Resident Physicians in VA Outpatient Clinics: Continuity and Advanced Clinic Access Implementation

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How successfully have internal medicine residents been integrated into primary care clinics, and what impact—if any—does the type and extent of integration have on the VA's advanced clinic access initiative? These investigators offer insights into these issues and suggestions for improvements.

In the United States, the VA is the largest health care system that supports graduate medical education and the second largest funding source for residency training, surpassed only by the Centers for Medicare and Medicaid Services (CMS). A significant portion of the inpatient medical care delivered in VA facilities is provided by physician residents, working under the supervision of attending physicians. Little is known, however, about the integration of residents—specifically, internal medicine (IM) residents—into the structure and organization of VA outpatient clinics.

Furthermore, it is unclear how well the VA's IM residency program dovetails with the advanced clinic access (ACA) initiative. Developed in 1999 by the VA and the Institute for Healthcare Improvement and made a matter of national VA policy in 2002, ACA is a model of clinical practice that seeks to provide patients calling to schedule a physician visit with a same-day appointment. Six elements are said to be important in its application: balancing supply and demand, reducing backlog, reducing the variety of appointment types, developing contingency plans for unusual circumstances, working to adjust demand profiles, and increasing the availability of bottleneck resources. Evidence thus far suggests that the ACA model reduces waiting times in primary care.[1–5]

To fill in some of the knowledge gaps regarding these issues, the VA's Office of Academic Affiliations (OAA) undertook a study, during academic year 2003–2004, in which all VA facilities with IM residency programs were asked to complete a web-based survey. The specific objectives of this survey were to: (1) elucidate the integration of IM residents into VA continuity clinics, (2) assess the adequacy of resident supervision in VA continuity clinics, (3) compare the progress towards ACA implementation in VA teaching continuity clinics with that in nonteaching continuity clinics, and (4) identify specific ways in which the VA could improve the education or educational environment of IM residents and better implement ACA in outpatient academic settings. In this article, we describe the study, discuss its results, and present recommendations based on these findings.

IM RESIDENTS IN THE VA

Each year, the VA provides training to approximately 31,000 physician residents in about 8,900 funded positions at 122 medical facilities affiliated with 107 of the nation's 125 medical schools (Office of Academic Affiliations Support Center, unpub-

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lished data, July 2004). In academic year 2003–2004, 104 facilities provided training to 3,420 IM physician residents in postgraduate years (PGYs) one through three, a group representing about 39% of funded VA resident positions and the largest single category of residents trained (Office of Academic Affiliations Support Center, unpublished data, July 2004).

According to requirements by the Accreditation Council for Graduate Medical Education (ACGME), IM residents must spend one third of their 36-month categorical training period in an ambulatory care setting and at least one half day each week managing a panel of IM patients in a continuity clinic, the latter of which is estimated to constitute 10% of the resident's training time.[6] The term "continuity clinic" is used primarily by teaching and accreditation institutions to refer to a clinic in which a defined panel of patients receive ongoing, comprehensive health care, including health maintenance, from a practitioner or practice group with whom they have a long-term relationship. A continuity clinic may provide primary or specialty care. In the VA, IM residents would be assigned to continuity clinic rotations in primary care clinics.

The ACGME also specifies that an attending physician can supervise up to five residents at a time in the ambulatory setting.[6] Teaching facilities that use the CMS primary care exception for billing and coding, however, must limit the number of residents supervised by an attending physician—who is not engaged in direct clinical activities—to no more than four at a time.[7] (The CMS primary care exception enables an attending physician to be paid for certain evaluation and management services the resident performs even when the attending physician does not personally evaluate the patient.) VA resident supervision policy further requires the physical presence of an attending physician in each clinic in which residents provide care as well as documentation of the degree of attending involvement in patient care.[8]

Table 1. Setting, frequency, and model of internal medicine resident involvement in VA continuity clinics

Aspect of resident involvement	No. (%) of responding VA facilities (n = 70)[a]
Continuity clinic setting	
Exclusively at VA facilities	22 (31)
At VA and non-VA facilities	47 (67)
Continuity clinic frequency	
1 half day per week	39 (56)
1 half day every other week	21 (30)
2 half days per week	4 (6)
Other frequency	6 (9)
Model of integration	
"Same team"[b]	37 (53)
"Resident only"[c]	26 (37)
Other (combination model)[d]	7 (10)

[a]For continuity clinic frequency and model of integration. For continuity clinic setting, one facility did not answer the question (n = 69). [b]Each resident is assigned to a supervising attending physician and then assigned to the same primary care team as that attending physician. In this model, both residents and attending physicians see patients from their panels during the continuity clinic sessions. [c]Residents are grouped into a separate resident-only primary care team and are assigned to one or more supervising attending physicians. During resident-only continuity clinic sessions, the attending physicians participate only in their supervisory roles and do not see their own patients. [d]Respondents who chose the "other" option all described some combination of the "same team" and "resident only" models.

THE SURVEY

After conducting open-ended interviews with program or clinic directors from four representative VA teaching hospitals, we developed a web-based survey. (For a copy of the complete questionnaire, e-mail Dr. Chang at: barbara.chang@va.gov.) Survey questions were designed to clarify the organization and involvement of IM residents and faculty, teaching and resident supervision practices, and barriers to IM resident involvement in VA continuity clinics. Questions further sought to establish the status of ACA implementation in VA teaching and nonteaching continuity clinics and to elicit suggestions for enhancing the use of ACA and teaching its principles in academic settings.

Local VA education leaders at the level of associate chief of staff for education (one per facility) were

Table 2. Average primary care panel size by internal medicine resident postgraduate year (PGY)

PGY	Mean no. of patients (SD, range) per resident panel
1	31 (23, 3–100)
2	44 (31, 4–125)
3	53 (37, 5–175)

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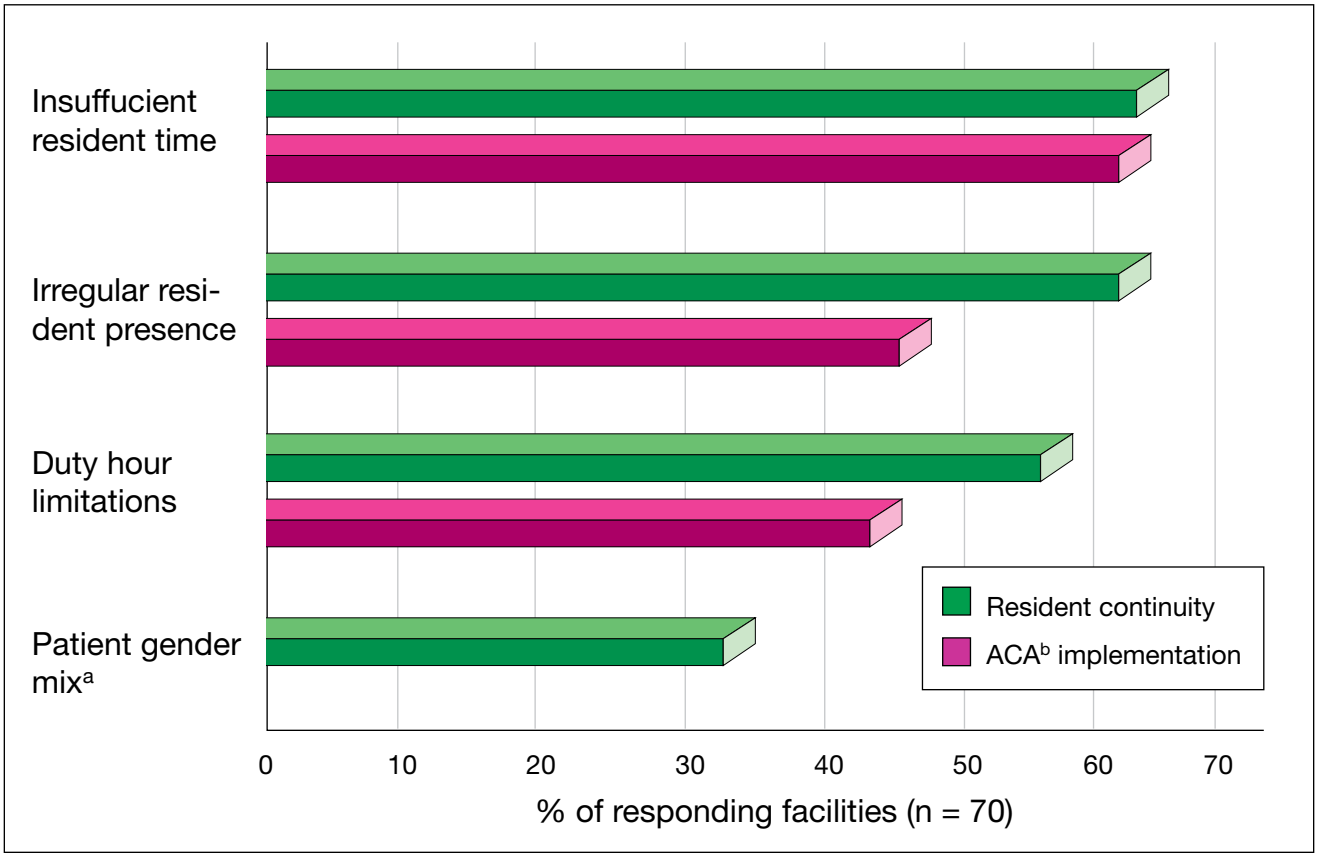

Figure. Greatest barriers to the involvement of internal medicine residents in continuity clinics and to ACA implementation in resident continuity clinics as identified by facility respondents (n = 70). [a]Patient gender mix was not included as an option for ACA barriers. [b]ACA = advanced clinic access.

contacted by e-mail and asked to complete the survey. They were encouraged to obtain input from local clinic or IM training program leadership as appropriate. All affiliated VA facilities with IM resident physician training programs were asked to participate in the survey, regardless of whether the facility assigned IM residents to continuity clinic rotations on-site. A password-protected web site and database, maintained by the OAA, accepted only one response from each facility.

SURVEY FINDINGS

Of the 104 VA facilities that had IM residents in academic year 2003–2004, 92 (88%) responded to the survey. Most (68%) of these facilities had only one affiliated sponsor of graduate medical education. Of the 32% with more than one sponsor, some had up to five sponsors.

Of the 92 respondents, 70 (76%) reported that they had IM residents assigned to continuity clinic rotations at the VA facility site. The total number of IM residents assigned to these VA continuity clinics was 2,915, which represents 85% of the 3,420 IM residents being trained in the VA and 13% of the 21,685 IM residents being trained in the United States in academic year 2003–2004.[9] The mean and median numbers of IM residents with VA continuity clinic rotations assigned to each facility were 42 and 40, respectively (SD, 27; range, 3 to 140). At two thirds of the facilities with IM residents assigned to VA continuity clinics, the residents were scheduled for some continuity clinic rotations at non-VA as well as VA sites (Table 1). More than half (56%) of the residents represented had weekly VA clinics.

Models of resident integration

In VA facilities, organized groups of health care professionals work together on teams to meet the needs of a defined set of patients. Such teams are most often interdisciplinary or interprofessional and may include physicians, nurse practitioners, physician assistants, clinical pharmacists, and

Table 3. Implementation of advanced clinic access (ACA), by ACA aspect and clinic type

ACA aspect[a]	% of respondents indicating implementation, by clinic type					
	All NTCCs[b] (n = 92)	All TCCs[c,d,e] (n = 70)	NTCCs at facilities w/o TCCs (n = 22)	NTCCs at facilities w/ TCCs[d] (n = 70)	"Same team" TCCs (n = 37)	"Resident only" TCCs[d] (n = 26)
Standardizing supplies and stocking of exam rooms [10]	75	47[f]	73	76	43	50
Synchronizing patient, provider, and patient information[g] [8]	72	47[h]	64	74	43	50
Extending appointment intervals [2]	73	44[f]	82	70	51	35
Max-packing[i] [2]	70	43[h]	73	69	38	46
Reducing appointment types [4]	65	37[f]	82	60	38	38
Matching supply and demand[j] [3]	72	36[f]	77	70	38	27
Telephone care [2]	71	36[f]	73	70	27	42
"Carve-outs" for unscheduled visits [1]	66	36[f]	77	63	38	31
Separating responsibilities[k] [7]	58	36[h]	55	59	30	42
Optimizing team care[l] [7]	60	33[h]	68	57	30	38
Optimizing patient involvement in care [2]	60	31[f]	73	56	24	35

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registered nurses. Within the primary care setting, these teams function in much the same way that single specialty groups practice in private settings: Although patients are enrolled on the panels of individual practitioners, team members provide contingency cross-coverage for other members who may be absent or unavailable.

When asking respondents to indicate how IM residents are integrated into primary care teams at their facilities, the survey offered three options: (1) residents are assigned to the same team as their attending physician (both residents and attending physicians see patients during continuity clinics), (2) residents are assigned to "resident only" teams (residents see patients while attending physicians participate only as supervisors during continuity clinics), and (3) other (the respondent specified the integration model). We found that more than half (53%) of the responding facilities used the "same team" model, and 37% used the "resident only" team model. Among the 10% of respondents who chose "other," all described some type of combination of the two resident integration models.

We asked respondents to specify the average primary care panel size assigned to IM residents in PGYs 1, 2, and 3 at their facility. As expected, we found that these panel sizes varied according to the PGY, ranging from a mean of 31 patients for PGY 1 to 53 patients for PGY 3 (Table 2). Interestingly, only about 10% (SD, 9%; range, 0% to 50%) of VA patients enrolled in primary care at facilities with resident continuity clinics were assigned to the resident panels, leaving 90% of

Table 3. Implementation of advanced clinic access (ACA), by ACA aspect and clinic type (continued)

ACA aspect[a]	% of respondents indicating implementation, by clinic type					
	All NTCCs[b] (n = 92)	All TCCs[c,d,e] (n = 70)	NTCCs at facilities w/o TCCs (n = 22)	NTCCs at facilities w/ TCCs[d] (n = 70)	"Same team" TCCs (n = 37)	"Resident only" TCCs[d] (n = 26)
Working down the backlog [1]	65	29[f]	77	61	24	27
Leave coverage [5]	55	29[f]	64	53	16	46[m]
Planning for contingencies [5]	51	29[h]	45	53	24	38
Predicting and anticipating patient needs[n] [9]	50	29[h]	55	49	16	46[m]
Group appointments [2]	43	23[h]	50	41	19	23
Open use of rooms [10]	35	19[m]	45	31	19	19
Open scheduling and recalls [4]	49	17[f]	41	51	16	15
Standardizing the use of team members[o] [7]	40	17[h]	55	36	5	35[h]
Mean implementation	**59**	**32[f]**	**65**	**58**	**28**	**36**
SD	12	9	13	13	12	10
Range	35–75	17–47	41–81	31–74	5–51	15–50

[a]Numbers in brackets refer to the corresponding "key change" identified by the VA's Center for Organization, Leadership, and Management Research. [b]NTCCs = nonteaching continuity clinics. [c]TCCs = teaching continuity clinics. [d]Values in this column are compared with those in previous column. All 2 x 2 tests based on chi-squares at one *df* with continuity corrections. Mean rates are based on *t* tests with unequal variances assumed. [e]Sorted column. [f]$P < .001$. [g]Includes such measures as charts made available, use of clinical reminders, and planning in advance of appointments based on chart reviews. [h]$P < .01$. [i]Maximizing activity at each appointment. [j]For example, by adjusting panel sizes by clinical full-time equivalency. [k]Such as telephone triage, patient flow, and paper flow. [l]By making assignments according to knowledge and skill levels required. [m]$P < .05$. [n]At the time of the appointment; good communication among team members is essential. [o]Through the use of protocols.

the patients assigned to panels of VA staff practitioners.

Resident supervision

For each clinic, VA-based attending faculty supervised a mean and median of 3.1 and 3 residents (SD, 1.3), respectively, and 90% of attending physicians had no other clinical duties while supervising residents. Of VA facilities with resident continuity clinics, 49% reported using the CMS primary care exception for documentation of patient visits (thus, attending physicians at these facilities could not supervise more than four residents at one time[7]).

Continuity of care

On the survey item that asked about coverage of unscheduled patients ("walk-ins") assigned to a resident when that resident is not at the clinic, 64% of respondents indicated that such patients are seen by another member of their primary care team, and another 14% indicated that they are seen by the assigned attending physician. This finding suggests that either team or attending continuity is maintained 78% of the time when residents are involved in VA continuity clinics.

More than half of the facilities reported that they had developed methods for monitoring patient continuity achieved by residents during VA clinic rotations, with 47% reporting periodic monitoring and 17% reporting

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infrequent monitoring (for example, before ACGME accreditation site visits). The monitoring usually involved using the VA's computerized patient record system to track the number of times patients were seen by the resident on whose panel they were enrolled versus the number of times they were seen by other practitioners. About a quarter of facilities reported that they did not monitor continuity at all. (The approximately 10% of facilities remaining chose the "other" response and described a wide range of monitoring strategies.)

We also asked respondents, "What are the major barriers (if any) to continuity care by residents in VA primary care clinics at your facility?" and allowed respondents to select (unranked) up to three of eight continuity barriers or to enter free text under "other." Facilities reported that the major barriers to IM resident participation in continuity clinics involved scheduling issues, such as insufficient resident time, irregular resident presence, and duty hour limitations (Figure).

ACA implementation

The VA Center for Organization, Leadership, and Management Research has identified 10 key changes for implementing the ACA model: (1) work down the backlog; (2) reduce demand; (3) understand supply and demand; (4) reduce appointment types; (5) plan for contingencies; (6) manage the constraint; (7) optimize the care team; (8) synchronize patient, provider, and information; (9) predict and anticipate patient needs at the time of the appointment; and (10) optimize rooms and equipment.[10] For the purpose of this study, nine of these key changes were broken down and reframed as 19 distinct aspects of ACA. While a detailed description of these 19 aspects is beyond the scope of this article, we chose them for their potential relevance to teaching clinics and for their value to us in teaching residents.

Table 4. Aspects of advanced clinic access (ACA) identified as most difficult to implement in resident continuity clinics

ACA aspect	% of facilities identifying aspect as difficult (n = 70)
Open scheduling and recalls	48.6
Leave coverage	38.6
Planning for contingencies	37.1
Extending appointment intervals	30.0

All survey respondents, regardless of whether their facilities have residents assigned to VA continuity clinics, were asked to indicate which of the 19 aspects of ACA their facilities' nonteaching continuity clinics (those without residents assigned) had implemented. In addition, facilities with resident continuity clinics were asked to indicate which ACA aspects these teaching clinics had implemented. A comparison of the responses to these two questions revealed substantial gaps in ACA implementation between nonteaching and teaching continuity clinics—with nonteaching clinics reporting significantly greater implementation of all 19 ACA aspects (Table 3).

We also compared implementation of ACA aspects between nonteaching continuity clinics in facilities where no residents are assigned to on-site continuity clinics and nonteaching continuity clinics in facilities where residents are assigned to some on-site continuity clinics. While ACA implementation appeared to be slightly greater in those facilities with no resident involvement in any continuity clinics, the difference was not significant. In comparing teaching continuity clinics that use either the "same team" or "resident only" model of integration, we found that ACA was implemented to a greater extent in the "resident only" clinics, though the differences were significant for only three of the 19 aspects: leave coverage, predicting and anticipating of patient needs, and standardizing the use of team members.

Respondents identified essentially the same common barriers to ACA implementation in resident continuity clinics that they had identified for continuity care by residents—with the exception of patient gender mix, which was not listed on the survey as a possible ACA barrier. This overlap is not surprising, assuming that effective resident participation in continuity clinics is a prerequisite for ACA implementation in such clinics. This assumption is supported by the ACA aspects respondents identified most commonly as those most difficult to adapt to resident continuity clinics (Table 4).

When asked how ACA is taught in their facilities, just over one quarter of the respondents (27%) indicated that ACA was not taught at all, about half (49%) said that it was "modeled by attendings," and another quarter (24%) reported that it was taught in a more nebulous, culture-based manner ("the way we do it here").

Suggestions for improving ACA implementation

We asked respondents to tell us what kinds of materials, guidance, or policy

changes might enhance their facility's ability to implement ACA in resident continuity clinics. About half (47%) indicated that additional educational materials would assist them in teaching ACA to residents. Issues of policy, procedure, and scheduling coordination were mentioned by 39% of respondents. In particular, comments dealt with the difficulties encountered in scheduling residents into continuity clinics and the limited time devoted to outpatient activities during IM residency training. Several respondents noted that outpatient rotations are still viewed as having a lower priority than inpatient rotations.

Effective July 2003, the ACGME adopted new resident duty hour limitations that restrict continuous onsite duty to 24 consecutive hours, with the provision that residents may remain on duty for a maximum of six additional hours "to participate in didactic activities, transfer care of patients, conduct outpatient clinics, and maintain continuity of medical and surgical care."[6] Respondents told us that these limitations often resulted in residents missing their continuity clinic hours when they were either on call or post call. Although duty hours may be extended up to six hours post call, afternoon continuity clinics are reportedly missed frequently unless active measures are taken to preserve clinic activities.

In the final survey item, which asked respondents who have already implemented ACA in resident continuity clinics to offer advice to other facilities attempting such implementation, respondents suggested several measures that address problems arising from duty-hour restriction. These included: coordinating clinic schedules with residents' on-call and post-call schedules; scheduling residents to start late in the day when on call; using resident-matched teams, in which the residents, in effect, share a panel of patients and cross-cover for one another in clinics; and improving coordination of resident schedules with those of affiliated sponsoring institutions.

QUALITY EDUCATION AND QUALITY CARE: A TUG OF WAR?

Our study examined the characteristics of VA continuity clinics in which IM residents take part (teaching clinics) as compared to primary care continuity clinics in which residents do not take part (nonteaching clinics). Although we found that team-based continuity was achieved in patient care, individual resident continuity was difficult to attain.

Despite a renewed emphasis on the importance of educating IM residents in ambulatory and primary care,[11] inpatient rotations still receive priority in VA IM training programs. Nearly one quarter of affiliated VA teaching hospitals responding to our survey reported meeting all of their primary care needs through nonteaching clinics, and those that had IM residents in teaching clinics reported assigning only 10% of enrollees to resident primary care panels. This finding is reflective of respondents' impression that IM resident attendance at primary care clinics is too infrequent and irregular to provide reliable delivery of comprehensive continuity care to enrollees and suggests that the main purpose served by resident participation in VA continuity clinics is educational rather than clinical. Even so, the findings call into question whether residents' presence in continuity clinics is sufficient to provide them with a meaningful educational experience.

The erosion of residents' time in continuity clinics appears to be associated with the ACGME resident duty hour limitations, which other studies have suggested pose a perceived ethical-professional dilemma for residents, who feel compelled to choose between duty hour compliance and their responsibility to patients.[12,13] Several facilities recommended ways of working within the constraints of the resident duty hour limitations. Findings of the current study suggest that, unless such efforts are made, the continuity experience of residents will continue to be compromised.

In a recent study of ACA implementation in an academic, non-VA, family practice setting, Steinbauer and colleagues found that one of the keys to success was the education of patients, providers, and staff.[14] In addition, they used "daily reports to anticipate times of provider shortfall" and "continued use of faculty physicians to cover clinic responsibilities during these times." Importantly, their practice teams were structured in such a way that the attending physicians assumed the primary responsibility for patient care, which minimized dependence upon the resident physicians. The authors noted, however, that there was a need to schedule around faculty absences, which were also frequent.

The VA is committed to ACA as a method of increasing access to health care services. The current study documents that ACA is implemented to a lesser degree in teaching than in nonteaching continuity clinics. Overall, the gaps in implementation between nonteaching and teaching continuity clinics averaged 27% (SD, 6%), which suggests a lack of optimal implementation.

In a VA study involving six specialty clinics, Lukas and colleagues found that ACA implementation varied considerably across facilities and, within facilities, across clinic settings.[10] (These researchers did not characterize clinics as "teaching" or

"nonteaching.") The authors concluded that, across clinic areas, the three ACA key changes most likely to be implemented fully were: understanding supply and demand; synchronizing patient, provider, and information; and optimizing rooms and equipment. The four variables they found to be significant predictors of ACA implementation in three or more of the six target clinic areas were: greater length of time working with ACA, greater management support, review of performance data by clinic staff, and possession of the requisite knowledge and skills among clinic team members.

The current study confirms their conclusions with respect to the aspects of ACA that were implemented in nonteaching continuity clinics. Our respondents did not report any deficiencies in knowledge or lack of familiarity with ACA principles on the part of clinic staff. Although implementation was slightly higher in clinics with "resident only" teams compared with those using the "same team" model, the differences were not significant.

The relationship between the extent to which ACA is taught to residents and the degree of implementation is unclear. Nevertheless, a few VA facilities have found that teaching ACA to IM residents provides an opportunity to impart systems-based practice competency, an ACGME requirement since 2002.[15] As a model of health care delivery and a mode of practice that is easily conceptualized, ACA can be taught readily to VA trainees and furthers the VA's goals of improving access to health care for veterans.

FIRST STEPS FORWARD

Successful teaching of IM residents in VA continuity clinics requires that greater attention and administrative effort be devoted to scheduling residents' clinic time (thereby minimizing absences) and planning for absences that are unavoidable. Planning must take into account the ACGME duty hour restrictions, which are unlikely to change in the near future.

In response to suggestions from nearly half of the respondents to this study, the VA Committee on Advanced Clinic Access in Academic Settings developed a case-based, online curriculum for assisting IM faculty in teaching ACA and systems-based practice. Seven case studies were prepared to illustrate the various aspects of ACA in patient management from a systems-based, rather than a disease-based, approach to practice. The curriculum is available on the OAA web site (at http://www.va.gov/oaa/teaching_tools/default.asp), along with accompanying faculty materials (including faculty guides and references). Although, currently, we cannot assess the impact of the online curriculum, we know that it was accessed over 1,324 times from implementation in mid 2004 through the end of 2006, and it appears to address a perceived need for teaching resources.

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