Residents' Clinic Articles in the Age of Competency-Based Medical Education

Mayo Clinic Proceedings began publishing Residents' Clinic articles in 1995. The purpose of Residents' Clinics is for internal medicine residents to describe—through narratives, multiple choice questions (MCQs), and explanations of the MCQ answers—the evaluation of patients who are managed by internists with respect to diagnosis, treatment, and prognosis. The traditional focus of Residents' Clinics is to enhance readers' reasoning skills and medical knowledge of diseases that occur in adults. Other journals that publish similar articles on knowledge and clinical reasoning are *New England Journal of Medicine* and *JAMA*.[1,2] However, it is noteworthy that physicians' expertise in managing patients extends beyond acquiring and displaying medical knowledge.

In 2001, the Accreditation Council for Graduate Medical Education (ACGME) introduced the Outcomes Project, which required that residents demonstrate proficiency in the following six *competencies*: (1) patient care, (2) medical knowledge, (3) systems-based practice, (4) practice-based learning and improvement, (5) professionalism, and (6) interpersonal and communication skills.[3,4] Assessing resident performance in these competencies is challenging,[5] so in 2009, the ACGME and the American Board of Internal Medicine introduced *subcompetencies*[6]—also called *reporting milestones*—under the Next Accreditation System (NAS).[4,7] Reporting milestones provide the advantages of behavior-specific anchors and an ability to gauge residents' progress over time (Table).

With multiple competencies and subcompetencies, why would there be such emphasis on the competency of medical knowledge in graduate medical education? There are several reasons. First, assessment drives learning.[8] In other words, people are strongly motivated to understand information that is required for high-stakes assessments. The medical knowledge certification examination, which internists must pass every 10 years in order to maintain board certification, is one such motivation for continuous learning. Second, board pass rates are a key metric for determining the quality of residency training programs.[9] Third, competencies like professionalism and communication are more challenging to objectively measure than medical knowledge, so they may be understressed. The ACGME and NAS milestones-based assessments require that residents exhibit a wide range of competencies that transcend awareness of diseases to include caring for the whole patient within the contexts of physician-patient relationships, medical teams, and the health care system. Therefore, residents should be encouraged to think broadly about their clinical experiences when writing Residents' Clinic contributions.

This issue of the *Proceedings* includes a Residents' Clinic article by Vatterott et al[10] regarding a patient with an unfortunate outcome that occurred in the setting of several widely recognized cognitive errors.[11-13] Reflecting on one's mistakes in clinical reasoning is consistent with the ACGME's definition of practice-based learning and improvement, which underscores the importance of improving patient care through constant self-evaluation.[14] This case also illustrates transformative learning,[15] which is growth of awareness through changing one's worldview. Transformative learning requires a disorienting dilemma such as a cognitive error, reflecting on the dilemma to expose areas for improvement, and then addressing limitations by acquiring new knowledge, skills, or attitudes. In fact, transformative learning has been identified as a link between practice-based learning and improvement and large-scale improvements in the health care system.[16] Furthermore, learning from errors reaffirms the culture of transparency in modern training programs and the systems audit approach to discussing medical errors at morbidity and mortality conferences.[17]

The Residents' Clinic article by Vatterott et al[10] marks a substantial departure from previous Residents' Clinics over the past 20

TABLE. Accreditation Council for Graduate Medical Education Competencies and Reporting Milestones[a]

Competency	Reporting milestone	Description
Patient care	PC1	Gathers and synthesizes essential and accurate information to define a patient's clinical problem
	PC2	Develops and achieves comprehensive management plan for each patient
	PC3	Manages patients with progressive responsibility and independence
	PC4	Skill in performing procedures
	PC5	Requests and provides consultative care
Medical knowledge	MK1	Clinical knowledge
	MK2	Knowledge of diagnostic testing and procedures
Systems-based practice	SBP1	Works effectively within an interprofessional team
	SBP2	Recognizes system error and advocates for improvement
	SBP3	Identifies forces that impact the cost of health care and advocates for and practices cost-effective care
	SBP4	Transitions patients effectively within and across health delivery systems
Practice-based learning and improvement	PBLI1	Monitors practice with a goal for improvement
	PBLI2	Learns and improves via performance audit
	PBLI3	Learns and improves via feedback
	PBLI4	Learns and improves at the point of care
Professionalism	PROF1	Has professional and respectful interactions with patients, caregivers, and members of the professional team
	PROF2	Accepts responsibility and follows through on tasks
	PROF3	Responds to each patient's characteristics and needs
	PROF4	Exhibits integrity and ethical behavior in professional conduct
Interpersonal and communication skills	ICS1	Communicates effectively with patients and caregivers
	ICS2	Communicates effectively in interprofessional teams
	ICS3	Appropriate utilization and completion of health records

[a]Each milestone is rated on a 9-point scale with descriptive anchors, ranging from "critical deficiencies" to "ready for unsupervised practice" to "aspirational." For more information, see the Accreditation Council for Graduate Medical Education's and American Board of Internal Medicine's Internal Medicine Milestones Project.[6]

years, which have included MCQs that address only the medical knowledge and patient care competencies. This new approach reveals the complex abilities required of internists, which would also include systems-based practice, practice-based learning and improvement, professionalism, and interpersonal and communication skills. Ultimately, the article by Vatterott et al should align Residents' Clinics with the milestones-based objectives of the ACGME and NAS in this era of competency-based education.

Looking forward, we anticipate that most Residents' Clinic articles will continue to focus mainly on patient cases that represent the medical knowledge and patient care competencies. Nonetheless, we will broaden the scope of Residents' Clinics by considering manuscripts that demonstrate, in a compelling fashion, any of the ACGME competencies. Examples could include clinical scenarios that show methods for effective physician-patient communication, improving health care systems, or resolving ethical dilemmas.

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