

The Certifying Examination of the American Board of Surgery: The Effect of Improving Communication and Professional Competency: Twenty-Year Results

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PURPOSE: In 1985, a small research group identified variables affecting applicant success on the oral Certifying Examination (CE) of the American Board of Surgery (ABS). This led to the design of an oral examination course first taught in 1991. The success of and need for this program led to its continuation. The results from the first 10 years were presented at the 2001 Association of Program Directors in Surgery annual meeting.¹ We now report the outcomes for the course of the second 10 years as measured by success on the CE.

METHODS: Thirty-six courses were held over 20 years. There were 57 invited faculty from 27 general surgery programs throughout the United States and Canada. The participant-to-faculty ratio ranged from 16:7 to 5:1 in the newer 3-day format (2007). Courses were offered at sites that replicated the actual examination setting. Each course included (1) pretest and post-test examinations, (2) analysis of case presentation skills, (3) measurement of communication apprehension, (4) 1:1 faculty feedback, (5) small-group practice sessions, (6) individual videotaping, (7) didactic review of specific behaviors on examinations, (8) a debrief session with two faculty members, and (9) a

written evaluative summary that included an improvement strategy.

RESULTS: There were 36 courses with 326 participants (30-54 years). Follow-up data are available for 225 participants. Trends were analyzed between 1991-2001 and 2002-2011. As resident performance on the CE increased in importance, applicant profiles changed from those who had previously failed (1991-2001) to residents identified by program directors as needing assistance (52%). Since 2002, most course participants (69%) who had failed the CE had completed at least 1 other review course. Participants reported more significant stressors (2002-2011) 9%, but communication apprehension remained the same. As a result, individual counseling for anger and family stressors was integrated into the course. The perception of knowledge deficits was associated with those who enrolled in fellowship training and delayed their examination. The recent groups exhibited more professionalism and articulation issues related to performance. Five surgeons (2002-2011) were asked not to return to the course because of severe knowledge deficiencies or ethical/behavioral issues based on faculty evaluations. Although complete follow-up of all participants was not possible (only 225/326), the success rate among those providing follow-up was 97% for those who followed their remediation plan, giving 218/326, a worse-case pass rate of 67%.

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CONCLUSION: Communication and professionalism deficits are still common in those struggling with the CE. Early identification of those at risk of failing by program directors who are documenting the competencies may promote earlier interventions and thus lead to success. This program continues to be effective at identifying behaviors that interfere with success on the CE of the ABS. (*J Surg* 69:118-125. © 2012 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

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COMPETENCIES: Professionalism, Interpersonal and Communication Skills, Medical Knowledge

In 1985, a small research group began identifying the variables affecting applicant success on the oral Certifying Examination (CE) of the American Board of Surgery (ABS).¹⁻³ This led to the design of an oral examination course in 1991. The success of and need for this program led to its continuation. The results from the first 10 years were presented at the 2001 American Program Directors in Surgery annual meeting.⁴ We now report the outcomes of the second 10 years as measured by success on the CE.

During this 20-year period, there were changes to both the requirements of the Certifying Examination by the American Board of Surgery and the design of the Clinical Performance and Oral Examinations in Surgery course. Before March 2003, candidates for the certifying examination were only offered 3 opportunities within a specific 5-year period to complete the examination successfully. Candidates were assigned a location and date for the examination by the ABS. Candidates who failed an examination could send a written request to the ABS for a letter outlining their performance in each of the 3 areas. If candidates were not successful within those 5 years, they could complete a residency remediation program and reapply. The guidelines for board-certified surgeon participation in this course has not changed over 20 years. Surgeons who have been regional examiners for the ABS cannot participate in any review courses for 12 months. ABS director examiners are never allowed to participate in any review course once they have accepted their position.

After March 2003, candidates were offered 5 attempts to pass the CE within a 5-year period that started after the successful completion of the Qualifying Examination (QE). Examinees were also allowed to choose an examination site. Difficulty with scheduling logistics caused the ABS to continue to make incremental changes. No geographic, seasonal, or timewise patterns were associated with candidates' site choices, but scheduling problems occurred when candidates canceled within weeks of the examination (F.R. Lewis, email communication, June 03,

2011).⁵ Since 2009, candidates select a site before September 30 and are limited to 2 attempts per year to allow everyone at least 1 opportunity per year. If candidates cancel, then it is unlikely that they will find another open slot within the same year.⁵ Exceptions are only being made for those in active military service outside the United States. Candidates who fail the CE can also no longer obtain a letter from the Executive Director of American Board of Surgery outlining their performance in each of the examination areas.

When candidates are not successful within the allotted 5 years, they have 2 options to meet the standards for reapplication for certification: (1) Standard pathway: complete a year of study in an approved residency training program, or (2) alternate pathway: complete 100 hours (60—category I) of CME within 2 years, complete the American College of Surgeons' Surgical Education and Self Assessment Program (SESAP), which may also satisfy the 60 credits of category I CME. Then, an application must be submitted by February 1. Candidates must then complete the following within 5 years: obtain a score of at least 20% on the Clinical Management section of the ABSITE and receive at least an 80% on the SESAP. Finally, the candidate must complete the Qualifying Examination successfully in August. Both pathways require specific reference letters and may be repeated. After completing either pathway, applicants have 5 years to complete the CE examination. Finally, if the candidate did not meet these requirements, he/she must return to the PGY-4 or 5 level before starting a new 5-year period. The application fee for the alternate pathway is \$200 and overall costs significantly exceed this for the SESAP and other required CME courses. Since 2003, most candidates have chosen to remediate via the alternative pathway.

In an effort to assist the examiners with minimizing subjectivity, the ABS case books have much more structure than in previous years. Each question lists more specifics that should be incorporated into a "safe" answer. Since the mid-1980s tremendous efforts have been implemented by the ABS to use psychometrics. Currently, an ABS psychometrician adjusts examiner severity/leniency (difficult vs easier examination styles) when pairing examiner teams as part of a major effort to promote fairness. As times changed, the ABS made refinements to the process but did not make changes to their primary goal "to evaluate a candidate's clinical skills in organizing the diagnostic evaluation of common surgical problems and determining appropriate therapy" during three 30-minute sessions.⁶

For example, as the ABS realized that most commercial review courses "teach to the examination," they have added more safeguards. In the most recent ABS video designed to train CE examiners, there is caution about questions provided through some courses and publications. Through a humorous example, examiners are instructed to slightly alter cases if examinees seem to have memorized answers to questions.⁷ The purpose of this examination, the board illustrates, is to monitor the decision making process of the candidate, not recall specific facts.

The national focus on developing the communication skills of surgeons changed dramatically over the second 10 years of

TABLE 1. Comparison of 1991-2001 and 2002-2011 Course Participants

	1991-2001	2002-2011	
Participants	122	204	Residents and in examination process
Age	30-54	28-54	Residents and in examination process
Women	33	57	Residents and in examination process
Failed CE at least once before enrolling in course	68%	39%	In examination process
Taken other review courses	27%	69%	In examination process
Current residents	38	106	Residents
Rejected by this course*	3%	2%	In examination process
Oral presentation issues	77%	21%	Residents and in examination process
High stressors (DSM-IV)	9	18	Residents and in examination process
Risk for failure without remediation plan	63	108	Residents and in examination process
Repeated course	4	4	Residents
	1	6	In examination process
Modified residency completed	2	3	In examination process

*Not able to return to course because of behavioral/ethical issues.

this program. In February 1999, the ACGME endorsed general residency competencies in: patient care, medical knowledge, practice-based learning, interpersonal and communication skills, systems-based practice, and professionalism. Over the next few years, both institutional review committees (Residency Review Committee [RRC]) and Liaison Committee on Medical Education (LCME) incorporated these competencies into their requirements. Therefore, those residents in the 2002-2011 courses had completed medical school training and been involved in residency training programs that were more aware of the importance of communication and professionalism issues and other competencies than those in the first 10 years of this course. Clerkship and program directors in this second decade were asked to document these competencies in all of their trainees. Under ACGME/RRC guidelines, surgery training programs were affected negatively if 65% of their most recent 5-year graduates did not successfully pass their QE and the CE on their first attempt. Individual program results became accessible easily via the ABS website. In parallel, the American College of Surgeons (ACS) Patient Safety and Professional Liability Committee published "Critical Failures to Communicate" which reviewed 460 closed legal claims in surgery between 2003-2004.⁸ The study found 19.8% of these claims were caused by failure of communication with patients and families, other physicians, and nurses and laboratory personnel, putting additional national emphasis on surgeons developing their communication and professionalism skills. All learners from medical students to fellows were being exposed to an examination of their communication skills, unlike those of previous generations. In fact, since 2008, there have been many discussions about the possibility of incorporating assessment of communication and professionalism skills as a component of Maintenance of Certification at the ACS Clinical Congress.⁹

METHODS

The original cognitive and behavioral goals of the course, clinical performance and oral examinations in surgery have remained con-

sistent over 20 years and include (1) to increase awareness of the variables that affect oral examination scoring and (2) to create individual skill development. The primary outcome measure has been the successful completion of the certifying examination. Although the development of this course followed the principles of educational design (observational studies, quantitative analysis, pilot course testing, outcome measurements),¹ it was clear after 10 years that a secondary goal, to maintain stability of the course over time, was needed. This meant that early planning was essential for balancing the workload by rotating volunteer senior faculty, selection and training of new volunteer faculty, course coordination, editing of course materials, site selection, faculty retirement, support staff, and fiscal concerns.

The registration process has changed over 20 years. Program brochures were replaced by a web-based site which allows participants to view a basic description and enter demographic information online. Because the course is small, course directors or the course coordinator continue to collect information during telephone conversations as part of the registration process with the potential participant, their program director, coordinator, educator, or practice manager about "why" the participant is enrolling in the course. These conversations continued during the communication skills assessment and added to the participant profile. Participants are encouraged to enroll in the program sooner rather than later to provide ample time to implement behavioral changes. Since the purpose of the course is not to teach surgery content or English to speakers of other languages, individuals were occasionally referred to other programs for content review, ATLS or TOESL tutors (teachers of English to speakers of other languages) before enrolling in the program to maximize their learning experience (Table 1). The information from these conversations has been useful in the mock oral review sessions and the design of remediation plans.

The initial 5-day, small course design¹ continued until 2007. No group was larger than 14 participants. Each day of the course included the following:

Days 1-3: A combination of didactics, minioral examinations in suites, individual assessments, small-group exercises,

TABLE 2. Remediation Plan Examples

Problem	Identify Specific Variable	During Course Practice	Remediation Plan
Difficult to understand due to accent	Specific sound (R/T/ed) identified	Practice producing and sharpening new sound	Practice words with specific sound provided for daily practice
Negative attitude	Reaction-time latency too short	Practice increasing time between speakers	Practice counting silently before answering a question
Poor professional appearance	Specific items of clothing or grooming identified	List provided of appropriate business attire for the CE, small changes made	Engage the services of a professional wardrobe consultant
Lack of concise plan	Use of "I would . . ." "Some may . . ."	Imagine patient and say what you would do next	Read: surgical decision making Practice questions with another surgeon
Not confident	Eye contact is not focused on examiners	Practice exercises looking at all members of the audience	Practice during case presentations and with patients/families
Nervous	Excessive movement of foot or leg	Remove shoe, place pebble in shoe to annoy foot	Practice putting pebble in shoe as a reminder to avoid movement
Low volume	If not hearing loss, test for ability to increase volume	Exercises to force individual to produce acceptable volume	Present at grand rounds without microphone; practice with others at opposite ends of a room
Slow to respond to questions	Does not practice <i>trauma</i> at hospital anymore	Beginning the answers to <i>trauma</i> questions within 2-3 seconds	Complete ATLS course

video feedback sessions, and case presentations. The importance of verbal and nonverbal communication skills was stressed.¹⁰

Day 4: Formal mock oral examinations were conducted in hotel suites with additional faculty. Examiners were instructed to err on the severity side in an effort to identify weaknesses in the participants.

Day 5: Candidates were scheduled for individual debriefing sessions with a general surgeon and a behavioral scientist. The debriefing session summarized individual improvement throughout the course, communication competency, strengths and weaknesses on the formal mock oral examination, and a remediation plan (Table 2) for future improvement. The premise of the debriefing session was that honest, clear evaluations were more helpful than those that are indirect. This was especially true for those who were "in the examination process" status, were not successful in the formal mock oral examination, and would have difficulty completing the remediation plan before their scheduled certifying examination. Lengthy discussions about personal/professional goals and possible re-scheduling would follow for those we believed were at high risk for failing the CE (Table 1). The debriefing sessions were summarized in a letter sent to each course participant as well as to the program director responsible for sending a resident to the course.

In 2007, a few changes were made to the design of this review course. A decision was made to shorten the course to 3 days to parallel the schedule of the American College of Surgeons Clinical Congress and allow more residents to attend both the course and national meeting. This location also increased the availability of faculty for participation (ratio, 5:1) and reduced travel costs for those already attending the Clinical Congress.

Day 1 still focused on pretesting but the initial minimock

orals were in a group format. Day 2 covered the didactic topics, case presentations, and small-group exercises. But at the request of residents interested in this offering, minisessions were added on day 2. Specific faculty were asked to facilitate "conversations" on one of the following topics: bariatrics, breast cancer, critical care, trauma, gastroesophageal reflux disease, endocrine, melanoma, or hernias. The course also began incorporating more magnetic resonance imaging/computer tomography and plain film images with specific questions to model the current practice of the CE examination. The course size was also expanded to allow 14 participants, of which more than half were residents and 1 was an audit. The size of the course did not allow for as much individual attention with each participant as in past offerings.

A Rowland Communication Skills Inventory (RCSI) was also developed in 2006 (Table 3). The RCSI was completed by participants before beginning the course to save individual interviewing time in the condensed 3-day course format. The RCSI questions were based on themes from previous interviews and communication apprehension scales. The RCSI was used to help identify candidates with severe communication problems that might need further assistance with their communication skills before them entering the course. A surgeon with a background in psychiatry assisted with the RCSI follow-up.

The debriefing sessions changed slightly between courses. The ratio was always 1:2. Each participant met with a general surgeon and the same behavioral scientist across all course offerings. Knowledge deficits were identified, specific courses were recommended, and plans for developing communication competencies were discussed. If the participants reported high stressors or exhibited behaviors (shaking, repeated movements, crying, or lack of appropriate eye contact) that indicated unusual levels of anxiety, every effort was made to assist with

TABLE 3. Rowland Communication Skills Inventory

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Not Appl
I speak American English as a first language and I only speak American English	1	2	3	4	5	N/A
I speak another English as a first language and do not speak any other languages.	1	2	3	4	5	N/A
At one time, I spoke another language (list).	1	2	3	4	5	N/A
I speak English and another language(s) (list).	1	2	3	4	5	N/A
I wore braces before the age of 16.	1	2	3	4	5	N/A
I had an injury to my soft palate before the age of 16.	1	2	3	4	5	N/A
All of my teeth are natural.	1	2	3	4	5	N/A
I am comfortable with my dental appearance.	1	2	3	4	5	N/A
I am comfortable presenting at an M&M.	1	2	3	4	5	N/A
I am comfortable with case presentations.	1	2	3	4	5	N/A
I am comfortable having a conversation with a friend.	1	2	3	4	5	N/A
I believe I speak well with my patients.	1	2	3	4	5	N/A
I would be comfortable delivering a scientific presentation to 300 persons.	1	2	3	4	5	N/A
I test well on written examinations.	1	2	3	4	5	N/A
I was the only child in my family.	1	2	3	4	5	N/A
There were other children in my family and I had the following birth order: (circle)						
1 2 3 4 5 6 7 8 9 10						
There were _____ months/years between my closest sibling and me.						
I played team sports after the age of (12) (list)						

Please describe the type of person who would be the easiest for you to talk with. Use specifics, as if I were to hire an actor for this part. (Include stereotypes, age, gender, socioeconomic status):

Please describe the type of person who would be the most challenging for you to talk with. Use specifics, as if I were to hire an actor for this part (include stereotypes, age, gender, socioeconomic status):

Any stressors in your life? These may include those that may be considered good/bad by others (For example, births, marriage/divorce, deaths, moving, new positions).

locating a referral to an appropriate psychiatrists/psychologist in their area.

RESULTS

There were sixteen 5-day courses over the first 10 years of this program and 20 courses over the last 10 years. In total, there were 36 courses with 326 participants (30-54 years) over 20 years. Follow-up data are available for 225 participants. Trends were analyzed between 1991-2001 and 2002-2011. As resident performance on the CE increased in importance for individual residency programs and as pass rates declined from 83.4% in 2002- to 77% in 2010,¹¹ and applicant profiles for this program changed. The course was originally composed largely of those who had failed (1991-2001) the CE. More recently, the course is composed predominantly of residents identified by program

directors as potentially needing assistance (52%) (Table 1). Those in the recent 10 years who had failed the CE, always requested guidance from the faculty on “why” they had failed the CE because the ABS was no longer providing detailed written feedback on their performance in the 3 examination areas.

As more emphasis on the competencies developed throughout 2002-2011, program directors began identifying residents who were poor performers through local mock oral examinations, case presentations, journal clubs, mortality and morbidity conferences, outpatient clinics, and hospital and operating room settings. Many became concerned about the future of their programs when their residents were not successful on their first attempt on the certifying examination. As a result, more program directors began referring PGY 4 and 5 residents to this course. The most common concerns about residents that were collected from program directors during the registration pro-

cess were as follows: poor presentation skills, cocky attitude, disorganized or scattered presentations, trouble speaking to senior faculty, disheveled appearance, low volume, mumbling, easily intimidated, shy, slow to respond, too many lay terms, too loud, casual speech, and fidgety.

Many program directors believed that it was better to invest in a few individuals earlier in their training, rather than remediate later. Other program directors reported having difficulty addressing “personal” issues (dress, hair styles, and speech accents) because of their professional or employee/employer relationship with their residents and were looking for a more “objective” evaluation. Many program directors reported that they were aware of presentation issues of the participants (eg, redundant use of filler words, low volume, and lack of eye contact) but did not have the resources for remediation within their training programs. The recent groups (2002-2011) exhibited more problems (21%) with oral performance issues (Table 1).

Slightly more women enrolled in the last 10 years of the program compared with the original offerings. This observation is consistent with a small increase in the percentage of women surgeons practicing in the United States during those times from <10% to approximately 13%, even though medical schools are reporting approximately 50% women enrolled in medical school.

Since 2002, most surgeons (39%) enrolled in this course who were “in the examination process” had failed the CE previously at least once and had completed 1 or more review courses (Table 1). Participants in the last 10 years reported more *severe* stressors as defined by the DSM IV¹²: extreme anxiety, anger and “fear of failing,” compounded by family and/or spouse difficulties. Eighteen individuals were counseled to seek additional support in these areas outside of the course because the faculty felt that these stressors were affecting their performance negatively. Overall, we found that individual *severe* stressors were more common since 2002. This finding may reflect a variety of factors as reported by course participants: More residents are balancing obligations outside of the hospital than in the 1990s, the increasing prolonged adolescence of the training/fellowship period, the willingness of more programs to nonrenew problem residents, extreme pressure by chairman and program directors to pass on their first attempt, or the reality of individual debt. Although the 80-hour week was designed to provide safer patient care, there was a commonly held belief that it would also provide more time for study and would reduce the stress of surgical training. Our findings suggest the stress of a surgical residency has not lessened and the board results suggest the additional time is not producing increased performance on the certifying examination.^{11,13,14}

The perception of knowledge deficits in our course was also associated with those who enrolled in fellowship training and delayed their examination. This is now a significant issue since about 80% of surgery residents plan to complete fellowships.

In the Rowland Communication Skills Inventory, the question: “Describe the type of person who would be most challenging for you to talk with”: (Table 3) proved quite useful. Candi-

dates, who reported high anxiety in the CE, answered “an older male in a position of power over me . . .,” which probably describes a significant number of senior CE examiners. This is consistent with Lunz and Stahl’s¹⁵ work on the relationship between judges’ personal factors and a candidate’s personality and Houston’s¹⁶ belief on the relationship between examiner and examinees. It is important to note that the American Board of Surgery has a mandatory age limit of 65 for examiners, which was incorporated into the bylaws in 1937.

Four surgeons (3%) in the 2002-2011 group and 4 (2%) in the 1991-2002 group were asked not to return to the course because of severe knowledge deficiencies or ethical/behavioral issues based on faculty evaluations (Table 1). For example, rather than admit to large gaps in their knowledge base, 1 surgeon believed that his perceived race was the root cause of his failure and another simply argued that he was entitled to success on the CE because he had represented the United States in national athletic competitions. One surgeon chose to substitute the didactic and small-group sessions of the course with family recreational events yet reported to his institution that he had attended every program session. Another young surgeon entered a faculty member’s suite to examine personal belongings without permission and then had difficulty comprehending that his behavior was not acceptable for a surgeon.

Although follow-up information was not available on all participants, we report here the results on the 69% of participants (225/326) for whom information is available. In all but 1 case, those who participated in this course multiple times during residency because of early identification by a program director or attended during residency and again after successfully completing the QE, were successful on their first attempt on the CE. This result prompted some program directors to enroll additional residents. Program directors received a written copy of the remediation plan for each resident that summarized the contents of the residents’ debriefing sessions at the conclusion of the course. The resident received a personal digital video of their formal mock oral for review and self-critique.

All of those who completed a modified residency before completing this course were successful (100%). Success on the CE after completing this course and their individual remediation plan was 97% for those candidates for whom follow-up data were available. If none of the participants without follow-up data have passed, then the overall pass rate is only 67%.

Over 20 years, this program has maintained faculty stability. A long-term plan to rotate invited faculty has been successful. Concerted effort has been made to invite faculty members from different age groups in preparation to assume more responsibility in the course. Surgeon responsibilities rotate on a biannual basis to maintain quality and reduce the individual workload. Evening meetings to discuss the ongoing program, faculty selection, and locations are scheduled regularly. Because of the increased interest by program directors, a course coordinator who was a past president of the Association of Residency Coordinators in Surgery (ARCS) was added to provide information about the course design.

Program budgets are balanced annually, and therefore, logistics are always challenging for such a small course. This course has always been supported through course tuitions and the budget balanced annually. There has never been any commercial support for the course and all the surgeons volunteer their time. Yet, as all the costs associated with this course have increased (hotel suites, transportation, and media support) over time, tuition rates have not changed over 10 years. Because the course demographics have changed and 50% of the participants are residents (who are charged a substantially lower fee than those in clinical practice), the revenue has decreased. Courses scheduled in parallel to the ACS Clinical Congress are much more costly because of the lack of flexibility of room rates and commercial rates for media support. Therefore, future courses (2011-2013) will not be scheduled near the ACS Clinical Congress for fiscal stability. Although individual surgeons have donated media equipment and travel expenses to the course to reduce expenses, there have been multiple faculty discussions about accepting commercial support and/or increasing course enrollments to increase revenue. However, the authors believe that a small course size (8-14 participants) is necessary to evaluate a candidate's strengths/weakness and design individual remediation plans. They fear that an increase in course enrollment might decrease success on the CE. Those participants who have significant stressors require much more individual coaching time during the course. No additional changes to the course design are planned.

DISCUSSION

When the pilot for this course was designed more than 20 years ago, incorporating the study or evaluation of communication or interpersonal skills within a surgery training program was rare. Although program directors were always aware that certain residents had struggled with presentation issues during residency training, few had any form of remediation available. Many candidates experienced their first academic failure when they were not successful on their CE and then sought the assistance of a CE review course. As the ACGME and RRC supported the incorporation of the competencies within residency training programs along with the LCME for medical students, the profile of those seeking this review course changed. Program directors began identifying and documenting the competencies in trainees and actively began to seek appropriate assistance during residency training or CE failure. As a result, this program's participant pool shifted in the last 10 years from mostly those surgeons who had failed the CE and were still "in the examination process," to a mix of residents who were at risk of failure and those who had already failed the CE.

During the second 10 years of this course, the ABS made incremental changes to the CE, but the basic format of three 30-minute examinations in rooms with two examiners per room did not change. There was an increase in training and monitoring of examiner performance and the introduction of an Alternative Pathway for those who were not able to complete

a remedial year after multiple failures. The introduction of the eighty-hour work week during the last decade led many to predict that residents would have additional study time, however the reduction of the national CE pass rates does not support that prediction.

We believe that this small program has been successful in identifying verbal and nonverbal deficits in general surgeons who have failed or those residents who are concerned about failing the Certifying Examination. The skills necessary for this examination are different from those required for written examinations. Early intervention by program directors can be helpful in developing these skills over time. Our original premise, the identification and opportunity to practice specific communication skills, is strongly associated with success.

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