INNOVATIONS IN EDUCATION AND CLINICAL PRACTICE

Comprehensive Ambulatory Medicine Training for Categorical Internal Medicine Residents

Monica Bharel, MD, Sharad Jain, MD, Harry Hollander, MD

It is challenging to create an educational and satisfying experience in the outpatient setting. We developed a 3-year ambulatory curriculum that addresses the special needs of our categorical medicine residents with distinct learning objectives for each year of training and clinical experiences and didactic sessions to meet these goals. All PGY1 residents spend 1 month on a general medicine ambulatory care rotation. PGY2 residents spend 3 months on an ambulatory block focusing on 8 core medicine subspecialties. Third-year residents spend 2 months on an advanced ambulatory rotation. The curriculum was started in July 2000 and has been highly regarded by the house staff, with statistically significant improvements in the PGY2 and PGY3 evaluation scores. By enhancing outpatient clinical teaching and didactics with an emphasis on the specific needs of our residents, we have been able to reframe the thinking and attitudes of a group of inpatient-oriented residents.

KEY WORDS: medical education; residency training; ambulatory medicine.

J GEN INTERN MED 2003;18:288-293.

The Accreditation Council for Graduate Medical Education requires that all internal medicine residents spend one third of their training in the ambulatory care setting.¹ Despite this mandate, it is often challenging to create an educational and satisfying experience in the outpatient setting.²⁻⁶ Educators are often faced with limited clinical opportunities for their house staff, lack of a structured and cohesive didactic curriculum, and residents' own attitudes about learning outpatient medicine. Categorical residents who plan to subspecialize need to choose fellowships early during their second year of residency at a time when they have little exposure to many of these areas. We developed a 3-year ambulatory curriculum that fulfills the requirements for a balanced education in outpatient internal medicine and addresses the

special needs of our categorical medicine residents, many of whom plan an academic career in subspecialty medicine.

PROGRAM DESCRIPTION

In previous years, categorical medicine residents at the University of California at San Francisco (UCSF) spent 2 months each year on an ambulatory block. There was no clear distinction between the goals and objectives for each year and no coordination between inpatient and outpatient didactics, resulting in duplication and omissions. The rotation director struggled to identify appropriate clinical opportunities for the house staff, who felt that the rotation lacked educational value and lacked opportunities to improve their clinical skills. The static nature of the categorical rotation was often contrasted to the successful ambulatory block curriculum created for the primary care residents at UCSF that was almost uniformly rated by the residents as having high educational value (Table 1).

Two years ago, we restructured the outpatient experience for the categorical residents into a 3-year curriculum with distinct goals and objectives for each year of training and clinical experiences and didactic sessions to achieve these goals (Appendix A). We initially reviewed anonymous comments made by the house staff after completing the rotation. We subsequently conducted focus groups with residents interested in participating in curricular redesign, and we invited them to share their frustrations and suggestions. We then discussed our ideas with other UCSF program directors to elicit their input and to coordinate with their own rotations. Finally, we met with our Chair, who concurred with our approach and who provided additional support in identifying generalist and subspecialty faculty to assist with the new rotation.

During the first year, all PGY1 residents spend 1 month on an ambulatory care rotation and 1 month on a subspecialty elective. During the ambulatory month, they focus on general outpatient internal medicine and geriatrics. The general medicine didactic series provides instruction in aspects of physical examination, interviewing skills, and introductory tools of evidence-based medicine. The didactics are supplemented with a written syllabus. The geriatrics experience exposes the residents to the various practice settings of geriatric medicine, including home visits, senior centers, nursing homes, and hospice care.

Received from the University of California-San Francisco, San Francisco, Calif.

Previously presented at the Association of Program Directors in Internal Medicine biannual meeting, April 2002, Philadelphia, Pa.

Address correspondence and requests for reprints to Dr. Jain: 4150 Clement St. (111), San Francisco, CA 94121 (e-mail: sharad@itsa.ucsf.edu).

Table 1. Summary Rotation Evaluation Scores by Primary Care Residents on Ambulatory Block

UCSF Primary Care Evaluation Data	1999–2000* (N = 66)	2000–2001* (N = 46)	P Value
Overall educational value of this clinical activity	4.48	4.46	.83

* 5-Point Likert Scale.

To help residents make a decision about subspecialty choice, residents are given the opportunity to select a subspecialty elective during the second half of the year. This elective can have either an outpatient or an inpatient focus; it allows the interns to have early exposure to a subspecialty of interest and assists them in making informed decisions about career choices.

During the second year, each resident spends time on the subspecialty medicine outpatient block. In order to improve continuity, access to clinics, and didactic teaching, the block was increased to 3 contiguous months. The goal of this block is to provide clinical and didactic training in 8 core medicine subspecialties. Residents spend 4 half-days each week in outpatient subspecialty clinics. This schedule increases their exposure to subspecialty faculty, thereby broadening their understanding of a given subspecialty and facilitating career guidance and research opportunities. Didactic sessions are presented in all 8 subspecialty areas during 6 hours (2 half-days) of lectures and seminars per week. Topics are chosen with the input of division chiefs, fellowship program directors, and general medicine faculty to emphasize critical topics in outpatient subspecialty medicine. Emphasis is placed on subjects that are not covered in inpatient conferences or that are better suited for small-group case-based discussion. The didactic seminars are supplemented by a written syllabus that includes pertinent articles and summaries of didactic sessions. In addition, each resident spends 2 half-days in his/her regular continuity clinic and 1 half-day in an urgent care setting.

Another important objective of the second-year block is to promote scholarly activities. Each resident is expected to begin a broadly defined scholarly project and is given 1 half-day of protected time each week to initiate work on his/her project. Additionally, each resident is required to lead a discussion during a weekly journal club session and to teach an electrocardiogram didactic session to the other ambulatory residents. Finally, each second-year resident participates in a program to improve his/her teaching skills. This 3-month block also provides prolonged exposure to both generalist and subspecialty faculty and to fellow residents, allowing for mentoring, and fostering a supportive atmosphere in a large program.

During the third year, residents spend 2 months on an advanced ambulatory rotation. The focus of this rotation is to learn outpatient skills in nonmedical subspecialties and

specialized areas of internal medicine such as women's health, dermatology, neurology, and the surgical subspecialties that are often missing from other parts of the curriculum. The didactic sessions are based on these core topics. Additionally, residents participate in an adolescent medicine clinic and receive didactic teaching in adolescent medicine topics. The overall goal of the block is to provide a well-rounded outpatient medicine experience for graduating internists. The third-year residents are also allowed a significant amount of flexibility in selecting their clinics to allow them to pursue their specific interests. Finally, residents are encouraged to continue scholarly work and are again provided with protected academic time during the block months.

Appendix B illustrates typical schedules in all 3 years.

PROGRAM EVALUATION

The new 3-year curriculum was started in July 2000 and has been highly regarded by the house staff. The residents particularly enjoy the exposure to outpatient subspecialty medicine and the wide range of didactic topics. Each resident evaluates the rotation through our web-based evaluation system, which has allowed us to follow the rotation ratings longitudinally over the last several years. The evaluation data demonstrate that the residents perceive an improvement in the educational and curricular value of the rotation. There is a trend toward statistically significant improvement in the PGY1 year. During the PGY2/3 years, the evaluation data show a significant improvement in rotation scores (Tables 2 and 3).

Focus group discussions and written comments have emphasized the improvements in the curriculum and the educational value of the rotations. Representative anonymous comments include the following statements:

"Really a great rotation—has been revamped from last year and greatly improved! Spending time in the specialty clinics is really excellent."

"I really enjoyed the opportunity to spend time at multiple specialty clinics for a 3-month period. I felt my general medicine skills really improved and that I can

Table 2. Summary Rotation Evaluations Scores by PGY1 Residents on Ambulatory Block Before and After Intervention

Categorical PGY1 Evaluation Data	Before Intervention* (N = 68)	After Intervention* (N = 46)	P Value
Rotation-specific curricular goals were met	4.10	4.17	.51
Overall educational value of this clinical activity	3.97	4.13	.34

* 5-Point Likert Scale.

Table 3. Summary Rotation Evaluation Scores by PGY2 and PGY3 Residents on Ambulatory Block Before and After Intervention

Categorical PGY2/3 Evaluation Data	Before Intervention* (N = 40)	After Intervention* (N = 29)	P Value
Rotation-specific curricular goals were met	3.65	4.31	<.001
Overall educational value of this clinical activity	3.30	4.58	<.001

* 5-Point Likert Scale.

now apply the new knowledge to my inpatient rotations and continuity clinic. It was also a great way to connect with specialty attendings and the specialty fellows."

"Best 3 months of residency and not because of hours. Great teaching and learning."

"Excellent restructuring for R2 year. Outstanding exposure to outpatient subspecialty clinics (with continuity)."

DISCUSSION

The 3-year ambulatory medicine curriculum allows our program to meet the quantitative requirements of outpatient training while providing an educational and clinically applicable curriculum that prepares our residents for their future careers. We believe we have been able to enhance experiential learning by increasing exposure to subspecialty role models and mentors and to fellow residents. Additionally, we have been able to focus on issues important to academic development, including completion of a scholarly project, improving teaching skills, and establishing mentoring relationships. We also hope that we have been able to achieve cognitive benefits by developing a 3-year comprehensive curriculum that has clear learning objectives. However, we lack objective data to corroborate this goal. We do believe that this new rotation

trains our graduates to be better internists, regardless of whether they choose to subspecialize.

Some of the challenges for our program have included limited clinical resources and time restrictions of didactic speakers. To overcome these challenges, we have identified new clinical sites and have emphasized the longitudinal commitment of 3 months, which the clinic faculty have found attractive. Additionally, we have decreased the speaker time requirements for the didactic curriculum by using speakers on a rotating basis.

Since implementing our new curriculum, we have observed statistically significant improvements in the ratings of PGY2 and PGY3 years. We note a less-significant change in the PGY1 year. This is not surprising, because the changes in the PGY1 year are less dramatic and the PGY1 residents tend to rate all outpatient rotations highly, potentially creating a ceiling effect.

Using this model of enhanced outpatient clinical teaching and didactics with an emphasis on the specific needs of our residents, we have been able to reframe the thinking and attitudes of a group of inpatient-oriented residents. We believe that a comprehensive 3-year curriculum allows for improved patient care, education, mentoring, promotion of academic medicine, and esprit de corps in a large categorical medicine program. These significant benefits warrant consideration of this approach in departments with similar training goals and resources.

REFERENCES

1. Accreditation Council for Graduate Medical Education. Program Requirements for Residency Education in Internal Medicine. Available at: <http://www.acgme.org>. Accessed May 31, 2002.
2. Federman DG. A senior ambulatory block for aspiring general internists. *Acad Med.* 2001;76:565.
3. Helm N, Elueze E, Wolpaw T. A multidisciplinary ambulatory curriculum for a third-year rotation. *Acad Med.* 2001;76:563.
4. Kingry M, Notman M, Hogan M. A comprehensive multidisciplinary ambulatory clerkship. *Acad Med.* 1996;71:553-4.
5. Lichtstein DM, Gelbard MA, Gonzalez ML. Ambulatory care training at the University of Miami. *Acad Med.* 1999;74:945-6.
6. Speer AJ. Development of a multidisciplinary ambulatory clerkship. *Acad Med.* 1996;71:554.

APPENDIX A

Rotation Goals and Objectives

PGY1: Ambulatory General Internal Medicine Rotation

1. Increase proficiency in the diagnosis and management of office-based adult medicine, both in continuity clinic and urgent care settings.
2. Increase familiarity in the assessment, evaluation, and treatment of commonly seen diagnoses in the urgent-care setting and using an evidence-based medicine approach.
3. Learn fundamental principals of geriatric medicine through didactic and clinical experiences.
4. Learn techniques in medical interviewing and physical examination skills through core lecture series.
5. Develop skills in critical assessment of the medical literature, including (a) principles of evidence-based medicine, (b) how to read studies about diagnostic tests, therapy, prognosis, and prevention, and (c) how to perform self-evaluation and remain up to date.
6. Increase proficiency in the provision of longitudinal care, including issues relating to health care maintenance and disease prevention, national guidelines in preventive care, and time management skills.

PGY2: Outpatient Subspecialty Medicine Rotation

1. Increase competency in medical subspecialty areas through lectures and clinical experiences.
2. Gain in-depth, focused, and longitudinal clinical experiences in 2–4 core selective subspecialty areas.
3. Improve outpatient teaching skills through supervised lectures and case-based discussions.
4. Learn advanced skills in evidence-based medicine through weekly journal clubs with areas of study including case-control studies, randomized controlled trials, cost-effectiveness analysis, meta-analysis, decision analysis, and practice guidelines.
5. Continue to increase proficiency in the diagnosis and management of office-based adult medicine through longitudinal and urgent care clinics.

PGY3: Advanced Ambulatory Medicine Rotation

1. Increase competency in medical subspecialty areas through lectures and clinical experiences.
 2. Learn fundamental principles in caring for adolescent patients through didactic and clinical experiences.
 3. Refine skills in the diagnosis and management of office-based adult medicine through longitudinal and urgent-care clinics.
 4. Refine outpatient teaching skills with supervised lectures and case-based discussions.
-

APPENDIX B

Sample Resident Schedules

Resident A PGY1	Monday	Tuesday	Wednesday	Thursday	Friday
8AM–9AM	Outpatient Report	Outpatient Report	Outpatient Report	Outpatient Report	Journal Club
9AM–12PM	Didactic Teaching VAMC	Urgent Care VAMC	Didactic Teaching VAMC	Urgent Care VAMC	Memory Disorder Clinic Geriatrics
12PM–1PM	Housestaff Conference	Grand Rounds	Housestaff Conference	M&M	Housestaff Conference
1PM–5PM	Urgent Care VAMC	Nursing Home Rounds Geriatrics	Continuity Clinic UCSF	Academic Time	Urgent Care VAMC

Resident B PGY1	Monday	Tuesday	Wednesday	Thursday	Friday
8AM–9AM	Outpatient Report	Outpatient Report	Outpatient Report	Outpatient Report	Journal Club
9AM–12PM	Didactic Teaching VAMC	Urgent Care VAMC	Didactic Teaching VAMC	On Lok Senior Center	Academic Time
12PM–1PM	Housestaff Conference	Grand Rounds	Housestaff Conference	M&M	Housestaff Conference
1PM–5PM	Urgent Care VAMC	Urgent Care VAMC	Home-based Primary Care Geriatrics	Urgent Care VAMC	Continuity Clinic SFGH

Resident C PGY2	Monday	Tuesday	Wednesday	Thursday	Friday
8AM–9AM	Outpatient Report	Outpatient Report	Outpatient Report	Outpatient Report	Journal Club
9AM–12PM	Continuity Clinic SFGH	Didactic Teaching VAMC	Cardiology Clinic UCSF	Endocrine Clinic SFGH	Didactic Teaching VAMC
12PM–1PM	Housestaff Conference	Grand Rounds	Housestaff Conference	M&M	Housestaff Conference
1PM–5PM	Urgent Care VAMC	Continuity Clinic SFGH	Cardiology Clinic UCSF	Pulmonary Clinic UCSF	Academic Time

Resident D PGY2	Monday	Tuesday	Wednesday	Thursday	Friday
8AM–9AM	Outpatient Report	Outpatient Report	Outpatient Report	Outpatient Report	Journal Club
9AM–12PM	GI Clinic VAMC	Didactic Teaching VAMC	Cardiology Clinic UCSF	Renal Clinic VAMC	Didactic Teaching VAMC
12PM–1PM	Housestaff Conference	Grand Rounds	Housestaff Conference	M&M	Housestaff Conference
1PM–5PM	Urgent Care VAMC	Continuity Clinic SFGH	Academic Time	Renal Clinic UCSF	Continuity Clinic SFGH

(Continued)

APPENDIX B (Continued)

Resident E PGY3	Monday	Tuesday	Wednesday	Thursday	Friday
8AM-9AM	Outpatient Report	Outpatient Report	Outpatient Report	Outpatient Report	Journal Club
9AM-12PM	Academic Time	Continuity Clinic SFGH	Didactic Teaching VAMC	Thyroid Clinic UCSF	Urgent Care VAMC
12PM-1PM	Housestaff Conference	Grand Rounds	Housestaff Conference	M&M	Housestaff Conference
1PM-5PM	Continuity Clinic SFGH	Student Health UC Berkeley	Community Outreach	Urgent Care VAMC	ENT Clinic SFGH

Resident F PGY3	Monday	Tuesday	Wednesday	Thursday	Friday
8AM-9AM	Outpatient Report	Outpatient Report	Outpatient Report	Outpatient Report	Journal Club
9AM-12PM	Sports Medicine UCSF	Urgent Care VAMC	Didactic Teaching VAMC	Renal Clinic VAMC	Academic Time
12PM-1PM	Housestaff Conference	Grand Rounds	Housestaff Conference	M&M	Housestaff Conference
1PM-5PM	Neurology Clinic Kaiser	Women's Clinic SFGH	Community Outreach	Continuity Clinic VAMC	Urgent Care VAMC