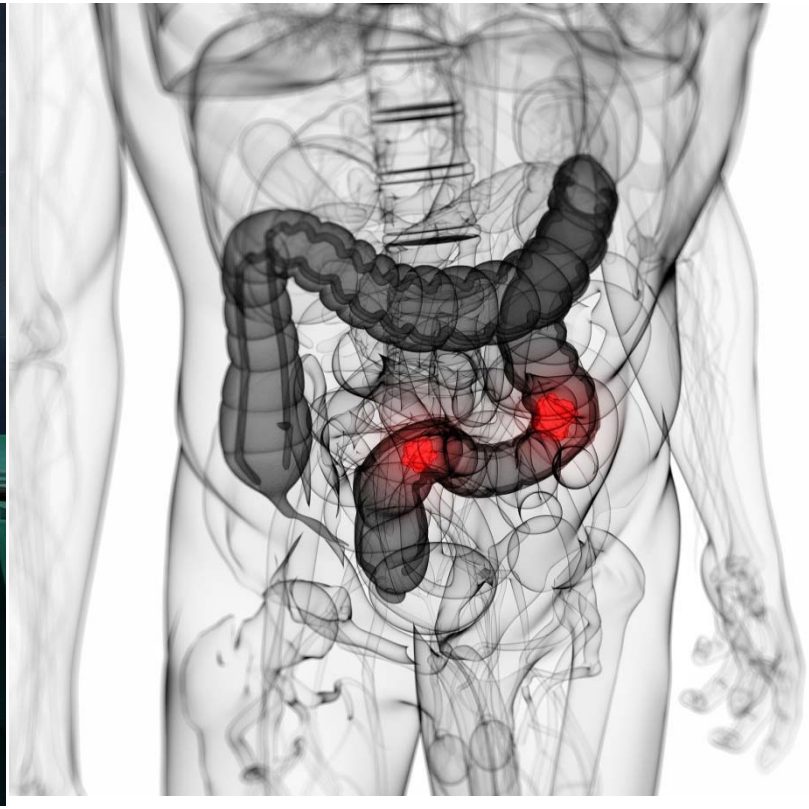
Federaal Kenniscentrum voor de Gezondheidszorg
Centre Fédéral d'Expertise des Soins de Santé
Belgian Health Care Knowledge Centre

SUMMARY

COLON CANCER: DIAGNOSIS, TREATMENT AND FOLLOW-UP



Belgian Health Care Knowledge Centre

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KCE REPORT 218Cs
GOOD CLINICAL PRACTICE

SUMMARY

COLON CANCER: DIAGNOSIS, TREATMENT AND FOLLOW-UP

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COLOPHON

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	Research National Cancer Plan) Participation in scientific or experimental research as an initiator, principal investigator or researcher: Patrick Flamen, Alain Hendlisz (Principal Investigator PePiTA trial), Marc Peeters (Amgen, Merck Serono), Cornelis Van de Velde (different colorectal trials) Further, it should be noted that all experts and stakeholders, as well as the validators consulted within this report were selected because of their expertise in the field of colon cancer. Therefore, by definition, all consulted experts, stakeholders and validators have a certain degree of conflict of interest to the main topic of this report.
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Disclaimer:	**The external experts were consulted about a (preliminary) version of the scientific report. Their comments were discussed during meetings. They did not co-author the scientific report and did not necessarily agree with its content.** **Subsequently, a (final) version was submitted to the validators. The validation of the report results from a consensus or a voting process between the validators. The validators did not co-author the scientific report and did not necessarily all three agree with its content.** **Finally, this report has been approved by common assent by the Executive Board.** **Only the KCE is responsible for errors or omissions that could persist. The policy recommendations are also under the full responsibility of the KCE.**
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FOREWORD

In the list of common cancer types, colon cancer ranks third in men and second in women. Although the five-year survival is as high as 60 to 70%, colon cancer remains one of the main causes of cancer mortality. Given its impact, it was the focus of one of the first oncological guidelines developed by KCE and the College of Oncology (KCE report 26, 2006).

Since then a lot has changed - not only regarding optimal approach to diagnosis and treatment of colon cancer - but also in the methodology of guideline development. Hence, this updated guideline is timely, the more so that the care landscape has evolved. First, with the aging population, the incidence of colon cancer will increase as it typically affects elderly people. Furthermore, the gradual rollout of a population-based screening program has started both in Flanders and in the French speaking part of the country.

As usual, it has become a very technical document intended for specialized caregivers in the first place. In this guideline, there is no recommendation on centralisation of care! Colon cancer is a common cancer, which can/ should be treated appropriately in every hospital with an oncology care program. Nevertheless, some comments should be made. As for many other tumours, recently more "personalized" treatments were developed for colon cancer, specifically for those whose tumour carries specific receptors. The proper testing of these markers requires the necessary expertise, which may currently not be present in each laboratory. Mutatis mutandis, the same can be said of high tech, complex treatments such as stereotactic radiation therapy which is indicated in some cases.

In short, high-quality cancer care in the year 2014 is more than ever multi-disciplinary teamwork, and hospitals can only respond well when they act in comprehensive cancer networks.

Developing qualitative guidelines in the year 2014 is as much multidisciplinary teamwork, and would be impossible without the expertise of the clinical domain experts and patient representatives. Proof of this is the long list of names that can be found in the colophon. We thank each of them sincerely for their essential contributions.

Christian LÉONARD
Deputy general director

Raf MERTENS
General director

ABSTRACT

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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
5FU	5-fluorouracil
CEA	Carcinoembryonic antigen
CT	Computed tomography
DNA	Deoxyribonucleic acid
EGFR	Epidermal growth factor receptor
ERAS	Enhanced recovery after surgery
GDG	Guideline development group
GRADE	Grading of Recommendations Assessment, Development and Evaluation
HAI	Hepatic artery infusion
HIPEC	Hyperthermic intraperitoneal chemotherapy
IKNL	Integraal Kankercentrum Nederland
KCE	Belgian Health Care Knowledge Centre
MOC-COM	Multidisciplinair oncologisch consult – Consultation oncologique multidisciplinaire
MRI	Magnetic resonance imaging
MSI	Microsatellite instability
NIHDI (RIZIV/INAMI)	National Institute for Health and Disability Insurance
OS	Overall survival
PET-CT	Positron emission tomography - computed tomography
PFS	Progression-free survival
QoL	Quality of life
RAS	Rat sarcoma viral oncogene homolog
RCT	Randomised controlled trial
RFA	Radio-frequency ablation

GLOSSARY

Enhanced recovery after surgery (ERAS) program	Fast-track or enhanced recovery programs consist of a number of peri-operative measures that aim at maintaining physiological function and facilitate postoperative recovery, such as omitting the routine use of nasogastric tubes, intra-operative maintenance of normothermia and commencement of an oral diet at will after surgery.
Epidermal growth factor receptor (EGFR)	The protein found on the surface of some cells and to which epidermal growth factor binds, causing the cells to divide. It is found at abnormally high levels on the surface of many types of cancer cells, so these cells may divide excessively in the presence of epidermal growth factor. Also called ErbB1 and HER1.
Lynch syndrome	An inherited disorder in which affected individuals have a higher-than-normal chance of developing colorectal cancer and certain other types of cancer, often before the age of 50. Also called hereditary nonpolyposis colon cancer (HNPCC).
Metachronous liver metastases	Liver metastases that are diagnosed not at the same time as the primary tumour but at a separate occurrence.
Microsatellite instability (MSI)	A change that occurs in the DNA of certain cells (such as tumour cells) in which the number of repeats of microsatellites (short, repeated sequences of DNA) is different than the number of repeats that was in the DNA when it was inherited. The cause of microsatellite instability may be a defect in the ability to repair mistakes made when DNA is copied in the cell.
Synchronous liver metastases	Liver metastases that are diagnosed at the same time as the primary tumour.
Stent as a bridge to surgery	A stent is a device placed in a body structure (such as a blood vessel or the gastrointestinal tract) to keep the structure open. For patients with a resectable left-sided colorectal cancer who present with signs of acute obstruction, a stent that relieves the obstruction awaiting planned surgery is called a ‘stent as a bridge to surgery’.

1. INTRODUCTION

Colorectal cancer is the third most frequent cancer in males and the second in females. Furthermore, colorectal cancer ranks as the second most frequent cause of death by cancer in males and the third in females (data Belgian cancer registry, 2008). Colorectal cancer affects men more often than women (male/female ratio: 1.56 in 2008), and affects primarily patients older than 64 years (69.5% in males and 72.9% in females in 2008). Incidence rates increased over the last ten years in Flanders. With the ageing population, colorectal cancer will remain an important health problem for our society in the next decades.[1]

This guideline focuses on cancer of the colon. Cancers of the colon and rectosigmoid junction account for 68.2% of all colorectal cancers in males and 73.9% in females.

For colon cancers diagnosed in Belgium between 2004 and 2008, 5-year relative survival rates were 62.3% in males and 64.6% in females, with little regional differences.[1]

Stage at diagnosis is a very important prognostic factor for survival in colon cancer. The 5-year relative survival estimates are 91.2% and 96.2% in stage I and 19.1% and 19.8% in stage IV, in males and females respectively.[1]

2. INTERNATIONAL COLLABORATION

In an early stage of this guideline development project, we learned that the Dutch guideline developer Comprehensive Cancer Centre The Netherlands (Integraal Kankercentrum Nederland, IKNL) had decided to update its clinical guideline for the diagnosis and treatment of colorectal cancer and the guideline for the treatment of colorectal liver metastases. Their update focused on eight research questions (see below) which were also of interest to KCE. Hence, an international collaboration was set up and of the eight research questions, four were elaborated by IKNL, while the other four were elaborated by KCE.

The scope of the collaboration included the search for evidence (search strategy + selection), quality appraisal, evidence tables, evaluation of the level of evidence using GRADE and the writing of the evidence report. The formulation of the recommendations was the responsibility of each of the two organisations separately.

3. OBJECTIVES AND SCOPE OF THIS GUIDELINE

The aim of this guideline is to offer an overview of the current evidence on the diagnosis, treatment and follow-up of colon cancer and to formulate recommendations to health care providers taking care of patients with colon cancer.

This guideline focuses on primary adenocarcinoma of the colon. Other (rare) histological types of colon cancer and cancer of the rectum are not discussed in this guideline. Population screening or the surveillance of high-risk groups (e.g. patients with a family history or with inflammatory bowel disease) were not covered either.

It was decided to base this guideline on existing, recent, good-quality foreign guidelines. For selected priority research questions, additional updating of the literature was performed (see next chapter).

In total, fourteen priority research questions were identified; eight were selected by the Dutch stakeholders, and another six by the Belgian stakeholders.

The following eight priority questions were selected by the Dutch stakeholders:

- Is PET-CT more sensitive and/or specific than CT to detect metastases in patients with potentially resectable liver (or lung) metastases, resulting in a change of treatment plan?
- What is the value of enhanced recovery programs after laparoscopic or open colectomy for colorectal cancer?
- Is stenting or colostomy more beneficial than acute resection with or without primary anastomosis in acute obstruction due to left-sided colon carcinoma?
- Does additional (segmental) colon resection yield better outcomes (progression-free survival (PFS), overall survival (OS), quality of life (QoL)) than watchful waiting in patients who are diagnosed with Tis/T1 colon carcinoma and who have undergone endoscopic polypectomy?
- Which group of elderly patients with non-metastasized primary colorectal carcinoma does not benefit from surgery with or without preoperative radiotherapy or adjuvant chemotherapy?
- What is the best therapeutic sequence for patients with
  - resectable metachronous liver metastases?
  - resectable synchronous liver metastases?
- When to use local therapy for lung or unresectable liver metastases of colorectal cancer?
- What is the current standard first line treatment for metastatic inoperable colorectal cancer?

The selection of research questions by the Belgian stakeholders was made during an initial expert meeting at KCE on May 3rd 2013, based on a list of recommendations from international guidelines:

- Should MRI of the liver be performed in patients with potentially resectable liver metastases on (CT and) PET-CT, to detect additional liver metastases and/or determine resectability?
- What are the clinical indications (other than identifying Lynch syndrome) for upfront testing of microsatellite instability (MSI) in a tumour?
- Which factors should be determined to identify high-risk stage II colon cancer patients that are eligible for adjuvant chemotherapy?
- Is laparoscopic colectomy beneficial compared to open surgery in terms of morbidity, recovery and oncological outcomes, with special attention to T4 tumours, tumours of the transverse colon? What is the clinical effectiveness of ‘single incision’ techniques and total mesocolic resection in patients with colon cancer?
- Is debulking surgery followed by hyperthermic intraperitoneal chemotherapy (HIPEC) recommended for patients with resectable peritoneal metastases from colon cancer?
- Should routine CT of the abdomen be performed on regular intervals during follow-up?

4. METHODS

We used the ADAPTE methodology (http://www.g-i-n.net/activities/adaptation/introduction-g-i-n-adaptation-wg) for the preparation of the guideline. This method starts from recent high-quality evidence-based guidelines, and adapts them in accordance with the input of national experts and stakeholders representing the disciplines involved.
For the selected priority research questions, the international guidelines were updated with more recently published evidence. For other topics, the recommendations formulated by international guidelines and the underlying evidence were reviewed by the guideline development group (GDG) and adapted to the Belgian context.

4.1. The search for clinical practice guidelines

Clinical practice guidelines on colon cancer published since 2009 were searched using OVID Medline, the National Guideline Clearinghouse (http://www.guideline.gov) and Guidelines International Network (www.g-i-n.net). Additionally, websites of guideline developers from other countries were searched All searches were performed in July 2012.

Of the 32 guidelines identified, 21 guidelines were excluded for the following reasons:

- 15 guidelines were excluded as there was no systematic review of evidence
- 4 guidelines were excluded because of unsatisfactory or unclear methodology
- 1 guideline was a summary of other guidelines
- 1 guideline was the report of an update

The eleven evidence-based guidelines that were eventually retained, served as starting point for the development of this guideline.

4.2. Update search

For the selected priority questions, the update search for more recent peer-reviewed systematic reviews and primary studies included a search in OVID Medline, EMBASE, CENTRAL and the Cochrane Database of Systematic Reviews. Searches were run between November, 2012 and July, 2013.

One researcher performed the selection, the quality appraisal of the studies and the data extraction. A second researcher was consulted in case of doubt.

The analysis followed a two-step approach:

1. Extraction of the data from the systematic reviews and meta-analyses; in the absence of high quality systematic reviews and meta-analyses, clinical guidelines of high quality were considered as a starting point.
2. Search for the most recent primary studies to complete the evidence found in the previous step.

4.3. Elaboration of the recommendations

To determine the level of evidence and the strength of the recommendations, the GRADE methodology was followed (Table 1 and Table 2). The strength of a recommendation was assigned taking into account the balance between desirable and undesirable effects, the quality of the evidence, values and preferences and costs (resource allocation), although no formal cost-effectiveness studies were performed within the framework of this guideline.[2, 3]

GRADE was not applied to recommendations on diagnostic interventions due to current methodological limitations. For non-priority research questions, the level of evidence was not assessed. For these recommendations, the ADAPTE methodology was used.[4]

Based on the retrieved evidence, draft recommendations were prepared by KCE experts (LV, JR, GV & RL), and sent for review to the guideline development group (GDG). The evidence and the recommendations were discussed during several meetings attended by KCE experts and the external experts. Declarations of interest of the members of the GDG were officially recorded.

Recommendations were then submitted to a panel of stakeholders, including representatives of professional organisations and patient representatives (see colophon), who rated them with a score ranging from 1 ('completely disagree') to 5 ('completely agree') and discussed them at a meeting.

Finally, three other external validators assessed and validated this guideline by using the Agree II checklist. The validation process was chaired by CEBAM (Belgian Centre for Evidence-Based Medicine).

Table 1 – Levels of evidence according to the GRADE system

Quality level	Definition	Methodological Quality of Supporting Evidence
High	We are very confident that the true effect lies close to that of the estimate of the effect	Randomized controlled trials (RCTs) without important limitations or overwhelming evidence from observational studies
Moderate	We are moderately confident in the effect estimate: the true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different	RCTs with important limitations (inconsistent results, methodological flaws, indirect, or imprecise) or exceptionally strong evidence from observational studies
Low	Our confidence in the effect estimate is limited: the true effect may be substantially different from the estimate of the effect	RCTs with very important limitations or observational studies or case series
Very low	We have very little confidence in the effect estimate: the true effect is likely to be substantially different from the estimate of the effect	

Source: Balshem H, Helfand M, Schünemann HJ, Oxman AD, Kunz R, Brozek J, et al. GRADE guidelines: 3. Rating the quality of evidence. J Clin Epidemiol. 2011;64(4):401-6

Table 2 – Interpretation of strong and conditional (weak)* recommendations

Implications	Strong recommendation	Weak recommendation
For patients	Most individuals in this situation would want the recommended course of action, and only a small proportion would not. Formal decision aids are not likely to be needed to help individuals make decisions consistent with their values and preferences.	The majority of individuals in this situation would want the suggested course of action, but many would not.
For clinicians	Most individuals should receive the intervention. Adherence to this recommendation according to the guideline could be used as a quality criterion or performance indicator.	Recognize that different choices will be appropriate for individual patients and that you must help each patient arrive at a management decision consistent with his or her values and preferences. Decision aids may be useful helping individuals making decisions consistent with their values and preferences.
For policy makers	The recommendation can be adopted as policy in most situations.	Policy-making will require substantial debate and involvement of various stakeholders.

** the terms ‘‘conditional’’ and ‘‘weak’’ can be used synonymously*
Source: Andrews JC, Schunemann HJ, Oxman AD, Pottie K, Meerpohl JJ, Coello PA, et al. GRADE guidelines: 15. Going from evidence to recommendation-determinants of a recommendation's direction and strength. J Clin Epidemiol. 2013;66(7):726-35.

5. CLINICAL RECOMMENDATIONS

The details of the evidence used to formulate the recommendations below are available in the scientific report and its supplements. The tables follow the sequence of the chapters of the scientific report.

5.1. Diagnosis

Recommendations	Strength of Recommendation	Level of Evidence
To confirm or rule out colon cancer, colonoscopy in conjunction with histological confirmation is the technique of choice in fit patients.	Strong	NA
If colonoscopy is considered not feasible or contra-indicated, CT colonography is preferred over barium enema.	Strong	NA

5.2. Staging of invasive colon cancer

Recommendations	Strength of Recommendation	Level of Evidence
A CT scan including the chest and abdomen is recommended in all patients diagnosed with colon cancer.	Strong	NA
PET-CT is not recommended as part of routine preoperative assessment of non-metastatic colon cancer.	Strong	NA
PET-CT is recommended to detect additional metastasis in colorectal cancer patients with potentially resectable metastases.	Strong	NA
MRI of the liver should be considered in patients who are judged eligible for resection of liver metastases on the basis of CT and PET-CT.	Strong	NA

5.3. Multidisciplinary team

Recommendations	Strength of Recommendation	Level of Evidence
Treatment decisions should be discussed by a multidisciplinary team (MOC – COM).	Strong	ADAPTE

5.4. Pathology

Recommendations	Strength of Recommendation	Level of Evidence
RAS mutation status should be assessed in all patients when anti-EGFR treatment is considered.	Strong	NA
Pathology reports should at least contain the minimal datasets as defined by (inter)national professional organisations; it should always include the pathological TNM classification.	Strong	ADAPTE
For the pathological examination of resection specimens of colorectal cancer, as many lymph nodes as possible should be assessed for the presence of tumour cells. Only routine hematoxylin and eosin stained samples should be used.	Strong	ADAPTE

5.5. Surgical treatment stage 0-III

Recommendation	Strength of Recommendation	Level of Evidence
For patients in whom T*is* is diagnosed after polypectomy, no additional treatment is indicated on the condition that all of the following requirements are fulfilled: (1) there is a clear margin of excision (1 to 2 mm) (2) the tumour is well or moderately differentiated and (3) there is no lymphatic or venous invasion	Strong	Very low
In patients in whom T1 is diagnosed after polypectomy, surgical resection should be considered.	Strong	Very low
In the absence of contra-indications, laparoscopic surgery is a valid option in patients with resectable stage I-III colon cancer.	Weak	Low
Single-incision laparoscopy can be considered an alternative to multiple-incision laparoscopy.	Weak	Very low
Robot-assisted colectomy is not recommended in colon cancer patients given its high cost and unproven benefit compared to laparoscopy.	Strong	Very low
There is insufficient evidence to formulate any recommendation regarding the use of complete mesocolic excision in colon cancer.	NA	NA
An enhanced recovery after surgery (ERAS) program is recommended after colon cancer surgery.	Strong	Very low

5.6. Treatment of acute obstructions

Recommendations	Strength of Recommendation	Level of Evidence
The use of an intraluminal stent as a bridge to surgery in patients with acute obstruction due to curable colorectal cancer is not recommended.	Strong	Very low
For the treatment of patients with acute obstruction due to incurable colorectal cancer, intraluminal stenting can be considered in selected patients.	Weak	Very low

5.7. Adjuvant chemotherapy for stage II-III colon cancer

Recommendations	Strength of Recommendation	Level of Evidence
Adjuvant chemotherapy can be considered for stage II colon cancer, taking into account the presence of high risk features in the tumour, co-morbidities and patient preferences.	Weak	Low
Adjuvant chemotherapy is recommended for stage III colon cancer. In fit patients, a fluoropyrimidine and oxaliplatin is the combination of choice.	Strong	ADAPTE
If a patient is considered for 5FU-monotherapy, MSI testing should be performed. If the tumour is MSI-high, no 5FU-monotherapy should be given.	Strong	NA
Adjuvant chemotherapy for stage II or III colon cancer should not be omitted in elderly patients based on age alone.	Weak	Low

5.8. Surgical treatment of liver metastases

Recommendations	Strength of Recommendation	Level of Evidence
Liver metastases should be resected if imaging techniques indicate that surgery is an option.	Strong	ADAPTE
Radiofrequency ablation (RFA) should be considered in addition to surgery in patients with liver metastases in order to achieve complete response and sufficient residual liver function.	Strong	ADAPTE
Simultaneous resection of the primary colon tumour and liver metastases can be considered if the patient is sufficiently fit and a simultaneous operation is judged technically feasible.	Weak	Moderate
Systemic peri-operative or adjuvant chemotherapy can be considered in patients with resectable colorectal liver metastasis.	Weak	Moderate
(Neo)adjuvant hepatic arterial infusion chemotherapy is not recommended in patients with resectable colorectal liver metastasis.	Strong	Very low

5.9. Local treatment modalities for unresectable liver metastases

If liver metastases are unresectable, systemic therapy is the preferred treatment. Several local treatment modalities have been tested in addition to systemic therapy or as rescue treatment if the disease has become refractory to systemic therapy.

Recommendations	Strength of Recommendation	Level of Evidence
Radiofrequency ablation (RFA) is not recommended in patients with unresectable liver metastases.	Strong	Low
Hepatic artery chemotherapy (HAI) is not recommended as a treatment of liver metastases from colorectal cancer.	Strong	Very low
Chemoembolisation of liver metastases from colorectal cancer is not recommended outside the framework of clinical research.	Weak	Very low
Adding radioembolisation to systemic chemotherapy in patients with unresectable liver metastases is not recommended.	Weak	Very low
Radioembolisation can be considered in patients with unresectable liver metastases refractory to systemic chemotherapy.	Weak	Low
The use of stereotactic body radiation therapy in the treatment of liver metastases from colorectal cancer is not recommended outside the framework of clinical research.	Strong	Very low

5.10. Local treatment of lung metastases

Recommendations	Strength of Recommendation	Level of Evidence
Resection of lung metastases should be considered if complete resection can be achieved.	Strong	Very low
The use of stereotactic body radiation therapy can be considered for unresectable or inoperable limited lung metastases from colorectal cancer.	Weak	Very low

5.11. Treatment of peritoneal metastases: cytoreductive surgery and hyperthermic intraperitoneal chemotherapy (HIPEC)

Recommendation	Strength of Recommendation	Level of Evidence
Cytoreductive surgery and HIPEC should be offered to highly selected, fit patients with metastases limited to the abdominal cavity, provided that the number of metastatic sites is limited and the metastases can be removed radically by surgery. HIPEC should only be used with special arrangements for consent and either appropriate clinical governance, including audit, or it should be used in the framework of clinical research, since it carries significant risks of morbidity and mortality which needs to be balanced against the benefit (i.e. improvement in survival for patients with colorectal cancer).	Strong	Very low

5.12. Treatment of metastatic colon cancer: first-line chemotherapy and targeted therapy

Recommendations	Strength of Recommendation	Level of Evidence
Combination chemotherapy containing oral or intravenous fluoropyrimidines and oxaliplatin or irinotecan is considered the first choice regimen for first-line treatment of metastatic colorectal cancer.	Strong	Very low
If combination chemotherapy contains fluoropyrimidines and irinotecan, fluoropyrimidines should be administered intravenously.	Weak	Very low
Sequential or combined first-line chemotherapy can be considered in patients with metastatic colon cancer.	Weak	High
In RAS wild type patients, the addition of anti-EGFR therapy (cetuximab or panitumumab) or bevacizumab to first-line chemotherapy should be considered.	Strong	Low
In RAS mutated patients, the addition of bevacizumab to first-line chemotherapy should be considered.	Strong	Moderate

5.13. Second line chemotherapy for metastatic colon cancer

Recommendation	Strength of Recommendation	Level of Evidence
Second-line chemotherapy should be considered for patients with metastatic colon cancer with good performance status and adequate organ function.	Strong	ADAPTE
In fit patients who have progressive disease after first-line therapy with oxaliplatin or irinotecan containing chemotherapy, a change in the cytotoxic regimen from oxaliplatin to irinotecan or from irinotecan to oxaliplatin should be considered.	Strong	ADAPTE

5.14. Follow-up after treatment with curative intent

Recommendations	Strength of Recommendation	Level of Evidence
Identify a coordinator who communicates a follow-up plan to the patient after curative resection.	NA	NA
A full colonoscopy should be performed as soon as possible and no later than 6 months after curative surgery in cases where complete colonoscopy was impossible preoperatively.	NA	NA
Surveillance colonoscopy is recommended one and five years after curative treatment.	NA	NA
After curative treatment, propose: • a first clinic visit (including baseline CT and blood sampling for CEA) 4-6 weeks after treatment; these data will serve as baseline for further follow-up • during the first 2 years: 3-monthly clinical exams and CEA and 6-monthly CT • during follow-up years 3-5: 6-monthly clinical exams and CEA and annual CT	NA	NA
Occult blood testing has no role in the follow-up of treated colon cancer.	NA	NA

6. IMPLEMENTATION AND UPDATING OF THE GUIDELINE

6.1. Implementation

6.1.1. Multidisciplinary approach

In this report we focused on the effectiveness of specific (medical) interventions, without taking into account the organization of health services. In clinical practice, a multidisciplinary approach by different health care professionals should be encouraged. This approach should not only cover the medical needs of the patient but should also consider their psychosocial needs.

6.1.2. Patient-centred care

The choice of a treatment should not only consider medical aspects but should also take into account patient preferences. Patients should be well and timely informed about all treatment options and the advantages and disadvantages related to these treatments. Indeed, patients and patient representatives involved in the development of this report emphasized the need for patient information. This information should be clear and ideally be repeated over time. More emphasis should also be put on potential adverse events related to each treatment.

6.1.3. Dissemination and implementation of this guideline

Clinical guidelines provide a tool for physicians to consult at different stages of the patient management pathway: screening, diagnosis, treatment and follow-up. They are developed according to highly codified principles, based on scientific information regularly updated from the international literature. KCE formulates recommendations addressed to specific audiences (clinicians, decision-makers, sickness funds, NIHDI, professional organizations, hospital managers,...). KCE is not involved in the decision making process itself, or in the execution of the decisions.

The implementation of this guideline will be facilitated by the College of Oncology. An online implementation tool similar to the tools accompanying previous guidelines will be developed (www.collegeoncologie.be).

Additionally, the members of the guideline development group and consulted professional organisations agreed to facilitate the dissemination and implementation of this guideline e.g. during future scientific congresses and medical education programs.

Barriers and facilitators

At the time of the external review, representatives of the professional organisations were asked for factors that, in their view, could facilitate or hinder the implementation of the guideline. Also during the stakeholders meeting, the potential barriers and facilitators related to the use of this guideline were discussed.

A possible barrier for implementation could be that the guideline is not sufficiently known by the health care professionals involved in colon cancer care. Stakeholders stressed the importance of wide dissemination of the guideline through several websites and the professional societies.

More information on the identification of barriers and facilitators in guidelines can be found in KCE-report 212 “Dissemination and implementation of clinical practice guidelines in Belgium “(see KCE website).[5]

6.2. Monitoring the quality of care

Ultimately, the pursue of quality in oncologic care should be conceived in the framework of an integrative quality system, covering the development and implementation of clinical practice guidelines, the monitoring of the quality of care by means of quality indicators, feedback to health care providers and organizations, and targeted actions to improve the quality if needed (see KCE report 152).[6]

Accordingly, supplementing this guideline with an appropriate set of quality indicators would provide an opportunity to systematically assess the quality of colon cancer care delivered in Belgium. However, while quality indicator sets covering the diagnostic and therapeutic options have been developed for other cancer types[7-9], this is as yet not the case for colon cancer.

Several other countries e.g. Norway and the Netherlands have shown that auditing and feedback can improve the quality of colon cancer care and its outcomes. Results and a proposal for a harmonised data set can be found on the website of the European registration of cancer care (EURECCA) project: www.canceraudit.eu.

Molecular tests used to guide therapy deserve specific attention in terms of the quality of the sample and of the test itself. Centralisation of tests may be required to guarantee robust and accurate test results, ensuring that the very expensive targeted treatments reach the right patients. Mandatory ISO accreditation for the test and participation of the laboratory to external quality assurance have been recommended in a previous KCE report on molecular diagnosis. Reimbursement decisions of targeted therapy at RIZIV-INAMI level should include a joint and coordinated evaluation of both the drug and the test.[10]

6.3. Guideline update

Within the next five years, an assessment of the literature should be conducted in order to identify the parts of this guideline that need an update. Pending a full update of the guideline, important new evidence should be posted on the website of the College of Oncology (http://www.collegeoncologie.be).

POLICY RECOMMENDATIONS[a]

To the College of Oncology

- **Tools and communication channels should be developed and used to support the implementation of the guideline. This may include presentations of the guideline at meetings where the involved disciplines are present.**
- **Assessment of the literature every five years is recommended in order to evaluate the need for updating the guideline. Pending an updated guideline, important new evidence should be listed on the website of the College of Oncology.**

To the scientific and professional associations

- **The implementation of this guideline should be stimulated by the creation of user-friendly tools tailored to the needs of specific groups of caregivers. Various communication channels should be considered such as websites and continuing education seminars.**

Research Agenda

- **A set of quality indicators for the management of colon cancer in Belgium is to be elaborated.**
- **Stereotactic radiotherapy should be performed in the framework of clinical research only, with reimbursement limited to centres that participate to the RIZIV-INAMI convention with obligatory registration.**

[a] The KCE has sole responsibility for the recommendations.

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