

ACADEMIC INTERNAL MEDICINE INSIGHT

AAIM IN ACTION

AAIM President's Update: Moving Forward

AAIM President D. Craig Brater, MD, discusses two key alliance initiatives: the Internal Medicine Education Redesign Advisory Board and deliberations about generating external sources of support for the organization. As AAIM expands its reach and influence to support the members in their various roles, increasing revenues will be key to building the right infrastructure for AAIM.

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HIGH VALUE CARE

Cost Awareness for Residents: Integrating High Value, Cost-Conscious Care into a Residency Curriculum

Using the AAIM-ACP High Value Cost-Conscious Care Curriculum as a starting point, University of California, Irvine, School of Medicine developed a five-step framework to help residents develop the skills to practice cost-aware care. The two year program features didactics, assigned reading, project development, pre- and post-testing, and presentation.

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QUALITY IMPROVEMENT

Resident-Led Decision Support Huddles to Improve Risk Factors for Patients with Diabetes

The residency continuity clinic at Summa Health System has conducted an ongoing quality improvement project to improve risk factor control for patients with diabetes. However, when improvement trends leveled off, clinical inertia was identified as the key problem. Adding resident-led decision support huddles at the start of clinic sessions to the workflow process provided a brief test of change to overcome this clinical inertia.

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NEXT ACCREDITATION SYSTEM

Starting with End in Mind: Connecting Rotation-Specific EPA-Based Faculty Evaluations to Milestone-Based ACGME Subcompetency Reports

ACGME requires residency programs in internal medicine to report resident progress along milestones in 22 subcompetencies as part of NAS. Since collecting faculty evaluation data to accurately and meaningfully inform these biannual reports is challenging, the University of Washington internal medicine residency program has developed rotation-specific evaluations based on the degree of "trustworthiness."

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Linking Milestones and Direct Observation: We Talk the Talk, But How Do We Walk the Walk?

As academic faculty strive to meet complex new requirements, the picture can become blurred by the multiple terms, moving targets, and simultaneous development of rubrics. The authors clarify the picture by exemplifying practical methods to link ambulatory milestones to direct observation and illustrating schema for assessment tool development at Banner Good Samaritan Medical Center and Baystate Medical Center.

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By the Numbers

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AAIM President's Update: Moving Forward

I'd like to update everyone on two areas on which AAIM has focused much effort: What we call "education redesign" and deliberations about generating external sources of support for the organization.

I am sure everyone is aware of the extraordinary efforts Lee Berkowitz and his small committee (**Figure 1**) have expended on education redesign. Several tangible products of their efforts are the entrustable professional activities (EPAs) for internal medicine that have been circulated, commented upon and finalized, and then the subject of meeting workshops and precourses as well as sundry conversations and exchanges of information through discussion boards and AAIM Connect. The EPAs are also mapped to the curricular milestones as a way of helping programs implement them. Next steps are to develop tools to help translate feedback from faculty on EPAs regarding individual learners to reporting milestones. Much innovative and impressive work is being done on this in our community. We hope to collate all this progress so that programs can have one stop shopping in learning what is available and how to implement these elements into their own program all in a way to assure success in the NAS. Also on the future agenda for this group that has now been expanded in numbers is faculty development, the goal again of which is to aid programs in this evolution to NAS.

What may be less familiar to everyone is the fact that we have succeeded in convening a group that aims to have one voice for internal medicine (**Figure 2**). The Internal Medicine Education Redesign Advisory Board has held several meetings that participants characterize as extraordinary in the ability of all to speak openly, speak honestly, and strive for agreement on how best to collaborate on areas of common interest (focusing now on education and training). We have indeed been able to have one voice for the internal medicine community.

In parallel, the American Board of Internal Medicine and ASP have been key in efforts to bring together the specialty societies to develop consensus to use the internal medicine milestones as the basis for development of the subspecialty milestones. The context-free (not written to address a specific specialty) milestones address competency along the continuum from the critically deficient to the aspirational learner. Two "societal summit" meetings have been held so far, and have also been extraordinary in the enthusiasm for working together and developing a common framework. These efforts are also reported to and affirmed by the advisory board. I personally cannot recall a time when the internal medicine community worked so well together. AAIM with its collaborators has served as the vehicle for that change and collaboration to occur.

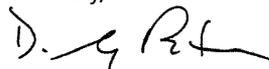
To accomplish our goals, ideally AAIM needs to generate resources beyond what fuels us now: membership dues and meeting registration fees. I am sure everyone agrees we do not want to increase our dues or fees. However, to take advantage of opportunities where we can have considerable impact and

at the same time serve our members in their day to day work, we need additional sources of revenue. One way to increase revenue is to develop and market new products and services. AAIM is moving forward with researching how to make this happen. Another alternative is to receive external support. This topic by definition brings up questions of conflicts of interest and the example we should set for our learners and future physician workforce. A task force (**Figure 3**) has been grappling with this question and will make a definitive recommendation to the AAIM Board of Directors soon. The question has created some interesting spin offs. For example, clerkship directors are correctly sensitive about how we appear through the eyes of students, which has led to further dialogue about how well we prepare students to deal with these conflicts when they enter practice. This question may become an opportunity for CDIM and presumably APDIM and ASP to develop curricula to better prepare our learners for the environments in which they will soon find themselves.

As with all efforts to secure new sources of revenue, it takes time to develop the right relationships and then determine where best to apply those resources for maximum impact. The task force has done a tremendous job thus far sorting through who the best partners might be for the alliance, and has tried hard to see these opportunities through the lens of our membership. While this is a tough decision, be assured the board will be thoughtful in its deliberations before a final decision is made.

These are two among a host of activities of AAIM. I am personally gratified by the progress and impact we are making. I hope the membership as a whole feels the same.

Sincerely,



D. Craig Brater, MD
AAIM President

FIGURE 1. AAIM Education Redesign Committee

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AAIM is a consortium of five academically focused specialty organizations representing departments of internal medicine at medical schools and teaching hospitals in the United States and Canada. AAIM consists of the Association of Professors of Medicine (APM), the Association of Program Directors in Internal Medicine (APDIM), the Association of Specialty Professors (ASP), the Clerkship Directors in Internal Medicine (CDIM), and the Administrators of Internal Medicine (AIM). Through these organizations, AAIM represents department chairs and chiefs; clerkship, residency, and fellowship program directors; division chiefs; and academic and business administrators as well as other faculty and staff in departments of internal medicine.

FIGURE 2. Internal Medicine Education Redesign Advisory Board

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FIGURE 3. AAIM External Support Task Force

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Resident Remediation and Coaching for Professional Development

Transitioning to the Next Accreditation System and milestone-based evaluation allows programs to better inform and guide the evaluation and feedback of resident competency and professional development throughout training (1). The challenge for programs will be to use that information to guide all residents throughout their growth as physicians and provide the necessary authentic career development for milestone achievement. Although residents who are struggling with performance and professional issues are given close attention, they are often identified too late and receive ineffective remediation. Additionally, residents who are meeting expectations have not historically received ongoing coaching to promote their professional development and pursuit of excellence (Figure 1).

Caverzagie et al found that resident reflective practice does not routinely lead to identification of specific learning goals and concrete action plans (2). Moreover, Lipsett et al found that residents consistently overestimated their

performance, particularly residents identified as lower performers (3). To unveil a resident’s blind spots and enhance awareness of performance and development, programs such as Emory’s Core Competency Improvement Committee and Massachusetts General Hospital’s Professional Development Coaching Program were developed.

Successful Remediation for Struggling Learners

In 2009, Emory established the Core Competency Improvement Committee (CCIC); its charge was to develop remediation plans and mentor residents undergoing remediation within the internal medicine residency program. This committee is composed of core faculty members as well as associate program directors (APDs). The inclusion of the word “improvement” in the name of the committee was deliberate; the committee wanted to avoid the negative connotation usually associated with remediation of residents.

Emory’s Residency Clinical Competency Committee (RCCC) refers residents to CCIC. RCCC discusses all residents who have received a low or marginal score on any evaluation as well as any resident associated with a “critical event.” Based on these discussions, RCCC decides if the resident could benefit from remediation and specific mentoring. Once referred for remediation, the CCIC chair reviews all of the resident’s evaluations and decides which competencies should be addressed during the remediation process. Documentation and summative feedback from evaluations are crucial in the remediation process. A remediation mentor is chosen from the committee based on numerous factors including hospital site, competencies involved in remediation, personality, inpatient versus outpatient setting, and previous resident history with faculty. The CCIC chair and mentor meet to discuss remediation plans and goals; the mentor is supplied with a toolkit that includes materials for resident self-assessment, forms to guide direct observations and feedback sessions, ideas for

FIGURE 1. Traditional Dwell Time Model of Residency Education

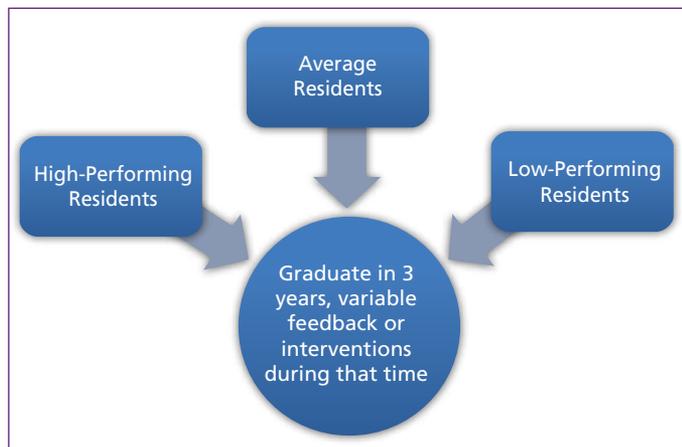


FIGURE 2. CCIC Remediation Plan

Date	What is the deficiency?	What must happen now?	Determination of success?
2/7/12:	Continuity Clinic: 1. Each patient visit takes more than 1 hour 2. Visits often address up to 8 problems and lack focus	Continuity Clinic: Starting on 3/1/12: 1. 1 hour of pre-clinic preparation 2. Start clinic on time 3. Focus on only 4 problems per patient 4. Focused Review of Systems on problems addressed in this visit 5. Focused Assessment and Plan on problems being addressed and health maintenance	Continuity Clinic: 1. Goal time per visit: 45 minutes total 2. Direct observation by CCIC mentor on 3/1/12 and later date in March 3. Meet with mentor twice during month of March for feedback 4. Evaluation of clinic performance by lead clinic physician

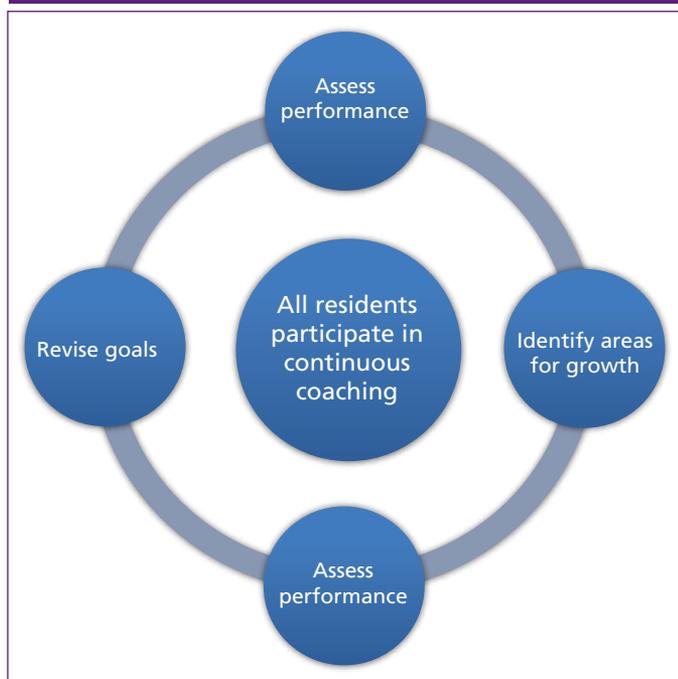
remediation based on milestones or competencies involved, and the monthly documentation tool.

Documentation of the remediation plan and resident's progress is of utmost importance in the process. Based on the Weinerth five-step method (4), a simple Excel spreadsheet is maintained by the mentor to monitor the resident's improvement and engagement in the remediation process (Figure 2). This documentation can be instrumental should the need for remediation continue or recur. RCCC also relies on these monthly updates to make decisions on a resident's progress and promotion throughout residency. Through continued use of this documentation tool, we have found that it is useful to involve the resident in developing remediation goals, next steps, and determinants of success. The clear communication and transparency of this remediation process helps the resident implement changes and removes some of the anxiety associated with remediation.

Coaching for All Residents

The Massachusetts General Hospital (MGH) Professional Development Coaching Program was established in 2012 to create a safe environment for residents to reflect on their performance and honestly discuss their professional development in a low-stakes context. This non-hierarchical, egalitarian relationship provides a way for housestaff to understand their development over time, identify their strengths, and assess how to use those strengths to overcome challenges and stressors (Figure 3). In addition, residents

FIGURE 3. MGH Professional Development Coaching Program's Potential to Transition from Dwell Time Model to Positive Pushing for All Residents, Regardless of Performance



connect with a faculty member who will work with them, know them in-depth over time, and provide meaningful guidance throughout residency. This connection allows faculty coaches to interact with housestaff in a rewarding way, participate in faculty development on leadership development and positive psychology, and provide the space to interact with a group of like-minded educators.

Energetic teaching faculty were invited to participate in the coaching program; individuals who were interested underwent two hours of faculty development in coaching and positive psychology prior to starting the program. Incoming interns were paired with a faculty coach in a way that mismatched their career interest, but respected any gender or cultural preferences. The decision to purposefully avoid overlap of career interests was made to allow safe and open discussion of the resident's experience, without concern for impact on their future career, as well as to prevent the conversation from defaulting into a traditional mentorship discussion. Interns were introduced to the coaching program at orientation and encouraged to meet with their coaches quarterly. Coaches were given access to their intern's evaluations and session guides for each meeting. These guides included suggested questions to open discussion and positive psychology exercises chosen to encourage the reflection and setting of specific action plans. Interns were asked to log their meetings with program administration to track participation.

Year one of the coaching program was met with great success. Each coach was matched with an average of 2.5 interns. Matches were unanimously accepted as appropriate, and all but one intern participated in the program. As of June 2013, 83% of interns had met with their coach at least three times. These pairs will continue to work together throughout their residency on a curriculum focused on leadership development as well as providing support of the residency experience. The program will continue to be delivered to incoming interns with a positive psychology focus; coaches will be trained and recruited annually.

Remediation and Coaching at Your Institution

Competency committees exist in most residency programs, but are often challenged with finding faculty to commit to the remediation process, the lack of ability to follow through on remediation plans, or uncertainty about what to do when remediation has stalled or is ineffective. Lessons learned from

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FIGURE 4. Lessons Learned from the Emory Experience

Early identification of low-performing learners
Use of a remediation toolkit
Clear communication and involvement of the resident in forming their remediation plan
Explicit documentation
Establishment of clear learning goals with implications if they are not met

Putting the Pieces Together: Transitioning from a Traditional to a Block Clinic Schedule

Preparing residents to practice independently and according to a well-rounded educational curriculum is a critical goal of all internal medicine residency programs. Historically, residency programs spent little time training physicians for outpatient medicine. To ensure that residents receive adequate training in the outpatient setting, the Accreditation Council for Graduate Medical Education (ACGME) now requires that 33% of a resident’s training be spent in the ambulatory setting. Programs have struggled to determine how best to balance inpatient coverage with this new outpatient requirement. Traditionally, residents had a single half-day continuity clinic on a set day of the week with adjustments occasionally made for rigorous rotations, such as night float, intensive care units, and emergency medicine. This model is being increasingly recognized as problematic for many reasons, most notably, the conflict it creates between inpatient and outpatient responsibilities and the challenge still faced in meeting ACGME continuity clinic requirements.

This tension between inpatient and outpatient duties manifests itself in a variety of ways that affect resident education as well as patient satisfaction. First, work can become inefficient and fragmented. Residents must leave busy inpatient services to attend their continuity clinics and must often hand off their patient lists to equally busy fellow interns or residents. Not surprisingly, one study reported that 52% of residents in clinic felt pressure to return to the inpatient wards and 32% felt unable to focus on their clinic patients due to distractions (1). Residents also note difficulty in providing appropriate and timely follow-up for their outpatients due to inpatient responsibilities. Another drawback to the traditional system of continuity clinic is less time for teaching and, as a result, less team cohesion. Finally, evidence suggests that patient satisfaction is lower when seen by a resident with a heavy workload or clinic on a post-call day (2,3).

To address these issues, many training programs are transitioning to a block schedule that separates inpatient and outpatient duties. The X+Y system divides inpatient and outpatient duties, with X representing weeks on inpatient rotations and Y representing weeks on outpatient rotations. Variations of this model include 4+1, 5+1, and 6+2 systems. With the block system, residents have either no or rare clinic sessions while on inpatient rotations. Although there is limited

One study reported that 52% of residents in clinic felt pressure to return to the inpatient wards and 32% felt unable to focus on their clinic patients due to distractions.

research on the overall impact of this type of scheduling, one training program found that block ambulatory time more accurately mimicked the practice of outpatient medicine, improved resident focus on outpatient education while on the clinic block, improved the ease of scheduling clinic patients, and expanded patient access to outpatient care (4).

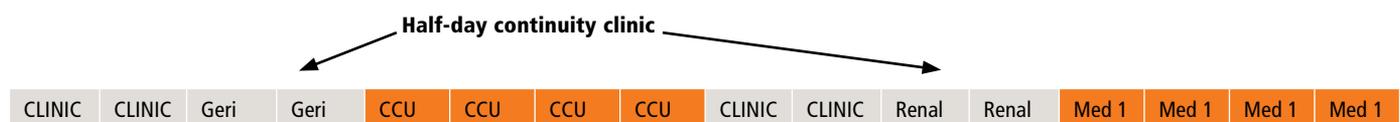
Regardless of what type of block schedule is selected, the first step to transitioning schedules is identifying the goals of the project. When we began this process, our objectives were to:

1. Expand ambulatory time to meet the 33% ACGME requirement.
2. Separate inpatient and outpatient duties for the residents.
3. Create a comprehensive outpatient curriculum.
4. Maintain required inpatient coverage.

When barriers arose, these goals served as the foundation for decision making. The next step was to determine the relevant stakeholders in switching schedules. Who is this likely to affect and how? At our institution, we wanted to minimize resident turnover within a team and preserve continuity between the inpatient attending, inpatient residents, and medical students on their medicine clerkship. Therefore, we kept four-week inpatient blocks to correlate with the attending medical student schedule. Finally, our program has a number of unique opportunities for residents, including international electives and a three-month research elective, so we needed to construct a system that retained these opportunities.

We defined our model as a “4+2+2” system (Figure 1). The postgraduate year (PGY)-2 and PGY-3 residents are assigned four weeks of inpatient, two weeks of elective with

FIGURE 1. The 4+2+2 System



one continuity clinic per week, and two weeks of dedicated continuity clinic. Interns continue in a traditional system. However, with fewer members of the team going to clinic, we are able to ensure inpatient interns usually have clinic on pre-call afternoons to minimize absence from rounds.

With the change in the scheduling system came the opportunity to make adjustments in our continuity clinic model. The 132 residents in the program are now grouped into eight practice teams. The team members on their clinic rotation are responsible for handling the outpatient tasks for their teammates on inpatient services and seeing their patients in clinic, if needed. While in clinic, the residents have five personal continuity clinics, two half-days of specialty clinics, one half-day of administrative time, one half-day of quality improvement time, and one half-day of didactics (**Figure 2**).

FIGURE 2. Sample Schedule

Monday	Tuesday	Wednesday	Thursday	Friday
Clinic	Clinic	Clinic	Clinic	Clinic
Specialty Clinic	Quality Improvement	Specialty Clinic	Administrative Time	Didactics

We implemented the block system model at the beginning of the 2012–2013 academic year, so we have only limited data. Since the transition, the average number of residents in clinic increased from 15 to 19.1 per half-day session, which has led to increased appointment availability. The PGY-2 and PGY-3 residents now have almost double the amount of outpatient time as previous schedules (**Figure 3**). Anecdotally, the residents are happy with this new system; they are able to be more thorough and provide closer follow-up for their clinic patients. As with any new system, difficulties and modifications occurred along the way. For example, we created a “doctor of the day”—a resident on administrative time that the clinic staff can use as a point person to help with urgent issues. Given the increase in resident and patient volume, increased demands have also been placed on the clinic staff and physicians and existing workflow problems have been highlighted. However, this increase has provided opportunity for residents to use their quality improvement time to address some of these issues.

FIGURE 3. Weeks of Ambulatory Time

	Traditional	Block
PGY-2	7.8	16.6
PGY-3	5.9	10.9

Creating a curriculum and schedule with the ideal balance of inpatient and outpatient time is a challenge. A block schedule attempts to resolve some of the existing conflicts by separating the demands of a hectic inpatient service and

the needs of a challenging continuity clinic. The first steps in the process are to learn about the different models and their benefits and barriers, then to envision how these models could be incorporated into the program. Defining the goals of the new schedule and creating a team to help navigate this process are vital. Finally, obtaining buy-in and acceptance of the schedule by the residents, clinic staff, and other services is critical to ease the transition. 🌀

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Cost Awareness for Residents: Integrating High Value, Cost-Conscious Care into a Residency Curriculum

More than \$750 billion dollars annually are spent on wasted care, representing 30% of health care costs in the United States (1). Addressing the growing burden of health care spending is clearly a major policy priority and it affects physicians in all levels of training. It is imperative that cost awareness is integrated into medical education (2). As a result, AAIM and American College of Physicians have introduced the *High Value, Cost-Conscious Care Curriculum*. The curriculum contains 10 modules ranging from an introduction to health care value to overcoming barriers to high-value, cost-conscious care. A five step framework has been designed to help develop the skills to practice this kind of care (3). We sought to incorporate this curriculum into the residency training program at University of California, Irvine, School of Medicine.

The curriculum we created begins when the postgraduate year (PGY) one resident engages in a seminar series on process improvement. This series introduces awareness of cost and enhances critical thinking on the topic. This curriculum continues into the PGY-2 year with a faculty-led small group seminar on medical economics, including the history of cost control efforts in the United States and an overview of the Patient Protection Affordable Care Act (ACA) and its potential impact on health care delivery. The residents are assigned reading. They must complete a pre-test at the beginning of the rotation and a post-test at the end. The tests include questions related to health care facts, the sustainable growth rate formula, provisions of ACA that will be implemented, and abbreviations commonly used in health care economics. In

addition, they are given a “business of medicine” binder that includes relevant articles.

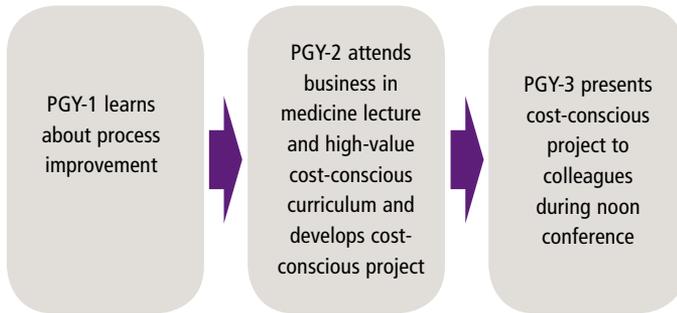
Each resident is tasked with creating a cost-conscious project. He or she chooses a diagnostic test (laboratory or imaging), therapy, or procedure that is commonly ordered on the inpatient medicine service. The resident is asked to use the article “Appropriate Use of Screening and Diagnostic Tests to Foster High Value, Cost Conscious Care” (4) as a reference and guide. The resident is required to review current guidelines on their chosen test, analyze a minimum of 10 inpatient charts, and create a PowerPoint presentation. The results of their analyses are presented to colleagues and hospitalists in a small group format. This presentation is incorporated into an hour-long noon conference, attended by a larger group of residents and staff physicians. Before each of these presentations, a faculty member presents a module from the *High Value, Cost-Conscious Care Curriculum*. In addition, related questions and key points from the Medical Knowledge Self-Assessment Program (MKSAP) section on high value care recommendations are highlighted. The department sets priorities for emphasizing these areas of potential cost savings and promotes them to faculty and residents.

More than 40 residents have participated in this curriculum to date. All have completed their cost-conscious projects and more than one-half have presented their findings in the larger group conferences. Topics chosen have ranged from indications for ordering cardiac tests (troponin, echocardiogram, echocardiogram) to daily chest x-rays in

FIGURE 1. Examples of Cost-Conscious Projects Created by PGY-2 Residents

Cost-Conscious Project	Results	Intervention
Prophylactic PPI ordering on medicine wards	34% of patients on inpatient medicine wards inappropriately had PPI ordered for prophylaxis	Education of all hospitalists and housestaff on guidelines for GI prophylaxis with PPI on medicine wards; development of a mini-lecture on same topic. Subsequent follow-up revealed an 80% reduction in inappropriate ordering.
Non-contrast head CT in patients presenting with syncope	42% of patients had inappropriate head CT ordered	Creation of task force for syncope; education including development of a mini-lecture posted to residency website.
Daily chest X-ray ordering in medical ICU	100% of patients had daily CXR studies, in many cases, two or more per day	Meeting held with pulmonary/critical care staff regarding indications for CXR ordering in the intensive care unit. Follow-up analysis six months later indicates some improvement.
Adherence to DVT prophylaxis guidelines	18% of patients inappropriate orders	Re-education of housestaff on medical center guidelines for ordering DVT prophylaxis, introduction of an order set, and development of a corresponding mini-lecture on our residency website.
Echocardiography on the inpatient medicine service	43% of TTE ordered on inpatient service were not indicated based on current guidelines	Follow-up study one year later revealed only 22% of TTE ordered were not indicated based on current guidelines, representing a 50% reduction.

FIGURE 2. Longitudinal Curriculum



the intensive care unit. One project evaluating prophylactic proton pump inhibitor (PPI) use on the inpatient wards led to an 80% decrease in inappropriate use during a follow-up study. Another project on ordering non-contrast head computerized tomography in patients with syncope (and no neurologic deficits on exam) led to the creation of a task force on syncope guidelines. A study that looked at packed red blood cell transfusion practices at the medical center has led to further investigation by the blood bank and has been presented to the medical center leadership (Figure 1). These projects are posted to the internal medicine residency website for reference by residents and faculty. Residents have highly rated this experience and uniformly support its continuation. Faculty members and hospital administrators have noted this enthusiasm and also have voiced their interest in continued involvement.

As a result of integrating this curriculum into their education, residents have now become advocates for change. The residents have begun to consider not only the risk versus benefit associated with an intervention, but also the relative costs and possible downstream harm. On a daily basis, we find that they are questioning why a certain test is being ordered and considering whether it will truly change their management of the patient. This longitudinal curriculum (Figure 2) involves many interactions during their three years of residency training. Early results show that an integrated curriculum that includes educational seminars, resident-led projects, faculty involvement and discussion of the cost-conscious modules can be agents for sustained and positive cost-conscious change. 

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the Emory experience can be helpful to programs seeking to improve their remediation process and experience (Figure 4).

The concept of coaching in residency typically appeals to most programs, but the thought of instituting an entire coaching program may be daunting. For those institutions with successful remediation programs, one recommendation is to train faculty to use coaching and positive psychology frameworks when approaching remediation and feedback discussions. Another may be to focus on coaching of residents who have been identified as needing remediation, with the goal of helping them understand their development over time, how to identify their strengths to overcome weaknesses, and how to establish clear learning goals for which they can then be held accountable. 

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Resident-Led Decision Support Huddles to Improve Risk Factors for Patients with Diabetes

Background

The residency continuity clinic at Summa Health System has conducted an ongoing quality improvement project to improve risk factor control for patients with diabetes mellitus (DM). Quality indicators are monitored monthly to identify progress toward goals and for comparison with national targets. Nursing staff prospectively review the electronic health record (EHR) before a primary care visit to target patients not meeting goals. Nurses insert highly visible prompts in the EHR progress note to encourage treatment intensification. This monitoring has been associated with improved risk factor control in the clinic population. However, during 2010–2011, improvement trends leveled off and were still considered suboptimal. Opportunities existed to further improve risk factor control in patients with diabetes to reduce diabetes morbidity and mortality (1,2).

Clinical inertia (3–5), in the form of less intensification of care than would be advisable, was identified as contributing to the lack of further improvement. EHR-based decision support has been associated with modest improvement in some risk factors and has been most effective when combined with workflow process changes (6,7). We designed and implemented a brief test of change by adding resident-led decision support huddles at the start of clinic sessions to the workflow process in an attempt to overcome this clinical inertia.

Intervention

Clinic sessions during the fourth quarter of 2011 began with resident-led decision-support huddles lasting less than 10 minutes. A resident conducted one-on-one huddles with each resident primary care provider (PCP) to discuss diabetes care for patients scheduled for that clinic session. The brief huddle focused on a decision support tool (Figure 1) that provided each resident with a one-page listing of the current A1c, low density lipoprotein (LDL), and blood pressure levels (as well as immunization status) for their diabetic patients scheduled during the session. Faculty preceptors were also given a paper

copy of the information for reference during supervision of patient care. Decision support prompts continued to be presented in the EHR.

Outcome Measures

Treatment intensification rates at PCP visits with patients not meeting American Diabetes Association (ADA) risk factor goals were monitored for changes after implementation of the intervention. In addition, changes in achievement of ADA goals during the next consecutive quarter were monitored in subsets of patients before and after the intervention. Finally, clinical outcomes were assessed for a cohort of all patients with DM with at least one visit during 2010 and one during the first three quarters of 2012 (n = 815). Changes in the percentage of patients in this cohort attaining ADA goals at their first and last visits were measured along with mean A1c, LDL, and blood pressure levels. The 2010 ADA goals were used to maintain consistency for comparisons.

Results

Rates of Treatment Intensification

After introduction of peer huddles, some improvements were observed for the rate of treatment intensification at PCP visits. For patients not at ADA goals, treatment intensification during PCP visits increased for blood pressure control from 46.7% to 49.6% (p = 0.036) and for glycemic control from 67.3% to 75.0% (p < 0.001). Lipid control intensification was relatively unchanged (33.1% to 32.2%).

Achieving ADA Goals in the Next Quarter

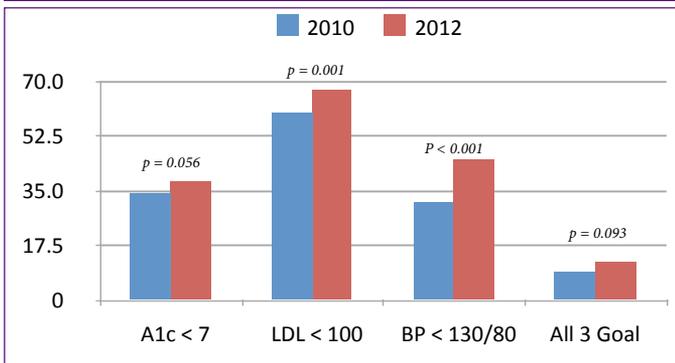
After introduction of peer huddles, improvement in the timely achievement of ADA goals in the next quarter was most evident for blood pressure control, which increased from 28.5% to 34.8% (p = 0.001). Achieving lipid goals in the next quarter showed minor improvement 19.8% to 21.5%, (p = 0.255), while achieving A1c goals in the next quarter actually declined from 14.1% to 10.6% (p = 0.007).

FIGURE 1. Original Decision Support Tool

Resident: _____ Clinic Session Date: _____

Patient	A1c			BP			LDL			Immunizations		
	Name	A1c	At Goal	Date	BP	At Goal	Date	LDL	At Goal	Date	Flu	Pneum
Patient 1		5.6	YES	2/11/11	145/70	NO	9/12/11	99	YES	7/8/10	YES	2007
Patient 2		-	NO	-	135/76	NO	12/16/10	-	NO	-	NO	2007
Patient 3		5.8	YES	5/3/11	176/90	NO	7/15/11	61	YES	7/15/11	YES	2009

FIGURE 2. Percent of Patients at Goal (n = 815)



Changes in Clinical Outcomes for Overall Group

For the overall cohort of 815 patients, achievement of ADA goals showed improvement in all risk factors (Figure 2) with blood pressure control showing the greatest improvement, increasing from 31.3% to 44.9% (p < 0.001). While not statistically significant, the percentage of patients at goal for all three risk factors increased from 9.1% to 12.2%. In addition, significant improvements in mean levels for each risk factor were observed in our cohort of continuity patients (Figure 3).

FIGURE 3. Mean Risk Factor Levels (n = 815)

Risk Factor	2010 First Visit	2012 Last Visit	Significance
A1c	8.3	8.0	N = 765 p < 0.001
LDL	96.4	89.8	N = 566 p < 0.001
BP			N = 806
Systolic	136.0	130.7	p < 0.001
Diastolic	78.7	75.8	p < 0.001

Discussion

Decision support and clinical information systems are two components of the chronic care model (8). These two areas were emphasized to improve the care of patients with DM in our clinic. Others have identified residents as change agents to improve quality of care in resident clinics (9). We utilized resident-led huddles and reconfigured information already available in the EHR to improve care in our clinic, with significantly more patients in the entire cohort achieving blood pressure and lipid goals and a trend toward more patients reaching glycemic goals. Mean levels of each risk factor also improved significantly for the entire cohort. Increased intensification of care at PCP visits delivered subsequent improvement in BP control for patients with DM. Although the number of patients achieving glycemic control in the subsequent quarter actually declined, it could reflect a more resistant patient population as more patients in the overall group came under control. The benefits from the brief change in the care process persisted for up to nine months after the intervention was completed. The decision support information utilized was already present in the EHR and needed only to be extracted into reports to make them available for the huddles. The major change was peer presentation and one-on-one discussions between residents of the quality indicators.

The decision support tool has been revised to promote interaction between faculty and residents regarding management of diabetes in complicated patients (Figure 4). Peer huddles have been reintroduced for long-term changes to the process of care in the continuity clinic. The change has been well received by the residents and they have discussed options for incorporating information on other chronic disease risk factors.

The brief time required for the intervention and the associated improvements in clinical outcomes make it a potentially beneficial intervention for other residency programs. In addition to potential improvements in clinical outcomes for patients, decision support huddles provide residents with opportunities to assume new roles in leadership, teaching, and patient advocacy during their residency. 

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FIGURE 4. Revised Decision Support Tool

All patients with diabetes need to be staffed in regards to their diabetic care.

Resident: Resident 1

Date: 3/1/2013

Patient	A1c	Date	At Goal	LDL	Date	At Goal	Last BP	Date	At Goal	Pneumova	Fluvax
Patient 1	6.6	01/03/13	Yes	125	01/03/13	No	145/92	01/03/13	No	No	Yes
If not at goal, was treatment intensified or vaccine given?											
	N/A			Yes No			Yes No			Yes No N/A	
If not, why not?											
Faculty Perceptor:											

I See What You Did There: Evaluate and Develop Teaching Skills of Faculty through Direct Peer Observation and Feedback

Introduction

In this article, we describe a faculty development program that derived directly from recent changes in the culture of residency training programs. Emphasis on direct observation and competency-based evaluation of residents led to an interest in developing a program wherein our faculty engaged in peer evaluation of teaching skills. Both the Accreditation Council for Graduate Medical Education (ACGME) and the Liaison Committee on Medical Education require programs to evaluate the teaching ability of their faculty members, and in this era of duty hour restriction and work compression, we wanted to develop a robust program that evaluated both skill and efficiency. We found our program to be useful in directing faculty engagement in collegial peer-to-peer feedback and reflection on their own teaching skills.

For faculty who are traditionally immune from meaningful feedback on their teaching skills (1), the initiation of a peer evaluation system can be threatening. We conducted a literature review to better understand the challenges and advantages of peer assessment. This review suggested a few elements that could foster “buy-in” by faculty—namely, a pre-observation meeting to clarify the parameters of the observation (2) and an institutional commitment to regarding peer evaluations as legitimate items in the promotion and tenure dossiers of clinician-educators (3,4).

We conducted a pilot project in which a single faculty observer watched teaching sessions that occurred on ward rounds. Although perceived to be “generally helpful,” the effectiveness of the observations was reduced by hierarchical issues that occurred when senior faculty observed more junior members, a lack of time for face-to-face feedback, and the need to balance teaching with patient care on busy services.

Features of the Peer Evaluation of Teaching Skills Program

Buy-In

We conducted this program with both the ambulatory and hospitalists in the division. The program could work only if it was “all-in”—everyone gets evaluated and everyone participates in doing the evaluations. Key was that physicians in positions of authority, such as the program director and department chair, agreed to participate and be evaluated. Although we did not formally use it, explicit documentation about the formative nature of the evaluation would be an element to consider adding to this stage of the process.

For faculty who are traditionally immune from meaningful feedback on their teaching skills, the initiation of a peer evaluation system can be threatening.

Expectations

A significant issue in terms of faculty comfort involved making clear the expectations for faculty teaching skills. In the pilot phase of the project, collegial conversations between faculty did not lead to substantive feedback. Therefore, we decided to incorporate an evaluation tool based on the principles of a faculty development course on teaching (5,6). Faculty not only knew what they were being evaluated on, but they had had a chance to participate in a skill-building session focused on those issues. The use of the tool to guide the peer evaluations was well received and served as a substitute for the expectation-setting pre-observation session advocated in the medical literature on faculty evaluation.

Observation by Panel

A “panel” of evaluators was scheduled for these sessions. Care was taken to include a combination of senior and junior faculty, because the pilot suggested that sessions with only seasoned faculty could be intimidating and sessions with only junior faculty resulted in a paucity of constructive criticisms. In addition, the panel format allowed faculty to model giving collegial feedback to each other.

Venues for Evaluation

We defined the arenas in which the evaluations could take place and notified participants in advance. A panel of observers might be unwieldy on rounds or in the clinic, so we were limited to small group sessions and didactics for evaluative venues. This limitation was somewhat negative because the majority of the teaching in training programs happens outside of the classroom. On a positive note, it did help engender buy-in because faculty could anticipate a more controlled observed session for which they could prepare.

Feedback

A debriefing session was scheduled directly after the observation to provide formative, face-to-face feedback among peers. Evaluators then filled out the assessment tool and returned it to the department secretary, who aggregated the results. Faculty found the face-to-face session to be

more helpful than the aggregated written feedback. Verbal feedback took about 20 minutes and faculty successfully completed it only when it was scheduled to occur immediately after the session was delivered.

Scheduling Issues

To avoid disengagement due to chronic apprehension about teaching evaluations, evaluation events were scheduled in cycles. Evaluation sessions were scheduled during three one-month periods in the year, which made the events seem more discrete and allowed faculty to “get in the swing” of evaluating and being evaluated on teaching. The cycles of evaluation could also allow for alternating cycles of faculty skill-building.

Faculty Survey on Peer Teaching Evaluation

Faculty members were surveyed after each evaluation session. When in the evaluator role, faculty strongly agreed that the evaluation form allowed them to give feedback on all important aspects of the teaching session. They also strongly agreed that the feedback was collegial, that the program should continue, and that even as an evaluator, they were stimulated to reflect on their own teaching skills to the point that they planned to do something differently the next time they taught. When they were evaluated, they also agreed that the program should continue and that they took away concrete feedback. The majority of faculty evaluated denied that they had acted differently than usual when observed or that they had significant anxiety about the exercise.

Evaluators were not always satisfied that the teaching content they observed was adequate for a good evaluation, which speaks to an issue with the restricted venues in which the evaluation panel was able to operate. Individuals evaluated did not feel the written feedback was particularly useful. Anecdotally, this activity received many positive comments from residents, who were pleasantly surprised to see their faculty willing to be evaluated and receive feedback on their teaching skills. Role modeling of lifelong learning was an additional unanticipated positive outcome of our program.

Conclusion and Future Directions

Our program allows faculty to give each other constructive, well-received feedback on their teaching skills. All faculty were evaluators and evaluated and were able to reflect on their teaching skills in both roles. The use of an evaluation tool linked to faculty development efforts in teaching was key to faculty buy-in of the program. The use of a panel of evaluators helped overcome seniority issues and led to useful modeling of behavior, but restricted the types of educational venues that could be evaluated. In the future, we hope to expand this program to other divisions in internal medicine and add evaluations of teaching on rounds and in the ambulatory clinic. 

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Starting with the End in Mind: Connecting Rotation-Specific EPA-Based Faculty Evaluations to Milestone-Based ACGME Subcompetency Reports

Background

The Accreditation Council for Graduate Medical Education (ACGME) requires residency programs in internal medicine to report resident progress along milestones in 22 subcompetencies as part of the Next Accreditation System (1,2). Collecting faculty evaluation data to accurately and meaningfully inform these biannual reports to ACGME is challenging. The University of Washington internal medicine residency program is restructuring its evaluation system to better assess progress of individual residents in these ACGME subcompetencies.

We have been developing rotation-specific evaluations based on the degree of “trustworthiness” first described by ten Cate detailing the concept of “entrustable professional activities” (EPAs; 3,4). Evaluations at University of Washington now reflect the essential work specific to each rotation, and ask faculty to assess how much trust they have in each resident’s ability to do that rotation-specific work. This article reports a unique process by which University of Washington connects EPA-based faculty evaluations to milestone-based subcompetency reports.

Process and Methods

Conceptual Framework and Terminology

The conceptual framework guiding the process used at University of Washington connects key education and evaluation stakeholders (Figure 1). For this article, we use the term “subcompetency” for each of the 22 domains that will be reported for individual residents semi-annually to ACGME (2). Instructions from the internal medicine milestone project recommend that selecting response boxes at the bottom of each column “implies milestones in that column

as well as those in previous columns have been substantially demonstrated” (2); because of variable use of the term “milestone” among various authors, we will refer to each of the individual narrative descriptors in these columns as separate “milestone elements” (Figure 2).

Evaluation of Rotation-Specific EPAs

For each rotation, key faculty selected eight to 10 entrustable professional activities (EPAs) to represent the essential work expected of residents (e.g., for a general medicine ward rotation, “Coordinate discharge for a patient in a way that reduces their chance of readmission”). These rotation-specific EPAs comprise both the resident learning goals for that rotation and the content of attending faculty evaluation forms. Faculty evaluators are asked to gauge resident independence for these rotation-specific activities based on how much supervision (complete, partial, minimal, or ready to perform independently) the resident requires for each. They also have the opportunity to describe the resident as capable of performing an activity at an aspirational level or to state that the EPA was not observed.

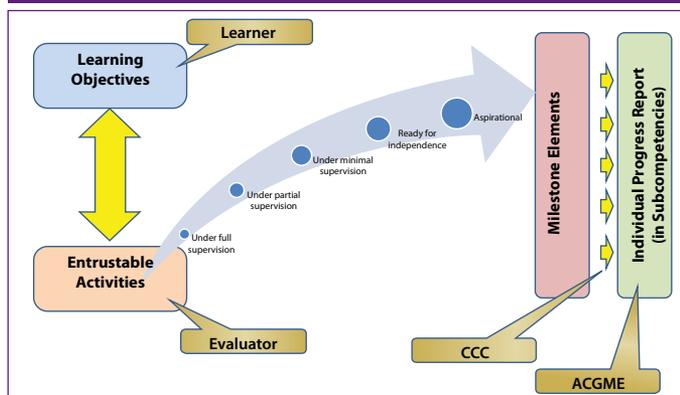
Mapping EPA-Based Evaluations to Milestone Elements

Unique to University of Washington has been the process of connecting responses to rotation-specific EPA-based evaluations to milestone elements of the 22 ACGME subcompetencies. First, key faculty members have identified which subcompetencies are critical for the work of each rotation-specific EPA; then each of the possible responses to evaluation questions regarding degree of trustworthiness is “mapped” to different milestone elements from the selected subcompetencies (Figure 3).

Using EPA-Based Evaluations to Track Progress among Milestone Elements

When a faculty member completes an evaluation and selects a degree of trustworthiness for a specific rotation EPA, the milestone elements mapped to that answer are marked as “confirmed”; additionally, the milestone elements mapped to lesser levels of independence for that EPA are also confirmed. For example, when a supervising physician answers an evaluation question about a resident’s ability to coordinate a patient discharge with the answer “Needs minimal supervision,” this response would confirm the milestone elements: “Recognizes the importance of communication during times of transition” (from subcompetency SBP4); “Health records are organized and accurate but are superficial...” (from ICS3); and other additional milestone elements mapped to that level of independence and lesser levels of independence (Figure 3).

FIGURE 1. Conceptual Framework Connecting Learning Objectives, EPAs, and Evaluations to ACGME Reporting



Data Extraction Based on Completed EPA-Based Evaluations Mapped to Milestones

For each milestone element, the University of Washington internal medicine residency program maintains a database that tallies the number of times it has been confirmed. Once confirmed a predefined minimal number of times, individual milestone elements will be recorded as having been completed to program satisfaction. Because each milestone element is mapped to answers from multiple evaluation questions, completing a milestone element to program satisfaction usually requires assessment by multiple attending physicians across different clinical rotations. **Figure 4** illustrates how the program might mark progress for a resident in subcompetency PC1; in this example, the left number in each block represents the number of times the resident had that milestone element confirmed, while the right number represents the number of opportunities the resident had to demonstrate that element.

Discussion

This process connects rotation-specific EPA-based evaluations to the 22 internal medicine ACGME subcompetencies by mapping evaluation responses to individual milestone elements. This tracking allows the program to convert data from clinically meaningful evaluations into the format (the 22 subcompetencies) for reporting progress to ACGME. The unique features of the process are

that milestone elements are linked to evaluation responses regarding degree of resident “trustworthiness” and that each milestone element has a confirmation count tracked in a central database. This count of the number of times each milestone element is confirmed is used by the clinical competency committee to help report each resident’s progress in the 22 subcompetencies.

This mapping strategy allows our program the flexibility to design EPAs of varying degrees of difficulty and the freedom to create subcompetency mapping according to program values and philosophy. Although we do not expect residents to perform many EPAs independently until near the end of training, we expect residents in some instances to perform activities without need for close supervision before the end of the intern year (e.g., safe sign-outs between providers). We expect high levels of professionalism and interpersonal communication from residents and interns understand that most of the behaviors described in the “ready for unsupervised practice” columns in these subcompetencies should be demonstrated very early in their first year.

Curricular Milestones v. Milestone Elements

Earlier versions of the internal medicine milestones focused on 142 items eventually labeled “curricular milestones” (5,6). Although they have been influential in guiding the development of the milestone elements, the process described does not attempt to “map” to these 142

FIGURE 2. Instructions from the Internal Medicine Milestone Project Regarding Reporting Progress

11. Transitions patients effectively within and across health delivery systems. (SBP4)				
Critical Deficiencies			Ready For Unsupervised Practice	Aspirational
Disregards need for communication at time of transaction Does not respond to requests of caregivers in other delivery systems	Inconsistently utilizes available resources to coordinate and ensure safe and effective patient care within and across delivery systems Written and verbal care plans during times of transition are incomplete or absent Inefficient transitions of care lead to unnecessary expense or risk to a patient (e.g., duplication of tests readmission)	Recognizes the importance of communication during times of transition. Communication with future caregivers is present but with lapses in pertinent or timely information	Appropriately utilizes available resources to coordinate care and ensure safe and effective patient care within and across delivery systems Proactively communicates with past and future caregivers to ensure continuity of care	Coordinates care within and across health delivery systems to optimize patient safety, increase efficiency, and ensure high quality patient outcomes Anticipates needs of patient, caregivers, and future care providers and takes appropriate steps to address those needs Role models and teaches effective transitions of care
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Comments:				

Selecting a response box in the middle of a column implies milestones in that column as well as those in previous columns have been substantially demonstrated.

Selecting a response box on the line in between columns indicates that milestones in lower levels have been substantially demonstrated as well as **some** milestones in the higher column(s).

FIGURE 3. A Rotation-Specific EPA, Including a Simplified List of Milestone Elements Mapped to Level of Supervision/Degree of Trustworthiness

General Medicine Ward EPA: Coordinate discharge for a patient that will reduce their chances of readmission

Full Supervision	With Partial Supervision	With Minimal Supervision	Ready to Do Independently	Aspirational	
	Identifies roles of other team members but does not recognize how to utilize them as resources	Understands the role and responsibilities of and partners with, all members of the team		Efficiently coordinates activities of other team members to optimize care	SBP1
	Participates in team discussions when required but does not actively seek input from others	Actively engages in team meetings and collaborative decision-making		Viewed by others as a leader in the delivery of high-quality care	
		Recognizes that external factors influence utilization of health care and may act as barriers to cost-effective care	Consistently works to address patient specific barriers to cost-effective care	Teaches patients and team members to address barriers to cost-effective care and appropriate utilization of resources	SBP3
		Incorporates cost-awareness principles into standard clinical judgments and decision-making	Advocates for cost-conscious utilization of resources (e.g., emergency department visits, hospital readmissions)	Actively participates in initiatives and care delivery models to overcome barriers to cost-effective high-quality care	
		Recognizes the importance of communication during transitions	Appropriately utilizes available resources to coordinate care and ensure safe patient care across delivery systems	Coordinates care across health systems to optimize patient safety, increase efficiency, and ensure high-quality outcomes	SBP4
		Communication with future caregivers is present but with lapses in pertinent or timely information	Proactively communicates with past and future caregivers to ensure continuity of care	Role models and teaches effective transitions of care	
		Health records are organized and accurate but are superficial or fail to communicate clinical reasoning	Health records are organized, accurate, comprehensive, and effectively communicate clinical reasoning	Role models and teaches importance of organized, accurate health records that are succinct and patient specific	ICS3
			Health records are succinct, relevant, and patient specific		

"I trust this resident to discharge patients with minimal supervision..."

FIGURE 4. Example of Tracked Milestone Elements for Subcompetency PC1

1. Gathers and synthesizes essential and accurate information to define each patient's clinical problem(s). (PC1)

Critical Deficiencies			Ready For Unsupervised Practice	Aspirational
Does not collect accurate historical data	Inconsistently able to acquire historical information in an organized fashion 8/8	Consistently acquires accurate and relevant histories from patients 6/8	Acquires accurate histories from patients in an efficient, prioritized, and hypothesis-driven fashion 5/8	Obtains relevant historical subtleties, including sensitive information that informs the differential diagnosis 3/5
Does not use physical exam to confirm history	Does not perform an appropriately thorough physical exam or misses key physical exam findings 8/8	Seeks and obtains data from secondary sources when needed 5/7	Performs accurate physical exams that are targeted to the patient's complaints 2/4	Identifies subtle or unusual physical exam findings 2/4
Relies exclusively on documentation of others to generate own database or differential diagnosis	Does not seek or is overly reliant on secondary lab 8/8	Consistently performs accurate and appropriately thorough physical exams 4/6	Synthesizes data to generate a prioritized differential diagnosis and problem list 2/6	Efficiently utilizes all sources of secondary data to inform differential diagnosis 2/5
Fails to recognize patient's central clinical problems	Inconsistently recognizes patients' central clinical problem or develops limited differential diagnoses 8/8	Uses collected data to define a patient's central clinical problem(s) 4/5	Effectively uses history and physical examination skills to minimize the need for further diagnostic testing 2/4	Role models and teaches the effective use of history and physical examination skills to minimize the need for further diagnostic testing 1/3
Fails to recognize potentially life threatening problems				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Comments:				

curricular milestones. Because they no longer appear directly in the ACGME reporting milestones, we have chosen to bypass the curricular milestones and instead map directly to the published milestone elements that form the descriptions for the 22 subcompetencies for reporting to ACGME. However, the program has found these 142 curricular milestones to be helpful in conversations with residents requiring remediation and goal-setting.

Conclusion

Although there has been significant initial investment of faculty time and effort, this process provides substantial flexibility to the University of Washington internal medicine residency program to create an evaluation system that captures the essential work of each rotation, connects the answers from evaluations to the subcompetencies in sensible ways for each rotation-specific EPA, and assists efforts to track resident progress in each of the 22 ACGME subcompetencies from data fed directly from rotation evaluations. We believe this process has strengthened resident education by improving the quality of feedback from faculty and provides improved evaluation data that also help to meet the new requirements of the Next Accreditation System. 🔄

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Comparing an In-Depth Interview on the Social Determinants of Health with the Social History

The impact of socioeconomic factors on health status is well delineated in the literature. While estimates vary, most agree that social determinants may play a greater role than biology, medical care, and health behaviors combined (1,2) (Figure 1). Unfortunately, residents may not know about some of the issues that will have the largest effect on their patients' health.

The "social history" is required in all medical histories, but the items are not standardized and often include little more than the health habits of the patient. A literature search revealed only one study (3) that addressed the content and adequacy of the collection of social history by residents. The authors found that in the inpatient setting, the residents had an answer for only 29% of the basic social history (excluding health habits) of their patients—residents who had primary responsibility for the patient had slightly better recall. No studies compared a comprehensive independent patient interview with resident documentation and recall. The adequacy and the relevance of social history obtained by residents in the continuity ambulatory setting has also not been studied. It is possible that increased contact and "ownership" of patients in a continuity clinic may afford better resident knowledge of these social determinants.

We believe that the knowledge, skills, and attitudes required of the residents to successfully collect a broader history of social determinants are pertinent to two particular internal medicine milestones (both at the level of "ready for unsupervised practice"):

18. Responds to each patient's unique characteristics and needs. (PROF-3) – "Recognizes and accounts for the unique characteristics and needs of the patient/

caregiver; Appropriately modifies care plan to account for a patient's unique characteristics and needs"

20. Communicates effectively with patients and caregivers. (ICS-1) – "Quickly establishes a therapeutic relationship with patients and caregivers, including persons of different socioeconomic and cultural backgrounds" (4)

The purpose of our exploratory study was to estimate the prevalence of various social health determinants in our underserved adult continuity clinic population, determine the concordance of resident documentation and knowledge with this information, and determine the resident and preceptor rating of the importance of these factors for patient care.

Methods

The study occurred in a combined internal medicine-pediatrics (med-peds) continuity clinic situated in a federally subsidized Federally Qualified Health Center (FQHC) located in a Health Professions Shortage Area (HPSA). Patient subjects included adult continuity clinic patients at least 30 years of age with at least one chronic disease (but no active malignancy). The patient had to have been seen by the same postgraduate year (PGY)-3 or PGY-4 med-peds resident more than three times in the past two years.

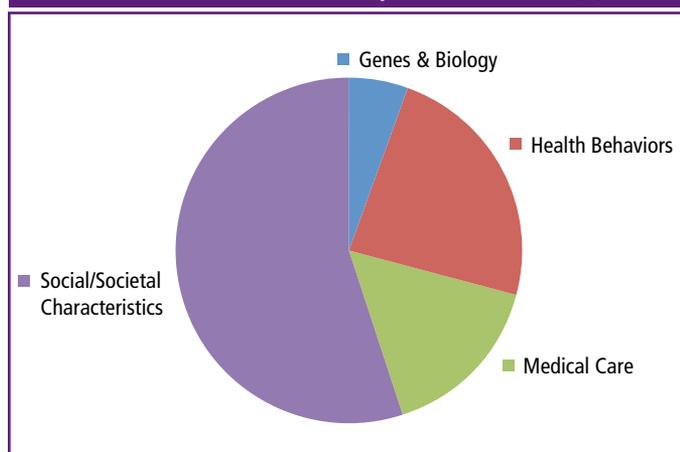
There was no singular validated interview tool that we felt was broad enough to cover all of the areas that would impact the management of chronic disease. We assembled our own structured interview from a number of published survey tools (5–10), keeping validated scales and blocks of questions together, when possible.

Categories included in the survey:

- Physical environment
- Activities of daily living
- Social support systems
- Spirituality and faith community
- Adequate finances
- Access to health care
- Dependent care
- Recreation
- Transportation
- Housing
- Police, fire, and security
- Employment opportunity
- Occupational health
- Education, including health literacy
- Substance use
- Mental health
- Legal concerns
- Nutrition

Figure 2 explains the study procedure. Institutional review board approval was obtained from Hurley Medical Center.

FIGURE 1. Determinants of Population Health (1)



Results

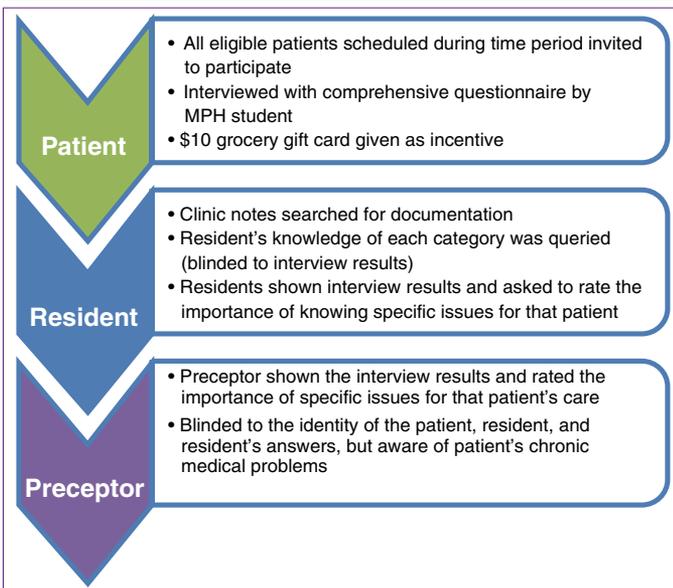
Eight senior med-peds residents (four PGY-3 and four PGY-4) completed the interview. All were international medical graduates; 75% were male and 25% were female.

Twenty-five adult continuity clinic patients were interviewed—each interview lasted approximately one hour. Sixty percent of the patients were female and 40% were male, with ages ranging from 30 to 66 years (mean 49 years). Fifty-six percent identified as African American, 40% as white, and 4% as other. The prevalence of chronic disease was 80% hypertension, 32% chronic obstructive pulmonary disease, 28% diabetes mellitus, 20% arthritis, 12% coronary artery

disease and/or heart failure, 8% chronic kidney disease, and 4% asthma.

For the following categories of “traditional” social history and habits, resident knowledge and estimation of importance was greater than 90%: marital status, social support, employment, insurance, prescription drug coverage, tobacco, alcohol abuse, prescription drug abuse, and street drug abuse. For the remaining categories, the prevalence in our patient population is shown, along with resident documentation and chart-stimulated knowledge levels in **Figure 3**. Knowledge is shown as the percentage rated as “nearly complete” or “partially complete” combined versus “none.” Similarly, resident and preceptor estimation of the importance of the data for that individual patient’s care is shown as the percentage choosing “very important” or “somewhat important” combined versus “not at all important.”

FIGURE 2. Study Design



Discussion

This pilot study shows that continuity patients seen by residents in an FQHC face considerable health stress stemming from socioeconomic conditions. Traditional social history questions provided very narrow information. Similar to the study by Griffith et al (3), issues considered important in managing the patient were often missed. Residents in this study have improved their collection of social history as compared to this previous study both in breadth and depth. This increase may relate to the continuity clinic venue, as Griffith found that the resident accuracy improved with their level of primary responsibility for that patient. However, for many areas tested, there remains a significant knowledge gap. For the majority of the social determinants missed, residents and faculty rated the importance similarly; for all but two areas, both felt that this information was at least

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FIGURE 3. Resident Knowledge and History of Social Determinants

Patient Problems	Prevalence (%)	Resident Accuracy Audit		Perceived Clinical Importance for the Specific Patient	
		Documentation (%)	Chart-Stimulated Knowledge (%)	Resident (%)	Faculty (%)
History of Abuse	56	48	76	100	100
Unemployment	56	76	100	92	100
Lack of Transportation	46	48	76	100	100
Cannot Afford Dental Care	46	60	40	80	36
Financial Issues	40	28	72	84	100
Discrimination	40	16	40	76	80
Poor Health Literacy	33	20	48	96	100
Lack of Sidewalks/ Street Lights	33	0	24	48	80
Legal Problems	32	32	72	64	60
Cannot Afford Eye Care	56	80	80	84	80

Moving from “See One, Do One, Teach One” to a Procedural Entrustable Professional Activity

The 1998 launch of the Accreditation Council for Graduate Medical Education (ACGME) Outcomes Project marked a shift in focus from processes of training to outcomes in graduate medical education (1). Subsequent work has defined developmental milestones to mark a resident’s progression toward competence (2) to be used in the Next Accreditation System (NAS) in which program directors will be required to regularly report to ACGME on each resident’s progress toward competence (3,4). Medical educators are now looking to entrustable professional activities (EPAs) as a framework to better understand the complexities surrounding how we determine when and if a resident is competent (5). EPAs are the professional tasks or work that residents must master as they move toward independent practice (6).

Development of Procedural EPA

Our internal medicine residency program developed an EPA to assess the evolving procedural competence of learners and intentionally entrust them to perform procedures independently.

A working group of educational leaders in the residency program selected procedures for the initial EPA based on institutional strengths and resources, including a structured one-week ultrasound procedure course held during intern orientation in which residents are trained in central lines, arterial lines, paracentesis, and thoracentesis using simulation (7) and key faculty are trained in ultrasound guided bedside procedures. This EPA will also inform the NAS milestone reporting on procedural competence as well as procedure credentialing of learners as they enter clinical practice.

FIGURE 1. Procedural EPA Matrix of Competence and Assessment

Procedural Entrustable Professional Activity Matrix of Competence and Assessment					
	Supervised Practice			Independent Practice	
Level of Entrustment	Level 1	Level 2	Level 3	Level 4	Level 5
Definition	Unable to perform procedure	Perform with full supervision	Perform with full supervision on demand	Perform independently	Able to teach
Level of Assistance	Hands-on or verbal assistance	Hands-on or verbal assistance	Verbal assistance only	No assistance	No assistance
Environment	Simulation Center ultrasound course	Simulator and patient care	Patient care	Simulator and patient care	Simulator and patient care
Who assesses learner?	Faculty, fellows, chief residents				Program directors or core faculty
Who advances learner to next level of entrustment?	Program directors, core faculty, and chief residents				
Assessments for progression to the next level of entrustment	1. Complete checklist perform correctly with prompting 2. Passing score on knowledge assessment in ultrasound course	1. Complete checklist correctly in entirety 2. Rater assessment requires no hands-on or verbal prompting during supervision 3. Progression assessment checklist must occur on live patient	1. Complete checklist correctly in entirety 2. Rater assessment with only verbal (not hands-on) prompting during supervision 3. Learner/faculty assessment of confidence to perform independently 4. Progression assessment must occur on live patient	1. Completion of teaching checklist by faculty observer and the supervised learner 2. Completion of self assessment as teacher as “comfortable to teach” 3. Progression assessment can occur on simulator or in live environment	

Adopted with permission from Joshua D. Lenchus, DO; University of Miami Jackson Memorial Hospital Center for Patient Safety.

Following a review of the relevant literature (5-9), the working group developed a framework for assessment and advancement through the levels of entrustment for the EPA (Figure 1). This structure includes assessment of the key knowledge, skills, and attitudes required for procedural competence with the goal of ensuring safe “independent practice” of these skills by residents in the clinical setting. We defined levels of entrustment based on ten Cate’s model (8); a Level 1 learner is defined as “unable to perform” a procedure, with learners advancing through levels of entrustment, reaching independent practice at Level 4. We initially included criteria for a Level 5 (able to teach) learner, but we later determined that this was “aspirational” for resident trainees.

For each level of entrustment, a subgroup of the working group—in consultation with procedural experts in hospital medicine, critical care, general surgery, and emergency medicine— defined criteria for advancement in four dimensions: objective measures of knowledge and skills components for each procedure, including a knowledge examination and procedural checklists; level of assistance (“hands on” and/or “verbal assistance”) required by the learner; learner and faculty confidence in the ability of the learner to perform the procedure independently; and the assessment setting (simulation or live environment).

The working group defined “high-stakes” assessments at the point of advancement from Level 1 (unable to perform) to Level 2 (under full supervision) and from Level 3 (supervision on demand) to Level 4 (independent practice). As a result, the most comprehensive advancement criteria were developed at those levels. All agreed that Level 1 learners should be limited to practice in a simulated environment to minimize risk to patients, with advancement to Level 2 requiring demonstration of knowledge assessed by a knowledge test and sufficient technical skill to perform the procedure on a simulated patient with full supervision using procedural checklists. To advance to independent practice, all felt it was critical to assess additional factors, including completion of the skill without hands-on or verbal assistance as well as faculty and learner confidence in the learner’s ability to perform the procedure independently. Although prior studies have shown that postgraduate-year one (PGY-1) residents may overestimate their skills in arterial and central lines (9) which suggests that “trust in self” is inadequate as a singular assessment, recognition of the limits of one’s skills is an important facet of competence (10) and should be considered prior to advancement to independent practice, together with the global faculty assessment and the learner’s technical skill.

Implementation

All learners were introduced to the procedural EPA requirements and given a paper logbook with checklists and assessment tools (Figure 2) during the bedside ultrasound course. A sample checklist is available for download as an online-only feature of *Academic Internal Medicine Insight* at <http://www.im.org/Publications/Insight>. Learners were

instructed to log all procedures and complete checklist assessments for procedures on which they wished to be advanced. Hospital medicine and critical care faculty also received training on the procedural checklist assessments and were asked to complete these checklists for assessment purposes in the clinical environment.

We identified “EPA specialists,” faculty trained in the concepts of EPA assessment, who were charged with the responsibility of both observation and advancement of learners through the levels of entrustment. This group included program directors, core educational faculty, and chief residents; all were familiar with the advancement criteria and could promote learners toward independent practice.

The EPA was piloted in our ultrasound course with 32 PGY-1s. All residents completed the required knowledge and skills assessments and advanced to Level 2 entrustment by the end of the course and prior to beginning their clinical responsibilities.

Lessons Learned

The assessment and advancement of learners worked well in the controlled simulated environment, where observation and assessment were mandatory parts of the course. Assessment has been more challenging in the clinical environment. At this time, fewer than five PGY-1s have advanced to higher levels of entrustment in different procedures. Learners have indicated that despite having opportunities to perform numerous procedures, these procedures have not been assessed because they did not have their procedural EPA logbook or they failed to ask the faculty observer to complete the assessment. Additionally, faculty members have been remiss in reminding interns to bring their assessment checklists to the bedside for completion. These issues are similar to those noted by Hauer et al in pilots of their discharge and family meeting EPAs (11). It is clear that joint ownership of this process by learners and faculty is critical to successful implementation of EPAs in the clinical setting.

FIGURE 2. Sample Assessment on Checklist

Assessment on Procedural EPA Checklist			
Assessment of Performance			
Self-Assessment of Confidence			
Do you feel confident performing this procedure independently?			
Yes		No	
Faculty Assessment of Competence			
Required hands-on assistance for procedure?		Required verbal prompting during procedure?	
Yes	No	Yes	No
If the answer is “no” to both above, do you feel the resident is able to perform this procedure independently?			
Yes		No	

To address these challenges, we are working to increase the investment in the EPA and decrease the barriers to assessment. The residency program has visited each division to reinforce the importance of the EPA and reminded faculty to complete the bedside assessments. We have sent multiple reminders to the interns involved in this pilot and have integrated the advancement process into their semi-annual reviews. The need for procedural skills credentials in the job search process will also be an important reminder to our residents that documentation of procedural competence is a critical step toward performing these skills independently in their practice setting. To reduce barriers to assessment, copies of the procedural checklists and assessments have been posted on the residency intranet and in resident workrooms to improve access to these tools.

The EPA concept creates an opportunity for a comprehensive assessment of readiness for independent clinical practice and will inform the reporting required for NAS. The development and implementation of EPAs is complex and time-consuming and will likely prove challenging, particularly for residency programs with limited resources. Moving forward, ACGME and the American Board of Internal Medicine should consider adding previously developed EPAs to their toolkits for medical educators, allowing for broad dissemination of these tools. 

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“somewhat important” for more than one-half of the patients. If we are able to systematically collect this information, there is an opportunity for improved patient care.

Limitations of this pilot include small sample size, single institution, student interviewers, semi-qualitative analysis, social desirability bias (both patients and residents), and lack of a comprehensive validated questionnaire for all categories.

While estimates vary, most agree that social determinants may play a greater role than biology, medical care, and health behaviors combined.

Conclusions and Next Steps

We believe that we have gained valuable insight about the patient population we serve. Residents felt that most of these issues are important, but were unaware of many of these barriers affecting adherence and outcomes. It is clearly not feasible to conduct an hour-long interview on social determinants with every patient, but this study will allow prioritization in the social history for issues that are most prevalent and important for patients.

We have recently converted to an electronic health record and will be able to develop templates that may allow us to obtain a more efficient and effective history. Current likely areas to improve education and data collection include health literacy, transportation, nutrition (including food security), and environmental factors. We will share this information with housestaff, come to a consensus on a standard social history, and re-audit after implementation.

We also plan to have residents conduct a comprehensive interview on one continuity patient and write a reflection as a method to enhance empathy. Correlation of the accuracy of social history and scales measuring resident empathy may also give further insights. 

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Linking Milestones and Direct Observation: We Talk the Talk, But How Do We Walk the Walk?

This time in medical education is historic, exciting, and challenging. Recent years have brought to the forefront creative and collaborative efforts for assessment and the curricular evaluation. As academic faculty strive to meet complex requirements, the picture can become blurred by the multiple terms, moving targets, and simultaneous development of rubrics. We hope to clarify the picture by exemplifying practical methods to link ambulatory milestones to direct observation and illustrating a schema for assessment tool development at Banner Good Samaritan Medical Center (BGSMC) and Baystate Medical Center.

Background

Curricular milestones and entrustable professional activities (EPAs) describe a developmental progression of observable behaviors and provide a framework to document knowledge, skills, and attitudes (KSA) of an individual resident along a trajectory, thus informing competency-based progression (1,2).

The Accreditation Council for Graduate Medical Education (ACGME) has identified reporting “milestones” for the Next Accreditation System (NAS), and the majority of this reporting typically lies with the clinical competency committee (CCC). To best inform these milestones, residents require an increase in direct supervision. However, for most residency programs, CCC members are not necessarily directly observing residents in their daily clinical practice. Providing the link between reporting and the “trenches” are the clinical preceptors, who are charged with effectively assessing and documenting KSA of each learner.

Ambulatory precepting is challenging in its depth, pace, and complexity. Research shows only about 30% to 35% of cases are discussed with the attending with very little time spent (approximately three to five minutes per case) and minimal teaching during the visit (less than 25% time spent discussing the case and teaching). Direct observation occurs infrequently, in only 2% to 20% of cases, as does feedback (only 3% to 6% of cases) (3,4). Our collective task as medical educators is to create effective, functional tools that provide formative feedback for residents; these tools are much more valuable when they simultaneously inform reporting milestones for CCCs. Carefully crafted assessment tools can successfully “isolate” manageable and essential aspects of the reporting milestones for your program.

Baystate Competency-Based Progression Model and Longitudinal Advancement Criteria Tools

An example of a curricular structure using direct observation tools to inform competency-based progression is found at the Baystate internal medicine residency program. Created in 2006, this model of competency-based progression using homegrown milestones has three phases of advancement: learner, manager, and teacher (LMT) (5,6). The LMT model is based on a dynamic modulation between supervision and autonomy to safeguard contemporary care while preparing residents for future care. Direct observation in multiple settings is a vital aspect for the assessment of competence in this model (Figure 1).

FIGURE 1. Baystate Three-Phase Model of Ambulatory Advancement

	Learner	Manager	Teacher
Advanced by Competency	Is dependent	Independent	Has dependents and/or advanced responsibilities
Percepting	<ul style="list-style-type: none"> Predominantly exam room teaching Perceptor room clarification 	<p>Mixed</p> <ul style="list-style-type: none"> Exam room teaching Perceptor room analytic teaching 	<ul style="list-style-type: none"> Resident-driven precepting – problem or question
Evaluation Tools	<ul style="list-style-type: none"> Learner AC 	<ul style="list-style-type: none"> Manager AC Disease-specific CEX 	<ul style="list-style-type: none"> Teacher AC Teaching specific CEX

FIGURE 2. Learner-Management Criteria in Interpersonal Communications

Learner	Criteria
	<ol style="list-style-type: none"> 1. Able to set a clear agenda early in the visit 2. Solicits the patient agenda, uses open-ended questions at onset of encounter 3. Observed checking for understanding 4. Able to identify the conflict when shared decision making is a challenge 5. Checks for understanding with input from the interpreter as it relates to culture and language 6. Observed during informed decision making (i.e., procedure consent)
Manager	<ol style="list-style-type: none"> 1. Effectively delivers bad news 2. Facilitates informed decision making with controversial evidence (e.g., prostate cancer screening)

Advancement Criteria is a unique set of longitudinal assessment tools that facilitates direct observation of specific KSA that inform Baystate’s milestones in the ambulatory setting. A sample Advancement Criteria template is available for download as an online-only feature of *Academic Internal Medicine Insight* at <http://www.im.org/Publications/Insight>. These tools clearly define expectations for successful resident advancement within the LMT model and are an integral component of the assessment system. **Figure 2** features an example from the advancement criteria for interpersonal communications, which has six specific components essential to delineate competency for the learner and two additional, more complex components for manager competency.

Advancement Criteria is owned by the resident and team preceptor. Direct observation and assessment by faculty and complementary staff encourages multi-source feedback. To see ambulatory patients independently, the learner advancement criteria must be satisfactorily completed.

BGSMC Direct Observation Tools

The BGSMC internal medicine residency program developed a practical approach to creating ambulatory direct observation tools, placing emphasis on functionality (satisfactory to both preceptor and learner, readily available, observable in 10 minutes or less, and maximizing reimbursement through direct observation requirements). Emerging ambulatory systems such as the patient-centered medical home (PCMH) provided the basis for construction

of several direct observations and included relevant EPAs (7) (**Figure 3**). Because EPAs are observable behaviors that contain specific levels of entrustment, they support information supplied to the reporting milestones to determine whether the resident is “ready for unsupervised practice” (2,7) (**Figure 4**).

Multiple tools were created and piloted to assess their utilization and effectiveness. Before the pilot, fewer than 10 mini-clinical evaluation exercises (CEXs) were documented during a six-month period. This number increased to 37 new direct observations encompassing 21 residents in the first six months of the pilot, with an additional 24 direct observations on 18 additional residents (61 total direct observations) in the subsequent six months. For the 2012–2013 academic year, a total of 116 direct observations on 52 residents were documented.

Building Successful Tools

1. Identify learning opportunities based on programmatic needs. Determining the what, where, and who to assess are key steps in the process. For example, choose skills that traditionally require more observation and feedback, such as the well-woman exam, or skills that help bridge the gap between conventional training and novel systems of care, such as facilitating a PCMH team huddle (7).
2. Is there background literature available to aid/validate the design of the tool (e.g., agenda setting, end of life discussions)?
3. Discuss with other faculty members the elements important to include, ensuring the tool has at least one KSA that can inform “ready for unsupervised practice” for the reporting milestones.
4. Choose elements that assist with reimbursement (e.g., history, physical examination, or medical decision making) to optimize time and value. Map relevant reporting milestones to the behavior being evaluated. If desired, commit to a level of entrustment for the EPAs observed (**Figure 4**).
5. The rubric is always important. When a skill or behavior is scaled as “average,” “below average,” or “above average,” significant subjectivity is introduced. Alternatively, identifying skills as “observed” or “not observed” (or not applicable) encourages clear, more specific, non-judgmental feedback. A sample direct observation template is available for download as an

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FIGURE 3. PCMH EPAs (7)

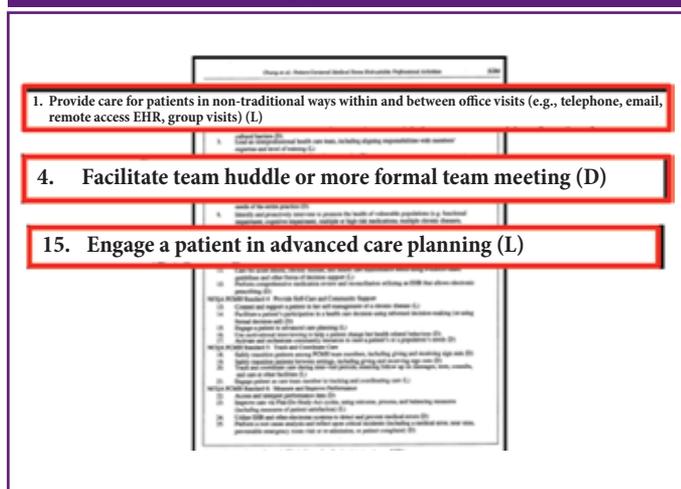


FIGURE 4. Levels of Entrustment for Entrustable Professional Activities (2)

Level I - Resident has knowledge and some skill, but is not allowed to perform the EPA independently
Level II - Resident may act under proactive, ongoing, full supervision
Level III - Resident may act under reactive supervision (readily available on request)
Level IV - Resident may act independently
Level V - Resident may act as a supervisor and instructor

NES for the NAS: A New Evaluation System Designed for the Next Accreditation System

What Is the New Evaluation System?

The Accreditation Council for Graduate Medical Education (ACGME) is in full swing with its rollout of the Next Accreditation System (NAS). This outcomes-based accreditation process requires that programs evaluate and promote residents based on progressively gained competence to independently perform skills required for the clinical practice of internal medicine. Within the Legacy Health internal medicine training program, a new evaluation system (NES) to meet several of the requirements of NAS has been developed and implemented. NES features key activities, including direct observation; assessment of resident ability to perform required professional activities in specific rotations; and tracking of scholarly activity, required procedural skills, resident involvement in institutional quality improvement efforts, and required activities for licensing. The results of these activities are incorporated into biannual summative evaluations that can be clearly documented and presented to ACGME and the American Board of Internal Medicine (ABIM) as an accurate representation of a resident's readiness to practice internal medicine competently and independently.

Evolution

Prior to the announcement of NAS in 2012, Legacy Health utilized attending physician evaluations of a resident's performance in the six ACGME clinic competencies on each rotation they completed, initially utilizing a nine-point Likert scale and later a modified Dreyfus model of novice to expert.

Despite extensive training and discussion among faculty evaluators about the competencies (particularly practice-based learning and improvement and system-based practice), consistent definitions and interpretations among evaluators remained elusive. Complicating the individualized perceptions of what attributes were important within the competencies were discrepancies in understanding how to use the scale. Evaluators and residents persisted in viewing the choices within the scale as grades that were designed to say how the resident performed at that level of training rather than as a marker for where the resident was on the path to full competence in the independent practice of internal medicine.

Given the requirement within NAS to produce biannual summative evaluations for each resident, the program directors sought to develop evaluations that objectively reflected resident development throughout their residency career. At the 2012 APDIM Spring Conference, we learned about the idea of entrustable professional activities (EPAs) and began work to link ABIM and ACGME milestones with the EPAs that are required for the clinical practice of internal medicine.

Formation

Following the 2012 APDIM Spring Conference, Legacy Health began formation of NES. For each core rotation evaluation, a list of skills or EPAs in which a resident should be able to demonstrate competence to their evaluator was defined. For example, on wards, EPAs to be evaluated include "perform tasks associated with discharging a patient from the hospital" and "able to successful[ly] conduct a family meeting."

Approximately 40 ACGME modified curricular milestones that best fit the training program to further define and clarify these skills were selected. After developing core evaluations for rotations such as clinic block, wards, and intensive care unit, the list of gathered EPAs was assessed and compared to ACGME suggested EPAs; a complete list of EPAs required for graduation was compiled. Evaluations supporting the remaining professional activities and skills were created using subspecialty and elective evaluations and specific directly observed assessments. In the process, the value of using EPAs and their mapped milestones to clarify the six ACGME core competencies emerged.

Finally, recognizing that the scale being employed to define progression did not allow for evaluation of graduated responsibility, an alternate scale referred to as the "reportable milestones" was selected. The reportable milestones are "needs to watch an expert," "needs close supervision," "needs distant supervision," "ready for unsupervised practice," and "aspirational." These five were adapted from the ABIM feasibility study done in summer 2012. Within NES, these reportable milestones are used to establish the level of supervision needed for each resident on each rotation for a specific EPA. On the evaluation form, the definitions of the reportable milestones are clearly provided, with "ready for unsupervised practice" being reserved for residents who the attending feels needs no further supervision for the activity being evaluated.

How Is NES Working?

NES, and evaluations produced within it, now form the basis of twice-yearly summative evaluations. Within the NES framework, each resident's progress toward readiness for independent practice—for each EPA, ordered within the six competencies—is assessed and documented. These summative evaluations are completed by the members of the clinical competency committee (CCC), which meets twice monthly to review rotation evaluations, direct observations, concern and praise notes, and *ad hoc* feedback. The first summative evaluations of the academic year are completed during the CCC meetings held between mid-October and the end of January. The second biannual summative evaluations are completed during CCC meetings held from April through June.

Faculty and resident education sessions were prepared and conducted through faculty development sessions, an institutional faculty training tool, resident academic gatherings, email messages, and personal contact and communication as required. In the instance of an evaluator having misinterpreted the scale, that evaluator is contacted for an individual review of NES's reportable milestones.

In addition to biannual summative evaluations that clearly allow the resident to see their progress toward being prepared for independent practice of internal medicine, each resident receives a promotion letter that provides a count of how many direct observations (both interview and physical examination skills as well as directly observed milestones needed for graduation) they have compared with how many are required, how many required procedures they have logged, the status of their scholarly project, the status of their quality improvement project, and whether the program has received verification of completion of required steps toward licensing. This letter is accompanied by a list of various other activities that must be completed during residency. For each of the required items, a resident receives a status of "on track," "not on track," or "critical deficiency noted." The resident is required to respond to this letter with a remediation plan should any of the items noted within the letter not track to the competency criteria for their year of training.

The program director personally reviews the summative evaluation and the promotion letter with each resident as part of a biannual meeting. This review allows residents to see clearly where they are on the path to mastering the required elements of training that will allow them to graduate ready for independent practice of internal medicine and eligible for certification by ABIM.

Created in preparation for NAS, residents, faculty, and program leadership have reported NES to be a successful enhancement of the residency program. NES has equipped the evaluators to more objectively assess competence, and in turn, the residents to recognize clear goals for performance and training, both of which strengthen education and outcomes. 

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online-only feature of *Academic Internal Medicine Insight* at <http://www.im.org/Publications/Insight>.

Conclusion

BGSMC and Baystate have linked the milestones to a set of effective tools that focus on observable behaviors to facilitate early recognition of strengths and areas for improvement, determine readiness for advancement in the program, and inform the reporting milestones for NAS. The "best" tool will be one that fits into your programmatic structure and does not require significant time or resource modifications. Remember, in a busy clinical practice with multiple simultaneous learners, only practical solutions survive. 

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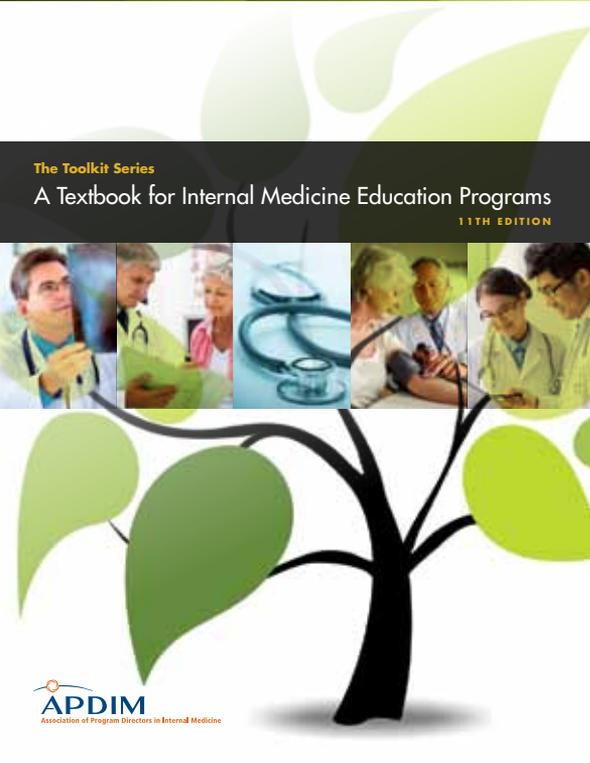
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