The State of Ambulatory Undergraduate Internal Medicine Medical Education: Results of the 2016 Clerkship Directors in Internal Medicine Annual Survey

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Ambulatory care is qualitatively different and valuable to the health system. Given the shifts in health care that prioritize ambulatory care, internal medicine educators see benefits to learning in this environment. Internal medicine education teaches the skills necessary for managing complex patients, including those with multiple illnesses, medications, and social needs, all of which are encountered in the practice of ambulatory internal medicine.[1]

Ideally, internal medicine students should learn in settings where high-quality ambulatory care is modeled. High-quality ambulatory teaching sites should include student integration on teams with authentic student roles to impart the knowledge, skills, and attitudes needed for our rapidly transforming health system.[2] Recognizing that some skills are best achieved in the ambulatory setting, the American Association for Medical Colleges and the Accreditation Council for Graduate Medical Education have developed competencies best achieved in the ambulatory setting.[3] The Liaison Committee on Medical Education (LCME) also directs schools to provide outpatient learning experiences.[4]

In 2010, 85% of medical schools offered ambulatory internal medicine training as part of the internal medicine clerkship.[5] A 2010 Clerkship Directors in Internal Medicine (CDIM) survey demonstrated early attempts at interdepartmental ambulatory education, as well as experimentation with different curricular structures such as longitudinal integrated curriculum.[5] However, there continue to be significant barriers, including competing demands, clerkship directors with little clout or resources to effect change, lack of remuneration, inability to reduce patient load when accommodating learners, and increased demand due to expanding medical school classes.[6-12] Additionally, other allied health professional and osteopathic students compete for sites.[3,6,13,14] Fazio et al[15] proposed a variety of potential solutions, but it remains to be seen if those recommendations have been successfully implemented.

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Therefore, the CDIM Scholarship and Survey Committee surveyed members about the state of ambulatory education in 2016. We summarize the results of the 2016 CDIM survey on the state of ambulatory education and compare our results with data from the 2010 CDIM survey to understand the changes that have occurred.[5] We aimed to understand who teaches medical students in the ambulatory setting, and why those choices are made. Finally, we sought to understand if there continue to be barriers and what solutions our institutional members have developed.

PERSPECTIVES VIEWPOINTS

- Learning in the ambulatory environment is the norm in undergraduate medical education.
- With the increase in learning in the ambulatory environment, there have been parallel increases in the diversity of ambulatory experiences offered.
- Ambulatory learning is increasingly interdepartmental, with less exposure to internal medicine educators.
- Barriers for community-based and university-based teaching faculty are similar. Suggested incentives include teaching awards, space allocation for learners, continuing medical education credits, and access to institutional resources.

METHODS

In September 2016, CDIM electronically administered its annual, voluntary, and confidential survey to its institutional members representing 87% (128/147) of all LCME-accredited institutions. Altogether, 128 distinct institutions were invited to complete the survey, via an e-mail request to individuals whose CDIM membership type was designated as "clerkship director." The survey was administered via the Web survey platform *SurveyMonkey* using Secure Socket Layer encryption, and included 5 e-mail reminders to nonrespondents. Select CDIM Survey Committee members also made follow-up phone calls or sent e-mails to the nonrespondents. The survey closed on December 15, 2016 with 95 valid responses, for an overall response rate of 74.2%. The University of Texas Medical Branch Institutional Review Board granted the survey protocol exempt status (IRB #16-2091 at UTMB Institutional Review Board).

The survey consisted of 9 items on ambulatory education, including structure, barriers, and possible solutions. These questions included dichotomous (yes/no), multiple-choice, and free-text entry questions. Free-text entry was possible on 6 questions. Open-response comments were thematically analyzed by one author (SBF or AWS) and the results were adjudicated by a second investigator (MCL or IA). Each institution's clerkship director was the unit of analysis. Denominators vary based on branching and nonresponse of some items.

DATA ANALYSIS

Data analysis was performed in Stata 14.2 (StataCorp LLC, College Station, Tex; 2015), and included descriptive statistics and group-based differences for statistical significance with Pearson chi-squared statistic or Fisher's exact test. Differences were considered statistically significant at the $P \leq .05$ level. Following data collection, a variable to denote respondents' medical school as "public" or "private" was merged into the dataset, using publicly available data (LCME 2017).

RESULTS

The overall response rate was 74.2% (95/128); 91.6% (87/95) reported to be internal medicine (IM) clerkship directors, co-directors, or associate directors (Table 1). There were no significant differences in public vs private school status, sex, and school size between respondents and nonrespondents.

All but one respondent (98.9%; 93/94) reported education in the ambulatory setting at their medical school. When asked "How does your medical school provide training in ambulatory care?," 43.0% (40/93) reported ambulatory education as part of the internal medicine

Table 1 Respondent Characteristics

	Number of Respondents	Percent %
Sex (n = 94)		
Male	53	56.4
Female	41	43.6
Age group (years) (n = 94)		
30-39	25	26.6
40-49	31	33.0
50-59	24	25.5
60-69	14	14.9
Academic rank (n = 95)		
Assistant Professor	33	34.7
Associate Professor	38	40.0
Professor	24	25.3
Length of time in role: Clerkship Director/Co-Director (n = 84)		
≤1 year	2	2.4
1-5 years	41	48.8
6-10 years	16	19.0
11-20 years	14	16.7
>20 years	11	13.1

clerkship; 18.3% (17/93) as an independent outpatient internal medicine rotation; 48.4% (45/93) as part of a primary care rotation; and 18.3% (17/93) as part of a longitudinal integrated clerkship; 34.4% percent (32/93) of clerkship directors (CDs) described more than one ambulatory model at the same institution.

The majority reported ambulatory education as interdepartmental (39.8%; 37/93) or a combination of internal medicine subspecialties (37.6%; 35/93). Fewer reported that their ambulatory education combined both medicine subspecialties and other departments (11.8%;11/93). Of the 48/93 (51.6%) respondents who reported interdepartmental education, the most frequently cited departments included: Family Medicine (78.7%), Pediatrics (34.0%), Gynecology (8.5%), Otolaryngology (14.9%), Orthopedics (10.6%), Dermatology (17.0%), and other (21.3%), including Medicine-Pediatrics, Geriatrics, and Psychiatry (multiple options allowed).

Twenty-nine respondents reported multiple reasons for the use of medicine subspecialists and faculty from other departments. There was 72.4% (21/29) who did so to add a diversity of experiences; 58.6% (17/29) due to lack of full-time university faculty; 27.6% (8/29) to fulfill the medical school's goals of placing students in the community; and 20.7% (6/29) as a way to introduce students to the community or to improve recruitment to local practices. Respondents' comments fell into 3 thematic categories. The first category suggested that family medicine is frequently the curricular home for ambulatory teaching, either entirely or in combination with internal medicine ambulatory experiences. The second theme underscored the importance of time for career exploration. The third reflected on the importance of exposing students to interprofessional experiences to better understand the larger health care system (Table 2).

CDs were asked to divide a typical student's time among educational opportunities. When ambulatory education was interdepartmental, the majority of learners spent only about half of their time in the department of medicine, including both generalist and subspecialist settings. However, when the education was exclusively within the department of medicine using both generalists and subspecialists, the majority of their learning occurred in general internal medicine (78.3%; 36/46 reported that >40% of time is spent in general internal medicine).

TEACHER TYPES

We queried whether schools of medicine used ambulatory educators other than full-time faculty physicians (defined as physicians employed by a medical school or teaching hospital) and why they engage those physicians in student education. We defined 2 other types of physicians for this question: university-affiliated physicians (affiliated with the health system but are not employed by the medical school) and community physicians (no financial association with the health system or medical school). The majority, 74.2% (69/93), reported using nonuniversity faculty to teach students. The most common reason was the lack of available full-time faculty (84.1%; 58/69). Other reasons included the diversity of the clinical experiences (43.5%; 30/69), introduction to the community and improved recruitment for local practices (33.3%; 23/69), and fulfillment of the medical school's goal of placing students in the community (31.9%; 22/69). Free text responses highlighted the lack of university faculty interest in teaching, space, and teaching capacity. One respondent suggested that the LCME's focus on primary care drives demand for placements outside of the university clinical setting.

BARRIERS AND INCENTIVES

The majority (87.2%; 82/94) of CDs reported significant barriers to faculty recruitment in ambulatory education of medical students. Barriers common to all 3 teaching physician types (Faculty, University Affiliated, and Community) included a decrease in clinical productivity (range, 22%-26%), time constraints (range, 18%-21%), increase in workload (range, 9-11%), inadequate financial support (range, 13-18%), and lack of ambulatory faculty expertise (range, 4%-9%). "Learners' presence reduces physician productivity" and "learners add too much time to clinic" were the top 2 barriers perceived by clerkship directors for all faculty types (Figure 1). Thereafter, the remaining barriers differed depending on the type of ambulatory teaching faculty.

University ambulatory physicians noted barriers more with time and space constraints in clinic, that is, "patient visits are not long enough to accommodate

Table 2 Type of Ambulatory Experiences for Undergraduate Medical Students

Which of the Following Best Describes the Type of Ambulatory Experience Your Students Receive?	Frequency	Percent
Other (please specify)	1	1.1
All general internal medicine clinics	8	8.6
All subspecialty internal medicine clinics	1	1.1
A combination of general medicine and medicine subspecialty clinics	35	37.6
A combination of general medicine, medicine subspecialties, and other departments	11	11.8
Interdepartmental	37	39.8
Total	93	100.0

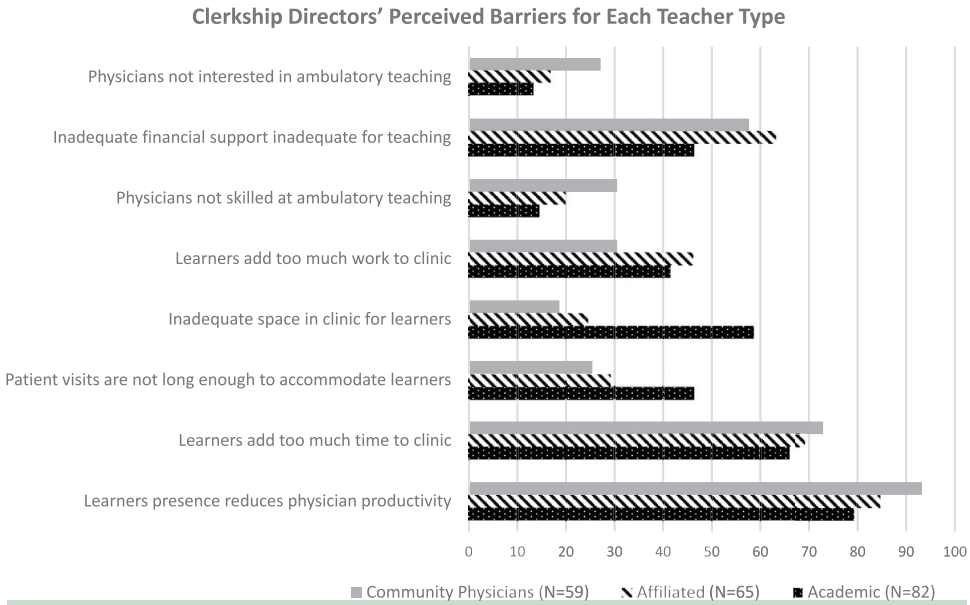

Figure 1 Percent of respondents who perceived these as barriers for each physician type.

learners" and "inadequate space in clinic for learners." There were multiple comments on the presence of other learners in university settings, such as residents, that diluted the ambulatory experience or made it unmanageable. Affiliated and community physicians were perceived to consider students a burden due to increased workload from teaching students ("learners add too much work to clinic"), and to lack ambulatory teaching skills or interests "physicians not skilled or interested in ambulatory teaching" (Figure 1). Open text comments included competition with other learners (residents/fellows), concern that patients do not want to see students, and difficulty with student use of the electronic medical record.

Respondents were also asked to select the top incentives for teaching. Clerkship directors reported targeting faculty salary support (12%-22%), teaching awards (7%-8%), faculty development (8%-10%), accommodations in patient volume (6%-21%), or number of available physicians while teaching (7%-13%) as the most effective strategies to recruit and retain high-quality undergraduate ambulatory educators. The 2 most effective incentives across all 3 ambulatory clinician educator types were reduction in patient volume during clinic sessions with learners, and faculty salary adjustments for teaching sessions, such as educational Relative Value Units (RVUs) and lump sum payments per learner (Figure 2). Teaching awards and recognition,

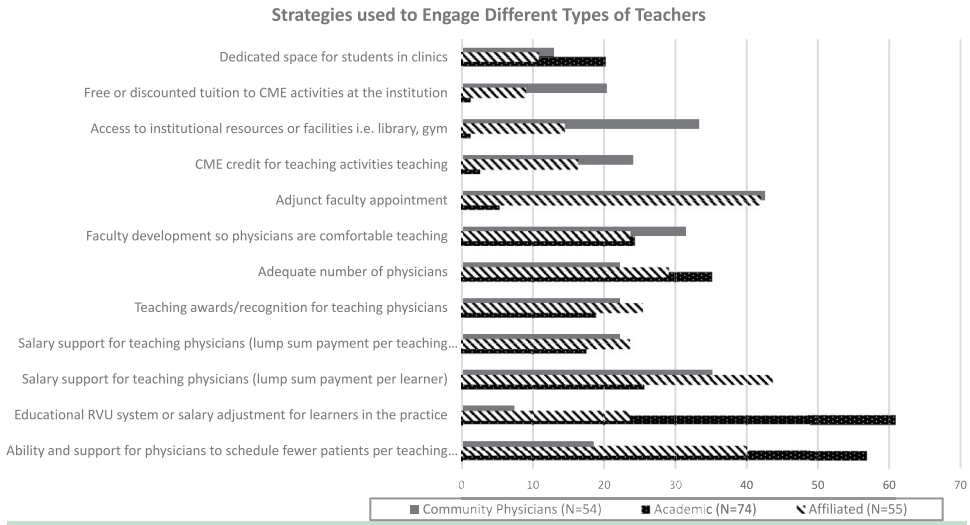

Figure 2 Percent of respondents who used or perceived these as effective strategies for each physician type.

faculty development, and adequate number of teaching physicians were cited as incentives used to recruit university faculty to teach medical students (Figure 2).

CDs used these same incentives with affiliated physicians, as well as offering adjunct faculty appointments. CDs reported that community ambulatory educators appreciated adjunct appointments, continuing medical education credits for ambulatory teaching, access to institutional resources or facilities, and free or discounted tuition to institutional continuing medical education activities. All 3 ambulatory faculty types valued faculty development as an additional incentive to improve comfort with learners in their practices. Free text responses highlighted the importance of managing the number of students per site to prevent overload, and that of personal engagement and communication between the CD and teaching faculty, as well as the utility of even modest financial gifts. In addition, the comments highlighted the fact that many CDs have not yet been able to successfully incentivize their own faculty.

DISCUSSION

Undergraduate education in the ambulatory setting is increasingly prevalent and continues to diversify. In our survey, 98% of IM CDs reported ambulatory-based teaching. The learning environment has evolved to become more interdepartmental and interdisciplinary; current CDs reported that ambulatory education occurs exclusively in internal medicine 41.9% of the time, compared with 72% in the 2010 survey. It is noteworthy that 34% of CDs report more than one ambulatory model, suggesting either more ambulatory opportunities or creative solutions using different ambulatory models to meet capacity, learning, or geographic demands of their medical school classes. One notable issue is that with interdepartmental education becoming the dominant structure, students may be spending less time in ambulatory internal medicine. Leaders in departments of medicine should follow and explore this trend in future surveys to determine the impact on student specialty choice as well as educational outcomes.

Despite trends showing increased ambulatory instruction, nearly 90% of our respondents reported significant impediments to faculty recruitment similar to those seen previously in the literature.[7-9,13,16-18] Not surprisingly, the major barriers to implementation of ambulatory clerkships center around time, space, and money. This study is the first to stratify barriers and incentives according to faculty type. While the majority of barriers were perceived to be similar, trends in the data demonstrated a perceived lack of interest or skill, more often among faculty in the community setting, and that space and time were potentially larger barriers among university preceptors than the others. Similarly, the approach to solutions should likely vary according to faculty type; RVU adjustments and less restrictive scheduling may be the most important factors in being able to recruit more core university-based faculty members. A recent Alliance for Academic Internal Medicine (AAIM)/Society of General Internal Medicine (SGIM) Position Paper supports the implementation of educational RVU systems to offset productivity losses, and the use of scribes or physician extenders to alleviate workflow constraints from teaching.[16]

While these data may help guide CDs on how to provide incentives according to the types of clinician educators, CDs frequently do not have the ability to offset clinical productivity decreases or create different incentives for different types of clinicians. Partnering with departmental and community practice leadership is critical to being able to address this important problem. Increased contributions to teaching by non-university faculty (both community internists and subspecialists) could mitigate barriers to space and numbers of teaching faculty and increase internal medicine-specific opportunities. Without an appropriate compensation model, this issue cannot be addressed.

Many of the incentives cited reinforce recommendations of the AAIM/SGIM Position Paper, including effective faculty development programs and intangible incentives such as academic titles, teaching awards, and extra swing rooms in clinic.[15] Our survey data suggest that other valuable incentives be considered and implemented, such as the availability of continuing medical education credits and access to institutional resources for affiliated and community ambulatory faculty. A shift in national strategic priorities to reallocate more educational dollars to the ambulatory setting, and fund the recruitment and training of more clinician-educators to work and teach in outpatient clinics, could overcome many of these barriers. Such reform has been long advocated by the Society of General Internal Medicine's Task Force for Residency Reform and the American College of Physician's Education Committee, as well as the SGIM-AAIM Task Force on ambulatory faculty recruitment, retention, and development.[16,19,20] We propose that, at a minimum, a 20% offset in patient volume with attendant RVU protection should become a standard expectation for all ambulatory teachers.

Strengths of this study include the response rate (74%) and its generalizability to different ambulatory faculty types. The survey also has broad representation from diverse schools. Limitations are that the study is an observational, qualitative design based on the perspectives of clerkship directors. The respondents can only describe their perceived barriers and solutions from the ambulatory educators' perspective because these individuals were not specifically surveyed. While the survey is not a validated instrument, the survey questions were created by experienced ambulatory educators and reviewed by both the CDIM Survey Committee and Council members. Finally, it is possible that the survey may not have

captured all relevant questions on ambulatory education, particularly related to incentives. To circumvent this issue, free-text questions were included for respondents to provide their own comments and suggestions.

Future studies should aim to understand best practices in ambulatory education, including course structure, curriculum, pedagogy, integration with other departments and subspecialties, and maximizing value-added roles for students in the ambulatory setting. Additional research should also focus on faculty development as well as incentives for different faculty subtypes, with a particular emphasis on adopting a standard offset for clinical productivity.

CDs and schools of medicine continue to experience significant barriers to implementation of high-quality ambulatory education. Interdisciplinary, interdepartmental, and community engagement solutions have all emerged to meet demand and educational needs. As health systems transform and curricular efforts parallel those reforms, a successful model of IM ambulatory education will need to demonstrate value to those systems and to its ambulatory educators.

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