



1.4. In hospital mortality after colorectal surgery (QE-7)

1.4.1. Documentation sheet

Description	Case fatality within 30 and 90 days after primary tumour-directed surgery for colorectal cancer
Calculation	C. 30 days and 90 days postoperative mortality in colon cancer D. 30 days and 90 days postoperative mortality in rectal cancer
Rationale	Colorectal cancer is the second most frequently occurring cancer for men and the third for women in Belgium, with 8468 cases reported in 2016 ¹ . In the majority of cases treatment for colorectal cancer includes surgery (curative or palliative intent). ^b Case fatality rates within 30 days and 90 days after a surgery to treat the colorectal cancer are indicators of the quality of acute care delivered to patients. ^{2, 3}
Primary data source	Belgian Cancer Registry (BCR): incidence years 2011-2015. IMA-AIM data Kruispuntbank - Banque Carrefour for mortality data (vital status of patients diagnosed with cancer): 01/01/2011- 01/07/2015.
Source of results	Belgian Cancer Registry (BCR).
Technical definitions	Selection of patients: new diagnoses of cancer registered in the BCR, with the following ICD-10 codes: Indicator A (colon): C18-C19 Indicator B (rectum): C20 Exclusion criteria: <ul style="list-style-type: none"> • Patients without official residence in Belgium at date of diagnosis • Patients with uncertain incidence date • Patients with no social security number (INSZ – NISS) known • Patients with no IMA data available in incidence year Numerator: number of deaths that occurred within 30-/90- days after radical colorectal surgery with primary diagnosis of (A) colon cancer (B) rectal cancer in a specified year. Denominator: number of radical colorectal surgeries (1 month before to 9 months after the incidence date) with primary diagnosis of (A) colon cancer (B) rectal cancer in the specified year The selection of nomenclature codes for the radical colorectal surgeries is the following: 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 <https://www.cancer.be/les-cancers/types-de-cancers/cancer-du-gros-intestin-colorectal/traitements>



International comparability	None.
Limitations	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.
Dimension	Quality – effectiveness of care

1.4.2. Results

1.4.2.1. Postoperative mortality in colon cancer

In Belgium, over the period 2011-2015, 31 390 colon tumours were studied (30 556 patients), in 80.8% of them a radical primary tumour-directed surgery was performed. Overall 30- and 90-days postoperative mortality rates are 3.9% and 6.7 % respectively (Table 3).

The mortality at 30 days decreased from 4.6% to 4.1% during the period of observation (with a lower rate in 2013 and 2014, see Table 3) while the mortality at 90 days decreased from 7.6% to 6.7% (also with lower rates in 2013 and 2014). Flanders has an overall lower mortality (3.3% at 30 days and 5.7 at 90 days) than Wallonia (4.9% at 30 days and 8.3% at 90 days) and Brussels (5.4% at 30 days and 9.5% at 90 days).

Table 3 – Postoperative mortality in colon cancer (2011-2015)

Year	Belgium			Flanders			Wallonia			Brussels		
	Number of patients getting surgery	postoperative mortality at 30 days (%)	postoperative mortality at 90 days (%)	Number of patients getting surgery	postoperative mortality at 30 days (%)	postoperative mortality at 90 days (%)	Number of patients getting surgery	postoperative mortality at 30 days (%)	postoperative mortality at 90 days (%)	Number of patients getting surgery	postoperative mortality at 30 days (%)	postoperative mortality at 90 days (%)
2011	4813	4.6	7.6	2995	4.2	6.8	1425	5.3	8.7	393	5.1	9.2
2012	4866	4.1	7.2	3124	3.7	6.4	1399	4.9	8.2	343	5.0	10.5
2013	4981	3.5	6.5	3107	3.1	5.8	1524	4.0	7.4	350	5.1	9.4
2014	5670	3.3	5.5	3923	2.4	3.9	1407	5.1	9.4	340	5.9	9.1
2015	5020	4.1	6.7	3268	3.4	5.9	1410	5.1	8.0	342	5.9	9.1
2011-2015	25350	3.9	6.7	16417	3.3	5.7	7165	4.9	8.3	1768	5.4	9.5

Source: Belgian Cancer Registry (BCR)



1.4.2.2. Postoperative mortality in rectal cancer

Rectal cancer is less common than colon cancer, 12 149 were studied between 2011 and 2015 (for 12 138 patients). A radical primary tumour directed surgical intervention has been recorded in 71.1% of the cases. Overall 30- and 90-days postoperative mortality rates are 2.1% and 4.2% respectively (Table 4).

The observed postoperative mortality rates are stable throughout the period of observation. Postoperative mortality rates are lower in Flanders (1.7% and 3.6% for 30 days and 90 days, respectively) than in Wallonia (3.0% for 30 days and 5.3% for 90 days) and Brussels (3.2% for 30 days and 4.8% for 90 days).

Table 4 – Postoperative mortality in rectal cancer (2011-2015)

Year	Belgium			Flanders			Wallonia			Brussels		
	Number of patients getting surgery	postoperative mortality at 30 days (%)	90 days (%)	Number of patients getting surgery	postoperative mortality at 30 days (%)	90 days (%)	Number of patients getting surgery	postoperative mortality at 30 days (%)	90 days (%)	Number of patients getting surgery	postoperative mortality at 30 days (%)	90 days (%)
2011	1741	2.1	4.1	1110	1.6	3.6	513	3.1	4.9	118	2.5	5.9
2012	1738	2.5	5.0	1083	2.0	4.3	554	3.1	6.3	101	4.0	5.0
2013	1741	2.1	4.3	1124	1.4	3.7	521	3.3	5.2	96	4.2	5.2
2014	1813	1.7	3.3	1222	1.5	2.9	508	2.2	4.5	83	1.2	2.4
2015	1601	2.4	4.1	1016	1.8	3.4	483	3.3	5.6	102	3.9	4.9
2011-2015	8634	2.1	4.2	5555	1.7	3.6	2579	3.0	5.3	500	3.2	4.8

Key points

- The overall postoperative mortality rate at 30 days and 90 days is respectively 3.9% and 6.7% for colon cancer, and 2.1% and 4.2% for rectal cancer.
- Radical primary tumour-directed surgical interventions are recorded in 80% of colon cancers and 70% of rectal cancers, as part of the treatment.
- The evolution of the mortality rate over the period 2011-2015 is favourable (i.e. mortality decrease) for colon cancer and stable for rectal cancer.
- The mortality rates are similar in Brussels and Wallonia, but in Flanders lower rates are documented; this requires further analysis (taking into account 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.