American College of Surgeons – Division of Education
ACS Academy of Master Surgeon Educators®

The Cutting Edge of Surgical Education™

Author Instructions

The Cutting Edge of Surgical Education is an online peer-reviewed publication established by the American College of Surgeons Division of Education (ACS) and the ACS Academy of Master Surgeon Educators®. The "Cutting Edge" provides a space for surgical educators to share best practices, innovative curricula, lessons learned, and other teaching material. The portal serves as a repository of peer-reviewed resources that are not commonly published in traditional journals.

To be considered for publication, submissions must meet the following requirements:

1. Contain an **Educational Resource** that has been and/or can be implemented in a target learner population within a surgical discipline.
2. Contain an **Educational Summary Report** using a supplied template that describes the significance of the educational resource and utilization guidelines.

Submissions with both required elements will be reviewed with the understanding that they have not been published by and are not under consideration at any other publication venue. Additionally, all submissions will be peer-reviewed.

Please note: Medical students and residents are encouraged to submit to *The Cutting Edge of Surgical Education*; however, to do so, a practicing surgical educator must be included as one of the authors.

Educational Resource

An educational resource is a tool, activity, curriculum, syllabus, assessment, primer, video, application, program evaluation, simulation protocol, standardized patient script, or perspectives piece that can be applied by educators. This list of acceptable categories for Educational Resources is not exhaustive, and submissions in other forms will also be considered for publication as long as they can be applied within the house of surgery.

Examples of and readings about different categories of educational resources are provided at the end of this document.

Formatting

Educational Resources must be submitted as a digital file. It is preferable that the filetype allow editing whenever possible, e.g., an editable text file is preferable to a scanned image. The below digital file guidelines are not exhaustive and file types that are not described may be considered at the discretion of the editorial staff. Links to files hosted on websites will not be accepted.

Text – Text may be submitted in formats including DOC, DOCX, and PDF.

Image – Images should be submitted as JPEG or PNG files. The resolution should be no less than 150 dpi.

Video – Video files should be submitted in the MP4 video file container and preferably in the H.264 codec. Other nonproprietary video codecs and containers may be considered. Video resolution should be no less than 640x480 pixels. Video bitrates must keep file sizes below 1 GB per 10 minutes of video.

There is no imposed limitation on the size, scope, or length of the educational resource so long as it presents a stand-alone educational activity. All pages, documents, items, resources, instructions, links, and materials required for others to implement the resource should be included in the submission. Brand imagery and copyrighted digital material not owned by the author(s) should be omitted. Writing that appears within an educational resource should be grammatical correct and thoughtfully composed.

Educational Summary Report

The Educational Summary Report provides a scholarly overview of the significance of the Educational Resource, a description of how the resource was developed, and utilization guidelines. The report also includes reference information and an abstract. Authors must use a provided template for the Education Summary Report, which specifies the required formatting and content needed for each section of the report. This Report will be featured together with the Educational Resource as part of the online publication.

Formatting

The Educational Summary Report must contain six sections: abstract, background, description, resource utilization guidelines, significance, and references. Authors are required to use a provided **Educational Summary Report Template**, which is designed to guide the development and submission process. The template provides details on the necessary content for each section and the required formatting to use throughout including for titles, footnotes, and references. Submitted Educational Summary Reports should be approximately 3,000 words (ten pages) or less.

Submission Process

Editors of *The Cutting Edge of Surgical Education* will review each submission and decide if it is appropriate for peer-review. All submissions will be checked for plagiarism prior to being submitted for peer-review. If accepted for publication with revision and/or edits, recommendations will be sent to the authors.

Submission Steps:

1. Authors will submit their Educational Resource and Educational Summary Report to thecuttingedge@facs.org following the submission guidelines.
2. A preliminary review will be conducted to determine whether to accept the submission for peer-review. If the submission does not meet all the submission criteria, the author(s) will be notified.
3. If the submission meets all the submission criteria and is considered acceptable, it will be securely shared for peer-review. Reviewers will offer a recommendation of either accepting the submission, accepting the submission with minor revisions, accepting the submission with major revisions, or rejecting the submission.
4. The Editor-in-Chief will review the submission as well as the peer review recommendation and make a determination on the submission.
5. Authors will be notified via e-mail regarding the status of their submission. If the submission needs to be revised, authors will be provided with copies of the completed peer-review forms.
6. If revisions are sought, authors will be given a deadline of 14 days to submit their requested revisions. Returned submissions should include revised versions of the Educational Summary Report and/or Educational Resource with tracked changes and clean copy. In addition, explanation must be provided on the revisions that were made per the revision recommendations. If the author cannot meet the deadline, extensions will be considered on a case-by-case basis.

7. If the submission is approved for publication after the review process has been completed, the author(s) will be notified via e-mail. At this time, the author(s) will be sent an ACS Project Agreement form and an ACS Financial Disclosure form to review, sign, date, and submit to thecuttingedge@facs.org.
8. The corresponding author will be e-mailed a final proof of the Educational Summary Report and Educational Resource for their approval. Special attention should be given to correct presentation of the author names. Formatting changes, grammar changes, routine rephrasing of sentences, and content additions are not permitted.
9. After the corresponding author approves the proof of each of the items, they will be submitted for publication.
10. When the submission has been published, the corresponding author will be contacted via e-mail with a link to their newly published work.

Publication Ethics

Conflicts of Interest

All authors must disclose any financial and personal relationships with other people or organizations that could inappropriately influence (bias) their work using the ACS Disclosure Form. You are required to identify who provided financial support for the development of the educational resource and/or the preparation of the educational summary report and to briefly describe the role of the sponsor(s), if any, in project design; in the collection, analysis and interpretation of data; in the writing of the educational summary report; and in the decision to submit the educational resource for publication. If the funding source(s) had no such involvement, then this should be stated. Examples of potential conflicts of interest include employment, consultancies, stock ownership, honoraria, paid expert testimony, patent applications/registrations, and grants or other funding. Failure or refusal to disclose or the inability to resolve the identified conflict will result in the withdrawal of your contribution.

Duplicate Publication and Plagiarism

Submissions will be reviewed with the understanding that they have not been published by and are not under consideration at any other publication venue. *The Cutting Edge of Surgical Education* will only publish original and unpublished works. Before a submission will be shared for peer-review, it will be checked for plagiarism and previous publication.

The Cutting Edge of Surgical Education may publish original educational resources that are related to previously published material; however, the submitted educational resource must not have been previously published as a part, subsection, appendix, or supplement

of another work and the Educational Summary Report must present an original, substantive perspective on the resource. If authors are submitting material that is related to a previously published work, no written material from previously published content may appear in their submission. Acceptance of any submission related to a previously published work will be decided at the discretion of the editor.

Authorship

Authorship criteria follows the guidance of the Consensus Statement on Surgery Journals Authorship-2006, which states that all authors should have made substantial contributions to all three of the following: (1) conception and design, (2) participate in drafting the article (educational summary report and/or educational resource) or revising it critically for important intellectual content, (3) give final approval of the version to be submitted and any revised version to be published.[1]

Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content. Allowing one's name to appear as an author without having contributed significantly or adding the name of an individual who has not contributed or who has not agreed to the work in its current form is considered a breach of appropriate authorship.

Human Rights

If the work involves the use of human subjects, the author should ensure that the work described has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans; Uniform Requirements for manuscripts submitted to Biomedical journals. Authors should include a statement in the manuscript that informed consent was obtained for experimentation with human subjects. The privacy rights of human subjects must always be observed.

Informed Consent

Individuals have a right to privacy that should not be infringed without informed consent. Identifying information, including learners' or patients' names, initials, or hospital numbers, will not be published in written descriptions, photographs, and pedigrees unless the information is essential for scientific purposes and the individual (or guardian) gives written informed consent for publication.

Appeals

[1] Surgical Journal Editors Group. Consensus statement on surgery journal authorship--2006. Ann Surg. 2006;243(6):713-714. doi:10.1097/00000658-200606000-00001

A rejection decision may be appealed by the author(s) only if there is compelling evidence that misinterpretation, bias, conflict of interest, or factual error committed by the editor in chief, reviewers, or staff contributed significantly to the rejection decision. To submit an appeal of a rejection decision, author(s) must submit a letter to the editor in chief stating the request for an appeal and the grounds upon which an appeal is sought. Appeals must be emailed to thecuttingedge@facs.org within two weeks of receiving a rejection decision.

Educational Resource Examples

An educational resource is a tool, activity, curriculum, syllabus, assessment, primer, video, application, program evaluation, simulation protocol, standardized patient script, or perspectives piece that can be applied by educators. This list of acceptable categories for Educational Resources is not exhaustive, and submissions in other forms will also be considered for publication as long as they can be applied within the house of surgery.

Education Resource Categories

- Curriculum
- Needs Assessment
- Learner Assessment
- Simulation and Advanced Technology Protocol
- Faculty Development Plan
- Program Evaluation
- Methods for Fostering Surgical Education Scholarship
- Survey Design
- A Guidebook on the Business of Medicine
- Interviewing and Recruitment Strategy Guide
- Innovative Teaching Methods
- Other

Curriculum

A curriculum is defined as any planned educational experience (Kern et al. 2015). A curriculum is a "roadmap" for a course of study that will enable the learner to acquire specific knowledge and/or skills.

- A curriculum includes the content, structure, and materials used to convey information to learners.

- It serves as a guide for teachers and sets expectations for student learning.
- It provides a foundation for what is to be taught, learned, and experienced.

A curriculum can utilize various formats and consider items such as content being delivered, learning styles, resources, timing, faculty, learner preferences, and previous evaluation of effectiveness. In surgical education, curricula exist at the local, regional and national levels and are continuously refined to foster excellence in advancing the science and practice of surgery, across all surgical specialties, and across the continuum of UME, GME and CME.

In surgical education, a curriculum might include any of the following:

- A two-hour highly interactive workshop on Effective Communication (for interprofessional surgical teams)
- A six-hour pre-recorded virtual course on Safe Pain Control (for General Surgery residents)
- An eight-week hybrid surgical clerkship (for 3rd year medical students)
- A one-hour synchronous CME lecture on Identifying and Reporting Child Abuse (for practicing surgeons)

Curriculum Examples and Relevant Resources

Thomas, Patricia A., David E. Kern, Mark T. Hughes, and Belinda Y. Chen, eds. Curriculum development for medical education: a six-step approach. JHU Press, 2016.
Kern's framework for curriculum development has been successfully applied widely within medical education across multiple specialties and training.

Sell, Naomi M., and Roy Phitayakorn. Developing and refining a surgical curriculum. Surgery 167, no. 3 (2020): 528-531.
Authors apply Kern's model to the development of a surgical curriculum – identifying a need, developing goals and objectives, defining knowledge and skills learners will achieve by the end of this curriculum, implementing, and assessing the learner and evaluating the program.

Dickinson, Karen J., Brian J. Dunkin, Barbara L. Bass, Aman B. Ali, J. Joseph Nguyen-Lee, and Stephanie Zajac. A Template for Curriculum Development to Teach Complex Surgical or Endoscopic Techniques With Logistical Challenges. Journal of Surgical Education 77, no. 6 (2020): 1511-1521.
This article describes the development and implementation of a curriculum to train practicing clinicians how to perform a complex endoscopic procedure—cESD. This work can

serve as a template for the creation of effective training (curriculum) for other complex procedures.

Lindeman, Brenessa M., Joanna K. Law, Pamela A. Lipsett, Trisha Arbella, Miloslawa Stem, and Anne O. Lidor. A blended online curriculum in the basic surgery clerkship: a pilot study. The American Journal of Surgery 209, no. 1 (2015): 145-151.
Authors propose a less faculty-intense blended online curriculum (BOC) for surgery clerkships. Results illustrate similar/improved academic performance compared with traditional curricula (TCs) and significantly improved student satisfaction.

Jones, Stephanie B., Malcolm G. Munro, Liane S. Feldman, Thomas N. Robinson, L. Michael Brunt, Steven D. Schwaitzberg, Daniel B. Jones, and Pascal R. Fuchshuber. Fundamental use of surgical energy (FUSE): an essential educational program for operating room safety. The Permanente Journal 21 (2017).
The Fundamental Use of Surgical Energy (FUSE) curriculum was developed to address a safety issue. This standardized curriculum for physicians and allied health care professionals includes a psychometrically designed and validated certification test. A successful FUSE certification documents acquisition of the basic knowledge needed to safely use energy-based devices in the OR.

Needs Assessments

A needs assessment is a systematic process for identifying "gaps" between current state and desired state. The discrepancy between the current and desired must be measured to appropriately identify the need. A needs assessment is part of a planning process and is often used to understand the why for developing educational programs, the who should be the targeted learners, and the what the intervention or solution should be. Gathering appropriate and sufficient data informs the development of an effective educational intervention leading to the accomplishment of desired results. Needs assessments are used in surgical education to identify gaps in individual knowledge, skills, programs, and practice. Results of needs assessments also justify the need for educational interventions and inform the content and format of educational programs across the surgical education continuum.

In surgical education, a needs assessment might include any of the following:

- A skills assessment of incoming general surgery resident to inform a simulation remediation program
- A focus group of new medical students to recognize the desire and or need for a peer mentorship program

- A national survey of General Surgery Program Directors to gather feedback on a proposed faculty development program for the purposes of making enhancements
- A review and analysis of data on patient outcomes following a specific procedure to develop a skills training course for relevant surgeons with the goal of improving patient care outcomes

Needs Assessment Examples and Relevant Resources

Knowles, Malcolm S. The Modern Practice of Adult Education; Andragogy versus Pedagogy." (1970).
Part Two of this text highlights the importance of assessing needs and interests of adult learners before developing educational programs.

Gupta, Kavita. A practical guide to needs assessment. John Wiley & Sons, 2011.

Lindeman, Brenessa M., Pamela A. Lipsett, Adnan Alseidi, and Anne O. Lidor. "Medical student subinternships in surgery: characterization and needs assessment." The American Journal of Surgery 205, no. 2 (2013): 175-181.
Feedback was collected from relevant stakeholders to understand the experiences and needs of students completing sub-internships in surgery. Findings inform a curriculum for surgical sub-internships in order to address student needs for specific didactics for residency preparation and technical skill enhancement.

Sanfey, Hilary, Kimberly Schenarts, David A. Rogers, Alisa Nagler, Patrice Gabler Blair, Susan Newman, and Ajit K. Sachdeva. Needs Assessment for an American College of Surgeons Certificate in Applied Surgical Education Leadership (CASEL). Journal of surgical education 75, no. 6 (2018): e112-e119.

Authors describe the process used and outcomes of a needs assessment to inform the development of additional formal training in surgical education leadership.

Glass, Charity C., Robert D. Acton, Patrice G. Blair, Andre R. Campbell, Ellen S. Deutsch, Daniel B. Jones, Kathleen R. Liscum, Ajit K. Sachdeva, Daniel J. Scott, and Stephen C. Yang. American College of Surgeons/Association for Surgical Education medical student simulation-based surgical skills curriculum needs assessment. The American Journal of Surgery 207, no. 2 (2014): 165-169.
A survey was conducted of surgical clerkship directors nationally and medical students at 5 medical schools to rank and stratify simulation-based educational topics.

Phitayakorn, R., A. Salles, J. L. Falcone, A. R. Jensen, S. Steinemann, and L. Torbeck. A needs assessment of education research topics among surgical educators in the United States. The American Journal of Surgery 213, no. 2 (2017): 346-352.
An electronic survey and Delphi technique were used to assess the education research needs (topics and format) of surgeon educators.

Learner Assessments

Assessment is used to measure a learner's knowledge and skills, and progress toward competence. This is the case across the continuum of surgical education. Learner assessments may be formative or summative. Formative assessments are ongoing and intended to provide feedback to a learner for the purpose of making improvements. Summative evaluation is "high stakes" and often a final grade, determining whether a learner has met the stated learning objective.

The benefits of assessment go beyond promoting learning and ensuring success of learners. Assessment outcomes can illustrate when an educational intervention is working (and not), inform strategies to enhance learning at the individual level, and identify opportunities for curriculum improvement. In education research, assessment can help recognize effectiveness of a specific curriculum or the relative merits of an educational intervention. It is important to acknowledge strengths and weakness of developing and administering an assessment and how this impacts validity. Validity is how well the assessment tool measures the underlying outcome of interest.

Learner assessments serves many important purposes in surgical education. The acquisition of technical skill is a cornerstone of surgical residency and with the move toward competency-based training, tools to assess technical skill are critical. Ensuring and maintaining competence for surgical trainees and practicing surgeons requires holistic assessment of the qualities and competencies necessary to practice safety and effectively, throughout one's career.

In surgical education, learner assessments might include any of the following:

- The development and validation of an objective, procedure-specific assessment tool
    - High Stakes: For faculty to assess learner's competence and deem that they have successfully completed a specific rotation.
    - Low Stakes: For faculty, peers, surgical team members to use in providing feedback to the learner for purposes of making improvements.
- A didactic course pre- and posttest to assess learners' knowledge of content.

    - High Stakes: To determine if they "pass" based on a cut-off score.
    - Low Stakes: To identify content areas where additional learning is needed.
- A skills assessment of all incoming surgery residents to identify remediation needed.
- A learner self-assessment from retrospective video playback - to enhance learning of a specific technical skill, in the absence or in combination with faculty/trainer assessment and feedback
- An assessment of nontechnical skills (e.g., communication, teamwork, professionalism) – to be completed by numerous individuals (e.g., residency program coordinator, nurses, peers) as part of a 360° evaluation of all department faculty, staff, and learners

Learner Assessment Examples and Relevant Resources

Anton, Nicholas E., John M. Sawyer, James R. Korndorffer Jr, Christopher G. DuCoin, Graham McRary, Lava R. Timsina, and Dimitrios Stefanidis. Developing a robust suturing assessment: validity evidence for the intracorporeal suturing assessment tool. Surgery 163, no. 3 (2018): 560-564.
The purpose of this study was to validate a novel Intracorporeal Suturing Assessment Tool (ISAT).

Colbert-Getz, Jorie M., Michael Ryan, Erin Hennessey, Brenessa Lindeman, Brian Pitts, Kim A. Rutherford, Deborah Schwengel, Stephen M. Sozio, Jessica George, and Julianna Jung. Measuring assessment quality with an assessment utility rubric for medical education. MedEdPORTAL 13 (2017).
Authors developed a rubric for medical educators to systematically evaluate the utility of an assessment, in order to determine if the assessment used is optimal for the setting. The rubric includes four elements: equivalence, educational effect, catalytic effect, acceptability.

Halwani, Yasmin, Ajit K. Sachdeva, Patrice Gabler Blair, Lisa Satterthwaite, and Sandra de Montbrun. Development of a competency level technical skills assessment: the general surgery objective structured assessment of technical skills. Journal of the American College of Surgeons 225, no. 4 (2017): S173-S174.
The aim of this study was to develop an objective assessment of technical skill for graduating general surgery residents for the purpose of board certification. The General Surgery Objective Structured Assessment of Technical Skills (GOSATS) has the ability to discriminate between PGY-3 and PGY-5 GS residents with acceptable inter-rater and inter-station reliability. Authors surmise that with further validation studies, the GOSATS may demonstrate the properties necessary for high stakes assessment and have the potential to be included in the certification process.

Whittaker, George, Hamid Abboudi, Muhammed Shamim Khan, Prokar Dasgupta, and Kamran Ahmed. Teamwork assessment tools in modern surgical practice: a systematic review. Surgery research and practice 2015 (2015).
Deficiencies in teamwork skills have been shown to contribute to the occurrence of adverse events during surgery. There are a number of teamwork assessment tools that have been used to evaluate trainee nontechnical performance. This paper aims to provide an overview of these instruments and review the validity of each tool.

Hussein, Nabil, Andrew Lim, Osami Honjo, Christoph Haller, John G. Coles, Glen Van Arsdell, and Shi-Joon Yoo. Development and validation of a procedure-specific assessment tool for hands-on surgical training in congenital heart surgery. The Journal of thoracic and cardiovascular surgery 160, no. 1 (2020): 229-240.
This study demonstrates the development and validation of an objective, procedure-specific assessment tool for the arterial switch operation with consistency among evaluators with different experience.

Simulation and Advanced Technology Protocol

The use of simulation is increasing across the continuum of surgical education. The range of these activities from cognitive to technical allows learners to repeatedly practice techniques and manage clinical scenarios in a setting that forgives error or outright failure without clinical harm. The repeated practice allows one to achieve measurable competence and expertise in performing the simulated skill. Surgical simulation models can be low- or high-fidelity, reflecting the closeness of the model to reality. Although high-fidelity models are desirable for closely emulating the operating room environment, low-fidelity models are often less expensive and still promote learning and mastery. Technical skill models can include cadaveric, preclinical, inanimate, virtual reality (VR) or robotic simulators and may employ advances in telesurgery, three-dimensional (3D) printing, and the incorporation of patient-specific simulated anatomy. Cognitive surgical simulations can be used to refine team communication, acquisition of surgical consent, or crisis management through role play or virtual environments. The goal of using simulation in surgical training at all levels is a promotion of the triple aim goals of optimal outcomes, responsible resource utilization and patient satisfaction.

In surgical education, simulation and advanced technology protocols might include any of the following:

- An online surgical simulation which takes learners through a procedure following by a reading, anatomic review and quiz; this is similar to virtual reality trainers but without the use of surgical instruments.
- A homemade low-cost simulation model such as kitchen sponges to simulate tissue dissection, or a modified beef tongue model for fourth-degree laceration repair.
- A two-hour hospital required interprofessional simulation to prevent and manage operating room fire.
- A pulsatile, carotid endarterectomy (CEA) benchtop surgical simulation model used to enhance learners' procedure-specific knowledge, comfort, and confidence in performing the steps of a CEA procedure.
- A unique training scenario for urology residents involving a laparoscopic partial nephrectomy procedure, using a high-fidelity SimMan3G mannequin.
- Low and medium fidelity simulations such as Top Gun, FLS, and FES.
- High fidelity models for trauma management such as The Advanced Trauma Operative Management (ATOM®) course.

Simulation and Advanced Technology Protocol Examples and Relevant Resources

Schimpke, Scott W., Brandon M. Larson, Benjamin R. Veenstra, Jonathan A. Myers, Aleksandra Wojtowicz, and Jose M. Velasco. Do one, do one, teach one: altering the dogma using simulation-based training to maximize efficiency of surgical resident education. Journal of the American College of Surgeons 231, no. 1 (2020): 140-148.
Authors developed and implemented an integrated simulation curriculum to improve residents' autonomy and increase their confidence to practice independently. A laparoscopic ventral hernia repair (LVHR) was used as a pilot operation to test proof of concept and to inform a larger integrated curriculum. Findings suggest that a simulation-based curriculum is feasible and can be used to augment resident training.
Fu, Yaoyu, Lora Cavuoto, Di Qi, Karthikeyan Panneerselvam, Venkata Sreekanth Arikatla, Andinet Enquobahrie, Suvranu De, and Steven D. Schwaitzberg. Characterizing the learning curve of a virtual intracorporeal suturing simulator VBLaST-SS©. Surgical endoscopy (2019): 1-10.
The virtual basic laparoscopic skill trainer suturing simulator (VBLaST-SS©) was developed to simulate the intracorporeal suturing task in the FLS program. This study found that participants' performance on intracorporeal suturing was significantly improved after training on the system, and skills were retained after 2 weeks of no training.

Pugh, Carla M., Ahmed Ghazi, Dimitrios Stefanidis, Steven D. Schwaitzberg, Martin A. Martino, and Jeffrey S. Levy. How Wearable Technology Can Facilitate AI Analysis of Surgical Videos. Annals of Surgery Open 1, no. 2 (2020): e011.

This paper summarizes the work of 8 research teams using Artificial Intelligence (AI) for surgical video analysis. Operative video has potential to enable instant replays of critical surgery decisions for training and quality review. Results presented support the utility of wearable technology to facilitate efficient and accurate video analysis and segmentation.

Cook, David A., Dana K. Andersen, John R. Combes, David L. Feldman, and Ajit K. Sachdeva. "The value proposition of simulation-based education." Surgery 163, no. 4 (2018): 944-949.
This paper helps to clarify the value proposition of simulation-based education. Authors urge future work to focus on both outcomes and costs, with robust measurement of resource investments, provider performance (in both simulation and real settings), patient outcomes, and impact on the health care organization.

Stefanidis, Dimitrios, Gyusung Lee, Patrice G. Blair, Kathleen A. Johnson, and Ajit K. Sachdeva. What are the Top Research Priorities in Surgical Simulation and How Can They Be Best Addressed? Results from a Multidisciplinary Consensus Conference. Annals of Surgery (2020).
The top three priorities in surgical simulation research were defined and project outlines were developed for impactful projects on these topics: 1) impact of simulation training on patient safety and outcomes; 2) the value proposition of simulation; and 3) the use of simulation for physician certification and credentialing. Successful completion of such projects is expected to advance the field of simulation-based surgical education.