2010 | 8:2

ACADEMIC INTERNAL MEDICINE INSIGHT

By the Numbers

5

General steps in qualitative data analysis

49:1

Residents to coordinators ratio found at Medical University of South Carolina

83%

Learners whose Facebook accounts depicted personal information

Also in This Issue

President's Update: Education at the Forefront

It has been a busy few months for the alliance since I last communicated with you. The second AAIM Education Redesign Task Force, ably led by Lee R. Berkowitz, MD, has been hard at work and is almost finished. However, like most good projects, the end of one portends a need for another. This group of dedicated educators (**Figure**) decided to focus on three areas: defining the essence of internal medicine to better inform learners about our discipline and thereby attract them (chaired by Karen E. Hauer, MD); defining the characteristics of the "master educator" so institutions can explore ways to create them (chaired by Stephen A. Geraci, MD); and competency-based education and training (CBET) (chaired by Steven E. Weinberger, MD).

The first of these areas is culminating in a collection of inspiring descriptions of what it is like to be an internist. We are in dialogue with the American College of Physicians (ACP) about a potential partnership approach to dissemination and perpetuation, but like so many things these days, strained budgets may cause a delay in further action steps. The second area has resulted in a comprehensive manuscript that has been submitted for publication as a five-part series in APM Perspectives in *The American Journal of Medicine*; the first article will be published in August 2010. The CBET effort has also resulted in a manuscript, but because CBET is such a hot topic, this effort has also been a logical and important component of ongoing discussions with the American Board of Internal Medicine, the Accreditation Council for Graduate Medical Education (ACGME), and ACP.

We have been actively awaiting the ACGME response on resident duty hours. We have had several scenario discussions to help prepare to respond in a thoughtful fashion when the report is released. However, despite all efforts, we are unable to pry any information out of the parties involved!

We are also actively following and providing our opinions on deliberations by the Medicare Payment Advisory Commission (MedPAC) on indirect medical education (IME) funds. A growing chorus in MedPAC asserts that up to $3 billion of IME funding is not attaining the return on investment that they want. Specifically, they believe residency programs are not doing what they need to do in preparing learners for the medicine of the future. The commission contends there is not enough attention to teaching systems-based practice, quality improvement, and other related efforts. MedPAC therefore suggests reallocating these funds in a fashion that is linked to performance in the areas of training they desire. In other words, receipt of IME could be made dependent on meeting certain curriculum requirements. Moreover, this change implies there could be a tiered funding structure where the level of funding a program receives depends on its ability to meet certain requirements. To date, no rules have been proposed but we are vigilantly monitoring this discussion.

FIGURE: AAIM Education Redesign Task Force 2 Members

Robert J. Anderson, MD University of Colorado School of Medicine	Karen E. Hauer, MD University of California, San Francisco, School of Medicine
Stewart F. Babbott, MD University of Kansas Medical Center	Harry Hollander, MD University of California, San Francisco, School of Medicine
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Mark W. Geraci, MD University of Colorado School of Medicine	Elizabeth A. Wildman Wake Forest University School of Medicine

The AAIM Executive Committee had a very productive meeting with leaders of ACP wherein we all agreed there are ample opportunities for partnering. Together, we are assembling a small group to have further joint discussions that are tantamount to a high-level joint strategic plan. In the meantime, we are working closely with ACP to nominate individuals to the Workforce Commission and the Federal Coordinating Council for Comparative Effectiveness Research. ACP has far more advocacy clout than we do, but our academic link adds important gravitas, making us a good team. These efforts are a great example of the potential of working together.

I predict CBET will continue to be front and center for the foreseeable future. In fact, I will go so far as to say this issue will be our most important focus for the next few years. AAIM simply cannot be on the sidelines, which means we have to invest resources to make sure we have not just a seat but a major voice in these deliberations. A number of our members have invested a lot of thought and time in this effort, which is much appreciated.

We are making good progress on coalescing AAIM. We will soon convene a task force to address governance issues to make sure we have a way to speak with one voice while at the same time making sure the constituent organizations maintain the incredible service to members to which we have become accustomed. A recent example of this excellent progress was the first meeting of the new AAIM Finance Committee (members are the association treasurers); everyone's financial data was on the table so that a consolidated budget could be constructed and shared resources could be more appropriately allocated. The meeting went well; the treasurers appreciated the transparency and trust that has enabled them to move this piece of the integration initiative forward.

Lastly, we are soon to move into a new home. Our current lease is expiring soon, so we have been looking for new space that meets the needs of our staff, allows some future expansion, and is readily accessible for members and leaders traveling to DC for meetings. The new home is in Alexandria, VA, and an easy walk from the King Street Metro station.

In summary, AAIM continues to have myriad irons in the fire but there is also considerable progress. Our highly talented staff has been working hard and deserves a vote of thanks from all of us.

Sincerely,

D. Craig Brater, MD
President
Alliance for Academic Internal Medicine

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A Brave New World: Professionalism in the Digital Age

The increasing popularity of web-based technologies, such as social networking sites, media sharing, and blogging, has significantly changed the manner in which residents interact with educators, peers, patients, and the public at large. Individual and institutional representation, the absence of existing policies, and the perception of the lay public are some of the salient issues that arise when considering the digital images displayed by our residents. Currently, there is little guidance for medical educators or learners on preventing misuse of digital media and ensuring standards for professional conduct. This a particular challenge for medical educators as they seek to ensure that graduates exemplify the ideals of medical professionalism.

Unique Challenges to Learner Professional Behavior

Because the use of social media has increased recently and rapidly, few institutions report policies governing learner usage of such technology. Chretien and colleagues reported that 60% of US medical schools reported instances of students posting unprofessional content online, including profanity and discriminatory language. However, only 38% of medical schools reporting had existing policies to cover student-posted content. Schools reporting incidents of unprofessional use of digital media were significantly more likely to have a policy (1).

Formal professionalism education in undergraduate medical education has largely focused on the doctor-patient relationship and the accountability of medical physicians-in-training to society (2). The extension of the doctor-patient relationship into the digital arena remains largely uncharted territory.

There is also increased utilization amongst our learners consistent with the demographics of current matriculates to medical school who have spent their entire secondary education in an entirely "Facebook-ed" environment (3). Previous work by Thompson et al reveals that 83% of learners' Facebook accounts included personal information, including depictions of substance abuse, sexism, and racism (4). There are numerous anecdotal reports of patients attempting to "friend" residents on their social networking pages and of negative reactions, by patients and their family members, to viewing residents' personal profiles and residents incurring consequences from hospital or program administration.

Lack of familiarity with these technologies and their capabilities put educators at a disadvantage when considering how to best advise our learners about their digital image. Survey data of learners and faculty illustrates a graduated level of awareness of the implications of digital behavior (**Figure 1**). Additionally, the majority (71.6%) of learners were unaware of institution-specific policies on digital media usage.

TABLE 1: Workshop Reactions to Learner-Posted Content

Group	"Gut" Reaction	Issues Raised by Content	Policy Implications
Deans/Program Administration	"vulgar"	1. Representation of school 2. Identifiably of school name/location 3. Impact on faculty, student, and housestaff recruitment	Permission and administrative review if video contains material which will identify the school.
Residents	"offensive" "sexist" "immature"	1. Embarrassment 2. Reflection on program/school	Generally opposed to blanket regulation imposed by leadership and favor individual policing of electronic content.
Patients/General Public	"Demeaning to patients" "What is the nature of the training of medical professionals?" "What were the ranks of the doctors who were in these videos?" "Videos are demeaning" "Different generations would react differently to the videos"	1. Videos reflect poorly on the policy of the medical school or the hospital as the videos were filmed in these buildings 2. Videos demonstrate a lack of respect for patients' problems 3. Videos would have a negative impact on future doctor-patient relationships	N/A

Surveyed learners were concerned about the potential dangers of posting on the Internet, but the majority opposed any university- or institution-based regulation. The consequences of online postings can affect not only institutional representation but also retention and recruitment of residency, fellowship, or faculty positions. Industry reports that almost 30% of job applicants have been denied a position secondary to information accessed via a web search engine (5).

A recent discussion on the APDIM message board highlights the challenges faced by medical educators regarding these new technologies. Many issues were raised in response to the question posted: "Does your institution have policies or guidelines for resident usage of social networking tools such as Facebook, Twitter, blogging, YouTube, etc.?" Most institutions lacked policies and encountered a number or varying issues. Examples included: revelation of protected health information (PHI) on Twitter and YouTube; learners sending or receiving friend requests from patients on Facebook; program skits on YouTube with inadvertent PHI and university-branded materials; less than complementary blogs posts about the program director, faculty, colleagues, or program. One program director provided the example: "I was holding printouts other residents had found on her Facebook pages, boasting about how stupid her faculty members were for buying her stories while she was out partying at bars (pictures included)." Qualitative analysis of the comments identified four themes: concerns about privacy; the maintenance of appropriate boundaries between doctors and patients, learners, and teachers; concerns over professional representation; and concerns about infringement of First Amendment rights.

Continued on page 17

FIGURE 1: Learners' Perceptions about Digital Media and Professional Representation

	MSIII [n = 63]	Interns [n = 108]	Residents and Fellows [n = 63]	p value
Concern about personal representation	27/58 (47)	42/84 (50)	32/44 (73)	0.076
Concern about future employers viewing content	42/60 (70)	57/98 (58)	36/51 (71)	0.196
Concern about future colleagues viewing content	35/60 (58)	52/98 (53)	36/51 (71)	0.185
Concern about future patients viewing content	36/59 (61)	60/98 (61)	36/51 (12)	0.181

FIGURE 2: Learners' Perceptions about Digital Media and Regulation (n = 204)

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
It is okay for residency programs to view public postings of applicants.	21	43	30	74	33
Physicians/medical students have a professional responsibility to represent themselves publicly in a manner commensurate to their profession.	2	19	17	83	81
Institution-based regulation of publicly available information on social networking sites is an infringement on my First Amendment right to free speech.	15	21	39	68	53
I am concerned about others posting information about me without my knowledge or consent.	3	12	35	78	71

Everyday Medical Education Research: Studying What We Do While We Are Doing It

Squeezing in Medical Education Research

Well-designed medical education research studies offer many benefits to learners, educational programs, and the investigators themselves (1). Medical education research can aid in the assessment and education of learners, which can ultimately lead to an improvement in the training program. Furthermore, these types of studies can help us better understand current training processes. For the individual investigator, successful research can help with promotions at academic medical centers. However, medical educators cite many barriers for conducting medical education research, including lack of fiscal support and statistical expertise. In particular, time constraints are frequently reported as a barrier to conducting medical education research. Finding a way to study what we are already doing in everyday work as medical educators can help improve current practices without requiring a significant amount of additional time. Here we discuss five issues to facilitate studying what we do: research frameworks, institutional review board (IRB) issues, available data, strong research questions, and experimental designs.

A Framework for Medical Education Research

Research is often placed within a framework. For example, the Donabedian framework is the most common framework used in studying quality-of-care and focuses on three dimensions (2). Structure represents the attributes of the setting where care is being delivered, such as the physical structure of a hospital. Process focuses on whether or not good medical practices are being followed. Quality measures the impact of the care on health status, such as the impact on mortality. This framework is similar to how we think about medical education research. Although we are usually more interested in process and quality, we are occasionally also interested in the structure of where medical training is conducted. Recognizing the multitude of structures, processes, and quality measures can help educators begin to identify potential areas for investigation (**Table 1**). When performing medical education research, the unit of analysis can be an individual or a program itself (1). An individual may be a medical student, a resident, a fellow, or a faculty member. Conversely, when evaluating a residency, medical school, or clerkship, the study focuses on the program.

The Institutional Review Board

When planning to study and disseminate research based on everyday work, investigators should submit proposals to their respective IRB. Although the use of educational tests, surveys, and interviews or observations, or the study of existing data are often exempt from IRB review, it is important to submit them to IRB to receive the exemption. Given the variability in institutional IRB requirements, it is always best to check with the institution's IRB early in the research process.

Available Data

As medical educators, we already have access to sets of data that could be used to answer medical education research questions. Individual data, such as end-of-rotation and summative evaluations of students, interns, residents, fellows, and faculty, should be repeatedly collected. Test scores, such as from admissions testing, subject examinations, in-service examinations, and certifying examinations, are also available for review. Other potentially available data include formative assessments, such as scores from mini-clinical examinations, objective structured clinical examinations, or standardized patient examinations. At the program level, data such as match results and placements into residency, fellowship, and jobs may be available. These data may be used to reflect not only on the individual, but on the program itself. Formal program evaluations could be used to answer questions related to new rotations, courses, or any other change within the program. Hospitals also collect patient outcomes and satisfaction scores.

Generating a Good Research Question

Good research studies start with a good question. A good research question should be specific, provide an answer to a question that matters, and should be able to be answered (3). One approach to generating such a research question is summarized in **Table 2**. The first step is to identify an issue that is important and timely by conducting a thorough literature search. This search can also verify that the question has not already been answered. If an answer already exists, a research project should add new findings that will improve current knowledge of the subject. Once a broad topic has

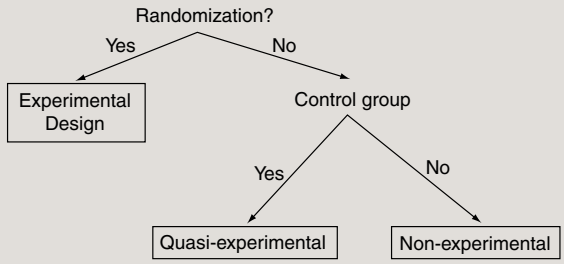
TABLE 1: Medical Education Examples Using the Donabedian Framework

Dimension	Medical Education Example
Structure	Quality of call rooms
Process	Impact of intern mentoring on depression during intern year
Outcome	Effect of continuous medical education on clinical outcomes

TABLE 2: Formulating a Research Question

Step 1	Identify the issue via a literature search
Step 2	Brainstorm
Step 3	Generate a general question
Step 4	Select a general method
Step 5	Make the question specific

FIGURE 1: Experimental Designs



been identified, brainstorming sessions can lead to a general question. Before narrowing the question, an investigator has to think about how it can be answered and start reflecting on possible experimental designs. The final step is to make the research question specific. An example of a specific research study can be seen in **Table 3**.

Experimental Designs

Although using an experimental design involving randomization is the gold standard (**Figure 1**)(4), medical educators often struggle with initiating such studies because of practical operational concerns. Subsequently, non-experimental designs involving observations or measurements of only a single group are extremely common in medical education (5). Unfortunately, because comparisons cannot be made to a control group, validity is threatened. On the other hand, a quasi-experimental design involves comparison to a nonrandom control group, although it lacks randomization (6). When studying what we are doing everyday, it may not be possible to randomly assign learners to study groups. However, historical or concurrent controls can be used if planned ahead. This quasi-experimental design is probably underutilized in medical education.

Putting It All Together

Medical educators often implement new training processes that are typically accompanied by both individual and program evaluations. However, these innovations and programmatic changes are not often formally evaluated, leading to a missed opportunity to study program/process feasibility, effectiveness, and outcomes. With some advance planning, everyday work in medical education can be translated into scholarship, which in turn has the potential to inform not only the investigator, but also the medical education community. Key initial steps to a well-developed research project include generating a good research question, considering experimental or more often quasi-experimental study designs and then linking a good question with the appropriate study design using data that has already been collected. Collaboration with peers, junior faculty, learners, and non-physician colleagues may also help in conducting research when time is limited.

TABLE 3: Example of a Specific Research Question with Possible Experimental Designs

Specific research question	How well do interns adhere to national guidelines regarding screening, counseling, immunizations, and management of common outpatient medical conditions?
Possible experimental designs	Retrospective (chart audits) Prospective (direct observation) Hypothetical vignettes

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Staffing Metrics in Academic Medicine Administration: The Challenge of Measuring Efficiency

Background

The debate about health care reform illustrates the complexity of health care in the United States. As administrators, we are aware of the financial, legislative, and operational challenges of managing our academic missions. We must be proactive and adaptive to issues impacting our institutions while being attuned to operational best practices, including staffing efficiency.

The effectiveness of teaching hospitals has traditionally been measured by research funding, clinical revenue, and educational rankings. However, efficiency with which we administer these missions has not been measured extensively, especially in education and research.

This article presents a limited exercise comparing approaches for measuring staffing indices within the departments of internal medicine at Mount Sinai School of Medicine (MSSM) and Medical University of South Carolina (MUSC) in four areas: education, general administration, clinical research, and practice plan. Our objective was to share ideas regarding approaches to measure parameters that might inform staffing efficiency.

Overview and Approach

We began our data collection exercise by identifying the scope of staff and their functions across the two departments. We also agreed on a method to measure full-time equivalent (FTE) faculty and housestaff and obtained various financial metrics for the purpose of developing faculty-to-staff ratios and other analyses. In the process of reviewing our two organizations, it became apparent that we were organized so differently in some areas that comparing the two organizations would be of limited value. In those instances, we have provided data for only one of the organizations.

TABLE 2: General Administrative Staffing with Ratios Based on Faculty FTE Count (MSSM)

Functions	Functional FTEs	Faculty FTEs	Ratios
	52.5	220	1 : 4
Management Level	16	220	1 : 14
Analyst Level	5	220	1 : 44
Administrative Staff	31	220	1 : 7

Areas of Analysis

Education

The metrics calculated for both MSSM and MUSC were ratio of residents to coordinator FTE and "sum of all clinical fellows to fellowship coordinators" as a departmental aggregate ratio. Because of national Accreditation Council for Graduate Medical Education (ACGME) guidelines, coordinator duties (e.g., recruitment, clinical scheduling, core competency administration, grand rounds, conference management, etc.) are more standardized than other mission areas we analyzed.

TABLE 1: Educational Staffing Data with Ratios Based on Housestaff FTE Counts

Functions	Functional FTEs	Housestaff FTEs	Ratios
Resident Coordinators			
MSSM	4	137	1:33
MUSC	2	98	1:49
Fellowship Coordinators			
MSSM	4	84	1:21
MUSC	4	80	1:20

TABLE 3: Academic Administration (MUSC)

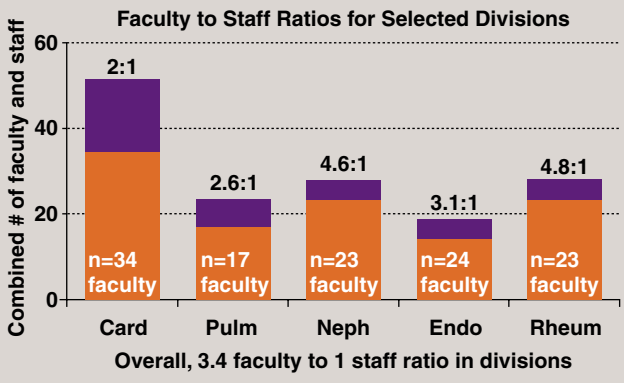


TABLE 4: Pay Band Analysis Results (MUSC)

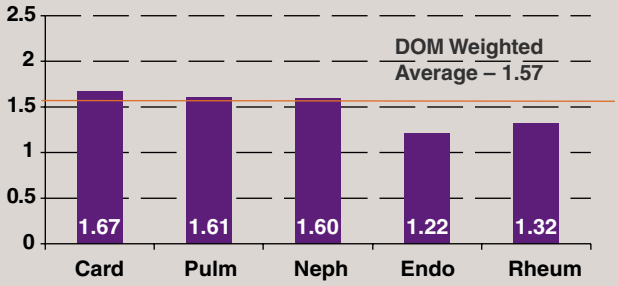
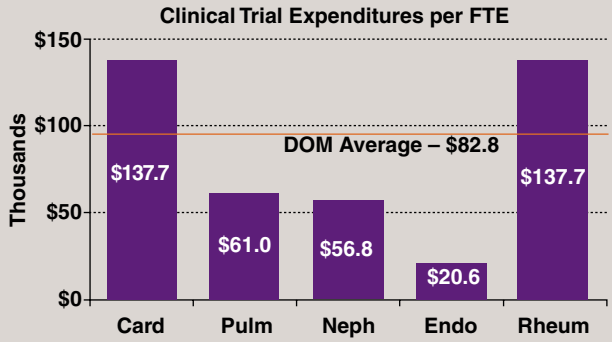


TABLE 6: Productivity of Clinical Trial FTE (MUSC)



Results are shown in **Table 1.** MSSM had a resident-to-coordinator ratio of 33:1 and MUSC's ratio was 49:1. In fellowship, MSSM had a ratio of 21:1 and MUSC 20:1.

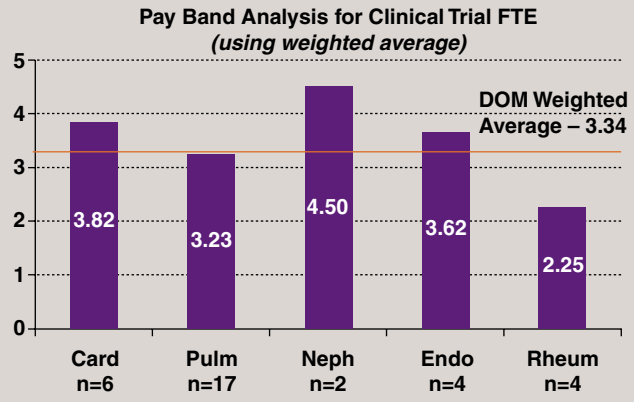
Discussion

In education, we were primarily interested in quantifying coordinator support in our residency programs using a simple ratio. Though ACGME requires one director for every 40 residents, there are no requirements for the ratio of residency program coordinators to residents. If national data can be obtained from residency programs regarding residency coordinator to resident ratios, averages and other useful benchmark data can be studied and interpreted to assess the appropriateness of staffing levels.

As a secondary goal, we attempted to quantify the number of fellowship coordinators to the total number of fellows at our two institutions. Because there are multiple fellowship programs, and fellowship coordinators do not spend 100% effort on fellowship duties, this FTE ratio is immediately confounded and difficult to measure in a valid way. Therefore, we chose to quantify an aggregate departmental ratio of total number of fellows to fellowship coordinators.

Overall, we were fundamentally interested in quantifying education support FTE "needed" versus the ACGME-mandated workload for these positions. As we obtain a larger sample size of national ratios for comparison, optimal staffing levels for these programs can be assessed.

TABLE 5: Clinical Trial FTE Analysis (MUSC)



General Administration

MSSM calculated the "ratio of total faculty to general administrative FTE."

General administration FTEs related to central support across all missions (except direct clinical, educational, or research technical staff). Employees included department and division administrators, administrative support, functional managers and analysts (e.g., finance, human resources, information technology, operations, and communication). Results are shown in **Table 2.**

Discussion

The goal of this analysis was to quantify data on administrative support to faculty within our divisions, stratified by the "type/function" of duties support staff provide (management, analyst, or administrative). However, the distribution of administrative FTEs throughout departments is highly dependent on the organizational structure of the department (whether that structure is more centralized or decentralized). Furthermore, the departmental processes and systems are also important factors. However, the overall ratio is an indicator for comparison across all

departments at the aggregate level. The data found show the ratio of the specific type of FTE needed per faculty at the department level.

Using the MSSM method, MUSC calculated the "ratio of total faculty to administrative FTE" in a subset of divisions as well as "pay band weighted average for support staff." Results are presented in **Tables 3** and **4**. Among five divisions, MUSC had an average faculty to staff ratio of 3.4:1 (range 4.8:1–2:1). The MUSC departmental pay band weighted average was 1.57 (range 1.67–1.32). A difference of 1.0 equals a full pay band.

The MUSC analysis seeks to quantify the overall average and division-specific faculty-to-staff support ratios in a subset of divisions. We knew that inter-divisional staff support ratios differed, but wanted to determine the causes of the variation. Increased FTE ratios can mainly be attributed in some divisions to in-house transcription staff (e.g., cardiology has 4.5 transcriptionists, whereas rheumatology outsources all transcription).

The pay band weighted average variation for staff support was modest. This calculation monitors homogeneity in job classifications across divisions since these employees perform many of the same duties. Should wide variations in pay bands between divisions be observed in the future, we would examine the cause to determine if the pay band differences are justified.

Clinical Trials Administration

MUSC calculated "pay-band weighted average for clinical trial coordinator support staff" and the ratio of "total expenditures to clinical trial support staff FTE." A similar challenge is to ensure homogeneity among classifications for trial staff (based on the assumption staff are performing essentially the same duties). To monitor homogeneity, we again calculated a "pay-band weighted average." The other index we quantified was a crude "support staff productivity" metric. There are many variables to consider for quantifying a "staff productivity" metric, but one measure chosen was the ratio of annual clinical trial expenditures to support FTE.

As **Table 5** illustrates, the pay band weighted average in a subset of divisions was 3.34 (range of 4.5–2.25). The department had an average of $82,800 annual expenditures per FTE (range $137,700 to $20,600), as shown in **Table 6.**

Most of the pay band variation is explained by some divisions employing more nurse coordinators (higher pay bands) than non-nurse coordinators. For some trials, nursing skills are required, but in many situations, it may be more cost-effective to hire administrative assistants. Thus, try to hire nurse coordinators only when necessary.

The variation across divisions in expenditures versus FTE can be explained to some degree by numerous factors for which we did not adjust (trial reimbursement variation, number of patients enrolled, cost of procedures, etc). However, the data provide an annual index for comparison and interpretation that could easily monitor trends in lieu of a more sophisticated, labor-intensive productivity analysis. Thus the data provide a starting point benchmark to monitor and improve staff efficiency.

Clinical Practice Plan

In the clinical practice plan area, industry benchmarks for direct clinical staff are published by Medical Group Management Association (MGMA). Therefore, MSSM did not collect data for the purposes of calculating ratios. However, using MGMA survey results, MSSM conducted a "rightsizing" exercise for revenue cycle and clinical operations to validate staffing levels and make adjustments to levels where appropriate. The exercise provided insight in clinical areas where we were overstaffed and understaffed. In the area of payment posting and accounts receivables, excess staff was eliminated through attrition. At practice sites, two additional medical assistants were hired to conform to a ratio of one medical assistant FTE for every clinical MD FTE.

It is important to note that even with ratios or benchmark data that are statistically significant, you should always question the results and avoid immediate action. The results were the foundation for a discussion with clinical managers regarding the variances. In any restructuring process, it is a good practice to look at process and systems before personnel. Overstaffing may result from outdated manual processes, so review processes before adjusting staff levels.

Conclusion

The approaches outlined are examples and not intended to serve as benchmarks or standards. Through this exercise, we gained insight into the challenges of developing comparative staffing benchmarks within and across institutions.

The major measurement challenges we discovered included variation in departmental organizational structures (e.g., centralized vs. decentralized administrative support, institutional resources, systems, and processes), issues related to geographic locations of facilities, and the degree of automation (e.g., electronic records) at our respective institutions. While these factors may have created some difficulty in measuring efficiency, they also highlighted opportunities (centralization, automation, outsourcing) that we feel could improve administrative operations.

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10 Tunes

To Make You Think…Research

If you would like to suggest a theme or a list for Ten Tunes, please email *Insight* Editor Sheila T. Costa at scosta@im.org.

Still Haven't Found What I'm Looking For: U2
Paradigm: Ani DiFranco
Looking for Nothing: Aimee Mann
Am I Ever Going to Find Out: Lifehouse
The Appliance of Science: Robbie Williams
Genius Next Door: Regina Spektor
I've Got a Lot to Learn: Brooks & Dunn
The Greatest Discovery: Elton John
Data Bank: Prince
A Theory: Tracy Chapman

A Fool-Proof Guide to Creating a Comprehensive Performance-Based Assessment Program

The use of standardized patients (SPs) (individuals who simulate medical problems) to train and assess medical practitioners dates back to 1963 when Howard Barrows, an educator at University of Southern California, hired a healthy woman to simulate a case of a paraplegic patient with multiple sclerosis for his neurology clerkship students. The last few decades have witnessed a rapid growth and evolution of performance-based assessments. With the advent of the Accreditation Council for Graduate Medical Education (ACGME) Outcome Project, interest in developing valid measures to assess competence further focused attention on performance-based assessments. Objective structured clinical examinations (OSCEs) have become common in medical schools and residency programs internationally. The **Table** illustrates how OSCE stations can address multiple competency assessments in undergraduate, graduate, and continuing medical education.

To provide a framework for individuals new to OSCEs and comprehensive performance-based assessment (CPBA), we produced a nuts-and-bolts guide on how to develop a CPBA program. Our hope was to not just provide guidance, but to initiate a discussion of standardization across programs and open the possibility of creating a large data bank of OSCE cases and other assessments to be shared among programs. We suggest steps to organize comprehensive OSCEs.

Step 1: Assemble a Team

OSCEs are a big undertaking, so it is essential to put together a team that can work together. Collaboration across schools, disciplines, or training programs can enrich the process and provide access to resources and additional team members. What is most important is a commitment to the process and a strong belief in the value of performance-based assessment. At a minimum, the team should include:

- Leader with a vision and an ability to organize and carry out the plan
- Case writer/developer who can write the cases and train the standardized patients
- SPs to play the roles
- Administrator to organize the flow of the day and attend to all the pre- and post-OSCE preparations

You will need to decide if you want additional faculty observers in the stations and what their role will be (rating, observation, and feedback), as standardized patients can be fully trained in all of these roles.

Step 2: Agree on Goals and Scope and Make a Plan

The next step in planning an OSCE is to establish your goals:

- Do you want it to be a formative or summative assessment?
- What competencies do you want to evaluate?
- How many residents do you want to put through OSCE?
- How many stations do you want to put the learners through?
- What do you need to do to free up time and space to accomplish OSCE?
- How much money do you have to cover the costs?

A concrete timeline and outline of tasks to be accomplished needs to be created. Brand-new OSCEs usually require three to four months' lead time, but once cases have been developed they can be organized in a much shorter time.

Step 3: Establish a Blueprint

The blueprint is a single-page summary of the cases to be covered in an OSCE and the competencies that they cover. It is the bird's eye view that enables you to decide if OSCE captures all of the elements to assess. Some questions to consider are:

- Are the cases representative of cases learners will encounter or instruction they have received?
- Are the cases balanced for age, gender, and cultural background?
- Do the cases adequately cover the competencies to be tested?
- Is there a representative cross-section of tasks (inpatient, outpatient, telephone medicine, teaching)?
- Are there areas of curriculum that need to be assessed (e.g., did that lecture on domestic violence stick?)?

Step 4: Develop Cases and Stations

We recommend the following format for writing a case:

- Station overview with goals
- Learner instructions with facts the learner needs to know and clear delineation of their tasks
- SP instructions
- Rating form
- Faculty instructions
- Relevant literature to support principles of the case

Case materials for SPs and faculty need to be sufficiently detailed to ensure consistency, but not be so voluminous that it is difficult for the SP to remember and reproduce consistently.

As part of the station development process, it is important to try out new cases through role play and adherence to the given time limits. Sometimes multiple enactments are necessary to gain clarity on issues such as scope of task or SP emotional tone.

Step 5: Create Rating Forms

The quality of a rating form is judged by the degree to which raters, both SPs and faculty, can use the form

consistently (reliability), and the degree to which the elements of the rating form accurately reflect the intended skills and performance (validity). The two formats typically used are behavior-specific items—sometimes referred to as checklists—and global ratings. The keys to developing reliable and valid rating form items are identifying the specific domains of interest, writing clear and understandable items, and providing anchors or instructions that guide raters in their assessment (e.g., what constitutes an item being scored "well done.")

Step 6: Recruit and Train SPs

Think of choosing SPs as a director would cast a show. Casting the right person for the case is important for creating an appropriate degree of realism. In general, SPs must be able to control their emotions well, standardize their portrayal, and parcel out information based on the resident. While actors, either professional or amateur, are frequently used, lay people can also be trained to play standardized patients. Word of mouth is the best recruitment method, but advertising or contracting with SP companies are also possible.

It is essential for SP trainers to role-play as different resident types. Whenever more than one SP is to be prepared for the same case, group training is essential for standardization. SPs should read through the case together while clarifications are provided. They could even view a standard-setting videotape to emphasize non-verbal behavior and emotional tone.

Step 7: Recruit and Train Raters

Depending on the OSCE project faculty, SPs can be entrusted with the responsibility of rating a resident's performance. Evaluations are sometimes completed by more than one group of observers. Regardless of whether the rating is done by SPs, faculty, or peers, attention must be given to ensure that raters

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TABLE: Potential Coverage of National Competency Standards through OSCE Stations (2–4)

	Undergraduate Medical Education: AAMC Learning Objectives for Medical Education					
	Physicians must be skillful		Physicians must be altruistic	Physicians must be knowledgeable	Physicians must be dutiful	
	Graduate Medical Education: ACGME Residency Training Competency Requirements					
	Patient Care	Interpersonal & Communication Skills	Professionalism	Medical Knowledge	Practice-Based Learning & Improvement	Systems-Based Practice
	Continuing Medical Education: IOM Competencies Required of All Health Care Professionals					
	Provide patient-centered care			Employ evidence-based practice	Apply quality improvement; utilize informatics	Work in interdisciplinary teams
Initial work-up of patient with un-differentiated problem (e.g., fatigue, cough)	X	X	X	X		X
Prevention counseling (e.g., smoking cessation, immunization)	X	X	X	X		X
Discuss management of chronic disease with patient	X	X	X	X		X
Telephone follow-up of lab results (e.g., cholesterol test, PPD)	X	X	X	X		X
Chart review (e.g., discuss chart note indicating medical error with colleague)		X	X	X	X	X
Precept a medical learner (e.g., physical diagnosis, patient management)	X	X	X	X	X	
Perform an online literature search and discuss findings with a patient	X	X		X	X	X

Qualitative Analysis for Medical Educators

The fit between medical education and qualitative research is a natural one. Qualitative research is particularly well-suited to providing data on needs assessments, program development, and curriculum evaluation and helps us understand not just what outcomes were achieved, but also process, impact, and unintended effects. Its ability to explore complex phenomena and relationships can lead to new conceptual frameworks and hypothesis generation. Qualitative research can help us answer research questions that cannot be answered by numbers and statistics.

Medical educators need to know how to read qualitative studies and assess the applicability of the findings in their settings. Some educators may pursue their own qualitative studies. Qualitative methods are inherently different than quantitative methods, carrying their own strengths and assumptions. Whereas quantitative studies are reductionist and deal with larger samples that provide objective data in the form of numbers, qualitative studies are generally inductive and contextual, using smaller, focused samples to provide subjective data in the form of words. Questions well-suited to qualitative research are open-ended and exploratory: How do students experience and operationalize professionalism in the clinical setting? What do learners find most valuable in their cardiology rotation and how do student impressions differ from residents? Data sources most often involve individual interviews, focus groups, and samples of text, although audio, photographs, video, and field note observations may also be used.

There are several different research paradigms upon which a qualitative study may be built, depending on the research goals. These established paradigms help guide study design and analysis. The most commonly used paradigms in the medical education literature are grounded theory, in which the focus is on developing a theory grounded in the data that relates to a particular situation, and content analysis, which describes and interprets content in documents or other communications. Other paradigms include ethnography (describing and interpreting a cultural and social group) and phenomenology (understanding the essence or meaning of a phenomenon).

General Steps in Qualitative Data Analysis

While there are different analytic procedures employed by the different paradigms and many ways to approach qualitative analysis, some general steps are common to the different approaches.

- *Data Organization*. Analysis begins with data organization; sorting, filing, and cataloging the sometimes voluminous amount of data (e.g., interview transcripts, field notes of observations, samples of text/documents).
- *Review*. All data should be thoroughly reviewed. Researchers immerse themselves in the data. Initial notes on impressions may be made during this stage, developing tentative ideas about relationships or categories.
- *Describing, Classifying, and Interpreting*. The next step usually involves grouping the data into categories through coding. The goal is to break the data into meaningful units so that it can be easily organized, categorized, and used to develop theoretical concepts. Subsequently, data might be organized into broad themes. Through whichever coding or categorizing approach is taken, making sense of the data is the goal. Researcher interpretations arise from the data, and may also be shaped by insights, intuition, or pre-existing theory. Sometimes different coding approaches need to be tried to find the most authentic and workable fit for the data.
- *Data Representation*. Researchers must decide how to present the data, whether through text (e.g., highlighting exemplar quotes) or displayed in tables, figures, or models and diagrams.
- *Drawing and Testing Conclusions*. Once conclusions or hypotheses are formed, researchers may test these concepts by applying them to new data. For instance, researchers may purposefully seek out negative or disconfirming evidence to test their hypothesis (also called a negative case analysis). This step allows the researcher to revise working hypotheses to incorporate exceptions and outliers.

Although these steps are listed linearly, the qualitative research process is iterative, meaning analysis may inform additional sampling and data collection, leading to further analysis and interpretation. The process may be best conceived as a spiral in which data is the input and an integrated narrative account is the output, incorporating multiple cycles of data collection and analysis.

Rigor in Qualitative Data Analysis

Any good qualitative study will describe the procedures used to ensure that the study was performed rigorously. "Trustworthiness" is a term that has been used to refer to a qualitative study's reliability and validity. In quantitative research, a sample size calculation might determine the number of subjects studied, whereas in qualitative studies, *n* is often determined only after analysis reveals that no new ideas are being identified with additional data (also known as "saturation"). Alternatively, *n* might be determined simply by the number of people in the group or team being studied (e.g., in an ethnographic study on the culture of a hospital's rapid response team). Thus, an adequate *n* could be relatively small depending on the research question and is less important in determining the overall validity of a qualitative study. Various techniques exist to establish rigor or trustworthiness in qualitative data analysis, including using multiple coders, having external peers review the themes or coding, allowing

TABLE: Comparing Qualitative and Quantitative Research

	Qualitative Research	Quantitative Research
Overall approach	Holistic, contextual	Reductionist
Research questions	How, why	What, where, when, how many
Data	Words, meaning	Numbers
Samples	Smaller, focused samples; determined as study progresses	Larger, random samples; determined a priori
Analysis	Iterative; subjective interpretations important	Objective; precise measurement and analysis
Rigor	Trustworthiness	Validity, reliability
Strengths	Rich data, hypothesis generation, provides contextual detail	Hypothesis testing, generalizability, efficient

participants to give feedback on the emerging themes and interpretations ("member checks"), and including negative case analyses, among others.

Supporters of qualitative medical education research are excited to see an increasing number of qualitative studies being published in medical education-focused journals. More medical education studies are also using mixed methods, combining qualitative and quantitative methods to contribute to better understanding of phenomena than either method alone. Some good resources for individuals interested in getting started in qualitative research are reference texts (1,2), workshops at national and regional meetings, including Academic Internal Medicine Week and the Association of American Medical Colleges Medical Education Research Certificate program, and articles on qualitative methods (3–8). Collaborating with experienced mentors in qualitative methods, either within an institution or across institutions, can be a valuable way to gain first-hand experience with this type of research, which is particularly well-suited to the kinds of questions medical educators may ask.

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APM Recognizes Efforts of Neilson, Powe, and Shea with Awards

The Association of Professors of Medicine (APM) presented three awards at the Annual APM Awards Lunch for Participants and Guests as part of the 2010 APM Winter Meeting, held February 24–27 at The US Grant in San Diego, CA.

Eric G. Neilson, MD, received the 2010 Robert H. Williams, MD, Distinguished Chair of Medicine Award. The association's highest honor, the Williams Award recognizes a physician who has demonstrated outstanding leadership as the chair of a department of internal medicine at a medical school. Dr. Neilson was recognized for his outstanding contributions to the Department of Medicine at Vanderbilt University School of Medicine, where he is currently the Hugh Jackson Morgan Professor of Medicine and Cell and Developmental Biology and Chair of the Department of Medicine as well as Physician-in-Chief at Vanderbilt University Hospital.

According to his nominators, "he has been… one of the most important Chairmen of the past decade, quietly moving his Department from the second tier to one of the elite programs in the country… Dr. Neilson is a superb physician-scientist, absolutely dedicated to the highest ideals of the profession and academic medicine." During his tenure at Vanderbilt University, the department of medicine has grown from 279 to more than 600 faculty. In addition, under Dr. Neilson's leadership, Vanderbilt University's ranking in National Institutes of Health (NIH) funding for research among all departments of medicine in US medical schools has moved from 21st to fifth place. In addition to being an APM member, Dr. Neilson is a founding member of the Association of Specialty Professors, and he is the namesake of the association's Distinguished Professor Award, which recognizes a leader who has shaped the specialty internal medicine landscape.

Dr. Neilson completed his residency in internal medicine and his fellowship in nephrology at the Hospital of the University of Pennsylvania. He earned his medical degree from the University of Alabama at Birmingham School of Medicine, where he graduated first in his class, and he received his bachelor's degree from Denison University.

Neil R. Powe, MD, was presented the 2010 APM Diversity Award. To further the mission of promoting ethnic and racial diversity in departments of internal medicine, APM created the award to recognize individuals who have effectively improved diversity within medical schools or who have worked to ensure patients of all races and ethnicities receive the highest quality care. Dr. Powe is the Constance B. Wofsy Distinguished Professor of Medicine and Vice Chair of the Department of Medicine at University of California, San Francisco, School of Medicine. He also serves as Chief of Medical Services at San Francisco General Hospital.

As his nominators point out, "Dr. Powe has devoted his professional life to studying racial and ethnic disparities in health care, in particular using chronic kidney disease as a model... Dr. Powe has documented widespread disenfranchisement from state-of-the-art medical care due to race and ethnicity. His work on kidney disease disparities provides a model for others looking at cardiovascular disease, cancer, and other conditions."

Dr. Powe's commitment to increasing diversity is illustrated in other efforts as well, including participating in the Institute of Medicine (IOM) Committee on Measuring, Managing and Improving Quality of Care in the End Stage Renal Disease Treatment Setting; the IOM Committee for Designing a National Health Care Disparities Report; the National Research Council Committee on National Statistics Panel on US Department of Health and Human Services Collection of Race and Ethnicity Data; and the IOM Pay for Performance Committee.

Dr. Powe received his medical degree from Harvard Medical School and completed his residency as well as a fellowship in general internal medicine at Hospital of the University of Pennsylvania.

Judy A. Shea, PhD, was given the 2010 Special Recognition Award during the 2010 APM Winter Meeting. Since 1995, APM has presented the Special Recognition Award to the individual who has contributed most to helping the association meet its mission of providing "the primary leadership and direction to academic internal medicine, including education, research, and patient care." The APM staff suggests candidates and the association's board of directors selects the recipient.

Dr. Shea is currently a professor in the Division of General Internal Medicine, Department of Medicine at the University of Pennsylvania School of Medicine. She is also Associate Dean of Medical Education Research and Director of the Office of Evaluation and Assessment in the School of Medicine Academic Programs Office. Dr. Shea has made additional contributions to academic internal medicine, including a leadership role in the American Board of Internal Medicine Foundation-AAIM project, "The Resident and Faculty Practicum in Practice-Based Learning and Improvement."

Her nominators claim that "Dr. Shea has contributed greatly to the efforts of the Alliance for Academic Internal Medicine (AAIM) Physician-Scientist Initiative. During APM's early efforts to evaluate the growing physician-scientist workforce problem, Dr. Shea was the lead individual responsible for conducting the surveys and focus groups and assembling subsequent data… APM is very grateful to Dr. Shea for her extensive efforts in helping the association carry out activities that remain critical to the fulfilling the mission

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A Brave New World: Professionalism in the Digital Age

Alliance for Academic Internal Medicine Joint Session Workshop

To increase awareness of issues related to resident social media usage, we conducted an interactive workshop during Academic Internal Medicine Week 2009, during which associate program and clerkship directors participated in a breakout session designed to illustrate the difficulties in interpretation of these issues and the conflicting opinions that exist. Small groups of participants were assigned to represent one of the following four groups: medical school deans, learners, patients, and the general public. All groups reviewed three publicly available videos posted by learners that depicted them dancing and performing medical-themed skits. Each group was asked to assess the videos from the perspective of their respective roles with the following trigger questions: What is your gut reaction to the content in the video? What are the issues raised by the content in this video? What are the potential policy implications that are raised by this video? Responses are noted in **Table 1**.

It is unclear whether the audience was truly able to remove personal bias from the reaction to the videos and represent the perspective of the groups to whom they were assigned. In addition, with the exception of one participant, all of the workshop participants were over the age of 30, which may have confounded some of the generational differences seen in this new age of digital media.

Strategies to Preserve Institutional and Individual Representation and Educate Learners on Protecting Their Digital Image

Many graduate medical education programs have confronted these issues with reactive strategies that often focus on the negative ramifications of online postings and are fraught with concerns of violating freedom of expression and speech.

The methods to educate learners on how to protect their personal digital image and, by proxy, the institution's image are supported by the survey findings in which participants perceive blanket institution-based regulation as a privacy infringement (**Figure 2**). Imposing widespread limitation of the use of social networking tools hinders our ability to harness the power of these applications for the educational benefit of our learners. The education required is truly two-fold. We must teach them about the potential negative implications of online postings and ways they can manage their digital image to avoid these pitfalls and we must teach faculty about the possibilities for misuse as well as their potential benefits for education. We encourage students to routinely survey publicly available material and to take a proactive stance on available user-generated content. Strategies include using professional profile sites such as LinkedIn to ensure the dissemination of accurate information and aggressive privacy settings for all social networking profiles (6). In addition, all users need to be made aware of their rights, namely that they can request the removal of incorrect content or that which reflects on them negatively. There are both learner- and faculty-specific issues when considering who to "friend" on such sites. We recommend encouraging learners and faculty to maintain electronic boundaries similar to the boundaries governing personal interactions to avoid conflicts of interest. Examples of such electronic boundaries include not accepting or requesting "friend" status with patients or those with whom one serves in an evaluative capacity. Finally, although the Internet has provided the opportunity to connect with others, it is important to consider both public and professional implications. One must consider the expression of personal opinions as a reflection not only on themselves but also of the medical profession.

Our recommendation is that all institutions proactively formulate guidelines and regulations on use of the Internet with regard to matters that represent their institution. Additionally, professionalism curricula must now address the risks and benefits of social media.

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A Fool-Proof Guide to Creating a Comprehensive Performance-Based Assessment (CPBA) Program

are providing as accurate and reliable ratings as possible. If possible, raters should be trained in larger groups. The amount of training time will vary significantly depending on who the raters are, how much rating and OSCE experience they already have, how stringent the assessment is, and how much time is available. With clinician raters, it may be most difficult to carve out some training time if compensation cannot be provided. However, they also need some type of orientation, in writing if necessary, to orient them to the goals, process, and content of the exercise.

Step 8: Manage Logistics and Implement the Program

In addition to station-specific materials, it is also necessary to develop forms and other resources that help with the overall organization of the event. These include:

- Learner orientation materials
- SP/Rater orientation materials
- Rotation schedules (indicate how residents rotate through the stations)
- Learner post-OSCE program evaluation forms
- SP/Rater post-OSCE program evaluation forms

To make troubleshooting at the time of OSCE easier, it is helpful to contemplate potential solutions ahead of the event. Organizers should ask themselves what they should do if:

- Someone does not show up
- Someone is late or has to leave early
- Someone has to leave temporarily
- An SP does not portray the case correctly
- A rater does not complete the forms correctly
- Station materials are missing
- A resident enters the wrong station
- Some stations consistently take less than the allotted time
- Timing gets mixed up
- OSCE is running out of time

Step 9: Analyze and Report Data

The reasons for calculating OSCE scores and providing report cards are to set minimum standards for high-stakes pass/fail examinations, provide feedback to learners (and their faculty) on performance, and provide overall feedback to your program on the effectiveness of training.

Scores can be based on averages of scaled items or on percentages; the latter are used especially for checklist scores, like percentage of behaviors "done well."

Step 10: Develop a Case Library and Institutionalize OSCEs

A case library greatly reduces preparations for subsequent OSCEs. It is useful to maintain a library in electronic and paper format and to make sure that the latest versions of the cases (and training notes) are maintained.

Conclusion

OSCEs are an essential part of any CPBA and can address multiple competency assessments across the continuum of undergraduate and graduate medical education. Our hope is that this guide can provide a framework for those new to the process of creating OSCEs and can serve as a reference for clerkship and program directors. A more elaborate form of this manual will be available shortly as a publication by Lipcott and Springer. We are also willing to collaborate and share cases that have already been developed and are presently part of our database, in the hopes of starting a national database of OSCE cases.

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Henry J. Schultz, MD, Receives 2010 Dema C. Daley Founders Award

The Association of Program Directors in Internal Medicine (APDIM) awarded Henry J. Schultz, MD, the 2010 APDIM Dema C. Daley Founders Award during the 2010 APDIM Spring Conference, held April 25–29 at the Baltimore Marriott Waterfront in Baltimore, MD. The Founders Award honors a member of the internal medicine community recognized nationally as an educator, innovator, and leader.

Furman S. McDonald, MD—Program Director in the Department of Medicine at Mayo Clinic College of Medicine—and Thomas G. Cooney, MD, Vice Chair of Education in the Department of Internal Medicine at Oregon Health & Science University School of Medicine, presented the award, recognizing Dr. Schultz for his impact on graduate medical education on a local scale during his tenure at Mayo Clinic College of Medicine and nationally through his leadership in a number of professional organizations.

In his time as program director at Mayo Clinic College of Medicine, Dr. Schultz played a pivotal role in positioning the internal medicine residency program as one of the best in the country. According to Dr. Schultz's nominators, "Generations of residents, faculty and residency program directors see him as a consummate teacher and enthusiastic engaging leader, a tireless supportive mentor, someone who not only practices exemplary patient care but also is the 'go to' person for the tough cases."

Dr. Schultz is currently Professor in the Department of Medicine at Mayo Clinic College of Medicine. He earned his undergraduate degree in biology at Bowling Green State University and his MD from Ohio State University College of Medicine. Dr. Schultz completed his residency and fellowship in general internal medicine at Mayo Clinic College of Medicine.

Dr. Schultz's nominators also highlighted his history of service as APDIM President (1999), Residency Review Committee for Internal Medicine Chair (2005–2006), National Residency Match Program Chair (2007–2008), and Organization of Program Director Associations Chair and co-founder (1999–2002) as examples of his national contributions to graduate medical education. His nominators described him as a "bridge-builder" who has "an uncanny ability to engage individuals, bring out the best in them and challenge them to improve themselves and others around them."

For more information about the APDIM Dema C. Daley Founders Award, please visit the APDIM website at www.im.org.

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APM Recognizes Efforts of Neilson, Powe, and Shea with Awards

of APM and supporting the interests of the association's membership."

To learn more about APM awards as well to view past recipients, visit the APM website at www.im.org/APM.

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