

Ambulatory Internal Medicine Education: Use of an Urgent Care Center

Diane B. Wayne, MD, Stephen B. Greenberg, MD, Valory N. Pavlik, PHD,
Drew A. Helmer, MD, MS, and David J. Hyman, MD, MPH

Background: Internal medicine residency programs have increased the time devoted to ambulatory medicine and the range of nonmedical areas in which expertise is expected. Whether existing teaching locations can provide residents with appropriate training in educationally targeted specialty (ETS) conditions (otolaryngology, urology, dermatology, ophthalmology, and orthopedics), is unknown.

Methods: An urgent care center (UCC) was developed at a teaching hospital to provide residents with additional experience in ambulatory medicine. To assess the frequency and nature of conditions seen by residents, 500 charts in the UCC, 500 charts in the resident continuity clinic (RCC), and 500 charts in the emergency room (ER) were selected at random and reviewed during a 2-month study period. Complaints were classified into three categories: general medicine, ETS conditions, and miscellaneous (upper respiratory infection, gynecology, and psychiatry).

Results: Four hundred seventy-six (95.2%) patients in the UCC and 491 (98.2%) patients in the ER had acute problems as compared with 236 (47.2%) patients in the RCC ($P < 0.001$). The number of ETS conditions was 302 (UCC), 104 (RCC), and 89 (ER; $P < 0.001$). The number in each category was otolaryngology, 88 (UCC), 17 (RCC), 19 (ER); urology, 43 (UCC), 10 (RCC), 14 (ER); dermatology, 41 (UCC), 11 (RCC), 11 (ER); ophthalmology, 25 (UCC), 7 (RCC), 10 (ER); and orthopedics, 105 (UCC), 59 (RCC), 35 (ER).

Conclusion: Patients with ETS conditions were seen more often by residents in the UCC than in the other locations. In our institution, a UCC provides a useful opportunity for the clinical and didactic education of internal medicine residents in areas of acute care that were

underrepresented in other rotations. New educational programs may be needed to ensure the education of residents in ambulatory medicine.

Internal medicine residency programs have undergone substantial change in the past 20 years to prepare graduates for careers in which the majority of physician-patient contacts occur in the outpatient setting.¹ To train physicians as capable primary care providers, programs have expanded the amount of time spent in ambulatory activities.²⁻⁴ In addition, the educational curriculum of internal medicine training programs has broadened to encompass areas such as dermatology, ophthalmology, and otolaryngology (ENT), which may have received less attention in the past.⁵

To increase the competence of residents to manage the full spectrum of ambulatory medicine problems, additional clinical and educational opportunities may be needed.^{6,7} Although it has been shown that a resident continuity clinic (RCC) may provide adequate exposure to common chronic outpatient medical problems seen by internists, it may not provide enough experience in areas such as ophthalmology, ENT, and orthopedics.^{8,9} Some residency programs have adapted by developing joint general medicine and subspecialty clinics and conferences such as ambulatory morning report.^{10,11} Fifty to 59% of residency programs surveyed in

Key Points

- At least one-third of internal medicine residency training must be in the ambulatory setting.
- To provide effective care to their patients, internal medicine residents need training in areas such as otorhinolaryngology, urology, dermatology, ophthalmology, and orthopedics.
- Traditional settings such as the continuity clinic and emergency room may not provide sufficient exposure to these nonmedical areas.
- A review of conditions seen in specific rotations may be helpful to residency programs as they assess and plan their clinical curriculum.

From the Department of Medicine, Feinberg School of Medicine, Northwestern University, Chicago, IL, and the Departments of Medicine and Family and Community Medicine, Baylor College of Medicine, Ben Taub General Hospital, Houston, TX.

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Reprint requests to Diane B. Wayne, MD, 251 E. Huron Street, Suite 3-150, Chicago, IL 60611. Email: dwayne@northwestern.edu

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1994 to 1995, however, did not offer outpatient experiences in ophthalmology, ENT, and orthopedics for their trainees.⁷

To augment time spent and to improve teaching in ambulatory medicine, we developed an urgent care center (UCC). The focus of the curriculum of the UCC was educationally targeted specialty (ETS) conditions, (ENT, urology, dermatology, ophthalmology, and orthopedics). To determine the suitability of the UCC for this educational goal, we instituted a chart review to compare the frequency and nature of conditions seen in the UCC, the RCC, and the emergency room (ER).

Methods

In July 1999, a UCC was initiated at Ben Taub General Hospital (BTGH), an urban teaching hospital. BTGH serves as one of the main teaching hospitals of Baylor College of Medicine and is the location for much of the ambulatory training of internal medicine residents. BTGH is a 580-bed public hospital with approximately 100,000 ER visits per year and 16,000 RCC visits per year. Patients who present to BTGH with acute medical problems undergo a triage evaluation consisting of a brief history and documentation of vital signs and are then referred to the UCC or ER depending on severity of illness.

A resident physician first evaluates all patients in the UCC. After the resident has an opportunity to form an initial management plan, the resident examines the patient with an attending physician from the division of general internal medicine. Faculty members in the UCC are selected on the basis of experience and interest. The majority of faculty in the UCC have at least 7 years of practice experience in an academic setting, including the UCC, ER, and inpatient services, and are skilled in managing a wide range of acute and chronic problems. The hours of the UCC are 8:00 AM to 5:00 PM Monday to Friday. The UCC is located adjacent to the ER and uses common x-ray and laboratory services. Nursing and clerical personnel assist with medication administration, blood draws, and order entry.

The Institutional Review Board at Baylor College of Medicine approved a chart review of patients seen from September 1, 2000, to October 31, 2000. It was performed to compare the distribution of problems seen by medicine residents in the UCC, RCC, and ER. We wished to have a precision of 5%, with a confidence level of 95%, in the estimates of the proportions of problems with a prevalence of 10% or less seen in each setting. This level of precision was provided by a sample size of 500. Thus, we selected a random sample of 500 patients seen in each setting during the 2-month study period (total sample size of 1,500).

Demographic data, active medical problems, and presenting complaints were recorded. Acute problems were classified into three categories: general medicine, ETS conditions, and miscellaneous (upper respiratory infection, gynecology, and psychiatry). ETS conditions were identified on the basis of the

clinical competencies identified in the report of the Federated Council for Internal Medicine Task Force on the Internal Medicine Residency Curriculum.⁵ As our institution provides urgent evaluation for gynecologic and psychiatric conditions elsewhere, the UCC was not anticipated to provide substantial experience in these areas.

Some persons had more than one acute problem, and all complaints were analyzed for each patient. Individuals who presented because of nonurgent problems such as medication refill or follow-up of chronic conditions were labeled non-acute.

Selected data elements were abstracted from the physician note. Specifically the chief complaint, history of present illness, and past medical history sections of the preprinted encounter form were reviewed. The remainder of the chart was used if the current note did not include the past medical history or demographic data. Guidelines for coding complaints into each category were determined before the review. An independent rater reviewed a subsample of 50 charts. There was 96% agreement between the two raters in the classification assigned to each problem seen.

Complaints were coded as ETS conditions if they involved one of the five areas of interest: 1) ENT problems, which included pain, edema, discharge, or bleeding specific to the mouth, nose, and/or throat; 2) urologic problems, which included pain, voiding difficulties, and lesions of the genitourinary tract; 3) dermatologic problems, which included lesions or rashes of the skin; 4) ophthalmologic conditions, which were erythema, edema, or pain of the eye or change in visual acuity; and 5) orthopedic problems, which consisted of bone or joint pain in the extremities or spine. Complaints within the traditional disciplines of internal medicine were coded as general medicine. Gynecologic and psychiatric conditions were coded as miscellaneous, as were upper respiratory infections (multisymptom acute illnesses with fever, rhinorrhea, malaise, myalgias, or cough).

Statistical Analysis

Means of continuous variables in the three groups were compared using analysis of variance. Differences in categorical variables across the three settings were analyzed using the χ^2 test.

Results

Demographics

More patients in the UCC (56%) were male than in the ER (49%) and RCC (35%; $P < 0.001$). The average age of patients in the UCC (40.6 years) and ER (40.1 years) was less than in the RCC (51.2 years; $P < 0.001$). Patients in the UCC were healthier as 44% had no underlying chronic medical problems as compared with only 16% in the ER and 1% in the RCC ($P < 0.001$). Sixty-four patients (13%) in the UCC, 294

Table 1. Number of acute problems seen by location^a

	UCC	RCC	ER
Total number of charts reviewed	500	500	500
Number of patients with acute problems	476 (95%)	236 (47%)	491 (98%)
Number with more than one acute problem	73 (15%)	33 (7%)	27 (5%)
Total acute problems seen	549	269	518

^aUCC, urgent care center; RCC, resident continuity clinic; ER, emergency room.

(59%) in the RCC, and 141 (28%) in the ER had three or more chronic medical problems ($P < 0.001$).

Four hundred seventy-six (95%) patients in the UCC and 491 (98%) patients in the ER presented with a new problem or an exacerbation of a chronic problem as compared with 236 (47%) patients seen in the RCC ($P < 0.001$). There were fewer new conditions seen in the RCC as the majority of complaints in this location represented exacerbations of chronic problems, most notably in orthopedics. The severity of patient illness was assessed using rates of hospital admission. Seventeen (3%) patients from the UCC, 5 (1%) from the RCC, and 120 (24%) from the ER were admitted to the hospital ($P < 0.001$).

Seventy-three patients (14.6%) in the UCC, 33 patients (6.6%) in the RCC, and 27 patients (5.4%) in the ER had a second category of complaint. The total number of complaints in all categories was 549 (UCC), 269 (RCC), and 518 (ER) (Table 1). The number of complaints in the general medicine category was 187 (UCC), 139 (RCC), and 388 (ER). The number of miscellaneous (upper respiratory infection, psychiatry, gynecology) complaints in each location was 60 (UCC), 28 (RCC), and 41 (ER).

The number of ETS conditions recorded were 302 (UCC), 104 (RCC), and 89 (ER) ($P < 0.001$). As shown in Table 2,

Table 2. ETS conditions (% of total acute problems) seen by treatment location^a

	UCC	RCC	ER
Total acute problems	549	269	518
Total ETS conditions	302 (55%)	104 (39%)	89 (17%)
ENT	88 (16%)	17 (6%)	19 (4%)
Urology	43 (8%)	10 (4%)	14 (3%)
Dermatology	41 (7%)	11 (4%)	11 (2%)
Ophthalmology	25 (5%)	7 (3%)	10 (2%)
Orthopedics	105 (19%)	59 (22%)	35 (7%)

^aETS, educationally targeted specialty; UCC, urgent care center; RCC, resident continuity clinic; ER, emergency room.

residents encountered conditions in each of the five subspecialty areas in the UCC more frequently than in the RCC or ER ($P < 0.001$). In each of the subspecialty areas, the residents in the UCC encountered a wide variety of acute ETS conditions (Table 3).

Discussion

Our UCC is an appropriate location for residents to encounter and manage a variety of acute problems. Patients seen in the UCC had acute conditions but were unlikely to require hospital admission and had few underlying medical problems. Most patients in the RCC had three or more chronic medical problems and fewer than half had acute conditions. Patients in the ER had increased severity of illness and presented with a narrow spectrum of problems. Therefore, the UCC presented an opportunity to focus on the acute care of the ambulatory patient rather than the treatment of chronic conditions or the care of the acutely ill patient.

A greater number and variety of ETS conditions were seen in the UCC than the other locations. Diagnoses such as facial pain, facial edema, neck mass, penile discharge, testic-

Table 3. Most frequent problems seen in the UCC^a

ENT	Urology	Dermatology
Intra-oral pain	Painful/difficulty voiding	Rash
Ear pain	Penile discharge	Skin lesion
Facial pain	Testicular pain	Acne
Vertigo	Penile pain	
Nasal discharge/congestion	Penile lesion	
Ophthalmology	Orthopedics	General medicine
Decreased vision	Back pain	Headache
Eye pain	Knee pain	Abdominal pain
Red eye	Shoulder pain	Chest pain
	Foot pain	Cough
	Hip/leg pain	Vomiting

^aUCC, urgent care center.

ular pain, and acne were unique to the UCC. The presence of more male patients in the UCC than the RCC helped provide our residents with a broad exposure to problems of the male genitourinary system. The UCC was the most promising location for the clinical, didactic, and self-directed education of residents in ETS conditions. Using these data, a detailed ambulatory medicine curriculum including lectures, small group seminars, resident presentations, and case-based literature review has been developed.

In addition to providing a broad clinical exposure, the design of the UCC addresses several educational challenges. Resident education in the ambulatory setting is often limited by time, cost, and conflicting responsibilities of the resident or faculty member.¹²⁻¹⁴ Bedside teaching, independent problem solving, and frequent use of the medical literature are also difficult to achieve.^{15,16} In the UCC, residents are directly supervised by a faculty member who evaluates each patient. The design of the UCC encourages these educational models in addition to supervised history and physical examinations and patient-centered teaching. This type of comprehensive teaching program, through its emphasis on team learning, role modeling, and the importance of ambulatory medicine, is often effective for resident education.¹⁷⁻¹⁹

There are several possible limitations to the study. The chart review did not include clinical experiences such as ambulatory block rotations and nonmedical specialty clinics. The conditions seen at these locations are likely to differ from those that present to an internist for initial management. Several learning opportunities may be missed as well, because important decisions on treatment and referral have already been made.

It is not known whether our results will be applicable at different hospitals with different patient populations. We think, however, that the process of evaluating the conditions seen by residents in outpatient rotations is valuable so that a residency program can determine the content and quality of its education programs and clinical experiences.

At our institution, a UCC provides an opportunity for residents to learn acute management of problems in ENT, urology, dermatology, ophthalmology, and orthopedics. These areas were underrepresented in other outpatient rotations. New rotations with dedicated faculty and targeted curricula may be needed to provide a comprehensive education for internal medicine residents in ambulatory medicine.

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