

# Demonstrating that colonoscopy is high quality

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## Demonstrating that colonoscopy is high quality

Colonoscopy is the gold standard investigation for examining the lower GI tract [1]. It plays a fundamental role in investigation of symptomatic individuals and in screening for colorectal cancer (CRC) [2, 3]. Colonoscopy must be high quality in order to maximize its benefit [4]. Poor-quality colonoscopy is associated with increased interval cancer rates [4]. High-quality colonoscopy involves a complete procedure that provides comprehensive inspection of colonic mucosa [5]. There are a number of markers of colonoscopy quality, [2, 6, 7] with cecal intubation rate (CIR) historically being the most widely reported [8]. Cecal intubation was previously confirmed by written documentation of the cecal landmarks; however, photo-documentation of the cecum is now the accepted method of confirming colonoscopy completion. The European Society of Gastrointestinal Endoscopy (ESGE) guidelines recommend that such photo-documentation includes images of both the ileocecal valve and the cecum with views of the appendiceal orifice [9]. CIR is variable and many measures have been used to improve it [10–12]. The United Kingdom has engaged in a comprehensive quality improvement program with significant improvements [10, 13]. Other countries have demonstrated similar results [14].

Although CIR is an important marker of completion of a procedure, other markers of quality include adenoma detection rate (ADR), bowel preparation, rectal examination and rectal retroflexion, colonoscopy withdrawal time (CWT), polyp retrieval, and complication rates [15–21]. Furthermore, comfort scores, tattooing of suspected malignant lesions in the colon, and taking diagnostic biopsies for unexplained diarrhea are seen as quality markers in addition to the rate of post-colonoscopy colorectal cancer [22–25]. Clinician

performance in each of these areas is variable, but those who perform well tend to do so across all measures [22]. Among all measures, the most important marker of colonoscopy quality is adenoma detection rate [15–17]. ADR has clearly been shown to correlate with interval cancers [4]. Patients scoped by colonoscopists with high ADRs have lower interval cancer rates [4]. Furthermore, patients scoped by colonoscopists with higher ADRs have lower CRC mortality rates [16]. Polyp detection rate (PDR) can be used as a surrogate marker of ADR [26].

The paper, “Meticulous cecal image documentation at colonoscopy is associated with improved polyp detection,” published in this edition of *Endoscopy International Open*, explores the link between polyp detection rates and the quality of cecal photo-documentation. The paper reports a correlation between good-quality cecal photo-documentation and higher PDRs, including right-sided polyp detection (although some of these were hyperplastic polyps). Right-sided lesions are of particular interest and it may be that failure to detect them is one reason that screening programs are not adequately preventing right-sided colorectal cancer [27, 28].

The reason for the correlation between PDR and image quality may be that colonoscopists who take time to capture convincing cecal images are generally more careful in their withdrawal examination. Another explanation may be that these “meticulous” colonoscopists have better control over the endoscope, which leads to better mucosal visualization. Longer mean CWTs are associated with increased adenoma detection, and are more relevant than total procedure times, as the majority of mucosal visualisation occurs on withdrawal of the colonoscope [19, 29]. Although there was no statistically significant difference in procedure duration between “meticulous” and “non-meticulous” endoscopists in this study, the

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relationship between CWT, PDR, and image quality may be important.

This study highlights the importance of high-quality, complete colonoscopy and of demonstrating completion of the procedure. Clear images with or without labelling by the endoscopist were surrogate markers of meticulous practice in this study, but further detail on what constituted a clear image, how well the cecum was seen or who scored the images was not available. Good cecal photo-documentation requires identification of at least the ileo-cecal valve, appendiceal orifice and tri-radiate fold in addition to image clarity as per ESGE guidance [9]. The ileo-cecal valve is best documented when the valve opening is seen. The appendiceal orifice should be imaged with other landmarks because it can be mistaken for a diverticulum when photographed in isolation. Although not a mandatory part of colonoscopy, terminal ileal (TI) photo-documentation is an alternative means of demonstrating complete colonoscopy when classical cecal landmarks are not clearly seen. An observational study found that TI photographs are significantly more convincing than cecal photographs in documenting colonoscopy completeness [30]. Instilling water into TI may make the villi more prominent and thus the images more convincing; however, TI intubation can at times be technically challenging and add significant time to the procedure. TI biopsy is an unnecessary means of confirming completion and carries a small degree of risk. A further alternative to the above is video-documentation of the cecal landmarks, which may be helpful in cases where only one landmark is captured on each image, or where anatomy is distorted.

Colonoscopists should strive for high-quality procedures. They should be meticulous in their visualisation of colonic mucosa and produce clear images to document complete procedures.

**Competing interests:** None

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