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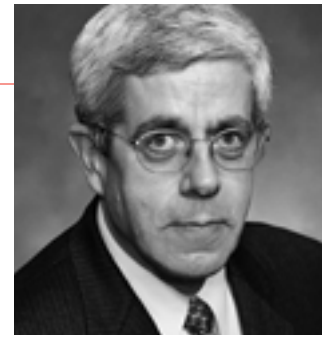
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Resident Supervision

For the past 18 months, the *ACGME Bulletin* has featured “themed” issues on a range of topics. Few of these topics have been as important, taken for granted and relatively unexplored, as the theme for this issue – resident supervision. Direct participation in patient care is a core expectation in residency. The companion expectation, important to the education of residents and to their safe and effective provision of care, is that an attending physician supervises them and ultimately is accountable for the care, and that this attending is familiar with each patient for whom he or she is responsible. In a recently published study of the causes and contexts of errors by emergency medicine residents, 20% of the respondents implicated inadequate supervision.¹

A question about the role of supervision posed to any group of faculty and residents likely will produce multiple different responses, depending on whether the commenter focuses on the patient care, educational, financing or ethical functions and attributes of supervision. This issue of the Bulletin will explore supervision's importance to educational, patient care and ethical goals in teaching institutions, and its importance to financing in settings where residents participate in care. It offers practical information from settings where residents learn, in the articles by Drs. Chang and Flynn. It also draws attention to the perspectives of the multiple stakeholders of graduate medical education, which is further explored in a composite of a series of interviews. Through the article by Shorey and Salazar and the literature review by Lynch, it looks at the link between supervision and observation and feedback, connecting supervision to the six general competencies considered vital to physician practice. Finally, a more indirect link between supervision and the competencies is made by Carraccio and colleagues, in their description of a new web-based portfolio to assess the general competencies. ■

¹ Hobgood C. et al. The Influence of the Causes and Contexts of Medical Errors on Emergency Medicine Residents' Responses to their Errors: An Exploration. *Acad Med.* 2005; 80:758-64.



Supervision: Nine Helpful Principles and a Story

David C. Leach, MD

Program directors frequently encounter residents who, while performing extraordinarily well in their early training, become only mediocre supervisors. It is almost as if their superior approach to doing the work of patient care inhibits their ability to teach others how to do it. They would rather do the work themselves. Yet by the time they become supervisors they have such a large patient population to manage, they cannot do it alone. This is a crucial phase in the formation of resident physicians. They must serve two masters: assuring good patient care and assuring good education of the residents reporting to them. It is a microcosm of two of the aims of an academic health center: good patient care and good learning. What helps?

“They must serve two masters: assuring good patient care and assuring good education of the residents reporting to them.”

As is true in many other areas in medicine, good role models help. Faculty who supervise well will model behaviors that can be mimicked. Likewise, faculty who abandon residents will find their behavior replicated in ways that may cause patient care and resident formation to suffer. Following below are nine principles of good supervision and a story.

1. Patients deserve the most experienced care possible.

Academic medical centers attract very smart doctors and very sick patients; and it is wrong to use medical education as an excuse for preventing the two from getting together. Residents need to commit themselves and to accept responsibility for the patient's care, but only in the context of a community of expertise, never in isolation. Ultimate decisions should be made by the physician who can help the most. Experience and availability must be synergistic, not alternatives. This means that experienced faculty physicians are available around the clock for both residents and patients.

2. Residents deserve the best education possible; good supervision is an essential part of good education.

The dramatic differences in competence between a first year resident and a chief resident offer evidence that something important has happened; there is less certainty about how it happens. Residents are promiscuous in their learning; patients; other residents; faculty; nurses; other health professionals; and organized self-learning; all are fair game and contribute to

developing knowledge, skill and judgment. How they learn to care for patients likely varies across specialties.¹ How they learn professionalism and how to supervise others is deeply dependent on good role models. Some residents learn how to supervise from more senior and even peer residents, some from faculty, and some learn on their own. All have in common the need for good role models. We are a mimetic species; we learn best by imitating others. We also learn bad behaviors in this fashion. Good supervision provides good role models along the entire educational continuum.

3. Good supervision encourages truth-telling; truth-telling in turn builds good communities.

Supervision entails conversation, and the particular conversations almost always involve truth-telling. From the resident's perspective, these conversations are an opportunity to present a coherent story to a faculty member or senior resident. Sometimes in a desire to appear coherent the resident can prune the truth in ways that are not good for the patient or the resident. Rounding with a team that permits that to occur leaves one feeling uncomfortable, with a need to check everything oneself. Medicine is laden with uncertainty and ambiguity; good conversations about patients tolerate ambiguity and encourage a search for clarity that is genuine rather than premature. These conversations also reflect the larger conversations within the academic medical center and within the profession at large. Truth-telling depends on trust and transparency. The resident-supervisor dyad enables the larger community to practice these skills.

“I can still remember my good supervisors and still attempt to live up to their expectations.”

4. Good supervision becomes internalized.

It has been thirty years since I was a resident. I can still remember my good supervisors and still attempt to live up to their expectations. As I talk with other mature physicians I find they can still name and are grateful for their “tough” supervisors. Good supervision is probably the most influential variable in residency.

The process of internalization of supervision is crucial to public trust. Physicians must live by a higher standard; a standard that becomes ingrained and exercised by habit and

without thinking. We have to consistently tell the truth to ourselves and to others, a habit we learn in supervision.

5. Good supervision accommodates the whole patient.

First there is the patient's story. The resident converts that into a doctor's story which is used to present the case to a variety of others, including supervisors. Patient's stories are messy and for residents trying to learn the science of disease biology they are frequently laden with details that don't fit their model of disease. It is ironic that the masters of medicine will celebrate the patient's story, while more junior faculty seeks hypothesis-confirming doctor stories. Residents have to walk the line – presenting the right story to the right audience. It is important to recognize and honor the uniqueness of each patient and it is also important to be able to develop a diagnostic and therapeutic plan. Good supervision accommodates both aims.

“Medicine is a team sport. Good supervisors model openness and approach the truth in ways that are both definitive and actively welcoming of diverse opinions.”

6. Good supervision accommodates diverse opinions.

Medicine is a team sport. Good supervisors model openness and approach the truth in ways that are both definitive and actively welcoming of diverse opinions. Frequently, particular action must be taken. Even then the action is open for review by colleagues and others in formal and informal settings. There is no room for secrecy in an academic medical center.

7. Good supervision makes good business sense.

Residents, by definition, are not yet ready to practice independently. They require supervision. The attending physician is ultimately accountable for any action taken. Good medicine requires that the attending physician participate fully in the care of the patient. Full participation also meets the expectations and requirements of the payers, other types of regulators, and is a prerequisite to legal challenges. Residents cannot be thought of as cheap labor. They are neither cheap nor labor. They enhance health care by adding to, not substituting for, expertise.

8. Good supervision enhances joy.

Medicine properly practiced is a wonderful profession. In spite of the serious nature of the work, its inherent nobility provokes joy. The fact that there is not much joy to be found in academic health centers today suggests that we aren't doing it right. Cutting corners, the relentless compression of time, a productivity model that does not accommodate the realities of patient care, lack of trust and the ensuing tendency to over-regulation, all add up to frustration and absence of joy. We have been socialized to cope with rather than to master these variables. We need a new model of GME and it will begin with a new model of supervision. Reform has been proposed,

and will be a top agenda item for the ACGME in the next few years. We will know that we have it right when joy returns to the workplace.

9. Good supervision can model good professional oversight.

The oversight of medical education lacks coherence. The accrediting bodies for undergraduate, graduate and continuing medical education do not work in concert. The units of analysis are different: institutional, programmatic and provider respectively; and the methods used are variable. Additionally, there is variation across the various RRCs and the 120 specialties the ACGME accredits. Transparent data can reinforce truth-telling and can enhance trust. Several pilots are emerging from the RRCs and the ACGME that are designed to relieve some of the burden of accreditation and to enhance coherence, but we have much more work to do. If the community is to regulate itself, i.e., is to be professional, it will need conversations about programs that in some ways can be modeled by good supervision. It can welcome diversity, be more tightly linked to both good learning and good patient care, become internalized at the institutional level, accommodate institutional uniqueness and even enhance joy. To accredit means to discern and publicly recognize a phenomenon – not unlike good supervision.

“If the community is to regulate itself, i.e., is to be professional, it will need conversations about programs that in some ways can be modeled by good supervision.”

A Story: “The Lord of the Flies”

Before I came to the ACGME, I was once asked to help a troubled department of obstetrics and gynecology. As I met with about 60 faculty members in a group, and then with the residents in a separate group, it became apparent that no one was supervising the residents. The situation reminded me of William Golding's novel “The Lord of the Flies.” Many will recall the story: children abandoned on an island revert to tribal behaviors and the use of scapegoats to achieve social cohesion. Things became more frightening and deteriorated to very painful levels. Near the end of the book, a naval officer in full uniform rescues the children and order is restored.

This particular program needed much more faculty engagement. Threatened with closure a few faculty members stepped up to the challenge. The equivalent of a uniformed officer appeared on the scene and dramatically improved both patient care and resident education. Good supervision does more than ensure good patient care and good education. It reduces fear and prevents scape-goating and attendant tribalism. It restores the goodness of the profession. ■

¹ Baldwin, DeWitt, personal communication. June, 2005.

Observation and Feedback: Core Faculty Skills that Cross-Cut the General Competencies

Jeannette M. Shorey II, MD and William H. Salazar, MD, FACP

Feedback is vital for the development and growth of residents. Providing it is easy to think about, and often hard to do. Ask any resident or faculty member if s/he receives as much constructive feedback as s/he would like – and it is almost certain that each will say, “no.” Each will have stories about the marvelously transformational qualities of effective feedback s/he was fortunate to receive, and perhaps stories of the persistent hurt that lingers from poorly delivered feedback.

Why do we have difficulty providing enough effective feedback to our learners as they work to master their profession? The usual answers we hear from well-intended faculty members are time constraints, feeling insufficiently skillful at giving feedback, fears about being hurtful and fears of reprisal.¹ A more global answer may be that we, who create and maintain the culture of medical education, have not taken to heart the necessity of frequent, accurate observations of our residents that lead to appropriate feedback about their performance. Ende, in his classic paper on feedback, points out: “In clinical medicine, the importance of feedback extends beyond pedagogy. The goal of clinical training is

“The goal of clinical training is expertise in the care of patients. Without feedback, mistakes go uncorrected, good performance is not reinforced, and clinical competence is achieved empirically or not at all.”

expertise in the care of patients. Without feedback, mistakes go uncorrected, good performance is not reinforced, and clinical competence is achieved empirically or not at all.”² If we want to produce outstanding physicians who will be our future colleagues and our doctors, we must change our culture of resisting feedback to one in which observing residents and providing effective feedback is one of the cornerstones of good supervision.

Observing residents

There are three requirements for observing our residents at work with their patients: 1) time when the attending, resident, and patient(s) are together; 2) a sense of what behaviors should form the focus of observation; and 3) a skilled observer.

Time: We are scheduled to be with residents – near patients – during attending rounds, work rounds, in the operating room and during clinic sessions. The challenge is to assure that we dedicate a significant portion of time to watching residents *in action* with their patients. It is important to ensure that the resident is the physician who conducts the primary interaction with the patient – not the attending.

Focus: Our focus should be on what is most important from the resident's perspective. When we discover the domains of knowledge and the skill sets the resident would most like to learn, we can focus more specifically on the resident's behaviors in those arenas. We can aim our teaching directly at what the resident has told us s/he needs to know and learn. This strategy takes a little extra time, but pays off with the generation of more teachable moments, the development of mutuality in the relationship, and the creation of a more facilitative learning environment. There will be occasions when we will need to help expand the goals of our residents. In short, the attending should sincerely inquire about the resident's learning goals, take opportunities to make accurate observations about behaviors related to those goals, and make time to talk about what was observed – the feedback.

Our observational skills: Like all skills, these develop with practice. Things to keep in mind: the learner, the learner's goals, and the learner's level of experience with the set of behaviors under observation. Resist multi-tasking! Remember that feedback should be tailored to the resident's level of professional development.

Feedback to residents

“Feedback refers to information describing a learner's performance in a given activity that is intended to guide his/her future successful performance in that same or in a related activity.”³ Effective feedback occurs when the attending and resident engage in conversation, in the here and now, about a behavior or topic that is crucial for the successful development of the resident. The attending shares information based on past observed experiences, and invites the resident's perspective on the event(s). The conversation is designed to influence, reinforce, or change behaviors, concepts, or attitudes.

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The content of feedback and the process of delivering it

We can observe a host of behaviors as residents interact with patients, patients' family members, peers, and other health care providers. The focus of our observations must be primarily on what we have learned are the resident's specific goals. Secondly, we may see evidence of important issues of

Table 1

The Content of Feedback

- Important
- Timely
- Specific
- Pertaining to decisions and actions, not personality
- Digestible amount of information (3 items/issues, maximum)
- Nonjudgmental, descriptive language
- Mindful of the “system”

Process of Delivering Feedback

- Delivered within the context of an alliance – common goals
- Delivered in conversation
- Expected, whether planned and “on schedule,” or spontaneous and situational
- Based on first-hand observations
- Based on second-hand observations (the Program Director’s challenge)

professional development that are not yet among the resident's goals but that we feel warrant discussion within the feedback conversation. The focus of our feedback will be on behaviors that demonstrate progress, or lack of progress, toward mastery of the resident's goals. We may also have the responsibility of assuring that the curriculum objectives of a rotation are incorporated into the resident's goal setting, and any important, observed developmental issues are addressed. That said, there are still many things about which one could comment. How does one decide?

Master teachers, like master diagnosticians, are experts at noticing patterns. The master clinician sorts through all the patient's signs, symptoms, and laboratory findings – and postulates an over-arching explanatory diagnosis. This requires knowledge, skill, and synthetic thought. The same is true as we observe our residents at work and prepare to share constructive feedback with them. The master teacher sorts

“The master teacher sorts through the resident's behaviors, noting those that are particularly effective as well as those that are ineffective. Questions arise in the teacher's mind about the judgments that lead to those behaviors.”

through the resident's behaviors, noting those that are particularly effective as well as those that are ineffective. Questions arise in the teacher's mind about the judgments that lead to those behaviors. Were they conscientious and thoughtful, or did they appear haphazard and reflective of a lack of knowledge, skill, or an unprofessional attitude toward

patient care or health care professionals? The content of the feedback conversation with the resident would include discussion of the most important behaviors observed – and seek answers to questions about the judgments and decisions that lead to specific behaviors, not to personality traits of the residents (as is suggested in **Table 1**). The attending's synthesis of the observations and the questions they raise should lead to no more than three specific topics on which the feedback will be focused. A flood of topics and suggestions for improved behavior risks affective overload and defensiveness.

The specificity with which we can describe both problematic and outstanding behaviors/skills is critical to the usefulness of our feedback. The global “nice job, Dr. Smith,” feels good for a nanosecond, but teaches little, and is easily discounted. Specific comments and praise about effective behaviors reinforce the importance of the actions, inform the resident about exactly what was good, and increase the likelihood that the behaviors will be repeated. Similarly, globally critical comments like “you need to improve your bedside manner” give no specific guidance as to what the resident is doing poorly and how s/he might change the behaviors.

“We also should be mindful of the system in which our residents are practicing. It is pointless to criticize behaviors that residents cannot change, such as being late for work rounds due to the chronically late recess of a conference over which the residents have no control.”

Our choice of words matters a great deal, whether praising or delivering constructive criticism. Non-judgmental, descriptive language is what is required of us. Avoid the dichotomy of good and bad, positive and negative. Instead, use words like effective and ineffective. Abandon connector words like but, however, and although. Use simple sentences that end with periods. Speak praise, period. Speak specific needs for improvement, period. Otherwise, we communicate confusing and mixed messages which are generally interpreted as concern only for ineffective behaviors. We also should be mindful of the system in which our residents are practicing. It is pointless to criticize behaviors that residents cannot change, such as being late for work rounds due to the chronically late recess of a conference over which the residents have no control.

The “what” of effective feedback is a thoughtfully prepared list of a limited number of the most important and specific behaviors the attending has witnessed. The “how” of effective feedback includes not only the choice of non-judgmental, descriptive language, but also consideration of

Table 2

Feedback: A Practical Model

1) Prepare

- Is rapport established?
- Is feedback expected?

2) Provide non-evaluative information

- Ask for recipient's self-assessment
- Reinforce desirable behaviors
- Focus on specific observed behaviors
- Be aware of own subjective feelings
- Limit to 3 observations, or fewer

3) Respond to feelings

4) Plan adjustments and performance goals

- Problem solve
- Tutor or self-study needed?

5) Closure

- Ensure comprehension/agreement
- Summarize
- Plan follow-up

Adapted from F. Daniel Duffy, Penny Williamson, Richard Frankel, 1991.

the context of the conversation. Feedback may be delivered on a schedule that is agreed upon at the beginning of a rotation, as well as episodically when observations of import deserve “same day” attention. In either situation, the feedback conversation should not come as a surprise to the resident, who has a day’s work to accomplish. Identifying a mutually convenient time to talk, in a private setting, will help set the stage for a useful exchange, while modeling the respectful professional behavior we want to foster in our residents.

The psychosocial context of feedback conversations is the alliance we form with our residents when we genuinely share the common goal of developing them into outstanding physicians. Colleagues within the American Academy of Physician and Patient have expertly articulated the process of delivering feedback effectively in **Table 2**.⁴ This practical model of feedback assures comprehension and agreement on any improvement plans that are made as well as any needed follow-up.

In closing, we must consider a frequent dilemma for residency program directors – that of providing second-hand feedback. Ideally, the program director will have opportunities to make first-hand observations of each resident. These should

provide the needed specificity for real conversation about the resident’s behavior. They can be blended with information provided by other faculty members – via paper or electronic forms – so long as these documents create a consistent picture

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of the resident’s performance. We strongly advise that when a lack of direct observation forces a program director to provide second-hand feedback to a resident about a problematic behavior first obtain a detailed description of the problem from those who have made the direct observation. It is generally better to motivate and support the faculty member(s) who made the direct observations to conduct the feedback conversation. Irrespective of the circumstances, it is always important to elicit the resident’s perspective and then jointly develop an approach to problem-solving.

Good supervision requires good observations and good feedback. It is that simple; and it is not as difficult as we believe it to be before we practice it. ■

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¹ Shorey JM, Salazar WH. Personal communication, based on audience response during several national workshops about feedback skills.

² Ende J: Feedback in clinical medical education. JAMA 1983;250(6):777-781.

³ Ibid.

⁴ F. Daniel Duffy, Penny Williamson, Richard Frankel. American Academy on Physician and Patient workshop on Feedback, Tulsa, OK, 1991.

Competencies in the Press: Direct Observation

Deirdre C. Lynch, RhD

While residents' abilities are measured by many types of assessments, many believe that direct observation of residents performing skills in actual clinical situations is the most important method of assessment.¹ Direct observation is the theme of this installment of "Competencies in the Press." It is the process by which faculty assessors observe and record overt motor verbal behaviors.² Direct observation can occur in naturalistic or simulated settings; it can be real-time or delayed via performance that is videotaped.

Direct observation of residents performing clinical skills provides accurate information about their abilities in this area. This is supported by empirical evidence that direct observation enhances the validity and reliability of clinical skills assessment.^{3,4} Direct observation also often provides information detailed enough to reveal residents' learning needs and curricular shortcomings. With regard to the general competencies, direct observation has been used to assess Professionalism,⁵ Interpersonal and Communication Skills,⁶ Medical Knowledge,⁷ and Patient Care.^{7,8} The summaries below address the use of direct observation to assess components of the competencies of Patient Care and Medical Knowledge, including history-taking, intra-operative decision-making and procedural skills. Anderson and colleagues describe their approach to assessing operative and non-operative patient encounter skills.⁷ Lammers and colleagues detail direct observation of lumbar puncture skills.⁸ In their article, Holmboe and colleagues discuss the content and impact of a faculty development workshop on direct observation.⁹

Anderson CI, Jentz AB, Harkema JM, Kareti LR, Apelgren KN, Slomski CA. Assessing the competencies in general surgery residency training. *American Journal of Surgery*. 2005;189:288-92.

Anderson and colleagues describe assessment of the competencies of Patient Care and Medical Knowledge, related to operative and non-operative patient encounters. The assessment covered first- and second-year residents on general surgery and trauma rotations.

A faculty committee reviewed available educational assessments, consulted an assessment expert, and designed an approach consisting of direct observation of resident performance. The committee then developed assessment forms based on the skills and knowledge needed to diagnose and treat common surgical problems. A 9-item operative form assessed performance in areas such as tissue handling, intra-operative decision-making and economy of time. A 9-item non-operative patient encounter form assessed performance in history taking, physical examination, and the ability to formulate and discuss diagnoses. Both forms used 11-point

rating scales that ranged from novice to master. The authors pilot tested both forms, and made revision to the final instruments.

Measurement of operative skills indicated average improvements of 12% and 6% in scores for first- and second-year residents, respectively. When non-operative patient encounter skills were measured, the average score of second-year residents was greater than that of first-year residents. The assessments gained from direct observation thus could detect improvement over time, as well as performance differences between less and more experienced residents.

"The assessments gained from direct observation thus could detect improvement over time, as well as performance differences between less and more experienced residents."

Direct observation provided specific information about residents' learning needs and revealed a relatively large variation in residents' knowledge and skills. It also highlighted curricular weaknesses that led to improvements. In one, the program instituted a Patient Teaching Hour, during which a resident and faculty member see a new patient together. Other improvements included assignment of Personal Learning Projects and development of more specific written curricula.

The authors describe two challenges of implementing direct observation – difficulty in obtaining completed assessment forms from faculty and large variations in ratings among faculty assessors. They concluded that direct observation enhanced the educational climate of their program.

Lammers RL, Temple KJ, Wagner MJ, Ray D. Competence of new emergency medicine residents in the performance of lumbar punctures. *Academic Emergency Medicine*. 2005;12:622-8.

Performance of procedures is one domain within the competency of Patient Care. To address variation in new residents' clinical skills, Lammers and colleagues developed a direct observation instrument that collected baseline information on new residents' ability to perform lumbar punctures on a mannequin (i.e., spinal injector simulator).

The instrument was developed by reviewing relevant texts and performing a task analysis of the behaviors required to do a lumbar puncture. With a checklist resulting from the task analysis,¹³ experienced emergency medicine physicians were assessed as they performed the procedure on the mannequin. This confirmed that the checklist could assess the behaviors required to complete lumbar punctures. Using the data from the practicing physicians, the authors developed a standard for acceptable performance of a lumbar puncture, which was defined as completion of 98% of the major steps in the correct sequence and 70% of the minor steps within 40 minutes during one uninterrupted procedure.

Forty-two new residents in three emergency medicine programs were observed and rated as they performed lumbar punctures. Residents were assessed by at least two physician observers. The analyses revealed no significant differences across the multiple observers who assessed the same residents,

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suggesting that the checklist provided reliable information.

Residents performed an average of 14.8% of the major steps and 19.1% of the minor steps. No resident met the performance standard. Experienced physicians performed significantly better than the residents, demonstrating the checklist’s utility to detect differences in performance by the degree of physician experience.

The authors noted that educational assessment is useful if acceptable performance can be distinguished from unacceptable performance, suggesting that criteria for acceptable performance or standards are needed. Lammers and colleagues describe one approach to determining performance standards for lumbar puncture. Their protocol detected residents’ learning needs, confirmed the importance of having supervisors observe interns performing procedures, and lent added support to integrating direct observation of clinical skills into the residency curriculum.

Holmboe ES, Hawkins RE, Huot SJ. Effects of training in direct observation of medical residents’ clinical competence: a randomized trial. Annals of Internal Medicine. 2004;140:874-81.

Holmboe and colleagues describe a faculty development workshop to teach direct observation of residents’ skills in patient interviewing, history-taking and counseling. These skills are considered key to effective patient care. The one-day workshop, a component of a four-day course on assessment, consisted of short lectures, small group and hands-on exercises with standardized residents (actors trained to portray residents) and standardized patients.

In one exercise, 16 participants to watch a videotape, with the goal of identifying competent interviewing, history-taking, and counseling skills, and developing criteria for satisfactory performance (i.e., performance dimension training). Subsequently, participants completed four direct observations of a standardized resident interacting with a standardized patient. Participants then gave feedback to the standardized resident. This exercise was followed by group discussion about ratings given and the reasons for such ratings.

In videotapes to assess the effect of the training workshop, standardized residents portrayed three scenarios of interviewing, history-taking and counseling. The first contained an average of 12 scripted errors, the second had six errors, and the third contained two errors. Participants’ ability to detect these errors was assessed before and after the workshop and compared with the performance of a control group consisting of 21 faculty physicians who observed the videotapes, recorded performance and received the written material developed for the workshop, but did not participate in the workshop.

“Eight months after the workshop, participants rated the videotapes developed to test the effectiveness of training more systematically than non-participants, and reported significantly more comfort with performing direct observations.”

Eight months after the workshop, participants rated the videotapes developed to test the effectiveness of training more systematically than non-participants, and reported significantly more comfort with performing direct observations. All participants rated the workshop as being outstanding. The authors suggested that faculty development in this area can be effective. ■

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- 8 Lammers RL, Temple KJ, Wagner MJ, Ray D. Competence of new emergency medicine residents in the performance of lumbar punctures. *Acad Emerg Med* 2005;12:622-28.
- 9 Holmboe ES, Hawkins RE, Huot SJ. Effects of training in direct observation of medical residents’ clinical competence: a randomized trial. *Ann Intern Med* 2004;140:874-81.

A Web-based ACGME Portfolio to Assess the Competencies

Carol Carraccio, MD, Tina Foster, MD, and Lisa C. Johnson, MBA

As the Outcome Project moves further along the implementation timeline, members of the medical education community are expected to be teaching and evaluating our residents in the six ACGME domains of competence.¹ These six domains are well aligned with the health care changes called for by the Institute of Medicine (IOM).^{2,3} The full integration of the competencies into existing training programs both challenges the medical education community and provides opportunities for advancing education and training. These challenges and opportunities are shown in **Exhibit 1**.

The portfolio system

These challenges resulting from the implementation of the competencies have created the opportunity for new practice models that improve graduate medical education. In response to the challenges and to capitalize on the opportunities, the ACGME is inviting the education community's participation in the adaptation and dissemination of a web-based professional development portfolio system. This system will:

- Meet the individual needs of each physician involved in graduate medical education;
- Respond to the needs of those responsible for overseeing the development and day-to-day management of local GME programs;
- Meet the needs of those charged with accrediting the educational processes involved; and
- Offer those involved in physician graduate education design and development an opportunity to empirically assess and improve their efforts.

“At the national level, use of the portfolio system it will enable an accreditation model framed in the context of the competencies, and provide a research infrastructure for communities of practice to share information and study the impact of the shift to competency-based education.”

The use of this portfolio system, built around the general competencies, will advance graduate medical education on several levels. At the individual resident level, the portfolio will foster self-directed learning and continuous professional development. At the level of the residency program, it will provide a framework for assessing trainee performance in the six ACGME competencies, and foster sharing of successes and innovations among program directors. Finally, at the national level, it will enable an accreditation model framed in the context of the competencies, and provide a research infrastructure for communities of practice to share information and study the impact of the shift to competency-based education. The portfolio system also will provide an information network for the accumulation and analysis of patient outcome data. This will link professional education and patient care outcomes, thus closing a feedback loop that will inform the further development of our educational efforts.

Portfolio processes and tools

The portfolio encompasses both a process and set of assessment tools. Collectively, they include:

- A process for evaluating benchmarks for the six ACGME competencies;
- An array of rotation/experience specific evaluations;
- Critical incidents or instant evaluations for noteworthy encounters that deserve immediate feedback;

Exhibit 1

Challenges and Opportunities in the Implementation of the General Competencies:

Challenges

- Creating new content areas and aligning them with particular clinical settings
- Evaluating competence in six broad and diverse domains
- Rigorously studying the reliability and validity of new assessment tools
- Conducting careful medical education research requiring large numbers of trainees to create sample sizes that will provide the power to detect differences in outcomes related to specific interventions
- Defining more explicit educational expectations

Opportunities

- Prioritizing, enhancing and implementing faculty development programs
- Creating new and more effective methods of assessment
- Studying the impact of our educational endeavors
- Developing communities of practice in medical education that will function as research networks
- Collaborating across specialties, locally and nationally, for efficient and effective methods of implementing competency-based education and evaluation

- A platform for 360 degree evaluations;
- Checklists for direct observation of clinical practices;
- A link between clinical rotation learning activities and the competencies;
- Ability to upload projects, such as those focusing on quality improvement or systems-based problems and solutions, into the portfolio for advisor feedback and evaluation;
- Ability to document evidence-based medicine activities such as critically appraised topics;
- A journaling tool for reflection on practice, created by the learner, with the capacity to assign a faculty “reader” for mentoring;
- A link to the ACGME patient/procedure logs;
- The ability to track attendance at conferences; and
- A threaded discussion board that fosters ongoing bidirectional feedback between mentor and mentee.

The implementation and piloting phase is projected to occur over the next eighteen months. During this time frame, the ACGME plans to invite the cooperation of the greater graduate medical education community. Active involvement of Designated Institutional Officials, Program Directors and their Associations, Review Committees and others invested in graduate medical education will be encouraged to further develop components and applications of the portfolio that are both generalizable across disciplines and discipline-specific. Except for the content-specific element within the domain of Medical Knowledge, the competencies cross disciplinary lines. Many learning and assessment tools housed in this portfolio system will be applicable across specialties. This common ground will provide the substrate for collaboration among communities of practice to facilitate the development of research networks that will study the impact of curricula and the reliability and validity of assessment tools. The parent portfolio is currently in use in the Dartmouth-Hitchcock Leadership Preventive Medicine residency program. An enhanced prototype of the portfolio is being tested in pediatrics residency programs at the University of Maryland and the University of Connecticut. The portfolio is built on a collaborative technology platform that enables widespread adoption and adaptation.

Impact of the portfolio system

The widespread adoption of a common portfolio system for evaluation, coupled with the change to a competence-focused program of learning for good patient care, has the potential to transform medical education as we know it today. The professional competencies can become habits of practice for learners when they are integrated into the fabric of specialty training programs.⁴ The core of the portfolio is designed around the competencies, with ample opportunities for learners to reflect on their individual educational process. The portfolio offers them opportunities to reflect on their own learning and

to develop a system for personal life-long learning and professional development.⁵ The emphasis on educational and patient care outcomes within training programs and accreditation systems will enhance the focus on knowledge application in addition to knowledge acquisition. Such a focus more directly connects educational and professional development to changes in the current health care system recommended by the IOM.⁶ The research infrastructure

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created by a shared portfolio system will support the development of communities of practice to rigorously study assessment tools and will help leaders take more steps toward evidence-based education.⁷ The ability to link educational and clinical databases will help assess the impact of education and educational changes on patient care. This system will help medical educators empirically design learning that is based on demonstrated ability to improve the reliability and quality of patient care. ■

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¹ Outcomes Project <http://www.acgme.org/Outcome>. Accessed 2/25/05. The Accreditation Council for Graduate Medical Education, Chicago, IL, 2001.

² Kohn L, Corrigan J, Donaldson ME. To Err is Human: Building a Safer Health Care System. Washington, DC: National Academies Press; 1999.

³ Institute of Medicine. Crossing the quality chasm: A new health system for the 21st century. Washington, DC: National Academies Press; 2001.

⁴ Leach DC. Competence is a habit. *JAMA* 2002;287:243-244.

⁵ Schön D. Educating the Reflective Practitioner. San Francisco: Jossey-Bass, Inc., 1987.

⁶ Greiner A, Knebel E, eds. Health Professions Education: A bridge to quality. Washington, DC; National Academies Press; 2003.

⁷ Murray E. Challenges in educational research. *Med Educ* 2002;36:110-112.

Report on an Extreme Makeover: Assessment across the Continuum from Residency throughout Practice

Susan Swing, PhD

Recent initiatives in outcome assessment, including the ACGME Outcome Project and American Board of Medical Specialties' (ABMS) maintenance of certification (MOC) program, have stimulated the development of diverse approaches for assessing physician performance. In May 2005, the ACGME and ABMS convened groups of specialists to address how to better coordinate the assessment of physician performance across the continuum from residency through practice. As Dr. David Leach (ACGME) emphasized in his opening remarks: "there is a growing opportunity to leverage best practices and reduce the burden of assessment."

The specialty groups consisted of an RRC member, certification Board representative, residency program director and, in some cases, a resident. Each specialty group was charged with identifying assessment methods that could be used across programs to assess the competencies in residents, and to assess practicing physician performance for the purpose of maintenance of certification.

"Conference participants also conducted a "gap analysis" to explore similarities and differences in graduating resident competencies and the assessment methods required by RRCs and certification Boards."

Written materials and presentations provided background material on assessment methods. Conference participants also conducted a "gap analysis" to explore similarities and differences in graduating resident competencies and the assessment methods required by RRCs and certification Boards. Pairs of RRC and Board representatives from Internal Medicine, General Surgery, and Radiology discussed current requirements and approaches to the development of assessment methods. Each pair was followed by a presentation from a residency program director reacting to the presentations by the Board and Review Committee representatives. Janet Strife, MD, and Kay Vydareny, MD, reported on the set of assessment tools identified by radiology's Board-RRC workgroup. Lori Goodhart, MD, residency program director in diagnostic radiology, expressed the concern of program directors that they would be unable to meet the expectations without added support to develop an enhanced infrastructure.

Another conference session focused on MOC and the potential for using methods across the continuum of education, though the methods initially were developed to assess residents or practicing physicians. Stephen Miller, MD, MPH, Executive Director, ABMS, set the stage for novel thinking by suggesting that continuing medical education in the future might consist of immersion in supervised clinical experiences similar to resident education. Presentations by Board representatives Paul Miles, MD (Pediatrics), Betsy Bennett, MD (Pathology), and R. Barrett Noone, MD (Plastic Surgery) described their Board's plans for assessing physician performance. These MOC-related plans included activities clearly relevant for assessing residents' overall performance, and their capabilities in the competency of Practice-Based Learning and Improvement.

Common elements of the plans consisted of collecting practice data (e.g., care processes and outcomes), comparing them against guidelines or performance norms, and instituting practice changes to improve performance. Following the presentations, the specialty groups re-examined the tools for assessing competence, and identified the top choice for resident and practicing physician assessment, which could be used to assess performance across the continuum.

The discussions throughout the day revealed examples of coordinated efforts and opportunities for improving coordination and enhancing the use of existing assessment methodologies. Gap analysis showed that several Boards do not require evidence of satisfactory performance in the general competencies as a condition for board eligibility. Other findings indicated that nearly one-half of the specialty groups currently do not require specific assessment tools or do not consider their tools adequate for making sound judgments of residency graduates' competence. A slightly larger number reported that the tools they currently require are adequate for identifying how residents need to improve their performance. Reports from two specialty groups (Ophthalmology and Neurosurgery) on how to better coordinate assessment method development described initiatives led by resident educators or certification Boards that included specific plans for interfacing with their specialty's review committees.

Fifteen specialty groups submitted one or more assessment approaches that could or should be used by all programs in the specialty. Nearly all proposed global performance ratings, focused observation and evaluation, and 360-degree evaluations. A few specialty groups indicated that they did not plan to require all programs in their discipline to use the same assessment methods.

Assessment methods that appeared to have the greatest potential for use across the continuum are practice analysis and improvement methods, such as eQIPP (American Academy of Pediatrics), TOPS (American Board of Plastic Surgery) and 360-degree evaluations.

The efforts to coordinate and streamline physician performance assessment started at this meeting are expected to continue. The specialty groups have follow-up assignments and another meeting is tentatively planned for 2006. ■

Resident Supervision in VA Teaching Hospitals

Barbara K. Chang, MD, MA

Participation of Department of Veterans Affairs (VA) facilities in graduate medical education is part of the VA's statutory mission to educate healthcare professionals for the VA and for the nation. Affiliated programs have been in VA institutions for nearly 60 years following the signing of Memorandum No. 2 in 1946. System-wide, 120 VA facilities participate in 2,325 ACGME-accredited residency training programs. Affiliations with 107 of the nation's 126 medical schools cover 99% of the VA's residency education programs. Annually, 31,000 residents, comprising 30% of all US resident physicians, receive some of their training in VA facilities.

The participation of residents in VA practice settings has evolved over time, to conform to changing standards of medical care, respond to concerns for patient safety, and adapt to other developments both internal and external to the VA.

“Because of the VA's sacred trust in caring for the nation's veterans, VA health care is highly visible in the national media and within the political arena.”

Because of the VA's sacred trust in caring for the nation's veterans, VA health care is highly visible in the national media and within the political arena. Public accountability for quality of care and patient safety has resulted in an increased focus on the way residents are supervised in VA settings. Tight fiscal conditions and the need to increase revenues also have led to a focus on documentation of supervision for billing purposes that is somewhat analogous to the practices following the PATH (Physician in Teaching Hospitals) audits in non-VA teaching hospitals.

While changing dramatically over time, the VA's policies and the practice of resident supervision have historically tended to be very similar to those present in affiliated medical schools. VA policies have always been written to conform to ACGME accreditation standards. Nevertheless, supervision of residents in VA facilities was once viewed as somewhat less stringent than at “the main” teaching hospital, particularly in selected locations throughout the country. About twenty years ago, resident involvement in patient care was less directly supervised than is currently the practice. If one goes back to the resident supervision policies of the 1984 to 1988 era, these documents were brief (5 to 6 pages), general in scope and did not include specific requirements for documentation of supervision. However, certain watershed events led the VA to develop more explicit standards of resident supervision in recent years — standards that exceed those at some affiliated institutions.

In the early 1990s, a highly publicized incident of surgical residents performing surgery without a supervising attending surgeon on the premises at one VA facility led to the conclusion by then Secretary of Veterans Affairs Derwinski that resident supervision in the VA was “inadequate.” Subsequently, VA resident supervision policies were revised, doubled in length, and became more prescriptive regarding the practice and the documentation of supervision. The 1992 version of the resident supervision policy (which many may recall as “M-8, Part I, Chapter 26”) was 10 pages long and contained a level of detail that was previously unheard of in academic medicine. For one to two years following publication of this policy, a roll-up of very specific facility-level monitors of supervision to the national level was implemented to assure compliance with the VA's new supervision policy. Once VA leadership was assured of the general adequacy of resident supervision, the national roll-up of supervision monitors eventually was discontinued, although facilities were encouraged to continue monitoring supervision at the local level for JCAHO and quality assurance purposes.

Developments of VA resident supervision policy paralleled changes occurring in non-VA settings due to the PATH audits. However, the organizing principle of policy in the VA remained centered on establishing appropriate policy from the standpoint of resident education, patient safety, and quality of care. Ensuring the ability of VA to bill for attending physician services was a secondary concern.

National monitoring of surgical supervision via the Surgical Package has been in place continuously since the early 1990s, beginning with the infancy of the VA's computerized medical records system. For each procedure performed in operating room (OR) settings, the OR circulating nurse

“National monitoring of surgical supervision via the Surgical Package has been in place continuously since the early 1990s, beginning with the infancy of the VA's computerized medical records system.”

independently records, as part of the required information on each case, the level of supervision and the names of all participants, including surgeons, anesthesiologist and nurses/technicians. The data on levels of surgical supervision are rolled up quarterly for review by the surgical service in the VA Central Office.

Although the defined levels of surgical supervision have changed over time, the VA's past supervision policies included some provision for surgery to be performed by residents without an attending present, but “immediately available” (called “level 5” from 1984–91 and “level 3” from 1992–2003). Each VA facility (and sometimes each surgeon) had an individual definition of what constituted “immediately available,” despite a 2001 policy stating that the attending must be in the facility. In 2004, following adverse media coverage of one episode of surgery in a VA facility being

performed without the attending being present, the VA eliminated “level 3” supervision of surgery. Formulated in 2004, the new levels for coding supervision (now A through F) require attending surgeon presence in the operating room or in the procedure suite for all major elective cases. A recent study of outcomes using the National Surgical Quality Improvement Program data found no adverse outcomes from the use of “level 3” supervision.¹ Notwithstanding this, changing standards in the VA and the academic community no longer find “resident only” surgery acceptable – even when performed by the most senior residents.

In addition to tightening the standards for surgical supervision, the 2004 revision of VA’s resident supervision policy² requires the physical presence of a supervising attending physician in all outpatient clinics where residents are

“Physical presence of the attending in the procedure suite is required for all non-routine, non-bedside procedures. Another feature of the 2004 policy is the specification of documentation requirements for all clinical settings in which resident physicians are likely to be participate in patient care.”

involved in patient care. Likewise, physical presence of the attending in the procedure suite is required for all non-routine, non-bedside procedures. Another feature of the 2004 policy is the specification of documentation requirements for all clinical settings in which resident physicians are likely to be participate in patient care. These requirements meet or exceed JCAHO standards for attending-level documentation. At the same time, they are not designed to meet Medicare documentation standards for billing, since the VA does not bill Medicare. In 2004, facilities were also required to have local policies for monitoring resident supervision in various settings in order to assure compliance with the policy.³

A 2005 update of VA’s supervision policy contains a minor change in the documentation required for an ambulatory visit of a patient new to a facility, so that more evidence of attending-level involvement is in the patient’s electronic chart. A national monitor of inpatient supervision (i.e., auditing patient records for the presence of an attending note within 24 hours for a new admission) also was implemented in 2005. The current revision does not represent a substantive shift in policy from the 2004 document; rather, it clarifies certain aspects of the policy.

Communication of resident supervision policy changes has been provided through national VA conference calls, presentations at appropriate national meetings (VA and non-VA), and the Office of Academic Affiliations (OAA) website. Another effective tool for increasing awareness of the new policy has been the use of a resident supervision pocket card, which was distributed in October 2004, and is also available on VA’s OAA website and downloadable to a PDA.⁴

Appropriately and out of political necessity, the VA has often focused upon demonstrating to the public that its policies and procedures protect the interests of the veterans it serves. VA policy holds the facilities and faculty involved in resident education accountable for upholding the standards promulgated. The reaction of academic affiliates to the VA’s supervision policy has generally been positive, although some have accused the VA of undue emphasis on documenting supervision and an overly bureaucratic monitoring for evidence of supervision. VA policy has been first and foremost aimed at establishing appropriate standards of resident supervision from the standpoint of resident education, graduated responsibility in the delivery of patient care, quality of care, and patient safety. Moreover, individuals in the VA who are involved in graduate medical education must continue to remind our agency and the non-academic public that the process of resident education extends far beyond that which is documented in a patient’s medical record. To quote the definition of resident supervision from our 2004–05 policies:

“Supervision is an intervention provided by a supervising practitioner to a resident. This relationship is evaluative, extends over time, and has the simultaneous purposes of enhancing the professional functioning of the resident while monitoring the quality of professional services delivered. Supervision is exercised through observation, consultation, directing the learning of the resident, and role modeling.”⁵

Supervision is an interaction and a relationship between a faculty member and a resident physician that fosters the professional development of the resident, while allowing the supervisor to exercise appropriate involvement in the patient care for which he/she is responsible. The VA’s resident supervision policy specifies where and when such interactions occur and how those interactions will be documented and monitored. At the same time, the quality and effectiveness of resident supervision is ultimately determined by what takes place during the interaction between the supervisor and the resident. VA resident supervision policies have attempted to promote and preserve a dynamic supervisory interaction while assuring our organization and the public that veterans continue to receive the safe, high-quality care they deserve. ■

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¹ Itani K et al., Presented at the Association of VA Surgeons spring 2005 meeting and submitted for publication

² Veterans Health Administration Handbook, 1400.1, May 3, 2004. See <http://www.va.gov/oaa/>

³ The six mandatory settings to be monitored include: inpatient, outpatient, procedures, emergency department, consultations, and surgical care.

⁴ See http://www.va.gov/oaa/resident_supervision_pocketcard.asp

⁵ Definition adapted from: Bernard, J. M., & Goodyear, R. K., *Fundamentals of Clinical Supervision* (2nd ed.). Needham Heights, MA: Allyn & Bacon 1998.

Supervision from a Payment Perspective: The Medicare Part B Requirements for Teaching Physicians

Karen S. Fischer, JD

Editor's note: No discussion of resident supervision would be complete without a summary of Medicare rules for payment in teaching settings, which Dr. Chang briefly mentioned in her article. The Medicare rules, provide some of the context for the guidance about supervision teaching institutions provide to their faculty. They are summarized below.

Medicare pays physicians for services provided to beneficiaries. The primary purpose of the Medicare Program's teaching physician rules and Carrier Manual Instructions (CMI) is to establish documentation requirements that will support a bill by a teaching physician when a resident also is involved in providing a service to that patient.

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The Health Care Financing Administration (HCFA, now CMS) first established guidelines for billing practices of teaching physicians in 1967. The requirements were again addressed in 1969 when HCFA issued Intermediary Letter 372 (IL-372), which delineated the criteria to be met by teaching physicians before submitting a bill for payment of services. Questions continued to be raised about when and to what extent the physical presence of the teaching physician was required for billing Medicare. Adding to the confusion were the inconsistent interpretation and enforcement of the rules by local Medicare carriers.

In December 1995, HCFA published new regulations, effective July 1996, that detailed when a teaching physician could appropriately bill Medicare for patient care services in which a resident also is involved. The regulations were intended to substantially reduce the ambiguities engendered

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by the previous HCFA guidelines. They require, with one narrow exception described below, that the teaching physician be present to perform or observe the “key portion” of any service or procedure for which payment is sought. The regulations also provide further guidance on the documentation required in the medical record to substantiate that such services were performed.

The Primary Care Exception may be used only for a few lower and mid-level evaluation and management services provided by residents. Among the requirements for this exception are that the services be furnished in a center located in the outpatient department of a hospital or other type of ambulatory care center. The teaching physician can supervise up to four residents at any given time and must be immediately available at all times.

Other requirements include that the teaching physician:

- **Have no other responsibilities (including the supervision of other personnel) at the time the service is provided by the resident;**
- **Have the primary medical responsibility for patients cared for by the residents;**
- **Ensure that the care provided was reasonable and necessary;**
- **Review the care provided by the resident during or immediately after each visit; and**
- **Document the extent of his/her own participation in the review and direction of the services furnished to each patient. ■**

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Resident Supervision

Timothy Flynn, MD

The noun “supervision” appeared in the early 1600’s, suggesting that before the 17th century there may have been no need to check up on others. Today, a lot of checking up on others is done in all possible settings, and supervision of individuals in a formal process of medical education is a topic of considerable interest for many different constituencies. The Merriam-Webster dictionary defines supervision as “the action, process or occupation of supervising, especially a critical watching and directing.” The word comes from the Latin *super* and *videre*, together they mean to look over. This may not be a helpful definition for our purposes, since it seems too passive, and we should not confuse it with overlook or ignore, which characterized supervision for some of us during residency.

The way we exercise the responsibility to supervise/teach has changed considerably over time, shaped by public expectations, regulatory and legal pressures, and economic constraints. As an academic community, we have been reluctant to discuss resident involvement in patient care for fear of being accused of “experimenting” on patients. We have not been willing to explicitly define what we mean by appropriate supervision, except when pushed by financial or legal considerations. As professionals involved in educating residents in the context of caring for individuals’ illnesses, we must be clear in articulating an ethic of supervision that balances the potentially competing goals of providing the best patient care with preparing the future physician workforce.

What do we mean by resident supervision? Three individuals are intimately involved – the resident, the patient and the faculty physician. Several other entities monitor and shape the dimensions of the competing goals. To the resident, supervision is like learning to ride a two-wheeler. The attending is the training wheel – a blessing to have initially, but at some point an impediment to learning by doing. To the patient, who is the one with any real skin in the game, the desire is to have the best person in the world taking care of them, or at least someone who is fully competent. For the patient, a mistake does not constitute a “learning opportunity.” As teachers, we stand between the two, making decisions every day that affect the outcome of both processes.

Legal considerations, time constraints and financial incentives come into play as academic faculty struggle to balance these competing interests.¹ An example is faculty behavior before and after enforcement of the IL-372 rules, which require the attending physician to be physically present for critical portions of a procedure. Increasingly, in surgical

specialties this has resulted in no resident doing anything independently until the day they are magically declared omniscient – the day they complete residency. Yet we have not replaced the system of learning by doing with another viable educational model. Instead, have we pushed learning by experience into the unsupervised period after residency? Do we put ourselves and the public at risk if our product is incomplete after years of watching? How should we as educators understand our responsibility?

One of our problems is that we really do not know what constitutes optimal supervision – supervision that maximizes patient outcome and resident education. The ACGME’s requirements are not specific, essentially saying that

“Programs and institutions must identify the decision-making that goes into providing progressive responsibility to the individual residents.”

residents should be appropriately supervised in the context of progressively increasing responsibility. Programs and institutions must identify the decision-making that goes into providing progressive responsibility to the individual residents. The advent of the six competencies seeks to define that process in a more reliable way. While this sounds good, residents too often are promoted to the next level just because they have spent the required year. Program directors are conflicted about what to do with problematic residents. Time for remediation just is not a feature of the system. We need a better way to assess the individual resident’s capacity to assume additional

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responsibility. At this time, the decision about the extent to which an episode of care requires faculty presence still is made in context, and heavily weighted by the players involved. We open ourselves to criticism by not making efforts to objectify this process.

The Joint Commission indicates that institutions involved in medical education must have a policy on resident supervision. Again, there is not much direction about the content of that policy, other than the requirement that patients

must be made aware of the presence of trainees in the institution and their involvement in care. There is increasing interest in making this more explicit, with calls for the delineation of exactly what residents will be doing as part of the episode of care, and with more specific informed consent for residents' participation. This has profound implications, as individual patients may opt not to be part of the educational system. For many educators, the fact that patients come to an academic center suggests and implies the consent for the participation of residents, yet the ethical grounds for this are shaky. In one study, when patients were asked if they wanted a resident to perform their cataract extractions, only 8% agreed.² In another study, while 91% of patients agreed that educating future surgeons was important, 35% did not want a resident performing any part of their procedure.³ In a third study, 60% of patients reported that they had not realized that they could be a resident's "first case." Only 49% were completely comfortable being the first patient for sutures, 29% for an intubation, and 15% for a lumbar puncture.⁴ While care in teaching hospitals is no worse, and in many instances is better than care in non-teaching hospitals, can we continue to be silent on the role of students and residents in patient care?⁵

The Veteran's Affairs (VA) system has the only set of rules that clearly spell out attending physicians' responsibilities for physical presence with the resident and the patient and documentation of that presence. This is well described in Dr. Chang's paper in this issue of the Bulletin. Having worked in the VA system for two decades, I can state that how supervision is recorded in the patient's chart often appears to take precedence over how engaged faculty is in the supervision and teaching of the residents. Residents also continue to provide much of the critical workforce in our "safety-net" hospitals. The implied social contract, while almost never stated, is that individuals with few other options for care would have access to care in these institutions and in return

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would be participants in the teaching mission of the hospital. While professional educators take their responsibility toward the safe care/education balance as a core value of their own professionalism, many patients are not able to "opt out" of this participation in the educational process. Patients also often have an incomplete understanding of the role they play in the system. Is this acceptable in the "culture of transparency" desired at the beginning of the 21st century?

"While there is clearly more attending presence, there has not necessarily been more teaching or more critical assessment of resident skills."

Much of my training occurred in an inner-city hospital. It was clearly a "see one, do one, teach one" process. Faculty felt that the best way to learn was to be thrown into the water and learn to sink or swim. Asking for help was a sign of weakness and, when asked whether or not I had done a given procedure, my answer was "a couple of times," even when that meant that I might have seen it once. As an intern, I was doing appendectomies in the middle of the night without a senior resident present, much less an attending. I was amazed at how much smarter and capable I was at night and on the weekends. Today, responsibility for patient care has shifted up the educational ladder. Medical students have little hands-on experience compared to students in previous years. In many instances, interns do what students once did. Responsibility for the level of independence has been shifted to the most senior residents or the junior attendings. What is not occurring is resident involvement in the discussion of the ethics of supervision, how their learning needs are being met, and what their role is in the care of the patient.

While there is clearly more attending presence, there has not necessarily been more teaching or more critical assessment of resident's skills. This suggests that the issue really needs to be framed less as one of resident supervision, but of resident education: how we transmit knowledge, how young physicians learn and how we assess progression of that learning. Due to a variety of factors, there has been erosion of the "teachable moment," and the time faculty spend with the residents to evaluate their capabilities. There is less time as well for the residents to sit at the bedside with the patient and to develop a clinical sense of how disease progresses and how to recognize issues that evolve in the patient's course of treatment. The heart of the issue is the need for better instructional methods to replace the traditional training, which was centered on a process in which the patient was for right, or for wrong, occasionally treated as teaching material.

Where does this leave us? The old system of resident autonomy and “see one, do one, teach one” trial and error learning, with little intentional teaching or evaluation, is largely gone. Yet in its place, there is no clear guidance on how we will achieve the lofty goals we aspire to in graduate medical education. We need a system where the patient is an active participant in the education process; where resident autonomy is based on the individual resident’s skills, measured objectively; where no patient is the resident’s “first” for any procedure, because the resident has already proven proficient in a simulated environment, and where the faculty physicians are chosen for their demonstrated ability to balance the complexities of patient care and medical education.

“The old system of resident autonomy and “see one, do one, teach one” trial and error learning, with little intentional teaching or evaluation, is largely gone. “Yet in its place, there is no clear guidance on how we will achieve the lofty goals we aspire to in graduate medical education.”

Are we there yet? No. At best, we are in a transitional system where the old is on its way out and the new has yet to fully take form. On a daily basis, educational leaders and program directors are faced with an enormous array of seemingly insoluble problems. They include how to pay for supervision time, and how to pay for the off-line time that residents need for educational experiences away from the patient care arena. We also need to assure the public that we know what we are doing, and are capable of providing safe care and educating the physicians who will care for the next generation. The public is not convinced that their interests are best served in an environment where trainees participate in care. Transparency in outcomes, costs and satisfaction must become the norm. We clearly need to identify new methods to teach because the old method that relied on the professor making rounds twice a week, is no longer acceptable. We also must not forget our past, particularly with regards to inculcating those selfless values that, in their absence, generate much criticism of our profession.

“In an ideal world residents would be educated by individuals who are trained to do so, who are allowed to let the resident progress at his/her own rate toward competence in their chosen field.

Finally, we need to do a much better job deciding who can supervise/teach residents. Program directors and faculty should have some minimum education for their roles and should be specifically certified. In an ideal world residents would be educated by individuals who are trained to do so, we who are allowed to let the resident progress at his/her own rate toward competence in their chosen field. Those responsible for supervision would make decisions based on a combination of their subjective experience and objective tests, and other valid criteria that promote the well-being of the patient and the education of the individual resident. Patients and others whom the resident serves in the course of his/her career could be the measure of the success of this project. ■

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The Multiple Perspectives of Supervision: Education, Patient Care and Public Perception

For this composite interview, the ACGME Bulletin spoke with several stakeholders of resident education to elicit their perspective on supervision in general; what constitutes optimal supervision; and barriers to good supervision in the day-to-day education of residents. Jim Norton, PhD, discusses supervision from the perspective of a Designated Institutional Official (DIO); Vishal Gala, MD, PhD, provides the resident's perspective; David Stevens, MD, speaks to its relevance to the quality of care; and Michael Klowden, JD, provides the perspective of a member of the public.

Can you tell me about the importance of faculty supervision of residents from your perspective?

Dr. Gala: During my residency in neurological surgery, I transitioned from close supervision in the early years of training to more independent practice in the later years. Supervision was an important part of my surgical education, with a particular focus on balancing responsibility, autonomy and ongoing assessment of my capabilities.

Dr. Norton: Supervision of residents is a critical aspect of the educational process. It is at the heart of much of the interaction between residents and attending physicians. From a patient safety perspective, we expect that an attending physician ultimately is responsible for all care the patient receives. From the perspective of good learning, supervision offers active guidance to residents as they are engaged in patient care.

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As programs seek to promote resident learning and safe and effective care for patients, what are the most important attributes of supervision?

Dr. Norton: Supervision for education and for safe patient care occurs simultaneously in the performance of a good attending physician. The most important attribute for both goals is the faculty physician's attentiveness to the supervision

process and his or her degree of engagement in the care of the patient and the development of the resident. Our faculty development process seeks to inculcate that sense of engagement.

Dr. Gala: One of the most important attributes of good supervision is that faculty serve as role models for the residents. This extends supervision beyond overseeing the cognitive and technical aspects of care, and addresses competencies such as professionalism and communication and interpersonal skills.

Dr. Stevens: The framework for supervision in outstanding GME programs has shifted to focus on quality, safety and reliability of care in addition to a focus on facilitating learning. Having said that, at a policy level the system appears to be stuck in a time warp. Supervision is viewed with a reimbursement mindset that has the potential to conflict with both learning and patient care goals.

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Question: How do supervision and graded responsibility relate to residents' attainment of the general competencies?

Dr. Norton: There seems to be a conflict between active supervision and graded responsibility. Yet, when the supervision process functions well, with more experienced residents, the attending is no less involved. He or she just intervenes less frequently and the resident functions more autonomously within a set of proven competencies. This requires evidence that the resident has attained these competencies, and is able to provide these aspects of care fairly independently.

Dr. Gala: There should be growing resident autonomy with availability of faculty when the resident reaches the limits of his or her capabilities. Faculty should be able to step back and let the resident provide care, but be immediately there when that is in the patient's and resident's best interest. The link

between supervision and the competencies is that, for faculty to make valid assessments of a resident's attainment of the competencies, faculty must have close contact with the resident, and be familiar with how that resident performs, including performance under a greater degree of autonomy. Graded responsibility also facilitates that. From the perspective of the ACGME and the Residency Review Committees, there should be some restraint to keep the standards for supervision rules from stifling graduated responsibility and resident development that is indispensable to independent practice.

Question: How could institutions organize supervision to meet the needs of safe care, and the educational needs of residents for more independent experience as they near the end of training?

Dr. Norton: Institutional leaders need to create an environment that values high-quality supervision and facilitates faculty development in this area. Institutions have written expectations for supervision, but how these become faculty behavior depends on the local culture.

Question: What is your perception of how well the public understands supervision in teaching hospitals?

Mr. Klowden: I am not certain. The ACGME should explore how the public views supervision. If we learn that the public does not understand the supervision process, or has concerns about its adequacy, we have a responsibility to educate the public and explore and address its concerns. If we find the public is comfortable with how residents are supervised, our responsibility is to continue to assure them that the system is working well.

“A more relevant focus might be to implement the changes that can reassure the public that there is a high-quality academic system of care around the patient – one that does the right thing, for the correct patient, at the right time – and that this leads to better outcomes.”

Dr. Stevens: In communicating with the public, we have appropriately emphasized that resident supervision is adequate. A more relevant focus might be to implement the changes that can reassure the public that there is a high-quality academic

system of care around the patient – one that does the right thing, for the correct patient, at the right time – and that this leads to better outcomes: better care for the patient and better learning for the resident.

Question: What is the future of supervision, as ACGME advances focus on the outcomes of education and patient care, and increases the use of simulation and other measures to educate residents remote from the bedside?

Mr. Klowden: As we focus on outcomes, supervision becomes even more important. It is through high quality supervision and faculty contact that we assure the clinical outcomes we all consider desirable.

“In this context, faculty physicians are learners along with residents. It is a challenging era; and it may be at odds with traditional views of resident and faculty roles.”

Dr. Stevens: In the environment of rapid acceleration of new knowledge, ACGME's focus on outcomes and simulation appropriately widens the definition of supervision. In this context, faculty physicians are learners along with residents. It is a challenging era; and it may be at odds with traditional views of resident and faculty roles. But if we can get this right, including the use of best clinical evidence and practices, both the resident and faculty become collaborative learners in the process of caring for the patient. ■

Jim Norton, PhD, is the Associate Dean for Graduate Medical Education, University of Kentucky Chandler, Medical Center; Vishal Gala, MD, PhD is a Fellow in Neurological Surgery-Spinal Surgery at the University of Michigan and a member of the ACGME's Board of Directors; David Stevens, MD, is Vice President, and Director of the Institute for Improving Clinical Care, Association of American Medical Colleges; and Michael Klowden, JD, is the President and CEO of the Milken Institute, and an ACGME Public Director.

RRC/IRC Column

ACGME approves revisions to the program requirements of Pediatrics, Neurological Surgery, Emergency Medicine, Pediatric Otolaryngology and Family Medicine-Geriatrics

At the June 2005 meeting, ACGME approved major revisions to the Program Requirements for Pediatrics, as well as major revisions to the Program Requirements for Neurological Surgery. Both of these new requirements will become effective on January 1, 2006. The ACGME also approved minor revisions to the Program Requirements for Emergency Medicine, to become effective September 1, 2005.

The Council approved revisions of the Program Requirements for Pediatric Otolaryngology, a subspecialty of Otolaryngology, to become effective July 1, 2006. The ACGME approved the revisions of the Common Program Requirements for Subspecialties in Family Medicine (Geriatrics and Sports Medicine). These requirements became effective July 1, 2005.

The ACGME also approved revisions to the Program Requirements for Geriatrics as a subspecialty of Family Medicine. The new subspecialty requirements will go into effect on July 1, 2006.

Other News from the June ACGME Meeting

ACGME approves Manual of Policies and Procedures

The ACGME approved significant revisions to the ACGME Manual of Policies and Procedures, which became effective July 1, 2005. The draft Manual had been widely circulated for comment. Final modifications made at the June meeting addressed, among other areas, aspects of the RRC appointment process, orientation of new RRC members, and conflict of interest rules for RRC members and Ex Officio members.

Strategic Initiatives Committee discusses ACGME mission, vision and values and reviews Executive Committee strategic priorities

Mark A. Kelley, MD, Chair, Strategic Initiatives Committee, led the review of feedback from a broad range of constituents on revised ACGME Mission and Vision statements as well as the new draft statement of ACGME values. The Committee also discussed four ACGME strategic priorities set by the Executive Committee at its November 2004 retreat. The Board of Directors approved that staff make revisions to the Mission, Vision and Values statements, based on the feedback received, and develop the four strategic priorities into a concise strategic plan with a two-year time horizon. Subsequent to the meeting, both documents were sent to the members of the Board of Directors and the Member Organizations for comments and input. The revised documents will be presented at the September ACGME meeting.

ACGME appoints Cynthia Taradejna to co-direct new division

Cynthia A. Taradejna, MEd, Associate Director of ACGME Activities, has been named co-director of the Accreditation Council for Graduate Medical Education's new Division of Organizational Assessment and Advancement (OAA). Ms. Taradejna will lead projects to measure and improve the ACGME's performance, streamline the accreditation process, and implement the ACGME's strategic priorities, and will work closely with OAA co-directors David C. Leach, MD, ACGME Executive Director, Ingrid Philibert, MHA, MBA, Director of Field Activities, and Susan Swing, PhD, Director of Research.

The objectives of the OAA are three-fold: 1) to select and use indicators of ACGME performance; 2) to solicit leader and stakeholder input to identify consensus targets for organizational focus; and 3) to use this information to assess and advance organizational performance, with a particular focus on strategic priority areas established by the ACGME's Executive Committee and Board of Directors. Ms. Taradejna will continue her activities as staff liaison for the ACGME Executive Committee.

Ms. Taradejna has been part of the ACGME staff since the Council was founded in 1981, and has worked in graduate medical education since 1972. Ms. Taradejna most recently served as the Executive Director of the Institutional Review Committee.

ACGME to Accredite Sponsoring Institutions, Patricia Surdyk PhD, Appointed Executive Director, Institutional Review Committee

Starting this October, the Institutional Review Committee (IRC) will begin to accredit sponsoring institutions, instead of granting favorable or unfavorable reviews. This will make a wider range of accreditation status options available to the IRC, including placing sponsoring institutions on probation.

“Starting this October, the Institutional Review Committee (IRC), which evaluates and accredits institutions that sponsor residency, will begin to accredit sponsoring institutions, instead of granting favorable or unfavorable reviews.”

In August, the ACGME named Patricia M. Surdyk, PhD, IRC Executive Director. In addition to directing the IRC's activities, Dr. Surdyk will serve as a liaison between the IRC and the 27 residency review committees of the ACGME; lead projects to improve the quality of sponsoring institutions; and work with the executive directors of the review committees to refine institutional and common program requirements.

Dr. Surdyk holds a doctorate in curriculum and instruction, and has served previously as a senior project manager in the Department of Research. Other positions at the ACGME have included Associate Executive Director of the RRCs for Internal Medicine and Psychiatry, and Research Associate for the RRC for Surgery.

Department of RRC Activities becomes the Department of Accreditation Committees

For many years the Department of RRC Activities has housed the nine RRC teams. Each team is composed of an Executive Director, accreditation administrators and support staff. Collectively the nine teams staff the 26 RRCs and Transitional Year Review Committee. Recently, the ACGME staff for the Institutional Review Committee (IRC) was administratively and physically moved into the Department of RRC Activities.

This change was made to provide greater opportunities for communication and networking among the RRC and IRC staffs as the IRC now has the authority to accredit sponsoring institutions and the number of institutional issues that affect residency programs increase.

In order to more clearly reflect its function, the name of the department, which is under the direction of Jeanne K. Heard, MD, PhD, was changed to Department of Accreditation Committees. ■

ACGME Upgrades List of Accredited Programs and Sponsoring Institutions

Rebecca Miller, MS

For the past five years, the ACGME has made available on its web site (www.acgme.org) electronic listings of programs and sponsoring institutions, as well as annual data reports. This section of the website, often referred to as the "Public Site", was recently updated to allow users to access a program's 5-year accreditation history based on a "snapshot" for each academic year. Accreditation Data System (ADS) staff also added several new reports to this site, including the list of programs and sponsors with unfavorable ACGME accreditation decisions and the number of approved and actual residents on duty by specialty and state.

"The intent is to allow medical students, residents, program directors, Designated Institutional Officials, the medical community, and the public to view basic information about all ACGME accredited and combined programs as well as their sponsoring institutions."

The intent is to allow medical students, residents, program directors, Designated Institutional Officials, the medical community, and the public to view basic information about all ACGME accredited and combined programs as well as their sponsoring institutions. A search may be initiated by selecting *Accredited Programs*, *Combined Programs*, *Sponsoring Institutions*, or *Accredited Program History*. The user may also view and print nine different current and historical reports. The information can be located by accessing the "Public" tab on the ACGME's homepage and selecting "Search for Accredited Programs and Sponsoring Institutions" (www.acgme.org/adspublic). The ACGME welcomes your questions and comments. Please direct them to WebADS@acgme.org. ■

Rebecca Miller, MS, is the Director of the ACGME's Department of Operations and Data Analysis.

National and International News of Interest

Study of first months under duty hour limits shows no change in adverse drug events

A study conducted in the Department of Emergency Medicine at Northwestern University, Chicago, highlighted that there were no significant differences in adverse drug events (ADEs) before and after the institution of the 80-hour weekly limit on resident duty hours.¹ The study compared the first six months after the implementation of the ACGME's duty hour limits (July–December 31, 2003) to the same period one year earlier. This showed 1.3 ADEs per 1,000 patient days before the institution of duty hour limits, compared to 1.1 ADEs per 1,000 days after the institution of the standards. The authors found that hospital-wide, ADEs remained largely constant before and after the implementation of duty hour limits.

¹ Mycyk MB, McDaniel MR, Fotis MA, Regalado J. Hospitalwide adverse drug events before and after limiting weekly work hours of medical residents to 80. *Am J Health Syst Pharm.* 2005 Aug 1;62(15):1592-5.

UK doctors concerned over EU doctors' English skills

An article in the BBC News "health reporter" section commented that patient care might be negatively affected because doctors who have moved from other parts of Europe and are working in the United Kingdom (UK) may not have sufficient English skills. Of the 230,000 physicians registered with Britain's General Medical Council, 12,000 hail from European Union countries or other Western European nations. They are exempt from the language skills test required of physicians coming from other parts of the world. The National Health Service (NHS) Trusts that oversee the provision of care are responsible for ensuring these doctors are "proficient" to an extent that is "consistent with safe and skilled communication with patients, clients, care givers and colleagues."

"The UK medical community has expressed concern over physicians from other European nations who fly to the British Isles to cover weekend shifts."

In addition, the UK medical community has expressed concern over physicians from other European nations who fly to the British Isles to cover weekend shifts. Need arose last year when 90% of UK general practitioners opted not to sign up for weekend coverage. Concerns result from the fact that the quality of care may be affected because foreign physicians providing weekend coverage may not be fluent in English, and may be less familiar with the NHS's delivery systems. Problems cited include incorrect prescriptions and unnecessary hospital referrals. Despite this, and the high costs of travel and accommodations for physicians from another country, the numbers of physicians from other European nations registering to work in the United Kingdom has been rising sharply. ■

Practice Makes Permanent

Ingrid Philibert

"To improve our understanding how residents attain and maintain competence, lessons from others domains on the role of 'deliberate practice' in the acquisition of expertise could be of benefit."

K. A. Ericsson et al.¹

The theme of this issue of the ACGME Bulletin is resident supervision. In 1984, the death of Libby Zion in a New York City teaching hospital highlighted concerns with resident duty hours as well as with supervision by faculty.² More than 15 years after New York State implemented regulations specifying limits on resident hours and enhanced faculty supervision, the supervision requirements have not garnered the same attention as the duty hour limits, despite the fact that a good deal of the initial discussion of the rules focused on the workforce requirements and costs of the provisions for supervision.³

"More than 15 years after New York State implemented regulations specifying limits on resident hours and enhanced faculty supervision, the supervision requirements have not garnered the same attention as the duty hour limits."

Supervision rises to prominence in some settings, as discussed in Dr. Chang's article in this issue of the Bulletin, and in certain contexts, such as payment for patient services in teaching hospitals. At the same time, many members of the resident education community still take a relatively narrow view of the role of supervision in the education and professional development of the resident. This occurs despite a context of the application of the general competencies, and growing interest in understanding the processes by which residents acquire the competence for independent practice.

That the role of faculty supervision in the educational development of residents should be of interest to the education community has been highlighted by research into the requirements for expert performance in other domains. The findings are being adapted to the acquisition of competence for the independent medical practice. A comprehensive discussion of this occurs in Dr. K. Anders Ericsson's invited address at the AAMC Annual Meeting in November 2003.⁴ Using examples from the process of learning and practice that goes into the development of expert musicians and other domains of "recognized expertise," Ericsson highlights the role of deliberate practice – particularly the role of teachers in observing performance and identifying aspects that could be improved. His statements are remarkably similar to those about the value of supervising faculty's close involvement

made by several writers throughout this issue of the Bulletin. Residents also intuitively appear to understand this link between supervision and educational quality. In the 2004–05 ACGME resident survey, a small number of residents reported that “none” or “few” of their faculty physicians supervised and taught them in ways that facilitated their education, and that their program did not provide prompt and adequate resident supervision. Residents in these categories were much less likely to report that their faculty demonstrated a strong interest in the quality of their education. They also were more likely to report that their performance evaluations were not helpful in improving competence or performance, or were helpful to only a limited extent.⁵

“Practice without informed, deliberate coaching to address non-optimal components may make poor performance “permanent,” as bad habits become more ingrained with repetitive use. Practice thus does not always make performance “perfect.”

Practice without informed, deliberate coaching to address non-optimal components may make poor performance “permanent,” as bad habits become more ingrained with repetitive use. Practice thus does not always make performance “perfect.” That requires expert observation and feedback as the parent of any budding musician or tennis player, or those of us bold enough to learn a new sport as adults will understand. This suggests the critical importance of supervision for the acquisition of competence.

While deliberative practice is important to the acquisition of haptic and procedural skills, it does not end there. Also of interest to the “future of supervision” is the growing body of knowledge about how individuals cognitively navigate their environment, how they acquire expertise in mental domains, and how this affects their decision-making and action patterns over the course of their education as physicians.

The traditional model for how physicians learn decision-making entails three assumptions: 1) rigorous selection has narrowed the field to individuals possessing above average intelligence; 2) the primary role of medical education is to increase professional knowledge and skills; and 3) optimum decision-making depends on the degree to which medical knowledge is present and combined with innate cognitive abilities. This model places relatively little importance on the role of supervising faculty as “coach” to convey how abstract knowledge applies to the particulars of the given situation. Expecting residents to develop this skill without close supervision and faculty involvement clearly is problematic from both the perspectives of learning and ensuring safe patient care.

Embedded in a new role for supervision toward better resident education is the notion that “the ability to select and use information effectively in solving problems may be teachable,” a concept that dates back to the late 1970s.⁶ What is not clear at present is how this is reflected in the educational curriculum or in the approaches used to evaluate learners. In the curriculum, isolated exceptions include the teaching of hypothesis-based deductive methods or adaptations of Baye’s theorem to familiarize resident with diagnostic reasoning and decision-making.^{6,7} In resident evaluation, decision-making skills often are addressed only if they seem to be glaringly absent.

The literature on deliberate practice and the role of supervision and coaching in the acquisition of competence is worthy of further examination by the resident education community. A comprehensive bibliography is included with Dr. Ericsson’s invited address.⁴ Some of the concepts discussed are remarkably close to those suggested by David Leach, MD, ACGME Executive Director, in a 2003 letter to the editor of the Bulletin. Dr. Leach emphasized that the value of physicians and by inference, the value of supervising faculty, is not so much due to their abstract clinical knowledge, but comes from their “capacity to make good clinical judgments – to determine the best means to the best end.”⁸ He used the term *phronesis*, loosely translated as “reason made perfect in practice,” and meaning that the physician uses the particulars of a given patient to inform judgment rather than using the disease model in the abstract. Transferring the ability to make these practically informed judgments from faculty member to the resident could be one aspect of what supervision for better learning is all about. ■

¹ Ericsson, KA, Krampe RT, Tesch-Romer C. The role of deliberate practice in the acquisition of expert performance. *Psychological Review* 1993; 100:363-406.

² Asch DA, Parker RM. The Libby Zion case. One step forward or two steps backward? *Engl J Med*. 1988 Mar 24;318(12):771-5.

³ Thorpe KE. House staff supervision and working hours. Implications of regulatory change in New York State. *JAMA*. 1990 Jun 20;263(23):3177-81.

⁴ Ericsson KA. Deliberate practice and the acquisition and maintenance of expert performance in medicine and related domains. *Acad Med*. 2004 Oct;79(10 Suppl):S70-81.

⁵ 2004-05 Resident Survey, ACGME, Chicago, IL, data aggregated by Kathleen Holt, PhD, ACGME staff.

⁶ Elstein AS, Shulman LS, Sprafka SA. *Medical problem solving – an analysis of clinical reasoning*. Cambridge, Massachusetts: Harvard University Press; 1978.

⁷ Elstein AS, Dawson-Sanders B, Belze LJ. Instruction in medical decision making – a report of 2 surveys. *Med Decis Making* 1985;5:229-33.

⁸ McGuire CH. Medical problem-solving: a critique of the literature. *J Med Educ*. 1985 Aug;60(8):587-95.

⁹ Leach DC. *Phronesis and Professionalism*. Letter to the Editor, ACGME Bulletin, August 2003, <http://www.acgme.org/acWebsite/bulletin/bulletin0803.pdf> accessed August 23, 2005

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Resident Supervision

Ingrid Philibert

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