Guidelines for the provision of a safe and effective CT Colonography Service

Best practice guidelines for use in the Bowel Cancer Screening Programme and in the CTC Symptomatic Service

Foreword

The CT Colonography Radiographer Education Development Group (CTC REDG) was set up in 2015 to review and develop guidelines for CTC practice. Membership of this group includes experienced CTC radiographers who are involved in the delivery of short courses and credit-bearing postgraduate awards to support the development of CTC services. Delivering these successful programmes of study has highlighted the wide variation in current CTC practice across the UK, and this has provided the momentum to explore what constitutes best practice in all aspects of CTC service delivery.

While the majority of CTC referrals are via the symptomatic service, many Trusts are involved in the provision of CTC examinations for the Bowel Cancer Screening Programme (BCSP). For a national screening programme to be both safe and effective it is important, where possible, to standardise the practice between centres. For this reason our CTC REDG activities have been supported by the Public Health England BCSP Radiology committee, and we are grateful to Public Health England who generously funded the activities of our group.

This Best Practice booklet has been designed to support new and established services and to review the documentation required for safe and effective practice. The booklet has been designed to be accessed online, and includes links to relevant published literature and professional body guidance documents. The booklet outlines the rationale and proposed content of a range of different recommended documentation, and makes links to relevant sections of the BCSP imaging guidelines. Each recommendation provides real examples of documents used by established CTC services. Clicking on the document image will open a PDF icon at the bottom of your screen for you to view the full document. Several examples have been provided to show different approaches; it is recommended that you check with your own Trust clinical governance teams regarding the local template that you need to use.

The booklet may also be printed out and placed in a loose leaf folder, and used as a template for hosting your local CTC documentation. We hope you find it a valuable aide memoire in promoting local best practice discussions.

Yours sincerely,

Prof Julie Nightingale, Sheffield Hallam University

Rachel Baldwin-Cleland, London NW University Healthcare NHS Trust

(Co-chairs of the CTC REDG)

Contents

Documentation Requirements for an Effective CTC Service

Level	Documentation					
Guidance	NHS Bowel Cancer Screening Imaging guidelines	ESGAR 2nd consensus statement	NICE CTC guidelines	Royal College of Radiologists guidelines	Society and College of Radiographers Guidance Documents	
Policy	Service Policy	Scheme of work/Scope of Practice		Referral guidelines		
SOP/ procedure	Examination procedure	Complications Management	Reporting paradigm	Audit	Medicine Management	
Protocol	Scanning protocol	Insufflator protocol	Study quality grading criteria	Report findings coding		
Records	Pre-procedural checks	Training records *	Patient Information	Team meeting minutes	Dose records	Sub – optimal study statistics

*Please refer to separate BCSP training and competency document for defined levels of training required for staff undertaking CT Colonography within BCSP centres.

Guidance level documents		
Document title	**Author(s)**	**Available from**
Guidelines for the use of imaging in the NHS Bowel Cancer Screening Programme, 2nd Edition, November 2012	NHS Cancer Screening Programmes.	http://www.bcsp.nhs.uk/files/nhsbcsp05.pdf
2nd European Society of Gastro-intestinal & Abdominal Radiologists (ESGAR) consensus statement on CT Colonography, 2013	Neri, E et al. *European Radiology* (2013) 23(3):720-729.	https://link.springer.com/article/10.1007/s00330-012-2632-x (open access article)
Computer tomographic Colonography Interventional procedure guidance[IPG129] 2005	National Institute for Health & Clinical Excellence	https://www.nice.org.uk/guidance/ipg129/chapter/1-Guidance
Guidelines on the use of CT Colonography for suspected colorectal cancer 2014	British Society of Gastrointestinal and Abdominal Radiology (BSGAR) and The Roya College of Radiologists	https://www.rcr.ac.uk/system/files/publication/field_publication_files/BFCR(14)9_COLON.pdf
Preliminary Clinical Evaluation and Clinical Reporting by Radiographers: Policy and Practice Guidance	Society and College of Radiographers	https://www.sor.org/learning/document-library/preliminary-clinical-evaluation-and-clinical-reporting-radiographers-policy-and-practice-guidance
Team Working in Clinical Imaging	Society and College of Radiographers	https://www.sor.org/learning/document-library/team-working-clinical-imaging
Obtaining consent: a clinical guideline for the diagnostic imaging and radiotherapy workforce	Society and College of Radiographers	https://www.sor.org/sites/default/files/document-versions/obtaining_consent_170118.pdf
Course of Study for the Certification of Competence in Administering Intravenous Injections	Society and College of Radiographers	https://www.sor.org/learning/document-library/course-study-certification-competence-administering-intravenous-injections
Education and Career Framework for the Radiography Workforce	Society and College of Radiographers	https://www.sor.org/learning/document-library/education-and-career-framework-radiography-workforce
The radiographer as the entitled IR(ME)R practitioner	Society and College of Radiographers	https://www.sor.org/sites/default/files/document-versions/20180125_final_scor_irmer_practitioner_guidance.pdf

Policy Documents

Service Policy

Rationale

To provide overall policy guidance for the delivery and clinical governance of the CT Colonography service. To ensure that the design, delivery and review of service provision is in line with organisational requirements and best practice.

Essential Content

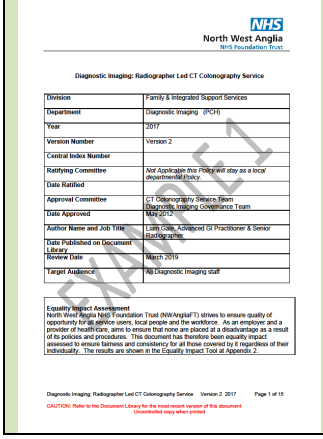
- ***Service aims and objectives***
- ***Roles and responsibilities for service provision***
- ***Overview of CTC pathway and processes***
- ***Clinical Governance, audit and compliance monitoring***
- ***Clinical References***

Reference to BCSP Imaging Guidelines

Relevant to all aspects of the Bowel Cancer Screening Programme, but with specific relevance to the following:

2. ***Patient eligibility***
9. ***Patient experience & safety***
12. ***Planning CTC teams & lists***
13. ***Measuring and monitoring CTC activity and outcomes***
14. ***Training & Assessment***

Example documents



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Diagnostic Imaging: Radiographer Led CT Colonography Service

Division	Family & Integrated Support Services
Department	Diagnostic Imaging (PCH)
Year	2017
Version Number	Version 2
Central Index Number	
Ratifying Committee	Not Applicable this Policy will stay as a local departmental Policy
Date Ratified	
Approval Committee	CT Colonography Service Team Diagnostic Imaging Governance Team
Date Approved	May 2012
Author Name and Job Title	Liam Cole, Advanced GI Practitioner & Senior Radiographer
Date Published on Document Library	
Review Date	March 2019
Target Audience	All Diagnostic Imaging staff

Equality Impact Assessment
North West Anglia NHS Foundation Trust (NWAngliaFT) strives to ensure quality of opportunity for all service users, local people and the workforce. As an employer and a provider of health care, aims to ensure that none are placed at a disadvantage as a result of its policies and procedures. This document has therefore been equality impact assessed to ensure fairness and consistency for all those covered by it regardless of their individuality. The results are shown in the Equality Impact Tool at Appendix 2.

Diagnostic Imaging: Radiographer Led CT Colonography Service Version 2 2017 Page 1 of 15

CAUTION: Refer to the Document Library for the most recent version of this document
Uncontrolled copy when printed

EXAMPLE 1

Policy Documents

Scheme of work

Rationale

To provide a detailed scheme of work for staff performing and / or reporting CT Colonography.

Essential Content

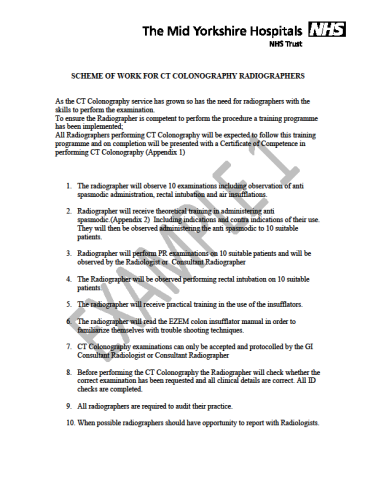
- ***Scope of practice for CTC team members***
- ***Vetting (authorisation) of CTC imaging requests / referrals***
- ***Roles & responsibilities for staff conducting or managing CTC examinations***
- ***Roles & responsibilities of staff reporting CTC examinations***

Reference to BCSP Imaging Guidelines

Relevant to all aspects of the Bowel Cancer Screening Programme, but with specific relevance to the following:

2. *Patient eligibility*
9. Patient experience and safety
12. *Planning CTC teams and lists*
13. *Measuring and monitoring CTC activity and outcomes*
14. Training & Assessment

Example documents

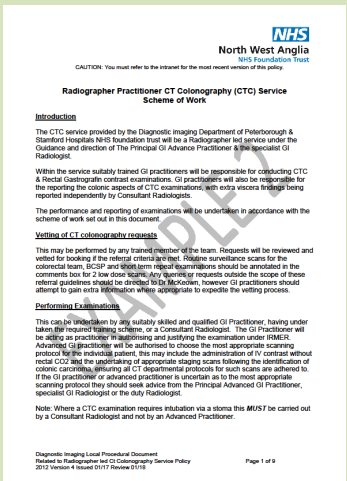


The Mid Yorkshire Hospitals NHS
NHS Trust

SCHEME OF WORK FOR CT COLONOGRAPHY RADIOGRAPHERS

As the CT Colonography service has grown so has the need for radiographers with the skills to perform the examination.
To ensure the Radiographer is competent to perform the procedure a training programme has been implemented.
All Radiographers performing CT Colonography will be expected to follow this training programme and on completion will be presented with a Certificate of Competence in performing CT Colonography (Appendix 1)

1. The radiographer will observe 10 examinations including observation of anti spasmodic administration, rectal intubation and air insufflations.
2. Radiographer will receive theoretical training in administering anti spasmodic (Appendix 2) including indications and contra indications of their use. They will then be observed administering the anti spasmodic to 10 suitable patients.
3. Radiographer will perform PR examinations on 10 suitable patients and will be observed by the Radiologist or Consultant Radiographer
4. The Radiographer will be observed performing rectal intubation on 10 suitable patients.
5. The radiographer will receive practical training in the use of the insufflators.
6. The radiographer will read the EZEM colon insufflator manual in order to familiarize themselves with trouble shooting techniques.
7. CT Colonography examinations can only be accepted and protocolled by the GI Consultant Radiologist or Consultant Radiographer
8. Before performing the CT Colonography the Radiographer will check whether the correct examination has been requested and all clinical details are correct. All ID checks are completed.
9. All radiographers are required to audit their practice.
10. When possible radiographers should have opportunity to report with Radiologists.



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Radiographer Practitioner CT Colonography (CTC) Service
Scheme of Work

Introduction

The CTC service provided by the Diagnostic imaging Department of Peterborough & Stamford Hospitals NHS foundation trust will be a Radiographer led service under the Guidance and direction of The Principal GI Advance Practitioner & the specialist GI Radiologist.

Within the service suitably trained GI practitioners will be responsible for conducting CTC & Rectal Gastrografin contrast examinations. GI practitioners will also be responsible for the reporting the colonic aspects of CTC examinations, with extra viscera findings being reported independently by Consultant Radiologists.

The performance and reporting of examinations will be undertaken in accordance with the scheme of work set out in this document.

Vetting of CT colonography requests

This may be performed by any trained member of the team. Requests will be reviewed and vetted for booking if the referral criteria are met. Routine surveillance scans for the colorectal team, BCSP and short term repeat examinations should be annotated in the comments box for 2 low dose scans. Any queries or requests outside the scope of these referral guidelines should be directed to Dr McKeown, however GI practitioners should attempt to gain extra information where appropriate to expedite the vetting process.

Performing Examinations

This can be undertaken by any suitably skilled and qualified GI Practitioner, having under taken the required training scheme, or a Consultant Radiologist. The GI Practitioner will be acting as practitioner in performing and justifying the examination under RMER. Advanced GI practitioner will be authorised to choose the most appropriate scanning protocol for the individual patient, this may include the administration of IV contrast without rectal CO2 and the undertaking of appropriate staging scans following the identification of colonic carcinoma, ensuring all CT departmental protocols for such scans are adhered to. If the GI practitioner or advanced practitioner is uncertain as to the most appropriate scanning protocol they should seek advice from the Principal Advanced GI Practitioner, specialist GI Radiologist or the duty Radiologist.

Note: Where a CTC examination requires intubation via a stoma this ***MUST*** be carried out by a Consultant Radiologist and not by an Advanced Practitioner.

Diagnostic Imaging Local Procedural Document
Related to Radiographer led CI Colonography Service Policy
2012 Version 4 Issued 01/17 Review 01/18
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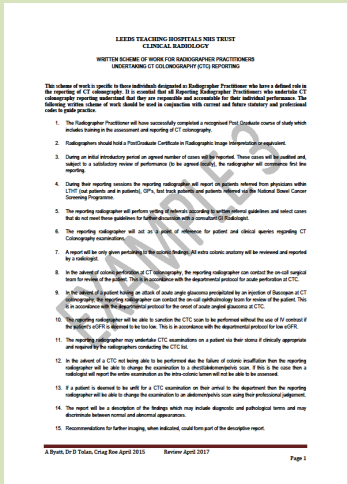


LEEDS TEACHING HOSPITALS NHS TRUST
CLINICAL RADIOLOGY

WRITTEN SCHEME OF WORK FOR RADIOGRAPHER PRACTITIONERS
UNDERTAKING CT COLONOGRAPHY (CTC) REPORTING

This scheme of work is specific to those individuals designated as Radiographer Practitioner who have a defined role in the reporting of CT colonography. It is essential that all Reporting Radiographer Practitioners who undertake CT colonography reporting understand that they are responsible and accountable for their individual performance. The following written scheme of work should be used in conjunction with current and future statutory and professional codes to guide practice.

1. The Radiographer Practitioner will have successfully completed a recognised Post Graduate course of study which includes training in the assessment and reporting of CT colonography.
2. Radiographers should hold a PostGraduate Certificate in Radiographic Image Interpretation or equivalent.
3. During an initial introductory period on agreed number of cases will be reported. These cases will be audited and, subject to a satisfactory review of performance (to be agreed locally), the radiographer will commence first line reporting.
4. During their reporting sessions the reporting radiographer will report on patients referred from physicians within LTHT (out patients and in patients), GP's, fast track patients and patients referred via the National Bowel Cancer Screening Programme.
5. The reporting radiographer will perform vetting of referrals according to written referral guidelines and select cases that do not meet these guidelines for further discussion with a consultant GI Radiologist.
6. The reporting radiographer will act as a point of reference for patient and clinical queries regarding CT Colonography examinations.
7. A report will be only given pertaining to the colonic findings. All extra colonic anatomy will be reviewed and reported by a radiologist.
8. In the advent of colonic perforation at CT colonography, the reporting radiographer can contact the on-call surgical team for review of the patient. This is in accordance with the departmental protocol for acute perforation at CTC.
9. In the advent of a patient having an attack of acute angle glaucoma precipitated by an injection of Buscopan at CT colonography, the reporting radiographer can contact the on-call ophthalmology team for review of the patient. This is in accordance with the departmental protocol for the onset of acute angled glaucoma at CTC.
10. The reporting radiographer will be able to sanction the CTC scan to be performed without the use of IV contrast if the patient's eGFR is deemed to be too low. This is in accordance with the departmental protocol for low eGFR.
11. The reporting radiographer may undertake CTC examinations on a patient via their stoma if clinically appropriate and required by the radiographers conducting the CTC list.
12. In the advent of a CTC not being able to be performed due the failure of colonic insufflation then the reporting radiographer will be able to change the examination to a cholecystokinetyenic scan. If this is the case then a radiologist will report the entire examination as the extra-colonic lumen will not be able to be assessed.
13. If a patient is deemed to be unfit for a CTC examination on their arrival to the department then the reporting radiographer will be able to change the examination to an abdomenpelvis scan using their professional judgement.
14. The report will be a description of the findings which may include diagnostic and pathological terms and may discriminate between normal and abnormal appearances.
15. Recommendations for further imaging, when indicated, could form part of the descriptive report.

A Byatt, Dr D Tolan, Crtag Roe April 2015 Review April 2017
Page 1

Policy Documents

Referral Guidelines

Rationale

To ensure that referrals for CT Colonography are appropriate

Essential Content

- ***Clinical indications for CT Colonography***
- ***Clinical indications for which CT Colonography is not the appropriate test***
- ***Contra-indications for CT Colonography***
- ***Wait times from acute episodes or deep biopsies***
- ***Age considerations (radiation dose related)***

Reference to BCSP Imaging Guidelines

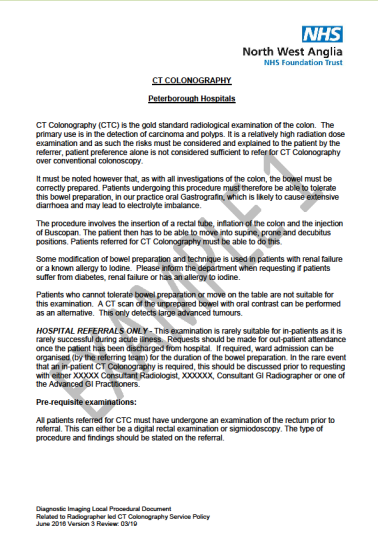
Relevant to all aspects of the Bowel Cancer Screening Programme, but with specific relevance to the following:

2. Patient eligibility

3. Patient information and consent

9. Patient experience and safety

Example documents



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CT COLONOGRAPHY

Peterborough Hospitals

CT Colonography (CTC) is the gold standard radiological examination of the colon. The primary use is in the detection of carcinoma and polyps. It is a relatively high radiation dose examination and as such the risks must be considered and explained to the patient by the referrer; patient preference alone is not considered sufficient to refer for CT Colonography over conventional colonoscopy.

It must be noted however that, as with all investigations of the colon, the bowel must be correctly prepared. Patients undergoing this procedure must therefore be able to tolerate this bowel preparation, in our practice oral Gastrografin, which is likely to cause extensive diarrhoea and may lead to electrolyte imbalance.

The procedure involves the insertion of a rectal tube, inflation of the colon and the injection of Buscopan. The patient then has to be able to move into supine, prone and decubitus positions. Patients referred for CT Colonography must be able to do this.

Some modification of bowel preparation and technique is used in patients with renal failure or a known allergy to Iodine. Please inform the department when requesting if patients suffer from diabetes, renal failure or has an allergy to iodine.

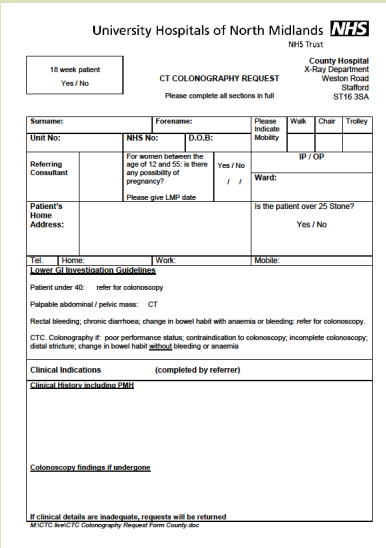
Patients who cannot tolerate bowel preparation or move on the table are not suitable for this examination. A CT scan of the unprepared bowel with oral contrast can be performed as an alternative. This only detects large advanced tumours.

HOSPITAL REFERRALS ONLY - This examination is rarely suitable for in-patients as it is rarely successful during acute illness. Requests should be made for out-patient attendance once the patient has been discharged from hospital. If required, ward admission can be organised (by the referring team) for the duration of the bowel preparation. In the rare event that an in-patient CT Colonography is required, this should be discussed prior to requesting with either XXXXX Consultant Radiologist, XXXXXX, Consultant GI Radiographer or one of the Advanced GI Practitioners.

Pre-requisite examinations:

All patients referred for CTC must have undergone an examination of the rectum prior to referral. This can either be a digital rectal examination or sigmoidoscopy. The type of procedure and findings should be stated on the referral.

Diagnostic Imaging Local Procedural Document
Related to Radiographer led CT Colonography Service Policy
June 2016 Version 3 Review: 03/19



University Hospitals of North Midlands NHS
NHS Trust

18 week patient
Yes / No

CT COLONOGRAPHY REQUEST

Please complete all sections in full

County Hospital
X-Ray Department
Weston Road
Stafford
ST16 3SA

Surname:		Forename:		Please Indicate Mobility	Walk	Chair	Trolley
Unit No:		NHS No:	D.O.B:				
Referring Consultant		For women between the age of 12 and 55: is there any possibility of pregnancy? Please give LMP date	Yes / No / /	IP / OP			
				Ward:			
Patient's Home Address:				Is the patient over 25 Stone? Yes / No			
Tel.	Home:		Work:	Mobile:			

Lower GI Investigation Guidelines

Patient under 40: refer for colonoscopy

Palpable abdominal / pelvic mass: CT

Rectal bleeding; chronic diarrhoea; change in bowel habit with anaemia or bleeding: refer for colonoscopy.

CTC. Colonography if: poor performance status; contraindication to colonoscopy; incomplete colonoscopy; distal stricture; change in bowel habit without bleeding or anaemia

Clinical Indications (completed by referrer)

Clinical History including PMH

Colonoscopy findings if undergone

If clinical details are inadequate, requests will be returned

M:\CTC live\CTC Colonography Request Form County.doc

Standard Operating Procedures

Examination procedure

Rationale

To provide a detailed process for the management of CT Colonography examinations, promoting a consistent level of standardisation and quality.

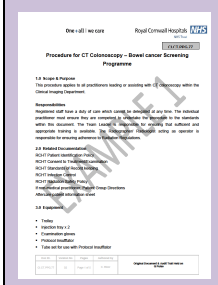
Essential Content

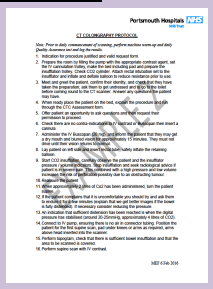
- ***Patient information and seeking and documenting informed consent***
- ***Chaperoning requirements and vulnerable patients***
- ***Pre-procedure checks***
- ***Infection control***
- ***Equipment requirements***
- ***Consumable requirements***
- ***Rectal catheterisation procedure***
- ***On table procedures – patient positioning***
- ***Appropriate use of pharmacology (IV Buscopan / Contrast agents)***
- ***Initial image review***
- ***Post examination aftercare***

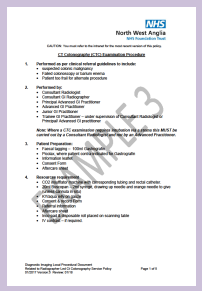
Reference to BCSP Imaging Guidelines

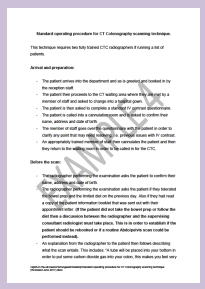
3. Patient information and consent
4. Bowel preparation
6. On the scanner table
7. Use of intravenous contrast medium
8. Additional 'one stop' tests after CTC
9. Patient experience and safety
12. Planning CTC Teams and lists
14. Training & Assessments

Example documents

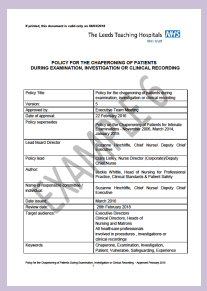

Procedure for CT Colonoscopy – Bowel cancer Screening Programme


CT COLONOGRAPHY PROTOCOL


CT Colonography (CTC) Examination Procedure


Standard operating procedure for CT Colonography scanning technique.


Chaperoning policy


POLICY FOR THE CHAPERONING OF PATIENTS DURING EXAMINATION, INVESTIGATION OR CLINICAL RECORDING

Standard Operating Procedures

Complications Management

Rationale

To provide a detailed process for dealing with adverse reactions and complications prior to, during and post CT Colonography examinations

Essential Content

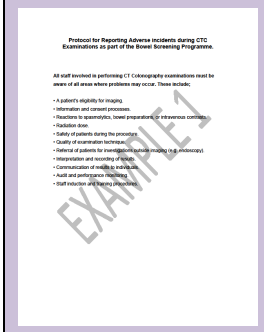
- ***Management of perforations***
- ***Management of anaphylaxis****
- ***Management of cardiac issues****
- ***Management of cardiac arrest****

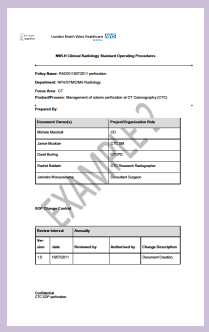
**** There should be a specific CT Colonography for perforation; however reference may be made to departmental wide protocols for the management of generic complications listed.***

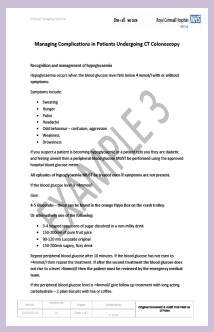
Reference to BCSP Imaging Guidelines

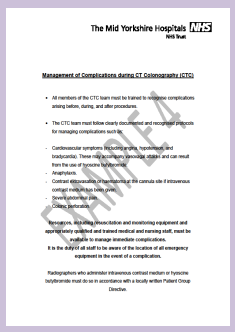
3. Patient information and consent
4. Bowel preparation
6. On the scanner table
7. Use of intravenous contrast medium
9. Patient experience and safety
12. Planning CTC Teams and lists

Example documents









Standard Operating Procedures

Reporting Paradigm

Rationale

To define the process used to achieve consistent and accurate reporting of CT Colonography examinations in a timely manner and in line with best practice guidelines.

Essential Content

- ***Reporting software specification***
- ***Agreed image review practice – 2D/3D primary read, endo-luminal fly through and use of CAD***
- ***Reporting process – single report/double report***
- ***Documentation of quality assessment of CTC studies (standardised definitions)***
- ***Report Format***
- ***Reporting confidence (standardised definitions)***
- ***Description of findings***
- ***Agreed measurement criteria (window widths/level)***
- ***Coding of findings (colonic and extra-colonic viscera)***

Reference to BCSP Imaging Guidelines

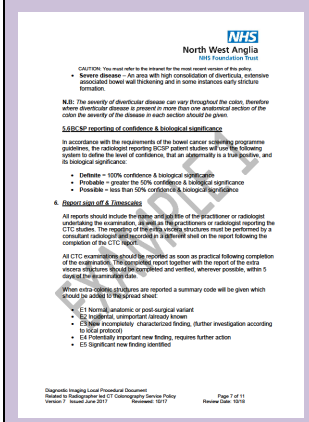
10. Interpretation methods

11. Patient management and interval surveillance

13.Measuring & monitoring CTC activity and outcomes

14.Training and Assessment

Example documents



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- **Severe disease** – An area with high constellation of diverticula, extensive associated bowel wall thickening and in some instances early stricture formation.

N.B: *The severity of diverticular disease can vary throughout the colon, therefore where diverticular disease is present in more than one anatomical section of the colon the severity of the disease in each section should be given.*

5.6 BCSP reporting of confidence & biological significance

In accordance with the requirements of the bowel cancer screening programme guidelines, the radiologist reporting BCSP patient studies will use the following system to define the level of confidence, that an abnormality is a true positive, and its biological significance:

- Definite = 100% confidence & biological significance
- Probable = greater the 50% confidence & biological significance
- Possible = less than 50% confidence & biological significance

6. *Report sign off & Timescales*

All reports should include the name and job title of the practitioner or radiologist undertaking the examination, as well as the practitioners or radiologist reporting the CTC studies. The reporting of the extra viscera structures must be performed by a consultant radiologist and recorded on a pinnwrit shell on the report following the completion of the CTC report.

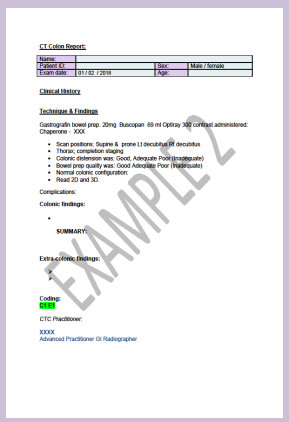
All CTC examinations should be reported as soon as practical following completion of the examination. The completed report together with the report of the extra viscera structures should be completed and verified, wherever possible, within 5 clinical the examination date.

When extra-colonic structures are reported a summary code will be given which should be added to the spread sheet.

- E1 Normal, anatomic or post-surgical variant
- E2 Incidental, unimportant /already known
- E3 New incompletely characterized finding, (further investigation according to local protocol)
- E4 Potentially important new finding, requires further action
- E5 Significant new finding identified

Diagnostic Imaging Local Procedural Document
Related to Radiographer led CT Colonography Service Policy
Version 7 Issued: June 2017 Reviewed: 10/17 Page 7 of 11 Review Date: 10/18

EXAMPLE 1



CT Colon Report:

Name:			
Patient ID:		Sex:	Male / female
Exam date:	01 / 02 / 2018	Age:	

Clinical History

Technique & Findings

Gastrograffin bowel prep. 20mg Buscopan 69 ml Optiray 320 contrast administered:
Chaperone - XXX

- Scan positions: Supine & prone LI decubitus RF decubitus
- Thorax: completion staging
- Colonic distension was: Good, Adequate Poor (inadequate)
- Bowel prep quality was: Good Adequate Poor (inadequate)
- Normal colonic configuration
- Read 2D and 3D.

Complications:

Colonic findings:

-

SUMMARY:

Extra-colonic findings:

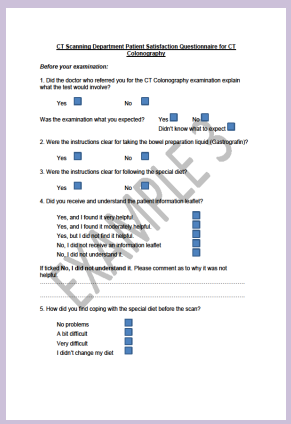
-
-

Coding:
C3 E3

CTC Practitioner:

XXXX
Advanced Practitioner GI Radiographer

EXAMPLE 2



CT Scanning Department Patient Satisfaction Questionnaire for CT Colonography

Before your examination:

1. Did the doctor who referred you for the CT Colonography examination explain what the test would involve?

Yes ☐ No ☐

Was the examination what you expected? Yes ☐ No ☐ Didn't know what to expect ☐

2. Were the instructions clear for taking the bowel preparation liquid (Gastrografin)?

Yes ☐ No ☐

3. Were the instructions clear for following the special diet?

Yes ☐ No ☐

4. Did you receive and understand the pain-relief information leaflet?

Yes, and I found it very helpful ☐
Yes, and I found it moderately helpful ☐
Yes, but I did not find it helpful ☐
No, I did not receive an information leaflet ☐
No, I did not understand it ☐

If ticked No, I did not understand it. Please comment as to why it was not helpful:

.....

.....

5. How did you find coping with the special diet before the scan?

No problems ☐
A bit difficult ☐
Very difficult ☐
I didn't change my diet ☐

EXAMPLE 3

Standard Operating Procedures

Audit

Rationale

To have in place a robust clinical audit and governance system to measure and monitor the CT Colonography activity and outcomes

Essential audit information

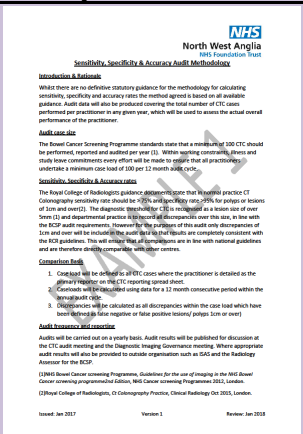
- ***Audit data for minimum of 100 CTC cases per reporter***
- ***Accuracy and PPV/NPV assessment against cancer registers***
- ***Audit of compliance with best practice guidelines***
- ***Audit of patient satisfaction****
- ***Complaint monitoring****
- ***Waiting times****
- ***Reporting timescales****
- ***Radiation Dose****
- ***Extra colonic findings requiring additional work up***

These may be incorporated into department level audit procedures as appropriate to the BCSP Centre or Imaging Department.

Reference to BCSP Imaging Guidelines

13.Measuring and monitoring CTC activity and outcomes

Example documents



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NHS Foundation Trust

Sensitivity, Specificity & Accuracy Audit Methodology

Introduction & Rationale

Whilst there are no definitive statutory guidance for the methodology for calculating sensitivity, specificity and accuracy rates the method agreed is based on all available guidance. Audit data will also be produced covering the total number of CTC cases performed per practitioner in any given year, which will be used to assess the actual overall performance of the practitioner.

Audit case size

The Bowel Cancer Screening Programme standards state that a minimum of 100 CTC should be performed, reported and audited per year (1). Within working constraints, illness and study leave commitments every effort will be made to ensure that all practitioners undertake a minimum case load of 100 per 12 month audit cycle.

Sensitivity, Specificity & Accuracy rates

The Royal College of Radiologists guidance documents state that in normal practice CT Colonography sensitivity rate should be >75% and specificity rate >95% for polyps or lesions of 1cm and over(2). The diagnostic thresholds for CTC is recognised as a lesion size of over 5mm (1) and departmental practice is to record all discrepancies over this size, in line with the BCSP audit requirements. However for the purposes of this audit only discrepancies of 1cm and over will be included in the audit data so that results are completely consistent with the RCR guidelines. This will ensure that all comparisons are in line with national guidelines and are therefore directly comparable with other centres.

Comparison Data

1. Case load will be defined as all CTC cases where the practitioner is detailed as the primary reporter on the CTC reporting spread sheet.
2. Caseloads will be calculated using data for a 12 month consecutive period within the annual audit cycle.
3. Discrepancies will be calculated as all discrepancies within the case load which have been defined as false negative or false positive lesions/ polyps 1cm or over)

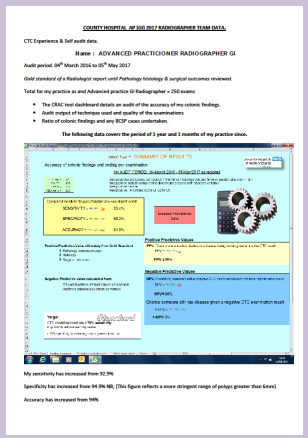
Audit frequency and reporting

Audits will be carried out on a yearly basis. Audit results will be published for discussion at the CTC audit meeting and the Diagnostic Imaging Governance meeting. Where appropriate audit results will also be provided to outside organisation such as ISAS and the Radiology Assessor for the BCSP.

(1)NHS Bowel Cancer screening Programme, *Guidelines for the use of imaging in the NHS Bowel Cancer screening programme2nd Edition*, NHS Cancer screening Programmes 2017, London.

(2)Royal College of Radiologists, *CT Colonography Practice*, Clinical Radiology Oct 2015, London.

Issued: Jan 2017 Version 1 Review: Jan 2018



COUNTY HOSPITAL AP (UO) 2017 RADIOGRAPHER TEAM DATA.

CTC Experience & Self audit data.

Name : ADVANCED PRACTICIONER RADIOGRAPHER GI

Audit period: 04th March 2016 to 05th May 2017

Gold standard of a Radiologist report until Pathology histology & surgical outcomes reviewed.

Total for my practice as and Advanced practice GI Radiographer = 250 exams

- The CRAC tool dashboard details an audit of the accuracy of my colonic findings.
- Audit output of technique used and quality of the examinations
- Ratio of colonic findings and any BCSP cases undertaken.

The following data covers the period of 1 year and 1 months of my practice since.

My sensitivity has increased from 92.9%

Specificity has increased from 94.9% NB; (This figure reflects a more stringent range of polyps greater than 6mm)

Accuracy has increased from 94%

Please also see appendix A & B for audit tools in relation to best practice guidelines.

Standard Operating Procedures

Medicines Management

Rationale

To have in place effective systems for the safe management and administration of drugs during CT Colonography examinations

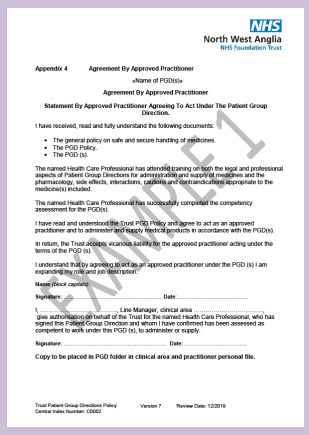
Essential Content

- ***Training and competency requirements for staff administering drugs***
- ***Suitable Patient Group Directions or alternative medico-legal framework / approval for non-medically trained staff administering drugs***
- ***Timescales and process for validation and re-validation of competencies***
- ***Contra-indications for administration of relevant pharmacology***
- ***Management and reporting of adverse incidents***

Reference to BCSP Imaging Guidelines

3. Patient information and consent
4. Bowel preparation
6. On the scanner table
7. Use of intravenous contrast media
9. Patient experience and safety
14. Training and assessment

Example documents



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Appendix 4 Agreement By Approved Practitioner

«Name of PGD(s)»

Agreement By Approved Practitioner

Statement By Approved Practitioner Agreeing To Act Under The Patient Group Direction.

I have received, read and fully understand the following documents:

- The general policy on safe and secure handling of medicines.
- The PGD Policy.
- The PGD (s).

The named Health Care Professional has attended training on both the legal and professional aspects of Patient Group Directions for administration and supply of medicines and the pharmacology, side effects, interactions, cautions and contraindications appropriate to the medicine(s) included.

The named Health Care Professional has successfully completed the competency assessment for the PGD(s).

I have read and understood the Trust PGD Policy and agree to act as an approved practitioner and to administer and supply medical products in accordance with the PGD(s).

In return, the Trust accepts vicarious liability for the approved practitioner acting under the terms of the PGD (s).

I understand that by agreeing to act as an approved practitioner under the PGD (s) I am expanding my role and job description.

Name (block capitals) .....

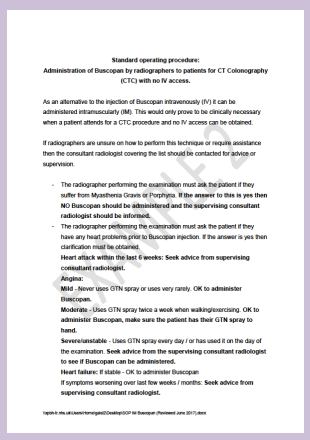
Signature: ..... Date: .....

I, ... , Line Manager, clinical area ..... give authorisation on behalf of the Trust for the named Health Care Professional, who has signed this Patient Group Direction and whom I have confirmed has been assessed as competent to work under this PGD (s), to administer or supply.

Signature: ..... Date: .....

Copy to be placed in PGD folder in clinical area and practitioner personal file.

Trust Patient Group Directions Policy Version 7 Review Date: 12/2019
Central Index Number: C0002

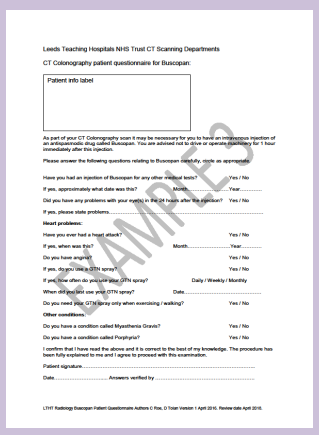


Standard operating procedure:
Administration of Buscopan by radiographers to patients for CT Colonography (CTC) with no IV access.

As an alternative to the injection of Buscopan intravenously (IV) it can be administered intramuscularly (IM). This would only prove to be clinically necessary when a patient attends for a CTC procedure and no IV access can be obtained.

If radiographers are unsure on how to perform this technique or require assistance then the consultant radiologist covering the list should be contacted for advice or supervision.

- The radiographer performing the examination must ask the patient if they suffer from Myasthenia Gravis or Porphyria. **If the answer to this is yes then NO Buscopan should be administered and the supervising consultant radiologist should be informed.**
- The radiographer performing the examination must ask the patient if they have any heart problems prior to Buscopan injection. If the answer is yes then clarification must be obtained.
  Heart attack within the last 6 weeks: Seek advice from supervising consultant radiologist.
  Angina:
  Mild - Never uses GTN spray or uses very rarely. **OK to administer Buscopan.**
  Moderate - Uses GTN spray twice a week when walking/exercising. **OK to administer Buscopan, make sure the patient has their GTN spray to hand.**
  Severe/unstable - Uses GTN spray every day / or has used it on the day of the examination. **Seek advice from the supervising consultant radiologist to see if Buscopan can be administered.**
  Heart failure: If stable - OK to administer Buscopan
  If symptoms worsening over last few weeks / months: **Seek advice from supervising consultant radiologist.**



Leeds Teaching Hospitals NHS Trust CT Scanning Departments

CT Colonography patient questionnaire for Buscopan:

Patient info label

As part of your CT Colonography scan it may be necessary for you to have an intravenous injection of an antispasmodic drug called Buscopan. You are advised not to drive or operate machinery for 1 hour immediately after this injection.

Please answer the following questions relating to Buscopan carefully, circle as appropriate.

Have you had an injection of Buscopan for any other medical tests? Yes / No
If yes, approximately what date was this? Month..... Year.....
Did you have any problems with your eyesight in the 24 hours after the injection? Yes / No
If yes, please state problems.....

Heart problems:
Have you ever had a heart attack? Yes / No
If yes, when was this? Month..... Year.....
Do you have angina? Yes / No
If yes, do you use a GTN spray? Yes / No
If yes, how often do you use your GTN spray? Daily / Weekly / Monthly
When did you last use your GTN spray? Date.....
Do you need your GTN spray only when exercising / walking? Yes / No

Other conditions
Do you have a condition called Myasthenia Gravis? Yes / No
Do you have a condition called Porphyria? Yes / No

I confirm that I have read the above and it is correct to the best of my knowledge. The procedure has been fully explained to me and I agree to proceed with this examination.

Patient signature.....
Date..... Answers verified by .....

LTHT Radiology Buscopan Patient Questionnaire Authors C Roe, D Toan Version 1 April 2016. Review date April 2018.

Protocols

Scanning protocol

Rationale

To ensure that CT Colonography scans are acquired consistently in line with best practice guidelines and the ALARP principles.

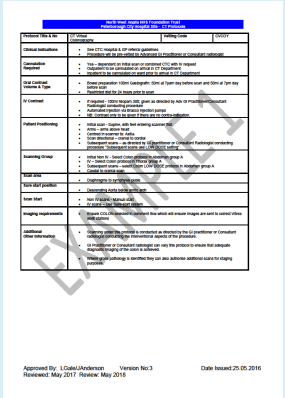
Essential Content

- ***Use of Multi-detector CT***
- ***kVp & mA and other scanning parameter selection***
- ***Patient positioning***
- ***Scan area***
- ***IV administration instructions (where appropriate)***
- ***Scan sequences (ALARP)***
- ***Relevant post processing instructions***

Reference to BCSP Imaging Guidelines

5. Scanner parameters and protocols.

Example documents



Protocols

Insufflator protocol

Rationale

To ensure that CO_2 insufflation equipment is checked, used and maintained correctly, and that staff have the relevant training and competency assessment for safe use.

Essential Content

- ***Training and competency assessment to use insufflator correctly***
- ***Training and competency in the use of CO_2 gas cylinders***
- ***Process of insufflation***
- ***Pre-procedural checks***
- ***Post-procedural checks***
- ***Maintenance schedules and records***

Reference to BCSP Imaging Guidelines

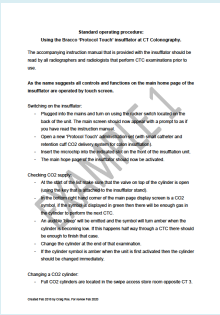
6. On the scanner table

9. Patient experience and safety

12. Planning CTC teams and lists

14 Training and Assessment

Example documents



Standard operating procedure:

Using the Bracco "Protocol Touch" insufflator at CT Colonography.

The accompanying instruction manual that is provided with the insufflator should be read by all radiographers and radiologists that perform CTC examinations prior to use.

As the name suggests all controls and functions on the main home page of the insufflator are operated by touch screen.

Switching on the insufflator:

- Plugged into the mains and turn on using the power switch located on the back of the unit. The main screen should now appear with a prompt to ask if you have read the instruction manual.
- Open a new "Protocol Touch" administration set with small catheter and retention cuff CO2 delivery system (for colon insufflation).
- Insert the microchip into the microchip port on the front of the insufflation unit.
- The main hope page of the insufflator should now be activated.

Checking CO2 supply:

- At the start of the list make sure that the valve on top of the cylinder is open (using the key that is attached to the insufflator stand).
- In the bottom right hand corner of the main page display screen is a CO2 symbol. If this symbol displayed in green then there will be enough gas in the cylinder to perform the next CTC.
- An alarm "silence" will be emitted and the symbol will turn amber when the cylinder is becoming low. If this happens half way through a CTC there should be enough to finish that case.
- Change the cylinder at the end of that examination.
- If the cylinder symbol is amber when the unit is first activated then the cylinder should be changed immediately.

Changing a CO2 cylinder:

- Full CO2 cylinders are located in the swipe access store room opposite CT 3.

Created Feb 2018 by Craig Rea. For review Feb 2020

Protocols

Study quality grading criteria for CTC studies

Rationale

To ensure the consistent grading of BCSP CT Colonography examination, to enable centre, regional and national evaluation of study quality.

Agreed framework for BCSP studies

Study Quality Grading Criteria for CTC Examinations

ASSESSMENT CRITERIA	CTC QUALITY GRADE			
	GOOD	ADEQUATE	POOR	
			Technical failure	Pathological failure
DESCRIPTION	*Target lesion can be very reliably identified or excluded*	*Target lesion can be reliably excluded*	*Target lesion cannot be very reliably excluded*	*Target lesion can be reliably identified but possible lesions elsewhere in the colon cannot*
DISTENSION	• All colonic sections distended on both scans - individual haustra identifiable • N.B. If one segment is visualised on one view, but not on the other (e.g. focal spasm) and no pathology candidates identified in this segment, then it does not require a third view	• All sections of the large colon should be distended in at least 1 view - individual haustra identifiable	• Poor distension throughout the colon or continuous spasm present in a section of the bowel, which precludes the ability to accurately assess for pathology • The ileo-cecal valve cannot be readily identified due to under-distension of the colon	• Poor distension caused by pathology • Stricture/stenosing lesion present in the colon which precludes insufflation of the bowel proximally
PREPARATION	• Faecal tagging is homogenous with little or no untagged faecal matter • Untagged faecal residue is easily identifiable as such (e.g. moves in accordance with patient position)	• Faecal tagging is predominantly homogenous • Untagged faecal residue is easily identifiable as such (e.g. moves in accordance with patient position)	• Significant quantities of un-tagged faecal matter throughout the bowel • Faecal matter in particular bowel sections does not move sufficiently between scans to enable the areas colonic mucosa to be adequately assessed for pathology	• Significant quantities of un-tagged faecal matter throughout the bowel • Faecal matter in particular bowel sections does not move sufficiently between scans to enable the areas colonic mucosa to be adequately assessed for pathology
ANATOMY	• Anatomical structures are easily identified e.g. ileo-cecal valve and vermiform appendix, if present	• Anatomical structures are identified e.g. ileo-cecal valve and vermiform appendix, if present	• Anatomical structures may not be identified e.g. ileo-cecal valve and vermiform appendix, if present	• Anatomical structures may not be identified e.g. ileo-cecal valve and vermiform appendix, if present
PATHOLOGY	• Target lesion can be very reliably identified or excluded • The rectal catheter balloon may be deflated on at least one view, to enable the rectal wall to be seen without any compression, if a suspicious area is identified (influenced by locally agreed practice)	• Target lesion can be reliably excluded	• Target lesion cannot be very reliably excluded	• Target lesion can be reliably identified, but other pathology upstream to this cannot

BCSP Standards March 2017 Version 1 Author: LG/JN

Protocols

Report findings coding

Rationale

To ensure the consistent recording of reporting findings for CT Colonography examinations performed within the BCSP.

Minimum data set for CTC report in the BCSP

1. **Technique** Buscopan(dose), IV Contrast, Single/Dual/Triple position with gastrograffin/Omnipaque tagging(dose)
2. **Quality** Good/Adequate/poor bowel preparation & distension
3. **Extracolonic**

Summary code	E1 Normal, anatomic or post surgical variant
	E2 Incidental, unimportant /already known
	E3 New incompletely characterized finding, (further investigation according to local protocol)
	E4 Potentially important new finding, requires further action
	E5 Significant new finding identified

4. **Intracolonic Findings** Suspected/Characteristic **CANCER**

Morphology	Minimally elevated<3mm
	Polypoid
	Saddle shaped
	Obstructing
	Annular

Intracolonic Findings Suspected/Characteristic **POLYP**

Morphology	PEDUNCULATED (Ip)	Stalk between polyp and underlying mucosa
	SEMI-PEDUNCULATED (Isp)	Broad-based, base narrower than top but no stalk
	SESSILE (Is)	No stalk - base & top of lesion have same diameter. Height at least the 2.5 mm
	FLAT slightly elevated (IIa)	Height less than 2.5mm
	FLAT slightly elevated with depressed centre (IIa/c)	Height less than 2.5mm

Summary code	Cx Inadequate study	
	C1 Normal, benign lesion or 1 – 2 polyps less than or equal to 5mm	
	Low risk	C2 1 – 2 polyps, 6-9mm
	Intermediate risk	C3a 3 – 4 , polyps 1-9 mm C3b 1-2 polyps, at least one polyp greater than or equal to 10mm C3c Indeterminate stricture
	High risk	C4a 5 or more polyps smaller than 10mm C4b 3 or more polyps, at least 1 polyp greater than or equal to 10mm
	C5a Colon mass, characteristic of malignancy	
	C5b No tumour additional to colonoscopy findings	

Minimum data set for CTC report in the BCSP

v4.0 revision date 12.2016 document owner Ingrid.Britton@uhns.nhs.uk

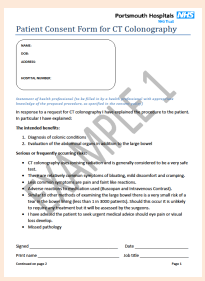
Records

Pre-procedural checks

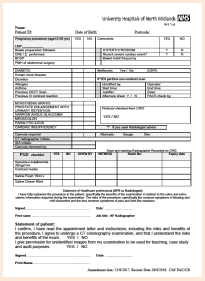
Suggested content

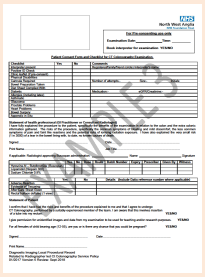
- *Patient identification details*
- *Relevant medical history and allergies*
- *Confirmation of adherence to bowel preparation regime*
- *Signed confirmation by practitioner of explanation of potential complication*
- *Signed confirmation of informed consent given verbally by patient to undertake procedure*
- *Record of any procedural complications*
- *Confirmation of aftercare advice provision*

Examples


Portsmouth Hospitals NHS Trust

Patient Consent Form for CT Colonography


University Hospitals of North Midlands NHS


NHS North West Anglia NHS Foundation Trust

Patient Information

Suggested content

Pre-procedure

Details of CT Colonography procedure
Contra-indications to bowel preparation
Contact details for advice and guidance
Bowel preparation instructions and effects on bowel habit

Aftercare advice

Process for being informed of results
Possible complications and when to seek medical advice
Post procedure advice – eating, bowel habit etc.

Examples

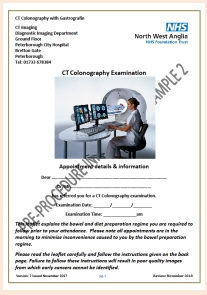

University Hospitals of North Midlands NHS

CT Colonography

Patient information sheet

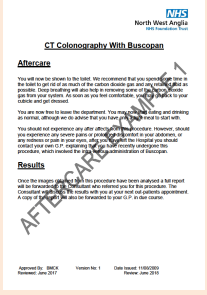
Please read carefully

ISAS


CT Colonography with Gastrografin

NHS North West Anglia NHS Foundation Trust

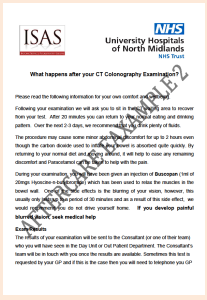
CT Colonography Examination


NHS North West Anglia NHS Foundation Trust

CT Colonography With Buscopan

Aftercare

Results

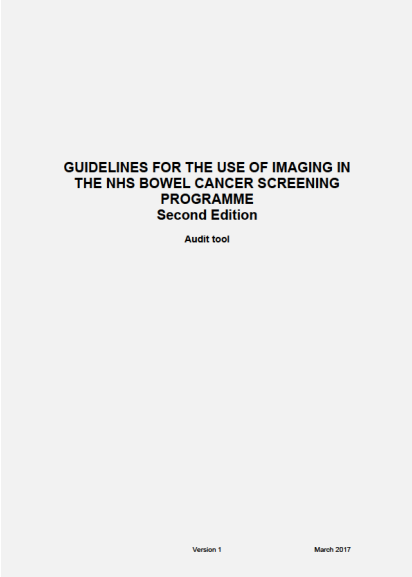

ISAS

NHS University Hospitals of North Midlands NHS Trust

What happens after your CT Colonography Examination?

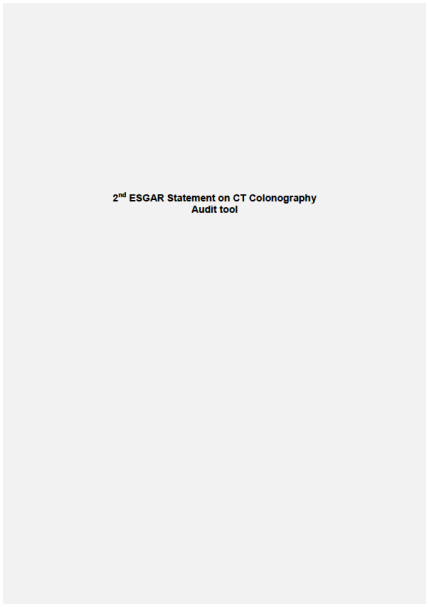
Appendix A

– Guidelines for the use of imaging in the NHS BCSP audit tool


GUIDELINES FOR THE USE OF IMAGING IN THE NHS BOWEL CANCER SCREENING PROGRAMME
Second Edition
Audit tool
Version 1
March 2017

Appendix B

– 2nd ESGAR Statement on CT Colonography audit tool



Acknowledgements

With thanks to Public Health England for their generous funding of this work, and to the Society and College of Radiographers for supporting this activity and for considering the documentation and our related study events for endorsement. In particular our thanks go to Sue Johnson, SCoR Professional Officer, for her guidance and support throughout the development of these documents.

The CTC REDG co-chairs wish to personally thank Liam Gale, Principal GI Advanced Practitioner from North West Anglia NHS Foundation Trust (Peterborough), for his vision and direction in driving this 'best practice' booklet forwards.

We also wish to thank the CTC REDG members who have contributed to the development of this booklet or have provided example documents from their own practice (with permission):

Janice Muckian	St Marks - London NW University Healthcare NHS Trust
Craig Roe	Leeds Teaching Hospitals NHS Trust
Sue Johnson	Society and College of Radiographers
Anne Williams	Bradford Teaching Hospitals NHS Foundation Trust
Dr Ingrid Britton	University Hospitals of North Midlands NHS Trust, representative from PHE BCSP Radiology committee
Michael Smith	University Hospitals of North Midlands NHS Trust
Mark Richardson	University Hospitals of North Midlands NHS Trust
Paul Clarke	University Hospitals of North Midlands NHS Trust

Stephen Wilson	North West Anglia NHS Foundation Trust (Peterborough)
Liam Gale	North West Anglia NHS Foundation Trust (Peterborough)
Maureen Furneaux	Portsmouth Hospitals NHS Trust
Christine Bloor	Royal Cornwall Hospital, Truro
Julie Nightingale	Sheffield Hallam University, representative from PHE BCSP Radiology committee, co-chair CTC REDG
Rachel Baldwin-Cleland	St Marks - London NW University Healthcare NHS Trust representative from PHE BCSP Radiology committee, co-chair CTC REDG