



Directly Observed Procedural Skills (DOPS) CTC Colonography Toolkit

Foreword

The CT Colonography Radiographer Education Development Group (CTC REDG) was set up in 2015 to review and develop guidelines for CTC education and 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 and education across the UK, and this 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 Directly Observed Procedural Skills (DOPS) toolkit has been designed to be used by mentors and supervisors who are monitoring the progress and assessing competence of CTC practitioners. It provides an easy to use checklist for observing and recording clinical skills in those developing their CTC practice. It should be used alongside the CTC Training and Education Framework, also designed by the CTC REDG members.

We hope that you will find the information provided in these documents useful in supporting the continuing professional development of CTC service practitioners.

Yours sincerely,

Prof Julie Nightingale, Sheffield Hallam University

Rachel Baldwin-Cleland, London NW University Healthcare NHS Trust

(Co-chairs of the CTC REDG)

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1: DOPS: Preparation for patient on arrival for CTC

The trainee is able to:

Tick

1. Greet the patient and/or carer appropriately
2. Obtain positive 3-point identity check
3. Explain the requirement for the patient to visit the toilet to empty their bowel and bladder immediately prior to being scanned
4. Give correct information to the patient regarding undressing and putting on the hospital gown and dignity shorts offering help as required
5. Understand the need to respect the patient's dignity and any religious/cultural beliefs as appropriate

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2: DOPS: CTC written pre-procedure checklist

This DOPS assesses if the trainee is able to accurately complete, prior to the examination the written pre-procedure checklist.

The trainee is able to:

	Tick
1. Introduce themselves to the patient	<input type="checkbox"/>
2. <i>Obtain positive 3-point identity check</i>	<input type="checkbox"/>
3. <i>Check pregnancy status / LMP as appropriate</i>	<input type="checkbox"/>
4. Check patients compliance to the bowel preparation regime	<input type="checkbox"/>
5. Give an accurate description of the examination appropriate to the individual patient to include:	<input type="checkbox"/>
a. rectal tube	<input type="checkbox"/>
b. insufflation	<input type="checkbox"/>
c. positioning	<input type="checkbox"/>
d. potential requirements for additional scans	<input type="checkbox"/>
e. potential additional imaging (endoscopy)	<input type="checkbox"/>
f. average length of examination	<input type="checkbox"/>
g. what sensations the patient may experience	<input type="checkbox"/>
h. establish contraindications to Buscopan and IV contrast	<input type="checkbox"/>
i. the reasons for the use of Buscopan and IV contrast	<input type="checkbox"/>

- j. the side effects / reactions to medications used during the procedure (e.g. glaucoma)
 - k. risk of potential complications including colonic perforation
 - l. risk of ionising radiation and how this may be kept as low as possible
6. Record additional medical history as appropriate
 7. Ensure that the patient has an opportunity to voice any questions / concerns they may have
 8. Request permission to use anonymised data if required
 9. Check the patient's understanding of the examination and consent process
 10. *Obtain appropriate patient signature and date*
 11. *Appropriately print, sign and date their own details in the correct location on the form*

NODAL STOPS ARE IN RED AND *ITALIC*: DO NOT LET TRAINEE CONTINUE UNTIL IT IS SAFE TO DO SO. IF A TRAINEE HAS TO BE STOPPED AT THESE POINTS, PLEASE CIRCLE THE BOX

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3: DOPS: CTC insufflator

This DOPS assesses if the trainee can demonstrate knowledge and safe use of the automated insufflator (e.g. Protoco²I, Protoco²I Touch, -Bracco):

The trainee:

		Tick
1.	Demonstrates awareness of the potential risk of perforation and understands its significance	<input type="checkbox"/>
2.	Can turn gas cylinder on/off and understand why it needs to be turned off at the end of the session	<input type="checkbox"/>
3.	Can identify the controls of the insufflator and describe their function	<input type="checkbox"/>
4.	Can identify the features of the rectal tube and describe their functions	<input type="checkbox"/>
5.	Demonstrates the ability to attach/remove the tubing from the insufflator	<input type="checkbox"/>
6.	Can select of appropriate pressure at beginning of insufflation	<input type="checkbox"/>
7.	Is aware of the significance of pressure/volume indication	<input type="checkbox"/>
8.	Displays knowledge of the pre-set volumes of gas at each step of insufflation	<input type="checkbox"/>
9.	Is aware of the departmental practice regarding patient position during insufflation and the typical volume required prior to performing the initial scan	<input type="checkbox"/>
10.	Understands the importance of monitoring the level of discomfort experienced by the patient, and giving reassurance	<input type="checkbox"/>
11.	Can dispose of used tubing and catheter appropriately	<input type="checkbox"/>

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4: DOPS: Operation of IV contrast injector

This DOPS assesses if the trainee can adhere to local Trust infection control guidelines, and is able to safely operate the IV injector.

The trainee:

		Tick
1.	Can Identify correct IV contrast	<input type="checkbox"/>
2.	Checks expiry date	<input type="checkbox"/>
3.	Shows awareness of the need for aseptic technique and being able to comply	<input type="checkbox"/>
4.	Can insert new syringe into pump and select correct control to purge air from the syringe. (where preloaded systems are used show compliance with local protocol)	<input type="checkbox"/>
5.	Select correct control to load syringe with contrast	<input type="checkbox"/>
6.	Can connect tubing	<input type="checkbox"/>
7.	Understands the importance of purging air from the delivery system	<input type="checkbox"/>
8.	<i>Is able to identify correct control to purge air from the delivery system and be able to do so</i>	<input type="checkbox"/>
9.	Can connect tubing to cannula	<input type="checkbox"/>
10.	Can set appropriate flow rate and volume for delivery	<input type="checkbox"/>
11.	Can initiate injection as required	<input type="checkbox"/>
12.	Is aware of the risk of extravasation, the associated departmental documentation and the need to monitor the injection site for any evidence of extravasation	<input type="checkbox"/>
13.	Is able to terminate the injection before it is completed – if required for safety reasons	<input type="checkbox"/>

- 14.** Ensures that tubing is disconnected from the patient
- 15.** If left attached to tubing, disconnect the removed cannula from tubing and dispose of appropriately
- 16.** Remove syringe and dispose of correctly
- 17.** Ensures that any spilt contrast is cleaned form injector and surrounding area
- 18.** Can record the injection as appropriate with local protocol in the patient's records

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5: DOPS: CTC digital rectal examination

The trainee is able to safely perform digital rectal examination including:

	Tick
1. Adhere to Trust infection control guidelines	<input type="checkbox"/>
2. <i>Explain what is about to occur and why</i>	<input type="checkbox"/>
3. <i>Ask patient for consent to proceed</i>	<input type="checkbox"/>
4. Ensure that patient's dignity and privacy is respected at all times	<input type="checkbox"/>
5. Lubricate gloved index finger with appropriate lubricant	<input type="checkbox"/>
6. Describe their assessment of anal tone and any palpable anatomical features	<input type="checkbox"/>
7. Demonstrate an understanding of the potential impact of rectal lesions upon the examination	<input type="checkbox"/>
8. Dispose of gloves appropriately	<input type="checkbox"/>

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6: DOPS: CTC rectal tube insertion and removal

The trainee can demonstrate the ability to safely insert and remove a rectal CTC tube.

The trainee is able to:

1. Demonstrate knowledge of the gross anatomy of the rectum and anal canal
2. Demonstrate knowledge of difficulties which could arise e.g. prolapse, haemorrhoids etc.
3. Show awareness of the potential risk of perforation and understand its significance
4. Display appropriate communication with the patient
5. Understanding the importance of monitoring the level of discomfort experienced and giving reassurance
6. Identify the anus, where unsure, seek advice from an experienced colleague
7. Insert the lubricated tube the required distance into the anal canal
8. Demonstrate familiarity with local protocol regarding inflation of the retaining balloon
9. Understand the importance of fully deflating the retaining balloon prior to removal
10. Display safe disposal of used tubing appropriately

Tick

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7: DOPS: Per-stoma CTC

The trainee can safely perform per-stoma CTC with optimal distension.

The trainee is able to:

	Tick
1. Demonstrate a basic knowledge of the different types of partial colectomy	<input type="checkbox"/>
2. Understand the need to review previous imaging	<input type="checkbox"/>
3. Identify potential psychological / body image issues that the patient may have	<input type="checkbox"/>
4. Demonstrate an understanding of the potential difficulties that may arise	<input type="checkbox"/>
5. Show awareness of own limitations and know when to seek guidance from an appropriate other	<input type="checkbox"/>
6. <i>Safely insert tube via stoma and describe what the final position of the tube and retention balloon should be</i>	<input type="checkbox"/>
7. Describe techniques used to achieve a good "seal" and optimise insufflation	<input type="checkbox"/>
8. Scan patient in appropriate positions and explain reasons for their choice	<input type="checkbox"/>
9. <i>Safely remove the tube and dispose of appropriately</i>	<input type="checkbox"/>

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8: DOPS: CTC patient positioning

Within the scope of practice the trainee is able to perform/assist in: safe and accurate positioning of patient on/in scanner.

The trainee is able to:

		Tick
1.	Ensure patient safety and minimisation of patient discomfort	<input type="checkbox"/>
2.	Position patient supine, prone and decubitus as required	<input type="checkbox"/>
3.	Correctly place the pillow for prone scan and understand its importance	<input type="checkbox"/>
4.	Centre the patient within the CT scanner to enable visualisation of appropriate anatomical region	<input type="checkbox"/>
5.	Show awareness of limitations of movement of the scanner	<input type="checkbox"/>
6.	Show awareness of safety issues	<input type="checkbox"/>

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9: DOPS: CTC on-table axial review

The trainee is able to use the scrolling tool on the scanner to continuously navigate the whole colon displayed as 2D axial images in a timely manner.

The trainee is able to:

		Tick
1.	Select sequence for review	<input type="checkbox"/>
2.	Display knowledge of the gross anatomy of the colon; is able to identify the colonic segments and IC valve	<input type="checkbox"/>
3.	Select appropriate window / level settings	<input type="checkbox"/>
4.	Display an understanding of the importance of reviewing the entire colon	<input type="checkbox"/>
5.	Display the ability to navigate the entire colon sequentially in a timely manner	<input type="checkbox"/>
6.	Show an understanding of the difficulties caused by poor distension	<input type="checkbox"/>

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10: DOPS: CT scanner operation

The trainee is able to:

	Tick
1. Shut down and restart the scanner	<input type="checkbox"/>
2. Identify emergency stop buttons	<input type="checkbox"/>
3. Perform daily QA procedures	<input type="checkbox"/>
4. Safely operate table controls and understand the limitations of its movement	<input type="checkbox"/>
5. Accurately select the correct patient to be scanned either via a work list or by manual downtime procedures	<input type="checkbox"/>
6. Identify each CTC protocol and be able to explain under what circumstances each would be used	<input type="checkbox"/>
7. Understand the significance of radiation dose and image quality of each CTC protocol	<input type="checkbox"/>

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11: DOPS: Use of viewing software for CTC examinations

The trainee is able to demonstrate knowledge and efficient use of the commonly used functions of CTC software including:

	Tick
1. Displaying the patient list	<input type="checkbox"/>
2. Selecting and loading acquisitions from the patient file	<input type="checkbox"/>
3. Selection of Multi Planar Reconstructions	<input type="checkbox"/>
4. Selection of appropriate pre-set window / level settings	<input type="checkbox"/>
5. Using mouse functions for zooming, panning and scrolling	<input type="checkbox"/>
6. 2D colon navigation	<input type="checkbox"/>
7. 3D colon navigation tools	<input type="checkbox"/>
8. Use of measuring / arrow tools	<input type="checkbox"/>

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12: DOPS: Preliminary assessment of CTC adequacy

The trainee is able to assess the acquired images at the time of examination for adequacy.

The trainee is able to:

		Tick
1.	Demonstrate an understanding of the requirement to optimise distension	<input type="checkbox"/>
2.	Demonstrate an understanding of the requirement for good bowel preparation	<input type="checkbox"/>
3.	Understand the barriers to achieving good distension	<input type="checkbox"/>
4.	Understand how these barriers may be overcome	<input type="checkbox"/>
5.	Demonstrate an understanding of when good distension may not be achievable	<input type="checkbox"/>
6.	Show awareness of own limitations and know when to seek guidance from an appropriate other	<input type="checkbox"/>

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13: DOPS: Additional CTC sequences

The trainee is able to understand the effect of patient position upon distension and to identify the sequence which would most likely optimise distension in a given segment of the colon.

The trainee is able to:

		Tick
1.	Demonstrate an understanding of the requirement to optimise distension	<input type="checkbox"/>
2.	Demonstrate knowledge of the gross anatomy of the colon	<input type="checkbox"/>
3.	Demonstrate knowledge of the effect of patient position upon distension, and how to optimise distension in a given segment of colon	<input type="checkbox"/>
4.	Show awareness of own limitations and know when to seek guidance from an appropriate other	<input type="checkbox"/>

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14: DOPS: Identification of colorectal cancer on CTC examination

The trainee is able to identify suspected colorectal cancer (CRC) at the time of test and perform additional imaging as appropriate.

The trainee is able to:

		Tick
1.	Demonstrate knowledge of the appearance of CRC at CTC	<input type="checkbox"/>
2.	Describe the features of a lesion which indicate it may harbour malignancy	<input type="checkbox"/>
3.	Understand the importance of completing staging CT at the time of examination	<input type="checkbox"/>
4.	Demonstrate knowledge of the effect of patient position upon distension of each colonic segment	<input type="checkbox"/>
5.	Demonstrate an understanding of how to optimise distension in a given segment of colon	<input type="checkbox"/>
6.	Show awareness of own limitations and know when to seek guidance from an appropriate other	<input type="checkbox"/>
7.	Understand the significance of a large obstructing pathology and the process to follow if seen at time of scan	<input type="checkbox"/>

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15: DOPS: CTC post procedure

The trainee displays knowledge of:

		Tick
1.	Post investigation information leaflet and ensures one is given to the patient (if used locally)	<input type="checkbox"/>
2.	The correct information to provide to the patient on fluid intake	<input type="checkbox"/>
3.	The correct information to provide to the patient on diet	<input type="checkbox"/>
4.	The correct information to provide to the patient on post procedure discomfort	<input type="checkbox"/>
5.	The correct information to provide to the patient on how to obtain their results after the scan	<input type="checkbox"/>

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Acknowledgements

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Rachel Baldwin-Cleland	St Marks - London NW University Healthcare NHS Trust representative from PHE BCSP Radiology committee, co-chair CTC REDG