Continuity of Primary Care: To Whom Does It Matter and When?

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ABSTRACT

BACKGROUND Inconsistent findings on the value of continuity of care can stem from variability in its importance to different subsets of patients. We therefore examined the association among patient and visit characteristics and extent to which the patient valued continuity of care (PVC). We hypothesized that continuity would be more important to patients who are older, sicker, and female, who have established a relationship with their physician, and whose visit addresses more complex problems.

METHODS A study of 4,454 consecutive outpatient visits to 138 community-based family physicians used a 3-item measure (α = 0.67) of PVC. The patient's report of (1) the adequacy of primary care for the visit and (2) satisfaction with the physician on that visit was assessed with multiple measures. Analyses examined the associations among PVC and patient-reported satisfaction with the physician and adequacy of the visit.

RESULTS Extremes of age, female sex, less education, Medicare and Medicaid insurance, number of chronic conditions and medications, number of visits to the practice, and worse self-reported health status were associated with higher value placed on continuity (P < .001 for all except sex, where P = .015). Patients who value continuity and did not see a regular physician rated adequacy of the visit lower (for 7 attributes of the visit) than those seeing their own physician. Satisfaction with the physician for the visit was greatest among patients who value continuity and saw their regular physician.

CONCLUSIONS Continuity of physician care is associated with more positive assessments of the visit and appears to be particularly important for more vulnerable patients. Health care systems and primary care practices should devote additional effort to maintaining a continuity relationship with these vulnerable patients.

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INTRODUCTION

Continuity of care has been conceptualized as a fundamental aspect of primary care since the resurgence of family practice more than 3 decades ago. More recently, a sustained patient-physician partnership has been advanced as a defining characteristic of primary care, for which continuity is seen as a necessary, but not sufficient, condition.

There is evidence for a positive effect of continuity of care on both physician and patient satisfaction with care and patient adherence to medical regimens, pregnancy outcomes, emergency department and hospital utilization, overall service utilization, and cost. Research has failed, however, to show an effect of provider continuity on quality of care for patients with tonsillectomies, hospital mortality in patients transferred from nursing homes, utilization and costs of ambulatory care, and patient satisfaction during prenatal visits and pregnancy complications.
In addition, there appears to be variability in the extent to which patients value continuity. Although patients often report more satisfaction with their care from a regular physician, recent studies have suggested that many might not be willing to wait to see their regular physician for acute illness. The literature leaves unanswered the important questions of when continuity matters, to whom, and under what circumstances. Answering these questions will help to determine whether this theoretically fundamental tenet of primary care is relevant to the modern practice of medicine and to the design of health care systems.

In this study, we examined patients’ ratings of the importance of continuity of care with their family physician and their ratings of the adequacy of their visit according to physician seen and nature of the visit. We hypothesized that continuity of physician is more important to older, sicker, female patients and those with an established relationship with a physician. Further, we hypothesized that patients who place a higher value on continuity will rate the visit as less adequate when not seeing their regular physician and when the visit involves more complex problems.

**METHODS**

This study analyzed data from the Direct Observation of Primary Care Study, a multimethod cross-sectional study designed to describe the content and context of outpatient visits to family physicians.

**Study Sites and Subjects**

One hundred thirty-eight family physicians from 84 practices in northeast Ohio participated. They are members of the Research Association of Practices, a regional practice-based research network. The patient sample consisted of consecutive patients seen during the 2 days of observation between October 1994 and August 1995. Patients provided informed consent in the waiting room before meeting with their physicians. To avoid biasing their behavior, physicians and patients were informed only that the study was examining the content of family practice.

**Data Collection**

Research nurses collected data using direct observation of the patient visit, patient exit questionnaires, medical record review, and billing data for the observed visits. The patient exit questionnaire was completed after the visit by adult patients or parents or guardians of children.

**Measures**

Demographic data, including patient age, sex, race, and educational level, were reported on the patient questionnaire. Health status was measured with 5 items ($\alpha = .81$) from the Medical Outcomes Study (MOS) 6-item General Health Survey. Three aspects of adequacy of primary care were assessed with the Components of Primary Care Instrument (CPCI): 5 items on physician’s knowledge of the patient ($\alpha = .75$), 4 items on coordination of care ($\alpha = .79$), and 4 items on interpersonal communication ($\alpha = .68$). Patients also reported whether they saw their regular physician during the directly observed visit, the duration of the patient-physician relationship, and the number of different physicians seen in the past year. The number of visits to the regular physician and to other physicians in the past year were also reported. The usual provider continuity index was measured as the proportion of visits to the index physician relative to the total number of visits to all physicians in the past year.

A 3-item measure ($\alpha = .67$) from the CPCI was used to measure the degree to which patients value continuity of care (PVC), which included the following items: “My medical care improves when I see the same doctor that I have seen before,” “It is very important to me to see my regular doctor,” and “I want one doctor to coordinate all of the health care I receive.” For one analysis that assessed dose-response effects, the PVC data were converted to a categorical variable with responses (mean of 3 components) of high (5), medium (4–4.9), and low (less than 4), based on the distribution of responses on the 5-point Likert-type scale. The categories accounted for 46.8%, 31.8%, and 21.5% of the sample, respectively.

The medical record for all observed patient visits was reviewed to determine the number of chronic illnesses and medications, as well as the number of years the patient visited the practice. Visit complexity was measured from the medical record based on criteria established by the American Medical Association for visit coding. Two items assessed complexity of medical decision making during the visit (straightforward, low complexity, moderate complexity, and high complexity) and severity of presenting problem (minimal, self-limited, low severity, moderate severity, and high severity). These 2 items were standardized, and the complexity of the visit was calculated as the mean of the 2 items. Reason for visit was assessed by direct observation and included chronic illness, acute illness, well-patient visit, and other.

Patient satisfaction with the visit was measured with the 9-item Visit Rating Form from the MOS. An additional satisfaction item asked, “To what extent were your expectations met today?” with potential responses including: a lot, quite a bit, moderately, slightly, and not at all. Satisfaction with the physician for the visit was assessed with a 4-item subscale of the MOS form ($\alpha = .90$).
Data Analysis

Univariate relationships between patient characteristics and the 3-item measure of the degree to which patients value continuity were tested using Pearson correlation for continuous independent variables and 1-way analysis of variance for categorical variables. The associations among the 3 category PVC measures, whether patients saw their regular physician, and their ratings of visit adequacy were examined with 2-way analyses of variance. Three sequential regression models were constructed to examine the relative effect of patient characteristics, visit characteristics, PVC, and whether the patient saw their regular physician on patient satisfaction with the physician. The first model entered patient characteristics into a backward selection regression model to eliminate patient variables that were not independently associated (if \( P > .10 \)) with patient satisfaction with the visit. A second model forced in variables significant in the first model, then entered visit characteristics, again using backward selection. Finally, the third model included patient and visit characteristics from the second model, as well as the main effects and interaction term for PVC and seeing a regular physician on the visit. Adjustments were made for multiple hypothesis testing.34,35

RESULTS

The 138 participating physicians were demographically similar to national samples of family physicians, but contained a higher percentage of female and residency-trained physicians.27,28

A total of 4,454 of 4,994 patients (89%) visiting the 138 physicians on observation days agreed to participate in the study. Of these, 3,283 (74%) returned exit surveys. Although the patient sample was demographically similar to patients seeing family and general practitioners in the National Ambulatory Medical Care Survey, participants were more likely than nonparticipants to be older, female, white, and married and to have a greater number of chronic illnesses, a longer relationship with the practice, and Medicare or fee-for-service insurance.27,28 Of the 3,283 patients returning the exit survey, 2,763 (84%) provided complete information required for this analysis. These patients represent 61% of the eligible study population and constitute the analytic sample.

Association of patient characteristics with the degree to which patients valued continuity is shown in Table 1. Patient age, sex, education, insurance, length of relationship with the physician, number of chronic conditions and medications, number of visits to the
practice, and self-reported health status are associated with the value patients place on continuity. Parents of patients aged 0 to 6 years, and patients aged 40 to 64 years and 65 years and older reported greater value of continuity of care. The greatest PVC was reported by patients with Medicare and Medicaid, and by a small group with undetermined insurance status. All measures of poorer health status, with the exception of dysfunction associated with emotional problems, were strongly associated with PVC.

Patients reported seeing their regular physician on 2,459 (89%) of index visits. Those who value continuity were more likely to see their regular physician on the index visit and to report a longer duration of relationship with their physician. Patients valuing continuity rated the physician more highly on the key primary care components of accumulated knowledge of the patients, coordination of care, and interpersonal communication. Because most patients who valued continuity in our sample were able to see their regular physician, we lacked sufficient power to evaluate the independent effect of visit complexity.

Analyses shown in Table 2 examine the effect of seeing the regular physician, PVC, and their interaction on several measures of patient assessment of the adequacy of their visit. The data show a consistent dose-response relationship between the degree to which patients value continuity and their assessments of the adequacy of and their satisfaction with the visit. By convention, if the association with the interaction term is statistically significant, the interaction should be interpreted, but not the individual main effects.36 Although the study had adequate statistical power to detect relatively small differences, the main effects shown in Table 2 all have moderate to large effect sizes (0.34–0.73) and the 4 interaction terms have large effect sizes (0.99–1.76).

To test the association of PVC with patient satisfaction with the physician, while controlling for confounding patient and visit characteristics, a series of regression models were evaluated. As shown in Table 3, model 1 examines the effect of patient characteristics alone. Model 2 adds visit characteristics, resulting in an increase in the strength of the model as reflected in a near doubling of the percentage of variance explained ($R^2$ value). Model 3 adds the main effects and the interaction term for seeing the regular physician and value of continuity. These analyses show that patient

### Table 2. Patient’s Assessment of the Adequacy of Their Primary Care Visit as a Function of Valuing Continuity of Care and Seeing Their Regular Physician

| Assessment of Visit                          | Value of Continuity | Main Effects | Interaction |
|----------------------------------------------|---------------------|--------------|-------------|
|                                              | Low     | Medium    | High       | Value of Continuity | Regular Doctor | Value of Continuity with Regular Doctor |
| Expectations met                             |          |           |            | <.001    | .48         | <.001                                     |
| Regular doctor                              | 4.08     | 4.37      | 4.63       |          |            |                                          |
| Not regular doctor                          | 3.86     | 4.19      | 4.14       | <.001    | .36         |                                          |
| Things I wanted to bring up but couldn’t    |          |           |            | <.001    |            | <.001                                     |
| Regular doctor                              | 2.05     | 1.75      | 1.42       |          | .48         |                                          |
| Not regular doctor                          | 1.95     | 1.98      | 1.55       | <.001    | .32         | <.001                                     |
| Doctor addressed my main concern            |          |           |            | <.001    | .006        | <.001                                     |
| Regular doctor                              | 4.34     | 4.67      | 4.87       |          |            |                                          |
| Not regular doctor                          | 4.29     | 4.50      | 4.65       | <.001    | .32         | <.001                                     |
| Satisfaction with physician                 |          |           |            | <.001    | <.001       | <.001                                     |
| Regular doctor                              | 4.11     | 4.36      | 4.66       |          |            |                                          |
| Not regular doctor                          | 3.96     | 4.10      | 4.04       | <.001    | <.001       | <.001                                     |
| Physician’s accumulated knowledge of the    |          |           |            | <.001    | <.001       | <.001                                     |
| patient                                      |          |           |            |          |            |                                          |
| Regular doctor                              | 3.10     | 3.48      | 3.93       |          | <.001       |                                          |
| Not regular doctor                          | 2.31     | 2.35      | 2.35       | <.001    | <.001       | <.001                                     |
| Coordination of care                         |          |           |            | <.001    | <.001       | <.001                                     |
| Regular doctor                              | 3.30     | 3.78      | 4.32       |          | <.001       |                                          |
| Not regular doctor                          | 2.92     | 3.01      | 3.30       | <.001    | <.001       | <.004                                     |
| Interpersonal communication                  |          |           |            | <.001    | <.001       | <.001                                     |
| Regular doctor                              | 3.95     | 4.31      | 4.63       |          | <.001       |                                          |
| Not regular doctor                          | 3.67     | 3.76      | 3.79       | <.001    | <.001       | <.001                                     |

Note: For the above comparisons, the 6 cell sizes for each comparison ranged from 32–1,167.
age, health status, and length of the index visit, all independently influence patient satisfaction with the physician. The significant interaction between PVC and visit to regular physician suggests that the effect of seeing a regular physician varies depending on the degree to which patients value continuity of care. Adding the interaction between the degree to which patients value and achieve continuity of care in model 3 more than triples the percentage of variance accounted for in patient satisfaction with the physician.

**DISCUSSION**

Continuity of physician care does not appear to be universally important to patients, but it is particularly important for certain patients during certain types of visits. Patients who value continuity, but do not see their own physician, report lower ratings for a variety of different dimensions of adequacy of care they receive on a given visit. Patients who value continuity tend to be female, at either end of the age spectrum, less educated, have Medicare or Medicaid coverage, have more health problems, require more medication, and report lower health status. Our study sample lacked sufficient statistical power to detect an association with complexity of visit. Nonetheless, we observed significant associations with older age and poorer reported health that suggest the potential importance of visit complexity and should encourage further study.

This study shows that some of the ambiguity in the literature could result from studies that do not distinguish among the types of patients and circumstances in which continuity might be particularly important. Consider 2 patients arranging a visit for an upper respiratory tract infection. One patient, a 35-year-old man specifically seeking an antibiotic might value a same-day appointment more than a visit with a regular physician. On the other hand, an elderly woman with

| Table 3. Regression Models Examining Patient Characteristics, Visit Characteristics, Seeing Regular Physician, and Patient’s Valuing Continuity as Predictors of Patient Rating of Satisfaction with the Physician Visit |
|---------------------------------------------------------------|
| **Patient characteristics**                                    | **Model 1** | **Model 2** | **Model 3** |
| **Characteristics**                                            | **β** | **SE(β)** | **P Value** | **β** | **SE(β)** | **P Value** | **β** | **SE(β)** | **P Value** |
| Age, years                                                    |       |           |            |       |           |            |       |           |            |
| 13-39                                                       | 0.042 | 0.044     | 0.340      | 0.051 | 0.044     | 0.251      | -0.001 | 0.045     | 0.984      |
| 0-12                                                        | 0.179 | 0.033     | < 0.001    | 0.156 | 0.034     | < 0.001    | 0.080  | 0.034     | 0.019      |
| 40 and older                                                  | 0.052 | 0.027     | 0.055      | 0.037 | 0.027     | 0.178      | 0.018  | 0.028     | 0.514      |
| Sex§                                                        | 0.086 | 0.018     | < 0.001    | 0.103 | 0.018     | < 0.001    | 0.084  | 0.019     | < 0.001    |
| Health status                                                 | 0.009 | 0.005     | 0.090      | 0.013 | 0.005     | 0.020      | 0.000  | 0.006     | 0.998      |
| Number of visits in previous year                            |       |           |            |       |           |            |       |           |            |
| Insurance type                                                |       |           |            |       |           |            |       |           |            |
| Fee for service‡                                              |       |           |            |       |           |            |       |           |            |
| Managed care                                                 | -0.029| 0.034     | 0.387      | -0.032| 0.034     | 0.341      | -0.053 | 0.034     | 0.120      |
| Medicare                                                     | 0.071 | 0.042     | 0.087      | 0.071 | 0.042     | 0.092      | -0.006 | 0.044     | 0.901      |
| Medicaid                                                     | 0.047 | 0.065     | 0.471      | 0.071 | 0.065     | 0.275      | 0.030  | 0.066     | 0.649      |
| None                                                        | -0.025| 0.056     | 0.663      | -0.037| 0.057     | 0.516      | -0.096 | 0.059     | 0.103      |
| Other                                                       | -0.038| 0.078     | 0.623      | -0.012| 0.078     | 0.878      | -0.075 | 0.085     | 0.374      |
| Visit characteristics                                         |       |           |            |       |           |            |       |           |            |
| Length of visit                                              | 0.013 | 0.002     | < 0.001    | 0.013 | 0.003     | < 0.001    | 0.013  | 0.006     | < 0.001    |
| Number of problems addressed                                 | 0.024 | 0.013     | 0.062      | 0.010 | 0.013     | 0.443      |       |           |            |
| Continuity                                                   |       |           |            |       |           |            |       |           |            |
| Visit made to regular physician                              | -0.555| 0.231     | 0.017      |       |           |            |       |           |            |
| Patient value of continuity                                  | 0.105 | 0.052     | 0.044      |       |           |            |       |           |            |
| Interaction of patient value of continuity with regular physician | 0.207 | 0.056     | < 0.001    |       |           |            |       |           |            |

* Model 2 includes visit characteristics (length and number of problems).
† Model 3 includes visit characteristics and interaction of value of continuity and regular physician.
‡ Reference category for categorical variables.
§ Reference category is male.
marginal health insurance and substantial chronic obstructive pulmonary disease, who is concerned about the importance of her symptoms and who has already established a relationship with a primary care physician, might judge her care to be of higher quality if seen by a regular physician whom she trusts.

An important strength of this study is its ability to relate patient’s report of the value they place on continuity to their report of specific aspects of the perceived adequacy of primary care and satisfaction for a given visit, either with their regular or with another physician. Nonetheless, we acknowledge several limitations. Patients might have selected these family practices in part because of the opportunities for continuity of physician. For example, continuity of physician has been reported to be lower in health maintenance organization (HMO) clinics, whereas only two practices in this study were closed-panel HMOs. In addition, the selection factors involved in the return of questionnaires might have biased the sample toward patients with greater experience of continuity. These factors, however, are likely to have reduced the variability among the independent variables and would tend to bias findings toward the null. Only 10% of our patient sample was not white, and there appeared to be no differences by race in value placed on continuity. Although other work has shown representativeness of physicians, patients, and physicians’ practice patterns from practice-based research networks, the possibility that the physicians or patients participating in this study were atypical in important ways cannot be completely eliminated. Finally, we assessed only a limited array of possible outcomes of continuity of care.

In the practice settings examined in this report, more than 90% of patients saw their regular physician. In these family practices it appears that patients were able to achieve continuity for many of those visits in which it is hypothesized to be important. Other study designs might examine effects of continuity on patient populations with more variation in the value placed on continuity and their ability to achieve it. It is also a concern to speculate about the extent to which continuity can be valued in the increasing number of settings in which it has not been experienced — it is hard to appreciate something that one has not experienced. The current organizational and financial restructuring of the health care system creates strong pressures against continuity, with employers changing plans and plans changing providers. Forced disruption in continuity of care is common, particularly for those with a managed care type of insurance, and results in lower quality of primary care. Forced disruption in continuity is more difficult for patients who are older, have more chronic illness, are in the middle of a workup for a new problem, or who have a longstanding relationship with the physician. Only about 50% of patients in previous studies report continuity of physician, and these rates could be lower for elderly minority patients and those without health insurance.

Because continuity appears to have greater importance to vulnerable populations, who in turn might experience greater difficulty achieving continuity, additional research to understand the complex effects of continuity takes on urgent policy importance. Until further evidence is available, the findings of this study should encourage design of practice systems that enhance provision of continuous, relationship-centered care, particularly for those vulnerable populations who most value and appear to benefit from it. These patients are more likely to be female, very young or old, less educated, insured through Medicare or Medicaid, and sicker by multiple measures. Because patients who have established a continuity relationship with a physician tend to value it and to report greater satisfaction and quality of care when they achieve continuity with this physician, systems to expand the experience of continuous care are needed to extend these benefits.

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