Communication from the ASGE/ASMBS Task Force on Endoscopic Bariatric Therapy

WHITE PAPER

ASGE's assessment of competency in endoscopy evaluation tools for colonoscopy and EGD

INTRODUCTION

Over the past decade, an increasing emphasis has been placed on quality metrics and competency assessment in health care. The Accreditation Council for Graduate Medical Education (ACGME) recently announced plans to replace their long-standing reporting system in 2014 with the Next Accreditation System (NAS). The NAS is a new continuous assessment reporting system focused on (1) ensuring that milestones are reached at various points in training, (2) ensuring that competence is achieved by all trainees, and (3) making certain that these assessments are documented by their programs. For gastroenterology, this includes assessing and documenting competence in basic endoscopic procedures in a continuous fashion. To accomplish this task, validated assessment tools are necessary. In response to these needs, the American Society for Gastrointestinal Endoscopy (ASGE) released 2 new evaluation tools for assessment of competency in endoscopy (ACE) for the core procedures of colonoscopy and EGD (Addenda 1 and 2). These tools are based on previously validated independent research with further refinement by the ASGE Training Committee and designed to help programs meet these new requirements.

BACKGROUND

A number of assessment tools for colonoscopy have been developed in past years: the Direct Observation of Procedural Skills used by the Joint Advisory Group for Gastrointestinal Endoscopy in the United Kingdom as well as the Global Assessment of Gastrointestinal Endoscopic Skills used by the Society of American Gastrointestinal and Endoscopic Surgeons.[1,2] These 2 tools focus primarily on a limited number of motor skills involved in colonoscopy, with little, if any, procedure-related cognitive skill assessment. Although these tools are being used in some arenas for skill assessment, they were primarily developed for research purposes to examine endpoints of educational interventions rather than as a prospective comprehensive competency assessment tool. As such, they have rather arbitrary, unvalidated benchmarks to define competency thresholds.

In contrast, the Mayo Colonoscopy Skills Assessment Tool (MCSAT) is specifically designed for bedside clinical competency assessment and is to be used in a continuous fashion throughout fellowship training. It is the only tool that assesses both cognitive and motor skills in a balanced manner.[3] Based on the results of research using MCSAT assessments, 2 things became clear to the endoscopy community. First, as many trainers had suspected, the previous guidelines of performing 140 colonoscopies alone was simply not adequate to achieve competence in colonoscopy.[4] More importantly, for the first time, the emphasis was shifted away from the number of procedures performed to performance metrics with defined and validated competency thresholds of performance. As a result, the ASGE's Colonoscopy Core Curriculum and Principles of Training in Endoscopy guidelines have been rewritten to incorporate these new benchmarks and to emphasize the need for performance-based assessment for competency.[5,6]

NEW ACE FORMS

Despite its broad assessment ability, the MCSAT has limitations. It does not assess some of the important quality metrics such as adenoma detection rate or polyp detection rate. Additionally, some questions were found to be too broad, requiring modification or splitting to make the individual tasks being assessed more specific (eg, safe colonoscope advancement being broken down further into tip control, lumen identification, and colonoscope steering technique). Working with the successful format of the MCSAT as a foundation, the ASGE Training Committee has refined this tool to rectify these deficiencies and created a novel assessment tool for EGDs. The development of the ACE forms follows a similar format for uniformity.

The use of these new ACE evaluation tools is intended to facilitate the ability of training programs to meet the new ACGME reporting requirements and, more importantly, to help program directors identify specific skill deficiencies early in training, thus allowing for the development of tailored, individualized remediation. To meet these endpoints, it must be stressed that assessment

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using these tools must be done in a continuous fashion to allow monitoring of learning curve progression versus premature plateauing of skills. This is not to suggest that every procedure need be assessed, but rather periodic spot-checking at specific steps of training can be used to achieve these goals. It would be the ASGE's recommendation that, at a minimum, assessment with each of these tools be performed on a periodic basis so that approximately 10% of the total procedures being performed by a trainee have an evaluation form completed.

ASSESSMENT SCHEDULE

The assessment tool can be used in multiple ways depending on how each training program has their endoscopy rotations structured. For example, at the beginning of each teaching shift, the supervising endoscopist could randomly select a case (ie, third procedure) and complete the assessment tool following that procedure, regardless of how well or poorly the trainee performed. Alternatively, one could opt to assess all procedures performed on a specific day each week (ie, Friday is assessment day). Another alternative is to only have forms completed at specific training steps such as grading 5 consecutive cases for every 50 procedures that the trainee performs. Understandably, the more forms completed, the more precise the performance profile of a specific trainee will be and the easier it will be for training directors to quickly identify those who are meeting or surpassing the expected milestones versus those who are in need of remediation. Despite these time-saving options, it should be noted that the ACE tools are designed in such a way that programs that wish to (for research purposes or more rigorous assessment) can also realistically use the assessment tool with every procedure throughout training, as reported by the Mayo Clinic (Rochester, Minn).[3,6] This may seem onerous; however, once familiar with the forms, staff typically require less than 1 minute to complete the assessment tool form.[7] Training directors should tailor the methods used for form completion to fit their program structure and needs.

DATA COLLECTION

To ensure the data collected are reproducible from 1 evaluator to the next, the assessment tools have outlined examples (anchors) of the specific skill or behavior that exemplifies what is expected to achieve each score. In addition, it is important that the forms be completed by staff not only well experienced in performing the specific procedure, but in teaching and assessing trainee skills as well. Although the tools are relatively self-explanatory, the supervising staff should become familiar with the tools' specific assessment parameters and score explanations so that these behaviors and skills can be consciously assessed during the observed procedures. Finally, the tools ideally should be completed immediately after the observed procedure or as soon as reasonably possible depending on the workflow in the endoscopy environment. For this reason, the colonoscopy assessment tool limits its findings to trainees' polyp detection rates rather than adenoma detection rates, as pathologic findings would not be immediately available to the supervisor. Additionally, recent data, although retrospective, suggest that polyp detection rates may be a reliable surrogate for adenoma detection rates.[8,9]

The milestones currently under development by the ACGME will need to have some defining minimal competency threshold or endpoint that needs to be achieved. The only competency threshold data currently available are based on the MCSAT data, on which these new ASGE tools are based. The thresholds defined by the MCSAT suggest that achieving average scores of 3.5 or higher for each specific core skill correlates with having achieved the minimal competence criteria. Additionally, minimum competency thresholds entail reaching the cecum independently in at least 85% of completed procedures in a time of no longer than 16 minutes.[3] Although the ASGE forms have some modifications of the original tool, the initial expectations are that the thresholds would remain similar; however, revalidation of the new tool is needed to determine whether this is indeed the case. Ideally, this revalidation data would be carried out on a broad scale to ensure generalizability of the expected milestone learning curves and minimal competency thresholds.

With widespread adoption of this tool, the opportunity exists for central collection of performance evaluation results. A centralized national database would allow program directors to generate detailed reports on how individual trainees are progressing compared with their peers within their own program and across the nation. This would also allow for more reliable and generalizable standardized learning curves (milestones) and competency benchmarks. Ideally, if cost and other barriers to adoption of such a database can be overcome, the process could be automated to generate on-demand reports to satisfy the ACGME reporting system/NAS, thus saving program directors enormous time and effort.

CONCLUSION

These newly developed ACE assessment tools are part of the AGSE's efforts to improve our profession's quality metrics and competency assessment in endoscopy by satisfying ACGME requirements, but, more importantly, by creating useful and meaningful competency assessment metrics for GI training programs.

ASGE Assessment of Competency in Endoscopy (ACE). Colonoscopy Skills Assessment Tool

Fellow:
Staff:
Date of procedure:
Time of Intubation:
Time of Maximal Insertion Extent:
Time of Extubation:

1. Fellow's knowledge of the indication & pertinent medical issues (INR, Vitals, Allergies, PMH etc..):
   □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
   □ *1. Novice (Poor knowledge of patient's issue, or started sedating without knowing the indication)*
   □ *2. Intermediate (Missed an Important element, i.e. Allergies, GI Surgical History or INR in pt on Coumadin)*
   □ *3. Advanced (Missed minor elements)*
   □ *4. Superior (Appropriate knowledge and integration of patient information)*

2. Management of patient discomfort during this procedure (Sedation Titration, Insufflation management, Loop reduction):
   □ *N/A Fellow observed*
   □ *1. Novice (Does not quickly recognize patient discomfort or requires repeated staff prompting to act)*
   □ *2. Intermediate (Recognizes pain but does not address cause [loop or sedation problems] in a timely manner)*
   □ *3. Advanced (Adequate recognition and corrective measures)*
   □ *4. Superior (Competent continuous assessment & management. i.e. intermittently reassess level of sedation and comfort)*

3. Effective and efficient use of air, water and suction:
   □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
   □ *1. Novice (Repeated prompting due to too much/little air, Inadequate washing or repeated suctioning of mucosa)*
   □ *2. Intermediate (Occasional Prompting due to too much/little air, Inadequate washing or repeated suctioning of mucosa)*
   □ *3. Advanced (Adequate use of air, water and suctioning, but room to improve on efficiency)*
   □ *4. Superior (Efficient and effective management of washing, suctioning and air)*

4. Lumen identification:
   □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
   □ *1. Novice (Generally only able to recognize lumen if in direct view)*
   □ *2. Intermediate (Can grossly interpret large folds to help locate which direction the lumen is located)*
   □ *3. Advanced (Can use more subtle clues (Light/ shadows, arcs of fine circular muscles in wall) but struggles at times)*
   □ *4. Superior (Quickly and reliably recognizes where lumen should be based on even subtle clues)*

5. Scope steering technique during advancement:
   □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
   □ *1. Novice (Primarily "Two-hand knob steering", Unable to perform two steering maneuvers simultaneously)*
   □ *2. Intermediate (Frequent 2-hand knob steering, Limited use of simultaneous steering maneuvers [i.e. torque, knob, advance])*
   □ *3. Advanced (Primarily uses torque steering. Can perform simultaneous steering techniques)*
   □ *4. Superior (Effortlessly combines simultaneous steering techniques [torque, knob, advance] to navigate even many difficult turns)*

6. Fine tip control:
   □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
   □ *1. Novice (Primarily gross tip control only, frequently in red out)*
   □ *2. Intermediate (Limited fine tip control. "frequently over-steers turns, struggles with biopsy forceps/ snare targeting")*
   □ *3. Advanced (loses fine control when keeping lumen or targeting tools at difficult turns when torque or knobs are needed)*
   □ *4. Superior (Excellent fine tip control or tool targeting even in difficult situation.)*

7. Loop reduction techniques (pull-back, external pressure, patient position change):
   □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
   □ *1. Novice (Unable to reduce/ avoid loops without hands-on assistance)*
   □ *2. Intermediate (Needs considerable coaching on when or how to perform loop reduction maneuvers)*
   □ *3. Advanced (Able to reduce/ avoid loops with limited coaching)*
   □ *4. Superior (without coaching, uses appropriate ext. pressure/ position changes/ loop reduction techniques)*

8. What is the farthest landmark the fellow reached **without** any hands-on **assistance?**
   □ *N/A. fellow observed only* ***or*** *Procedure terminated before completion.*
   □ *1. Rectum,* □ *2. Sigmoid,* □ *3. Splenic flexure,* □ *4. hepatic flexure,*
   □ *5. Cecum* ***No TI attempt*** *(Reached cecum with no attempt at TI intubation)*
   □ 6. *Cecum* ***Failed TI attempt*** *(Reached cecum but Failed attempt at TI intubation)*
   □ 7. *Terminal Ileum (****Successful intubation of TI****)*
   □ 8. *Other-Post surgical anatomy encountered, fellow reached maximal intubation*

9. Adequately visualized mucosa during withdrawal
- □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
- □ *1. Novice (red out much of the time, does not visualize significant portions of the mucosa or requires assistance)*
- □ *2. Intermediate (Able to Visualize much of the mucosa but requires direction to re-inspect missed areas)*
- □ *3. Advanced (Able to adequately visualize most of the mucosa without coaching)*
- □ *4. Superior (Good visualization around difficult corners and folds and good use of suction/ cleaning techniques.)*

10. Pathology identification/ interpretation:
- □ *N/A, Study was normal (Go to question 11)*
- □ *1. Novice (Poor recognition of abnormalities. Misses or cannot ID significant pathology)*
- □ *2. Intermediate (Recognize abnormal findings but cannot interpret. "erythema")*
- □ *3. Advanced (Recognizes abnormalities and correctly interprets. "colitis")*
- □ *4. Superior (Competent Identification and assessment. "Mild chronic appearing colitis in a pattern suggestive of UC")*

10a. Independent polyp detection by fellow
- □ *N/A. No Polyps present*
- □ 1. *None (Staff identified all polyps)*
- □ 2. *Some (Fellow independently identified at least one polyp but not all polyps present)*
- □ 3. *All (Fellow independently ID'ed all polyps encountered)*

10b. Accurate location of lesion/ pathology:
- □ *1. Novice (Unable to use landmarks to ID location in the colon, " I don't know")*
- □ *2. Intermediate (Understands landmarks but either does not recognize or incorporate into decision making process).*
- □ *3. Advanced (Good understanding and recognition of landmarks but generalizes pathology location "Descending colon");*
- □ *4. Superior (Very Specific about location, e.g."Splenic Flexure region approx. 60 cm from the anal verge with a straight scope")*

11. Interventions performed by fellow:
CHECK ALL THAT APPLY
- □ *N/A – Fellow did not perform any interventions (go to question 12)*
- □ *Biopsy*
- □ *Snare polypectomy*
- □ *Submucosal injection (Lift, Epinephrine, Tattoo)*
- □ *APC Vascular lesion ablation (AVMs)*
- □ *Hemostasis (Hemoclip, electrocautery, etc)*
- □ *Other*_____

*11a. What was the **fellow's participation** in the therapeutic maneuver(s) (t ability to apply tool effectively)?*
- □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
- □ *1. Novice (Performed with significant hands-on assistance or coaching)*
- □ *2. Intermediate (Performed with minor hands-on assistance or significant coaching)*
- □ *3. Advanced (Performed Independently with minor coaching)*
- □ *4. Superior (Performed independently without coaching)*

11b. What was the fellows knowledge of the therapeutic tool(s)(tool selection, knowledge of set up, cautery setting, how to employ tool)?
- □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
- □ *1. Novice (Unsure of the possible tool(s) indicated or settings for pathology encountered.)*
- □ *2. Intermediate (Able to identify possible appropriate tool choices but not sure which would be ideal [Snare vs lift & snare])*
- □ *3. Advanced (Independently selects the correct tool yet needs coaching on settings)*
- □ *4. Superior (Independently identifies correct tool and settings as applicable.)*

Overall Assessment:

12. The fellow's overall **hands-on** skills:
- □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
- □ *1. Novice (Learning basic scope advancement; requires significant assistance and coaching)*
- □ *2. Intermediate (Acquired basic motor skills but still requires limited hands-on assistance and/or significant coaching)*
- □ *3. Advanced (Able to perform independently with limited coaching and/or requires additional time to complete)*
- □ *4. Superior (Competent to perform routine colonoscopy independently)*

13. The fellow's overall **cognitive** skills (Situational Awareness (SA)/ abnormality interpretation/decision making skills):
- □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
- □ *1. Novice (Needs significant prompting, correction or basic instruction by staff)*
- □ *2. Intermediate (Needs intermittent coaching or correction by staff)*
- □ *3. Advanced (Fellow has good SA, and interpretation/ decision making skills)*
- □ *4. Superior* (*Competent to make interpretations and treatment decisions independently)*

ASGE Assessment of Competency in Endoscopy (ACE). EGD Skills Assessment Tool

Fellow:
Staff:
Date of procedure:
Time of Intubation:
Time of Maximal Insertion Extent:
Time of Extubation:

1. Fellow's knowledge of the indication & pertinent medical issues (INR, Vitals, Allergies, PMH etc..):
   - □ *N/A. Fellow observed*
   - □ *1. Novice (Poor knowledge of patient's issue, or started sedating without knowing the indication)*
   - □ *2. Intermediate (Missed an Important element, i.e. Allergies, GI Surgical History or INR in pt on Coumadin)*
   - □ *3. Advanced (Missed minor elements)*
   - □ *4. Superior (Appropriate knowledge and integration of patient information)*

2. Management of patient discomfort during this procedure (sedation titration, insufflation management, loop reduction):
   - □ *N/A. Fellow observed*
   - □ *1. Novice (Does not quickly recognize patient discomfort or requires repeated staff prompting to act)*
   - □ *2. Intermediate (Recognizes pain but does not address in a timely manner)*
   - □ *3. Advanced (Adequate recognition and correction measures)*
   - □ *4. Superior (Competent continuous assessment & management. i.e. intermittently reassess sedation level and comfort)*

3. What is the farthest landmark the fellow reached **without** any hands-on **assistance?**
   - □ *N/A. fellow observed only **or** Procedure terminated before completion*
   - □ *1. Hypopharynx*
   - □ *2. Distal esophagus*
   - □ *3. Stomach*
   - □ *4. Duodenal bulb*
   - □ *5. Second portion of the duodenum*
   - □ *6. Other (Post-surgical anatomy encountered, fellow reached maximal intubation)*

4. Scope tip control/ advancement techniques (esophageal intubation, traversing pylorus & duodenal sweep):
   - □ *N/A. Fellow observed*
   - □ *1. Novice (Unable to intubate esophagus or traverse pylorus without significant coaching or assistance)*
   - □ *2. Intermediate (Slow advancement, wide tip motions, repeated attempts needed to intubate esophagus or traverse pylorus)*
   - □ *3. Advanced (Reasonable fine tip control for intubation, traverse pylorus and inspection)*
   - □ *4. Superior (Safe & effective technique, efficient independent advancement without the need for coaching)*

5. Adequately visualized mucosa during withdrawal (including retroflexion):
   - □ *N/A. Fellow observed withdrawal*
   - □ *1. Novice (difficulty with retroflexion, requires assistance to visualize significant portions of the mucosa)*
   - □ *2. Intermediate (Able to visualize much of the mucosa but requires direction to re-inspect missed areas)*
   - □ *3. Advanced (Able to adequately visualize most of the mucosa without coaching)*
   - □ *4. Superior (Competent visualization around difficult turns and folds and good use of suction/ cleaning techniques.)*

6. Pathology identification/ interpretation:
   - □ *N/A, Study was normal (Go to Question 7)*
   - □ *1. Novice (Poor recognition of abnormalities. Misses or does recognize significant pathology)*
   - □ *2. Intermediate (Recognize abnormal findings but **cannot** interpret. i.e. "erythema")*
   - □ *3. Advanced (Recognizes abnormalities and correctly interprets. i.e. "erythema suggestive of gastritis")*
   - □ *4. Superior (Competent identification & assessment. e.g. "erythema with erosions in a pattern suggestive of NSAID gastropathy")*

7. Interventions performed by fellow:
   CHECK ALL THAT APPLY
   - □ *N/A – Fellow did not perform any interventions (go to question 8)*
   - □ *Biopsy*
   - □ *Band ligation*
   - □ *PEG tube placement*
   - □ *APC vascular lesion ablation (GAVE, AVMs)*
   - □ *Submucosal injection (Saline, Epinephrine, Other)*
   - □ *Hemostasis (Hemoclip, electrocautery, etc)*
   - □ *Dilation (Balloon, Savary, other)*
   - □ *Other*_____

*7a. What was the **fellow's participation** in the therapeutic maneuver(s) (tool & setting selection and ability to apply tool effectively)*
- □ *1. Novice (Performed with significant hands-on assistance)*
- □ *2. Intermediate (Performed with minor hands-on assistance or significant coaching)*
- □ *3. Advanced (Performed independently with minor coaching)*
- □ *4. Superior (Performed independently without coaching)*

Overall Assessment:

8. The fellows overall **hands-on** skills:
   - □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
   - □ *1. Novice (Learning basic scope advancement; requires significant hands-on assistance and coaching)*
   - □ *2. Intermediate (Acquired basic motor skills but still requires limited hands-on assistance and/or significant coaching)*
   - □ *3. Advanced (Able to perform independently with limited coaching and/or requires additional time to complete)*
   - □ *4. Superior (Competent to perform routine EGD independently)*

9. The fellow's overall **cognitive** skills (Situational awareness (SA)/ abnormality interpretation/decision making skills):
   - □ *N/A. Not Assessed (i.e. Fellow observed procedure only)*
   - □ *1. Novice (Needs significant prompting, correction or basic instruction by staff)*
   - □ *2. Intermediate (Needs intermittent coaching or correction by staff)*
   - □ *3. Advanced (Fellow has good SA, and interpretation/ decision making skills)*
   - □ *4. Superior* (*Competent to make interpretations and treatment decisions independently)*

Modified from the Mayo Colonoscopy Skills Assessment Tool (© Mayo Foundation for Medical Education and Research) as reported in Sedlack RE. The Mayo Colonoscopy Skills Assessment Tool: a validation of a unique instrument to assess colonoscopy skills in trainees. Gastrointest Endosc 2010;72:1125-33. Used with permission.

DISCLOSURE

Dr Sedlack is a physician at the Mayo Clinic, which holds the rights to the Mayo Colonoscopy Skills Evaluation Tool, in which he has partial interest. Dr Mullady is a consultant for Boston Scientific, and Dr Christie recevied research support from Takeda. No other financial relationships relevant to this publication were disclosed.

Abbreviations: ACE, assessment of competency in endoscopy; ACGME, Accreditation Council for Graduate Medical Education; ASGE, American Society for Gastrointestinal Endoscopy; MCSAT, Mayo Colonoscopy Skills Assessment Tool; NAS, next accreditation system.

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