

## 1.1. Case fatality within 30 days after surgery for colon or rectal cancer (QE-7)

### 1.1.1. Documentation sheet

<b>Description</b>	Case fatality within 30 and 90 days after primary tumour-directed surgery for colorectal cancer
<b>Calculation</b>	A. 30 and 90 days postoperative mortality for colon cancer B. 30 and 90 days postoperative mortality for rectal cancer
<b>Rationale</b>	Colorectal cancer is the third most frequently occurring cancer for men and women in Belgium, with 7881 cases reported in 2021 <sup>1</sup> . In the majority of cases treatment for colorectal cancer includes surgery (with curative or palliative intent). <sup>a</sup> Case fatality rates within 30 days and 90 days after a surgery to treat the colorectal cancer are indicators of the quality of care delivered to patients. <sup>2,3</sup>
<b>Data source</b>	Belgian Cancer Registry (BCR): incidence years 2011-2020 IMA-AIM data Kruispuntbank - Banque Carrefour for mortality data (vital status of the patients diagnosed with cancer): follow up guaranteed until 1 April 2022
<b>Technical definitions</b>	Selection of patients: patients with new diagnoses of cancer registered in the BCR in the period 2011-2020, with the following ICD-10 codes: <b>Indicator A (colon): C18-C19</b> <b>Indicator B (rectum): C20</b> Exclusion criteria: <ul style="list-style-type: none"><li>• Patients without official residence in Belgium at date of diagnosis</li><li>• Patients with no social security number (INSZ – NISS) known</li><li>• Patients with no IMA data available in incidence year</li></ul> Numerator: number of patients with primary diagnosis of (A) colon cancer (B) rectal cancer in a specified year that died within 30-/90- days after radical colorectal surgery. Denominator: number of patients with primary diagnosis of (A) colon cancer (B) rectal cancer in the specified year, and a radical colorectal surgery performed. (in case of multiple colorectal cancer diagnoses in one patient, only the first diagnosis is kept) Selection of nomenclature codes for the radical colorectal surgeries: 243036-243040, 243051-243062, 244016-244020, 244031-244042, 244053-244064, 244753-244764, 243014-243025, 244075-244086, 244790-244801, 243073-243084, 243095-243106, 243110-243121, 243272-243283.
<b>International comparability</b>	None

<sup>a</sup> <https://www.cancer.be/les-cancers/types-de-cancers/cancer-du-gros-intestin-colorectal/traitements>

<b>Limitations</b>	The results that are demonstrated here are unadjusted, this means that there was no correction carried out for underlying differences in patient- or tumour-characteristics such as sex, age, performance score, stage of disease.
<b>Dimension</b>	Quality – effectiveness of care
<b>Reviewer</b>	Lien van Walle (BCR)

## 1.1.2. Results

### 1.1.2.1. Postoperative mortality in colon cancer

#### **Belgium**

In Belgium, over the period 2011-2020, 57 792 patients with colon cancer were studied (only the first tumour was studied in case of patients with multiple tumours), in 79.7% (N=46 047) a radical colon surgery was

performed. Overall, 30- and 90-days postoperative mortality rates are 3.7% and 6.4 % respectively.

The observed postoperative mortality at 30 days decreased from 4.6% to 3.6% during the study period (see Table 1) while the mortality at 90 days decreased from 7.5% to 6.7%.

**Table 1 - Postoperative mortality colon cancer (2011-2020)**

Year	Belgium				Flanders				Wallonia				Brussels			
	postoperative mortality at		postoperative mortality at		postoperative mortality at		postoperative mortality at		postoperative mortality at		postoperative mortality at		postoperative mortality at		postoperative mortality at	
	D	30 d (%)	D	90 d (%)	D	30 d (%)	D	90 d (%)	D	30 d (%)	D	90 d (%)	D	30 d (%)	D	90 d (%)
<b>2011</b>	4 674	4.6	4 673	7.5	2 892	4.1	2 892	6.7	1 396	5.3	1 395	8.7	386	5.2	386	9.3
<b>2012</b>	4 680	4.1	4 680	7.1	3 007	3.6	3 007	6.4	1 343	4.8	1 343	7.9	330	5.2	330	10.6
<b>2013</b>	4 808	3.6	4 808	6.6	3 004	3.1	3 004	5.9	1 466	4.0	1 466	7.3	338	5.3	338	9.8
<b>2014</b>	5 458	3.3	5 458	5.6	3 779	2.4	3 779	3.8	1 349	5.1	1 349	9.6	330	6.4	330	9.7
<b>2015</b>	4 811	3.9	4 811	6.6	3 132	3.2	3 132	5.7	1 357	5.0	1 357	8.0	322	6.2	322	9.6
<b>2016</b>	4 584	3.2	4 584	5.9	2 855	2.2	2 855	4.2	1 371	5.0	1 371	8.5	358	4.5	358	8.7
<b>2017</b>	4 451	3.5	4 450	5.8	2 669	2.8	2 669	4.6	1 458	4.6	1 458	7.7	324	4.0	323	7.1
<b>2018</b>	4 290	3.5	4 289	6.4	2 588	2.5	2 588	5.1	1 395	4.9	1 394	8.8	307	5.2	307	9.5
<b>2019</b>	4 377	3.6	4 377	6.0	2 621	2.7	2 621	5.0	1 440	4.7	1 440	7.4	316	5.7	316	8.2
<b>2020</b>	3 914	3.6	3 914	6.7	2 436	2.8	2 436	5.8	1 219	4.9	1 219	7.6	259	5.8	259	10.4
<b>2011-2020</b>	46 047	3.7	46 044	6.4	28 983	2.9	28 983	5.3	13 794	4.8	13 792	8.1	3 270	5.3	3 269	9.3

*D : denominator, d : days*

*Source: Belgian Cancer Registry (BCR)*

### Regional comparison

The overall observed postoperative mortality was lower in Flanders (2.9% at 30 days and 5.3 at 90 days) than in Wallonia (4.8% at 30 days and 8.1% at 90 days) and Brussels (5.3% at 30 days and 9.3% at 90 days).

### Impact of COVID-19 pandemic

Unknown (but figures for 2021 are not known yet).

### 1.1.2.2. Postoperative mortality rectal cancer

#### Belgium

Rectal cancer is less common than colon cancer, 22 602 patients were studied between 2011 and 2020 (only the first tumour was studied in case of patients with multiple tumours). A radical rectal cancer resection has been recorded in 67.5% (n=15 257) of the cases. Overall, 30- and 90-days postoperative mortality rates are 2.0% and 4.0% respectively (Table 2).

The observed postoperative mortality rates are stable throughout the study period (except for Brussels where the low number of patients might explain the higher variations).

**Table 2 – Postoperative mortality in rectal cancer (2011-2020)**

Year	Belgium				Flanders				Wallonia				Brussels			
	postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at 30 d (%)		postoperative mortality at 90 d (%)	
	D	(%)	D	(%)	D	(%)	D	(%)	D	(%)	D	(%)	D	30 d (%)	D	90 d (%)
<b>2011</b>	1 715	2.2	1 715	4.2	1 096	1.6	1 096	3.7	503	3.2	503	5.0	116	2.6	116	6.0
<b>2012</b>	1 711	2.3	1 711	4.8	1 063	1.9	1 063	4.1	548	2.9	548	6.0	100	4.0	100	5.0
<b>2013</b>	1 707	2.1	1 707	4.3	1 096	1.5	1 096	3.8	515	3.1	515	5.1	96	4.2	96	5.2
<b>2014</b>	1 771	1.5	1 771	3.2	1 192	1.3	1 192	2.8	500	2.0	500	4.2	79	1.3	79	2.5
<b>2015</b>	1 609	2.4	1 609	4.2	1 014	1.8	1 014	3.4	492	3.3	492	5.5	103	4.9	103	5.8
<b>2016</b>	1 536	2.2	1 536	4.0	919	1.5	919	3.2	510	3.3	510	5.7	107	1.9	107	2.8
<b>2017</b>	1 432	2.2	1 432	3.7	860	2.4	860	3.7	477	1.9	477	4.2	95	1.1	95	1.1
<b>2018</b>	1 333	1.3	1 333	3.0	768	1.2	768	2.9	464	1.3	464	3.0	101	2.0	101	4.0
<b>2019</b>	1 284	2.6	1 284	4.3	762	2.0	762	3.2	443	3.2	443	5.4	79	5.1	79	8.9
<b>2020</b>	1 159	1.6	1 158	4.2	666	2.3	666	4.2	409	1.0	409	3.4	84	0.0	83	8.4
<b>2011-2020</b>	15 257	2.0	15 256	4.0	9 436	1.7	9 436	3.5	4 861	2.6	4 861	4.8	960	2.7	959	4.9

*D : denominator, d : days*

*Source : Belgian Cancer Registry (BCR), Intermutualistic Agency (IMA – AIM) and Crossroads Bank for Social Security (KSZ – BCSS)*

### Regional comparison

The observed postoperative mortality rates are lower in Flanders (1.7% and 3.5% for 30 days and 90 days, respectively) than in Wallonia (2.6% for 30 days and 4.8% for 90 days) and Brussels (2.7% for 30 days and 4.9% for 90 days).

### Impact of COVID-19 pandemic

Unknown (but figures for 2021 are not known yet).

## Key points

- The overall observed postoperative mortality at 30 days and 90 days after surgery is 3.7% and 6.4% respectively for colon cancer, and 2.0% and 4.0% for rectal cancer.
- Radical primary tumour-directed surgical interventions as part of the treatment are recorded in 79.7% of colon cancers and 67.5% of rectal cancers.
- The evolution of the observed postoperative mortality rate over the period 2011-2020 is favourable (i.e. mortality decrease) for colon cancer and stable for rectal cancer.
- The observed postoperative mortality rates are similar in Brussels and Wallonia, whereas in Flanders lower rates are documented; this requires further analysis (account for possible differences in patient populations, e.g. age/sex/performance score/stage at diagnosis) before drawing conclusions on regional differences in quality of care.

## References

1. Belgian Cancer Registry. Cancer figures [Web page]. Available from: <https://kankerregister.org/Cancer%20Figures>
2. Gooiker GA, Dekker JWT, Bastiaannet E, van der Geest LG, Merkus JW, van de Velde CJ, et al. Risk factors for excess mortality in the first year after curative surgery for colorectal cancer. *Annals of surgical oncology*. 2012;19(8):2428-34.
3. Byrne B, Mamidanna R, Vincent C, Faiz O. Population-based cohort study comparing 30-and 90-day institutional mortality rates after colorectal surgery. *British Journal of Surgery*. 2013;100(13):1810-7.