

Accepted Manuscript

Solutions to Common Problems in Training Learners in General Internal Medicine Ambulatory Settings

G Dodd Denton, MD MPH, Margaret C. Lo, MD, Suzanne Brandenburg, MD, Susan Hingle, MD, Lauren Meade, MD, Shobhina Chheda, MD MPH, Sara B. Fazio, MD, Melvin Blanchard, MD, Andrew Hoellein, MD MS

PII: S0002-9343(15)00507-0

DOI: [10.1016/j.amjmed.2015.05.023](https://doi.org/10.1016/j.amjmed.2015.05.023)

Reference: AJM 13021

To appear in: *The American Journal of Medicine*

Received Date: 18 March 2015

Accepted Date: 29 May 2015

Please cite this article as: Denton GD, Lo MC, Brandenburg S, Hingle S, Meade L, Chheda S, Fazio SB, Blanchard M, Hoellein A, Solutions to Common Problems in Training Learners in General Internal Medicine Ambulatory Settings, *The American Journal of Medicine* (2015), doi: 10.1016/j.amjmed.2015.05.023.

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Solutions to Common Problems in Training Learners in General Internal Medicine Ambulatory Settings. G Dodd Denton MD MPH(1), Margaret C. Lo MD(2), Suzanne Brandenburg MD(3), Susan Hingle MD(4), Lauren Meade MD(5), Shobhina Chheda MD MPH(6), Sara B Fazio MD(7), Melvin Blanchard MD(8), and Andrew Hoellein MD MS(9).

Running title: Solutions to Problems in General Internal Medicine Training

1. Ochsner Clinical School, University of Queensland, New Orleans, LA.
2. University of Florida College of Medicine
3. University of Colorado School of Medicine
4. Southern Illinois University School of Medicine
5. Tufts University School of Medicine, Baystate Medical Center
6. University of Wisconsin School of Medicine and Public Health
7. Harvard Medical School
8. Washington University in St. Louis
9. University of Kentucky College of Medicine

The Society for General Internal Medicine (SGIM) Council and the Alliance for Academic Internal Medicine (AAIM) Board of Directors reviewed and approved the manuscript. The authors appreciate the contribution of AAIM for assistance in organizing teleconferences to facilitate development of the manuscript, and AAIM and SGIM for selecting expert authors for the writing group. All authors had access to data and a role in writing the manuscript. This manuscript is submitted as an AAIM Perspective.

Funding: None

Prior Presentations: None

Conflicts of Interest: None of the authors reported any conflicts of interest.

Corresponding Author: G Dodd Denton, MD MPH, 1401 Jefferson Highway, New Orleans LA 70115. (504) 842-4747; fax 504-842-1242; email: gdenton@ochsner.org

References: 39

Tables: 2

Word length of text: 2407

Key Words: Ambulatory Education, Graduate medical education, Undergraduate medical education

Introduction

Directors of internal medicine educational programs at the undergraduate and graduate levels strive to provide optimal educational experiences in the general internal medicine ambulatory setting (ambulatory GIM). The optimal experience for medical students can be defined as an experience that allows them to “develop competence for training practice”(1) in the tenets of outpatient medicine, including continuity of care, management of chronic diseases, and acute care of common outpatient illnesses in an educationally rich, supportive, and engaging environment. The optimal experience for a resident differs somewhat, but it should be designed for them to develop “competence for independent practice” in ambulatory GIM (2). Residents must develop continuous, longitudinal relationships with a panel of patients with a broad range of ages and medical conditions in an educational environment where they feel engaged in care for their patients and can learn to provide high quality medical care.

While an ambulatory experience that leads to a choice of primary care internal medicine as a career may not be the primary goal in the undergraduate or graduate setting, it remains an objective for many programs. Career choice is a complex and multifaceted individual decision influenced by a plethora of forces, including educational experiences, practice environment, mentors, degree of educational indebtedness, personal interests, and lifestyle perceptions. Since the ambulatory teaching environment is the only experience under the control of medical educators that might support an ambulatory GIM career choice, medical educators are often tasked with improving the experience in hopes of increasing the primary care workforce.

The purpose of this manuscript is to describe the challenges of training medical students and internal medicine residents in ambulatory GIM settings and propose solutions supported by the literature when available. Other issues, particularly faculty recruitment, retention and development, are vitally important but are covered elsewhere and will not be discussed (3-5).

Challenges and Solutions to Medical Student Ambulatory GIM Training

The biggest challenges to optimal medical student education in ambulatory GIM include the faculty time required, student need to actively engage in patient care, absence of continuity with patients, and obstacles inherent in the electronic medical record (EMR). Medical student teaching in ambulatory GIM requires as much as 32 extra minutes per half-day per student,(6) leading to extended faculty time at the workplace, disrupted work/life balance for faculty, and loss of patient access and provider income due to a smaller throughput of patients. Continuity of care with patients is a central competency for ambulatory GIM practitioners; yet few medical student experiences achieve this continuity.

The integration of EMR into clinical care has had significant unintended adverse effects on undergraduate medical education. The ability of preceptors to review EMRs in the exam room with the patient has reduced the frequency of pre-review of the chart by the

preceptor with the learner. Since EMR documentation is perceived as taking more time, many physician teachers feel rushed and only allow students to shadow, rather than engage in, patient care and do not encourage student note-writing.(7) Some institutions do not allow students to document in EMR or write orders, which relegates them to the status of observers. To reconcile these challenges, we advocate for several solutions in medical student ambulatory training.

Faculty time for teaching should be protected. Subsidizing time on faculty schedules to teach and spreading student teaching responsibilities across multiple faculty members will reduce impact on individual physicians.

Students should be oriented to the constraints of the ambulatory GIM learning environment. Clerkship directors should work to minimize student impact on patient access and faculty time. Clerkship directors should communicate clear expectations to the student regarding time allotted for taking the patient's history, extent of the physical examination possible given the time constraints, use of EMR, and degree of responsibility.(8) This orientation will help ensure that students are considered part of the health care team with specific roles and responsibilities while minimizing the impact on faculty preceptor productivity and workflow.

Students should be actively engaged in interprofessional practice and education. The ambulatory team--including nurses, medical assistants, social workers, pharmacist and advanced practitioners--should be involved in education. Staff on the ambulatory team can introduce learners to the patients (9), identify interprofessional learning activities, and enhance student understanding of team-based care (10). Health professions students can learn from each other in structured interprofessional education curricula (11). This collaboration may require additional staff training on how to effectively incorporate students in the ambulatory setting. Identifying one staff leader, such as the lead nurse, to be in charge of this task will help in successful engagement of the team.

Medical students should be given meaningful responsibility. Medical students should be encouraged to participate actively in patient care and make diagnostic and management decisions under supervision (12). Participatory learning with real patients confers a sense of legitimate involvement and facilitates identity formation (8,12,13). In addition to independent interview, examination and discussion of patient care, measuring and documenting vital signs, teaching device usage (e.g. inhalers), and performing office-based testing and procedures under supervision, (e.g. urine dipstick, and vaccinations) are meaningful ways to engage students as part of the health care team (14). A student can practice motivational interviewing for lifestyle changes such as smoking cessation, perform literature searches, and communicate test results to patients after the visit with preceptor guidance.

Medical students must be actively engaged in EMR use. With optimal EMR use, medical students can add value to a provider's practice. The Alliance for Clinical Education (ACE) proposed guidelines for medical student use of EMRs (Table 1).(15) For instance, students can assist faculty by pending orders for lab work and medication

refills while learning these skills. Student-performed review of systems, if appropriately reviewed with the provider, can be used for billing purposes.(16) Students can add patient education materials to after visit summaries. Faculty can review learner EMR notes to provide feedback or for chart-simulated recall.(14)

Clerkships should implement ambulatory training models that explicitly include continuity as an organizing principle. In the longitudinal integrated curriculum (LIC) model, students spend one or more half-days per week in a variety of disciplines during part or all of their medical school experience. Exam scores of students participating in LICs have been similar to those of students participating in traditional clerkships and LIC students may be more likely to enter primary care.(17) A sentinel component of the patient centered medical home (PCMH), teamwork is a focus of LICs, suggesting that continuity of provider, patient, and a team including the student enhances development of competency.(18)

Challenges and Solutions to Resident Ambulatory GIM Training

Typical problems with resident ambulatory GIM training are rooted in the planned episodic attendance by residents and lack of attention to outpatients when residents are not present. The pressing needs of inpatients will always overshadow the needs of outpatients (5,19,20). Yet, resident ambulatory panels in teaching hospitals are often filled with patients who have multiple complex uncontrolled medical problems and polypharmacy requiring ongoing intensive physician attention and time. Additionally, many of these at-risk patients have difficulty accessing care and have low health literacy, leading to difficulty adhering to treatment plans. These patients often have limited personal resources and are unable to afford medications. Residents often feel overwhelmed with the responsibility of caring for such medically complex and under-resourced patients.

Because of the episodic nature of resident ambulatory responsibilities, residents in ambulatory GIM do not provide the same patient continuity, intensity, and access as a full time general internist. However, some models approximate the care delivered by the full time primary care physician.

Residency programs should consider implementation of ambulatory block models (i.e., x + y scheduling) to resolve the inpatient-outpatient conflict. Many residency programs have already implemented this model, in which residents spend one or two weeks in the ambulatory continuity setting without inpatient responsibilities, followed by three to six weeks on an inpatient or other rotations. The conflict between inpatient and ambulatory clinical experience is reduced or eliminated (21) and house staff spend more than a half-day at a time in continuity settings to become more facile. Such models have been shown to improve continuity for the resident, but patient access and patient perception of continuity may not improve. Ambulatory blocks improve laboratory follow-up among residents (22), but other data for residents is lacking.

To improve patient continuity, residency programs should consider implementing a core faculty model. In this model, the residency program hires or appoints a few faculty members not only to precept residents in the ambulatory setting but also to have accountability for the patients of the residents assigned to them. In this model, the attending handles the patient care when the resident is out of the office. This model may impact resident independence if the patient comes to envision the faculty member as the primary physician. Another alternative is to use nurse practitioners or physician assistants to handle the patient care while residents are absent from ambulatory setting; however, these providers cannot precept the resident.

As an alternative to the core faculty model, residency programs could establish ambulatory resident “firms” to improve patient continuity. Each firm, consisting of a fixed group of residents, would be responsible for a patient panel and at least one resident would always be available in the ambulatory setting to provide patient care. (see Table 2). The firm structure decreases fragmentation of care, increases stakeholder satisfaction, enhances faculty teaching/mentoring, and improves quality of patient care (23-25). Depending on the size of the firm, patients may still receive care from many different residents (though within the same firm) which could be perceived as discontinuous care from the patient’s perspective.

Active monitoring of panels must be performed periodically to ensure a balance of disease complexity, pathology, and patient demographics in each resident’s patient panel. Reassignment of the most complex patients to faculty or staff providers at the end of a resident’s training (rather than to another junior provider) will eventually reduce complexity in the resident panel. This reduction should, in turn, improve patient outcomes and may reduce resident burnout by reducing the concentration of highly complex outpatients in their panels.

Improving the Structure and Function of Ambulatory GIM Training Sites

Many ambulatory sites associated with academic institutions are administratively challenged, poorly financed, and lack adequate physical space to accommodate the large numbers of residents and students training at the site (27). Under-resourced primary care sites turn medical students and residents away from ambulatory GIM careers, subverting one of the purposes of these educational experiences.

The cost of medical education is a contentious topic. Before the advent of PCMH, the ambulatory teaching setting cost about 24-36% more to operate than nonteaching settings.(8,28) Current funding models for graduate medical education (GME) encourage residents to provide mainly inpatient care, and the funding does not always clearly and equitably flow through the hospital to the training program.(29,30) Likewise, students pay tuition and rarely know how this tuition is used to support their clinical education.

Academic institutions should build partnerships with payers, health systems, and communities to improve funding and function of academic GIM clinics. Several medical

schools and teaching hospitals have formed partnerships, such as university-Medicaid or community-wide health exchanges, to strengthen their fiscal base and educational opportunities (31,32). Other new Affordable Care Act (ACA) funding opportunities lie in collaborating with teaching health centers with new GME funding.(33) New money may be available in Community Health Centers and Academic Medicine Partnerships (CHAMPs).(34) Managed care organizations, third party payers, and insurers have an interest in training the next generation of ambulatory GIM physicians and should be asked to contribute to the cost (8).

Federal GME funding should be restructured to incentivize programs to explore innovation in ambulatory training. The recent Institute of Medicine Report called for training programs to understand the needs of their communities and to train physicians appropriately to meet those needs (30). While the IOM report did not address ambulatory training reform, programs should be encouraged through funding requirements to improve the ambulatory educational experiences of learners.

Resident and student training should occur in PCMH settings whenever possible. PCMH demonstration projects have shown improvements in patient experience, resident satisfaction and quality of care, without increasing overall cost (10,35-39). The mandate for best ambulatory practice as now defined by PCMH will require innovative resources and strong support from academic leaders.

The funding of ambulatory GIM should be more transparent. The priorities of students, residents, and external payers should be reflected in the use of the funding (30). Likewise, faculty and administrators working in academic GIM clinics must understand the connection between funding streams and the combined educational and patient care mission.

Leadership from the department, division, and residency program must prioritize development and ongoing maintenance of a good educational environment in academic GIM clinics. Without strong leaders advocating for reform, no meaningful change will occur.

Summary

All too often in ambulatory GIM training environments, the learner experience is both inadequate and negative, leading to both lack of competence and dislike for the practice of ambulatory GIM.

Ambulatory GIM leaders, faculty, administrators of ambulatory care sites, and clerkship and residency directors must be engaged in continuous monitoring to ensure the experience meets learner needs. Novel curricular models, such as LIC and block scheduling, as well as newer ambulatory models that embrace team based interprofessional care, such as the PCMH model, are steps in the right direction.

Medical education financing reform, including federal GME payment changes, emphasizing improved training in ambulatory GIM environments is needed to meet the primary care needs of society. Health care organizations, other third party payers, and medical school budget offices should engage to improve financing. All financing, including medical school tuition use, should be transparent to faculty, administrators, and learners.

The problems with ambulatory GIM training environments are numerous, and no single solution will solve them all. More support for research into innovative models directly addressing specific problems with ambulatory GIM training is clearly warranted. However, minor changes in individual training programs, such as implementation of new curricular models focusing on continuity coupled with major reform of institutional, state, and national financing will improve ambulatory GIM training for students and residents alike.

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Table 1. Recommendations from the Alliance for Clinical Education Regarding Students Documentation in the Electronic Medical Record(14)

Students must be able to document in the patient's chart and their notes should be reviewed.
Students must have the opportunity to practice order writing and prescription writing in the EMR
Students should be exposed to utilizing decision aids found in most EMRs
Medical schools must develop competencies related to charting in EMRs and how they should be evaluated

Table 2. Firm Assignments within a 4+2 model in a residency program with 27 residents

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
Cohort 1						
Firm A, members 1-3	Clinic	Clinic	Ward	Ward	Ward	Ward
Firm B, members 1-3						
Firm C, members 1-3						
Cohort 2						
Firm A, members 4-6	Ward	Ward	Clinic	Clinic	Ward	Ward
Firm B, members 4-6						
Firm C, members 4-6						
Cohort 3						
Firm A, members 6-9	Ward	Ward	Ward	Ward	Clinic	Clinic
Firm B, members 6-9						
Firm C, members 6-9						

AJM 15-446 "Solutions to Common Problems in Training Learners in General Internal Medicine Ambulatory Settings"

Perspectives Viewpoints

1. Protect faculty teaching time
2. Emphasize continuity in ambulatory experiences
3. Actively engage students with patients, the care team and the EMR
4. Deconflict inpatient and outpatient responsibilities of house staff
5. Institute core faculty or firm models for patient continuity
6. Actively manage house staff patient panels
7. Make ambulatory clinic funding transparent
8. Change GME funding to support innovation
9. Ensure leadership supports a good educational environment