

High quality Barrett's endoscopy: inspection time is a critical component

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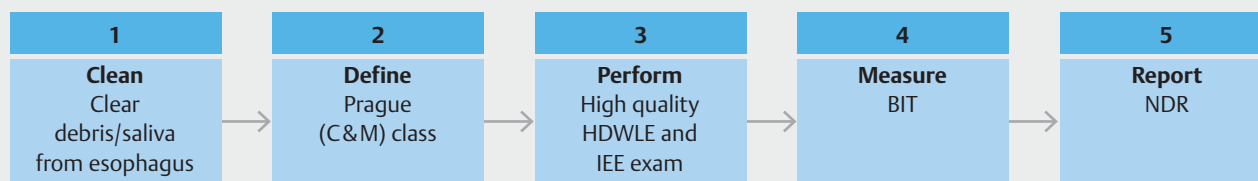
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Early neoplasia in patients with Barrett's esophagus (BE) is often missed during upper endoscopy. Studies have shown that missed cancers could account for up to 25% of all adenocarcinomas associated with BE [1]. Esophageal adenocarcinoma carries with it a poor survival rate and limited treatment options when found at an advanced stage. Therefore, conducting a high quality upper endoscopy during BE screening and surveillance is necessary for improvement of patient outcomes. Several metrics have been proposed as quality indicators for a high quality BE endoscopy, including measuring the neoplasia detection rate (NDR) [2] and the BE inspection time (BIT).

The BIT is the time spent examining the entire BE segment after washing off saliva/bile/debris etc., with the goal of detecting subtle lesions that may harbor dysplasia. BIT was shown to improve the yield of neoplasia among 112 patients undergoing surveillance endoscopy performed by 11 endoscopists at 5 tertiary centers [3]. Longer BIT was associated with a higher detec-

tion rate both of patients with endoscopically suspicious lesions, and of lesions harboring high grade dysplasia and cancer. In addition, there was a direct correlation between the endoscopist's mean BIT per centimeter of BE length and the detection of patients with neoplasia. Finally, endoscopists who had an average BIT ≥ 1 minute per centimeter of BE length detected more patients with endoscopically suspicious lesions (54.2% vs. 13.3%; $P=0.04$). Therefore, BIT of approximately 1 minute for each centimeter of the BE segment is considered a minimum threshold for BE neoplasia and lesion detection.

In this issue of *Endoscopy*, data presented by Vithayathil et al. [4] confirm the value of BIT in improving patient outcomes and as a reasonable quality metric. In a crossover trial, 142 patients with a maximum circumferential length of ≥ 2 cm and/or maximum BE length of ≥ 3 cm (C2M3) and no visible lesions underwent standard white-light examination with a median procedure time of 16.5 minutes. The procedure duration increased



► **Fig. 1** Components of a high quality Barrett's endoscopy. C&M, maximum circumferential length and maximum Barrett's length; HDWLE, high definition white-light endoscopy; IEE, image-enhanced endoscopy; BIT, Barrett's inspection time; NDR, neoplasia detection rate.

by 0.9 minutes for every additional 1 cm BE length. A longer procedure time was associated with a significantly higher likelihood of neoplasia detection on biopsies. While a minimum BIT threshold or subgroup categories were not evaluated, it is clear from these prospective data that a longer BIT increases the NDR.

"We propose that physicians performing screening and surveillance BE endoscopy spend a minimum of 1 minute per centimeter of BE length. At the current time, ancillary staff (and eventually artificial intelligence systems) can help to record and transcribe the Barrett's inspection time into endoscopy reporting software (similarly to colonoscopy withdrawal time)."

The concept of BIT emerges from similarities associated with the colonoscopy withdrawal time. Withdrawal time (clean inspection time) is a well-established quality metric in colonoscopy and has been shown to impact the adenoma detection rate [5]. A longer examination time has also been shown to detect a higher number of gastric lesions [6]. A high quality examination is a necessity but a vanishing art in the fast-paced endoscopy world owing to higher emphasis on productivity and shorter procedure times. Measuring and recording the BIT merits attention and endorsement for several reasons. As is clear from discussed studies, BIT is associated with NDR in patients with BE. A longer inspection time during BE endoscopy does not add to the cost of the procedure, does not require additional physician training or learning, and can easily be measured.

Quality improvement and standardization of BE endoscopy should be initiated by gastrointestinal societies emphasizing the establishment of quality metrics including BIT, which will lead to an improvement in the NDR in patients with BE. This, in turn, will increase lesion detection and endoscopic therapy for early-stage disease. We propose that physicians performing screening and surveillance BE endoscopy spend a minimum of

1 minute per centimeter of BE length. At the current time, ancillary staff (and eventually artificial intelligence systems) can help to record and transcribe BIT into endoscopy reporting software (similarly to colonoscopy withdrawal time). Besides BIT, additional important components of a high quality Barrett's endoscopy are highlighted in ► **Fig. 1**. Adoption of these components should be considered as a quality improvement initiative in BE screening and surveillance programs.

Competing interests

P. Sharma is a consultant for Boston Scientific and Olympus Inc., and has received grant support from US Endoscopy, Medtronic, Fujifilm, Ironwood, Cosmo Pharmaceuticals, and Erbe. M. Desai declares that he has no conflict of interest.

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