Objective: To explore residents’ opinions regarding various aspects of continuity clinic in a hospital clinic vs private office, with emphasis on primary care relationships.

Design: Cross-sectional study. Residents (N=47) who had spent time in both a clinic and an office setting were given a 49-question survey. Five-point Likert scales were used to quantify the residents’ sense of quality of various aspects of training. A set of 10 statements was included to assess the degree to which residents took primary care responsibility for a cohort of patients. Residents also chose the combination of setting(s) (office, clinic, or both) that they considered optimal for their training.

Setting: Large metropolitan area. The hospital clinic, based in a freestanding children’s hospital, served a primarily indigent population. The private offices (n=20) served the surrounding suburbs and primarily middle- and upper-income families.

Hypothesis: Residents would perceive their clinic-based experience as significantly better than their office-based experience with respect to establishing primary care relationships with their patients.

Results: Residents’ ratings for the primary care responsibility index were significantly higher for the clinic than for the office (mean±SD, 4.1±0.8 vs 2.2±0.9; P<.001). Residents found many aspects of the 2 settings comparable, including overall educational value and the preceptor as a positive role model. The office was rated higher for business and managed care aspects, care of school-age children, and experience with adolescents. The clinic was rated higher for care of infants and complex psychosocial and complex medical issues. Two thirds of residents chose the combined half day in office and half day in clinic as their preferred training model.

Conclusion: The opportunity for residents to take advantage of the unique strengths of both clinic- and office-based training may significantly improve their overall residency experience.


The practice of educating pediatric residents in community offices began at the turn of the 20th century in an apprenticeship model. By the 1930s, this model had been abandoned in favor of academic center–based training, largely in response to the Flexner report.1 In the 1980s, selected programs once again began using community settings as their main source of primary care training for pediatric residents. By the mid-1990s, a national trend for training residents in community settings had been established. This change was in part due to revised Residency Review Committee requirements that increased the emphasis on training in ambulatory settings.2 Community-based continuity training has been seen as a way to minimize the residency-practice training mismatch, the 6 to 12 months required for graduates of residency programs to learn office practice.3 Community offices may also be the best setting for learning managed care principles.4 Nonetheless, questions have arisen about the ability of community settings to fulfill key requirements of residency training. When the Residency Review Committee revised its requirements, it specified that residents should "develop an understanding of and appreciation for the longitudinal nature of general pediatric care" and "must assume responsibility for the continuing care of a group of patients throughout their training.”5 In respect to these objectives, community settings may be at a disadvantage. In one study, only 6% of residents in community-based private offices had seen more than half of their patients on more than 2 occasions.6 In a pre-
The study was conducted at Rainbow Babies and Children's Hospital, the primary pediatric affiliate of Case Western Reserve University Medical School, Cleveland, Ohio. The pediatric residency program includes approximately 60 residents. Since 1995, resident training in continuity care (primary care) has been provided both in a traditional hospital-based clinic, serving an indigent population, and in approximately 20 different community-based offices, which serve predominantly middle- and upper-income families. Residents in their postgraduate level (PL)-1 year receive training in the clinic only, although almost all of the PL-2 and PL-3 residents experience training in both settings.

SURVEY ADMINISTRATION

Surveys were administered to PL-2 and PL-3 residents in the spring of 1998. In the fall of 1999, PL-3 residents (who had been interns during the first round of interviews and therefore had not yet experienced the office-based training) were surveyed. The survey thus represents 3 classes of residents who had both office- and clinic-based continuity training.

A 49-question survey was developed, based on our pilot work, to gauge residents' opinions regarding their continuity training experiences. To reduce bias, the survey was given anonymously. To maximize the response rate, residents' names were checked off a list as they returned their surveys, and those who did not respond initially were given additional opportunities to do so. Participation was voluntary, but no resident refused to participate. Following consultation with the director of the hospital's institutional review board, the study was not reviewed by the full committee because the primary purpose of the study was educational planning.

SURVEY DESIGN

In the survey, identifying information was limited to the resident's year of training and proposed career path (fellowship vs primary care). Residents estimated the total number of patients, sick visits, and health supervision (well-child) visits they saw on a typical day in each setting.

Five-point Likert scales were used to quantify the resident's sense of the quality of training he or she received in clinic and office settings. They provided ratings for "overall quality of training" and "overall educational value," as well as for 11 specific aspects of continuity care. These aspects included health supervision and disease prevention, business/logistical aspects, common behavioral/developmental issues, care of children of various ages (infancy through adolescence), and complex medical and psychosocial issues. They were also asked to rate their exposure to "positive role" models and the degree of "individualized feedback and support" they received. In the analysis, these 13 ratings were averaged to create a training quality composite score.

Residents also rated quality of training for 13 specific conditions commonly seen in primary care, eg, attention-deficit/hyperactivity disorder, diarrhea, otitis media, and obesity.

A set of 10 statements was included to assess the residents' sense that they were assuming primary care responsibility for a cohort of patients (Figure 1). Residents were asked to indicate their degree of agreement with each statement, using a 5-point Likert scale (1 indicates disagree strongly; 5, agree strongly). These scores were averaged to generate a primary care responsibility index (PCR-I). Residents also estimated the total number of patients they considered to be in their primary care cohort, ie, those whom they saw regularly and for whom they functioned as the primary physician.

Residents were asked to choose the continuity setting(s) they would consider optimal. Options included: (1) a half day in a community office, (2) a half day in the (traditional) hospital clinic, (3) a full day in an office, (4) a full day in the clinic, or (5) a combination of the 2 settings.

The questionnaire was tested on faculty and on a separate group of residents. Revisions were made to enhance the clarity of the questions. The entire survey is available from the authors.

DATA ANALYSIS

Paired t tests were used to evaluate differences between ratings of the clinic and the office experience. Log transformations were used for variables that were not normally distributed.

As a test of construct validity, Pearson correlations were examined between the ratings for overall educational value, overall quality of training, the training quality composite score (described in the "Survey Design" subsection of the "Participants and Methods" section), and the sum of ratings for specific conditions. In general, these correlation coefficients were moderately high, ranging from 0.62 and 0.54 (overall quality of training and the sum of specific diagnoses, for clinic and office, respectively) to 0.33 and 0.34 (training quality composite overall educational value, for clinic and office, respectively).

For the 10-question PCR-I, a Cronbach α of 0.89 was calculated, indicating a high level of internal consistency. With overall educational value as the dependent variable, stepwise multiple regression was used to assess the independent contributions of the 2 composite scores and the PCR-I. Because of the large number of comparisons being made, we considered P<.01 to be statistically significant. The data were analyzed on a personal computer using commercially available statistical software (SPSS-X, version 7.5.1; SPSS Inc, Chicago, Ill.).
RESULTS

All but 1 (98%) of the 61 eligible residents responded to the survey, including 18 of 191998 PL-2s, 22 of 221998 PL-3s, and 20 of 201999 PL-3s. Among these, 47 (78%) had experienced at least 1 year of the hybrid continuity training model, in which they spent 1 half day per week in the traditional hospital-based clinic and an additional half day per week in an office in the community. This group, which comprised the sample for the main data analysis, included 13 (72%) of 18 PL-2s and 34 (81%) of 42 PL-3s. The other 13 PL-2 and PL-3 residents either spent a full day in a community office (n=9), a full day in the hospital clinic (n=1), or a half-day in the clinic (n=3).

Among the main study group (N=47), 21 (45%) planned on doing fellowships and 22 (47%) planned on careers in primary care (the remaining 4 listed “other” or left the question blank). Table 1 shows residents’ estimates of their clinical activity in each setting. They were busier in the offices, with larger numbers of sick visits but comparable numbers of health supervision visits.

Table 2 summarizes the residents’ opinions regarding the quality of training in clinic vs office settings. The general training composite score was similar across settings. Also similar were ratings of individualized feedback and support and of the preceptor as a positive role model. The residents rated training in health supervision and the medical aspects of care equally. However, the office setting provided superior training in business/logistical and managed care aspects. When health supervision visits were broken down by age, residents rated the clinic setting higher for quality of training in the care of infants, but rated the office setting higher for training in the care of school-age and adolescent patients. The 2 settings were rated as comparable for training in common behavioral problems, but the clinic was rated higher for training in complex psychosocial issues and complex medical issues.

Table 3 summarizes the residents' ratings of quality of training for 13 selected specific conditions. The clinic
was rated higher for 5 conditions (asthma, physical abuse, sexual abuse, developmental delay, and failure to thrive); the office was rated higher for 1 condition (allergies); and ratings were similar for 7 conditions (attention-deficit/hyperactivity disorder, diarrhea, febrile infants, obesity, otitis media, school avoidance, and upper respiratory tract infections).

**Figure 2** shows residents’ mean ratings for the PCR-I described in the “Survey Design” subsection of the “Participants and Methods” section. The means for the clinic and office were 4.1 vs 2.2, respectively, with 95% confidence intervals around the means. In the paired t test analysis, the mean within-resident difference between PCR-I scores for the clinic vs office was significant (mean difference, 1.9; SD, 1.1; 95% confidence interval, 1.5-2.3; P<.001). Residents reported significantly more clinic patients in their primary care cohort, defined in the survey as those you see “repeatedly” and who think of you as their “primary doctor” (mean ± SD, 22.2 ± 13 vs 3.8 ± 9.0 for clinic and office, respectively; P<.001). Repeating these analyses after log transformation (because the variables were not normally distributed) did not change the findings.

**Figure 3** shows average ratings for the 5 possible combinations of either 1 or 2 half days of continuity training. When asked to identify their first choice from among these possibilities, 31 (66%) chose the combined half day in the office plus half day in the clinic. Full day in the office was a distant second (17%), followed by full day in the clinic (6%) and half day in either the clinic (4%) or the office (2%). Two residents (5%) did not respond.

Stepwise multiple linear regression indicated that the PCR-I was robustly related to residents’ rating of overall educational value in the clinic setting. The PCR-I remained associated with overall educational value, with a β of .62 (P<.009) and an adjusted R² of 0.37, after adjusting for 4 other variables that were each correlated with overall educational value. These variables included training quality composite, the sum of ratings for specific diagnoses, ratings for overall quality of training, and provision of a positive role model. In the clinic setting, PCR-I and overall quality of training together accounted for 62% of the variance in overall educational value. By contrast, in the office setting, overall quality of training and the sum of ratings for individual diagnoses were independently associated with overall educational value, but PCR-I was not.

**COMMENT**

This study showed that what residents perceived they learned about primary care depended in large part on whether that learning took place in the hospital-based continuity clinic or in an office in the community. In particular, although each type of setting offered certain advantages, the clinic provided a superior learning experience in fostering a sense of primary care responsibility by the residents for a cohort of patients they considered their own. This finding is not at all unexpected. Excellent pediatricians in the community often cultivate close relationships with their patients. As a consequence, residents working in those offices once a week for a year or two often remain in a subsidiary role. The situation is different in the clinic, where the residents often take on a more primary role. The fact that our data represent the experience of residents during 3 years, in more than 20 different community practices, suggests that the relative lack of primary care responsibility in these practices may not be just a characteristic of the particular community physicians, but may be inherent in the office setting in our community.

These findings must be seen in the context of several studies that highlight the advantages of using community-based office practices as a site for pediatric residents’ continuity clinic training. In 1993, Osborn et al reported that residents in private offices had the most varied experience; seeing more patients, having more acute care visits, and having a broader age range of patients than did residents at university-based clinics. Roberts et al in 1997 indicated that residents who had spent all 3 years of their continuity clinic experience in office-based practices reported themselves as being “well prepared” or “very well prepared” in several areas, including working at the
pace of practice, diagnosing and treating common medical and behavioral problems, and providing anticipatory guidance. Their initial employers agreed. Pan and Finkelstein commented that the office may be an ideal setting for learning managed care principles (a finding our study corroborates).

On the other hand, several other studies have shown benefits to the hospital-based clinic. Rice et al reported that continuity of care, as measured by frequency of repeated visits with one clinician, is significantly decreased in office- vs university-based settings. Recchia and colleagues found that the mean patient age was significantly lower in the public than in the private setting. In the present study, residents also reported seeing significantly more infants in their clinic- vs office-based settings. This may be one of the essential factors that help residents to establish continuity of care in their clinic.

Several limitations of our study should be acknowledged. It is possible that our results may be unique to this group of residents and preceptors. We focused on residents' perceptions but did not attempt to validate those perceptions with objective measurements. Our justification is that the residents' perceptions about their educational experience are, in themselves, of importance. The principle of andragogy (teaching adults) stresses the importance of the learner's input during the educational process. The fact that strict anonymity was preserved prevented our assessment of test-retest reliability but also increased our confidence that the opinions expressed were free of bias. Future research into resident training might do well to include the subjective impressions of the trainees, as we have done, in addition to more objective measures such as number of patients seen or duration of precepting encounters. Our results did not address variations in specific practice types, preceptor preparation, or patient demographics, which may have a bearing on the key issue of resident primary care responsibility. Finally, although our title mentions “primary care relationships,” we recognize that our PCR-I is only one aspect of this complex, multifaceted concept. It remains to be seen whether the training differences we have observed are inherent in the differences between office and clinic settings per se. Future studies using multiple training programs could help address this question.

The changes brought about by the Flexner report worked well for trainees for the most part of the last century. Rapid technological advancements made academic medical centers an excellent training site for the growing number of subspecialists. However, the shift from the apprenticeship model to training in an academic center may also have been responsible for the residency-practice training mismatch. Since the 1980s, numerous forces have combined to make the academic center no longer the ideal setting for residency training in pediatrics, especially primary care aspects. These forces include managed care, decreased funding for research and educating residents, an apparent abundance of subspecialists, strong generalist movements, and, most recently, a revision in the Residency Review Committee requirements.

We believe, as does the Residency Review Committee, that assuming responsibility for a cohort of patients is one of the fundamental aspects of a resident’s continuity clinic experience. Our finding of a robust relationship between residents’ perceptions of taking primary care responsibility and the overall educational value of the continuity training suggests that residents also share this core value.

At Rainbow Babies and Children Hospital during the last 5 years, we have developed a hybrid model in which residents are given the opportunity in their PL-2 and PL-3 years to have both a clinic-based and an office-based continuity experience each week. Most residents view this as their preferred option for training. With the current health care environment placing an emphasis on primary care, the opportunity for residents to take advantage of the unique strengths of both clinic- and office-based training may significantly improve their overall residency experience.

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