Can This Resident Be Saved? Identification and Early Intervention for Struggling Residents

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The training of surgeons has been grounded in an apprenticeship model, with evaluation of performance historically anchored primarily to subjective global assessments submitted by faculty members at the conclusion of a rotation on a specific service. In earlier eras of training, when one resident spent several months with a limited number of faculty members, these assessments were likely sufficient to identify struggling residents. In the current era of surgical training, residents spend less time with more faculty members, making it increasingly difficult to identify residents that are not performing up to the standards expected for their level, due to insufficient contact. Faculty members who perform only one operation with a given resident are hesitant to make judgments about their overall performance and are likely to give the resident “the benefit of the doubt” on their summative evaluation. Residents who are struggling can often go unrecognized for several months or even years, delaying an appropriate intervention. This failure of early identification of a struggling resident, and appropriate diagnostics to identify the root cause of the under-performance, comes at a cost to the resident and to the patients for whom he or she is providing care. Often the appropriate intervention for a struggling resident comes too late, and the resident is already stigmatized and viewed as incompetent or ineffective. These residents have difficulty recovering even when significant improvement is accomplished. The ACGME’s Milestones Project1 promises to interject more robust interval assessment for all residents in training, which should, in theory, help with earlier recognition of these struggling residents and improved diagnostics for identifying the underlying factors contributing to their poor performance. Codification of specific deficiencies commonly observed in residents that are not progressing as expected along the defined milestones will serve to develop assessment tools to identify and diagnose the underlying issues affecting their performance. The availability of this information would allow for the development of a unique strategy tailored to the resident’s specific needs. Certainly, in some instances individuals might be best suited to an alternate career path, and early identification and assistance for those individuals will serve to decrease the emotional distress associated with persistent poor performance and indecision.

The American College of Surgeons Committee on Resident Education within the Division of Education sought to define common domains of deficiency frequently observed in struggling surgical residents. A panel of experts was convened and asked to present at the American College of Surgeons Clinical Congress a strategy focused on early identification of these residents, development of targeted interventions, and mechanisms for setting expectations for resolution of the identified deficit or issue. Common deficiencies or issues impacting performance were specifically targeted for discussion, and this article highlights the experts’ recommendations within the domains of operative deficiency, organizational inefficiency, substance abuse, and poor clinical judgment.

THE RESIDENT WHO CANNOT OPERATE

Although most program directors frequently deal with this deficiency, the actual prevalence and impact is more difficult to describe. In a review of one program’s residents over 30 years, 17 of 78 residents (22%) were identified with performance problems.2 Technical skill deficiency was noted in 6 of these 78 residents (8%). The difficulty in clearly defining prevalence and impact in the literature is the lack of clear evaluation strategies for operative
performance. As a discipline, we are much more precise in our clinical care, with a clear staging of disease guiding treatment of the problem. In recent work with the American Board of Surgery to validate instruments for operative performance evaluation, 1,087 expert comments provided as evaluation narrative after review of videotaped procedures were examined. These comments fell into 1 of 5 components of operative deficiency; technical skill, forward planning, self-direction, patient safety and judgment, and situational awareness (Fig. 1).

The first step forward in improving our ability to remediate operative deficiency is a valid and reliable system of operative performance evaluation that uses such a classification to more precisely diagnose the resident’s deficiency. Our (GLD) own operative performance rating system and other published instruments offer a valid and reliable way to meet the recent requirement of the American Board of Surgery that all current chief residents have at least two evaluations of operative performance before sitting for the Qualifying Examination. Earlier detection of operative difficulty might be possible using the verification of proficiencies system from the American College of Surgeons/Association of Program Directors in Surgery Surgical Skills Curriculum as a way to assess development of basic surgical skills among residents early in training.

Research has shown that a reliable system of operative performance evaluation will require at least 20 ratings per year, per resident, from 10 different raters, and with the ratings completed within 3 days of performance using validated instruments.

Based on this work, recommendations that might be helpful in addressing the 5 categories of operative performance deficiency can be offered. Addressing the deficiency in technical skill requires clear measurement of skills in the skills laboratory or the operating room, and is likely best remediated in the skills laboratory with the faculty mentor coaching, preferably with a review of a video of operative performance.

Poor forward planning might be masked in early years by faculty over-cueing, but can be diagnosed when faculty “don’t do something, but just stand there.” It might also be identified by asking a resident to talk through the case. This deficiency can benefit from mental rehearsal and even preparation of a “preoperative flight plan,” which addresses the key steps of the procedure.

Deficiency in self-direction is identified when a resident is unable to conduct themselves professionally, stay focused, and slow down appropriately. It is always more apparent with fatigue, overconfidence, room distractions, and time constraints. This deficiency can be remediated with preoperative discussions of critical steps, enhanced with a cognitive task analyses completed with a cognitive task analyses trainer interviewing a faculty member in a step-by-step process through the operative case at hand. This allows identification of key points in the procedure where intraoperative judgment is required, most likely points for potential error and options for error avoidance at each step.

Remediating deficiencies in patient safety and judgment requires a solid fund of knowledge. Again, a preoperative flight plan and the use of cognitive task analysis can help the resident assess and improve their own intraoperative judgment and decision making.

Poor situational awareness is noted with lack of awareness of issues out of the operative field, such as preoperative antibiotics, assuring essential equipment present, patient positioning, and awareness of anesthesia monitoring. There are currently checklist tools available to measure this trait, such as STEPP (Status of Patient,

![Figure 1. Five components of operative deficiency and corresponding steps to remediation.](image-url)
Team, Environment, Progress Toward Goal) and SMART (Situation, Management, Activity, Rapidity, Troubleshoot, Talk to Me).

In summary, remediation begins with a robust system for evaluation of operative performance. The outlined structure provides a nomenclature for making a precise diagnosis, however, trials of proposed remediation strategies designed for specific deficiencies are clearly needed.

**RESIDENT WITH SUBSTANCE ABUSE**

Overall rates for use of psychoactive substances (except for alcohol use) are lower in residents than their peers in the general population. In a study of 1,785 resident physicians, approximately 5% of residents admitted to daily use of alcohol (defined as drinking 20 times or more a month). These same residents might also use psychoactive agents, such as stimulants, to increase performance when faced with competitive academic pressures. Among all specialties, surgery residents tended to report lower rates of use for all prescription drugs. Many residents began using psychoactive substances earlier in life but the stress of residency combined with the ability to prescribe and administer drugs increases the potential for self-medication and/or substance abuse. Impaired surgeons tend to be held to a higher standard because their decisions can often have immediate consequences on patient safety. Also, the legal consequences of substance abuse for the trainee, the residency program, the training institution, and even the program director are substantial. Because substance abuse occurs relatively infrequently within a single program, program directors must familiarize themselves with individuals within their institutions who are knowledgeable and have experience in dealing with such issues. They include the Designated Institutional Official, the medical director of the employee health unit, the director of the physician impairment/wellness committee, human resources, risk management, and legal counsel.

The following vignette and discussion will illustrate important signs of possible substance abuse that warrant investigation and issues that must be considered when managing a resident suspected of abusing substances. An unexpected PGY3 vacancy was filled by a resident who transferred into your program. His American Board of Surgery In-Service Training Examination scores were marginal, but faculty recommendation letters were better than average. Phone interviews with program leadership at his previous program revealed no red flags. When returning from vacation he called to say that he would not be back in time because of a missed flight. During the last 6 months he has been late for patient rounds on a couple of occasions and has called in sick twice. He was seen to have more than a few drinks at social occasions, but has never been suspected to be “under the influence” at work.

It is often unclear how to manage these scenarios, and often the softer signs are missed, as there is not a central repository of the data points considered in the vignette. Often a resident is just reprimanded about their timeliness, excused altogether and behavior is attributed to “stress,” or occasionally a suspicion of a substance abuse or other issue is considered. Recognizing the signs and symptoms of possible substance abuse (Table 1) and appropriately intervening is a skill that program directors must learn; however, these signs are usually more subtle and often difficult to detect until a critical incident occurs. It is also sometimes difficult to discern behavioral or professionalism performance issues that might be unrelated to substance abuse, but which must be also be addressed with appropriate diagnostics and intervention. A recent interdisciplinary think tank reported an evidence-based approach to addressing resident behavioral issues related to disruptive or unprofessional behaviors that provides a useful rubric for addressing these unique circumstances.

When dealing with residents with any identified issue, it is important to remember that the goal is for each trainee to successfully complete the educational program and to obtain the requisite competencies necessary for independent practice. Therefore, the discussion with trainees should focus on work-related performance deficits. Performance deficits that represent a severe

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**Table 1. Signs and Symptoms of Substance Abuse**

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<tr>
<th>Physical</th>
<th>Behavioral</th>
<th>Psychological</th>
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<tbody>
<tr>
<td>Red “bloodshot” eyes, or pupils larger or smaller than usual</td>
<td>Decreased performance at work</td>
<td>Unexplained change in personality or attitude</td>
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<tr>
<td>Sudden change in weight</td>
<td>Unexplained tardiness or absences from work</td>
<td>Irritability or prone to angry outbursts</td>
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<tr>
<td>Change in appetite or sleep patterns</td>
<td>New onset financial difficulties leading one to borrow or even steal money</td>
<td>Demonstration of periods of unusual hyperactivity or agitation</td>
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<tr>
<td>Deterioration of physical appearance</td>
<td>Engaging in secretive or suspicious behavior</td>
<td>Lack of motivation, appears lethargic</td>
</tr>
<tr>
<td>Unusual odors on breath, body, or clothing</td>
<td>Frequently getting into trouble, eg, accidents, fights, or illegal activities like DUI</td>
<td>Difficulty with concentrating</td>
</tr>
<tr>
<td>Tremors and/or impaired coordination</td>
<td></td>
<td>Appears fearful, anxious, or paranoid</td>
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DUI, driving under the influence.
deviation from the expected standard and that can threaten patient safety must be addressed promptly. Coming to work under the influence or violating state laws for self-prescription are grounds for removing the resident immediately from patient care responsibilities pending investigation. More often the manifestations of substance abuse are subtle and this threshold is not clearly crossed. The program director will then need to gather data from a variety of sources and develop an action plan. Coworkers might not be knowledgeable about how to report such behavior. They might worry about a lack of confidentiality in reporting their concerns, feel guilty about possibly harming their colleague’s career, or have a fear of retaliation. Logistical issues, such as limited time on a rotation and minimal longitudinal exposure to the same faculty members, can also prevent detection of soft signs. However, an unexplained decline in performance or behavior (eg, tardiness, failure to respond to pages, hygiene issues, and mood swings) is often a sign of an underlying emotional or substance abuse issue. Co-workers should be provided with well-defined pathways to report such information. Maintaining confidentiality and ensuring protection against retribution will also enable more effective data gathering. Documentation must be appropriate and, if the resident’s performance is sufficiently concerning, the program director might consider suitable referrals, such as a “fitness-for-duty evaluation.” These evaluations should be conducted through a neutral expert, such as the Employee Health Service.

Diagnosing or treating potential mental health disorders or substance abuse requires special expertise and is best left to trained professionals. Other potential causes responsible for the resident’s symptoms, such as burnout, depression, or medical conditions (hypothyroidism or adverse effects of a medication), can also be excluded through a comprehensive evaluation. A fitness-for-duty evaluation implies that there is urgency; the program director should arrange for the evaluation, meet with the resident immediately before to inform them of the evaluation, and arrange for them to be escorted immediately to the appropriate location. The program director should resist an attempt to “diagnose” the resident, as initiating discussions of a medical nature can be construed as “unlawful prying” and can open the door to future litigation. The less a program director is informed about private medical conditions of a resident, the greater their discretion in making academic and employment decisions based solely on academic performance without fear of liability under the Americans with Disabilities Act (ADA).17

If substance abuse is suspected or confirmed, help for such individuals is available through a Physician’s Health Program (PHP) in most states. If a physician enters the PHP voluntarily, and follows their treatment and monitoring guidelines, protection against loss of licensure is usually available.9,12 No data are available for surgery residents entering a PHP, however, relapse rates for practicing surgeons are very encouraging, with 62% of those surgeons entering a PHP completing 5 years of monitoring with no subsequent follow-up required.7

Residents who undergo a fitness for duty evaluation and are found to have a diagnosis that might be declared a disability in addition to a substance abuse issue might also have certain protections under the ADA. Interpreting the ADA is often complicated, and the program director should work with the GME office, human resources, and legal counsel to remain in compliance with the ADA’s expectations of confidentiality and provision of reasonable workplace accommodations. These local resources can also outline the institution’s process for dismissing a resident who poses a direct threat to the health or safety of others in the workplace and are also knowledgeable about the accompanying grievance processes for the resident. Of note, the ADA does not protect residents from employment-related personnel actions based on their current illegal use of drugs.13

In addition to local institutional reporting channels, it is also very important to follow the reporting requirements of the state licensing entity, National Practitioner Data Bank, and relevant specialty board(s). Program directors must also understand the requirements for disclosure to future employers. The disclosure should be thoughtful and accurate and the resident should be aware of the content. In conclusion, a thoughtful program director can identify a resident with a substance abuse problem, guide them to appropriate resources, and help them become competent alcohol-free and drug-free professionals and maintain their confidentiality and provide safety at the workplace. These residents can progress on to have a fulfilling and unrestricted surgical career in most instances, if appropriate interventions are undertaken and the resident undergoes successful treatment.

**THE INEFFECTIVE RESIDENT**

The inefficient resident affects team dynamics, can create work-hour violations, and can ultimately impact patient care and safety negatively. This can manifest as a deficiency in completing tasks, failure to effectively communicate with other residents, and, most importantly, deficiencies in triaging critical scenarios. Intervening and addressing these issues can be very challenging, especially because those residents who are underperformers in this domain often have the least ability to recognize their
weaknesses. This overestimation of ability was shown in a study of general surgery residents to be greatest in residents with deficiencies in the competencies related to interpersonal skills, communication, teamwork, and professionalism.\textsuperscript{14} Many of these deficiencies can overlap in the same resident,\textsuperscript{2} and all can contribute to inefficiency.

For the safety of the resident involved as well as patients, it is imperative to first determine whether the observed inefficiency is a new or an ongoing issue. Investigation can usually be initiated with a simple conversation, ascertaining whether or not the resident has insight into to his or her underperformance and the possible causes. Unfortunately, the resident often does not have substantial insight and a deeper look into their history is required. This can include evaluating a resident’s educational and employment history, and can sometimes be best accomplished with the aid of an employment assistance program, where trained individuals, such as psychologists or psychiatrists, can perform a psychosocial history and assessment.

The identification of a new inefficiency can signify an acute issue requiring medical help beyond that which the program director or surgical education office can provide. It is not unusual for depression, anxiety, or addiction to manifest themselves in the years of residency even if they have not previously been a problem, as a resident’s social support network is often uprooted. Additionally, residents might be dealing with external personal or medical issues that compound the already difficult workload of residency. These external stresses can affect clinical performance.\textsuperscript{15} Finally, in certain situations where a resident does not have a secure position, such as a categorical position, a lack of job security can invoke a degree of anxiety that influences all aspects of work. New inefficiency not previously present might be a red flag signifying new-onset depression, an anxiety disorder, or perhaps even more alarming in the setting of patient care, an addiction to alcohol or drugs.

If it is determined through psychosocial assessment or conversation that the inefficiency is longstanding, it might be secondary to aspects of that resident’s personality, or it might be a skill-set deficit. If an aspect of personality, the resident might have battled an entity such as attention deficit disorder, which is now exacerbated in a job that requires meticulous attention to detail and an ability to address multiple simultaneous demands. Attention deficit disorder with or without associated hyperactivity can be diagnosed through a formal neuropsychological evaluation and can be effectively treated if proper diagnostics and interventions are pursued. Residents who have issues with authority or have low self-confidence can also demonstrate inefficiency. Although these situations typically do not require medical therapy, coaching by a fellow physician or an individual who is external to the situation, but still sensitive to the daily stresses of residency, can be very effective.

A final consideration is that the resident might lack the necessary skills to perform the requirements of their job efficiently. More specifically stated, they do not understand how to approach or triage the tasks of the day. Difficulties in job performance manifesting as inefficiency can be secondary to a deficit in organization of workspace and work load, prioritization, or multitasking. Residents might also have issues with communication skills that contribute to perceived inefficiency. If English is a second language, this adds another dimension to difficulties in organization.

If the deficit is determined to be related to time-management challenges, there are multiple resources available that can help a struggling resident. There are commercially available tools as well as many resources typically available through one’s institutional employee assistance program. This indicates, as one would suspect, that time-management difficulties, including organization and prioritization, are not unique to the medical profession. Specific tools for residents who strive for maximum efficiency with daily tasks have also been published.\textsuperscript{16} It has been suggested that surgical residents in general could improve their efficiency by enacting a more “goal-oriented work style” and one publication suggests steps to achieve this.\textsuperscript{17} In Scotland, trainees with identified difficulties can undergo a simulation assessment of those identified as having deficiencies, with structured individual feedback and remediation based on directly observed inefficiencies.\textsuperscript{18} However, despite resources available, general surgery residents and attendant tend to reach out to colleagues for support rather than employee assistance programs or mental health professionals.\textsuperscript{19} This might suggest that peer support is helpful and direct mentoring and coaching by a more efficient colleague is effective remediation of the identified inefficiency, or possibly that use of available resources to assist these residents is often not fully explored.

Unfortunately, there are residents for whom no intervention is successful in improving their efficiency and ability to successfully complete their work. Often, these individuals are very bright but are not well suited to the multiple simultaneous demands that must be juggled in a surgery residency. In this situation, one must consider whether there are true patient-safety issues created by the resident’s inefficiency that require an adjustment of the schedule or additional oversight until the resident is able to realign their long-term career goals and transition into a different field where they can be more successful.
In summary, the most important evaluation of the inefficient resident is the initial evaluation in which one determines whether this is a new or ongoing issue. A new issue should arouse suspicion of deeper and more concerning problems that need to be addressed for the safety of that individual and the patients for whom they are providing care. If the inefficiency is a long-standing issue, then undergoing an early formal neuropsychological evaluation to determine if there are specific deficiencies or diagnoses that can be addressed through formal behavioral adjustments or even medical therapy is extremely important. There are several tools and approaches that can be used to assist an inefficient resident with organization and prioritization, but appropriate diagnostics are critical and best performed by a professional.

THE RESIDENT WITH POOR CLINICAL JUDGMENT

Perhaps the most difficult deficiency a program director is faced with addressing is a resident who is deemed to have “poor clinical judgment.” The lack of available diagnostic tools to pinpoint the exact issue for residents struggling in this domain makes developing the appropriate intervention very difficult. For a program director to assess and address a resident with questionable judgment, it is imperative that the program have a robust system for feedback. In addition to the formal evaluation system, faculty and senior residents should be encouraged to provide verbal and written feedback to the program director in a formative manner so that the program director has maximal data available to inform the best possible understanding of the performance of all residents across multiple contexts.

Ultimately, if a resident is deemed to have poor clinical judgment, the program leadership must develop a plan to assist the resident in overcoming this deficiency. To develop a plan, one must have a “diagnosis.” Patterns of residents who struggle with clinical judgment and decision making have therefore been identified. These categories are based on retrospective analysis during a period of 8 years in a large university program that graduates 9 residents per year (Fig. 2).

The overconfident “cowboy”
The cowboy is the resident who is overconfident and potentially resistant to supervision. The classic cowboy proceeds with patient care without communicating with his supervising physicians. This is typically identified only on services that allow the resident some autonomy. At times, especially with PGY5 residents, it can be

![Figure 2. Sources of poor clinical judgment in residents.](source)
difficult to discern an appropriately confident senior resident with communication deficits from a truly unprofessional resident who resists supervision.

Once the diagnosis of unprofessional overconfidence is made, the treatment is straightforward. The resident must be told that he must strictly adhere to the institutional supervision policies and communicate clearly with his or her superiors. The resident must be made to understand that there will be zero tolerance for any failure to communicate going forward.

The “minimizer/optimist”
The minimizer or optimist is the resident who underestimates clinical conditions or who couches his or her discussions of patients using minimalist terms. This is often seen in the resident who simply does not want to deliver bad news to their superiors. As a result, the resident can be seen to communicate in a manner that minimizes clinical concerns or includes frankly contradictory terminology. For example, the resident who is presenting a trauma patient and states that “the patient sustained a SUPERFICIAL stab wound to the chest and the chest radiograph revealed a pneumothorax.”

When a minimizer/optimist is identified, it is imperative that the resident be directly counseled about the importance of clear and accurate assessment and communication, and that they need to be aware of their tendency to reflect an overly optimistic picture of situations and conditions. The other aspect of treatment for this resident is the monitoring of verbal communication, and providing immediate feedback when the resident uses inappropriately optimistic communication. The resident must be consistently required to communicate clearly with objective data rather than with descriptive, judgmental terms.

Residents who get the correct “textbook” answer but not the “safe” answer
When confronted with clinical scenarios, this resident tends to gravitate to the most likely diagnosis without giving consideration for the worst possible diagnosis, causing concerns for potential patient-safety issues. This resident typically has a history of excelling on standardized examinations. This deficiency is usually identified by a faculty member who recognizes that the resident does not give consideration for worst-case diagnoses, such as ruptured abdominal aortic aneurysm, intestinal ischemia, and necrotizing fasciitis, and can miss critical diagnoses that, although occur rarely, can cause considerable patient harm if missed or if there is a delay in diagnosis.

To correct this deficiency, the collective faculty must actively work to make the resident verbalize consideration of worst-case diagnoses when evaluating challenging patients to be certain they have considered all possible diagnoses. This requires the buy-in of a large number of faculty so that the resident can demonstrate worst-case scenario thinking in a wide variety of clinical circumstances.

Residents who try to anticipate faculty preference
This resident tends to try to develop patient care plans that please his or her faculty member rather than working to develop a care plan that he or she would put into action if they were able to practice independently. This ultimately manifests itself as a resident who will not commit to a plan of care without getting input from the faculty. This resident will present a challenging case, but will never verbalize a care plan. Instead, they drag out the presentation until the faculty member ultimately gets frustrated and bluntly out the plan themselves.

To correct this deficiency, the faculty must collectively force the resident to develop care plans and positively reinforce any reasonable plan that the resident develops, even if the faculty member chooses not to go with the plan that was outlined by the resident. In this situation, the resident should be told “Your plan is a reasonable plan, but it is my preference to manage this case another way—and here’s why.” Pushing these residents toward independent decision making is critical to their development as future autonomous surgeons.

Residents who are overly conservative
The overly conservative resident tends to have a larger inpatient census than his colleagues. He or she orders more contrast studies looking for anastomotic leak and pulmonary embolus than are deemed necessary by most clinicians. They want to explore every trauma patient. This resident is afraid to miss a diagnosis and, as a result, subjects his or her patients to the risks of excess radiation, abdominal exploration, intravenous contrast, antibiotics, and prolonged hospital stays.

The remedy for this issue is largely one of education and reassurance. The resident needs to understand that although being driven by the fear of missing a diagnosis can often lead to good care, the practice of medicine is best viewed in terms of “risk vs benefit,” and it is the patient who must take on the risks associated with any workup or intervention that the resident plans for them. In dealing with a resident in this category, it is also critical to ensure that the excessive ordering of studies is not related to an inability to reach or make a diagnosis based on pattern recognition, as this would represent a distinct and separate deficiency that must be addressed.

Overall, the key to dealing with the resident with any aspect of poor clinical judgment is to better understand
the underlying issue and attempt to address it directly. This requires a very robust feedback system to the program leadership so that the issues can be identified and addressed as early as possible in the course of a resident’s development. The resident must clearly understand where the deficiency lies, and be provided with clear expectations about both the planned intervention and the expected response. The department’s faculty must all be committed to extracting the patient care plan from the resident and providing continuous feedback. Ongoing formative and summative assessment of their progress is critically important, and appropriate support and supervision is required if a resident’s difficulty with clinical judgment is believed to represent a patient safety concern.

CONCLUSIONS

Improved diagnostics are clearly required for early identification and intervention for residents who are struggling with various aspects of performance during surgical residency. Historically, these deficiencies have gone unrecognized and untreated, resulting in the potential graduation of a resident who is ill prepared for safe independent practice, or termination of a resident who had a deficiency that could have been effectively remediated during residency. The rubrics presented by this expert panel of surgical educators provide a framework for developing diagnostics to determine what the exact cause of a resident’s deficiency might be within common domains that are critical to a surgeon’s development. As we move more explicitly into a model of competency-based assessment for progression during residency, the ability to identify, assess, and treat identified deficiencies in our residents’ performance will be required and documented as they progress through the Milestones. Delineating the performance patterns that manifest in the common deficiencies described serves as the first critical step in early identification and the development of appropriate and targeted interventions for struggling residents. The ability to articulate these deficiencies in terms of more specific descriptive behavior patterns and to develop effective interventions as outlined will improve our effectiveness as surgical educators considerably, and more importantly ensure that we are producing safe and competent surgeons for our patients.

Author Contributions

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Analysis and interpretation of data: Minter, Dunnington, Sudan, Terhune, Dent, Lentz
Drafting of manuscript: Minter, Dunnington, Sudan, Terhune, Dent, Lentz
Critical revision: Minter

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