



## 1.1. Cancer patients who received chemotherapy in the last 14 days of life (EOL-3)

### 1.1.1. Documentation sheet

<b>Description</b>	Patients with cancer receiving chemotherapy in the last 14 days of life (% of cancer patients with poor prognosis who died)
<b>Calculation</b>	Numerator: number of patients receiving chemotherapy in the last 14 days of life Denominator: number of patients diagnosed with cancer with poor prognosis that died within the studied time period
<b>Rationale</b>	The main goal of palliative care is to improve - or at least maintain - quality of life in patients near their death. In this way burdensome curative treatments, such as active cancer treatment in case of oncological patients, are stopped and the main focus of therapy becomes alleviation of pain and other symptoms. This indicator measures the aggressiveness of care in the last days of life of cancer patients.
<b>Data source</b>	Belgian Cancer Registry (BCR), linked with IMA data
<b>Technical definitions</b>	<p>It is currently not possible to identify all palliative patients in administrative databases or in registries. Therefore, the indicator has been restricted to patients diagnosed with cancer who have a poor prognosis (based on relative survival probability) and deceased during the study period.</p> <p><u>Inclusion criteria</u></p> <p>Incidence years: 2006-2020</p> <p>Tumour selection based on the Pallcare project <sup>1</sup> : combination of topography and morphology according to Eurocare-4 <sup>2-3</sup>, and Eurocare-5 <sup>4</sup>: see EOL-1</p> <p>Patients deceased before July 1<sup>st</sup>, 2021</p> <p>Age at diagnosis ≥18 years</p> <p><u>Exclusion criteria</u></p> <p>Patients with more than one invasive tumour (until 2020)</p> <p>Patients without a Belgian residence at time of diagnosis</p> <p>Patients without national social security number</p> <p>Patients for whom no IMA data of the year of death were available (=4.1%)</p> <p><u>Maximum 3 years of follow-up</u></p> <p>Analyses were limited to patients who died before January 1st of the third year following the year of incidence. For example: patients diagnosed in 2006 were included in case they died in 2006, 2007 or 2008; patients diagnosed in 2007 were included in case they died in 2007, 2008 or 2009, etc. These cohorts were defined to assure that for every diagnosis a similar follow-up period could be taken into account and to avoid bias by varying length of the follow-up period.</p> <p><u>Chemotherapy</u></p>



	Drug (ATC) selection: ATC category L01, minus some products that are (predominantly) used in non-oncological settings (e.g. methotrexate (Ledertrexate), celecoxib (Celebrex), everolimus (Certican, Afinitor), Alemtuzumab (MabCampath)).
<b>Limitation</b>	The true proportion is probably higher than the presented results, as patients treated within clinical trials can receive chemotherapy provided by the sponsoring company and therefore it will not be detected within reimbursement (IMA-AIM) data. No information on aggressiveness of care in terminally ill patients not suffering from cancer. Very diverse agents (i.e. ATC L01 all together) are included in the analyses, with varying toxicity-profile and way of administration (orally versus IV).
<b>International comparability</b>	This is not an international indicator. Some results are available in national reports or in specific scientific articles.
<b>Dimension</b>	End-of-life care; Quality (appropriateness)
<b>Related indicators</b>	
<b>Reviewers</b>	Cindy De Gendt (BCR), Lien Van Walle (BCR)

### 1.1.2. Results

An average of 10.5% of the cancer patients who died in the period between 2008 and 2020, received chemotherapy in the last 14 days of their life (see Table 1). The proportion was slightly higher in patients with chronic tumour types compared to patients with acute tumour types (13.5% versus 10.1%). More variation is noted between the individual tumour types: the proportion of patients who received chemotherapy in the last 14 days of life ranged from 3.8% for brain cancer to 35.5% for acute lymphatic leukaemia and chronic myeloid leukaemia and 33.2% for acute myeloid leukaemia (see Table 2). Generally higher percentages are observed in patients with haematological tumours.

A slightly higher proportion of patients received chemotherapy just before death in Wallonia compared to Brussels and Flanders (12.3% vs 11.1% and 9.5%, respectively).



**Table 1 –Patients who received chemotherapy in the last 14 days of life - by year of death (deaths in 2006, 2007 and 2021 excluded, maximum 3 years of follow-up)**

	All Tumours			Acute Tumours			Chronic Tumours		
	Total	N with chemotherapy in the last 14 days of life		Total	N with chemotherapy in the last 14 days of life		Total	N with chemotherapy in the last 14 days of life	
	N	n	%	N	n	%	N	n	%
<b>2008</b>	9597	1048	10.9	8385	902	10.8	1212	146	12.0
<b>2009</b>	9455	1033	10.9	8243	876	10.6	1212	157	13.0
<b>2010</b>	9873	1167	11.8	8614	995	11.6	1259	172	13.7
<b>2011</b>	9950	1116	11.2	8770	961	11.0	1180	155	13.1
<b>2012</b>	10059	1118	11.1	8813	925	10.5	1246	193	15.5
<b>2013</b>	10120	1061	10.5	8906	872	9.8	1214	189	15.6
<b>2014</b>	10048	1005	10.0	8882	860	9.7	1166	145	12.4
<b>2015</b>	9876	913	9.2	8677	775	8.9	1199	138	11.5
<b>2016</b>	9773	834	8.5	8614	693	8.0	1159	141	12.2
<b>2017</b>	9472	956	10.1	8326	788	9.5	1146	168	14.7
<b>2018</b>	9409	1092	11.6	8299	915	11.0	1110	177	15.9
<b>2019</b>	9467	995	10.5	8335	849	10.2	1132	146	12.9
<b>2020</b>	9643	1021	10.6	8449	858	10.2	1194	163	13.7
<b>Total</b>	126742	13359	10.5	111313	11269	10.1	15429	2090	13.5

Source: BCR linked to IMA-AIM data


**Table 2 –Patients receiving chemotherapy in the last 14 days of life by tumour type (all patients 2006-2020, maximum 3 years of follow-up)**

	Total	n with chemotherapy	
	N	n	%
<b>Acute</b>	124900	12768	10.2
• Oesophagus	7435	589	7.9
• Stomach	9875	577	5.8
• Liver, primary	6657	374	5.6
• Gallbladder and biliary Tract	3567	175	4.9
• Pancreas	16271	1512	9.3
• Lung, bronchus and trachea	68069	7941	11.7
• Pleura	2523	116	4.6
• Brain	6826	262	3.8
• Acute myeloid leukaemia	<b>3677</b>	1222	33.2
<b>Chronic</b>	17141	2324	13.6
• Head and Neck	7238	835	11.5
• Small Intestine	1011	50	5.0
• Nasal cavities and sinuses	535	34	6.4
• Ovary and uterine adnexa	4269	495	11.6
• Multiple Myeloma	3056	544	17.8
• Acute lymphatic leukaemia	138	49	35.5
• Chronic myeloid leukaemia	894	317	35.5
<b>Total</b>	142041	15092	10.6

Source: BCR linked to IMA-AIM data


**Table 3 –Patients who received chemotherapy in the last 14 days of life - by region (year of death=2020, incidence years 2018-2020 included)**

	All Tumours			Acute Tumours			Chronic Tumours		
	Total	N with chemotherapy in the last 14 days of life		Total	N with chemotherapy in the last 14 days of life		Total	N with chemotherapy in the last 14 days of life	
	N	n	%	N	n	%	N	n	%
<b>Brussels</b>	721	80	11.1	623	74	11.9	98	6	6.1
<b>Flanders</b>	5537	525	9.5	4896	443	9	641	82	12.8
<b>Wallonia</b>	3385	416	12.3	2930	341	11.6	455	75	16.5
<b>Total</b>	9643	1021	10.6	8449	858	10.2	1194	163	13.7

Source: BCR linked to IMA-AIM data

### Key points

- **The administration of chemotherapy during the last days of life of patients dying from cancer is an indicator of the aggressiveness of care.**
- **Belgian data demonstrate that at least one out of ten cancer patients received chemotherapy in the last 14 days of life (average of 10.5% of the cancer patients who died in the period between 2008 and 2020).**
- **Substantial variation in the administration of chemotherapy in the last 14 days of life is observed between different tumour types, with generally higher percentages in patients with haematological tumour types in comparison to other tumour types.**

### References

1. Gielen B, De Gendt C, De Schutter H, Henin E, Ceuppens A, Peltier A, et al. Hospitalisaties bij het levenseinde van kankerpatiënten. 2013.
2. De Angelis R, Francisci S, Baili P, Marchesi F, Roazzi P, Belot A, et al. The EURO CARE-4 database on cancer survival in Europe: data standardisation, quality control and methods of statistical analysis. *Eur J Cancer*. 2009;45(6):909-30.
3. Sant M, Allemani C, Santaquilani M, Knijn A, Marchesi F, Capocaccia R. EURO CARE-4. Survival of cancer patients diagnosed in 1995-1999. Results and commentary. *Eur J Cancer*. 2009;45(6):931-91.
4. Rossi S, Baili P, Capocaccia R, Caldora M, Carrani E, Minicozzi P, et al. The EURO CARE-5 study on cancer survival in Europe 1999-2007: Database, quality checks and statistical analysis methods. *Eur J Cancer*. 2015;Oct 51(15):2104-19.