

# Does Continuous Care from a Physician Make a Difference?

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Continuity of care with a personal health care provider is both an honored and controversial concept. This paper reviews the literature regarding the effect of a continuous relationship with a personal health care provider (longitudinal care) on quality of care using specific selection criteria and methodological standards. Sixteen studies were found of which four provided most of the valid information. Among the studies reviewed, the most common serious methodological problem was inconsistent definitions of continuity.

Longitudinal care from a provider has been shown in certain settings to improve patient and staff satisfaction, compliance with medication and with appointments, and patient disclosure of behavioral problems. No ill effects have yet been demonstrated. There is some evidence that having an ongoing provider could reduce the costs of care. From available information, any evolution of the medical care delivery system away from reliance on an ongoing relationship between provider and patient may sacrifice important benefits.

The personal physician is often considered to be the ideal provider of health care. Experts from family practice,<sup>1</sup> pediatrics,<sup>2</sup> and internal medicine<sup>3</sup> have endorsed ongoing care from a personal physician. The assumption underlying this recommendation is that a continuous relationship with a health care provider improves the quality of care.

Given the observation by Aiken et al<sup>4</sup> that 78 percent of Americans have a regular physician, many patients must share this opinion.

Yet, not all physicians or patients agree. Last<sup>5</sup> wrote "Familiarity breeds contempt; continuity breeds uncritical acceptance of established diagnosis." Boyle and Rockhold<sup>6</sup> found that only 40 percent of patients in eight Virginia family practices returned the following year and only 25 percent returned for three consecutive years. McKenna and Wacker<sup>7</sup> have reported that only one half the patients enrolled in a prepaid group practice for Harvard employees had ongoing providers. Lewis<sup>8</sup> found that many consumers consider continuity to be a low priority health concern.

These seemingly conflicting statements are

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quite compatible, for different people have different preferences. Some patients like to see the same physician, others do not care. American individuals value their right to choose, but public policy can have a strong influence on these choices. A time of national choice is approaching regarding health care delivery. Issues of cost have led to several pieces of proposed legislation that would reorganize the American health care delivery system. The procompetitive strategy<sup>9</sup> would have a powerful influence on individuals' choices, and cost would assume greater significance. If the system of medical care is to change, what role should an ongoing relationship between physician and patient play? Should such relationships be encouraged?

The purpose of this review is to evaluate the available evidence concerning the effect of a personal provider on the quality of care. Does a relationship with a personal provider lead to improved quality of care? The answer to this question must precede rational policy decisions. Because the literature is both plentiful and confusing,<sup>10,11</sup> a critical review is presented by first establishing explicit processes for article selection and methodological review, then evaluating the literature and drawing conclusions about the state of knowledge and research.

## Definitions

The term *continuity of care* has been used in many ways. It can refer to ongoing care from a person (such as a physician or other health professional) or from an institution (such as a health maintenance organization, hospital, or clinic). It can also be applied to the process of care<sup>12,13</sup>—How well does a patient move from identification and diagnosis of his or her health problem to treatment and management? In a recent review, Wall<sup>14</sup> offered a unifying model of these and other definitions of continuity. This review focuses on one aspect of continuity, the ongoing relationship between patient and health care provider.

Toward more precise usage of the phrase continuity of care, Rogers and Curtis<sup>10</sup> and Starfield<sup>11</sup> made a distinction between continuity (follow-up from one visit to the next) and longitudinality (an ongoing relationship between provider and patient). Starfield concluded her editorial with a chal-

lenge to authorities to develop a standard terminology for continuity. Until that development occurs, in this paper longitudinal care is defined as an ongoing relationship between health care provider and patient that exists over time regardless of the patient's health status. According to Banahan and Banahan<sup>15</sup> this relationship is rooted in an attitudinal contract in which the patient looks to the provider for health care and the provider in turn takes that responsibility. It is the study of this meaning of continuity that addresses whether an ongoing relationship with a health care provider improves quality of care.

In this review health care includes economic and emotional as well as medical aspects of care. Improved quality of care is defined as better results on measures of process (how care is given) or outcome (what are the results of care).

## Methods

Selection criteria and methodological standards were developed before a literature search was done. Articles written in English between 1964 and 1980 were reviewed. They were identified using *MEDLINE*, *Dialog-Excerpta Medica*, and follow-up of citations.

As the first stage in the selection process, articles that lacked primary data were excluded. To pass the second stage, articles had to apply at least one measure of quality of care in the actual context of patient care and to allow the effect of an ongoing physician-patient relationship to be separable from any other concurrent interventions.

Sixteen studies reported in 18 papers<sup>16-33</sup> were selected. The effect of longitudinal care with a personal provider was not separable in 13 other studies in which longitudinal care was part of an intervention that involved many factors. An example of such an intervention would be a reorganization of a practice or a clinic that included a change in longitudinal care along with changes in waiting times or settings of care. Such studies, which were reported in 16 papers,<sup>33-49</sup> were excluded from methodological review, but because they are frequently cited in discussions of continuity and because they provide some useful information, they are cited where relevant.

Selected studies were reviewed for internal validity and general applicability according to the

**Table 1. Summary of Studies that Evaluated Continuous or Longitudinal Care with a Provider**

Reference	Reported Effect*		
	Increased Quality	No Difference	Decreased Quality
Alpert <sup>16</sup>	Appointment compliance		
Caplan and Sussman <sup>17</sup>	Staff satisfaction		
Charney et al <sup>18</sup>	Medication compliance		
Gordis and Markowitz <sup>19</sup>		Medication compliance	
Becker et al <sup>20,21</sup>	Medication and appointment compliance		
Miller <sup>22</sup>			Later referral for specialty care
Becker et al <sup>23,24</sup>	Patient satisfaction and confidence, staff satisfaction, appointment compliance	Preventive care	
Morehead and Donaldson <sup>25</sup>			Conformance with standards of care
Poland <sup>26</sup>	Appointment compliance		
Shortell <sup>27</sup>	Patient satisfaction		
Boethius <sup>28</sup>	Medication compliance		
Starfield et al <sup>29</sup>	Recognition of identified problems		
Shortell et al <sup>30</sup>	Patient satisfaction		
Woolley et al <sup>31</sup>	Patient satisfaction		
Hennelly and Boxerman <sup>32</sup>		More illness visits with less continuity**	
Roos et al <sup>33</sup>			Conformance with standards of care

\*Direction of reported effect is given, if not obvious. If study author did not characterize an effect as increasing or decreasing quality, it is listed under No Difference and designated as such  
\*\*Author did not characterize this change as increasing or decreasing quality

method developed by Sox.<sup>50</sup> Four questions were asked of each study to see if it reached reasonable conclusions from the data presented: (1) Was longitudinal care studied and different between groups? (2) Were the clinical and demographic characteristics of the patient groups comparable before the intervention? (3) Are the conclusions statistically justified by the results? (4) Are the conclusions logically justified by the results?

## Results

The 16 studies are summarized in Table 1. The quality of care issues addressed by each are con-

sidered separately below. Studies that considered longitudinal care as an inseparable part of a broader intervention are mentioned with other supportive data and then summarized in Table 2.

Of the 16 selected studies, seven examined longitudinal care (standard 1). Acceptable evidence for this included a statement that the same provider was seen at each visit during an extended period of time,<sup>17,20,21,23,24</sup> that the usual long-term provider was seen,<sup>18,31</sup> or that the physician gave complete<sup>19</sup> or personal care.<sup>16</sup> If the provider-patient relationship occurred only during a limited time period or a certain physiological state of the patient, longitudinal care as defined here did not occur.<sup>22,25,26,29</sup> When one provider gave the major-

**Table 2. Summary of Studies that Evaluated an Intervention in which Many Factors Were Changed**

Reference	Intervention	Reported Effect of Intervention on Quality*
Katz et al <sup>34</sup>	Coordinated care	Improved patient function and socioeconomic status; more hospitalizations and clinic appointments
Curry <sup>35</sup> Alpert et al <sup>36,38,39</sup>	Clinic reorganization Comprehensive care	Increased appointment compliance Fewer hospitalizations, operations, sick visits; less laboratory/x-ray use and cost; increased patient satisfaction, appointment compliance and well-child visits; no change in antibiotic cost, total number of visits, or morbidity
Heagarty et al <sup>37</sup> Gordis and Markowitz <sup>40</sup> Gordis <sup>41</sup>	Comprehensive care Comprehensive care Increased availability of comprehensive care	Lower costs of care More polio immunization; no change in preventive care or mortality Lower incidence of rheumatic fever
Finnerty et al <sup>42</sup> Finnerty et al <sup>43</sup>	Clinic reorganization Personal medical care and appointment reminders	Fewer dropouts from care Fewer dropouts from care, better blood pressure control
Berarducci et al <sup>44</sup> Breslau and Haug <sup>45</sup>	Clinic reorganization Practice moved to a setting that offered less continuity	Improved appointment compliance Fewer illness visits; no change in patient satisfaction
Gonnella <sup>46</sup>	Care from a comprehensive health care center	No difference in conformance with standards for hospital admission
Olin et al <sup>47</sup>	Care from emergency rooms or physicians' offices	Increased medication and appointment compliance in the physicians' offices (more continuity); no difference in medical outcome or conformance with standards among settings
Moore <sup>48</sup>	One physician controlled a patient's health finances	Fewer hospitalizations and shorter hospital stays
Spivack et al <sup>49</sup>	Care from different sites with different levels of continuity	Continuity correlated with increased appointment compliance and conformance with standards of care; no difference in preventive services or follow-up of abnormal test results

Note: This table includes studies of both continuous care and longitudinal care

\*All but four interventions included increased continuity by the study author's explicit report. In one of the four,<sup>45</sup> continuity was actually decreased as part of the intervention. In the other three,<sup>34,41,46</sup> increased continuity was implied

ity (or plurality) of care, but no further description of the relationship is given, longitudinality was possible, but not assured.<sup>27,28,30,32,33</sup> For some of the seven studies of longitudinal care, methodological problems were found. In one study<sup>20,21</sup> groups may not have been comparable due to the large number of dropouts who were not described (standard 2). Use of statistics did not meet methodological standard 3 in two of the seven.<sup>16,19</sup> One study<sup>16</sup> did not describe the settings or patients well enough to allow appropriate generalization. Therefore, five papers (four studies) are the source for the definitive information,<sup>17,18,23,24,31</sup> and the rest supply supportive evidence.

### *Appointment Compliance*

#### **Summary**

In a pediatric experiment, Becker et al<sup>23,24</sup> found improved appointment compliance among patients who received longitudinal care (78.5 percent compliance vs 68.9 percent for controls). Alpert's survey<sup>16</sup> found 92.5 percent appointment compliance among patients who saw one physician vs 77.3 percent for patients who saw several physicians ( $P < .07$ ). Poland<sup>26</sup> found 89.5 percent appointment compliance when prenatal patients saw a regular provider in an experiment compared with 74.5 percent for controls.

#### **Critique**

Though Becker et al applied no explicit measure, the description of the study groups assured a difference between groups. In Poland's study, the provider-patient relationship lasted only during pregnancy, so longitudinal care was not provided. Further, the statistics presented do not include a P value, and there is insufficient information to allow its calculation by the reader. Alpert's description of the practices compared in the second part of the study are inadequate.

#### **Conclusion**

In one pediatric experiment,<sup>23,24</sup> longitudinal care improved appointment compliance. This conclusion is supported by two studies that did not meet the standards as well as by seven studies

(Table 2) that included longitudinal care as part of a multiple intervention.<sup>35,38,42-44,47,49</sup>

### *Medication Compliance*

#### **Summary**

In the study by Charney et al<sup>18</sup> of patients who had otitis media or streptococcal pharyngitis, 73 percent of patients who saw their usual provider were compliant with medication. Of those who saw their provider's colleague, 54 percent were compliant ( $P < .01$ ). Becker et al<sup>20,21</sup> found a positive correlation between medication compliance in pediatric acute illness and mothers' perception of longitudinal care. Gordis and Markowitz<sup>19</sup> found no significant difference in compliance among pediatric patients on prophylaxis for rheumatic fever between a group randomized to receive a high degree of longitudinal care (42 percent compliance) and subspecialty care controls (40 percent compliance). Boethius<sup>28</sup> found fewer gaps in prescription refills among adult patients with hypertension in Sweden who saw fewer different physicians.

#### **Critique**

Charney provided enough description to assure that longitudinal care was different between groups. In the survey by Becker et al, 51 percent of subjects dropped out before the study was completed. As no information is given on dropouts, this study does not meet the standards. Gordis and Markowitz offered no mention of the probability that a significant difference was missed by chance. Given their population of about 40 in each group and an allowable probability of .05 that any difference found was due to chance alone, there was more than a 0.50 probability that this study would miss a difference of 40 percent vs 60 percent compliance between groups.<sup>51</sup> Boethius gave the number of physicians who wrote prescriptions for each patient but did not describe the physician-patient relationships, so it is not known whether longitudinal care was tested.

#### **Conclusion**

Based on the study by Charney et al, there is evidence that longitudinal care improves medica-

tion compliance in pediatric acute illness. This is supported by one study<sup>47</sup> that considered longitudinality as part of a larger intervention (Table 2). The studies that did not meet the methodological standards gave mixed results.

### *Problem Recognition*

#### **Summary**

Starfield et al<sup>29</sup> found better physician recognition of previously identified problems when a patient saw that same physician in follow-up. When patients saw a different physician, recognition was lower.

#### **Critique**

This study, though well designed and well described, concerned care between two scheduled visits, that is, sequential not longitudinal care as defined here. It is possible that an ongoing relationship between patient and provider would give the same benefit because the provider already knows the patient; however, this was not tested.

#### **Conclusion**

No firm conclusions are possible from this study regarding longitudinal care.

### *Speed of Referral for Specialized Care*

#### **Summary**

Although only peripherally related, a study by Miller<sup>22</sup> is frequently cited in the literature on continuity of care. He studied the effect of social class on referral timing for patients who had symptoms suggestive of head and neck cancer. He found that for 43.5 percent of upper-class patients referral was delayed for more than 30 days after onset of symptoms, whereas only 11.8 percent of lower-class patients and 15 percent of middle-class patients had a similar delay. He concluded, "Since 'optimal' medical care is associated with obtaining specialized care—not personalized care—upper-

class persons may not . . . be receiving the most effective medical care."

#### **Critique**

The role of longitudinal care is not clear in this study. Though more longitudinal care was implied for upper-class patients, it was not measured or adequately described. The validity of the quality measure (time from onset of symptoms until referral) is also open to question. As a process measure, lower- and middle-class patients were referred sooner, but is sooner necessarily better, as the author implied? Those studied had symptoms, but how many actually had cancer, how many required specialized care to detect it, and did early referral improve outcome? The wrong study was done to evaluate whether there was better care. The study showed that upper-class patients who may have received more longitudinality had a longer interval between presentation with symptoms and referral, not that they received less effective care.

#### **Conclusion**

This study does not help evaluate longitudinal care.

### *Preventive Care*

#### **Summary**

In their experiment,<sup>23,24</sup> Becker et al performed an audit of preventive care. An aggregate score was computed based on completed immunizations (DPT, polio, and measles) and tests (tuberculosis skin test, hematocrit, hemoglobin, and urinalysis). No statistically significant difference was found in scores (32.057 vs 32.588,  $P > .05$ ) between groups receiving different degrees of longitudinal care. Results for individual tests or immunizations were not given.

#### **Critique**

Becker et al did not explain their scoring system, so it is not possible to evaluate the validity of their aggregation method. The probability of missing a real difference by chance was not mentioned,

and there was insufficient information to allow its computation by the reader.

### Conclusion

The study by Becker et al is not helpful in its results that bear on preventive care. One study of a multiple intervention that included longitudinal care (Table 2) found preventive care was increased.<sup>38</sup> Two others did not.<sup>40,49</sup>

### *Conformance with Professional Standards of Care*

#### Summary

Roos et al<sup>33</sup> and Morehead and Donaldson<sup>25</sup> evaluated continuity and its effect on conformance with standards of care as defined by experts. Using data from claims submitted to the Manitoba Health Services Commission by physicians and hospitals, Roos et al applied standards developed by the Rand Corporation for the selection of pediatric patients for tonsillectomy and adenoidectomy. Four respiratory infections or one peritonsillar abscess in the year preceding were considered reasonable indications for surgery. As a process measure Roos et al found that patients who received more continuity were less likely to meet these standards. As an outcome measure no decrease in the incidence of respiratory illness was found for continuity patients after tonsillectomy and adenoidectomy. Morehead and Donaldson described a program of peer review of clinical management that they applied to a neighborhood health program to identify substandard care. No clear-cut relationship between continuity and quality was found. In fact, the lowest quality scores were observed when only one physician was involved in care.

#### Critique

Roos et al calculated continuity scores in four ways, each of which was based on comparing the number of visits to the physician who was responsible for the surgery (either by doing it or referring the patient for it) with the total number of visits to any provider. Morehead and Donaldson quantitated continuity in terms of the total number of physicians seen during an illness episode. Neither

of these studies described the relationships between patients and health care providers.

### Conclusion

These studies have limited bearing on the effect of longitudinal care on quality. Instead, they evaluated whether seeing fewer providers improved care.

### *Disclosure of Behavioral Problems*

#### Summary

Becker et al<sup>23,24</sup> evaluated patients' confidence in their provider by looking at the willingness of a patient's mother to disclose behavioral problems. With more longitudinal care, mothers were more likely to disclose behavioral problems (0.049 vs 0.029 for controls,  $P < .05$ ).

#### Critique

The scoring system used was not fully described, making it difficult to interpret the clinical significance of results. This process measure does not tell whether the disclosure led to a better outcome, but it is a valid indicator of quality, as a provider could not intervene if the problem were not first disclosed.

### Conclusion

The one relevant study showed that in one setting mothers of patients were more likely to disclose confidential information to personal providers who gave longitudinal care.

### *Satisfaction*

#### Summary

Satisfaction has been studied extensively. Becker et al<sup>23,24</sup> found that increased longitudinal care was associated with increased satisfaction for staff and for the mothers of pediatric patients. Positive correlations were found between seeing the same provider and satisfaction by Caplan and Sussman<sup>17</sup> for staff in adult chronic disease clinics, by Wool-

ley et al<sup>31</sup> for patients with acute illness in family practice training settings, and by Shortell et al in two studies, one on hypertensive patients in pre-paid groups,<sup>30</sup> the other on secondary data from a national survey.<sup>27</sup>

### Critique

The study by Becker et al was a randomized experiment. Caplan and Sussman, Woolley et al, and Shortell et al used regression techniques to evaluate the many factors that might promote satisfaction with care. The studies by Shortell et al did not provide sufficient information to assure that longitudinal care was being studied.

### Conclusion

Five studies found a positive relationship between continuity and satisfaction. Three dealt with longitudinal care. Consistent results found by different methodologies applied to different populations provide some evidence that longitudinal care leads to increased satisfaction. This is supported (Table 2) by two studies of longitudinality as part of a larger intervention.<sup>38,47</sup> One other study found no difference.<sup>45</sup>

## Utilization of Services

### Summary

Hennelly and Boxerman<sup>32</sup> tested a model of medical care using pooled secondary data from a national source. They found that patients who received less continuity of care had more health care visits per illness episode (1.94 visits with care from one source vs 2.29 visits when nonreferred sources of care were also used).

### Critique

The measure of continuity used was the number of sources of care consulted. The physician-patient relationship was not described.

### Conclusion

No conclusions can be drawn about the effect of longitudinal care on utilization from this study.

## Conclusions

Longitudinal care from a personal provider may be considered controversial, but some important information is known. The following statements about the effect of an ongoing relationship with a provider appear valid.

1. Satisfaction is increased for patients and staff in a variety of settings.
2. Appointment compliance is increased in low-income pediatric settings.
3. Medication compliance is increased in private pediatric settings during acute illness.
4. Disclosure of behavior problems is increased by mothers of low-income pediatric patients.
5. No negative effects of longitudinal care on quality have been demonstrated.
6. No adequate studies were found that address morbidity, mortality, preventive services, or speed of referral.

The main methodologic difficulty is one of definition. Until authorities agree on terminology, the distinction between longitudinal care and majority of care or sequential care should be kept in mind. Attention to careful definition of continuity, to detailed description of interventions and settings, to use of appropriate statistics, and to the relationship between data and conclusions are essential to good research. The study of costs and of different effects of longitudinal care in different settings and for different populations is particularly important now. The ongoing relationship between patient and physician should not be taken for granted. When the available data are carefully scrutinized, there is little controversy. Longitudinal care has proven advantages in some settings and for some patients. Any changes in health policy that are forthcoming should consider the physician-patient relationship carefully, not as an afterthought.

### Acknowledgments

This paper resulted from work supported by the Veterans Administration and the Robert Wood Johnson Foundation Clinical Scholars Programs.



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