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Best Practices for Remediation in Pulmonary and Critical Care Medicine Fellowship Training

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ABSTRACT

Background: Remediation of struggling learners in pulmonary and critical care fellowship programs is a challenge, even for experienced medical educators.

Objective: This evidence-based narrative review provides a framework program leaders may use to address fellows having difficulty achieving competency during fellowship training.

Methods: The relevant evidence for approaches on the basis of each learner's needs is reviewed and interpreted in the context of fellowship training in pulmonary medicine and critical care. Issues addressed include bias in fellow assessments and remediation, the impacts of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, the specific challenges of pulmonary and critical care fellowship programs, a brief review of relevant legal issues, guidance on building and leveraging program resources, and a discussion of learner outcomes.

Results: This results in a concise, evidence-based toolkit for program leaders based around four pillars: early identification, fellow assessment, collaborative intervention, and reassessment. Important concepts also include the need for documentation, clear and written communication, and fellow-directed approaches to the creation of achievable goals.

Conclusion: Evidence-based remediation helps struggling learners in pulmonary and critical care fellowship to improve their ability to meet Accreditation Council for Graduate Medical Education (ACGME) milestones.

Keywords:
medical education; remediation; fellowship

Remediation of struggling learners in pulmonary and critical care fellowship programs is a challenge. This narrative review of evidence-based approaches to fellow remediation is a guide for pulmonary and critical care medicine educators focused on the potential problems faced by learners with specific deficits in each core competency, incorporating our changing learning environment as well as the updated ACGME milestones. It also includes a guide to developing remediation resources within the program and an evidence-based discussion of remediation outcomes. The primary goal of this review is to provide an evidence-based remediation guideline useful to all leaders in pulmonary medicine and critical care fellowship programs.

The "struggling medical learner" has been reported across the medical education continuum, spanning graduate medical education (GME) and undergraduate medical education environments. The struggling medical learner (also known as the "learner in difficulty", "problem medical learner," and "learner experiencing trouble") is defined as "one whose performance is significantly below performance potential because of a specific affective, cognitive, structural, or interpersonal difficulty." Ultimately, strategic interventions directed at the learner's needs may allow for improved patient safety, quality of care, and optimized learner outcomes (1, 2).

Although the prevalence of struggling learners in pulmonary and critical care fellowship programs is unknown, the scope of the problem likely mirrors findings in other GME settings, in which research has identified a point prevalence ranging from 3.5% to 22%. There is a necessity for formalized and structured processes to remediate learners in need during fellowship training (3–5).

Challenges Unique to the Fellowship Setting

Remediation of struggling learners in the fellowship setting holds unique challenges. For example, burnout, with a high prevalence among fellows and faculty before the pandemic, has substantially worsened during the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic, resulting in increased emotional distress, depression, anxiety, and posttraumatic stress symptoms (6). These changes disproportionately impact learners who were already struggling and may result in a learner not reaching milestones.

Four structural issues unique to fellowship training are also at play. First, some fellowship programs are heavily skewed with frontloaded clinical time, and a fellow's opportunity to gain clinical skills is limited in the latter years of training because of

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research responsibilities. This makes identifying the struggling fellow early even more critical. Second, contrasted with residency programs, a smaller program size may result in a lack of fellowship flexibility and the structural resiliency necessary to accommodate a fellow in remediation. Third, a small program size may increase the visibility of schedule changes and other remediation interventions, increasing the stigma felt by the struggling fellow. Fourth, fellows have, by definition, successfully completed prior residency training. Fellows who are struggling may therefore have been previously identified in residency with prior experiences that may ultimately impact the likelihood of remediation acceptance (7).

With these challenges in mind, this guide aims to outline four pillars of remediation for the pulmonary and critical care medical educator: identification, initial assessment, collaborative intervention, and reassessment (Figure 1). A successful remediation approach requires a robust system of identification, accurate ongoing, regular, and personalized learner reassessment, adequate faculty development within a remediation team, and the development of institutional resources as well as established policies and procedures. Learners require intensive

support and clear evaluation, a system that requires careful documentation and the maintenance of both learner confidentiality and process transparency. The following provides an outline of remediation in fellowship programs focused on the pulmonary and critical care medical educator.

Diversity, Equity, and Inclusion

Educators must acknowledge that bias exists within educational institutions and is reflected in evaluations at every degree of training (8). Program leaders must consider the contribution of bias to fellow evaluations, adverse reports, perceived progress in remediation, and fellow comfort, safety, camaraderie, and opportunity. Multifaceted interventions are needed on every level (9), but in no other setting is awareness of and active work against bias so necessary as within the context of remediation, in which every factor influencing a fellow's ability to attain the necessary milestones must be considered and carefully weighed.

Program leaders may consider the addition of unconscious bias training to faculty development required for evaluators as a valuable part of ongoing
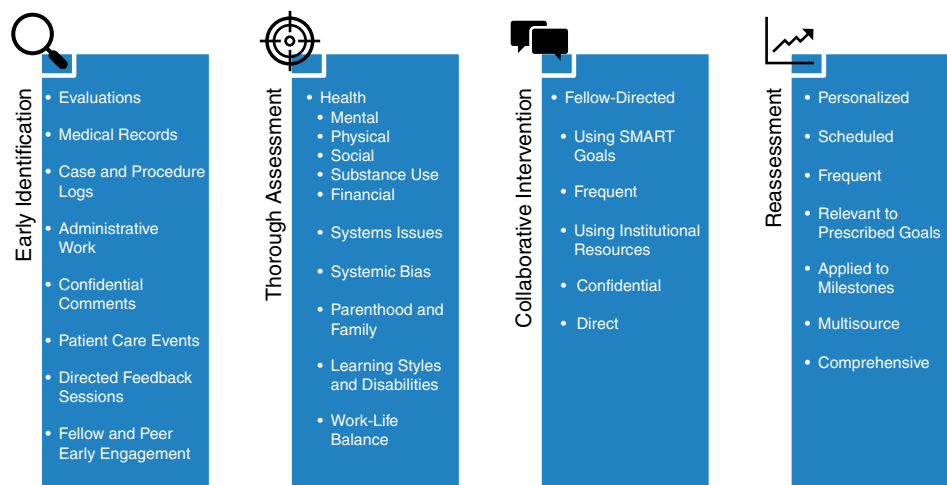

Early Identification
- Evaluations
- Medical Records
- Case and Procedure Logs
- Administrative Work
- Confidential Comments
- Patient Care Events
- Directed Feedback Sessions
- Fellow and Peer Early Engagement

Thorough Assessment
- Health
  - Mental
  - Physical
  - Social
  - Substance Use
  - Financial
- Systems Issues
- Systemic Bias
- Parenthood and Family
- Learning Styles and Disabilities
- Work-Life Balance

Collaborative Intervention
- Fellow-Directed
- Using SMART Goals
- Frequent
- Using Institutional Resources
- Confidential
- Direct

Reassessment
- Personalized
- Scheduled
- Frequent
- Relevant to Prescribed Goals
- Applied to Milestones
- Multisource
- Comprehensive

Figure 1. The four pillars of successful remediation.

multimodal efforts by the program as a whole to embrace the values of diversity, equity and inclusion (DEI). Understanding the impact of systemic racism, sexism, and other forms of bias on the struggling fellow is paramount. Similarly, fellowship and institutional processes to mitigate bias are critical but outside the scope of this guide.

APPROACH TO REMEDIATION IN FELLOWSHIP: THE FOUR PILLARS OF SUCCESSFUL REMEDIATION

Early Identification of a Struggling Fellow

Early identification of struggling learners allows program leaders to engage the learner in remediation before their self-assessment is entrenched, increases time for remediation interventions, and optimizes learner success and improvement (10). However, there remains a significant stigma associated with remediation, limiting the appropriate identification of learners (11). Faculty often delay referral because of poor or underused assessment processes and educator concern for legal ramifications. Within institutions, systemic lack of standardized or frequent reassessment processes and lack of knowledge about the best steps forward when a struggling learner is encountered preclude early formal identification and the initiation of remediation (12–14).

Despite these challenges, delayed learner identification may lead to negative patient outcomes, limited time for remediation, decreased learner confidence in the remediation process, the development of maladaptive learner coping strategies, and potentially critical clinical care incidents (15–17).

A struggling fellow can be identified via a multitude of routes, outlined in Figure 2. In addition to traditional methods of identification, identification of a struggling fellow often occurs in informal settings (i.e., hallway discussions or unsolicited e-mail). These informal situations should not be discounted and should be carefully documented. As the adage says, "rumors start when information stops." Program leaders must recognize that barriers to accurate fellow assessment felt by their colleagues often result in the use of informal means as a first effort to express concern (18, 19). Although there are no data suggesting that any one route of identification is more valuable than another, no report of concern should be ignored. Leaders should take care not to let any one concern, such as a low in-training exam score, pass by without further investigation. Finally, although fellow self-assessments must also be considered, there is often a disconnect between one's perception of skill and one's competency (20–22).

As early identification is so valuable and both learners and their evaluators do not always come forward, program leaders must consider the best mechanisms for early evaluation within the context of their program (Figure 3).

Thorough Assessment of the Struggling Fellow

Once a learner is identified as potentially struggling, a comprehensive assessment must begin, led by a faculty member experienced in remediation. Leaders must gather extensive multisource data (Figures 2 and 3) and engage in active discussion with the fellow, allowing the incorporation of their feedback as a part of the process (23, 24). Determining together with the fellow all factors contributing to the fellows' performance, such as substance use disorders, mood disorders, physical health problems, or personal, financial, relationship, or family stressors, is vital (25–29).

Figure 2. Routes of identification of the struggling fellow.

Solicitation of Information from Prior Training Site

- Milestone reports (provided through ACGME ADS)
- Procedure logs
- Interview prior program leaders
- USMLE and ABIM Exam Scores

Welcome Meetings

- Solicit fellow strengths and weaknesses
- Assess physical, social, financial, interpersonal, mental, and family wellbeing

Orientation Opportunities

- Direct observation during Simulation sessions
- Standardized patient encounters
- Administrative staff feedback

Faculty Opportunities

- Faculty meetings
- Early solicited evaluations
- Check-in meetings with advisors

Near-Peer Opportunities

- Chief Fellows

Interdisciplinary Cooperation

- Internal Medicine Leadership, especially Chief Residents
- Intensive Care nursing/multidisciplinary teams
- Clinic staff, program coordinators, and administrative staff

Figure 3. Potential early identification strategies. ACGME = Accreditation Council for Graduate Medical Education; ADS = accreditation data system.

Prior records, if available, from residency training or medical school should be reviewed (7), as should any prior behavior reports, peer, faculty, and self-evaluations (22). A review of the medical records kept by the fellow in addition to administrative records, logs, and reports are helpful. Multiple corroborating sources of information are vital in these high-stakes assessments, allowing program leaders and clinical competency committees (CCCs) to have firm confidence in the value of the overall decision for remediation. Although it is vital that program leaders engage the CCC, action is usually required before regularly scheduled meetings.

Leaders must take care to strike a balance between the need for more multisource feedback and the passage of time without intervention. Giving learners with identified deficits "more time" to resolve the problem on their own is unlikely to be successful and delays a potentially lengthy process, often complicating the fellow's ability to advance to the next phase of training or graduate from the program in a timely fashion (30). On the other hand, one or two pieces of corroborating information are not enough for leaders to be confident that all of the picture has been elucidated and that the overall assessment is valid (23, 24).

In more serious situations, especially those regarding professionalism lapses or concerns regarding wellbeing, a professional, comprehensive biopsychosocial evaluation may be needed. Formal psychiatric, neurological, or neuropsychiatric evaluation, the elucidation by interview of both personal and occupational stressors, and a medical evaluation may all be required but should be tailored to the specific circumstances. Informal tools are also available for such assessments, such as the Mini-Z instrument (originally called the Z

Clinician Questionnaire) for burnout and the patient health questionnaires two and nine for depression symptoms, but these should not be administered indiscriminately and not without fellow collaboration. Multiple contributing factors may contribute to learner difficulty with meeting multiple milestones.

Developing a Collaborative Intervention

Once a struggling learner is identified and the "why" of remediation, as well as any comorbidities involved, have been elucidated, a specific, collaborative remediation process tailored to the learner may begin (31–33). This process should involve the development of specific, measurable, attainable, relevant, and time-based (SMART) goals with the active collaboration of the fellow (34). The fellow should be assigned a faculty mentor or remediation specialist ("faculty mentor"), ideally the same who led the initial assessment process, with regularly scheduled meetings to discuss multisource feedback and modify goals. This process should be carefully documented in a confidential file and discussed at ongoing meetings of the CCC.

Identifying the degree of insight the fellow possesses may help guide the remediation plan (35). A fellow with low insight into their deficiencies may be less able to collaborate in the creation of an intervention. Low degrees of insight may be identified in fellows whose response to concerns raised by their program is persistently denialist (repeated "but" statements are common), recursive and repetitious, or hostile. In these fellows, the remediation plan may require increased structure with formal and frequent communication. In contrast, those with high degrees of insight are often very helpful in gathering additional feedback, providing insight into the causes of their deficiencies,
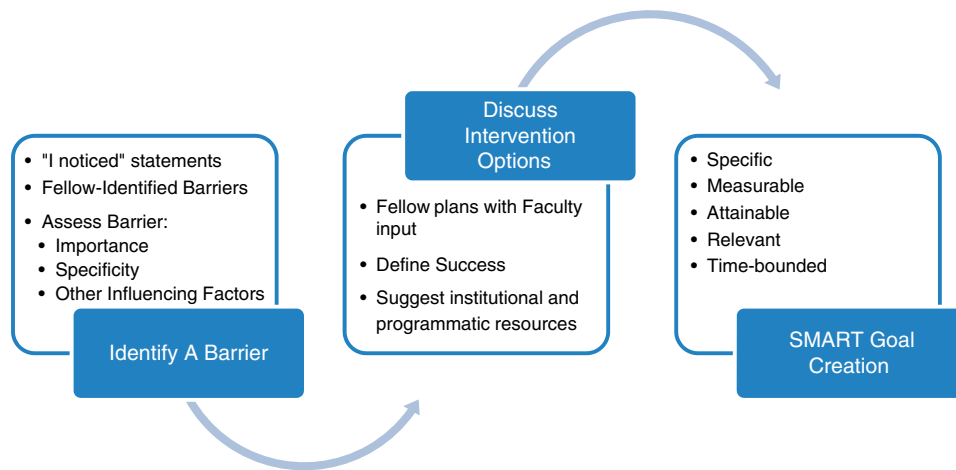
Figure 4. Collaborative intervention in remediation. SMART = specific, measurable, attainable, relevant, and time–based.

and developing and modifying intervention plans (36, 37).

Fellow collaboration is most likely when fellows believe that their situation and all of its contributing factors are fully understood by the fellowship leadership and when they have a hand in designing the remediation approach. This requires extensive faculty time and effort. Although, as much as possible, all interventions should be fellow-led, faculty should have a major role in assisting

fellows with clarifying and refining goals, suggesting program and institutional resources that could be used, and applying the SMART framework (Figure 4).

Remediation procedures progress along a continuously reoccurring cycle (Figure 5) until all goals are achieved. Each learner's timeline for remediation has been, in our experience, highly variable, but meaningful change is never quick or easy. Fellows usually require intensive remediation for a longer period than they expect. Addressing
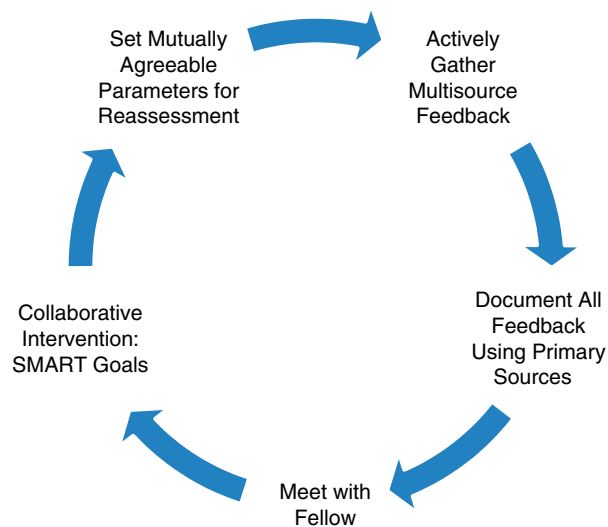
Figure 5. The remediation cycle. SMART = specific, measurable, attainable, relevant, and time–based.

upfront the fellow's expectations for the timeline of the process of remediation is a needed strategy to reduce frustration and maintain morale. Although fellows should collaborate to define the best frequency for reassessment and the goals for each interval, faculty can assist in helping fellows make those goals reasonable and attainable within appropriate timelines.

Reassessment

Even after successful remediation, struggling fellows will require close longitudinal follow-up through the remainder of their training focused on the resilience of change and support of ongoing success. Program faculty facing a fellow with prolonged remediation needs should consider whether further remediation is likely to meet the mutual goals of the fellow and the program and may consider alternative strategies (38).

Written Communication

Clear communication with the fellow is of paramount importance in the process of fellowship remediation. Written communication should include documents such as a performance improvement plan (PIP), a warning letter or structured feedback letter, or a structured feedback plan, if applicable. For those with serious deficiencies or prior remediation failure, a letter of probation may be needed. These documents clearly elucidate the CCC structure, the use of feedback, the milestone(s) in which the fellow needs improvement, and a clear timeline for personalized reassessment. Finally, each document must outline the consequences that may arise if the fellow fails to improve during the remediation period. These may include prohibition against paid additional call, an extension of time-in-training, nonpromotion to the next postgraduate year, further remediation, formal academic probation, or dismissal from the program

(38). *See* Appendix 1 in the data supplement for sample documents.

Importantly, fellowship programs must work intentionally to separate formative support and mentorship from the summative evaluation (39). Mentors seek to provide the learner with a growth mindset (40) in which the identification of each area of deficiency is an opportunity for self-improvement, a mindset which may be hard for the fellow to access when they are being formally evaluated. The ideal goals of remediation seek both to help the learner meet the threshold for competency in each area and to develop skills within the learner that lead to lifelong growth and ongoing improvement (40, 41).

REMEDIATION OUTCOMES

Although early recognition and remediation of fellows in need are necessary, it is important to note that both immediate training ramifications and long-term outcomes after remediation referral are unclear. Short-term outcomes have been variable, although the majority of learners referred for remediation graduate on time. One study at the University of Colorado followed 151 individuals (residents, fellows, and faculty) referred to a remediation program; 10% of learners experienced adverse short-term outcomes (were placed on probation or other restrictions, transferred to another training program, did not graduate, or withdrew from their training program) after the investment of substantial faculty effort (42). In surgical settings, most individuals referred for remediation graduate on time, although adverse short-term outcomes included changing programs, changing specialties, and termination (43). The long-term impact of those successfully remediated remains unclear to date.

As outcomes are difficult to predict, clear communication and regular documentation are extraordinarily important. Not all fellows

referred to remediation will be able to progress to meet the necessary milestones despite remediation. In these difficult situations, there are many paths forward, including nonpromotion, an extension of clinical training, or, ultimately, dismissal of a fellow. When possible, the individuals involved in making judgments about academic nonpromotion or dismissal should be faculty members not directly involved in interacting with the learner, both to avoid bias and to prevent conflicts of interest (44). To date, in prior instances of legal disputes with remediation and academic dismissal, courts have not overruled decisions based on the faculty's "honest professional judgment" when following clear guidelines (45).

GUIDANCE ON REMEDIATION STRATEGIES FOR FELLOWS WITH SPECIFIC NEEDS

Table 1 serves as a milestone-based guide to creating a collaborative plan unique to the needs of each fellow. Importantly, fellows who are struggling often struggle in multiple domains rather than within a single competency. Below are highlighted two specific domains that are particularly challenging in the fellowship setting: professionalism and procedural skills.

Professionalism

Professionalism lapses have been shown to adversely affect patient care across diverse settings (46), and to be frequent causes for remediation (3–5), though they are often underreported. It is important that fellowship leaders recognize that, more than within other remediation situations described above, substance use disorders, mental health or physical health problems, lack of social support, and a history of adverse childhood experiences may present as deficiencies in this

competency area more than others. Recent changes to the practice environment necessitate that, more than ever, physicians go out of their way to connect with patients and colleagues, often at the expense of work–life balance (47–49). For these reasons, some authors argue that, rather than viewing the individual in need of professionalism remediation through the lens of the struggling learner, one should view professionalism lapses as a call to change the surrounding culture (50).

Hierarchical systems may create adverse conditions and moral injury that may manifest as professionalism concerns. Unfortunately, within these systems, professional responses are often inadequately modeled (51), especially in high-stress intensive care settings. Remediation requires the physician to develop, practice, and permanently incorporate a self-sustaining alternative to unprofessional behaviors (52). Extinction of unprofessional behaviors becomes more challenging the longer they are allowed to persist, a particular challenge in systems in which persistence is common (53, 54).

Unfortunately, sexualized behavior may be one of many possible unprofessional behaviors leading to remediation (55). Although these concerns must be specifically addressed using appropriate institutional procedures and in a timely fashion (56), given the importance of these situations, fellowship program leaders should not endeavor to investigate or remediate these concerns alone; professionals in the field should be involved as soon as concerns come to light.

Clear, written communication is particularly important in the context of professionalism remediations starting from the first report of such behavior. The fellow's degree of insight and willingness

Table 1. Most useful assessment tools by core competencies and subcompetencies

Core Competency	Subcompetencies	Assessment Tools
Patient care	History and physical examination Disease management • Pulmonary medicine • Critical care Before procedure assessment Procedures	Patient surveys Procedure logs Simulations Direct clinical observations (live or video) Case-based modules or recall sessions Deliberate practice opportunities Chart audits
Medical knowledge	Clinical reasoning Scientific knowledge of diseases and therapeutics	Standardized exams Case-based modules or recall sessions Board review question banks Podcasts/textbooks/article banks with logged reviews
Systems-based practice	Patient safety and quality improvement Coordination and transitions of care Population health Physician role in healthcare systems	Quality-improvement projects Sign-out tools/transitions of care notes Direct observation of code debriefing or safety huddle Leading a multidisciplinary safety conference Participating in a root cause analysis
Practice-based learning and improvement	Evidence-based and informed practice Reflective practice and commitment to personal growth	Journal club assignments and participation Standardized tests Assigned presentations Personal reflections
Professionalism	Professional behavior and ethical principles Accountability Wellbeing and resiliency	Administrative task logs Fitness for duty evaluations Electronic medical record metrics Incident reports Personnel interviews Drug and alcohol screening Depression screening tools Review of academic history/prior events
Interpersonal and communication skills	Patient- and family-centered communication Interpersonal and team communication	Patient care notes Transitions of care documents Personnel interviews Simulations/role-playing scenarios Communication skills training modules Direct observations of care

to work with the remediation team should guide the format (i.e., a fellow with high insight and willingness may benefit more from a structured feedback plan or PIP, whereas a fellow with low insight and willingness may benefit more from a letter of warning or letter of structured feedback that clearly elucidates consequences for ongoing behavior) (36, 37).

Procedural Skills

Procedural skills in pulmonary and critical care fellowship are assessed as a part of the patient care competency, but they deserve specific mention. Fellows must independently and safely perform all relevant procedures in a variety of environments and must also interpret procedural results, document them appropriately, and appropriately identify and manage complications. As in other areas, early identification and clear communication of deficits are vital, as, in this area, the entrenchment of maladaptive skills is a rapid process (57, 58).

Fellows identified as lacking procedural skills may particularly benefit from real-time observation by video or in-person during procedural rotations or simulations (59). The combination of real observation with directed feedback is a powerful tool (60, 61), particularly combined with repeated opportunities for deliberate practice. Faculty engaging in deliberate practice sessions should emphasize forward planning, request the fellow to describe the planned approach before beginning the case, and use opportunities to ask "what if" questions that prompt the learner to envision possible consequences of particular actions. During key procedural steps, faculty should encourage the learner to slow down and articulate the importance of critical steps.

Fellows struggling with procedural skills may avoid procedural environments, but

leaders working with such fellows must encourage more opportunities for practice and observation rather than fewer. Rotational schedules may be adjusted to accommodate more procedural time with key faculty capable of providing clear instruction and feedback. Simulation opportunities must be scheduled in a repetitive fashion and both equipment and time reserved for fellows to meet preset goals for each session. Fellows who are set up to achieve clear, documented progress toward preordained small, sequential goals are more likely to invest in the process of remediation and achieve competence (62, 63).

ADDITIONAL CONSIDERATIONS FOR REMEDIATION IN PULMONARY AND CRITICAL CARE FELLOWSHIP

Legal Issues

If remediation is unsuccessful, the decision to proceed with either probation or dismissal is the most challenging decision made by medical educators in fellowship programs. Careful consideration should be made by the CCC and the program director whether such action is warranted. For these situations, the ACGME institutional requirements specify that institutions maintain a policy that provides the trainee with due process on suspension, nonrenewal, nonpromotion, or dismissal. Written notice of intent must be provided if promotion is likely to be withheld or the fellow's contract not renewed (64).

Licensing boards, hospitals, and other organizations that certify and employ fellowship graduates are increasingly reaching out to program directors with incisive and specific questions regarding fellow performance. Although once tools like the PIP might confidently remain confidential, the changing nature of questions program directors and graduating

fellows must respond to increases transparency and necessitates careful and thorough documentation (65). In rare scenarios, it may be tempting for the program to allow a trainee to resign from the program to avoid formal dismissal; however, programs should be wary of allowing such resignations to occur if circumstances warrant, as future programs and patients may be affected.

Professionalism lapses may result in criminal or civil liability to the program not generally covered by malpractice insurance. For this reason, institutional counsel, the designated institutional official, and the department of risk management should be consulted early in the course of relevant situations and all relevant documentation carefully maintained. Fortunately, courts have generally upheld decisions made on the basis of the good-faith judgment of the program leader (45).

Growing Remediation Resources at Your Institution

Educators working to develop remediation resources within an institution can consider collaboration with internal medicine residency program leadership, who often face similar situations and who have often worked with the same learners at a prior phase of their training. GME committees, the designated institutional official, and other program directors are likely to have a wealth of experience using institutional resources in these situations and may offer compassionate and thoughtful options for learners transitioning away from careers in medicine. It is important to recognize that learners are commonly in need of remediation and that it is resourced and available to everyone (44). A robust feedback culture needs to be cultivated to improve faculty development and therefore the value of fellow feedback (both formal and informal) and to develop an institutional culture of feeding-forward remediation information as necessary.

Overall, remediation requires substantial faculty time and institutional resources for an individual learner, but this time is rewarded hour by hour with increases in the chance of learner success (44).

CONCLUSION

A program leader's guide to the best practices and principles of successful fellow remediation has not previously been published for pulmonary and critical care medicine fellowship programs. This guide endeavors to close that gap and provide a useful reference for program leaders in this challenging situation.

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