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ORIGINAL RESEARCH

Application of Kern's 6-Step Approach in the Development of a Novel Anesthesiology Curriculum for Perioperative Code Status and Goals of Care Discussions

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INTRODUCTION

End-of-life (EOL) medical care involves a multitude of perioperative patient safety and ethical considerations commonly faced by anesthesiologists. Yet physicians in general are often inadequately prepared for EOL discussions, including code status and goals of care. According to a recent survey conducted by the Kaiser Family Foundation,¹ only 11% of Americans have discussed their wishes for EOL medical care with a doctor or other health care provider. Even among patients who are 65 years and older, only 22% reported having had this conversation. Lack of patient comfort in conversing about these issues does not seem to present a major barrier, considering 92% of patients mention they would be at least somewhat comfortable talking with a doctor or health care provider about their EOL medical wishes.

Advances in medical care and an aging population have led to more surgical operations being performed on older patients with significant comorbidities.^{2,3} A study conducted in 2013 showed that nearly 5% of patients seen in a preoperative clinic at a tertiary care hospital died within 1 year of their procedure, and almost half of those who died did not have an advance directive by their date of surgery.⁴ In addition, approximately 15% of patients with a do-not-resuscitate (DNR) order present for surgery.⁵ Both the American College of Surgeons⁶ and the American Society of

Anesthesiologists⁷ have recently reissued Statements on ethical management of DNR orders prior to surgery or procedures requiring anesthesia care. These statements advocate for discussion, documentation, and clarification of postoperative care based on the patient's goals and values. Therefore, discussing and clarifying code status and goals of care are essential components of anesthesiology training in perioperative medicine, patient optimization, and perioperative care coordination.

Shared decision-making (SDM) is a pertinent consideration with all EOL discussions. A provision of the Affordable Care Act (ACA)⁸ aims to increase patient involvement in healthcare decisions through the training of physicians and funding for the development, testing, and implementation of decision aids for patients. Certain medical specialties have proactively incorporated SDM into EOL care. For example, the Renal Physicians Association created an SDM framework for discussions regarding initiation and withdrawal of dialysis therapy.⁹ This framework defines the discussion as a meeting of 2 experts: the provider as the medical expert and the patient as the expert of his or her goals and values.¹⁰ Recommendations from the internal medicine literature promote SDM as a model for clinicians to discuss clinical practice guidelines in a manner that is both evidence based and patient centered.¹¹ In

2016, the Society for Academic Emergency Medicine convened a working group with the aim to create a consensus statement and identify the key research questions to incorporate SDM for palliative care in the emergency department.¹²

Yet barriers and limitations to the implementation of SDM remain when conducting effective and consistent EOL discussions. In a study measuring SDM elements incorporated into physician-family discussions of EOL treatment decisions in the intensive care unit, the least frequently addressed elements were the family's role in the decision and an assessment of the family's understanding of the decision. Lower family educational level was reported to be associated with less SDM.¹³ Ankuda et al¹⁴ examined patterns and predictors of deficiencies in SDM and informed consent in approximately 1000 preoperative patients. The authors describe the presence of deficits in over one-third of patients undergoing preoperative decision-making and advocate for interventions to address the needs of at-risk patients in order to improve the surgical decision-making process and reduce disparities. Finally, patient understanding of the assumed risks and possible outcomes associated with medical or surgical treatment options may pose a challenge depending on preferred method of communication and ability to convey preferences and values.¹⁵

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EOL discussions are essential in order for patients and physicians to make informed decisions concerning treatment options.¹⁶⁻¹⁸ Anesthesiologists are uniquely positioned to facilitate, or even initiate, code status discussions (CSD) and goals of care discussions (GOCD) with patients prior to surgery or procedures requiring anesthesia care, especially if a patient's primary care physician or surgeon has not already done so. With the expansion of their role as perioperative physicians, anesthesiologists' scope of practice and responsibility will continue to extend beyond solely caring for patients in the operating room.^{19,20} An article published in 2018 by Cobert and colleagues²¹ describes anesthesia-guided palliative care in the Perioperative Surgical Home (PSH) model. The authors assert that taking a patient-centered approach during preoperative evaluation allows anesthesiologists to serve as an advocate while addressing goals of care and defining resuscitation. Additionally, assessment of risk and frailty is necessary and may ultimately require the coordination of a broader interdisciplinary discussion pertaining to both the associated risks and the utility of the surgical procedure, especially if patients are conflicted or ill-advised.

Alem and colleagues²² described a novel curriculum for anesthesiology residents that focuses on the PSH model and transformation of perioperative care. A specific learning objective of this curriculum includes demonstration of SDM and coordination of advanced patient-centered care within the context of the PSH. Yet very little data exist describing training or professional development for physicians on discussions of care and making shared decisions with patients and their families in the perioperative setting.^{23,24} Our goal was to systematically develop a novel curriculum for anesthesiology trainees to teach the necessary skills to successfully conduct CSD/GOCD. Furthermore, we intended to incorporate performance assessment strategies to evaluate the following: (1) immediate effect on CSD/GOCD skills, (2) internalization of the training by the learners, and (3) the authenticity, feasibility, and acceptability of the CSD/GOCD curriculum and standardized encounter in

an OSCE setting.

CURRICULUM DESIGN

Using Kern's 6-step approach to curriculum development, we created a curriculum template for teaching the necessary skills to successfully and effectively conduct CSD/GOCD. Kern's framework for curriculum development has successfully been applied widely within medical education across multiple specialties and training.²⁵⁻²⁷ Applicable to our curriculum, it has been used for the design of patient-centered communication workshops that focused on the development and practice of communications skills during medical encounters.^{28,29} The proven efficacy and versatility of this framework make it the most appropriate foundation for this curriculum design.

Our curriculum consists of evidence-based best practices content covering professional guidelines, SDM, and effective communication strategies. In addition, Accreditation Council for Graduate Medical Education (ACGME) core competencies of Practice-Based Learning and Improvement, Professionalism, Patient Care, and Interpersonal and Communication skills were incorporated in the curriculum design in order to structure the necessary knowledge and skills all residents should demonstrate for competence (Table 1).³⁰ Table 2 summarizes Kern's framework and outlines key aspects of our curriculum design. Each step is described in detail with supporting educational principles and evidence.

Step 1—Problem Identification and General Needs Assessment

A review of the literature revealed that educational studies describing the best method to train residents in conducting CSD/GOCD area is lacking. One study examining resident participation in EOL discussions found that patients on an inpatient medical service were 22 times more likely to have EOL-related notes than patients on surgical services.³¹ Patients on an inpatient medical service also more frequently had notes written by residents documenting DNR status decisions (61% vs. 10%) and decisions to withdraw care (41% vs. 10%) compared to patients on surgical services. A survey of surgical

residents at one institution found that while all residents advocated the importance of communication skills in good clinical care, only a minority were comfortable conducting family conferences (40%), discussing DNR orders (36%), and discussing transition to comfort care (24%).³² Studies have found that CSD training for medical residents is well received, improves confidence and performance, and can be evaluated effectively with objective structured clinical examinations (OSCEs).^{18,33,34} Surgical residents also reported that OSCEs simulating EOL discussions in the intensive care unit are helpful and authentic.³⁵

Step 2—Targeted Needs Assessment

While a limited number of previously published studies have described methods for teaching communication skills to anesthesiology residents,^{36,37} no formal training programs specifically aimed at conducting CSD/GOCD have been reported for this group of trainees. Yet the anesthesiology milestones project specifically identifies "negotiates and manages patient and family conflicts in complex situations, including end-of-life issues" as a pertinent competence in the Interpersonal and Communication Skills domain.³⁰ Furthermore, the American Board of Anesthesiologists (ABA) has identified this to be a pertinent topic in which candidates are required to demonstrate proficiency. The APPLIED examination now includes the traditional oral examination and a new OSCE component. The OSCE will focus on core competencies that are not readily tested in the traditional written or oral examination settings, such as communication and professionalism skills surrounding treatment options, complications, or ethical issues. Discussion of how to manage a patient's DNR status in the perioperative period is a specific example scenario listed in the OSCE content outline put forth by the ABA for the APPLIED examination.³⁸

In a study published in 2017, Isaak et al³⁹ surveyed anesthesiology residency programs regarding preparation of their residents for the APPLIED examination. Of the 66 programs responding to the survey, 91% agreed that it is the responsibility of the program to prepare residents for board certification. In addition, 89% of programs

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responded that it is important to practice OSCEs. However, only 32% of anesthesiology residency programs responding to the survey provide a formal OSCE educational experience to their residents. A lack of both faculty and resident time and a lack of expertise in OSCE development and assessment were the primary reasons for not implementing formal OSCE programs. Therefore, determining best practices for teaching residents CSD/GOCD while also preparing them for the APPLIED examination will be indispensable to anesthesiology residency programs.

Step 3—Goals and Objectives

Based upon current literature supporting effective communication strategies in CSD/GOCD, we identified domains of skill development and assessment to aid with creating specific curricular objectives. An example of one such domain is general patient-centered interviewing skills. Specific strategies include establishing rapport, describing the purpose of the encounter, using summary statements and nontechnical language, and asking open-ended questions.^{10,18,40} Responding to emotion is another important domain that allows the physician to acknowledge the patient's own views and feelings and validates the importance of the patient's contributions to the discussion.⁴¹ From these domains, specific objectives for our CSD/GOCD curriculum were created. At the completion of this curriculum, residents will verbalize strategies for completing a successful and effective CSD/GOCD and demonstrate the following skills when performing a CSD/GOCD: (1) engage in patient-centered interviewing skills, (2) address patient-specific values and goals of care, (3) explain informed consent for code status with an emphasis on clarifying DNR status in the perioperative period, and (4) respond to emotion.

Step 4—Educational Strategies

Our curriculum is composed of the following educational components: (1) formal, online learning modules, (2) selected journal articles describing CSD/GOCD skills and communication strategies, and (3) two OSCE experiences with one occurring prior to and the other occurring after completion of the educational content. The educational

content focuses on established professional guidelines and current literature supporting CSD/GOCD and effective communication strategies. Specifically, it has been demonstrated that training programs for teaching communication skills to physicians should include active, practice-oriented strategies. Furthermore, oral presentations on communication skills and written information may be used as supportive strategies.⁴² Published best-practice principles for the development of OSCE scenarios and competency assessments were also used to create experiences for our CSD/GOCD curriculum.^{35,43} Additionally, OSCEs can serve not only as an intervention or teaching method, but also as an evaluation tool to assess if other educational interventions have made an impact on learning.^{44,45}

Prior to the development of online learning modules, we convened a group of experts from the fields of palliative care, geriatric anesthesia, and ethics to assist with designing the curriculum content. The goal was to create an educational intervention that would be easily accessible to all learners. We created a total of 5 online modules including goals of care, management of DNR orders in the perioperative period, key points on structuring preoperative conversations, a video of a sample conversation to demonstrate strategies and skills of a good conversation, and tips on measuring success during these difficult encounters. Table 3 summarizes the content included in each individual module.

The decision to use online learning modules as an educational format was multifactorial. Emerging trends in higher education reinforce active and self-directed learning in the form of technology-enhanced approaches, e-learning, and flipped classroom.⁴⁶⁻⁴⁹ Additionally, technology-enhanced approaches are effective in engaging students with diverse learning styles.⁴⁹ Finally, the benefits of video as an instructional method have been reported in the medical education literature.⁵⁰⁻⁵³

We also selected 2 key peer-reviewed journal articles to be used as a supplemental instructional modality. The first journal article is a comprehensive review of the preoperative assessment of the older patient.¹⁶ This article contains an in-depth description of the important considerations when

discussing treatment goals with older adults prior to undergoing a surgical procedure. The second article reviews best practices for patient-centered communication.⁴⁰ Specifically, the authors emphasize pertinent communication and behavioral skills, goals, and responsibilities of a physician during an encounter. Information presented in this article is based on empirical evidence and on the statements of experts and patients.

We also developed 2 OSCE scenarios: 1 for the precurriculum OSCE and 1 for the postcurriculum OSCE. Each scenario presents a case of a medically complex patient undergoing a high-risk surgical procedure. We developed a case stem with relevant medical history and other information for the resident to review immediately prior to the encounter. The residents are given specific instructions that the main objective is to discuss goals of care and clarify DNR status. Details of the 2 case scenarios are summarized in Appendixes A and B.

Two training videos were developed for the OSCE raters. Each of the raters involved with this curriculum viewed and independently rated each of the training videos. To ensure uniformity, we then had a discussion about each video with the rater while comparing the overall grading. The OSCE standardized patients also viewed the training videos since they are also responsible for rating each resident and providing formal feedback on their performance.

Step 5—Implementation

Target learners for our CSD/GOCD curriculum are CA1, CA2, and CA3 residents, and the curriculum is generalized and applicable to all levels of training. The curriculum begins with residents completing a precurriculum OSCE to assess their baseline knowledge and skills surrounding CSD/GOCD. No background reading or any other education will be provided. In addition, neither the rater nor the standardized patient provides formal feedback or debriefing after the precurriculum OSCE. Residents will then have approximately 2 weeks to review the educational content at their own pace. The educational content is located in a learning management system, allowing for the ability to track learner progress. Each resident will complete the curriculum by participating in

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a second OSCE. This postcurriculum OSCE includes formal feedback and debriefing from both the rater and standardized patient.

Step 6—Concepts for Evaluating the Effectiveness of the Curriculum

Conducting precurriculum and postcurriculum OSCEs is the primary method used to evaluate the immediate effect of the training program on improving CSD/GOCD skills. A group of faculty raters assists with grading resident performance according to a checklist assessment tool (Appendix C). The performance assessment tool is designed to evaluate the degree to which each resident has successfully accomplished the objectives of our curriculum. Creation of this assessment tool required a comprehensive literature review of previously validated checklists. Our unique assessment tool is a modification of a published checklist used to assess internal medicine residents' CSD skills.¹⁸ It also incorporates best practices for patient-centered communication, with a focus on pertinent communication and behavioral skills.⁴⁰ Our assessment tool consists of 24 questions relating to 4 major domains, specifically: (1) patient-centered interviewing skills, (2) GOCD, (3) DNR status clarification, and (4) response to emotion (Table 3). There is also space for each observer to include unstructured feedback comments about the resident's performance.

Residents will provide feedback via a follow-up survey (Appendix D), which will assess the perceived value of the training, satisfaction with the training program and OSCE, and whether they would recommend the training program to other anesthesiology residents. Additional survey distribution will occur at 3 and 6 months after completion of the curriculum to evaluate interim experiences and internalization of the CSD/GOCD training.

Conclusion

Using a systematic approach of Kern's 6 steps for curriculum development, we created an innovative curriculum for anesthesiology residents designed to teach the necessary knowledge and skills to successfully and effectively conduct CSD/GOCD. Given the increasing relevance of CSD/GOCD to

clinical anesthesia practice combined with the current paucity of training, designing best practice education methods are critical to the comprehensive development of modern-day anesthesia providers. Ultimately, we hope to demonstrate both the benefit and reproducibility of the curriculum, leading to a formalization of this innovative CSD/GOCD training on a larger, national scale.

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Abstract

Background: Code status discussions, goals of care discussions, and shared decision-making in the perioperative setting are of great importance. As perioperative physicians, anesthesiologists are uniquely poised to handle these discussions. Yet formal training for anesthesiology residents in how to approach these scenarios is currently lacking.

Methods: Using Kern's 6-step approach to curriculum development, we describe an innovative curriculum for anesthesiology residents designed to teach the necessary skills to successfully conduct code status and goals of care discussions and to assess its efficacy.

Results: Our curriculum is composed of the following educational components: (1) formal, online learning modules, (2) selected journal articles describing code status and goals of care discussions skills and communication strategies, and (3) 2 objective-structured clinical examination experiences, with 1 occurring prior to and the other occurring after completion of the educational content. The educational content focuses on evidence-based best practices content covering professional guidelines, current literature, shared decision-making, and effective communication strategies. We also describe the potential methodology to evaluate the effectiveness of our proposed educational interventions.

Conclusion: Using Kern's framework, we developed a curriculum focusing on code status discussions, goals of care discussions, and shared decision-making in the perioperative setting which provides trainees with the opportunity to practice communication skills and receive feedback from a standardized patient through participation in an objective structured clinical examination. Key Words: Code status, goals of care, do not resuscitate, end-of-life care, shared decision-making, OSCE, resident education, preoperative evaluation.

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Figures

Table 1. Key Domains and Skills

ACGME Domain	Key Curriculum-Specific Competencies
Patient Care	<ul style="list-style-type: none"> • Conducts a preanesthetic patient evaluation and optimizes preparation of complex patients • Ensures that informed consent is comprehensive and addresses patient needs • Serves as a consultant while managing a complex clinical scenario
Interpersonal and Communication Skills	<ul style="list-style-type: none"> • Demonstrates effective patient-centered communication and interviewing skills • Addresses complex circumstances including discussion of code status and goals of care • Adapts communication to the unique circumstances and resolves patient concerns and conflicts
Practice-based learning and Improvement	<ul style="list-style-type: none"> • Educates patients and explains anesthesia-related risk to patients
Professionalism	<ul style="list-style-type: none"> • Proposes a care plan that respects patient's goals, values, and concerns • Responds to emotion and communicates support/nonabandonment

ACGME = Accreditation Council for Graduate Medical Education

Table 2. CSD/GOCD Curriculum Development Using Kern's 6-Step Framework

Kern's 6-Step Framework	CSD/GOCD Curriculum
1. Problem identification and general needs assessment	<ul style="list-style-type: none"> • Research describing the best methods for training residents in this area is generally lacking. • Based upon results of few studies, CSD training for medical residents is well received and has the potential to improve confidence and performance.
2. Targeted needs assessment	<ul style="list-style-type: none"> • No formal training programs for CSD/GOCD have ever been published for anesthesiology trainees. • Managing a patient's DNR status in the perioperative period is a specific example scenario listed in the OSCE content outline put forth by the ABA.
3. Goals and objectives	<ul style="list-style-type: none"> • Residents will verbalize strategies for completing a successful and effective CSD/GOCD. • Residents will demonstrate the following skills when performing a CSD/GOCD: (1) engage in patient-centered interviewing skills, (2) address patient-specific values and goals of care, (3) explain informed consent for code status with an emphasis on clarifying DNR status, and (4) respond to emotion.
4. Educational strategies	<ul style="list-style-type: none"> • Selected journal articles describing CSD/GOCD skills and communication strategies • Formal, online learning modules • OSCE experiences prior to and after completing the educational content
5. Implementation	<ul style="list-style-type: none"> • Precurriculum OSCE to assess baseline knowledge and skills • Residents will have approximately 2 weeks to review the educational content at their own pace • Postcurriculum OSCE will include feedback from the rater and standardized patient
6. Evaluating the effectiveness of the curriculum	<ul style="list-style-type: none"> • Evaluation of the immediate effect on improving CSD/GOCD skills will occur with a postcurriculum OSCE performance assessment • Survey distribution at 3 and 6 months will evaluate interim experiences and internalization of the CSD/GOCD training

ABA = American Board of Anesthesiologists, CSD = Code Status Discussion, DNR = Do Not Resuscitate, GOCD = Goals of Care Discussion, OSCE = Objective Structured Clinical Examination

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Figures continued

Table 3. Educational Content of Modules

Module	Educational Content
1. Preoperative Goals of Care Discussions: What, Why, When, and How?	<ul style="list-style-type: none"> • 10-minute video of an expert discussion designed to provide answers to the following questions: <ol style="list-style-type: none"> (1) What is meant by the term “goals of care”? (2) Why and when should such discussions take place? (3) How should the discussion be documented?
2. DNR Orders for Surgical Procedure	<ul style="list-style-type: none"> • 15-minute video of an expert discussion surrounding DNR orders for patients presenting for surgical procedure • Illustrative case scenario: 82-year-old female with advanced metastatic pancreatic cancer presenting with bowel obstruction for surgical placement of gastrostomy tube for symptom management; currently documented as DNR/DNI • Brief history of the concept of DNR • American Society of Anesthesiologists and American College of Surgeons guidelines
3. Preoperative DNR/DNI Conversations	<ul style="list-style-type: none"> • 5-minute video discussing the importance of this conversation • Emphasizes that simply informing a patient their DNR/DNI order will be reversed is not a sufficient conversation • Goal is to determine and document patient’s preferences and communicate these preferences with the anesthesia and surgical teams • Provides an example framework for the conversation
4. Preoperative Patient Discussion	<ul style="list-style-type: none"> • Video of an example preoperative discussion clarifying DNR/DNI status and establishing patient preferences • Demonstrates communication and behavioral skills of a successful and effective conversation
5. Goals of Care Discussion: Measuring Success	<ul style="list-style-type: none"> • 6-minute video of an expert discussion describing patient-centered interviewing skills, effective goals of care and code status discussion, and appropriately responding to emotion

DNI = Do Not Intubate, DNR = Do Not Resuscitate

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Appendix

Appendix A. CSD/GOCD Precurriculum OSCE

Intended Duration:

Simulation: 30 minutes

Debriefing: no debrief

Specific Educational Objectives:

1. Demonstrate nonverbal and verbal empathy.
2. Exhibit active listening while assessing the patient's understanding.
3. Elicit goals of care, code status, and power of attorney.
4. Ensure continuity of communication and disposition plan.

Scenario Description:

Mr. Gilbert Marshall is an 82-year-old gentleman with muscle invasive bladder cancer diagnosed 2 weeks ago and is presenting to the preoperative clinic for evaluation prior to undergoing open radical cystectomy with ileal conduit. His past medical history includes long-standing hypertension, which is well controlled on metoprolol and lisinopril. He was diagnosed with chronic lymphocytic leukemia 10 years ago, treated with rituximab, and is currently in remission. Mr. Marshall also has remote history of smoking (20-pack-year history, quit 45 years ago). He does not exercise, but he is able to walk up a flight of stairs. Past surgical history includes TURBT 2 weeks

ago and left total hip arthroplasty. He has no previous anesthetic complications.

Mr. Marshall met with both the urologist and oncologist to discuss treatment options. The urologist insists that a radical cystectomy will give him the best option for long-term survival, although did mention that he may be a higher risk surgical candidate due to his age. Mr. Marshall's oncologist disagrees that surgery is the best option and is suggesting radiation and chemotherapy, although he also stated, "patients over the age of 80 tend to not tolerate radiation and chemo well." The oncologist recommended that he also consider palliative care as an option. Mr. Marshall is DNR/DNI.

Mr. Marshall's wife of 55 years passed away 4 months previously from metastatic breast cancer. His 3 children live in various parts of the country, with the closest being a 4-hour drive. He admits to being lonely since the passing of his wife and is frustrated that he now has to deal with a new cancer diagnosis. Mr. Marshall is concerned about how he will care for himself after the surgery and is uncertain if he wants to proceed with the surgical procedure. He has many questions about what it means to be "high risk." He arrives at his preoperative clinic appointment unaccompanied.

Instructions to Resident:

You are the resident working in the preoperative clinic. Mr. Gilbert Marshall is an 82-year-old gentleman with muscle invasive bladder cancer diagnosed 2 weeks ago and is presenting to the preoperative clinic for evaluation prior to undergoing open radical cystectomy with ileal conduit. You review his electronic medical record and note that his PMH consists of HTN, CLL, and previous tobacco use. His current medications include metoprolol and lisinopril. Past surgical history includes recent TURBT and left total hip arthroplasty 15 years ago. You also review the notes from both his urologist and oncologist. The urologist has scheduled Mr. Marshall's surgery for one week from today. In the clinic note, he mentioned that a radical cystectomy would give him the best option for long-term survival, although he did indicate that Mr. Marshall might be a higher risk surgical candidate due to his age. Based upon the oncology clinic note, the oncologist is recommending radiation and chemotherapy rather than surgery. You also note that Mr. Marshall is DNR/DNI.

Resident Tasks:

1. Meet with Mr. Marshall to obtain a preanesthetic history
2. Clarify the goals of care and code status
3. No physical exam is required

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Appendix continued

Appendix B. CSD/GOCD Postcurriculum OSCE

Intended Duration:

Simulation: 30 minutes

Debriefing: 10 minutes

Specific Educational Objectives:

1. Demonstrate nonverbal and verbal empathy.
2. Exhibit active listening while assessing the patient's understanding.
3. Elicit goals of care, code status, and power of attorney.
4. Ensure continuity of communication and disposition plan.

Scenario Description:

Mr. Christopher Williams is a 68 year-old man who presents to the preoperative clinic for evaluation prior to undergoing hip arthroplasty. His past medical history includes osteoarthritis and severe COPD (FEV1 35% of predicted, FEV1:FVC 0.60, requires oxygen therapy at 2 L via nasal cannula as needed). He has a smoking history of one pack per day for 45 years and quit 5 years ago. Medications include scheduled Advair (fluticasone and salmeterol) and albuterol as needed. His symptoms of dyspnea and cough have worsened over the past 2 years, requiring several hospitalizations for acute COPD exacerbation in which he was treated with

systemic steroids and broad-spectrum antibiotics. His most recent hospitalization was 3 months ago in which he spent 3 days in the ICU and required mechanical ventilation. After this most recent hospitalization, Mr. Williams discussed DNR/DNI with his primary care physician.

His osteoarthritis has also progressed over the past several years and Mr. Williams experiences severe pain on a daily basis despite taking acetaminophen and ibuprofen. This pain has significant decreased his mobility and his quality of life. In anticipation of the scheduled hip arthroplasty, his PCP ordered a dobutamine stress echo. Performed last week, results include no evidence of inducible ischemia, mild MR and AS, and LVEF 55%.

Past surgical history includes appendectomy with no anesthetic complications. The orthopedic surgeon recommended spinal anesthesia for the hip arthroplasty. However, a friend of Mr. Williams underwent the same procedure with spinal anesthesia and said it was the "worse experience of his life." Therefore, Mr. Williams is adamant that he has general anesthesia.

The patient is a retired auto mechanic. He divorced many years ago, never remarried, and does not have any children.

Instructions to Resident:

You are the resident working in the preoperative clinic. Mr. Williams is a 68-year-old gentleman scheduled to undergo total hip arthroplasty next week. You review his electronic medical record and note that in addition to osteoarthritis, his PMH includes severe COPD (FEV1 35% of predicted, FEV1:FVC 0.60, requires oxygen therapy at 2 L via nasal cannula PRN). He has a smoking history of one pack per day for 45 years and quit 5 years ago. Medications include Advair (fluticasone and salmeterol), albuterol, acetaminophen, and ibuprofen. He had an acute exacerbation of COPD three months ago in which he spent 3 days in the ICU and required mechanical ventilation. His PCP recently saw him and DNR/DNI status was discussed. Mr. Williams had a dobutamine stress echo performed last week and results include no evidence of inducible ischemia, mild MR and AS, and LVEF 55%. The orthopedic surgeon recommends that Mr. Williams consider spinal anesthesia.

Resident Tasks:

1. Meet with Mr. Williams to obtain a preanesthetic history
2. Clarify the goals of care and elicit code status
3. No physical exam is required

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Appendix continued

Appendix C. OSCE Assessment Tool

Skill		Rating				
		Strongly Disagree, 1	Disagree, 2	Neutral, 3	Agree, 4	Strongly Agree, 5
General patient-centered interviewing skills	1. Establishes rapport promptly	1	2	3	4	5
	2. Describes the purpose of the encounter during the first third of the interview	1	2	3	4	5
	3. Uses summary statements to ensure understanding	1	2	3	4	5
	4. Uses nontechnical language	1	2	3	4	5
	5. Asks open ended questions	1	2	3	4	5
Discussing goals of care	6. Asks patient about prior experiences with end-of-life decision-making	1	2	3	4	5
	7. Assesses patient's understanding of current condition	1	2	3	4	5
	8. Explores and clarifies the patient's general values	1	2	3	4	5
	9. Explores and clarifies the patient's general goals	1	2	3	4	5
	10. Asks about patient's concerns about the future	1	2	3	4	5
	11. Proposes a care plan that respects patient's goals, values, and concerns	1	2	3	4	5
	12. Frames recommendation by focusing on "active" treatments first, rather than just on "withheld" treatments	1	2	3	4	5
	13. Inquires about assignment of health care proxy or power of attorney for health care and identifies proxy if not already assigned	1	2	3	4	5
Discussing code status	14. Assesses understanding of DNR/DNI	1	2	3	4	5
	15. Introduces need for "Worst Case Scenario" planning	1	2	3	4	5
	16. Obtains assent for reversal of DNI status	1	2	3	4	5
	17. Asks about preference for length of post-op intubation	1	2	3	4	5
	18. Clarify DNR status in the perioperative period	1	2	3	4	5
	19. Names, validates, or expresses understanding of the patient's emotional reaction	1	2	3	4	5
	20. Explores patient's emotional reaction(s)	1	2	3	4	5

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Appendix continued

Appendix C. OSCE Assessment Tool

Skill		Rating				
		Strongly Disagree, 1	Disagree, 2	Neutral, 3	Agree, 4	Strongly Agree, 5
Responding to emotion	21. Communicates respect for the patient	1	2	3	4	5
	22. Communicates support/nonabandonment	1	2	3	4	5
	23. Encourages patient to talk and/or seek support	1	2	3	4	5
	24. How much time did the resident speak during the encounter?	< 25%	25-50%	~50%	50-75%	> 75%

Please provide additional observations:

Appendix D. Post-OSCE Survey

This survey is being conducted to better understand your comfort with and background in having code status and goals of care discussions (CSD/GOCD). It is being distributed to anesthesiology residents. It is part of a research study, and your participation is entirely voluntary. Completion of this survey should take you less than five minutes. Your answers will be collected confidentially, and your decision to participate will not impact your job in any fashion nor will your answers be shared with your employers in an identifiable fashion.

Please rate the following statements based on your experiences and opinions concerning Code Status Discussions and Goals of Care Discussion (CSD/GOCD) Training.

As an anesthesiology resident:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
I believe CSD/GOCD is a beneficial component of my training.					
I believe CSD/GOCD is a necessary part of my training.					
I believe CSD/GOCD is valued in my residency program.					
I am comfortable with CSD/GOCD.					

Please indicate the educational intervention you received on CSD/GOCD as part of this study.

Online modules with lectures and video content

Journal articles only

Rate the following based on your experience and opinions concerning the QUALITY of the CSD/GOCD educational curriculum.

	Very Good	Good	Acceptable	Poor	Very Poor	N/A
Online videos						
Online lectures						
Journal articles						

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Appendix continued

Please answer the following questions regarding the standardized patient encounter:

	Yes	No
Did you complete a standardized patient encounter?		
Did you receive formal feedback on your performance?		

Please answer the following questions regarding the standardized patient encounter:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The standardized patient encounters were realistic.					
The standardized patient encounters were authentic.					

	Entirely Satisfied	Mostly Satisfied	Neutral	Mostly Dissatisfied	Entirely Dissatisfied
Please estimate your satisfaction with the standardized patient encounter.					

Please provide any additional comments or feedback:

If you received the modules with **online videos and lectures**, please answer the following questions:

1. All of the following statements pertaining to patients with DNR/DNI status presenting for anesthesia are correct EXCEPT:
 - A. Automatically revoking a patient's DNR/DNI order creates a scenario in which the patient must surrender their autonomy in order to qualify for the surgical procedure.
 - B. Conflicts for the anesthesiologist can be attributed to the DNR order itself and the conventional goals of an anesthesiologist to provide resuscitation during an anesthetic.
 - C. Guidelines addressing DNR/DNI orders in the operating room do not exist.
 - D. Prior to procedures requiring anesthetic care, any existing directives to limit the use of resuscitation should be reviewed with the patient or surrogate.
2. All of the following are included in a framework used to appropriately address the preoperative discussion of DNR/DNI except:
 - A. Assess patient understand of the DNR/DNI order
 - B. Instruct the patient that DNR/DNI orders are automatically reversed during anesthetic care
 - C. Introduce the need for "worst case scenario" planning
 - D. Ask about health care proxy
3. As a society, which of the following is considered to take precedence over all other ethical considerations?
 - A. Autonomy
 - B. Beneficence
 - C. Nonmaleficence
 - D. Distributive justice

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Appendix *continued*

If you received the **published journal articles**, please answer the following questions:

1. All of the following statements pertaining to the preoperative assessment of a geriatric patient are correct EXCEPT:
 - A. The assessment of the patient's decision-making capacity determines the degree to which surrogates are involved in making choices about treatment.
 - B. Older patients considering surgery should undergo a preoperative assessment that includes medical conditions, geriatric syndromes, and life expectancy.
 - C. Preoperative optimization includes assessing for polypharmacy, frailty, and nutritional status.
 - D. For a patient with multiple morbidities nearing the end of life, establishing the patient's overall life goals is not a priority.
2. Which of the following statements pertaining to communication and interpersonal skills training in current medical education is CORRECT?
 - A. Training and role modeling of communication and interpersonal skills in medical education is relatively brief, is placed early in the curriculum, and often is not reinforced in the latter stages of training.
 - B. Assessment of trainee communication skills is not considered to be an important aspect of medical education.
 - C. Literature demonstrating that physicians can learn patient-centered communication skills is lacking.
 - D. There is no consensus about the essential elements of communication skills relevant to medical encounters.
3. Successful communication during patient encounters requires all of the following EXCEPT:
 - A. Minimizing medical jargon
 - B. Avoiding repetition
 - C. Employing a patient-centered approach
 - D. Assessing patient understanding