MULTIDISCIPLINARY GUIDELINES FOR THE TREATMENT OF RECTAL CANCER
These guidelines have been written in the context of PROCARE, a Belgian Rectal Cancer Project. They were made in consensus by the Boards of the Royal Belgian Society of Surgery section of colorectal surgery, the Belgian Society of Pathology, the Digestive Pathology Club, the Belgian Society of Radiotherapy - Oncology, the Belgian Society of Medical Oncology, the Belgian Group of Digestive Oncology, the Royal Belgian Society of Radiology, the Vlaamse Vereniging voor Gastroenterologie, the Société Royale Belge de Gastroentérologie, the Belgian Society of Endoscopy, the Belgian Society for Surgical Oncology, the Belgian Professional Surgical Association.

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These guidelines are based on conclusions of published guidelines (AJCC Cancer staging manual. Fifth Edition 1997 and Sixth Edition. Springer, 2002; Guidelines for the management of colorectal cancer 2001, issued by the Association of Coloproctology of Great Britain and Ireland, London, 2001; A. Jouret-Mourin and the working party for GI cancer. Recommendations for pathological examination and reporting for colorectal cancer. Belgian Consensus. Acta Gastro-enterologica Belgica 2004; 67: 40-44) and have been updated according to new evidence that became available until November 2003. They have been adapted, where necessary, to the Belgian situation and in the context of the national project on cancer of the rectum, called PROCARE.
Guidelines are intended to improve the quality of care through reduction of therapeutic variability and through standardisation of documentation.

Levels of evidence and grades of recommendation and consensus are given for each statement.

- **Levels of evidence**
  - Ia: evidence obtained from meta-analysis of randomised controlled trials (RCT)
  - Ib: evidence obtained from at least one RCT
  - IIa: evidence obtained from at least one well-designed controlled study without randomisation
  - IIb: evidence obtained from at least one other type of well-designed quasi-experimental study
  - III: evidence obtained from well-designed non-experimental descriptive studies such as comparative studies, correlation studies and case studies
  - IV: evidence obtained from expert committee reports or opinions and/or clinical experiences of respected authorities

- **Grades of recommendation**
  - A: at least one RCT as part of the body of literature of overall good quality and consistency addressing the specific recommendation (levels Ia, Ib).
  - B: requires the availability of well-conducted clinical studies but no RCTs on the topic of recommendation (levels IIa, IIb, III).
  - C: requires evidence from expert committee reports or opinions and/or clinical experience of respected authorities. Indicates absence of directly applicable clinical studies of good quality (level IV).

NB. Some recommendations cover topics which are not amenable to formal studies but may represent good clinical practice (e.g. informed consent).

- **Categories of consensus**
  Categories of consensus were determined after discussion within the working group of the Belgian Rectal Cancer Project
  - Category 1: There is uniform consensus, based on high-level of evidence, that the recommendation is appropriate.
  - Category 2A: There is uniform consensus, based on lower-level evidence including clinical experience, that the recommendation is appropriate.
  - Category 2B: There is non-uniform consensus (but no major disagreement), based on lower-level evidence including clinical experience, that the recommendation is appropriate.
  - Category 3: There is major disagreement that the recommendation is appropriate.

Nation wide implementation of guidelines with a category of consensus of 1 or 2A is highly recommended.
DEFINITIONS

1. The rectum

Tumours whose distal edge is seen at 15 cm or less, i.e. within 16 cm, from the anal verge as measured with a rigid rectosigmoidoscope should be classified as rectal. The anal verge is the usual anal landmark, since the lower edge of the tumour is referenced to the anal verge during recto- or colonoscopy. When flexible sigmoidoscopy or colonoscopy is used, the distance from the anal verge should be measured on withdrawal of the flexible scope in order to limit variability related to the technique. Also, the distance between the lower edge of the tumour and the upper limit of the anal canal can be useful. The distance from the anal verge is very important, since it co-determines the type of neoadjuvant treatment and the type of surgery that will be performed.

2. Staging

The TNM classification of tumours described by the International Union Against Cancer (UICC) and the American Joint Committee on Cancer (AJCC) is used for tumour staging.

- **cTNM** pre-treatment clinical classification, based on clinical examination, imaging, endoscopy, biopsy, surgical exploration or other
- **pTNM** post-surgical histopathological classification.
- **ypTNM** post-surgical histopathological classification following preoperative multimodal therapy (radio- and/or chemotherapy).

*Classification adapted from UICC 2002:*

<table>
<thead>
<tr>
<th>T - Primary tumour</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tx</strong> Primary tumour cannot be assessed</td>
<td></td>
</tr>
<tr>
<td><strong>T0</strong> No evidence of primary tumour</td>
<td></td>
</tr>
<tr>
<td><strong>Tis</strong> Carcinoma in situ: intraepithelial or invasion of lamina propria</td>
<td></td>
</tr>
<tr>
<td><strong>T1</strong> Tumour invades submucosa</td>
<td></td>
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<tr>
<td><strong>T2</strong> Tumour invades muscularis propria</td>
<td></td>
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<tr>
<td><strong>T3</strong> Tumour invades through muscularis propria into subserosa or into non-peritonealized perirectal tissues</td>
<td></td>
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<tr>
<td><strong>T4</strong> Tumour perforates visceral peritoneum or directly invades other organs or structures</td>
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</tbody>
</table>
N – Regional lymph nodes

<table>
<thead>
<tr>
<th>N</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nx</td>
<td>Regional lymph nodes cannot be assessed. It should be mentioned if no nodes are found.</td>
</tr>
<tr>
<td>N0</td>
<td>No regional lymph node metastasis. The number of nodes examined should be mentioned</td>
</tr>
<tr>
<td>N1</td>
<td>Metastasis in 1 to 3 regional lymph nodes</td>
</tr>
<tr>
<td>N2</td>
<td>Metastasis in 4 or more regional lymph nodes</td>
</tr>
</tbody>
</table>

For this project, extramural deposits of tumour that are not obviously within lymph nodes are regarded as discontinuous extensions of the main tumour if they measure <3 mm in diameter, but as lymph node involvement if they measure >3 mm in diameter (AJCC fifth ed. 1997).

M – Distant metastasis

<table>
<thead>
<tr>
<th>M</th>
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<tbody>
<tr>
<td>Mx</td>
<td>Distant metastasis cannot be assessed</td>
</tr>
<tr>
<td>M0</td>
<td>No distant metastasis</td>
</tr>
<tr>
<td>M1</td>
<td>Distant metastasis</td>
</tr>
</tbody>
</table>

Pathological M staging can only be based on distant metastases that are submitted for histology. Pathologists will therefore only be able to use M1 (distant metastasis present) or Mx (distant metastases unknown).

TNM Stage grouping

<table>
<thead>
<tr>
<th>Stage</th>
<th>Tis/T1 or T2</th>
<th>N0</th>
<th>M0</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>T3</td>
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<td></td>
</tr>
<tr>
<td>II A</td>
<td>T4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>II B</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III A</td>
<td>T1 or T2</td>
<td>N1</td>
<td></td>
</tr>
<tr>
<td>III B</td>
<td>T3 or T4</td>
<td>N1</td>
<td></td>
</tr>
<tr>
<td>III C</td>
<td>Any T</td>
<td>N2</td>
<td></td>
</tr>
<tr>
<td>IV</td>
<td>Any T</td>
<td>Any N</td>
<td>M1</td>
</tr>
</tbody>
</table>
Histopathological grading

<table>
<thead>
<tr>
<th>$G_x$</th>
<th>Grade of differentiation cannot be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>$G_1$</td>
<td>Well differentiated</td>
</tr>
<tr>
<td>$G_2$</td>
<td>Moderately differentiated</td>
</tr>
<tr>
<td>$G_3$</td>
<td>Poorly differentiated</td>
</tr>
<tr>
<td>$G_4$</td>
<td>Undifferentiated</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>$R_x$</th>
<th>Presence of residual tumour cannot be assessed</th>
</tr>
</thead>
<tbody>
<tr>
<td>$R_0$</td>
<td>No residual tumour</td>
</tr>
<tr>
<td>$R_1$</td>
<td>Microscopic residual tumour</td>
</tr>
<tr>
<td>$R_2$</td>
<td>Macroscopic residual tumour</td>
</tr>
</tbody>
</table>

- **3. Extent of resection (R) and radial margin**

In case of rectal cancer the specimen should be labelled (inked) in the area of concern so that the specimen can be properly oriented and examined by the pathologist. Resections should be categorized as follows, based on surgical and pathological data:

- **R0** all gross disease is resected by **en bloc** resection with margins histologically free of disease. Non-en-bloc resection, positive radial margin i.e. $<1$ mm, positive proximal or distal bowel margins, residual lymph node disease, Nx, or even intraoperative inadvertent perforation of the tumour bearing bowel segment should not be considered R0. These patients are candidates for adjuvant radiochemotherapy or adjuvant chemotherapy in case preoperative radiotherapy has been given in order to reduce recurrence rates. Non-en-bloc resection and inadvertent perforation of the tumour-bearing segment during dissection must be documented in the surgical report.

- **R1** all gross disease is resected by en bloc resection with margins histologically positive for disease or with cancer at less than 1 mm from the margin.

- **R2** residual macroscopic disease remains unresected.

- **4. Other definitions related to surgery**

  - **Emergency**: immediate operation, resuscitation simultaneous with surgical treatment.
  
  - **Urgent**: operation as soon as possible after resuscitation.
  
  - **Scheduled**: an early operation, but not immediately life-saving.
- **Elective**: operation at the time to suit both patient and surgeon.

- **Sigmoid colectomy**: excision of the sigmoid colon with colorectal anastomosis at the promontory.

- **Hartmann’s procedure**: excision of part of the left colon with end colostomy and closure or exteriorisation of the distal remnant.

- **Anterior resection with partial mesorectal excision (PME)**: excision of part of the rectum with colorectal anastomosis. It is indicated for cancer of the rectosigmoid junction or the upper rectal third of the rectum. A partial mesorectal excision should be performed down to 5 cm below the lower edge of the tumour.

- **Total mesorectal excision**: resection of the entire mesorectal fat, down to the levator plane, with respect of the circumferential mesorectal integrity (as proven by pathology) and preservation of the nerve plexuses and nerves surrounding the mesorectum.

- **Restorative proctectomy**: sphincter-saving complete resection of the rectum with total mesorectal excision and colo-anal anastomosis (with or without pouch or coloplasty). It is indicated for tumours of the middle and lower third of the rectum.

- **Abdomino-perineal excision of rectum (APER)**: excision of the whole rectum and anus with total mesorectal excision with terminal colostomy.

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**5. Definitions related to radiotherapy volume and International Commission of Radiation Units (ICRU) reference point**

- **Clinical target volume (CTV)**

  The CTV is defined as the macroscopic tumour and the perirectal fat (CTV1) including the presacral space (CTV3), with a margin of 3 cm in the longitudinal direction (to correct for microscopic extension and movement), pathological lymph nodes and elective lymph nodes regions. Lymphatic and venous drainage of lesions limited to the rectum depends on the level of the lesion. The upper rectum drains into the inferior mesenteric system via the superior haemorrhoidal vessels, and the middle and lower rectum can, in addition drain directly to the internal iliac and presacral nodes. Lesions that extend into the anal canal can spread to the inguinal nodes. If the primary rectal cancer extends beyond the rectal wall to involve adjacent organs or structures, nodal drainage is via the lymphatics of the involved organ. With anterior extension and adjacent organ involvement the external iliac nodes become at risk. If the lower third of the vagina and/or the anal canal are significantly involved, the inguinal nodes are also at risk. With posterior extension, the internal iliac system becomes at risk, independent of the level of the rectal lesion. If the patient is planned to undergo an abdomino-perineal resection, the anus should be included in the CTV. If a
patient is planned to undergo a low anterior resection, the anal sphincter will not be included in the CTV. The CTV will be delineated using a CT scan in the treatment position.

• **Planning target volumes (PTV)**
  The PTV will provide a margin around the CTV to compensate for variability in treatment setup or movement during treatment. The PTV volume must include a minimum 10 mm margin around the CTV. Additional margin may be required based upon clinical judgment.

• **International Committee on Radiation Units (ICRU) reference point.**
  The ICRU reference point is to be located in the central part of PTV. The specification of the target dose is in terms of a dose to a point at or near the centre of target volume according to:
  1. For arrangement of two or more intersecting beams: at the intersection of the central ray of the beams.
  2. Other or complex treatment arrangements: at the centre of the target area(s).

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**CT in prone treatment position with clinical target volume delineated. The isocenter is marked with 3 skin markers**

- **CTV3: Presacral region**
- **CTV2: Nodal regions**
- **GTV: Macroscopic tumour**
- **CTV1: TME region**
GUIDELINES

• ACCESS TO TREATMENT

1. The interval between making a diagnosis of cancer and the start of treatment should be less than 4 weeks. *Level of evidence IV. Grade of recommendation B. Category of consensus 2A.*

2. All patients should have the benefit of objective information. *Level of evidence IV. Grade of recommendation C. Category of consensus 2A.*

3. The patient should be informed that rectal cancer treatment deserves a multidisciplinary approach. Rectal cancer should be treated by specialists (gastroenterologists, radiologists, surgeons, pathologists, radiation oncologists, oncologists) with appropriate training and experience. The use of a single multidisciplinary document for informed consent is recommended when available. *Level of evidence IV. Grade of recommendation C. Category of consensus 2A.*

4. The patient who develops colorectal cancer before the age of 45 years or who belongs to a family in which colorectal or associated cancers (endometrium,...) have occurred, must be informed about the risk for his/her relatives to develop the disease. The physician or specialist will insist on appropriate investigations and surveillance in the patient’s family members. *Level of evidence IIb. Grade of recommendation B. Category of consensus 2A.*

• PREOPERATIVE INVESTIGATION, STAGING

1. Patients with suspicious symptoms or a proven rectal cancer should preferably be investigated with a total colonoscopy and biopsy of the tumour as well as eventual resection of concomitant polyps. If total colonoscopy is judged to be too risky or if colonoscopy is refused after informed consent, a high quality double contrast barium enema or 3D virtual colonoscopy should be performed. Total colonoscopy should be strongly recommended and carried out when it is impossible to exclude neoplasia on barium enema. In emergency circumstances (obstruction) a gastrografin enema can be performed to confirm and precise the level of obstruction. *Level of evidence IIb. Grade of recommendation B. Category of consensus 2A.*

2. Histology should be obtained from all rectal tumours before invasive treatment such as radical rectal resection or radio(chemo)therapy. *Level of evidence IV. Grade of recommendation C. Category of consensus 2A.*

3. Physicians carrying out colonoscopy should audit their results and be able to prove their achievement of a high total colonoscopy rate with a low perforation risk. *Level of evidence IIb. Grade of recommendation B. Category of consensus 2A.*
4. Preoperative staging is mandatory unless it would not alter management. It should include:
   • CEA serum level, as a base for follow-up (Level of evidence IIa)
   • estimation of the cTNM-stage by
     1. clinical examination (fixity of palpable tumours). Tumour localisation above the anal verge
        should be defined by rigid rectosigmoidoscopy or flexible colonoscopy on withdrawal.
        They should be performed before the start of any neo-adjuvant treatment.
     2. spiral abdominal CT. (Level of evidence III).
     3. high quality MRI of the pelvis is highly recommended for the estimation of the circumferen-
        tial resection margin (CRM) in all tumours > or = cT2. (Level of evidence IIb)
     4. endorectal ultrasound is mandatory when local excision is considered. (Level of evidence III).
     5. x ray of the thorax. (Level of evidence III).

Grade of recommendation C. Category of consensus 2A.

• Radiotherapy

Technical considerations

1. The radiation dose will be specified at the ICRU-50 reference point, which is to be located in
   the central part of the clinical target volume (CTV). This reference point is further described
   above. The isodose curve representing 95% of the prescription dose must encompass the entire
   planning target volume (PTV) which is defined above. The standard deviation of the dose within
   the PTV should be less than 1 to 2% of the prescribed dose provided the Dmean and Dmedian are close to each other. Each field is to be treated every day. A volumetric treatment
   planning CT study is required to define the CTV and the PTV. Contiguous CT slices with 3-5
   mm separation of the whole pelvis should be taken. The CTV will be outlined on all appropriate
   CT slices and displayed using beam’s eye views. The PTV is to be treated with any combina-
   tion of coplanar or non-coplaner three-dimensional conformal fields shaped to deliver the
   specified dose while restricting the dose to the normal tissues. Field arrangements will be
determined by 3D planning to produce the optimal conformal plan in accordance with volume
definitions. A planned radiotherapy volume using at least 3 or 4 fields is recommended as this
reduces morbidity and mortality.

2. Beam energy. Radiation therapy is delivered by photon radiation generated by a linear acceler-
   ator. Megavoltage equipment is required with effective photon energies ≥ 6MV. Mixed beams
   are allowed with higher energy for the lateral beams compared to the posterior beam. The use
   of 3D conformal radiotherapy capabilities is recommended.

3. Dose prescription. The dose will be prescribed at the center of the target area or at the inter-
   section of central rays of the beam. A biologically effective dose of ≥ 30 Gy should be used
   accepting an a/b of 10 Gy and a repair rate of 0.6 Gy per day.
4. Patient treatment position. Patients must be reproducibly immobilized. Measures should be taken to reduce the volume of small bowel e.g. by using a belly board and/or treatment of the patient with a full bladder.

5. Shielding and verification. The radiation target volume will be defined by shaped ports with custom-made blocks or multileaf collimation. Portal verification shall be done for all treated fields. A maximum of 0.5 cm of deviation will be accepted.

6. Compensating filters or wedges. In the case of a large sloping contour, wedges or compensating filters should be used. If necessary, appropriate reduction in field size must be done to avoid excessive irradiation to critical structures.

**Indications**

1. Pre- versus post-operative radiotherapy. Two randomized trials compared preoperative radiotherapy with postoperative radiotherapy. The results favour preoperative radiotherapy with a significant excess of late morbidity in long term survivors who had been irradiated postoperatively. Indirect evidence from systematic reviews also suggests that radiotherapy may be more effective if given preoperatively. *Levels of evidence Ia. Grade of recommendation A. Consensus 1.*

2. Chemotherapy synchronous with radiotherapy. The addition of chemotherapy to radiotherapy improves complete local response rate and the resectability rate in more advanced tumours. The design of the studies does not allow an assessment of survival. The regimens using intermittently bolus 5-FU/FA or continuous fluorouracil have been widely and safely used. *Levels of evidence IIb. Grade of recommendation B. Consensus 2B.*

3. cStage I tumours. The role of preoperative radiotherapy (reduction of the local recurrence rate) is very limited in patients with T1-2 rectal cancer cStage I in whom an adequate TME procedure is performed. These patients should not undergo neoadjuvant therapy. *Levels of evidence Ia. Grade of recommendation A. Consensus 1.*

4. cStage II tumours. Preoperative radiotherapy with or without chemotherapy should be recommended. A short schedule e.g. 5 times 5 Gy or 13 times 3 Gy has been used in RCTs. However, for tumours located in the distal third of the rectum, i.e. lower margin <6 cm from the anal verge, or for tumours with a cCRM of < 5 mm a long schedule of radiation (25 times 1.8 Gy) combined with 5-FU based chemotherapy should be recommended. A long schedule offers the advantage of downstaging/sizing. *Levels of evidence IIb. Grade of recommendation B. Consensus 2A for cCRM <5 mm and 2B for cT3 with cCRM >5 mm.*

5. cStage III tumours. For tumours with clinically positive nodes a long schedule of radiation (25
times 1.8 Gy) combined with 5-FU based chemotherapy should be considered. Levels of evidence IIa. Grade of recommendation B. Consensus 2A for cCRM <5 mm and 2B for cCRM >5 mm.

6. cT4 any N. For large tumours perforating the visceral peritoneum or directly invading surrounding organs a long schedule of radiation combined with 5-FU based chemotherapy e.g. 25 fractions of 1.8 Gy followed by a boost to the macroscopic tumour to a total dose of 50.4 Gy in 28 fractions should be recommended. Levels of evidence IIa. Grade of recommendation B. Consensus 2A.

7. Missed fractions. If interruptions of radiotherapy up to one week become necessary, irradiation should be completed to the prescribed doses. Total number of fractions and elapsed days should be carefully reported. If more than one week interruption is required, resumption of the treatment is not recommended if the interruption is due to very severe toxicity or non-compliance. Level of evidence III. Grade of recommendation B. Consensus 2A.

8. Surgery should follow within a week after the end of radiotherapy in case of 5 x 5 Gy radiotherapy, and after an interval of 6-8 weeks in case of 13 x 3 Gy radiotherapy or a long schedule of chemoradiation. The short radiotherapy regimen (5 x 5 Gy) followed by surgery within one week does not result in down-staging and/or shrinkage of large tumours. A randomised trial indicated that operating more than one week after the end of 5 x 5 Gy radiation therapy is bad; whether operating after an interval of 6 weeks after 25 Gy radiotherapy is less detrimental is explored in an ongoing randomised trial. Level of evidence IIa. Grade of recommendation B. Consensus 1.

9. In patients who have not had preoperative radiotherapy and are documented to have pT3Nx in the lower third of the rectum or pTxN+ at any level (preoperative understaging), or in whom an R1 resection (including a pCRM of <1 mm) was performed, a postoperative long schedule of radiation should be recommended, combined with 5-FU based chemotherapy e.g. 25 fractions of 1.8 Gy followed by a boost to the tumour bed to a total dose of 50.4 Gy in 28 fractions. Level of evidence Ia. Grade of recommendation A. Consensus 1.

**Chemotherapy in preoperative setting in combination with radiotherapy**

1. Initially non-resectable rectal cancer. The addition of chemotherapy to radiotherapy improves the chance of complete resection. Levels of evidence IIb. Grade of recommendation B. Consensus 2A.

2. Initially resectable rectal cancer. The addition of chemotherapy to radiotherapy improves the complete local response rate and the resectability rate, especially in more advanced tumours. The impact on survival is not clear. The evidence for the use of chemotherapy in this setting is
indirect and comes from analogy with the postoperative setting and from the experience in non-resectable rectal cancer. Levels of evidence IIb. Grade of recommendation B. Consensus 2B.

3. Chemotherapy is added to the long regimen of radiotherapy and not to the short regimen. Levels of evidence IIb. Grade of recommendation B. Consensus 2A.

4. The regimens used are a continuous infusion of 5-FU (225 mg/m²/day) during radiotherapy or bolus injections of 5-FU/FA during the first and last week of radiotherapy. In the postoperative setting continuous infusions are more efficient than bolus injections. Levels of evidence IIa. Grade of recommendation B. Consensus 2A.

• Preparation for Elective Surgery

1. There is no evidence to support the routine performance of preoperative re-staging. However, in some selected patients, it may be considered.

2. All patients undergoing surgery for rectal cancer should give informed consent. The use of a single multidisciplinary document is recommended when available. Level of evidence IV. Grade of recommendation C. Consensus 2A.

3. Preparations for blood transfusion should be made in all patients undergoing surgery for rectal cancer except when an individual patient refuses. Level of evidence IV. Grade of recommendation C. Consensus 2A (good clinical practice).

4. No definite recommendations can be given about formal mechanical bowel preparation, but the actual consensus view is still in favour of mechanical bowel preparation. Level of evidence Ib. Grade of recommendation C. Consensus 2B.

5. Thromboembolism prophylaxis should be administered in the perioperative period of patients with rectal cancer using appropriate doses of subcutaneous low molecular weight heparine, unless there is a specific contraindication. Intermittent compression seems to be equivalent. Level of evidence Ia. Grade of recommendation A. Consensus 1.

6. All patients undergoing surgery for rectal cancer should have a single immediately preoperative dose of antibiotic prophylaxis. Several intravenous antibiotics appear to be effective. Level of evidence Ib. Grade of recommendation A. Consensus 1.

7. It is important to mark the site of a stoma prior to surgery in order to ensure optimum fitting of the appliance in all patients who may require a stoma (incl. a temporary stoma). Level of evidence IV. Grade of recommendation C. Consensus 2A.
**ELECTIVE SURGERY**

1. Any tumour with its distal edge at 15 cm or less from the anal verge should be classified as rectal (in agreement with almost all studies on this topic). *Level of evidence IV. Grade of recommendation C. Consensus 2A.*

2. The main emphasis should be to obtain clear surgical margins yielding an R0 resection (no residual tumour). *Level of evidence IIa. Grade of recommendation B. Consensus 2A.*

3. The term curative resection should be based on histological confirmation of complete excision of tumour with negative margins (proximal, distal and radial). Surgeons should expect to achieve at least an overall curative resection rate of 60 %. *Level of evidence IIb. Grade of recommendation B. Consensus 2A.*

4. There is lack of evidence about the benefit of ligating the inferior mesenteric artery (IMA) at its origin. For rectal cancer, lymphadenectomy and removal of the blood supply and lymphatics up to the level of the origin of the superior rectal artery, which is immediately distal to the take off of the left colic artery, is adequate. However, lymphovascular ligation might also be influenced by the type of resection and reconstruction that eventually has to be adapted to the anatomic and physiologic characteristics of the sigmoid colon and to the removal of a preoperatively irradiated fixed sigmoid colon. *Level of evidence III. Grade of recommendation B. Consensus 2A.*

5. A total mesorectal excision (TME) should be performed for tumours in the middle and lower third of the rectum, i.e. <12 cm above the anal verge, either as part of a restorative proctectomy or APER. In tumours of the upper rectum, the mesorectum should be divided no less than 5 cm below the lower margin of the tumour (partial mesorectal excision, PME). *Level of evidence III. Grade of recommendation B. Consensus 2A.*
6. Care should be taken to preserve the pelvic autonomic nerves and plexuses whenever possible. There is no strong evidence to recommend extended lateral (iliac) lymphatic dissection for rectal cancer. However, clinically suspected lateral lymph nodes should at least be biopsied and resected if technically feasible. *Level of evidence III. Grade of recommendation B. Consensus 2A.*

7. Inadvertent perforation during rectal cancer surgery should be avoided. It occurs most frequently during abdominoperineal rectum excision and in elderly patients. It significantly increases the risk of local recurrence and reduces survival. Intra-operative perforation as well as its location in relation to the tumour site should be reported in the surgical note if it occurred. *Level of evidence IIa. Grade of recommendation B. Consensus 2A.*

8. The distal margin is the transected full thickness edge and does not include the tissue doughnut from the endoluminal stapler if the tumour is at > 3 cm from the cut end of the main specimen. The ideal distal margin for rectal cancer is 2 cm or greater in the ex vivo unstretched specimen. For tumours of the distal rectum (within 5 cm from the anal verge) the minimally acceptable length of distal margin is 1 cm in the fresh anatomically restored ex vivo condition or in the equivalent fixed specimen. However, a 1 cm margin must be considered too narrow and therefore not advisable in patients with a large and poorly differentiated tumour. If the distal margin is 1 cm, a frozen tissue section of the distal margin nearest to the tumour or of the doughnut is recommendable. *Level of evidence IIb. Grade of recommendation B. Consensus 2A.*

9. After restorative proctectomy and total mesorectal excision the formation of a colonic pouch (or an equivalent) should be considered and the judicious use of a temporary defunctioning stoma is recommended. *Level of evidence Ia. Grade of recommendation A. Consensus 1.*

10. Despite the absence of strong evidence, rectal washout with cytocidal solutions prior to anastomosis should be used. *Level of evidence IIb. Grade of recommendation B. Consensus 2A.*

11. The proportion of rectal tumours treated with abdominoperineal rectum excision and definitive colostomy should be less than 30%. If distal clearance of 1 cm can be achieved a low rectal cancer may be suitable for restorative proctectomy. If a surgeon has any doubt regarding the choice between abdominoperineal rectum excision and a sphincter saving operation before the start of neo-adjuvant treatment, an experienced second opinion should be sought. *Level of evidence Ia. Grade of recommendation A. Consensus 1.*

12. Local full thickness disk excision for cure in rectal cancer should be restricted to low risk pT1 tumours that are technically suitable for transanal or endoanal local excision: preoperative uT1N0 and less than 3 cm diameter; postoperative pT1, G1 or G2, no lymphovascular invasion and tumour free resection margins. The surgeon should pin the excised specimen on a cork mat before fixation so that multiple properly oriented blocks can be made for histological examination. The pathology report of a locally resected carcinoma must make specific mention...
of each of these parameters. More radical surgery with restorative proctectomy or APER is indicated in fit patients if there is doubt about completeness of excision of the carcinoma, when there is invasion of the muscularis propria (pT2) or when the tumour is poorly differentiated or undifferentiated (G3-4). In case of pT1 with lymphatic invasion adjuvant radiochemotherapy can be considered as an alternative to radical surgery. This strategy also applies for polyps excised endoscopically which are found to be malignant on subsequent histological examination. \textit{Level of evidence IIb. Grade of recommendation B. Consensus 2A.}

13. Laparoscopic or laparoscopy-assisted surgery for rectal cancer should only be performed by experienced laparoscopic surgeons who have been properly trained, who enter their patients in a trial or audit their results very carefully in a multidisciplinary context. \textit{Level of evidence III. Grade of recommendation B. Consensus 2A.}

\section*{Emergency Treatment}

1. Emergency surgery should be carried out by or under supervision of an experienced surgeon and anaesthetist. \textit{Level of evidence IV. Grade of recommendation C. Consensus 2A.}

2. Stoma formation should be carried out in the patient's interests only. \textit{Level of evidence IV. Grade of recommendation C. Consensus 2A.}

3. The overall mortality for emergency surgery should be less than 20 \%. \textit{Level of evidence III. Grade of recommendation B. Consensus 2A.}

\section*{Treatment of Metastatic Rectal Cancer}

1. Patients with metastatic rectal cancer (clinical Stage IV), who are fit for therapy of the primary tumour and its metastases should be accurately staged with thoraco-abdominal spiral CT scan and whole body PET scan if surgical resection is considered. \textit{Level of evidence III. Grade of recommendation B. Consensus 2A.}

2. Patients with resectable metastatic disease in the liver and/or lung, should be considered for resection by an experienced liver or thoracic surgeon. \textit{Level of evidence III. Grade of recommendation B. Consensus 2A.}

3. Patients with unresectable metastatic disease should be referred to an oncologist or gastroenterologist with expertise in chemotherapy for colorectal cancer for consideration of chemotherapy. Entry in a clinical trial should be encouraged. On current evidence, several options are available in the first line treatment: infusional 5-FU/FA/ irinotecan (FOLFIRI), infu-
sional 5-FU/FA/oxaliplatin (FOLFOX), infusional 5-FU/FA or oral fluoropyrimidine (capecitabine and UFT/FA). Combination regimens are more active than a fluoropyrimidine (IV or oral) alone. Toxicity considerations should be taken into account for the selection of the combination regimens. Prognostic factors for response and toxicity should be taken into account for the choice between combination chemotherapy and a fluoropyrimidine alone. Level of evidence IIb. Grade of recommendation A. Consensus 2A.

4. Multidisciplinary teams who deal with advanced colorectal cancer must build close links with palliative care specialists and units. Level of evidence IV. Grade of recommendation C. Consensus 2A.

5. In a palliative situation, endoluminal stenting can be considered in order to avoid a definitive stoma. Level of evidence IV. Grade of recommendation C. Consensus 3.

**Pathology**

1. Assessment of the completeness of tumour resection and of the pathological stage of rectal cancer are important for prognosis, choice of additional treatment, and control of the quality of the surgical resection. Standardisation of data, the application of well-defined criteria, and the acceptance of an identical and unique staging system allow integration and comparison of data. Level of evidence IIb. Grade of recommendation B. Consensus 2A (in view of the obligatory medico-administrative data in Belgium).

2. A rectal cancer resection specimen should be delivered to the pathologist fresh (within 2 to 3 hours), unopened, and unpinned (except for local excision specimen; cf. supra) (level of evidence IV). Administrative data, information on presence of a personal or family history of HNPCC-related cancer(s), cTNM staging, the type of surgery performed, and preoperative treatment modalities should be provided (level of evidence III). Grade of recommendation C. Consensus 2A.

3. Macroscopy and sampling. The resection specimen should be examined by the pathologist. It is mandatory to determine the exact topography of the tumour, also with reference to the serosal surface, i.e. above, at or below the peritoneal fold of Douglas. The quality of the mesorectal excision should be assessed, what is only possible on an unopened specimen. The mesorectal surface of a good resection should be smooth with no violation of the fat, good bulk to the mesorectum around the rectum. The distal margin should appear adequate with no coning near the tumour. No defect should be more than very superficial or 5 mm deep. The quality of the mesorectum can be graded (complete, moderate, incomplete). The distance between the deepest point of extension of the tumour and the surgical circumferential surface is defined as the circumferential margin, which needs to be assessed with great care. After examination of the external surface, one should ink it before opening the specimen. The resection specimen should...
be sectioned in parallel cuts of 3-4 mm perpendicular to the length of the bowel allowing to assess the deepest point of invasion and to measure the distance to the nearest lateral surface. The deepest point of invasion should be sampled for microscopy, and the distance to the nearest circumferential surface should be measured and reported in mm. No distinction should be made between the various modes of involvement i.e. direct spread, involved lymph node, lymphatic or vascular spread. Measurement can be made by using a measurement device incorporated in the microscope itself (e.g. Vernier scale). Otherwise a sheet of graph paper that is photocopied onto a sheet of acetate and cut to size can be used. Level of evidence IIb. Grade of recommendation B. Consensus 2A.

4. Ideally, samples should be fixed in formol in order to allow additional molecular pathological examination. Freezing biopsy samples in liquid nitrogen with preservation in liquid nitrogen or in a freezer at – 80°C may be important especially if there are clinical arguments for HNPCC.

**Number of biopsy samples.** The number of blocks to be taken from the tumour is 3 at minimum and 5 at maximum (level of evidence IV). One block at least should include the transition from the surrounding ‘normal’ mucosa to the tumour and at least one other should include the deepest point of invasion (level of evidence IV). **Proximal and distal section margins** do not have to be embedded if the tumour is situated at a distance of more than 3 cm from these margins. If the tumour is close to a margin, it is useful to sample this margin and to demonstrate the relationship to the tumour by perpendicular sections. Biopsies have to be taken to assess the **circumferential (radial, lateral) margin** (level of evidence IIb).

Furthermore, associated lesions (polyps, IBD, …) have to be sampled (level of evidence IIb). In polyposis cases, a reasonable number of biopsies should be taken as well as the (proximal and distal) section margins. Proximal and distal section margins should be embedded in IBD cases too. All **lymph nodes** included in a resection specimen are considered to be regional. Distinction between paratumoral nodes and others i.e. local vs. regional lymph nodes is not requested anymore. The regional nodes of the rectum are: perirectal, sigmoid mesenteric, infe-
rior mesenteric, lateral sacral presacral, internal iliac, sacral promontory (Gerota’s), internal iliac, superior rectal (haemorrhoidal), middle rectal (haemorrhoidal), inferior rectal (haemorrhoidal). The number of lymph nodes analysed is important. At least 12 lymph nodes should be found and embedded. The numbers of lymph nodes retrieved depends mainly on the effort of the pathologist (level of evidence IIb). The number of positive lymph nodes relates to the number investigated; when less than 8 lymph nodes have been analysed, the proportion of cancers with lymph node involvement is underestimated (level of evidence IV). However, it may be difficult to find numerous lymph nodes in rectum resections, in particular after preoperative radiochemotherapy (level of evidence IV). Decisions concerning adjuvant therapy may be inadequate if insufficient lymph nodes were retrieved. Although pathologists need to go into great pain to find as many lymph nodes as possible, there is insufficient scientific evidence to recommend micro-dissection techniques or fat clearance (level of evidence IIb). Extra-regional lymph nodes are classified as metastases and should be embedded and described separately.

Grade of recommendation B. Consensus 2A.

5. The pathology report should be standardised, providing all important macroscopic (cf. sub 6. Level of evidence IIb) and microscopic data (cf. sub 7. Level of evidence IIb, although two items - marked with * still are a matter of non-uniform consensus). One check-list should be used per tumour (cf. addendum. Level of evidence IV). Grade of recommendation B. Consensus 2A.

6. Macroscopic data.
   a. The report should include the measurements of the resection specimen, including those of adjacent structures and organs.
   b. Concerning the tumour it is necessary to specify:
      1. The localisation of the tumour in relationship to the peritoneal lining, the proximal, distal and lateral (circumferential, radial) section margins. The proximal and distal section margins are defined respectively as the margin situated at the oral end and the anal end. These terms are used when the specimen can be oriented. If not, the section margins are described as the closest and most distant margin.
      2. The maximal diameter of the tumour. The macroscopic appearance of the lesion should be described as protruding/exophytic, ulcerating, infiltrating, flat. However, both features, the size and the macroscopic appearance, have been shown to have no prognostic significance. The description may be useful in discussing the case e.g. comparison with radiology.
      3. The presence of perforation at the tumour site should be reported since it will worsen prognosis. The same applies for the presence of peritoneal deposits.
   c. Associated lesions. The presence of synchronous cancers, polyps (solitary, FAP, …) and chronic idiopathic inflammatory bowel disease (Crohn’s disease, ulcerative colitis) should be mentioned.
7. Microscopic data.

a. Histologic type according to the WHO classification:

1. Adenocarcinoma: the histological grade should be mentioned either in a four or three-tiers system as well (G1), moderately (G2), poorly differentiated (G3) and undifferentiated (G4), or in a two-tiers system as low (G1,G2) grade and high (G3, G4) grade. The high grade corresponds to less than 50% of glandular structures of the surface analysed.

2. Mucinous carcinoma (colloid carcinoma): a tumour composed of at least 50% of this type of proliferation. It is considered as poorly differentiated adenocarcinoma.

3. Signet ring cell carcinoma: a tumour composed of at least 50% of this type of proliferation. It is also considered as poorly differentiated adenocarcinoma.

4. Adenosquamous or squamous carcinoma.

5. Small cell carcinoma.

6. Medullary carcinoma: is considered as undifferentiated carcinomas.

7. Undifferentiated carcinomas (G4): corresponds to less than 5% of glandular structures of the surface analysed.

b. The depth of invasion should be described in function of the anatomical structures i.e. mucosa, submucosa, muscularis propria, subserosa, serosa and translated into the new TNM classification.

1. Tx and To: primary tumour cannot be assessed (Tx). No evidence of primary tumour (T0).

2. Tis: carcinoma in situ includes cancer cells confined within the glandular basement membrane (intraepithelial) or lamina propria (intramucosal) with no extension through the muscularis mucosae into the submucosa. The term ‘high grade dysplasia’ and ‘severe dysplasia’ may be used as synonyms for intraepithelial (in situ) carcinoma.

3. T1: tumour invades submucosa.

4. T2: tumour invades muscularis propria without breaching.

5. T3: tumour invades through the muscularis propria into the subserosa, or into the non-peritonealised pericolic and perirectal tissues. The subserosa corresponds to the adipous connective tissue situated in between the outer surface of the muscularis propria and the mesothelial lining.

6. T4: tumour directly invades other organs or structures, and/or perforates the visceral peritoneum. “Direct invasion” in T4 includes invasion of other segments of the colorectum by way of the serosa. Tumour that is adherent to other organs or structures, macroscopically, is classified cT4. However if no tumour is present in the adhesion, microscopically, the classification should be pT3.

c. Grading systems are being developed to describe and to quantify regression of colorectal cancer after irradiation (ypTNM). After preoperative radiotherapy partial regression i.e. downstaging of the tumour may occur whilst complete regression of tumour has been reported in roughly one fifth of the patients. Pathological examination is required.
to assess the effects of preoperative radiotherapy. The Rectal Cancer Regression Grade (RCRG) system has been proposed for rectal cancer. RCRG 1 indicates “good” radiore sponsiveness where the tumour is either sterilized or only microscopic foci of adenocarcinoma remain. RCRG 2 reflects marked fibrosis but with macroscopic tumour still present. RCRG 3 indicates a “poor” response with little or no fibrosis in the presence of abundant macroscopic tumour. Problems relating to the difficulty in finding lymph nodes and the occasional finding of mucin pools with and especially without neoplastic epithelium are described. Tumour related mucin pools represent areas throughout the bowel wall that were previously occupied by tumour and could still be depending on sampling.

d. Resection margins. Margins histologically involved (microscopic tumour remains after resection) should be reported (R1). The circumferential margin or lateral section margin refers to the distance between the deepest point of invasion and the external surface of the resection specimen. A tumour-free lateral margin of <1 mm is considered positive. Also, a tumour-free lateral margin of >1 mm but <2 mm was found to be related to an increased local recurrence rate (cf. supra *).

e. Involvement of regional lymph nodes. The number of lymph nodes analysed is mentioned. One microscopic section should be taken through each lymph node. The analysis should be performed on hematoxylin-eosin stained sections. There is insufficient scientific evidence to mandate semi-serial sectioning of lymph nodes or the performance of immunohistochemical stains. The report should include a statement on the number of positive lymph nodes and on the total number examined. The TNM is as follows:

1. Nx: regional lymph nodes cannot be assessed
2. N0: no regional lymph node metastasis
3. N1: metastasis in 1 to 3 perirectal lymph nodes
4. N2: metastasis in 4 or more perirectal lymph nodes

Classification of tumour deposits in the adipose tissue remains controversial (*). For this project, we use the 5th edition of the AJCC Cancer Staging Manual. Extramural deposits of tumour that are not obviously within lymph nodes are regarded as discontinuous extensions of the main tumour if they measure <3 mm in diameter, but as lymph node involvement if they measure >3 mm in diameter.

f. The presence of vascular invasion into extramural veins should be described. Presence of perineural and/or lymphatic invasion may be mentioned. The V and L substaging can be used to identify the presence of vascular or lymphatic invasion.

g. Distant metastasis. The report should mention M1 if microscopic examination of a sample confirms the presence of a metastasis. This finding can relate to a liver biopsy or non-regional lymph nodes or peritoneal carcinomatous deposits. Cytological examination of peritoneal fluid revealing tumour cells equals M1. If the existence of distant metastasis can not be assessed, one should indicate pMx.

h. Associated lesions. These lesions (polyps, IBD, diverticulosis, …) should be described separately.
8. The results of the pathology report should be discussed in a multidisciplinary meeting (e.g. MOC) involving the pathologist, surgeon, radiotherapist, oncologist and gastroenterologists in order to determine further treatment. **Level of evidence IV. Grade of recommendation C. Consensus 2A.**

**• Adjuvant therapy**

1. No definite recommendation can be made regarding adjuvant chemotherapy for p or ypStage II or III patients. Patients may be offered 5-FU/FA based adjuvant chemotherapy or entry in a trial if they are medically and psychologically fit. The arguments come from the analogy with colon cancer and from the data in the postoperative setting in patients with rectal cancer in whom no preoperative therapy was given. The initial clinical stage, i.e. before radiotherapy or chemotherapy, is often taken into account for the decision. **Level of evidence Ib. Grade of recommendation B. Consensus 2A.**

2. In patients who have not had preoperative radiotherapy and are documented to have pT3Nany in the lower third of the rectum or pTanyN+ at any level (preoperative understaging), or in whom an R1 resection (including a pCRM of <1 mm) was performed, a postoperative long schedule of radiation should be recommended, combined with 5-FU based chemotherapy e.g. 25 fractions of 1.8 Gy followed by a boost to the tumour bed to a total dose of 50.4 Gy in 28 fractions. This is further followed by chemotherapy (5-FU/FA) for a total duration of the adjuvant treatment of 6 months. **Level of evidence Ia. Grade of recommendation A. Consensus 1.**

3. Patients with pTanyN+, involved circumferential margins or less than 1 mm tumour-free circumferential margin after surgery for rectal cancer with or without preoperative radio(chemo)therapy should be offered postoperative chemotherapy. **Level of evidence III. Grade of recommendation B. Consensus 2A.**

**• Follow-up**

1. Follow-up is necessary for audit and should be structured with particular reference to outcome measures. It may be facilitated by the use of a database. If ‘local’ databases are used, it is recommended that their field definitions match those of a larger, e.g. national, database. **Level of evidence III. Grade of recommendation B. Consensus 2A.**

2. There is some evidence that intensive follow-up for the detection of recurrent disease improves survival. Patients that are fit should be offered thoracic and liver imaging every 3-6 months during the first three postoperative years with the purpose of detecting operable liver and/or lung metastases. At these occasions, a CEA level should be determined, certainly if preoperatively increased. **Level of evidence III. Grade of recommendation B. Consensus 2A.**
3. Although there is no strong evidence that colonoscopic follow-up improves survival, patients that had a curative resection of a colorectal cancer should be offered life-long total colonoscopy follow-up at 3-5 year intervals. Patients who did not have complete colonoscopy preoperatively, should have it within 6 months after operation. Level of evidence IIb. Grade of recommendation B. Consensus 2A.

4. All patients with a stoma should have ready access to nursing staff with a specific interest in stoma care. Level of evidence IV. Grade of recommendation C. Consensus 2A.

**Outcomes**

1. Surgeons or multidisciplinary cancer teams should survey the outcome statistics of their patients and compare them with national or international data, if available for adequate comparison. Level of evidence III. Grade of recommendation B. Consensus 2A.

2. Postoperative mortality should be less than 20% for emergency surgery and less than 5% for elective surgery in patients with rectal cancer. In elderly patients access to an ICU is necessary. Level of evidence III. Grade of recommendation B. Consensus 2A.

3. Postoperative wound infection rates should be less than 10% in elective surgery. Level of evidence Ib. Grade of recommendation A. Consensus 1.

4. The overall leak rate should be less than 8% for anterior rectal resection and less than 20% for restorative proctectomy. A defunctioning stoma can attenuate the consequences of leakage and its use is to be considered in restorative proctectomy. There is no reason to recommend a defunctioning stoma after anterior resection. Level of evidence III. Grade of recommendation B. Consensus 2A.

5. The local recurrence rate after curative resection should be less than 10 % within two years. Level of evidence Ib. Grade of recommendation A. Consensus 1.
APPENDICES

• **APPENDIX 1: THE SURGICAL REPORT**
The ideal surgical report in patients with colorectal cancer should include:

1. Names of surgeon(s), assistant(s) and anaesthesiologist(s).
2. The ASA status of the patient.
3. Preoperative treatments (including chemotherapy, radiation therapy).
4. Distance from anal verge (in cm), circumferential localisation and extension, fixity and (actual) cTNM staging.
5. The findings at operative exploration:
   a. Site of the primary tumour together with size, fixity and involvement of other structures. Its relationship to the pelvic brim and the peritoneal reflection of Douglas should be specifically mentioned.
   b. Presence or absence of metastatic disease (liver, peritoneum, omentum, ovaries) and non mesenteric lymph nodes (iliac, periaortic, portohepatic, eLiac). A sample of ascites should be sent for cytologic examination. The report should describe any compromise of the exploration due to adhesions or concomitant diseases. Sites of biopsies of areas suspected of having metastatic disease should be mentioned. Also the rationale of not taking a biopsy specimen of metastatic disease should be mentioned.
6. The operative procedure:
   a. Site of vascular ligation
   b. The extent of resection, particularly the extent of mesorectal excision
   c. The level and methods of anastomosis, including the use of a pouch or coloplasty
   d. The use and nature of any peritoneal lavage
   e. The use and nature of any rectal washout
   f. A statement as to whether or not the surgeon regards the dissection as curative (i.e. no residual macroscopic tumour)
   g. Site and reason(s) for stoma
7. Any departure from an en-bloc resection, perforation and its location in relation to the tumour site, or any spillage of tumour or stool and the site of placement of clips to aid in radiation therapy should be mentioned.
8. Any frozen sections submitted for examination and other interaction with the pathologist.
## Appendix 2: Pathology Report Checklist Belgian PROject on CANcer of the REctum (PROCARE)

<table>
<thead>
<tr>
<th>Patient’s name:</th>
<th>Registration number:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Given name:</td>
<td>Hospital/Laboratory:</td>
</tr>
<tr>
<td>Date of birth:</td>
<td>Pre-operative treatment (induction):</td>
</tr>
</tbody>
</table>

### Rectal Cancer:
- Distance from anal verge: ..... cm
- Location:
  - ventral
  - dorsal
  - lateral
  - cTNM staging
  - ycTNM staging

### Type of Intervention
- Anterior resection rectum (PME)
- Abdomino-perineal rectum excision (TME)
- Restorative rectum resection (TME)

### Macroscopic Examination
- Fresh
- Fixed

#### Rectal Tumour Location:
- Ventral
- Dorsal
- Lateral
- Above peritoneal reflection
- Below peritoneal reflection
- Multifocal: *If 2nd location, please use separate sheet*

#### Length of Resected Specimen: ..... cm
#### Tumour Size (Maximum Diameter): ..... cm
#### Distance Tumour - Resection Margin:
- Proximal: ..... cm
- Distal: ..... cm
- Or closest resection margin: ..... cm

### Features:
- Protruding, exophytic
- Ulcerating
- Infiltrating
- Flat

### Tumour Perforation:

<table>
<thead>
<tr>
<th>Associated Lesions:</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polyp(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Synchronous cancer(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ulcerative colitis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crohn’s disease</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Familial polyposis</td>
<td></td>
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</tr>
</tbody>
</table>

### HistoLogic Examination
- Adenocarcinoma
  - Well
  - Low grade
  - Moderate
  - High grade
  - Poorly differentiated
- Other: 

#### Depth of Invasion
- Tis: intra-mucosal or intra-epithelial (not beyond muscularis mucosae)
- T1: limited to submucosa
- T2: limited to muscularis propria
- T3: subserosal invasion (invasion beyond musc. propria)
- T4: invasion of serosa or adjacent organ(s)

### Surgical Resection:
- Longitudinal margins:
  - Proximal: free
  - Distal: free

#### Circumferential Margin: ..... mm

### Extension:
- Number of lymph nodes examined: 
- Number of invaded lymph nodes: 
- Number of extramural deposits < 3 mm: 
- Number of extramural deposits > 3 mm: 
- Extramural vascular invasion:
  - Yes
  - No
  - Impossible to determine
- Metastases (liver, peritoneum, ...):
  - Yes
  - No
  - Impossible to determine

### Conclusion
- pTNM
- ypTNM
- Tis
- T1
- T2
- T3
- T4
- Nx
- N0
- N1
- N2
- Mx
- M1
- Other classification: 

### Signature:

### Date:

### N.B.: Samples of tumour frozen?: 

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**Guidelines for the Treatment of Rectal Cancer**

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**ALGORITHM FOR RESECTABLE RECTUM CANCER**

**lower third**

- cStage1
  - 45 Gy RCT
    - Rad. Exc.*
      - (Loc. Exc.)
- cStage2 + cStage3
  - Rad. Exc.*

**middle and upper third**

- cStage1
  - cT3 with cCRM >6mm
    - 25 or 39 Gy
      - Rad. Exc*
      - (Loc. Exc.)
  - cT4 or cCRM <6mm
    - 45 Gy RCT
      - Rad. Exc.*
- cStage2
  - cStage3
  - 45 Gy RCT

* RCT: radio-chemotherapy; RT: radiotherapy
* Rad. Exc: radical excision of the rectum (Loc. Exc: local excision)