

Continuity of Care in a Family Practice Residency Program

Impact on Physician Satisfaction

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One of the primary benefits of continuity of care is its influence upon patient and physician satisfaction. This prospective pilot study involved a cohort of 14 second- and third-year family practice residents and 4 full-time faculty at a community hospital-based family practice residency in Cleveland, Ohio. Rates of continuity that physicians experience were calculated using the usual provider continuity (UPC) measure of continuity, and were correlated with physician satisfaction with outpatient care using a practice satisfaction scale (PSS) developed specifically for this purpose. Residents and faculty were also asked to rank order the importance of several aspects of outpatient care, including continuity of care.

The results indicate that both residents and faculty value continuity of care highly compared with other aspects of outpatient care. The average continuity rates were 59% for second-year residents, 54% for third-year residents, and 82% for faculty. The UPC continuity measure correlated highly with the PSS scores (corrected $r^2 = .55$; $P < .001$).

The data support the hypothesis that continuity of care with patients is an important determinant of resident and faculty physician satisfaction with their outpatient experience. J FAM PRACT 1990; 31:69-73.

While most family physicians value continuity of care, the true benefit of continuity remains uncertain. The literature on continuity of care and its effects on patients and physicians has been reviewed recently.¹ Several studies suggest that outcomes such as patient satisfaction,²⁻⁸ staff satisfaction,⁸⁻¹¹ patient disclosure of behavioral problems and psychological needs in a pediatric practice,¹¹ and mothers' compliance with scheduled appointments and medications for their children¹¹ are favorably influenced by continuity. One researcher found that the frequency of morbidity and mortality from myocardial infarction was favorably affected by continuity.¹² Another study documented shorter hospitalizations and

fewer emergency hospital admissions in elderly men who had high rates of continuity with their outpatient physician.⁷ Other studies suggest that outcomes such as complications of pregnancy are not influenced by continuity of care.¹³ Quality of care is generally felt to be improved by continuity of care, but one study found that continuity of care does not enhance conformity with accepted standards of patient selection for tonsillectomy and adenoidectomy.¹⁴

Most of the research on continuity has focused on patient outcomes. Little is known about the effect of continuity of care upon practicing physicians' satisfaction. The available evidence suggests that continuity of care may be an important predictor of physician satisfaction with their practice.^{9-11,15} Two studies have measured continuity of care rates in family practice residency programs,^{16,17} but no one has previously attempted to correlate such findings with the satisfaction levels of resident and faculty physicians. The present pilot study was undertaken to evaluate the relationship between continu-

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ity rates and physician satisfaction in one family practice training program.

METHODS

A prospective study was performed over a 3-month period, from August to October 1988, at the Hassler Center for Family Medicine of Fairview General Hospital, a community hospital-based family practice residency program in Cleveland, Ohio. The patients who are served by the center represent a suburban community practice. Nineteen thousand visits are made annually by approximately 10,000 active patients. Seventy percent of the visits are made by women. The majority of patients are white (97%) and educated (90% of adults have a high school or higher level of education). The majority of adults are married (64%). There is a broad range of incomes, but only 12% have family incomes below \$10,000 annually. Approximately 25% of visits are made by patients over 65 years of age; an additional 25% of visits are made by infants, children, and adolescents. Eighty to 100 deliveries are performed by the practice group each year. The majority of adult patients (58%) have used the practice for more than 2 years.

At the time the study was performed, there were 19 residents and 4 full-time faculty. Among the residents, 5 were in their first year, 7 were in their second year, and 8 were in their third year. Sixteen of the 19 residents were men. All residents were graduates of US schools of medicine (18) or osteopathy (1).

The dependent variable in this study was resident satisfaction with outpatient care. To measure this dimension of satisfaction, a 10-item practice satisfaction scale (PSS) was developed by the authors specifically for this study. The 10 items for this scale were included based upon the authors' experiences with outpatient care following a review of the available literature on physician satisfaction.^{8,9-11,15} For each item, physicians were asked to rank on a scale of 1 to 10, with 10 being the highest, their satisfaction with different aspects of day-to-day outpatient care of patients. These aspects were (1) quality of care given, (2) help received from support staff, (3) time spent with patients, (4) continuity of care, (5) support from other physicians, (6) having an opportunity to do the best job, (7) the level of efficiency in the facility, (8) relationships with patients, (9) the physical office environment, and (10) their overall job performance. The 10 resulting "item scores" (range 1 to 10) were added to create the total PSS score (range 10 to 100). The PSS was given as a self-administered questionnaire to all physicians monthly during the study period (three measurements). Individual PSS item scores and total PSS scores for each physician

were calculated by averaging the scores for the three measurements taken. Administration of the scale on multiple occasions was felt to increase the reliability of the responses, averaging out the effects of day-to-day events that might influence mood, attitudes, and consequently the level of satisfaction. Because of the potential circularity of including an item regarding satisfaction with continuity in the PSS and later correlating it with actual continuity, a 9-item version of the PSS that excluded satisfaction with continuity was also calculated (range 9 to 90).

In addition to the PSS, for the first questionnaire administration only, physicians were also asked to rank six aspects of outpatient care to determine how highly each one was valued in relation to the others. These aspects of outpatient care have been documented previously as being important to practicing physicians.⁸ Physicians assigned a number from 1 to 6 to each of the six options, which consisted of continuity of care, having enough time with patients, being able to independently manage patients, seeing all members of a family, seeing a variety of patients, and having a good working relationship with support staff. A score of 1 indicated the most highly valued aspect, and a score of 6 indicated the least valued aspect. The scores for each option were then averaged for all physicians. Based on the average score, each aspect of outpatient care was assigned a rank: the lower the average score, the higher the ranking; the higher the average score, the lower the ranking.

Continuity, the independent variable of greatest interest in this study, has been measured in a variety of ways by other investigators.¹⁸⁻²⁰ Since the outcome measure of interest in this study was a dimension of physician satisfaction, a measure of continuity was chosen that reflects experience with patients from the physicians' point of view. This measure, a variant of the Usual Provider Continuity (UPC),²¹ is defined as the proportion of patients seen during a given time who are part of that physician's assigned panel of patients. The UPC rate depends on the assignment of each patient in a practice to a physician who is his or her usual provider and is calculated using the following formula:

$$\text{UPC} = \frac{\text{Number of assigned patients seen by a physician}}{\text{Total number of patients seen by a physician}}$$

Computer-generated encounter forms are used at the Hassler Center for all patient visits. Data available from these forms include the patient's regularly assigned physician and the visit physician who actually saw the patient. Encounter forms for all visits during the 3-month study period were audited for the assigned and visit physician to document the actual UPC that each resident or faculty physician experienced. At the same time the satisfaction

TABLE 1. IMPORTANCE OF SIX ASPECTS OF OUTPATIENT CARE: PHYSICIANS' RANK ORDER

Resident/Faculty Rank Order	Average Score
Resident	
1. Having enough time with patients	2.1
2. Continuity of care	2.9
3. Seeing a variety of patients	3.0
4. Being able to independently manage patients	3.3
5. Having a good working relationship with support staff	4.2
6. Seeing all members of a family	5.3
Faculty	
1. Seeing a variety of patients	1.0
2. Continuity of care	3.0
3. Having enough time with patients	3.8
4. Having a good working relationship with support staff	4.0
5. Seeing all members of a family	4.3
6. Being able to independently manage patients	5.0

TABLE 2. ACTUAL USUAL PROVIDER CONTINUITY (UPC) BY GROUP OF PHYSICIANS

Year of Residency	Percent UPC
First year	64
Second year	59
Third year	54
All residents	58*
Faculty	82*

*P < .001

scale was administered, physicians were asked to estimate their UPC for the preceding month; the average of these estimates provided a measure of perceived UPC for each physician. Physicians were blinded to their actual UPC.

During the study period, PSS questionnaires were completed by all residents and faculty for each of the three administrations (100% response rate). Data from encounter forms and questionnaires were coded and entered into an IBM PC-AT microcomputer. Statistical analysis was performed using SPSS-PC.²² The internal reliability of both the 10-item and the 9-item PSS was tested with Cronbach's alpha. Groupings of physicians were compared for significant differences by Student's *t* test and analysis of variance. Correlation coefficients (Pearson's *r*) were calculated between actual and perceived UPC and between UPC and satisfaction scores. Squared Pearson correlation coefficients were used as a measure of explained variance in satisfaction accounted for by continuity. A correction formula²³ was applied to the squared coefficients to adjust for the artificial inflation of these coefficients resulting from a relatively small sample size. The first-year residents at the time of the study were just beginning their practices and had not had time to develop continuity with patients. For this reason, they were excluded during the examination of the correlation between UPC and PSS item and total scores.

RESULTS

When resident and faculty physicians were asked to rank order six aspects of day-to-day outpatient care, continuity

was shown to be quite important (Table 1). For residents, continuity was rated the second most important aspect, ranking only behind having enough time with patients. Continuity was thought to be more important than the variety of patients seen, independent management of patients, the relationship with support staff, or seeing all family members. For faculty, continuity was also ranked highly, second only to seeing a variety of patients. Although residents and faculty differed in the order in which they ranked the six items, the three most highly rated aspects were the same for both groups of physicians.

The actual UPC that residents experienced with their patients is shown in Table 2. First-year residents had a 64% rate of continuity, second-year residents had a 59% rate of continuity, and third-year residents had a 54% rate of continuity. Other studies have found comparable continuity rates in their residency practices.^{16,17} Although there was a trend toward lower UPC scores in more senior residents, this relationship was not statistically significant. The overall resident UPC score was 58%. The four faculty members had an actual UPC of 82%. The difference between resident and faculty continuity rates was statistically significant (*P* < .001). The correlation between actual and perceived UPC scores was high (*r* = .74; *P* < .001), indicating that physicians were quite aware of this aspect of their practices.

The mean total satisfaction scores are shown in Table 3. First-year residents had the highest mean score (80.2); third-year residents had the lowest mean score (68.7). The overall average resident score was 73.0. The trend toward

TABLE 3. MEAN TOTAL SCORES ON 10-ITEM PRACTICE SATISFACTION SCALE

Year of Residency	Number	Satisfaction Score	SD
First year	5	80.2	9.2
Second year	7	72.0	5.0
Third year	7	68.7	8.6
All residents	19	73.0	8.6
Faculty	4	82.7	1.4
All physicians	23	74.6	8.7

TABLE 4. CORRELATION OF ACTUAL USUAL PROVIDER CONTINUITY (UPC) WITH PRACTICE SATISFACTION SCALE (PSS)

Satisfaction Scale Items	Squared Pearson's <i>r</i>	Squared Pearson's <i>r</i> (Corrected)*
Satisfaction with quality of care you are giving	.19	.14
Satisfaction with help from support staff	.35†	.31†
Satisfaction with time you can spend with patients	.34†	.30†
Satisfaction with support from peers	.37†	.33†
Satisfaction with having an opportunity to do your best job	.25	.20
Satisfaction with the level of efficiency with the outpatient facility	.39†	.35†
Satisfaction with the relationships being established with patients	.29	.24
Satisfaction with the physical office environment	.20	.15
Satisfaction with overall job performance	.15	.09
Satisfaction with continuity of care	.47‡	.44‡
Total 9 (9-item scale excludes satisfaction with continuity)	.50‡	.47‡
Total 10 items	.57‡	.55‡

* Corrected $r^2 = 1 - [(1 - r^2)/(N - 1/N - 1 - \text{No. of independent variables})]$.
† $P < .01$.
‡ $P < .001$.

lower satisfaction scores in more senior residents was not statistically significant. Faculty physicians had higher satisfaction scores than residents, the mean faculty score being 82.7. A similar pattern was seen in the scores for the 9-item PSS, ranging from a high of 74.8 in faculty to a low of 63.1 in third-year residents. Cronbach's alpha for both the 9-item and the 10-item PSS scales was 0.92, indicating a high degree of internal reliability.

The actual continuity experienced by second- and third-year residents (senior residents) and faculty was compared with the item and total scores on the PSS (Table 4). The squared Pearson correlation coefficient (after application of the shrinkage formula) provides an estimate of variance in satisfaction explained by continuity. The actual UPC correlated significantly with item scores for satisfaction with continuity of care, satisfaction with support staff, satisfaction with time with patients, satisfaction with interaction with professional peers, and satisfaction with the level of efficiency in the facility ($P < .01$). Correlations with the total PSS score were impressive for both the 9-item ($r^2 = .47$) and 10-item ($r^2 = .55$) versions of the PSS ($P < .001$). The remaining five individual items on the PSS scale correlated more weakly with continuity and did not achieve statistical significance.

DISCUSSION

Although the small sample size of 14 residents and 4 faculty limits the generalizability of the results, the data do suggest that continuity of care with patients is an important element of physician satisfaction with outpatient care. Using the squared correlation coefficient as a measure of explained variance, continuity of care explains

about one half of the variance in physician satisfaction with their outpatient practice in this sample. Other variables not included in the present analysis may also limit the generalizability of these results. For example, monetary compensation was not included as an item in the physician satisfaction scale. When one considers the financial differences between residency-based practice and private practice, it is possible that this variable may play a role in the overall satisfaction of physicians. Hence, one can only cautiously attempt to broaden the generalizability of this study to all family physicians. To confirm that these results apply to residents and faculty physicians as a group and thereby allow for greater generalizability, further replication is needed in training programs that have differing rates of continuity. If continuity of care holds up as an important determinant of physician satisfaction, additional studies could examine the effects of interventions designed to improve continuity. For example, it would be possible to document continuity and satisfaction before and after an intervention aimed at improving continuity.

It is important to note that the findings of the present study are limited to only a segment of the total family practice residency experience, namely, the office-based patient care experience. The findings offer no insight into more global aspects of physician satisfaction, as this study did not attempt to measure resident or faculty satisfaction with their overall work or with the residency-training program as a whole.

One of the surprising findings was that the continuity rate was lowest in the more senior residents. Considering that third-year residents see patients 4 half-days per week, second-year residents 3 half-days per week, and first-year residents only 1 half-day per week, it was anticipated that senior residents would have a higher rate of continuity

simply by virtue of their increased availability. In fact, it is likely that this higher availability led to more visits with patients who could not be seen by their assigned physician, most commonly overflow from busy faculty physician schedules, and hence lower continuity.

In summary, in this pilot study of one family practice training program, continuity of care appears to be an important determinant of resident and faculty satisfaction with their outpatient care. The study results add to the evidence indicating that continuity of care is important to primary care physicians. It is hoped that efforts to enhance continuity of care will remain an ongoing concern of family practice educators and curriculum developers.

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