	6.6	4.7
2002	82	90	4.4	4.6	2.9	2.3	3.9	3.2	5.0	3.9
2003	114	113	6.1	5.7	3.5	2.9	5.2	4.0	6.7	4.8
2004	106	113	5.6	5.7	3.1	3.0	4.6	4.1	5.8	4.9
2005	98	108	5.2	5.4	3.1	2.8	4.2	3.7	5.3	4.6
2006	139	104	7.3	5.2	4.0	2.4	5.8	3.2	7.5	4.2
2007	133	103	6.0	4.5	3.6	2.2	4.8	3.0	6.0	3.7
2008	126	116	5.7	5.0	3.4	2.3	4.4	3.2	5.6	4.1
2009	124	126	5.6	5.4	3.2	2.7	4.3	3.7	5.4	4.4
2010	161/	153	7.1	6.5	4.0	3.1	5.5	4.3	7.1	5.2
2011	124	116	5.5	5.0	3.2	2.8	4.3	3.5	5.2	4.1
2012	152	149	6.7	6.3	3.5	3.2	4.9	4.3	6.4	5.1
2013	171	124	7.4	5.2	3.6	2.5	5.2	3.3	6.9	4.2
2014	156	143	6.7	5.9	3.1	2.7	4.6	3.7	6.1	4.8
2015	149	142	6.3	5.8	2.9	2.4	4.3	3.6	5.7	4.5
2016	148	130	6.2	5.3	3.1	2.4	4.4	3.3	5.6	4.1
2017	143	129	5.9	5.2	2.9	2.4	4.2	3.3	5.3	4.1
2018	77	73	3.2	2.9	1.5	1.3	2.1	1.9	2.8	2.3
2019	62	56	2.5	2.3	1.3	1.2	1.7	1.6		1.9
2020	86	71	3.5	2.9	1.7	1.5	2.5	2.0	3.1	2.4
1998-2020	2585	2379	5.6	4.9	3.0	2.4	4.3	3.3	5.4	4.0

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	89	61.1	21.9	0.9	94.1	29.0	43.1	68.2	77.1	86.3
1999	109	65.2	16.8	1.5	92.0	39.6	57.0	69.6	76.8	85.0
2000	121	60.5	19.6	0.5	97.6	34.4	48.5	63.6	74.7	81.0
2001	135	65.0	16.2	9.8	96.4	38.5	56.5	66.3	77.1	82.1
2002	172	63.8	17.9	7.7	96.1	38.0	52.9	67.8	77.8	83.1
2003	227	65.2	17.4	6.4	98.9	41,4	53.4	67.6	80.1	84.8
2004	219	66.3	15.9	9.8	93.3	43.5	57.1	67.8	78.2	84.7
2005	206	64.0	19.2	2.7	92.9	38.4	52.8	69.2	78.5	83.7
2006	243	67.9	17.4	1.8	95.1	41.5	62.5	72.3	79.6	84.8
2007	236	64.2	18.3	3.5	94.5	38.7	53.4	68.4	77.0	83.7
2008	242	66.1	18.7	0.6	98.1	41.2	57.9	69.9	78.9	84.2
2009	250	65.1	18.2	5.5	100	38.5	52.8	69.5	78.2	86.3
2010	314	67.8	17.1	1.3	94.2	47.8	59.5	71.0	78.8	86.3
2011	240	64.4	19.1	0.3	98.4	40.9	54.4	69.6	77.1	84.3
2012	301	66.8	17.7	0.0	98.7	43.7	57.3	71.6	79.6	84.7
2013	295	69.0	16.6	0.5	92.7	48.9	62.1	72.9	79.6	84.8
2014	299	69.7	16.2	0.5	95.9	45.6	63.2	74.2	80.7	85.9
2015	291	70.0	15.1	1.8	95.3	48.5	60.1	74.1	80.4	86.8
2016	278	68.2	17.3	9.1	96.0	41.9	57.0	72.7	81.5	87.3
2017	272	68.3	15.6	18.8	96.0	43.0	60.9	72.1	78.8	85.1
2018	150	70.3	15.0	18.9	96.5	49.7	62.6	74.1	81.3	86.1
2019	118	65.0	17.5	17.1	88.6	32.4	55.3	69.6	79.4	83.7
2020	157	66.6	15.9	19.4	91.6	43.2	57.8	70.9	79.0	83.3
1998-2020	4964	66.6	17.4	0.0	100	41.6	57.4	70.8	79.1	84.9

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	43	62.1	22,1	0.9	94.1	32.4	48.5	70.1	76.5	86.3
1999	60	63.8	17.5	1.5	91.5	38.2	57.0	68.5	74.9	83.3
2000	62	58.1	20.6	0.5	97.6	32.8	46.4	62.8	72.7	79.6
2001	69	61.9	17.1	9.8	96.4	37.9	51.8	63.1	76.3	80.9
2002	82	60.9	19.2	7.7	94.9	32.7	47.5	64.1	75.5	80.5
2003	114	64.9	17.2	10.1	93.6	39.3	53.1	67.6	78.7	85.1
2004	106	66.7	14.9	19.4	90.1	44.6	60.2	67.4	78.2	84.7
2005	98	62.1	19.6	2.7	91.3	32.1	46.4	68.2	77.7	81.5
2006	139	67.1	15.7	10.7	93.6	42.0	61.0	70.7	76.8	82.8
2007	133	62.0	18.8	10.6	94.5	34.9	48.4	67.6	75.1	82.2
2008	126	63.7	20.2	0.6	98.1	39.0	53.6	68.9	77.7	83.7
2009	124	63.8	17.7	5.5	92.2	38.2	51.9	69.5	76.0	82.7
2010	161	66.9	16.8	2.9	93.4	48.5	60.6	70.8	77.5	83.0
2011	124	64.5	17.6	6.4	98.4	43.2	55.3	67.9	75.5	83.4
2012	152	67.1	17.2	9.9	94.0	43.0	58.3	70.9	80.1	84.7
2013	171	69.6	15.0	0.5	92.7	50.3	65.3	72.3	78.5	83.9
2014	156	71.1	15.5	0.5	95.9	52.2	65.9	74.2	81.4	86.0
2015	149	69.9	15.4	1.8	92.5	47.9	61.3	73.9	80.3	86.5
2016	148	67.8	16.3	21.6	96.0	43.6	57.2	71.9	79.2	85.4
2017	143	67.7	15.1	22.8	96.0	46.0	60.0	71.7	77.6	83.0
2018	77	71.0	15.6	18.9	96.5	48.7	66.2	75.6	81.3	85.7
2019	62	66.0	18.2	17.1	86.0	32.4	57.8	72.9	79.8	82.8
2020	86	67.5	15.2	31.9	91.6	44.7	57.2	71.5	79.6	83.3
1998-2020	2585	66.1	17.3	0.5	98.4	41.2	57.3	70.5	78.2	83.9

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	46	60.1	21.9	1.3	87.5	27.9	42.4	62.0	78.9	86.3
1999	49	66.9	15.9	12.6	92.0	44.5	57.0	71.3	77.1	85.0
2000	59	63.1	18.4	16.5	93.9	36.3	51.7	65.0	77.0	86.2
2001	66	68.1	14.7	26.8	91.1	52.7	59.5	71.2	79.3	84.4
2002	90	66.5	16.3	13.5	96.1	43.0	55.9	69.2	80.1	85.4
2003	113	65.6	17.6	6.4	98.9	42.2	53.5	66.4	81.2	84.2
2004	113	65.9	16.8	9.8	93.3	43.5	56.6	68.1	78.2	84.2
2005	108	65.8	18.8	8.7	92.9	41.6	58.0	69.4	80.1	84.7
2006	104	69.0	19.4	1.8	95.1	38.0	65.2	74.7	81.4	86.6
2007	103	67.2	17.2	3.5	94.3	43.8	57.0	69.8	79.7	86.0
2008	116	68.7	16.5	15.7	94.9	45.9	61.4	71.9	81.2	86.5
2009	126	66.3	18.6	17.8	100	38.7	54.5	70.8	79.8	87.0
2010	153	68.7	17.4	1.3	94.2	47.6	58.5	71.5	82.2	87.5
2011	116	64.2	20.6	0.3	90.0	38.3	54.1	70.8	79.6	85.2
2012	149	66.6	18.2	0.0	98.7	43.7	57.0	71.9	78.9	85.0
2013	124	68.3	18.5	9.4	92.4	38.9	59.9	74.2	82.1	86.3
2014	143	68.1	16.9	9.9	93.2	42.2	60.7	73.9	79.0	84.6
2015	142	70.1	14.8	30.6	95.3	48.7	59.3	74.3	80.5	87.5
2016	130	68.6	18.5	9.1	94.8	40.9	56.5	74.3	83.4	88.2
2017	129	69.0	16.1	18.8	95.2	41.6	61.3	72.6	81.5	85.9
2018	73	69.6	14.5	26.6	92.9	50.7	61.6	71.6	81.3	87.0
2019	56	63.9	16.8	25.1	88.6	39.8	54.0	68.0	77.9	84.2
2020	71	65.6	16.7	19.4	87.0	43.2	57.8	69.3	78.6	82.6
1998-2020	2379	67.2	17.6	0.0	100	42.0	57.6	71.4	80.2	85.9

Age at									
diagnosis	Cases			Males			Females		
Years	n	%	Cum.%	n	%	Cum.%	n	%	Cum.%
0 - 4	16	0.5	0.5	8	0.4	0.4	8	0.5	0.5
5-9	11	0.3	0.8	6	0.3	0.8	5	0.3	0.8
10-14	13	0.4	1.2	8	0.4	1.2	5	0.3	1.1
15-19	23	0.7	1.8	16	0.9	2.1	7	0.4	1.5
20-24	31	0.9	2.7	18	1.0	3.1/	13	0.8	2.3
25-29	48	1.4	4.1	23	1.3	4.4	25	1.5	3.9
30-34	56	1.6	5.8	27	1.5	5.8	29	1.8	5.6
35-39	80	2.3	8.1	35	1.9	7.8	45	2.8	8.4
40 - 44	110	3.2	11.3	62	3.4	11.2	48	2.9	11.3
45-49	137	4.0	15.2	67	3.7	14.9	70	4.3	15.6
50-54	184	5.3	20.6	96	5.3	20.2	88	5.4	21.0
55-59	217	6.3	26.9	106	5.8	26.0	111	6.8	27.8
60-64	245	7.1	34.0	127	7.0	33.1	118	7.2	35.1
65-69	402	/ 11.7/	45.7	231	12.7	45.8	171	10.5	45.6
70-74	509	14.8	60.5	288	15.9	61.7	221	13.5	59.1
75-79	556	16.1	76.6	307	16.9	78.6	249	15.3	74.4
80-84	445	12.9	89.5	233	12.9	91.5	212	13.0	87.4
85+	360	10.5	100.0	154	8.5	100.0	206	12.6	100.0
All ages	3443	100.0		1812	100.0		1631	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=435	n=394	n=153686	n=155051
Years	n	n	incid.	incid.	%	%	90	%
0- 4	8	8	0.5	0.5	12.5		3.6	4.7
5- 9	6	5	0.4	0.3			5.1	5.0
10-14	8	5	0.5	0.3		20.0	5.8	3.9
15-19	16	7 4	0.9	0.4			5.0	2.6
20-24	18	13	0.9	0.7	5.6		2.9	2.5
25-29	23	25	1.0	1.1			2.4	2.1
30-34	27	29	1.2	1.3		3.4	2.1	1.4
35-39	35	45	1.5	2.0	8.6	2.2	1.9	1.3
40 - 44	62	48	2.5	2.0	6.5	8.3	2.2	0.8
45-49	66	70	2.5	2.7	12.1	11.4	1.3	0.7
50-54	96	88	3.8	3.5	9.4	4.5	1.1	0.7
55-59	106	111	5.0	5.1	13.2	10.8	0.8	0.8
60-64	127	118	7.2	6.2	16.5	13.6	0.7	0.8
65-69	231	171	14.2	9.4	20.3	23.4	1.0	0.9
70-74	287	221	19.1	12.9	26.1	22.6	1.0	1.1
75-79	306	249	25.3	16.6	26.5	30.1	1.3	1.3
80-84	232	212	32.0	19.9	41.8	35.4	1.5	1.4
85+	152	206	32.5	19.8	48.7	51.9	1.4	1.3
All ages	1806	1631			24.1	24.2	1.2	1.1
Incidence								
Raw			5.5	4.9				
WS			2.9	2.3				
ES			4.0	3.2				
BRD-S			5.2	3.9				

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: Myeloid leukaemia

Figure 6. Age distribution (males: mean=67.1 yrs, median=71.4 yrs; females: mean=67.7 yrs, median=71.9 yrs) and age-specific incidence.



Age-spec. incidence (per 100,000)

ICD-10 C92: Myeloid leukaemia Age-specific incidence rates: international comparison Period Region 60 MCR 2007-2020 4.9 m ··∲·· SEER 2007-2018 86.7 m -⊟- FRG (RKI estim 2007-2017 50 1-year averaged incidence (per 100,000) 75-79 85+ Age at diagnosis (years) **MALES FEMALES**

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



Reference:

Estimated age-specific patient population of Germany, latest update: 16 March 2021. German Centre for Cancer Registry Data, Robert Koch Institute (RKI), based on data of the population based cancer registries. http://www.krebsdaten.de. Last access: 08/17/2021 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 E	Expected		CI	CI		DCO
Diagnosis	/ n /	n	SIR	95%	95%	EAR	왕
-							
C03-C06 Oral cavity	/ 1/	0.5	2.0	0.1	11.2	1.0	
C09-C10 Oropharynx	2	0.6	3.3	0.4	11.8	2.9	
C12-C13 Hypopharynx	/ 1	0.3	3.0	0.1	16.9	1.4	
C15 Oesophagus	5	1.1	4.4	1.4	10.3	# 8.1	20.0
C16 Stomach	4	2.0	2.0	0.5	5.0	4.1	
C17 Small intestine	2	0.3	5.9	0.7	21.2	3.5	
C18 Colon	14	5.0	2.8	1.5	4.7	# 18.8	
C19-C20 Rectum	6	2.9	2.1	0.8	4.6	6.6	
C22 Liver	3	1.6	1.9	0.4	5.5	3.0	
C23-C24 Bile	2	0.6	3.6	0.4	13.0	3.0	
C25 Pancreas	5	2.1	2.4	0.8	5.6	6.1	
C32 Larynx	1	0.5	1.8	0.0	10.1	0.9	100.0
C33-C34 Lung	14	6.4	2.2	1.2	3.7	# 16.0	7.1
C38,C45 Mesothelioma	1	0.4	2.8	0.1	15.5	1.3	
C40-C41 Bone	2	0.1	37.6	4.6	135.9	# 4.1	
C43 Malign. melanoma	a 8	2.6	3.1	1.3	6.1	# 11.3	
C46,C49 Soft tissue	4	0.3	12.5	3.4	32.1	# 7.7	
C50 Breast	2	0.1	13.6	1.6	49.0	# 3.9	
C61 Prostate	27	15.0	1.8	1.2	2.6	# 25.1	3.7
C62 Testis	1	0.3	3.0	0.1	16.7	1.4	
C64 Kidney	4	1.9	2.1	0.6	5.4	4.4	
C67 Bladder	4	2.4	1.7	0.5	4.3	3.4	
C70-C72 CNS cancer	2	0.7	2.7	0.3	9.8/	2.7	
C73 Thyroid	2	0.4	4.8	0.6	17.2	3.3	
C76-C79 CUP	1	0.9	1.1	0.0	6.4	0.3	
C81 Hodgkin lymphoma	a 3	0.2	18.6	3.8	54.5	# 6.0	
C82-C85 NHL	16	2.3	7.0	4.0	11.4	# 28.8	6.3
C90 Mult. myeloma	5	0.7	7.3	2.4	16.9	# 9.0	
C91-C96 Leukaemia	13	0.8	15.9	8.5	27.2	# 25.5	23.1
Not observed	0	1.5	0.0	0.0	2.5	-3.0	
All further malignancies	s 155	54.5	2.8	2.4	3.3	# 210.8	5.2
Patients		2104					
Median age at next malign	ancy (years)						
Person-years		4770					
Mean observation time (year	ars)	2.3					
Median observation time (years)	0.7					

The occurrence of further specified malignancy is statistically significant.

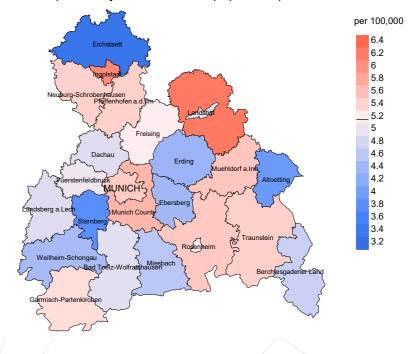
Table 7b

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

	Observed E	xpected		CI	CI			DCO
Diagnosis	/ n /	n	SIR	95%	95%		EAR	용
C03-C06 Oral cavity	2	0.2	9.9	1.2	35.9	#	4.4	
C09-C10 Oropharynx	/ 1/	0.2	6.4	0.2	35.8		2.1	
C15 Oesophagus	/ 3/	0.2	13.6	2.8	39.7	#	6.9	
C16 Stomach	2	1.0	2.0	0.2	7.1		2.4	
C18 Colon	4	2.9	1.4	0.4	3.5		2.6	
C19-C20 Rectum	2	1.3	1.6	0.2	5.7		1.8	
C21 Anus/canal	1	0.2	5.2	0.1	28.8		2.0	100.0
C22 Liver	2	0.4	5.2	0.6	18.6		4.0	
C25 Pancreas	2	1.4	1.4	0.2	5.1		1.4	50.0
C33-C34 Lung	8	2.6	3.1	1.3	6.1	#	13.4	
C43 Malign. melano	ma 2	1.4	1.4	0.2	5.1		1.4	
C46,C49 Soft tissue	1	0.2	5.2	0.1	29.0		2.0	
C50 Breast	26	11.0	2.4	1.5	3.5	#	37.0	3.8
C51 Vulva	2	0.3	6.1	0.7	21.9		4.1	
C53 Cervix uteri	4	0.6	7.2	2.0	18.5	#	8.5	50.0
C54 Corpus uteri	7	1.9	3.7	1.5	7.7	#	12.6	
C56 Ovary	1	1.3	0.7	0.0	4.1		-0.9	
C70-C72 CNS cancer	1	0.4	2.2	0.1	12.4		1.4	
C76-C79 CUP	1	0.5	1.9	0.0	10.4		1.1	
C82-C85 NHL	7	1.3	5.6	2.2	11.5	#	14.2	14.3
C90 Mult. myeloma	4	0.4	10.4	2.8	26.6	#	8.9	
C91-C96 Leukaemia	7	0.5	14.7	5.9	30.3	#	16.1	28.6
C96 Systemic	1	0.0	155.3	3.9	865.2	#	2.5	100.0
Not observed	0	3.7	0.0	0.0	1.0	#	-9.2	
All further malignanci	es 91	33.9	2.7	2.2	3.3	#	140.8	9.9
Patients		1888	3					
Median age at next malig	nancy (years)	67.9	9					
Person-years		4053	3					
Mean observation time (y	ears)	2.1	L					
Median observation time	(years)	0.6	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

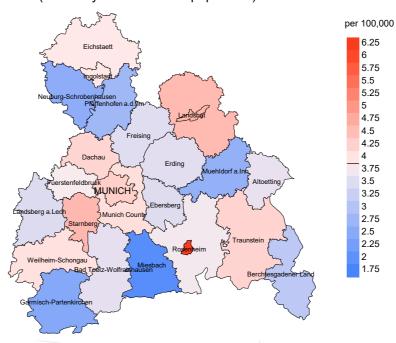
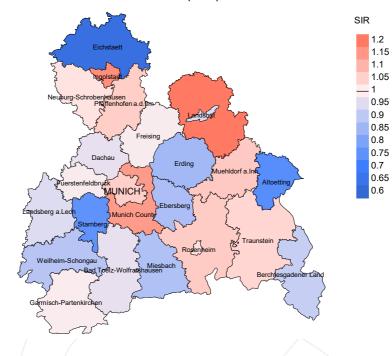


Figure 8a. Map of cancer incidence (german standard population, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual incidence rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 5.2/100,000 WS N=1,806, females 3.9/100,000 WS N=1,631).

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 39 women were identified with newly diagnosed myeloid leukaemia. Therefore, the mean incidence rate for this cancer type in this area can be calculated at 3.5/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 2.2 and 5.3/100,000.

Standardized incidence ratio (SIR) 2007 - 2020: Males



Standardized incidence ratio (SIR) 2007 - 2020: Females

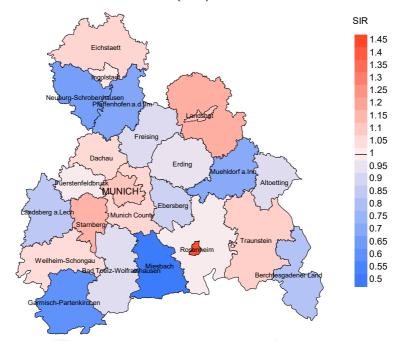


Figure 8b. Map of standardized incidence ratio (SIR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SIR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=1,806, females N=1,631).

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 39 women were identified with newly diagnosed myeloid leukaemia. Therefore, the mean standardized incidence ratio (SIR) for this cancer type in this area can be calculated at 0.88. Though, the value of this parameter may vary with an underlying probability of 99% between 0.56 and 1.31, 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	%	olo	n	%	%
1998	89	100.0	30.3	79	88.8	97.5
1999	109	99.1	34.9	92	84.4	97.8
2000	121	100.0	34.7	99	81.8	97.0
2001	135	97.8	48.1	116	85.9	99.1
2002	172	96.5	37.8	138	80.2	97.8
2003	227	98.7	39.6	187	82.4	98.4
2004	219	98.6	41.6	176	80.4	98.9
2005	206	97.6	37.4	161	78.2	98.8
2006	243	96.3	42.4	211	86.8	99.1
2007	236	97.5	32.6	187	79.2	97.3
2008	242	98.3	34.3	188	77.7	99.5
2009	250	98.4	23.6	192	76.8	98.4
2010	314	99.7	23.6	239	76.1	97.5
2011	240	98.8	22.5	183	76.3	95.6
2012	301	99.0	23.6	235	78.1	97.9
2013	295	98.3	27.8	225	76.3	95.1
2014	299	96.7	30.4	230	76.9	96.5
2015	291	97.3	23.0	232	79.7	95.7
2016	278	99.6	25.9	204	73.4	95.6
2017	272	99.3	21.7	192	70.6	88.0
2018	150	100.0	23.3	103	68.7	71.8
2019	118	100.0	5.9	65	55.1	78.5
2020	157	98.7	0.6	78	49.7	93.6
1998-2020	4964	98.4	28.8	3812	76.8	95.9

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	્રે
1998	89	85	100.0	44	49.4
1999	109	81	97.5	43	39.4
2000	121	90	96.7	54	44.6
2001	135	115	97.4	67	49.6
2002	172	116	99.1	78	45.3
2003	227	133	98.5	105	46.3
2004	219	137	98.5	98	44.7
2005	206	168	99.4	103	50.0
2006	243	159	99.4	138	56.8
2007	236	163	98.8	107	45.3
2008	242	163	96.9	112	46.3
2009	250	159	97.5	111	44.4
2010	314	196	98.0	136	43.3
2011	240	192	97.4	103	42.9
2012	301	197	99.0	127	42.2
2013	295	219	97.7	136	46.1
2014	299	218	98.6	139	46.5
2015	291	214	99.5	140	48.1
2016	278	187	99.5	129	46.4
2017	272	211	98.1	131	48.2
2018	150	147	72.8	66	44.0
2019	118	119	44.5	34	28.8
2020	157	133	93.2	52	33.1
1998-2020	4964	3602	95.4	2253	45.4

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)

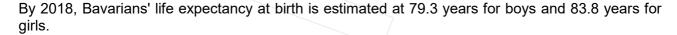
				Prop.
				cancer
		Prop.	Prop.	recorded
		cancer-	non-cancer-	on death
Year of	Deaths	related	related	certificate
death	n/	%	%	%
1998	85	76.5	23.5	96.5
1999	81	77.8	22.2	97.5
2000	90	86.7	13.3	100.0
2001	115	82.6	17.4	97.3
2002	116	90.5	9.5	99.1
2003	133	88.7	11.3	99.2
2004	137	92.7	7.3	97.8
2005	168	93.5	6.5	99.4
2006	159	95.0	5.0	98.7
2007	163	92.6	7.4	99.4
2008	163	86.5	13.5	96.2
2009	159	89.9	10.1	97.4
2010	196	92.9	7.1	98.4
2011	192	88.5	11.5	95.7
2012	197	89.8	10.2	98.5
2013	219	83.1	16.9	97.2
2014	218	84.9	15.1	95.3
2015	214	86.4	13.6	94.8
2016	187	87.2	12.8	96.8
2017	211	83.4	16.6	97.1
2018	147	69.4	30.6	80.4
2019	119	52.1	47.9	92.5
2020	133	72.9	27.1	84.7
1998-2020	3602	85.4	14.6	96.4

					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
acacii	11	rears	icarb	rears	icais
1998	44	66.1	65.7	66.4	66.4
1999	44	71.3	70.9	74.8	71.3
2000	55	67.7	66.1	72.7	68.4
2001	51	70.4	72.5	63.8	70.8
2002	54	69.3	68.5	70.6	69.4
2003	69	72.4	72.4	74.1	72.5
2004	71	73.6	74.4	64.7	74.0
2005	86	72.3	72.2	74.7	72.3
2006	93	72.3	72.3	72.0	72.2
2007	80	70.2	70.8	53.1	70.8
2008	83	72.0	73.0	61.8	72.7
2009	81	73.4	74.3	71.2	74.3
2010	102	73.6	73.1	80.3	73.3
2011	96	74.2	74.3	71.6	74.6
2012	103	74.2	73.2	81.4	73.4
2013	124	76.4	76.5	76.3	76.3
2014	117	74.8	74.8	74.9	75.3
2015	106	75.6	75.8	75.5	75.7
2016	102	76.2	76.2	79.6	76.2
2017	106	74.6	74.6	74.4	74.8
2018	84	75.2	75.9	74.9	76.9
2019	66	78.0	76.7	80.5	78.4
2020	81	76.6	76.4	79.3	76.5
1998-2020	1898	74.0	73.8	74.7	74.0

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	41	61.5	60.4	69.5	61.5
1999	37	74.3	75.0	65.6	74.3
2000	35	76.1	75.2	86.5	76.1
2001	64	73.4	72.3	78.2	73.8
2002	62	73.7	73.2	82.8	73.7
2003	64	75.4	75.1	79.8	75.4
2004	66	74.7	74.5	77.7	74.7
2005	82	72.4	73.0	57.7	73.1
2006	66	76.1	76.1	71.9	76.1
2007	83	70.9	71.4	68.5	71.9
2008	8.0	75.0	72.8	84.3	73.9
2009	78	74.1	75.5	63.8	74.1
2010	94	78.0	78.3	69.5	78.2
2011	96	73.8	72.9	79.2	73.8
2012	94	73.1	73.1	74.7	73.6
2013	95	77.0	75.8	82.5	77.0
2014	101	75.9	75.8	76.3	76.0
2015	108	76.5	75.5	78.9	76.1
2016	85	77.8	76.7	83.4	77.3
2017	105	75.8	74.7	79.3	75.8
2018	63	78.2	75.5	80.6	75.5
2019	53	73.8	76.9	69.5	76.9
2020	52	77.1	76.6	81.5	76.7
1998-2020	1704	75.2	74.7	78.3	75.2



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

ICD-10 C92: Myeloid leukaemia

Year of	Deaths	Mort.	MI-Index	Mort. 1	MI-Index	Mort.	${\tt MI-Index}$	Mort.	MI-Index
death	n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
1998	33	3.0	0.77	2.2	0.83	2.8	0.78	3.6	0.75
1999	35	3.1	0.58	1.9	0.56	2.8	0.58	3.4	0.59
2000	49	4.3	0.79	2.7	0.69	3.9	0.76	5.0	0.83
2001	45	3.9	0.65	2.2	0.60	3.4	0.65	4.8	0.73
2002	48	2.6	0.59	1.4	0.51	2.2	0.56	2.8	0.57
2003	63	3.4	0.55	1.9	0.53	2.8	0.54	3.8	0.57
2004	65	3.5	0.61	1.8	0.57	2.8	0.61	4.0	0.68
2005	80	4.2	0.82	2.2	0.69	3.3	0.78	4.5	0.84
2006	87	4.5	0.63	2.3	0.57	3.5	0.61	4.8	0.64
2007	77	3.5	0.58	1.8	0.51	2.7	0.55	3.6	0.60
2008	72	3.2	0.57	1.6	0.45	2.4	0.53	3.2	0.58
2009	72	3.2	0.58	1.5	0.49	2.3	0.54	3.3	0.60
2010	92	4.1	0.58	2.0	0.50	3.0	0.54	3.9	0.56
2011	85	3.8	0.69	1.8	0.55	2.7	0.62	3.7	0.71
2012	91	4.0	0.60	1.8	0.52	2.8	0.57	3.8	0.59
2013	103	4.5	0.61	1.7	0.48	2.8	0.55	4.1	0.60
2014	99	4.2	0.63	1.7	0.56	2.8	0.60	3.8	0.62
2015	92	3.9	0.62	1.7	0.58	2.6	0.59	3.5	0.61
2016	89	3.7	0.61	1.5	0.50	2.4	0.55	3.3	0.60
2017	89	3.7	0.63	1.7	0.57	2.5	0.59	3.3	0.63
2018	60	2.5	0.79	1.0	0.71	1.6	0.76	2.2	0.79
2019	37	1.5	0.60	0.6	0.48	1.0	0.55	1.3	0.57
2020	53	2.2	0.62	0.9	0.54	1.4	0.55	1.9	0.62
1998-2020	1616	3.5	0.63	1.7	0.55	2.5	0.59	3.4	0.63

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

Year of	Deaths	Mort.	MI-Index	Mort.				Mort.	MI-Index
death	n	raw	raw	WS	WS	ES	ES	BRD-S	BRD-S
1998	32	2.7	0.70	2.0	0.80	2.3	0.75	2.4	0.72
1999	28	2.4	0.57	1.0	0.49	1.5	0.52	2.1	0.56
2000	29	2.4	0.49	1.0	0.35	1.5	0.40	2.0	0.47
2001	50	4.1	0.76	2.0	0.77	2.8	0.75	3.6	0.77
2002	57	2.9	0.63	1.3	0.55	1.9	0.57	2.5	0.63
2003	55	2.8	0.49	1.1	0.39	1.7	0.43	2.3	0.47
2004	62	3.1	0.55	1.3	0.44	2.0	0.49	2.6	0.53
2005	77	3.9	0.71	1.7	0.59	2.4	0.65	3.1	0.67
2006	64	3.2	0.62	1.3	0.53	1.9	0.59	2.6	0.63
2007	74	3.2	0.72	1.4	0.64	2.0	0.67	2.6	0.70
2008	69	3.0	0.59	1.2	0.53	1.8	0.57	2.4	0.58
2009	71	3.1	0.56	1.2	0.44	1.8	0.50	2.4	0.54
2010	90	3.8	0.59	1.3	0.43	2.0	0.48	2.8	0.55
2011	85	3.6	0.73	1.4	0.52	2.2	0.62	2.8	0.70
2012	86	3.6	0.58	1.5	0.47	2.2	0.51	2.9	0.56
2013	79	3.3	0.64	1.3	0.53	1.9	0.59	2.5	0.60
2014	86	3.6	0.60	1.3	0.47	1.9	0.52	2.6	0.55
2015	93	3.8	0.65	1.4	0.57	2.1	0.60	2.9	0.64
2016	74	3.0	0.57	1.3	0.52	1.7	0.53	2.2	0.54
2017	87	3.5	0.67	1.4	0.60	2.1	0.63	2.6	0.65
2018	43	1.7	0.59	0.7	0.49	1.0	0.52	1.3	0.56
2019	25	1.0	0.45	0.4	0.32	0.6	0.35	0.7	0.38
2020	44	1.8	0.62	0.7	0.48	1.0	0.52	1.3	0.56
1998-2020	1460	3.0	0.61	1.2	0.52	1.8	0.55	2.4	0.59

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	용	Cum.%	'n	용	Cum.%	n	용	Cum.%
0 - 4	1	0.0	0.0	/ 1	0.1	0.1			0.0
5-9	1	0.0	0.1			0.1	1	0.1	0.1
10-14	5	0.2	0.3/	2	0.2	0.3	3	0.3	0.4
15-19	4	0.2	0.5	2	0.2	0.5	2	0.2	0.6
20-24	9	0.4	0.9	6	0.5	1.0/	3	0.3	0.9
25-29	13	0.6	1.6	9	0.8	1.8	4	0.4	1.3
30-34	8	0.4	1.9	2	0.2	2.0	6	0.6	1.9
35-39	22	1.0	3.0	11	1.0	3.0	11	1.1	3.0
40 - 44	37	1.7	4.7	14	1.3	4.2	23	2.3	5.3
45-49	54	2.6	7.3	26	2.3	6.6	28	2.8	8.1
50-54	68	3.2	10.5	36	3.2	9.8	32	3.2	11.2
55-59	106	5.0	15.5	45	4.1	13.9	61	6.1	17.3
60-64	134	6.3	21.8	68	6.1	20.0	66	6.6	23.9
65-69	238	11.2	33.1	140	12.6	32.6	98	9.7	33.6
70-74	381	18.0	51.1	216	19.4	52.0	165	16.4	50.0
75-79	444	21.0	72.0	249	22.4	74.4	195	19.4	69.4
80-84	312	14.7	86.8	162	14.6	89.0	150	14.9	84.3
85+	280	13.2	100.0	122	11.0	100.0	158	15.7	100.0
All ages	2117	100.0		1111	100.0		1006	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	mortal.	MI-index	mortal.	MI-index	%	%
0- 4	1		0.1	0.13			5.3	
5- 9		1 /			/0.1	0.20		4.0
10-14	2	3/	0.1	0.25	0.2	0.60	7.1	13.0
15-19	2	2	0.1	0.13	0.1	0.29	4.2	8.0
20-24	6	3	0.3	0.33	0.2	0.23	8.2	7.0
25-29	9	4	0.4	0.39	0.2	0.16	9.7	4.0
30-34	2	6	0.1	0.07	0.3	0.21	1.4	3.3
35-39	11	11	0.5	0.31	0.5	0.24	4.1	2.7
40-44	14	23	0.6	0.23	1.0	0.48	2.3	2.7
45-49	26	28	1.0	0.39	1.1	0.40	1.8	1.7
50-54	36	32	1.4		1.3	0.36	1.4	1.2
55-59	45	61	2.1	0.42	2.8	0.55	1.0	1.6
60-64	68	66	3.8	0.54	3.5	0.56	1.1	1.3
65-69	140	98	8.6	0.61	5.4	0.57	1.5	1.4
70-74	216	165	14.4	0.75	9.6	0.75	1.8	1.9
75-79	249	195	20.6	0.81	13.0	0.78	2.0	2.0
80-84	162	150	22.4	0.70	14.1	0.71	1.5	1.6
85+	122	158	26.1	0.80	15.2	0.77	1.3	1.3
		/					\	
All ages	1111	1006					1.6	1.6
Mortality								
Raw			3.4	0.62	3.0	0.62		
WS			1.5		1.2	0.51		
ES			2.3	0.57	1.7	0.55		
BRD-S			3.2	0.61	2.3	0.59		
DIAD 0			3.2	0.01	2.0	0.03		
PYLL-70								
per 100,000			15.4		16.1			
ES			13.9		14.4			
AYLL-70			12.2		13.5			
					13.3			

					Syn-	Syn-		
					chron	chron		
	Total	Total	Pre	Pre	±30d	±30d	Post	Post
Diagnosis	n	%↓	n	%	n	– %	n	0 0 0
	7	/ • •		\	\	•		7
C03-C06 Oral cavity	6	0.9	3	50.0			3	50.0
C07-C08 Salivary gland	1	0.1	1	100.0				
C09-C10 Oropharynx	5	0.7	2	40.0	1	20.0	2	40.0
C12-C13 Hypopharynx	1	0.1					1	100.0
C15 Oesophagus	9	1.3	2	22.2			7	77.8
C16 Stomach	9	1.3	7	77.8	1	11.1	1	11.1
C17 Small intestine	3	0.4	2	66.7	_	,_	1	33.3
C18 Colon	47	6.8	35	74.5	3	6.4	9	19.1
C19-C20 Rectum	22	3.2	15	68.2	3	13.6	4	18.2
C22 Liver	7	1.0	3	42.9	1	14.3	3	42.9
C23-C24 Bile	1	0.1	5	42.7		17.5	1	100.0
	9	1.3	1	11.1	1	1.1 1	77	
/					1	11.1	_ / /	77.8
C30-C31 Sinuses	1	0.1	1	100.0	\wedge	25.0		
C32 Larynx	4	0.6	3	75.0	1	25.0		000
C33-C34 Lung	33	4.8	14	42.4	8	24.2	11	33.3
C38,C45 Mesothelioma	2	0.3	1	50.0	1	50.0		
C40-C41 Bone	3	0.4	1	33.3			2	66.7
C43 Malign. melanoma	21	3.1	18	85.7	1	4.8	2	9.5
C44 Skin others	36	5.2	18	50.0	3	8.3	15	41.7
C46,C49 Soft tissue	7	1.0	2	28.6	1	14.3	4	57.1
C48 Peritoneal	2	0.3	2	100.0				
C61 Prostate	136	19.8	120	88.2	5/	3.7	11	8.1
C62 Testis	4	0.6	4	100.0				
C64 Kidney	17	2.5	17	100.0				
C65 Renal pelvis	1	0.1	1	100.0				
C67 Bladder	17	2.5	14	82.4	2	11.8	1	5.9
C68 Urinary org.	2	0.3	1	50.0			1	50.0
C70-C72 CNS cancer	5	0.7	2	40.0	1	20.0	2	40.0
C73 Thyroid	4	0.6	4	100.0				
C74-C80 Cancer others	1	0.1	1	100.0				
C76-C79 CUP	3	0.4	2	66.7	1	33.3		
C81 Hodgkin lymphoma	7	1.0	5	71.4		00.0	2	28.6
C82-C85 NHL	54	7.8	37	68.5	6	11.1	11	20.4
C90 Mult. myeloma	9	1.3	7	77.8	2	22.2	11	20.4
C91-C96 Leukaemia	197	28.6	_ ′	11.0	48	24.4	149	75.6
	2		1	50.0	40		149	13.0
C96 Systemic	۷	0.3		50.0	Τ	50.0		
All further malignancies	688	100.0	347	50.4	91	13.2	250	36.3

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-		Syn-		
					chron	chron		
	Total	Total	Pre	Pre	±30d	±30d	Post	Post
Diagnosis	n	%↓	n	← %	n	% ←	n	←%
C03-C06 Oral cavity	/ 1	0.2					1	100.0
C07-C08 Salivary gland	3	0.5	2	66.7			1	33.3
C09-C10 Oropharynx	/ 2 /	0.4	1	50.0			1	50.0
C12-C13 Hypopharynx	/ 1 -	0.2	1	100.0				
C15 Oesophagus	3	0.5					3	100.0
C16 Stomach	6	1.1	5	83.3			1	16.7
C18 Colon	15	2.7	12	80.0	1	6.7	2	13.3
C19-C20 Rectum	11	2.0	7	63.6	2	18.2	2	18.2
C21 Anus/canal	4	0.7	3	75.0			1	25.0
C22 Liver	3	0.5					3	100.0
C23-C24 Bile	3	0.5	3	100.0				
C25 Pancreas	3	0.5			2	66.7	/1	33.3
C26 GI cancer	1	0.2	1	100.0	_			00.0
C33-C34 Lung	17	3.1	9	52.9	3	17.6	5	29.4
C43 Malign. melanoma	15	2.7	14	93.3	1	6.7	Ü	23.1
C44 Skin others	16	2.9	9	56.3	1	6.3	6	37.5
C46,C49 Soft tissue	4	0.7	3	75.0		0.3	1	25.0
C48 Peritoneal	3	0.5	3	100.0				23.0
C50 Breast	135	24.5	121	89.6	6	4.4	8	5.9
C50 Bleast C51 Vulva	4	0.7	2	50.0	0	4.4	2	50.0
	2	0.7	1	50.0			1	50.0
C52 Vagina C53 Cervix uteri	12	2.2	9	75.0	2	16.7	1	8.3
	29	5.3	23		2 2		4	13.8
-				79.3		6.9		
C56 Ovary	8	1.4	6	75.0			2	25.0
C61 Prostate	1	0.2	1	100.0	0	22.2		
C64 Kidney	6	1.1	4	66.7	2	33.3	4	100 0
C65 Renal pelvis	1	0.2		100 0			1	100.0
C66 Ureter	1	0.2	1	100.0	_			
C67 Bladder	6	1.1	5	83.3	1	16.7	_	
C70-C72 CNS cancer	5	0.9	3	60.0			2	40.0
C73 Thyroid	11	2.0	10	90.9	1	9.1		
C76-C79 CUP	5	0.9	1	20.0	1	20.0	3	60.0
C81 Hodgkin lymphoma	7	1.3	6	85.7	/ 1	14.3		
C82-C85 NHL	29	5.3	24	82.8	3	10.3	2	6.9
C90 Mult. myeloma	8	1.4	5	62.5	2	25.0	1	12.5
C91-C96 Leukaemia	169	30.6			42	24.9	127	75.1
C96 Systemic	2	0.4	1	50.0			1	50.0
All further malignancies	552	100.0	296	53.6	73	13.2	183	33.2

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	1		0.1	0.13			5.3	
5- 9		1 /			0.1	0.25		4.0
10-14	2	1 /	0.1	0.29	0.1	0.25	7.1	5.3
15-19	2	2 <	0.1	0.14	0.1	0.33	4.3	8.7
20-24	4	2	0.2	0.24	0.1	0.15	6.1	4.9
25-29	9	3	0.4	0.39	0.1	0.15	10.6	3.3
30-34	1	6	0.0	0.04	0.3	0.23	0.7	3.8
35-39	8	11	0.3		0.5	0.25	3.2	3.0
40-44	13	19	0.5		0.8		2.3	2.5
45-49	22	22	0.8		0.8	0.40	1.7	1.5
50-54	28	24	1.1		1.0	0.36	1.2	1.1
55-59	36	41	1.7		1.9	0.53	0.9	1.3
60-64	48	49	2.7		2.6	0.56	0.9	1.2
65-69	83	67	5.1	0.58	3.7	0.61	1.1	1.2
70-74	129	87	8.6		5.1	0.64	1.4	1.3
75-79	143	119	11.8		7.9	0.77	1.6	1.6
80-84	95	104	13.1		9.8		1.3	1.4
85+	72	107	15.4		10.3	0.76	1.1	1.1
001	, 2	107	13.1	0.07	10.5	0.70	 -	. • .
All ages	696	665					1.3	1.4
mir ages	030	003					1.5	 1
Mortality								
Raw			2.1	0.58	2.0	0.59		
WS			1.0		0.8	0.47		
ES			1.5		1.2	0.51		
BRD-S			2.0	0.57	1.5	0.55		
DKD-3			2.0	0.57	1.5	0.33		
PYLL-70								
per 100,000			12.3		12.4			
ES 100,000			11.2		11.1			
AYLL-70			13.7		14.2			
WITT-10			13.7		14.2			

^{*} 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	%	왕
0- 4	1		0.1	0.13			5.3	
5- 9		1 /			0.1	0.33		4.0
10-14	2	1 /	0.1	0.29	0.1	0.25	7.1	5.3
15-19	2	2 <	0.1	0.15	0.1	0.33	4.3	9.1
20-24	4	2	0.2	0.25	0.1	0.17	6.1	5.0
25-29	9	3	0.4	0.41	0.1	0.18	10.6	3.4
30-34	1	6	0.0	0.04	0.3	0.24	0.7	3.8
35-39	8	7	0.3		0.3	0.18	3.2	1.9
40-44	11	15	0.4		0.6		2.0	2.0
45-49	19	21	0.7		0.8	0.40	1.5	1.5
50-54	26	22	1.0		0.9	0.37	1.1	1.0
55-59	32	36	1.5		1.7	0.48	0.8	1.1
60-64	43	46	2.4		2.4	0.57	0.8	1.2
65-69	75	59	4.6		3.3	0.56	1.0	1.1
70-74	114	80	7.6		4.7	0.61	1.3	1.2
75-79	131	112	10.8		7.5	0.76	1.5	1.5
80-84	91	100	12.6		9.4		1.3	1.4
85+	65	104	13.9		10.0	0.75	1.1	1.2
031	05	104	13.5	0.02	10.0	0.75	1.1	1.2
All ages	634	617					1.2	1.3
AII ages	034	017					1.2	1.5
Mortality								
Raw			1.9	0.56	1.8	0.57		
WS			0.9		0.7	0.37		
ES ES					1.1	0.45		
			1.3					
BRD-S			1.8	0.55	1.4	0.54		
DVII 70								
PYLL-70			11 2		11 0			
per 100,000			11.3		11.0			
ES			10.4		9.9			
AYLL-70			14.0		14.1			

^{*} See corresponding tables with multiple malignancies.

ICD-10 C92: Myeloid leukaemia

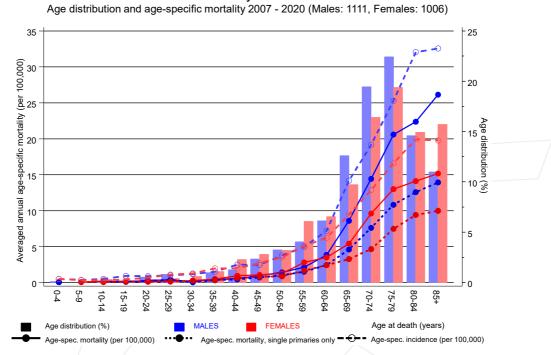
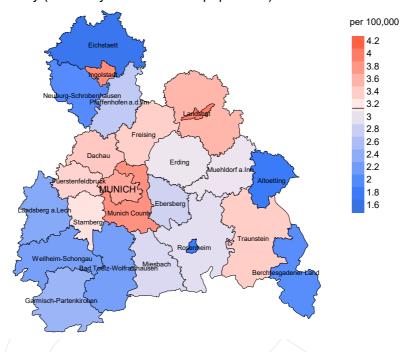


Figure 17. Distribution of age at death (bars; males: mean=70.6 yrs, median=73.4 yrs; females: mean=70.7 yrs, median=74.0 yrs) and age-specific mortality (all patients: solid line, patients with single primaries: dotted line). The age-specific incidence is additionally plotted for comparison (dashed line).

The difference between age at diagnosis (Table 3) and age at myeloid 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

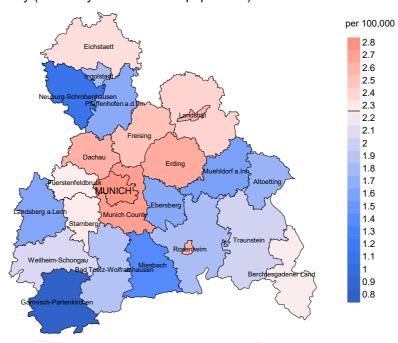
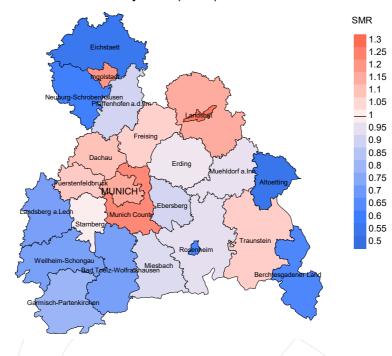


Figure 18a. Map of cancer mortality (german standard population) by county averaged for period 2007 to 2020. According to their individual mortality rates, the counties are displayed in different red and blue hues, being the fine white color attributed to the population mean (males 3.2/100,000 WS N=1,111, females 2.3/100,000 WS N=1,006).

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 19 women died from myeloid leukaemia. Therefore, the mean mortality rate for this cancer type in this area can be calculated at 1.7/100,000 (german standard population). Though, the value of this parameter may vary with an underlying probability of 99% between 0.8 and 3.0/100,000.

Standardized mortality ratio (SMR) 2007 - 2020: Males



Standardized mortality ratio (SMR) 2007 - 2020: Females

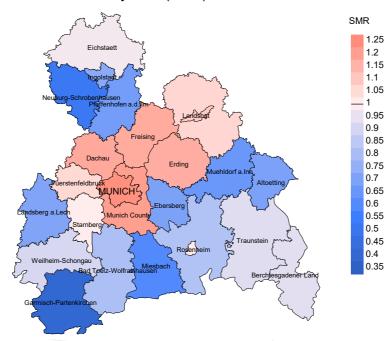


Figure 18b. Map of standardized mortality ratio (SMR, incl. DCO cases) by county averaged for period 2007 to 2020. According to their individual SMR values, the counties are displayed in different red and blue hues, being the fine white color attributed to the population overall of 1.0 (males N=1,111, females N=1,006).

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 19 women died from myeloid leukaemia. Therefore, the mean standardized mortality ratio (SMR) for this cancer type in this area can be calculated at 0.70. Though, the value of this parameter may vary with an underlying probability of 99% between 0.35 and 1.23, 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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