

ACADEMIC INTERNAL MEDICINE INSIGHT

AAIM IN ACTION

AAIM President's Update

D. Craig Brater, MD

RESIDENCY EDUCATION

Panacea or Placebo: 10 Years of X+Y Ambulatory Scheduling in Internal Medicine Residency

Page Axley, MD, Teresa Bryan, MD, Mamta Mangal, MD, Erin Snyder, MD,
and Analia Castiglioni, MD

ADMINISTRATION, FINANCE, AND REGULATORY

New to an Administrative Leadership Role?

Monica Fawthrop and Masada (Musty) Habhab

FELLOWSHIP EDUCATION

3M to the Rescue: A Perspective on Setting Up a Neurosurgical Co-Management Service

James Maliszewski, MD, Andrew Moellering, MD, and Urmila Mukherjee, MD

OPINION AND COMMENTARY

Point: Mandated Duty Hour Changes Have Significantly Improved Resident Education

Isitri Modak, MD

Counterpoint: Mandated Duty Hour Changes Have Significantly Improved Resident Education

Rhett Jackson, MD, and Michael S. Bronze, MD

RESIDENT EDUCATION

Bridging the Gap: A Post-Hospital Discharge Follow-Up Visit Curriculum

Brielle M. Spataro, MD, Amar R. Kohli, MD, Thomas R. Radomski, MD,
Asher A. Tulskey, MD, Doris M. Rubio, PhD, and Carla L. Spagnoletti, MD

By the Numbers

2

23%

Residents who falsely
reported duty hours

Page 12

4

10

Areas new administrators
should focus on

Page 7

6

8

4%

Residents who had received
formal education about post-
hospital discharge clinic visits

Page 14

10

11

14

AAIM President's Update



As we immerse ourselves in the holiday season while continuing full steam ahead with our work responsibilities, it is an opportune time for a short update in all the different things in which AAIM is involved. This year and the last few months in particular have seen a flurry of publications. Some are in print, some are percolating at various journals, and some are in the final throes before

being submitted. In addition, there are about a half dozen more in process. (You can see those that are completed by going to the News and Initiatives section of the website.)

Our ability to generate these thoughtful and scholarly works is a strong testimonial to the volunteer spirit of our members who enthusiastically roll up their sleeves to invest the time and energy needed to make all this happen. When that commitment is coupled with our talented staff, really good things happen. We have had opportunity to share drafts of some of our manuscripts in process with the members of the Internal Medicine Education Advisory Board, which is convened by AAIM and includes representatives from the American College of Physicians, the American Board of Internal Medicine, the Accreditation Council for Graduate Medical Education, the Residency Review Committee for Internal Medicine, the Society for General Internal Medicine, and the Society for Hospital Medicine as well as observers from the American College of Osteopathic Medicine, American Medical Association, and the Association of American Medical Colleges. Invariably, the members of this group have been strong in their praise, citing both the importance of the topics being addressed as well as the quality of the papers themselves. This external validation is a good reflection of the fact that the community of internal medicine sees AAIM as a pivotal spokesperson for the discipline. In other words, the notion behind forming AAIM in the first place is being validated.

ACGME has been in and continues the process of formally reviewing their requirements. One key area is that of duty hours and the broader topic of wellness. We have spent considerable time providing feedback. Specifically with respect to duty hours we offered a well-reasoned argument for being less restrictive and more flexible. When recently invited to comment on proposed revisions to the common program requirements, it was gratifying to see that the proposed revisions are highly consistent with our recommendations. You can find AAIM's position paper as well as comments on the ACGME's proposed language on the website (News and Initiatives/Accreditation).

AAIM has spent a lot of time re-inventing the website. The goal was not just to make it more attractive, but to make it more accessible to individual members. When you have a

Our ability to generate these thoughtful and scholarly works is a strong testimonial to the volunteer spirit of our members who enthusiastically roll up their sleeves to invest the time and energy needed to make all this happen.

better idea of all the things AAIM is doing on your behalf and better access to tools councils and committees develop, AAIM fulfills its aspiration to help members with the responsibilities they have every day. For example, sharing best practices in terms of Clinical Competency Committees provides a curated resource that many programs can adopt.

This fall, we took the key first step in implementing our new meeting format. Recall Academic Internal Medicine Week that had been in the fall will now be in the spring (registration is now open online so make your plans to join us in Baltimore March 19-22).

The APDIM meeting traditionally held in the fall has been expanded to encompass both the historical APDIM perspective but also help individual members enhance their skill sets—thus the name AAIM Skills Development Conference. The conference was specifically designed to provide venues for people to learn new skills to help them in their day to day responsibilities and develop skills needed for career advancement, in a fashion that allowed individuals to not only learn from one another but also for learning across the constituencies in AAIM. Many of the other AAIM member groups offered precourses and workshops at the conference. The conference has received outstanding feedback in terms of its content. Now we need to build this meeting and make it even more successful as measured by continued positive reviews and increasing attendance as those who attended spread the word.

The other half of the meetings equation is the newly redesigned Academic Internal Medicine Week, which will be AAIM's first foray into convention centers. A record number of workshop proposals have been submitted which foretells not only a strong program (as has always been the case) but also strong attendance. We are excited that two "headliners"

AAIM BOARD OF DIRECTORS

OFFICERS

Sara B. Fazio, MD, *Chair*
 Harvard Medical School
 Beth Israel Deaconess Medical Center

Alwin F. Steinmann, MD, *Vice Chair*
 Saint Joseph Hospital

James D. Marsh, MD, *Secretary-Treasurer*
 University of Arkansas for Medical Sciences
 College of Medicine

EX OFFICIO

D. Craig Brater, MD, *President*

Bergitta E. Cotroneo, FACMP, *Deputy Chief Executive Officer and Executive Vice President*

BOARD MEMBERS

Brian M. Aboff, MD
 Jefferson Medical College
 Christiana Care Health Services

Melvin Blanchard, MD
 Washington University School of Medicine

David L. Coleman, MD
 Boston University School of Medicine

Craig DeGarmo
 Georgetown University School of Medicine

G. Dodd Denton, II, MD
 Ochsner Clinic Foundation

Masada "Musty" Habhab
 University of Michigan Medical School

Andrew R. Hoellein, MD
 University of Kentucky College of Medicine

Mary E. Klotman, MD
 Duke University School of Medicine

Lia S. Logio, MD
 Weill Cornell Medicine

L. James Nixon, MD
 University of Minnesota Medical School

Joshua D. Safer, MD
 Boston University School of Medicine

Abraham Thomas, MD
 Lutheran Medical Center

Steve Vinciguerra
 Medical University of South Carolina
 College of Medicine

Patty W. Wright, MD
 Vanderbilt University School of Medicine

GOVERNANCE COMMITTEE CHAIR

Mark W. Geraci, MD
 Indiana University School of Medicine

STAFF

Talia Austin, *Director of Member Services*

Patrick Ballou, *Member Services Manager*

D. Craig Brater, MD, *President*

Margaret A. Breida, *Director of Academic Affairs*

Sheila T. Costa, *Director of Special Projects*

Nancy D. Delanoche, *Innovation Center Manager*

Nancy M. Dernelle, *Human Resources Manager*

Chris Dinegar, *Director of Educational Programs*

Curtis Gore, *Educational Programs Manager*

Deria Hatton, *Executive Administrator*

James F. Helm, *Senior Staff Accountant*

Jasmin Holmes, *Academic Affairs Senior Specialist*

Steven M. Humphrey, *Assistant Director of Technology Services*

Michael Kisielewski, *Survey and Data Manager*

Brian Lyons, *Accounting Manager*

Emily McCarthy, *Meetings Associate*

Kevin Morse, *Website and Social Media Manager*

Andrea Ramirez, *Governance Manager*

Regina Smoke, *Member Services Specialist*

David Townsend, *Director of Finance and Administration*

Kirsten Treadwell, *Meetings Specialist*

Christopher Williams, *Academic Affairs Senior Specialist*

David Wirth, *Member Services Associate*

Jennifer Witebsky, *Academic Affairs Manager*

Linda Zeng, *Educational Programs Associate*

INSIGHT EDITORIAL BOARD

EDITOR

Stephen A. Geraci, MD
 East Tennessee State University
 James H. Quillen College of Medicine

ASSOCIATE EDITORS

Paul Aronowitz, MD
 University of California-Davis
 School of Medicine

Diane Chau, MD
 University of California-San Diego
 School of Medicine

Ethan D. Fried, MD
 Hofstra Northwell School of Medicine
 at Lenox Hill Hospital

Sandeep Mukerjee, MD
 Creighton University School of Medicine

William Surkis, MD
 Lankenau Medical Center

Bipin Thapa, MD
 Medical College of Wisconsin

Amanda Vanderzyl
 Johns Hopkins University School of Medicine

Mone Zaidi, MD
 Mount Sinai School of Medicine

ASSISTANT EDITORS

Laurie Archbald-Pannone, MD
 University of Virginia School of Medicine

Monica L. Lyppson, MD
 University of Michigan Medical School

Ingeborg Schafhalter-Zappoth, MD
 California Pacific Medical Center

Daniel S. Shapiro, MD
 University of Nevada School of Medicine (Reno)

S. Calvin Thigpen, MD
 University of Mississippi School of Medicine

Connie Watson
 University of Mississippi School of Medicine

MEMBERS AT-LARGE

Jillian Catalanotti, MD
 George Washington University
 School of Medicine and Health Sciences

Kanishka Chakraborty, MD
 East Tennessee State University
 James H. Quillen College of Medicine

Christine DeLuca
 Feinberg School of Medicine
 Northwestern University

Matthew Fitz, MD
 Loyola University Medical Center

Hilary Ryder, MD
 Geisel School of Medicine at Dartmouth

Bertrand Vipond, MD
 Kaiser Permanente Southern California

Shari Wynn
 University of Illinois College of Medicine at Peoria

The views and opinions expressed in *Insight* do not necessarily reflect those of AAIM and its constituents. The publication of advertising in *Insight* does not constitute or guarantee endorsement by AAIM and its constituents. Please submit all manuscripts and correspondence to publications@im.org. Paper submissions are not accepted. Please submit all advertising inquiries to publications@im.org.

Alliance for Academic Internal Medicine
 330 John Carlyle Street
 Suite 610
 Alexandria, VA 22314

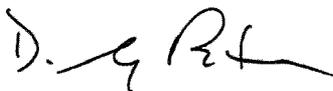
Telephone: (703) 341-4540
Fax: (703) 519-1893
Email: AAIM@im.org
Website: www.im.org

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.

have accepted our invitation to be keynote speakers. Paul Farmer, MD, who is acclaimed for his work in the underdeveloped world will join us as will Kate Goodrich, MD, who serves as CMS Director of the Center for Clinical Standards. I urge all of you to attend this banner meeting.

Your elected leaders in AAIM are working on a variety of additional initiatives that will keep us productive and busy well into the future. All these endeavors are aimed at cementing our status as the key "go-to" organization in academic internal medicine, if not in all of internal medicine. The holiday season is a good reminder of how grateful I am to be part of an organization that is having so much impact. The timing also presents an opportune time for me to urge all of you to be thankful for our many blessings. The tumult of our lives often precludes our taking the time to reflect on the truly great things about our chosen profession and discipline. It is easy for the negative to dominate. This season is a time to fight that off and remind ourselves of the really neat stuff not the least of which is having an impact on the individuals who are the future of medicine. And of course, it is vital to go beyond the professional dimension to the personal and reflect on the importance of family, loved ones, and friends. All of us at AAIM and I personally wish the greatest of holidays to all. ☺

Sincerely,



D. Craig Brater, MD
 AAIM President

The AAIM Skills Development Conference was specifically designed to provide venues for people to learn new skills to help them in daily responsibilities as well as for career development.

Panacea or Placebo: 10 Years of X+Y Ambulatory Scheduling in Internal Medicine Residency

A decade has passed since leading organizations in graduate medical education (GME) called for the redesign of ambulatory training in internal medicine residencies (1-4). As a result, residencies are reexamining the traditional model of weekly continuity clinic, which creates conflict between inpatient and outpatient responsibilities (3,5). To meet Accreditation Council for Graduate Medical Education recommendations, programs across the country are adopting innovative scheduling strategies for continuity clinic.

Ambulatory block scheduling has emerged as a common solution to better separate inpatient from outpatient care. In this model, residents alternate inpatient rotations with dedicated ambulatory time. The first of this construct to be described was the 4+1 model, which alternates four weeks of inpatient rotations with one week of outpatient clinic (6). Other variations exist, including a 50/50 configuration, with alternating one month blocks of inpatient and outpatient experiences (the latter during consult and other non-ward inpatient experiences) (7). Collectively these models are referred to as block scheduling or X+Y scheduling, where X refers to inpatient blocks and Y refers to focused ambulatory time (8).

Several key advantages to X+Y scheduling have emerged along with unintended consequences. In this article, we summarize the impact of X+Y scheduling across several domains, including resident satisfaction, ambulatory education, and continuity of care, and share our own experiences with the X+Y block schedule, highlighting some challenges and solutions.

Resident Satisfaction

By requiring residents to balance inpatient and outpatient responsibilities, traditional scheduling creates a stressful environment that can compromise resident perception of ambulatory medicine as an enjoyable field of practice (3,9). A key feature of X+Y scheduling is separation of ward and non-ward duties, which leads to less fragmentation of care (5,10). Residents report increased focus in clinic, greater satisfaction with preceptors, and improved teamwork and safety environments (5-7). Hospital-based clinics, private practices, and medical homes have all successfully implemented X+Y. Regardless of the setting, overall resident satisfaction with continuity clinic is consistently improved with X+Y scheduling (5,6,10-12).

Exposure to Outpatient Medicine

Block scheduling allows for larger residents patient panel sizes as well as more time spent in ambulatory care (7,10,11,13). Furthermore, the transition to block scheduling is associated with higher teaching conference attendance, as the separation of inpatient and outpatient responsibilities

may generate additional time for classroom education (7). Dedicated ambulatory experiences create opportunities to standardize and promote an ambulatory curriculum, and residents report improved learning opportunities and greater confidence in practicing outpatient medicine (7,10,12).

Continuity of Care

Despite the benefits outlined, continuity as reported from the patient perspective is consistently decreased in this new scheduling model (7,11-13). With X+Y scheduling, patients are less likely to see their primary resident provider for acute visits or post-hospitalization follow-up appointments needed within a week of discharge. A potential solution is to create a system of practice partners who share responsibility for a patient panel (9). Another solution is to employ shorter scheduling intervals with frequent cycling of inpatient and outpatient experiences (7). Call et al reported improved continuity and resident satisfaction with tandem two-week-long cycles alternating ward and non-ward rotations (14). During non-ward intervals, residents have two clinics per week and one "mini-clinic," which allows for follow-up of more complex patients and completion of other administrative clinic duties.

The impact on continuity of care from the resident's perspective is less clear. While residents in a 4+1 model saw their own patients more often (13), residents in a 50/50 model saw fewer of their own patients (7). The increased time between ambulatory clinic sessions in the 50/50 model as well as the relative decrease in total months spent in clinic compared with the 4+1 model likely account for this finding. Interestingly, patient satisfaction was not affected by the decreased continuity of care, and missed appointments actually decreased (7). Given the discrepant results, more studies are needed to assess the real impact on patient care as well as the patient-resident relationship.

Experiences, Challenges, and Lessons Learned

At the established university program, we restructured our ambulatory experience utilizing a 50/50 schedule alternating inpatient and outpatient months. This model is less disruptive to institutions that are dependent on resident ward coverage, since 4+1 models require one-fifth of the residents to be off the inpatient service at any given time. Non-ward rotations such as subspecialty consultation, ambulatory block, and electives take place during the outpatient month, in addition to two continuity clinic sessions per week. Prior to implementation, hope existed that moving to a 50/50 schedule would simplify outpatient scheduling. However, many schedule changes are still made each month to accommodate consult team rounding,

space in clinic, and vacations. Despite the loss of ward service distractions, consult services and electives still reduce the time residents spend on ambulatory duties. Additionally, the inpatient month leads to challenges in maintaining continuity and ownership of outpatients. Residents are paired with a practice partner who has the opposite 50/50 schedule, but outpatient handoffs are not formalized.

However, implementing an X+Y schedule in a brand new program is not an easy task either. A program that welcomed its first 16 interns in 2014, we implemented a 4+1 block schedule with residents spending five half-days in continuity clinic during the +1 week. As a new program, our inpatient services are not yet dependent on resident workforce and therefore tolerate a large percentage of residents off of the wards. Our initial challenge was faculty acceptance of this new model and their discontent with disrupted continuity. The 4+1 model is not like the “real world” and expectations for resident follow up were high. Faculty development efforts focused on resident expectations were crucial in promoting culture change. Defining clear expectations, timeframes for test follow up, and a back-up coverage process has increased resident involvement, decreasing the likelihood of missed results. We also found that when the residents are away for four weeks, there appears to be a lack of interest in clinic on returning and a diminished sense of patient ownership. Likewise, it takes longer for residents to master the outpatient electronic medical record and clinic flow, and for patients to establish relationships with the residents. The logistics of the 4+1 model appear to be a burden on the scheduling staff as well. Numerous scheduling errors in the first year only added to the turmoil. However, we are pleased to report that in our second year we found that the residents settled in well with the 4+1 model. Their sense of ownership of patients, punctuality inpatient follow-up, and participation in didactics blossomed and created a positive environment in the clinic.

While encountering many hurdles, we have worked hard to adapt this model in in two different institutions by developing new expectations and educational processes for residents, faculty, and staff. Several years after implementation we can say we have made much progress, although we know new challenges are ahead.

Conclusion

X+Y schedules have the potential to improve the resident continuity clinic experience by decreasing tensions between inpatient and outpatient duties, allowing for more ambulatory educational experiences, and improving continuity from the resident perspective. Implementation of X+Y requires programs to provide an infrastructure to promote resident autonomy and patient ownership and offer sufficient faculty supervision while preserving patient safety and quality of care.

It is a complex problem and every solution will have a corresponding tradeoff. We propose that X+Y scheduling is not a panacea, but each program will need to thoughtfully consider intended and unintended consequences prior to

implementation. We hope that our “real world” experiences with X+Y scheduling, at two different training programs, initiate a conversation to begin to outline best practices and share solutions. 

AUTHORS

Page Axley, MD

Resident

Department of Medicine

University of Alabama at Birmingham School of Medicine

Teresa Bryan, MD

Medical Director

Birmingham VA Medical Center

Mamta Mangal, MD

Section Chief, Primary Care

Department of Medicine

Orlando VA Medical Center

Erin Snyder, MD

Associate Professor

Department of Medicine

University of Alabama at Birmingham School of Medicine

Analia Castiglioni, MD

Faculty

Department of Medicine

University of Central Florida College of Medicine

REFERENCES

1. Holmboe ES, Bowen JL, Green M, et al. Reforming internal medicine residency training. A report from the Society of General Internal Medicine's task force for residency reform. *J Gen Intern Med.* 2005;20(12):1165-1172.
2. Weinberger SE, Smith LG, Collier VU. Education Committee of the American College of Physicians. Redesigning training for internal medicine. *Ann Intern Med.* 2006;144(12):927-932.
3. Meyers FJ, Weinberger SE, Fitzgibbons JP, et al. Redesigning residency training in internal medicine: The consensus report of the Alliance for Academic Internal Medicine Education Redesign Task Force. *Acad Med.* 2007;82(12):1211-1219.
4. Fitzgibbons JP, Bordley DR, et al. Redesigning residency education in internal medicine: A position paper from the Association of Program Directors in Internal Medicine. *Ann Intern Med.* Jun 20 2006;144(12):920-926.
5. Francis MD, Thomas K, Langan M, et al. Clinic design, key practice metrics, and resident satisfaction in internal medicine continuity clinics: Findings of the educational innovations project ambulatory collaborative. *J Grad Med Educ.* 2014;6(2):249-255.
6. Mariotti JL, Shalaby M, Fitzgibbons JP. The 4:1 schedule: A novel template for internal medicine residencies. *J Grad Med Educ.* 2010;2(4):541-547.
7. Wieland ML, Halvorsen AJ, Chaudhry R, et al. An evaluation of internal medicine residency continuity clinic redesign to a 50/50 outpatient-inpatient model. *J Gen Intern Med.* 2013;28(8):1014-1019.
8. Shalaby M, Yaich S, Donnelly J, et al. X + Y scheduling models for internal medicine residency programs—a look back and a look forward. *J Grad Med Educ.* 2014;6(4):639-642.
9. Thomas KG, West CP, Popkave C, et al. Alternative approaches to ambulatory training: Internal medicine residents' and program directors' perspectives. *J Gen Intern Med.* 2009;24(8):904-910.

continued on page 7

New to an Administrative Leadership Role?

Internal medicine administrators and faculty leaders come to their positions from a wide range of backgrounds. For some administrators, this role is a first experience working with physicians or in higher education. Many faculty have limited or no experience with supervision of nonmedical staff, financial management, or strategic planning. Administrative leaders are expected to gain an in-depth understanding of the research, educational, clinical, and administrative missions of an academic internal medicine department in addition to having core skills in financial and human resources management.

Departments of internal medicine are commonly organized into administrative units in which the chair's office provides overall organizational direction and structure, with divisions organized for the management of educational programs and subspecialty medicine topics. The scope of responsibilities managed at the department and roles held at the division level will vary from institution to institution

based on its school's organizational structure and management arrangements with affiliated hospitals.

Departments of internal medicine are large, diverse, and dynamic. Academia is predicated on the testing of new theories, the development of cutting-edge practices, and creative applications in all mission areas. Administrative leaders work with faculty, learners at all stages of development, staff, and institutional process partners to facilitate these professional aspirations in a fiscally responsible and compliant manner. Individuals new to administration in internal medicine will soon learn a new language (or languages), and AAIM welcomes them to a community of people in similar roles who are willing and able to help.

Figure 1 provides an overview of the top 10 areas where new administrative leaders should begin their focus, with suggestions on areas to explore depending on their new role and responsibilities. 

FIGURE 1. Focus for New Administrators

1.	Institutional and Departmental Overview	<ul style="list-style-type: none"> Review your health system and department's mission, vision, and values. Review how your health system and your department are structured. Meet faculty and staff leaders in your department and health system, and hear their concerns and challenges and what they see as opportunities. Understand your department's and your unit's business continuity plans. Review important dates on the department's calendar. Review key departmental and health system policies, including those on compliance (both mandatory and role specific), internal controls, and conflict of interest. Understand whether your department is affiliated with a Department of Veterans Affairs Medical Center and how that relationship is defined. Review referring physician satisfaction data.
2.	Financials and Funds Flow	<ul style="list-style-type: none"> Build understanding of your department's and health system's finances, management reports, and metrics. Understand funds flow into, and out of, the department. Review the budget process and calendar.
3.	Faculty	<ul style="list-style-type: none"> Understand faculty tracks for your medical school. Overview appointment and promotion processes. Review the annual calendar of faculty activities: <ul style="list-style-type: none"> Sabbaticals CV reviews Performance reviews and merit program Effort reporting and disclosure of outside activities Understand the compensation structure and components of salary. Review faculty satisfaction data.
4.	Staff	<ul style="list-style-type: none"> Meet with the human resources manager to review key policies, processes, and the calendar. Understand performance management processes. Review employee engagement data. Understand the departmental annual performance review process. Understand employee roles and employment classifications.

5.	Research Administration	<ul style="list-style-type: none"> • Review the department's research performance standards and expectations for protected time for research. • Understand how your department is reimbursed for research. • Tour your research labs. • Understand pre- and post-award processes and policies and infrastructure. • Review space assignments, funding per square foot, and other metrics for both wet and dry lab research programs. • Understand bridge funding, cost-sharing, retention, and other research-related policies.
6.	Teaching Administration	<ul style="list-style-type: none"> • Review the department's teaching performance standards and expectations for protected time for teaching. • Understand how your department is reimbursed for teaching • Review the department's role in medical student teaching. • Review residency and fellowship programs. • Review teaching efforts.
7.	Clinical Administration	<ul style="list-style-type: none"> • Review your department's clinical performance standards and expectations for clinical assignments. • Understand how your department is reimbursed for clinical activities (productivity and clinical administrative roles). • Tour your clinic and procedural areas, including call center units. • Review clinical productivity data: <ul style="list-style-type: none"> • RVUs • Clinic visits • Discharges • Review patient satisfaction data. • Be aware of anticipated arrival of accreditation bodies (for example, the Joint Commission).
8.	Development/Philanthropy	<ul style="list-style-type: none"> • Meet the development team lead. • Review endowments, professorships, and other gift funds. • Understand your role in the development process.
9.	Charge Capture/Billing	<ul style="list-style-type: none"> • Meet the revenue cycle lead. • Overview clinical services (both inpatient and outpatient). • Review key metrics.
10.	Becoming an Active and Engaged Member in AAIM	<ul style="list-style-type: none"> • Learn the AAIM organizational structure and constituent groups. • Review AAIM publications and resources. • Review the AAIM invoice to ensure all appropriate faculty and staff are enrolled in AAIM. • Network with your AAIM colleagues. • Register for the next AAIM Conference.

AUTHORS

Monica Fawthrop

Administrator, Division of Pulmonary and Critical Care
Department of Medicine
University of Washington School of Medicine

Masada (Musty) Habhab

Chief Administrative Officer
Department of Internal Medicine
University of Michigan Medical School

continued from page 5

10. Chaudhry SI, Balwan S, Friedman KA, et al. Moving forward in GME reform: A 4 + 1 model of resident ambulatory training. *J Gen Intern Med.* 2013;28(8):1100-1104.
11. Buckhold FR, 3rd, Sanley MJ, Paniagua MA. An evaluation of continuity clinic redesign. *J Gen Intern Med.* 2013;28(12):1556.
12. Hoskote S, Mehta B, Fried ED. The six-plus-two ambulatory care model: A necessity in today's internal medicine residency program. *J Med Educ Persp.* 2012;1:16-19.
13. Heist K, Guese M, Nikels M, et al. Impact of 4 + 1 block scheduling on patient care continuity in resident clinic. *J Gen Intern Med.* 2014;29(8):1195-1199.
14. Call S, Bishop S, Pellerin J, et al. Tandem block schedules linked to a practice partnership model—Improving continuity in continuity clinic. Abstract presented at Society of General Internal Medicine, Southern Regional Meeting, New Orleans, LA. February 2015.

3M to the Rescue: A Perspective on Setting Up a Neurosurgical Co-Management Service

Setting the Scene

We had just finished residency and started our first jobs as academic hospitalists at Nebraska Medicine. One of the clinical directors of the Department of Internal Medicine tasked us with starting a new co-management service with the department of neurosurgery. Co-management between hospitalists and surgical services has become a well-established trend nationwide, with the intention to provide better patient outcomes, reduce the length of stays, and improve patient satisfaction.

We set out to streamline the care of medically complicated neurosurgical patients while simultaneously offloading some work assigned to general medicine teams. Being the new kids on the block, fresh out of training and eager to impress, the task of starting a new service seemed daunting, but we were excited.

We sought the advice of one of our mentors who had successfully put together a co-management service with the department of orthopedic surgery nearly a decade earlier. He reminded us of an annual lecture he gives to our internal medicine residency program: “Ten Commandments for Effective Consultations” (1). The article provides a template for being a good consultant that still rings true today. Though each commandment is important, a few of them were fundamental in building our new service.

Determine the Question

Early on we sat down with the neurosurgery faculty to better understand their vision for how we might enhance the care of their patients. Neurosurgical patients tend to be medically complex and sometimes require a higher degree of care and scrutiny before prescribing a certain treatment—for example, post-operative pain management in a patient with severe chronic obstructive pulmonary disease (COPD) and obstructive sleep apnea (OSA), management of glycemic control in diabetic patients started on stress-dose steroids, or managing steroid taper for patients with a prolonged treatment course. To serve as general consultation criteria, we put together a list of co-morbid conditions, which included hypertension, diabetes, OSA, COPD, and coronary artery disease. We felt that these were bread-and-butter medicine issues that added a degree of complexity that would benefit from the eye of an internist.

Honor Thy Turf (or Thou Shalt Not Covet Thy Neighbor’s Patient)

Historically at our institution, trauma patients who require neurosurgical intervention remain under the care of the trauma surgery team. While the neurosurgeons were

eager for us to help care for their patients, offering a cohesive co-management service while inserting ourselves into the care of neurosurgical patients who were under the care of a primary trauma surgery service would have been difficult. Setting boundaries and articulating our availability solely to neurosurgery primary patients was an important decision.

Teach with Tact

The neurosurgical patients at our institution are managed by a neurosurgical intern, higher-level resident, and two midlevel providers, along with a neurosurgery attending. Because these patient conditions tend to be complicated, failure to identify a decompensating patient early on can have dire consequences. Building a relationship with residents such that they are comfortable asking for help when needed has been important for us. As a teaching institution, we try to not merely list recommendations for our patients, but rather provide some of the background reasoning and anticipatory guidance integral to their care. Though we are always available for questions overnight, we expect the in-house residents to call and speak to us directly rather than simply instruct the nurse to “call medicine.”

As a team of three rotating consultants, we felt we were not equipped to manage neurosurgery patients as a primary service. The discussion from the beginning was that our service would be only consultative in nature.

Though the intent and purpose of our service was outlined in early talks with the neurosurgery faculty, we could have been a bit clearer early on describing our role to the residents. To remedy this problem, we put together a document describing the purpose of our service and which patients would be appropriate for consultations.

As part of the culture of any isolated service, age-old practices that are not necessarily evidence-based may exist. As a means to update and standardize the care we provide to our patients, we have set the goal of holding joint journal clubs, reviewing current evidence-based practices, and proposing changes to patient management accordingly. Any discussion regarding changes to patient management requires a collaborative and considered approach that comes more naturally once a good professional relationship has been established.

Follow Up

As academic hospitalists, we see ourselves as leaders in safe transitions of care and good communication between primary service and outside providers, and pioneers in quality and patient safety. A significant part of our service has been enhancing communication with patients’ families, other

consultative services, primary care physicians, and accepting facilities. We are actively involved in the discharge process: reviewing the orders, orchestrating outside testing and follow-up, and communicating the plan to the patient's caregivers (for example, reviewing tapering doses of medications like steroids and anti-epileptic drugs or relaying plans for follow-up urine studies in patients with DI following pituitary adenoma resection).

The Road Ahead

Curriculum Development and Educational Content

Although much of our understanding of the management of potential neurosurgical complications and their degree of urgency came from residency training and on-the-job-learning, the head of hospital medicine at our institution referred us to a module written for the Society of Hospital Medicine (2). The module outlined some of the specifics regarding the medical management of neurosurgical patients, and despite discovering the content late in the first year of our service, we found it to be invaluable and wished we had reviewed it sooner. We hope to translate our experiences into the development of future educational content and curricula for other hospitalists co-managing neurosurgery patients.

Preoperative Cardiac Risk Assessment

While we initially thought the vast majority of neurosurgical patients were admitted under emergent or urgent circumstances, we were surprised to find that about one-half of admissions were planned well in advance. With a better understanding of the demographic of our service, we have taken steps to set up a pre-op clinic where we will assess risk, order necessary testing, and establish our relationship with the patient and family long before admission. We hope it will lower hospital costs, decrease complications, and improve patient satisfaction by promoting continuity of consultative care.

Conclusion

With these principles in mind, we have managed to build a successful service over the past year. An added bonus to the implementation of our service was a happier nursing staff, which was consistent with a UCSF study an added benefit to establishing neurosurgical co-management service at UCSF was improved patient care as perceived by nursing (3). Last month, we were honored by the nursing staff as outstanding providers of the quarter on the neurosurgical floor. With more time and tracking of patient data, we hope to further study how our co-management model effects the care we provide to patients by tracking data like readmissions and complication rates of common hospital-acquired conditions. We are excited at what the road ahead brings. 🌀

As part of the culture of any isolated service, age-old practices that are not necessarily evidence-based may exist. As a means to update and standardize the care we provide to our patients, we have set the goal of holding joint journal clubs, reviewing current evidence-based practices, and proposing changes to patient management accordingly.

AUTHORS

James Maliszewski, MD

Assistant Professor

Section of Hospitalist Medicine, Department of Medicine
University of Nebraska College of Medicine

Andrew Moellering, MD

Assistant Professor

Section of Hospitalist Medicine, Department of Medicine
University of Nebraska College of Medicine

Urmila Mukherjee, MD

Assistant Professor

Section of Hospitalist Medicine, Department of Medicine
University of Nebraska College of Medicine

REFERENCES

1. Goldman L, Lee T, Rudd P. Ten commandments for effective consultations. *Arch Intern Med.* 1983;43:1753-1755.
2. SHM Consults: Consultative and Perioperative Medicine Essentials for Hospitalists. Neurosurgery for the Hospitalist (module). 2012 (no longer available online)
3. Auerbach AD, Wachter RM, Cheng HQ, Maselli J, McDermott M, Vittinghoff E, Berger MS Co-management of surgical patients between neurosurgeons and hospitalists. *Arch Intern Med.* 2010;170(22):2004-2010.

Point-Counterpoint: Mandated Duty-Hour Changes Have Significantly Improved Resident Education

I am pleased to introduce our first Opinion and Commentary piece using the point-counterpoint format. Significant change is always accompanied by controversy in key issues such as true value (benefits and costs), unanticipated consequences, and overall impact (positive and negative effects). No change in recent years has had the magnitude of impact on resident education as the progressive duty hour limitations mandated by the Accreditation Council for Continuing Medical Education and other regulatory bodies. AAIM members, with their considerable experience in graduate medical education, articulate contrasting opinions with supporting evidence on this critical topic. I hope to facilitate more point-counterpoints for future issues. I encourage feedback from *Insight* readers regarding your opinions on this topic and on this new format for Opinion and Commentary. 

Stephen A. Geraci, MD

Editor, *Academic Internal Medicine Insight*

Point: Mandated Duty Hour Changes Have Significantly Improved Resident Education

Much controversy has arisen over the impact of duty hour restrictions on resident well-being, overall education, and patient outcomes since their initial implementation by the American College of Graduate Medical Education (ACGME) in 2003. Despite the controversies, duty hour reforms have positively impacted graduate medical education in many ways. By limiting work hours and on-call frequency, and by prescribing days off, these reforms have improved resident well-being. Fletcher and colleagues, in a systematic review of the impact of ACGME's 2003 duty hour reforms, concluded that rates of burnout had fallen with duty hour restrictions (1). Several other systematic reviews have supported this association (2-4). Additional studies have suggested that residents now enjoy an improved work-life balance since the initial (2003) reforms (5-7). Furthermore, a number of studies suggest that shorter work shifts may well improve patient care (8-10).

The most positive impact of duty hour reforms has been to facilitate graduate medical education reform universally. Studies relating the impact of duty hour restrictions to resident education and patient outcomes, however, have been disappointing. Data suggest that these reforms have been detrimental to resident and fellow education secondary to work compression (needing to complete their duties while adhering to strict time limitations) and have had little beneficial impact on patient outcomes (11-17). These findings underscore the importance of understanding the complex systems in which resident and fellow education occurs since mere reductions in and reorganization of duty hours do not correlate with improved education or patient outcomes.

As a result, and as part of its accreditation redesign, ACGME created the Clinical Learning Environment Review (CLER) program to provide information to residencies and fellowships—and to their institutions—to help them understand how their clinical sites engage mastery of knowledge and skills they need to provide safe, high quality, and cost-efficient patient care by focusing on patient safety, health care quality, care transitions, supervision, duty hours and fatigue management and mitigation, and professionalism. It has led to important dialogue and improved integration of residents into their local medical communities, participating in the processes rather than being only passive learners. It has also encouraged high quality educational research to identify best practices related to duty hours to minimize their effects on resident education and patient safety.

Duty hour reforms have appropriately challenged the graduate medical education community to change the education paradigm. With the realized understanding that reducing and restructured work hours did not, in and of themselves, provide a positive impact on many of the outcomes anticipated, the resulting shift to more concrete and more meaningful metrics assessing system-wide changes and use of better pilot testing will move us from empiric to data-driven improvements. Ultimately, duty hour reforms and reductions have and will continue to increase the education community's accountability to both physicians-in-training and the public. 

AUTHOR

Isitri Modak, MD

Faculty

Department of Internal Medicine
Methodist Health System Dallas

REFERENCES

1. Fletcher KE, Reed DA, Arora VM. Patient safety, resident education and resident well-being following implementation of the 2003 ACGME duty hour rules. *J Gen Intern Med.* 2011;26(8):907-919.
2. Ulmer C, Wolman DM, Johns MM, eds. *Resident Duty Hours: Enhancing Sleep, Supervision, and Safety.* Washington, DC: National Academies Press, 2009.
3. Philibert I, Nasca T, Brigham T, et al. Duty-hour limits and patient care and resident outcomes: Can high quality studies offer insight into complex relationships? *Ann Rev Med.* 2013;64:467-483.
4. Fletcher KE, Underwood W 3rd, Davis SQ, et al. Effects of work hour reduction on residents' lives: A systematic review. *JAMA.* 2005;294(9):1088-1100.
5. Goldstein MJ, Kim E, Widmann WD, et al. A 360 degrees evaluation of a night-float system for general surgery: A response to mandated work-hours reduction. *Curr Surg.* 2004;61(5):445-451.
6. Jones AM, Jones KB. The 88-hour family: Effects of the 80-hour work week on marriage and childbirth in a surgical residency. *Iowa Orthop J.* 2007;27:128-133.
7. Karamanoukian RL, Ku JK, DeLaRosa J, et al. The effects of restricted work hours on clinical training. *Am Surg.* 2006;72(1):19-21.
8. Rosenbluth G, Fiore DM, Maselli JH, et al. Association between adaptations to ACGME duty hour requirements, length of stay, and costs. *Sleep.* 2013;36(2):245-248.
9. Emler LL, Al-Khafaji A, Kim YH, et al. Trial of shift scheduling with standardized sign-out to improve continuity of care in intensive care units. *Crit Care Med.* 2012;40(12):3129-3134.
10. Stroud L, Oulanova O, Szecket N, et al. The benefits make up for whatever is lost: Altruism and accountability in a new call system. *Acad Med.* 2012;87(10):1421-1427.
11. Leafloor CW, Lochnan HA, Code C, et al. Time-motion studies of internal medicine residents' duty hours: A systematic review and meta-analysis. *Adv Med Educ Pract.* 2015;6:621-629.
12. Drolet BC, Anandarajah G, Fischer SA. The impact of 2011 duty hours requirements on family medicine residents. *Fam Med.* 46(3):215-218.
13. Nevin CR, Cherrington A, Roy B, et al. A qualitative assessment of internal medicine resident perceptions of graduate medical education following implementation of the 2011 ACGME duty hour standards. *BMC Med Educ.* 2014;14:84.
14. Garg M, Drolet BC, Tammaro D, et al. Resident duty hours: A survey of internal medicine program directors. *J Gen Intern Med.* 2014;29(10):1349-1354.
15. Denson JL, McCarty M, Fang Y, et al. Increased mortality rates during resident handoff periods and the effect of ACGME duty hour regulations. *Am J Med.* 2015;128(9):994-1000.
16. Patel MS, Volpp KG, Small DS, et al. Association of the 2011 ACGME resident duty hour reforms with mortality and readmissions among hospitalized Medicare patients. *JAMA.* 2014;312(22):2364-2373.
17. Rajaram R, Saadat L, Chung J, et al. Impact of the 2011 ACGME resident duty hour reform on hospital patient experience and processes-of-care. *BMJ Qual Saf.* 2016;25(12):962-970.

As a result, and as part of its accreditation redesign, ACGME created the Clinical Learning Environment Review (CLER) program to provide information to residencies and fellowships—and to their institutions ...

Counterpoint: Mandated Duty Hour Changes Have Significantly Improved Resident Education

In 2011, the Accreditation Council for Graduate Medical Education instituted standards that not only included the 80-hour work week, but also additional restrictions aimed at limiting consecutive work hours and defining limits on the duration of night-float rotations (1). The intended goals of duty hour restrictions included improved patient safety and outcomes, improved resident quality-of-life and well-being, and improved (or at least unhindered) resident education. Although these goals are laudable, we find the evidence to support these restrictions unconvincing and the attributable implementation costs quite high (2,3).

Few studies have shown improvement in quality of care from these changes. Pediatric residents that napped more than one hour during a 24-hour shift appeared to make better medical decisions (4) and interns working in the MICU or CCU settings with limited time on continuous duty were

found to make better decisions and fewer serious errors than those working traditional shifts (5). Two additional studies showed improved adherence to practice guidelines and improved clinical outcomes in patients managed by medicine residents after the 2003 work hour changes (6,7). The majority of studies, however, failed to show consistent or significant improvements in patient outcomes, as measured by morbidity, mortality, medication errors, adverse events, complication rates, readmission rates, and other outcomes (8-14). A 2015 report comparing medication error rates in the eight years following the 2003 ACGME work hour revisions with rates before the changes identified a significant increase in medication error rate in the patients studied, although the difference did not persist beyond 2007 (13).

continued on page 12

continued from page 11

The intended goals of duty hour restrictions included improved patient safety and outcomes, improved resident quality-of-life and well-being, and improved (or at least unhindered) resident education.

Turning to resident well-being and quality of life, the evidence is again mixed. A 2004 study of internal medicine interns found a significant increase in sleep and reductions in attentional failures associated with intensive care unit shifts greater than 16 hours (15). However, a national survey in 2012 of orthopedic residents assessment of the 2011 work hour limits revealed that, while nearly 60% felt that the 80-hour work week was appropriate and that resident quality of life was improved, less than 20% were satisfied with the regulations overall due to perceived detriments to patient care (16). A study of 213 general surgery intern opinion of the impact of the 2011 duty hour restrictions showed no apparent effect on their perceived quality of life (17). Finally, a longitudinal cohort study of interns in 51 residency programs at 14 institutions was performed to evaluate the effect of the 2011 duty hour reforms. Despite showing a reduction in hours worked weekly, the study failed to show a significant improvement in hours slept, depressive symptoms, or sense of well-being. It did, however, reveal a significant increase in the percentage of interns reporting concerns about making serious medical errors (18).

Evidence indicates an overall erosive effect of these restrictions on education. Of the few studies showing a beneficial or neutral result, the most optimistic report compared clinical exposure prior to and after the 2011 restrictions. The investigators found that interns saw more patients, wrote more detailed notes, and attended more conferences after the restrictions were in place. However, outcomes were only measured for a short time period (19). A study analyzing resident pass rates for the board certifying examination before and after the 2003 duty hour changes failed to demonstrate a significant difference (20). Similarly, a comparison of the American Board of Surgery In-Training Examination scores, as well as intern and chief resident case volume at a single academic institution, found no significant drop in test scores but an increase in the case volume of both interns and chief residents (21).

Countering these results are studies in which duty hour changes negatively impact resident education. A survey of 200 medicine and surgery residents who trained before and after the 2003 duty hour restrictions found that while

residents felt that fatigue-related errors had decreased, it was offset by handoff related errors. Residents reported that the restrictions diminished formal education, bedside learning, and procedural training (22). A study comparing two 2011 regulation-compliant call models found that medicine interns had more sleep than the control group, but both compliant schedules resulted in more handovers, reduced intern availability for teaching conferences, and reduced their presence during daytime work hours (23). Both residents and nurses perceived lower quality of care with the 2011-compliant models and residents noted lower overall satisfaction with these models.

Looking at the first cohort of general surgery residents at multiple institutions to experience the 2011 restrictions, Antiel and colleagues found that residents reported less operating room time as well as decreased continuity of care and coordination of care. Feelings of burnout, perceived suboptimal quality of life, and thoughts of giving up a career in surgery remained common despite the duty hour changes (17). A survey of inpatient medicine attending physicians from 2001-2008 found that the 2003 restrictions resulted in a significant reduction in the percentage of physicians reporting having enough time for teaching (24). Similarly, investigators found that patients were progressively more likely to identify the attending physician rather than a resident physician as the physician most involved in their care with each enactment of work hour limits (25). Residents on an ICU rotation assigned to a 16-hour continuous duty schedule experienced a significant reduction in didactic teaching session attendance, mid-day hospital round attendance, and self-directed reading. The authors felt that some of these findings could be attributed to a shift in workload to attending physicians, resulting in less availability to teach (26). Finally, some studies report a worsening of professionalism with the advent of duty hour restrictions. Byrne reported that 23% of residents falsely reported duty hours; the most common reason was fear of jeopardizing the training program's accreditation (27).

Two recent papers deserve special mention. Bilimoria and colleagues conducted a cluster-randomized trial of 117 general surgery residency programs comparing an ACGME-compliant work schedule to a more flexible schedule that included work week limitations but did not limit continuous duty hours or proscribe minimum times between shifts. When comparing the ACGME compliant group with the flexible schedule cohort, the authors observed non-inferior rates of death or serious complications in the flexible schedule cohort and no significant differences in satisfaction or well-being between the groups. Residents in the flexible cohort were less likely to report negative perceptions concerning patient safety, resident education, and professionalism but were more likely to report a negative impact on personal activities (28). A follow-up study revealed similar perceptions by the participating residency program directors of the scheduling impact on patient safety, continuity of care, and resident education (29).

In summary, the effect and efficacy of resident duty hour restrictions in general has either not changed or slightly improved clinical outcomes while resident well-being has improved. However, there may be a negative impact on resident education, as reviewed (30). 

AUTHORS

Rhett Jackson, MD

David Ross Boyd Professor and Chief, Division of General Internal Medicine
Department of Medicine
University of Oklahoma College of Medicine

Michael S. Bronze, MD

Chair
Department of Internal Medicine
University of Oklahoma College of Medicine

REFERENCES

1. Accreditation Council for Graduate Medical Education. Resident duty hours in the learning and working environment: Comparison of 2003 and 2011 standards. Online. <http://www.acgme.org/Portals/0/PDFs/dh-ComparisonTable2003v2011.pdf>. Accessed December 5, 2016.
2. Nuckols TK, Escarce JJ. Cost implications of ACGME's 2011 changes to resident duty hours and the training environment. *J Gen Intern Med*. 2012;27:241-249.
3. Romano PS, Volpp K. The ACGME's 2011 changes to resident duty hours: are they an unfunded mandate on teaching hospitals? *J Gen Intern Med*. 2012;27:136-138.
4. Aran A, Wasserteil N, Gross I, Mendlovic J, Pollak Y. Medical decisions of pediatric residents turn riskier after a 24-hourcall with no sleep. *Med Decis Making*. 2017;37(1):127-133.
5. Landrigan CP, Rothschild JM, Cronin JW, et al. Effect of reducing interns' work hours on serious medical errors in intensive care units. *N Engl J Med*. 2004;351:1838-1848.
6. Bhavsar J, Montgomery D, Li J, et al. Impact of duty hours restrictions on quality of care and clinical outcomes. *Am J Med*. 2007;120:968-974.
7. Volpp KG, Rosen AK, Rosenbaum PR, et al. Mortality among patients in VA hospitals in the first 2 years following ACGME resident duty hour reform. *JAMA*. 2007;298:984-992.
8. Jamal MH, Doi SA, Rousseau M, et al. Systematic review and meta-analysis of the effect of North American working hours restrictions on mortality and morbidity in surgical patients. *Br J Surg*. 2012;99:336-344.
9. Choma NN, Vasilevskis EE, Sponsler KC, Hathaway J, Kripalani S. Effect of the ACGME 16-hour rule on efficiency and quality of care: duty hours 2.0. *JAMA Intern Med*. 2013;173:819-821.
10. Shelton J, Kummerow K, Phillips S, et al. Patient safety in the era of the 80-hour workweek. *J Surg Educ*. 2014;71:551-559.
11. Parshuram CS, Amaral AC, Ferguson ND, et al. Patient safety, resident well-being and continuity of care with different resident duty schedules in the intensive care unit: A randomized trial. *CMAJ*. 2015;187:321-329.
12. Scally CP, Ryan AM, Thumma JR, Gauger PG, Dimick JB. Early impact of the 2011 ACGME duty hour regulations on surgical outcomes. *Surgery*. 2015;158:1453-1461.
13. Vadera S, Griffith SD, Rosenbaum BP, et al. National Incidence of Medication Error in Surgical Patients Before and After Accreditation Council for Graduate Medical Education Duty-Hour Reform. *J Surg Educ*. 2015;72:1209-1216.
14. Shea JA, Weissman A, McKinney S, Silber JH, Volpp KG. Internal medicine trainees' views of training adequacy and duty hours restrictions in 2009. *Acad Med*. 2012;87:889-894.
15. Lockley SW, Cronin JW, Evans EE, et al. Effect of reducing interns' weekly work hours on sleep and attentional failures. *N Engl J Med*. 2004;351:1829-1837.
16. Levine WN, Spang RC, 3rd. ACGME duty hour requirements: Perceptions and impact on resident training and patient care. *J Am Acad Orthop Surg*. 2014;22:535-544.
17. Antiel RM, Reed DA, Van Arendonk KJ, et al. Effects of duty hour restrictions on core competencies, education, quality of life, and burnout among general surgery interns. *JAMA Surg*. 2013;148:448-455.
18. Sen S, Kranzler HR, Didwania AK, et al. Effects of the 2011 duty hour reforms on interns and their patients: a prospective longitudinal cohort study. *JAMA Intern Med*. 2013;173:657-662; discussion 663.
19. Theobald CN, Stover DG, Choma NN, et al. The effect of reducing maximum shift lengths to 16 hours on internal medicine interns' educational opportunities. *Acad Med*. 2013;88:512-518.
20. Silber JH, Romano PS, Itani KM, et al. Assessing the effects of the 2003 resident duty hours reform on internal medicine board scores. *Acad Med*. 2014;89:644-651.
21. Condren AB, Divino CM. Effect of 2011 Accreditation Council for Graduate Medical Education duty-hour regulations on objective measures of surgical training. *J Surg Educ*. 2015;72:855-861.
22. Myers JS, Bellini LM, Morris JB, et al. Internal medicine and general surgery residents' attitudes about the ACGME duty hours regulations: a multicenter study. *Acad Med*. 2006;81:1052-1058.
23. Desai SV, Feldman L, Brown L, et al. Effect of the 2011 vs 2003 duty hour regulation-compliant models on sleep duration, trainee education, and continuity of patient care among internal medicine house staff: a randomized trial. *JAMA Intern Med*. 2013;173:649-655.
24. Roshetsky LM, Coltri A, Flores A, et al. No time for teaching? Inpatient attending physicians' workload and teaching before and after the implementation of the 2003 duty hours regulations. *Acad Med*. 2013;88:1293-1298.
25. Arora VM, Prochaska MT, Farnan JM, Meltzer DO. Patient perceptions of whom is most involved in their care with successive duty hour limits. *J Gen Intern Med*. 2015;30:1275-1278.
26. Sabri N, Sun NZ, Cummings BA, Jayaraman D. The perceived effect of duty hour restrictions on learning opportunities in the intensive care unit. *J Grad Med Educ*. 2015;7:48-52.
27. Byrne JM, Loo LK, Giang DW. Duty hour reporting: Conflicting values in professionalism. *J Grad Med Educ*. 2015;7:395-400.
28. Bilimoria KY, Chung JW, Hedges LV, et al. National Cluster-Randomized Trial of Duty-Hour Flexibility in Surgical Training. *N Engl J Med*. 2016;374:713-727.
29. Saadat LV, Dahlke AR, Rajaram R, et al. Program director perceptions of surgical resident training and patient care under flexible duty hour requirements. *J Am Coll Surg*. 2016;222:1098-1105.
30. Lin H, Lin E, Auditore S, Fanning J. A narrative review of high-quality literature on the effects of resident duty hours reforms. *Acad Med*. 2016;91:140-150.

Bridging the Gap: A Post-Hospital Discharge Follow-Up Visit Curriculum

Background and Introduction

The transition of care from the inpatient to outpatient setting is a vulnerable time for patients. Following hospital discharge, 49% of patients experience at least one medical error (1) and 20% of patients experience an adverse event (2). Of Medicare beneficiaries, 15% are readmitted within 30 days of being discharged (3).

The majority of studies focus on efforts to reduce hospital admissions through inpatient discharge planning. While no single intervention has a significant effect on rates of readmission, bundled interventions involving post-discharge follow-up phone calls, patient-centered discharge instructions, and early visits with physicians may decrease readmission rates (4). Specifically, heart failure and chronic obstructive pulmonary disease patients appear to have lower rates of readmission when patients receive close outpatient follow up (5-8). However, little is published on what should be addressed during this follow-up visit.

To address this gap, the California Health Care Foundation published a hospital discharge follow-up checklist for primary care physicians (9). Additionally, Medicare created a transitional care management (TCM) program in which outpatient physicians accept responsibility for the patient as he or she transitions back into the community setting. TCM offers guidance on what should be included in follow-up visits (10). Both programs focus on pre-visit communication with the patient and other providers, a review of the hospital course, medication reconciliation, and arrangement of home services and community resources. These initiatives stress the importance of patient education and strategies to prevent readmissions.

The University of Pittsburgh implemented several key initiatives to improve our inpatient-to-outpatient transitions of care and to reduce hospital readmissions. Specifically, we reminded patients at the time of discharge, and after leaving the hospital, to follow up with their primary care provider. However, no standardized approach existed regarding this follow-up visit, and our residents did not receive formal training in this type of transition of care. To provide guidance to our residents and align our educational programming with Accreditation Council for Graduate Medicine and American Board of Internal Medicine competencies, we developed and implemented a curriculum focused on the transition of care from the inpatient to the outpatient setting.

Innovation

We developed a curriculum for internal medicine residents to standardize the post-hospital discharge visit. Based on the California Health Care Foundation checklist and the Medicare TCM requirements, this visit included reviewing

the hospital course, including tests and studies performed or recommended, and any results pending at discharge; performing a medication reconciliation; and ensuring adequate home care services and specialist follow-up. We also focused on the importance of patient education and discussion of goals of care.

Our curriculum consisted of an interactive case-based didactic presentation and small-group discussion, a handout summarizing key points, a template within our electronic medical record, and faculty development. The didactic instruction occurred during one 45-minute time period dedicated to classroom teaching prior to resident continuity clinic (that is, pre-clinic conference). We provided to each resident a handout highlighting key points of the visit. Faculty met with residents who missed the conference to provide them with individual instruction. In addition, we made a template available in the electronic medical record. We presented background information and the curriculum to all clinic preceptors, who we invited to attend the didactic sessions and emailed copies of the materials.

To evaluate the curriculum, we surveyed residents regarding their attitudes toward and confidence levels with conducting a post-hospital discharge visit prior to and three months after the curriculum instituted. We based each survey item on a 5-point Likert-type scale. We performed a two-tailed t-test with a p-value of 0.05 considered statistically significant on these results. We assessed residents' implementation of the curriculum by evaluating post-hospital discharge visit notes using a standardized checklist. Two reviewers independently evaluated the notes. We calculated inter-rater reliability from a random sample of 20 notes ($\kappa = 0.8$). We compared de-identified notes written in the 12 weeks prior to the curriculum (pre-curriculum) to those written in the immediate 12 weeks following (post-curriculum) and again from 14 to 24 weeks after the curriculum (delayed post). We randomly selected and graded one post-hospital discharge visit note per resident from each time period.

Results

A total of 48 (91%) internal medicine residents participated in the program. Only 4% reported that they had previously received formal education regarding the post-hospital discharge clinic visit, while 67% had received education on the process of discharging patients from the hospital. At three months, with a 96% response rate on the follow-up survey, resident attitudes regarding the importance of the visit and having that visit within 14 days of discharge improved, as did their confidence in all aspects of conducting the visit (**Table 1**).

TABLE 1. Resident Attitudes and Confidence before and after the Post-Hospital Discharge Visit Curriculum

	Pre-Curriculum (Mean ± SD)	Three Months Post-Discharge Curriculum Mean ± SD	p-Value
Composite Attitude	18.1 ± 1.5	18.9 ± 1.3	0.0073
Importance of the visit	4.3 ± 0.6	4.6 ± 0.5	0.0046
Importance of seeing a patient in clinic within 14 days of discharge	4.2 ± 0.7	4.6 ± 0.5	0.0060
Importance of an accurate medication reconciliation	4.9 ± 0.3	4.9 ± 0.3	0.5083
Importance of preventing avoidable hospitalizations	4.7 ± 0.5	4.8 ± 0.5	0.5089
Composite Confidence	18.1 ± 3.0	21.2 ± 2.0	<0.0001
Ability to conduct a post-hospital discharge follow-up visit	3.8 ± 0.7	4.4 ± 0.5	<0.0001
Provide adequate documentation of a post-hospital discharge follow-up visit	3.5 ± 1.0	4.4 ± 0.7	<0.0001
Confidence to perform accurate medication reconciliation	4.3 ± 0.7	4.7 ± 0.5	0.0038
Confidence to reduce hospital readmissions in primary care patients	3.1 ± 0.9	3.7 ± 0.7	0.0011
Confidence to reduce medical errors after discharge from the hospital	3.4 ± 0.9	4.1 ± 0.5	<0.0001

Responses based on a 5-point Likert-type scale, where 1 = not important/confident and 5 = extremely important/very confident.

Resident participants wrote a total of 120 post-hospitalization follow-up notes in the pre-period, 80 notes in the post-period, and 56 in the delayed post-period. Among the post-period notes, 30% utilized the template, while among the delayed post-period notes, 20% utilized the template.

Nineteen residents had notes in all three time periods; 16% and 26% of the post notes and delayed post notes, respectively, used the template. The mean percentage of checklist items included in each note during each time period did not differ significantly. The pre-curricular period average checklist score was 67.9%, the post was 65.5%, and the delayed post was 67.3%. No statistically significant differences existed in the percentage of residents who included the components of the visit in their documentation before and after the curriculum was instituted (Table 2).

Lessons Learned

The post-hospital discharge visit is important for the transition of patient care to the outpatient setting. Our trainees had received no training in this domain and did not feel confident in their ability to conduct this visit. After a brief intervention consisting of a case-based didactic presentation and handout and template availability, confidence and attitudes toward the visit improved up to three months following the intervention. We could not easily measure the impact of this intervention on actual behavior during the post-discharge hospital follow-up visit by examining documentation

alone. Many residents were documenting essential visit components at baseline despite indicating their low confidence with conducting the visit. Furthermore, evaluation of the true impact of the curriculum was difficult given the small number of eligible participants who had at least one note documented in each time period. In addition, adoption of the documentation template was suboptimal during the study period. Frequent reinforcement by clinic preceptors for use of the template as well as the components important to this visit type may improve use of the template as well as the care delivered in this setting.

Conclusions

By participating in a post-hospital discharge curriculum our residents showed significant improvements in attitudes and confidence levels despite a lack of measurable improvement in documentation. Our post-hospital follow-up visit curriculum addresses an important, yet infrequently discussed, topic. Clinic faculty can deliver the curriculum in a brief amount of time during a pre-clinic conference or other educational venue. With continued curricular implementation and frequent reminders, we anticipate that the increased confidence and attitudes toward conducting this outpatient visit type, as well as use of the documentation template, will contribute to safer patient care in the post-hospital follow-up period. Because we based the curricular materials and

continued on page 16

TABLE 2. Resident Documentation of the Post-Hospital Discharge Visit

Checklist Item	Pre n (%) Yes	Post n (%) Yes	Delayed Post n (%) Yes
1. Hospital course summary included	18 (94.7%)	19 (100%)	19 (100%)
2. Tests/studies mentioned	13 (68.4%)	14 (73.7%)	14 (73.7%)
3. Medication reconciliation performed	19 (100%)	18 (94.7%)	17 (89.5%)
4. Home care services mentioned	7 (36.8%)	5 (26.3%)	7 (36.8%)
5. Follow-up with specialist mentioned	16 (84.2%)	15 (78.9%)	15 (78.9%)
6. Physical exam documented	9 (47.4%)	10 (52.6%)	11 (57.9%)
7. Assessment and plan included	16 (88.9%)	17 (89.5%)	17 (89.5%)
8. Patient education mentioned	17 (89.5%)	13 (68.4%)	11 (57.9%)
9. Goals of care mentioned	1 (5.3%)	1 (5.3%)	4 (21.1%)

documentation template on Medicare guidelines and other national recommendations, other programs that wish to train residents and faculty in this topic area may also benefit from their use. 

AUTHORS

Brielle M. Spataro, MD

Assistant Professor, Division of General Internal Medicine
Department of Medicine
University of Pittsburgh School of Medicine

Amar R. Kohli, MD

Assistant Professor, Division of General Internal Medicine
Department of Medicine
University of Pittsburgh Medical Center School of Medicine

Thomas R. Radomski MD

Assistant Professor, Division of General Internal Medicine
Department of Medicine
University of Pittsburgh School of Medicine

Asher A. Tulskey, MD

Director of Resident Development
Department of Medicine
Boston University School of Medicine

Doris M. Rubio, PhD

Professor
Center for Research on Health Care
University of Pittsburgh School of Medicine

Carla L. Spagnoletti, MD

Associate Professor
Department of Medicine
University of Pittsburgh School of Medicine

REFERENCES

- Moore C, Wisnivesky J, MD, Williams S, McGinn T. Medical errors related to discontinuity of care from an inpatient to an outpatient setting. *J Gen Intern Med.* 2003;18:646-651.
- Kripalani S, Jackson AT, Schnipper JL, Coleman EA. Promoting effective transitions of care at hospital discharge: A review of key issues for hospitalists. *J Hosp Med.* 2007;2(5): 314-323.
- Readmissions and Deaths—National. Online. <https://data.medicare.gov/Hospital-Compare/Readmissions-and-Deaths-Hospital/ynj2-r877> Accessed December 4, 2016.
- Hansen LO, Young RS, Hinami K, Leung A, Williams MV. Interventions to reduce 30-day rehospitalization: A systematic review. *Ann Intern Med.* 2011;155(8):520-528.
- Azevedo A, Pimenta J, Dias P, Bettencourt P, Ferreira A, Cerqueira-Gomes M. Effect of a heart failure clinic on survival and hospital readmission in patients discharged from acute hospital care. *Eur J Heart Fail.* 2002;4:353-359.
- Sharma G, Kuo YF, Freeman JL, Zhang DD, Goodwin JS. Outpatient follow-up visit and 30-day emergency department visit and readmission in patients hospitalized for chronic obstructive pulmonary disease. *Arch Intern Med.* 2010;170(18):1664-1670.
- Milsky GJ, Wald HL, Coleman EA. Post-hospitalization transitions: Examining the effect of timing on primary care provider follow-up. *J Hosp Med.* 2010;5(7):392-397.
- Jackson C, Shahsabeji M, Wedlake T, et al. Timeliness of outpatient follow-up: An evidence-based approach for planning after hospital discharge. *Ann Fam Med.* 2015;13(2):115-122.
- Coleman E. *The Post-Hospital Follow-Up Visit: A Physician Checklist to Reduce Readmissions.* California HealthCare Foundation. October 2010. Online. <http://www.chcf.org/~media/MEDIA%20LIBRARY%20FILES/PDF/PDF%20P/PDF%20PostHospitalFollowUpVisit.pdf>. Accessed December 4, 2016.
- Transitional Care Management Services. American Medical Association. March 2015. Online. <https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/Transitional-Care-Management-Services-Fact-Sheet-ICN908628.pdf>. Accessed December 4, 2016.

ACKNOWLEDGMENTS

This project was funded by an institutional departmental grant. The authors would like to thank Diane Comer for her help with statistical support in this project.

ACADEMIC INTERNAL MEDICINE WEEK

BALTIMORE CONVENTION CENTER, BALTIMORE, MD

MARCH 19-22, 2017



PLAN NOW TO ATTEND

Academic Internal Medicine Week 2017 marks the first time Alliance members from all five member organizations will host meetings during the same week to maximize opportunities for education, networking, and collaboration.

This premier conference, designed for faculty and staff in departments of internal medicine at medical schools and teaching hospitals, has been expanded to include all of the existing meetings as well as the APDIM Program Administrators Meeting and the APDIM Chief Residents Meeting. Academic Internal Medicine Week is the only conference of this magnitude for academic internal medicine professionals. Registration for some events will be limited, so be sure to register as soon as possible.

Visit www.im.org to download agendas, book housing, and register!



The new **IM Essentials** suite for the Internal Medicine Clerkship and USMLE Step 2



IM Essentials Flashcard app
named one of the best medical
apps by *MedPage Today!*

Created by over 90 internal medicine clerkship directors, IM Essentials covers the key topics and concepts in the core medicine clerkship through textbook chapters and self-assessment questions. The IM Essentials suite consists of 2 print books and an online program. The print books and online version can be purchased individually. **FREE** access to the online version is included with either print book.

Sample the content or order now at www.acponline.org/ime