



American Society for Gastrointestinal Endoscopy standards for fellowship training in peroral endoscopic myotomy

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Background and Aims: Peroral endoscopic myotomy (POEM) is a complex, technically demanding endoscopic procedure that requires focused, structured training. While increasingly adopted in both gastroenterology and surgical practice, there has been no consensus-based guidance to establish adequate training standards in POEM. Using a validated consensus methodology, we aimed to define minimum standards for POEM training programs to ensure competence in technical, cognitive, and integrative skills necessary for safe and effective practice.

Methods: A multidisciplinary expert panel was convened by the American Society for Gastrointestinal Endoscopy. The Research and Development (RAND)/University of California, Los Angeles appropriateness method (RAM) was used to evaluate candidate statements across 5 domains: pretraining activities, structure of training programs, POEM-specific cognitive training, POEM-specific technical training, and assessment of competence. Experts participated in 2 rounds of voting, rating each statement on a 9-point scale from highly inappropriate (1) to highly appropriate (9). For each statement, the median score and mean absolute deviation from the median were calculated. A statement was considered appropriate if it received a median score ≥ 7 and met the criteria for appropriateness based on the BIOMED, Interpercentile Range Adjusted for Symmetry, and *P* value methods.

Results: Of the 40 proposed statements, 34 met the criteria as appropriate. Key recommendations included that trainees should undergo POEM training within programs performing at least 40 procedures annually, be mentored by at least 1 trainer with ≥ 100 prior POEMs, and complete a minimum of 15 POEMs before undergoing milestone assessments with a validated assessment tool. Cognitive requirements included mastery of mediastinal anatomy, GERD management, electrosurgical tools, and interpretation of motility and imaging studies. Simulation model training and exposure to esophageal POEM, gastric POEM, and Zenker's POEM were also recommended.

Conclusions: This consensus effort provides evidence-based minimum standards for POEM training, applicable to both GI and surgical trainees. These recommendations are intended to guide the structure of training programs, ensure safe dissemination of POEM, and support the evolution of competency-based education in third-space endoscopy. (Gastrointest Endosc 2026;103:849-59.)

INTRODUCTION

Peroral endoscopic myotomy (POEM) has emerged as a cornerstone therapy for achalasia and related esophageal

motility disorders. Since its introduction over a decade ago, POEM has demonstrated high rates of efficacy and safety in expert hands.¹ However, it is among the most technically demanding endoscopic procedures, combining

skills in submucosal tunneling, electrosurgical dissection, and closure, with real-time anatomical navigation and adverse event management.²⁻⁵

Despite its growing adoption and the increasing number of advanced endoscopy fellowship programs offering POEM training, training in POEM remains highly variable. Unlike ERCP and EUS, no standardized curriculum or defined procedural thresholds exist to guide or assess POEM training adequacy.⁶ Compounding this issue is the fact that POEM training is often offered within broader advanced endoscopy or surgical training programs, which may lack the case volume, dedicated mentorship, or ancillary support necessary for competency development. Furthermore, the steep learning curve and potential for serious adverse events underscore the need for rigorous training standards.

To address this gap, the American Society for Gastrointestinal Endoscopy (ASGE) convened a multidisciplinary expert panel to define minimum standards for POEM training using an evidence-based approach. These standards are intended to serve as a roadmap for training programs, credentialing bodies, and trainees pursuing competence in POEM.

METHODS

This ASGE-led initiative used the Research and Development (RAND)/University of California, Los Angeles (UCLA) appropriateness method (RAM) to establish minimum training standards for POEM.⁷ RAM is a validated consensus methodology, similar to a modified Delphi process, which, unlike the original Delphi, provides panelists with the opportunity to discuss their judgments between rating rounds, during face-to-face meetings. The method combines the best available evidence with expert opinion and has previously been applied to define training standards in traditional advanced endoscopy training.⁶ The overall project design is highlighted in [Figure 1](#). The resulting recommendations have no regulatory implications but are intended to serve as best-practice guidance for programs training gastroenterology fellows and surgical fellows in POEM.

Phase I: Expert panel recruitment

A multidisciplinary panel was assembled, comprising experts in POEM, motility disorders, advanced endoscopy training, foregut surgery, medical education, RAM methodology, and statistics. Selection criteria included a history of peer-reviewed publications in POEM or the field of endoscopic training and quality, Advanced Endoscopy Fellowship program directors, and representation across gastroenterology and surgical specialties. Geographic and institutional diversity were also prioritized. Expert panelists participated in a 3-round process. The panel composition, overall project, and document were approved by the ASGE Governing Board.

Phase II: Statement development and RAM process

Candidate quality indicators were drafted by a core writing group (C.C.T., P.V.D., M.A.A., M.K., S.D., and P.J.) and categorized into the following thematic domains: (1) activity preceding training; (2) program structure; (3) cognitive skill training; (4) technical skill training; and (5) competence assessment benchmarks. Three rounds of the RAM process were conducted:

- Round 0: an orientation meeting was conducted virtually on January 11, 2025. During this meeting, panelists reviewed study aims and RAM methodology and provided feedback on draft statements.
- Round 1: independent voting was conducted electronically using SurveyMonkey (San Mateo, Calif, USA), a secure, web-based platform that allowed anonymous rating and commentary for each statement. Panelists received detailed instructions for scoring statements using a 9-point Likert scale (1 = highly inappropriate; 9 = highly appropriate) and were encouraged to propose modifications or provide written feedback as needed.
- Round 2: the meeting for round 2 was conducted virtually on March 22, 2025. Before this meeting, each panelist received a summary of the individual and aggregated results from the first-round rankings, along with detailed information on the RAM, including operational definitions of levels of appropriateness and methods to assess levels of disagreement. During the meeting, the panel chair (P.J.) and expert statistician (M.H.) presented the round 1 statements, results, and panelist comments. This was followed by a discussion among panelists focused on statements that did not meet agreement thresholds, along with a review of relevant literature and clarification of areas of disagreement. Statements were revised as needed. A second round of independent voting was then conducted. Final appropriateness ratings were calculated.

Statistical analysis

Responses for each statement after rounds 1 and 2 were summarized and shared with participants, including the median score and mean absolute deviation from the median (MAD-M). In addition, panelists were provided a histogram displaying the distribution of ratings, highlighting each panelist's individual rating, the median score, measures of spread of the responses, and 3 measures of appropriateness. Dispersion was assessed by the number of responses falling within each 3-point region (1-3, 4-6, and 7-9) and the MAD-M. For each statement, appropriateness was categorized as appropriate, uncertain, or inappropriate based on the median rating and whether or not panelists agreed, as measured by the spread of ratings. Agreement was evaluated using 3 statistical methods: the BIOMED classic definition, the *P* value method, and the interpercentile range adjusted for symmetry (IPRAS). A statement was considered

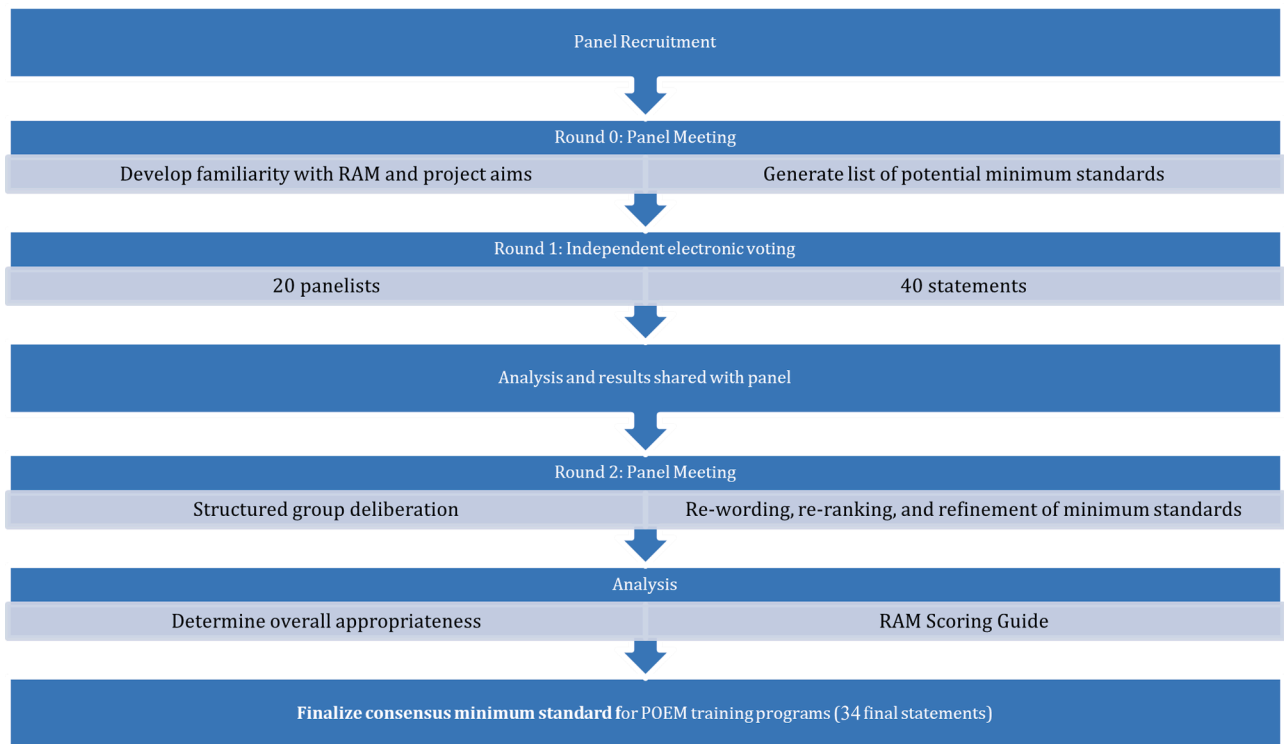


Figure 1. Study design used for the development of consensus standards for peroral endoscopic myotomy (POEM) training. RAM, RAND/University of California, Los Angeles appropriateness method.

appropriate if it received a median score ≥ 7 and demonstrated agreement across all 3 statistical definitions.

- The BIOMED classic definition determined agreement based on the distribution of responses within a 3-point interval centered around the median. It accounted for the number of panelists and allowed a set number of ratings to fall outside the median range.
- The *P* value method applied a binomial test to assess whether at least 80% of responses fell within the median-containing interval.
- The IPRAS approach compared the actual interpercentile range (30th to 70th percentile) to an adjusted range accounting for asymmetry in the distribution. Disagreement was identified whether the actual interpercentile range exceeded the IPRAS threshold.

Statements not meeting the threshold on any 1 of the 3 metrics were classified as uncertain or inappropriate. All statistical analyses were performed using SAS v. 9.4 (SAS Institute, Cary, NC, USA).

RESULTS

The response rates for rounds 1 and 2 were 100% (20/20) for both. After round 1, 35 of 40 statements were deemed appropriate, whereas 5 were deemed uncertain by at least 1 methodology. No statements were deemed inappropriate. On the basis of panel discussion, several

statements were reworded and consolidated, resulting in a total of 35 statements for round 2 voting. After round 2, 34 of the 35 statements were deemed appropriate, with 1 statement classified as uncertain based on the BIOMED methodology only (Tables 1 and 2).

Activity preceding POEM training

1. Trainees should have fundamental knowledge of esophageal manometry and demonstrate the ability to understand reports and identify patients who may require additional workup.
2. Trainees should have completed, or be currently enrolled in, an Accreditation Council for Graduate Medical Education (ACGME) (or equivalent) accredited gastroenterology fellowship or surgical residency program.

There is widespread recognition that third-space procedures such as POEM are highly operator-dependent and technically complex. The panel emphasized that competency in upper endoscopy is a prerequisite before embarking on POEM training. Both gastroenterology fellows and surgical residents were considered eligible for POEM training, provided they are enrolled in or have completed an ACGME- (or equivalent) accredited program.

Although familiarity with esophageal function testing and interpretation is expected, trainees are not required to be motility experts before beginning POEM training. Instead, training programs should ensure that foundational

TABLE 1. Appropriate measures for standards for POEM training: activity preceding POEM training and structure of POEM training programs

Statement	Appropriateness according to specific method			Median	Mean absolute deviation from the median (MAD-M)	Count in 1-3 range	Count in 4-6 range	Count in 7-9 range
	BIOMED	P value	Interpercentile range adjusted for symmetry (IPRAS)					
Activity preceding POEM training								
Trainees should have fundamental knowledge of esophageal manometry and demonstrate the ability to understand reports and identify patients who may require additional workup	Appropriate	Appropriate	Appropriate	9.0	0.5	0	0	19
Trainees should have completed or are currently enrolled in an ACGME (or equivalent) accredited gastroenterology fellowship or surgical residency program	Appropriate	Appropriate	Appropriate	9.0	0.8	0	1	18
Structure of POEM training Programs								
POEM training can be pursued as an independent pathway separate from pancreaticobiliary advanced endoscopy training	Appropriate	Appropriate	Appropriate	9.0	0.6	0	2	17
A POEM training program should perform a minimum of 40 POEM procedures annually	Appropriate	Appropriate	Appropriate	8.0	0.9	0	2	17
A POEM training program should be part of an institution with multidisciplinary expertise in motility, advanced endoscopy, thoracic and/or foregut surgery, and radiology	Appropriate	Appropriate	Appropriate	9.0	0.3	0	0	19
A POEM training program should provide trainees with access to simulation training models	Appropriate	Appropriate	Appropriate	8.0	0.9	1	1	17
A POEM training program should have at least 1 expert-level trainer, defined as having performed a minimum of 100 POEM procedures, who actively participates in training	Appropriate	Appropriate	Appropriate	9.0	0.6	0	0	19
Trainees are encouraged to develop and execute at least 1 mentored research project related to POEM	Appropriate	Appropriate	Appropriate	7.0	0.9	0	2	17
Although a POEM training program should focus on E-POEM, G-POEM and Z-POEM involve similar skills that can supplement this training	Appropriate	Appropriate	Appropriate	8.0	0.9	0	2	17

ACGME, The Accreditation Council for Graduate Medical Education; E-POEM, esophageal peroral endoscopic myotomy; G-POEM, gastric peroral endoscopic myotomy; POEM, peroral endoscopic myotomy; Z-POEM, Zenker's peroral endoscopic myotomy.

cognitive knowledge is introduced early in the curriculum. Trainees should be familiar with current diagnostic frameworks, including the Chicago Classification of esophageal motility disorders (version 4.0 at the time of publication).⁸ Mastery of this classification is essential for accurate interpretation of high-resolution manometry (HRM) and for

identifying patients most likely to benefit from POEM—such as those with type I or II achalasia, spastic disorders, or esophagogastric junction outflow obstruction. Trainees should also possess a working understanding of the limitations of HRM, particularly in borderline or evolving cases, and know when a stepwise approach may be warranted.

TABLE 2. Appropriate measures for standards for POEM training: cognitive and technical skill training and assessment of competence

Statement	Appropriateness according to specific method			Median	Mean absolute deviation from the median (MAD-M)	Count in 1-3 range	Count in 4-6 range	Count in 7-9 range
	BIOMED	P value	Interpercentile range adjusted for symmetry (IPRAS)					
Cognitive skill training								
Trainees should understand the indications, contraindications, and alternatives for POEM	Appropriate	Appropriate	Appropriate	9.0	0.0	0	0	19
Trainees should understand mediastinal anatomy	Appropriate	Appropriate	Appropriate	9.0	0.5	0	1	18
Trainees should understand the role of the use of the endoluminal functional lumen imaging probe (FLIP) as a potential adjunctive tool for E-POEM	Appropriate	Appropriate	Appropriate	9.0	0.6	0	1	18
Trainees should understand different approaches to reduce GERD post-E-POEM	Appropriate	Appropriate	Appropriate	9.0	0.3	0	0	19
Trainees should be able to diagnose and manage pathologic GERD post-E-POEM	Appropriate	Appropriate	Appropriate	9.0	0.1	0	0	19
Trainees should understand the efficacy and indications for G-POEM	Appropriate	Appropriate	Appropriate	9.0	0.7	0	1	18
Trainees should be able to interpret diagnostic tests used to assess gastric emptying rate	Appropriate	Appropriate	Appropriate	9.0	0.7	0	1	18
Trainees should understand the efficacy and indications for Z-POEM	Appropriate	Appropriate	Appropriate	9.0	0.7	0	2	17
Trainees should be able to interpret imaging studies, accurately diagnose and develop appropriate management plans for different types of esophageal diverticula	Appropriate	Appropriate	Appropriate	9.0	0.9	1	0	18
Trainees should have knowledge of the different types of endoscopic knives, coagulation graspers, and electrosurgical generator settings	Appropriate	Appropriate	Appropriate	9.0	0.1	0	0	19
Trainees should have an understanding of peri-procedural diet, acid suppressant use, and anticoagulation/antiplatelet management	Appropriate	Appropriate	Appropriate	9.0	0.1	0	0	19
Trainees should understand the role of post-POEM contrast-based imaging	Appropriate	Appropriate	Appropriate	9.0	0.2	0	0	19
Trainees should be able to evaluate and manage recurrence of initial symptoms post-POEM	Appropriate	Appropriate	Appropriate	9.0	0.1	0	0	18
Trainees should understand the potential adverse events of POEMs and be able to appropriately consent the patient before the procedure	Appropriate	Appropriate	Appropriate	9.0	0.1	0	0	19

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TABLE 2. Continued

Statement	Appropriateness according to specific method			Median	Mean absolute deviation from the median (MAD-M)	Count in 1-3 range	Count in 4-6 range	Count in 7-9 range
	BIOMED	P value	Interpercentile range adjusted for symmetry (IPRAS)					
Trainees should understand how to manage POEM-related adverse events including gas-related adverse events, bleeding, and perforation	Appropriate	Appropriate	Appropriate	9.0	0.0	0	0	19
<i>Technical skill training</i>								
Trainees should be able to perform mucosal incision, submucosal tunneling, partial and full-thickness myotomy, and closure of the mucosotomy site	Appropriate	Appropriate	Appropriate	9.0	0.1	0	0	19
Trainees should be able to identify the locations of the lower esophageal sphincter and the cardia during the tunneling step and use these anatomical landmarks to gauge the length of the tunnel	Appropriate	Appropriate	Appropriate	9.0	0.1	0	0	19
Trainees should be able to identify the vessels, appropriately treat them prophylactically within the tunnel, and perform hemostasis if bleeding occurs	Appropriate	Appropriate	Appropriate	9.0	0.1	0	0	19
Trainees should be able to recognize and treat pneumoperitoneum with needle decompression	Appropriate	Appropriate	Appropriate	9.0	0.4	1	0	18
Trainees should be able to perform both anterior and posterior E-POEMs	Appropriate	Appropriate	Appropriate	9.0	0.4	0	2	17
Trainees should be exposed to both greater curvature and lesser curvature G-POEMs	Uncertain	Appropriate	Appropriate	7.0	1.9	3	3	13
Trainees should be exposed to both Z-POEM and septotomy techniques	Appropriate	Appropriate	Appropriate	8.0	1.2	1	2	16
<i>Assessment of competence</i>								
Before milestone assessments, trainees should have participated in at least 15 POEM procedures, with reassessments conducted after every additional 5 cases	Appropriate	Appropriate	Appropriate	8.0	1.0	1	0	18
If a trainee does not achieve the required milestones by the end of the training period, performing proctored cases should be considered before allowing independent practice	Appropriate	Appropriate	Appropriate	9.0	0.5	0	1	18
Trainers should use validated assessment tools, such as the POEM Assessment Tool, to evaluate trainee performance	Appropriate	Appropriate	Appropriate	8.0	1.1	0	4	15

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TABLE 2. Continued

Statement	Appropriateness according to specific method			Median	Mean absolute deviation from the median (MAD-M)	Count in 1-3 range	Count in 4-6 range	Count in 7-9 range
	BIOMED	P value	Interpercentile range adjusted for symmetry (IPRAS)					
A POEM training center should maintain a prospective registry of all procedures performed, including patient work-up and outcomes, procedural techniques, and adverse events	Appropriate	Appropriate	Appropriate	9.0	1.1	1	2	16

E-POEM, Esophageal peroral endoscopic myotomy; G-POEM, gastric peroral endoscopic myotomy; POEM, peroral endoscopic myotomy; Z-POEM, Zenker's peroral endoscopic myotomy.

This approach promotes broader access to POEM training while emphasizing the importance of structured education in relevant motility concepts.

Structure of POEM training programs

1. POEM training can be an independent training pathway from pancreaticobiliary advanced endoscopy training.
2. A POEM training program should conduct at least 40 POEMs annually.
3. A POEM training program should be part of an institution with multidisciplinary expertise in motility, advanced endoscopy, thoracic and/or foregut surgery, and radiology to foster education and training in POEM.
4. A POEM training program should provide trainees with access to simulation training models.
5. A POEM training program should have at least 1 expert-level trainer, defined as having performed a minimum of 100 POEMs, who actively participates in training.
6. Trainees are encouraged to develop and execute at least 1 mentored research project related to POEM.
7. Although a POEM training program should focus on esophageal POEM (E-POEM), gastric POEM (G-POEM), and Zenker's POEM (Z-POEM) involve similar skills that can supplement this training.

The panel acknowledged that POEM training may be pursued as part of a broader advanced endoscopy fellowship or as a dedicated, standalone training track. This flexibility reflects the increasing diversity in how advanced endoscopic skills are acquired and implemented in practice. Panelists endorsed a minimum institutional volume of 40 POEM cases annually to ensure adequate procedural exposure. This threshold was informed by published learning curve studies demonstrating a plateau in key performance metrics after 13 to 40 cases, with mastery achieved after approximately 60 cases.⁹⁻¹³ However, the panel recognized that learning curves can vary on the basis of the operator's prior experience, particularly for endoscopists with substantial exposure to other complex procedures. Thus, although volume-based thresholds provide structural guidance, they are not substitutes for competence-based evaluation.

The panel did not consider observation of Heller myotomy or other foregut surgeries as necessary for POEM training. Instead, they emphasized the importance of exposure to the full spectrum of third-space endoscopic myotomy techniques. This includes not only E-POEM but also G-POEM and Z-POEM because these techniques share fundamental principles but require adaptation to different anatomical and disease-specific contexts. Familiarity with technique variation, including anterior and posterior approaches, was considered essential to fostering procedural versatility and tailoring interventions to patient-specific needs.

In addition, the panel recommended that POEM training centers be part of a multidisciplinary program, ideally incorporating regular multidisciplinary conferences involving experts in motility, advanced endoscopy, thoracic or foregut surgery, and radiology. Training centers should also provide trainees with opportunities for hands-on training using simulators—including, but not limited to, animal model simulators—particularly during the preclinical training phase. These simulation experiences may take place at the training institution or externally, such as through ASGE-sponsored or industry-sponsored courses.

Cognitive skill training

1. Trainees should understand the indications, contraindications, and alternatives for POEM.
2. Trainees should understand mediastinal anatomy.
3. Trainees should understand the role of the endoluminal functional lumen imaging probe (FLIP) and timed barium esophagram as potential adjunctive diagnostic tools for E-POEM.
4. Trainees should understand different approaches to reduce GERD post-E-POEM.
5. Trainees should be able to diagnose and manage pathologic GERD post-E-POEM.
6. Trainees should understand the efficacy and indications for G-POEM.
7. Trainees should be able to interpret diagnostic tests relevant to assessing gastric emptying rate.
8. Trainees should understand the efficacy and indications for Z-POEM.

9. Trainees should be able to interpret imaging studies, accurately diagnose, and develop appropriate management plans for different types of esophageal diverticula.
10. Trainees should have knowledge of the different types of endoscopic knives, coagulation graspers, and electrosurgical generator settings.
11. Trainees should have an understanding of periprocedural diet, acid suppressant use, and anticoagulation/antiplatelet management.
12. Trainees should understand the role of post-POEM contrast-based imaging.
13. Trainees should be able to evaluate and manage the recurrence of initial symptoms post-POEM.
14. Trainees should understand the potential adverse events of POEMs and be able to appropriately consent the patient before the procedure.
15. Trainees should understand how to manage POEM-related adverse events, including gas-related adverse events, bleeding, and perforation.

The panel emphasized the importance of cognitive preparedness before and throughout POEM training. In addition to understanding HRM, trainees should be familiar with complementary diagnostic tools, such as the FLIP and timed barium esophagrams, which can enhance clinical decision-making.¹⁴ For those pursuing G-POEM training, competency in interpreting gastric emptying studies is essential. Similarly, Z-POEM training requires knowledge of esophageal diverticula and relevant cross-sectional imaging.

Understanding the cognitive steps involved in case selection, informed consent, perioperative optimization, and adverse event management is essential. In addition, the panel agreed that trainees should be familiar with techniques to minimize the risk of postprocedural GERD and be equipped to recognize and manage GERD should it arise.¹⁵ Although technical proficiency is critical, it must be supported by sound clinical judgment and a solid foundation in relevant foregut pathophysiology.

Technical skill training

1. Trainees should be able to perform mucosal incision, submucosal tunneling, partial and full-thickness myotomy, and closure of the mucosotomy site.
2. Trainees should be able to identify the locations of the lower esophageal sphincter and the cardia during the tunneling step and use these anatomical landmarks to gauge the length of the tunnel.
3. Trainees should be able to identify the vessels, appropriately treat them prophylactically within the tunnel, and perform hemostasis if bleeding occurs.
4. Trainees should be able to recognize and treat pneumoperitoneum with needle decompression.
5. Trainees should be able to perform both anterior and posterior E-POEMs.

6. Trainees should be exposed to both greater curvature and lesser curvature G-POEMs.
7. Trainees should be exposed to both Z-POEM and septotomy techniques.

Several technical skills were identified by the panel as core procedural elements essential to safe and effective POEM performance. Panelists strongly emphasized proficiency in mucosal incision, submucosal tunneling, selective myotomy, and mucosotomy closure, although a specific order to train these skills was not considered important. Identifying the gastroesophageal junction accurately and managing procedural adverse events such as bleeding and capnoperitoneum were considered mandatory capabilities.

Notably, 1 proposed technical item (placement of a distal attachment cap) was dropped after round 1 and not included in round 2. This reflects a consensus that cap placement is a fundamental endoscopic skill that does not require specific emphasis in a POEM-focused curriculum.

Panelists stressed the importance of procedural judgment, particularly the ability to recognize when to abort or limit dissection in response to unexpected findings or adverse events. This was viewed as a critical indicator of readiness for independent practice.

Trainee exposure to both anterior and posterior approaches to E-POEM was endorsed to promote adaptability and nuanced decision-making. The statement regarding exposure to both greater and lesser curvature approaches for G-POEM did not meet consensus (rated “uncertain”), with the expert opinion supporting prioritization of the greater curvature approach given its dominance in clinical practice and published outcomes.

In the case of Z-POEM, panelists acknowledged that although it is a valuable technique, septotomy remains the more commonly performed and accepted treatment modality. As such, trainees should gain exposure to both approaches and develop the cognitive and technical skills necessary to determine the most appropriate intervention based on patient-specific anatomy and comorbidities.

Assessment of competence

1. Before milestone assessments, trainees should have participated in a minimum of 15 POEMs, with reassessments occurring after every subsequent 5 cases.
2. If a trainee does not achieve the required milestones by the end of the training period, proctored cases should be considered before independently performing the procedure.
3. Trainers should use validated assessment tools for competence in POEM, such as the POEM assessment tool (POEMAT), for performance evaluation of trainees.
4. A POEM training center should maintain a prospective registry of all procedures performed, including patient workup and outcomes, procedural techniques, and adverse events.

The panel recommended a transition away from rigid minimum case volume thresholds toward a milestone-based framework for assessing POEM competency.¹⁶ Although procedural volume can provide general structure, it is not a reliable standalone indicator of readiness for independent practice. Instead, panelists advocated for frequent, structured evaluations throughout training. Formal milestone-based assessment should begin after the 15th supervised POEM case. This threshold was based on published learning curve studies suggesting that experienced endoscopists begin to demonstrate procedural comfort and consistency as early as the 13th case.⁹ However, it was acknowledged that these studies involved expert operators, and individual learning trajectories may vary significantly among trainees.

The panel endorsed the POEMAT as the preferred instrument for competency evaluation.¹⁷ POEMAT is a validated, structured assessment tool encompassing multiple domains of performance, including technical execution, cognitive understanding, and procedural decision-making. It facilitates standardized feedback and longitudinal tracking of trainee progress. Following the initial 15-case benchmark, panelists recommended performing milestone assessments every 5 procedures. This cadence balances the need for regular evaluation with the flexibility to address individual learning needs. Importantly, panelists agreed that trainees who have not met core competency milestones by the end of their fellowship should not perform POEM independently. These individuals should undergo structured proctoring during initial cases after fellowship until competence is formally demonstrated.

DISCUSSION

This consensus document outlines the minimum standards for POEM training using the RAM and reflects the combined experience and judgment of a diverse, multidisciplinary panel. These standards are a critical step toward the formalization of third-space endoscopy training and fill a notable gap in the current landscape of advanced endoscopic education.

The results underscore the importance of a structured and intentional approach to POEM training. Notably, the panel agreed that POEM can be pursued as an independent track outside of traditional pancreaticobiliary pathways. This is essential given the procedure's unique cognitive and technical demands. Institutions offering POEM training should meet a threshold case volume (≥ 40 annually) and ensure that instruction is delivered by at least 1 trainer with significant experience (≥ 100 POEMs), aligning with established learning curve data.

Cognitive domains were also emphasized. Panelists strongly endorsed knowledge of esophageal motility, mediastinal anatomy, electrosurgical principles, and GERD management. Understanding the applications and limita-

tions of tools such as FLIP, as well as diagnostic tests such as manometry and gastric emptying studies, was seen as essential for competent practice. The inclusion of simulation access as a training standard reflects a shift toward blended educational models. Simulation—whether *ex vivo*, *in vivo*, or via hands-on course participation—offers an opportunity for deliberate practice and early technical skill development in a safe environment. While not universally available at all institutions, programs are encouraged to facilitate access through institutional collaboration or national courses.

Technical standards emphasize hands-on experience in all key procedural steps, including mucosotomy, tunneling, and myotomy. Importantly, panelists supported exposure to both anterior and posterior E-POEM approaches and endorsed familiarity with related procedures such as G-POEM and Z-POEM. Although there was insufficient agreement to mandate exposure to lesser curvature G-POEM, the need for broader exposure and technique variation was generally supported.

This effort also highlights the evolution of competency-based education. Rather than setting arbitrary volume requirements, the panel recommended staged assessment, beginning after 15 procedures and reassessed every 5 thereafter. This approach supports individualized learning trajectories while maintaining standards for safe, effective practice.

Ultimately, these consensus standards serve not only to guide training programs but also to provide a foundation for future research, credentialing, and curriculum development in third-space endoscopy. Because POEM continues to evolve, these standards should be periodically revisited to reflect changes in practice patterns, emerging technologies, and expanded indications.

FUTURE DIRECTIONS

Because POEM training continues to evolve, several refinements will help standardize and advance education in this field. First, establishing pretraining requirements is critical, including the use of high-fidelity simulators, particularly those designed to reproduce and allow technical management of rare but serious adverse events. Second, the structure of training programs should be tailored according to the broader fellowship context—whether embedded within EUS/ERCP, endoscopic submucosal dissection (ESD), or foregut endoscopy curricula. Each of these pathways will require different emphases: for example, trainees with an EUS/ERCP background may need additional exposure to submucosal dissection techniques, whereas those coming from an ESD pathway may require more focus on cognitive aspects of dysmotility. Third, because research continues to evolve, the expansion of POEM skillsets should be incorporated into training,

including advanced techniques for Z-POEM and G-POEM. Finally, skill assessment methods will continue to improve; artificial intelligence–assisted evaluation holds promise for providing objective, reproducible feedback on technical performance and procedural safety, complementing expert mentorship and structured assessment tools. Together, these directions will help ensure that POEM training remains rigorous, adaptable, and aligned with the future needs of patients and the endoscopic community.

CONCLUSIONS

This ASGE-led, evidence-based initiative establishes the first minimum standards for POEM training. The proposed measures address key domains, including prerequisites before training, structural program requirements, cognitive and technical competencies, and methods for assessing competence. These standards are designed to ensure that trainees have the opportunity to achieve proficiency in POEM and are evaluated using competency-based milestones. In addition to guiding individual training, these standards provide a structured roadmap for training programs and aim to support the safe and consistent dissemination of POEM across both gastroenterology and surgical disciplines.

DISCLOSURE

The following authors disclosed financial relationships: C.C. Thompson: Consultant for Boston Scientific, Endoquest Robotics, Enterasense, EnVision Endoscopy, Enterra Medical, Fractyl, USGI Medical, Medtronic/Covidien, Olympus/Spiration, Morphic Medical, and Xenter; advisory board member for USGI Medical and Olympus; Board of Directors for Fractyl; research grant and support from USGI Medical, GIE Medical, Boston Scientific, Endoquest Robotics, ERBE, FujiFilm, Olympus/Spiration, and Morphic Medical; general partners for Blueframe Healthcare; founder for Enterasense, EnVision Endoscopy, and GI Windows; holds stock and royalties for GI Windows. M.A. Khashab: Consultant for BSC, Medtronic, Olympus, and Microtech. S.N. Stavropoulos: Consultant for Boston Scientific, Olympus, and Dilumen; honoraria from ERBE. M.A. Al-Haddad: Consultant for Boston Scientific, Cook Medical, and Olympus; research support from Amplified Sciences. J.Y. Bang: Consultant for Boston Scientific and Olympus America Inc. N. Fukami: Consultant for Boston Scientific, Creo Medical, and Olympus. J.H. Hwang: Consultant for Olympus, Boston Scientific, Medtronic, ERBE, FujiFilm, EndoRobotics, Lumendi, and Neptune. M. Kahaleh: Consultant for BSC, Creo, Medtronic, ERBE, and Microtech. V.J. A. Konda: Consultant for Medtronic, Exact, Ambu, and Braintree.

J.M. Marks: Consultant for Boston Scientific and Steris Endoscopy. A. Patel: Consultant for Medpace, Renexxion, Elsevier, and Sanofi. M.B. Ujiki: Consultant for Boston and Olympus; honoraria from Gore and Medtronic. M.S. Wagh: Consultant for Boston Scientific, Olympus, Microtech, Creo, Medical, Fujifilm, and Aspero. D. Yang: Consultant for Boston Scientific, Olympus, Fujifilm, Medtronic, Microtech, 3D-Matrix, Neptune Medical, and ERBE. S. Wani: Consultant for Exact Sciences, Lucid, Cytel, Boston Scientific, and Enterotracker; research support from Cytel, Lucid, Exact Sciences, and CDx Diagnostics. P.V. Draganov: Consultant for Olympus, Fujifilm, Boston Scientific, Cook, Merit, and Medtronic. P. Jirapi-nyo: Consultant for Boston Scientific, Cook Medical, ERBE, Fractyl, Madrigal, Merit Medical, Morphic Medical, Olympus, Spatz Medical, and USGI; research funding from Boston Scientific, Cook Medical, Fractyl, Morphic Medical, and USGI; advisory board at Fractyl, Merit Medical, and Olympus; royalty from EndoSim; co-founder of Bariendo the contents of this manuscript do not represent the views of the Department of Veterans Affairs or the U. S. Government. All other authors disclosed no financial relationships.

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Abbreviations: ACGME, Accreditation Council for Graduate Medical Education; ASGE, American Society for Gastrointestinal Endoscopy; E-POEM, esophageal peroral endoscopic myotomy; ESD, endoscopic submucosal dissection; FLIP, functional lumen imaging probe; G-POEM, gastric peroral endoscopic myotomy; HRM, high-resolution manometry; IPRAS, interpercentile range adjusted for symmetry; MAD-M, mean absolute deviation from the median; POEM, peroral endoscopic myotomy; POEMAT, Peroral Endoscopic Myotomy Assessment Tool; RAM, Research and Development/University of California, Los Angeles appropriateness method; RAND, Research and Development; UCLA, University of California, Los Angeles; Z-POEM, Zenker's peroral endoscopic myotomy.

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<https://doi.org/10.1016/j.gie.2025.12.274>

Received December 11, 2025. Accepted December 15, 2025.

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