

# Continuity of Primary Care Clinician in Early Childhood

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**ABSTRACT.** *Objectives.* This study uses the first national data on well-child care for young children to 1) assess how many children have a specific clinician for well-child care; 2) identify the health insurance, health care setting, and child and family determinants of having a specific clinician; and 3) assess how parents choose pediatric clinicians.

*Methods.* Data from the National Survey of Early Childhood Health (NSECH), a nationally representative survey of health care quality for young children fielded by the National Center for Health Statistics in 2000, were used to describe well-child care settings for children aged 4 to 35 months. Parents reported the child's usual setting of well-child care, whether their child has a specific clinician for well-child care, and selection method for those with a clinician. Bivariate and logistic regression analyses are used to identify determinants of having a specific clinician and of provider selection method, including health care setting, insurance, managed care, and child and family characteristics.

*Results.* Nearly all young children aged 4 to 35 months in the United States (98%) have a regular setting, but only 46% have a specific clinician for well-child care. The proportion of young children who have a single clinician is highest among privately insured children (51%) and lowest among publicly insured children (37%) and uninsured children (28%). In multivariate logistic regression including health care and sociodemographic factors, odds of having a specific clinician vary little by health care setting. Odds are lower for children who are publicly insured (odds ratio [OR]: 0.7; 95% confidence interval [CI]: 0.45–0.97) and for Hispanic children with less acculturated parents (OR: 0.6; 95% CI: 0.39–0.91). Odds are higher for children in a health plan with gate-keeping requirements (OR: 1.4; 95% CI: 1.02–1.88). Approximately 13% of young children with a specific clinician were assigned to that provider. Assignment rather than parent choice is more frequent for children who are publicly insured, in managed care, cared for in a community health center/public clinic, Hispanic, and of lower income and whose mother has lower education. In multivariate logistic regression, only lack of health insurance, care in a community health center, and managed care participation are associated with lack of choice.

*Conclusions.* Anticipatory guidance is the foundation of health supervision visits and may be most effective when there is a continuous relationship between the pediatric provider and the parent. Only half of young children in the United States are reported to have a specific clinician for well-child care. Low rates of continuity are found across health care settings. Furthermore, not all parents of children with a continuous relationship exercised choice, particularly among children in safety net health care settings. These provisional findings on a new measure of primary care continuity for children raise important questions about the prevalence and determinants of continuity. *Pediatrics* 2004;113:1917–1925; continuity of care, clinician, health services, child health.

ABBREVIATIONS. AAP, American Academy of Pediatrics; NSECH, National Survey of Early Childhood Health; PCP, primary care provider; OR, odds ratio; CI, confidence interval.

Primary care is defined as provision of first-contact care, continuity, longitudinality, coordination, and comprehensiveness.<sup>1–4</sup> Continuity of primary care has been defined as an uninterrupted succession of services made possible by having a single provider or by the exchange of medical information among providers.<sup>2</sup> Continuity is thought to improve health care quality through the relationship that develops between the provider and that patient and that is based on greater provider knowledge about the patient. It has been argued that particularly in pediatric health care, collaborative and positive relationships between the physician and the parent can improve the quality of the preventive visit and the effectiveness of advice and counseling.<sup>5</sup> The American Academy of Pediatrics (AAP) uses the essence of this concept in promoting the “medical home,” defined as a place that promotes access and coordinates care.<sup>6</sup> It is thought that preventive care for children should be continuous (a visit-based concept) as well as “longitudinal” with a personal relationship between the patient and a personal physician or setting extending over a period of time.<sup>2</sup>

A usual source of health care (defined in literature as either a place or a person) is an essential element of primary care and has a well-documented impact on health care access.<sup>7–10</sup> Having a usual source facilitates access to health care and for children is associated with total physician visits,<sup>11</sup> higher rates of preventive care use,<sup>12,13</sup> and immunization status.<sup>14</sup> Factors that are associated with children's having a usual source include insurance status, race/ethnicity, education, income, and health status.<sup>15,16</sup>

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A continuous relationship with a specific clinician, rather than just a place of care, may yield additional benefits. Adults have been found to value having a specific primary care provider.<sup>17</sup> Having a specific clinician is associated with adult adherence to clinical advice and with overall satisfaction with care<sup>18</sup> as well as with higher ratings of the patient–physician relationship,<sup>19</sup> higher self-rated access to medical care,<sup>20</sup> and fewer unmet needs and emergency department ambulatory visits, particularly for publicly insured and uninsured.<sup>21</sup> Apparent adverse effects of racial/ethnic differences on the relationship between patient and primary care provider diminish among adults who have a specific clinician at their primary care setting.<sup>22</sup> Studies including adults and children show that those with a regular physician have more physician visits than those with only a usual source or with no usual source,<sup>23–25</sup> although greater recent use of care creates a perception of continuity<sup>2</sup> and calls into question the causal direction between continuity and utilization. Although reports of having a specific clinician in cross-sectional studies do not necessarily measure longitudinality (the duration of relationship), they provide a basic indication of provider continuity. Several clinic-based surveys suggested that continuity with a particular person is associated with better coordination of care for children<sup>26</sup> and with quality.<sup>27</sup>

Having a specific clinician may be particularly important in early childhood because anticipatory guidance is a major component of well-child care for young children. AAP guidelines and Bright Futures call for discussion of psychological and social and family issues within pediatric visits.<sup>6,28</sup> Assessment and guidance on these topics may be most effective when the family and the provider have an ongoing relationship. The importance of an enduring relationship with a parent and a child is a core principle in training pediatric residents as reflected in the Residency Review Committee requirement that residents follow their own panel of patients.<sup>29</sup> Despite the importance of continuity and longitudinality, little is known about the national prevalence of young children's having a specific provider for well-child care. National Health Interview Survey data for 1993–1994 showed that 86.2% of insured children and 75.7% of uninsured children who were aged 0 to 17 years and had a usual source also had a regular physician.<sup>15</sup>

Provider choice among adults is also known to contribute to improved interpersonal care, adherence to physician recommendations, and satisfaction with primary care.<sup>30</sup> Even in a health maintenance organization that limits choice to physicians within a staff network, adults who chose their personal physician have higher overall satisfaction than those who were assigned to a physician.<sup>31</sup> Having choice of providers is associated with greater patient trust in the physician.<sup>32</sup> The extent to which managed care growth and selective provider contracting have affected parents' ability to select a primary care physician for their child is not known.

The aim of this study was to identify the prevalence of continuity of care for young children, as measured by having a specific clinician, and the

prevalence of provider choice. The study also examines the sociodemographic, health care setting, and health insurance determinants of provider continuity. A second aim was to identify the prevalence and determinants of parents' choosing a provider for their child.

## METHODS

The National Survey of Early Childhood Health (NSECH) used a stratified random-digit-dial sampling design to achieve a nationally representative sample of children 4 to 35 months of age. The survey oversampled black and Hispanic children to improve estimates for these subgroups. NSECH was a module of the National Center for Health Statistics' State and Local Area Integrated Telephone Survey mechanism. A more complete description of the NSECH design has been published elsewhere.<sup>33,34</sup>

A series of ~30-minute structured telephone interviews were conducted in English or Spanish between February 16 and July 16, 2000. When there were multiple children between age 4 and 35 months in a household, 1 child was randomly selected. The respondent was the parent or guardian who is primarily responsible for the child's health care and is usually the mother (87%), with 12% fathers and 1% other guardians.

The weighted data include adjustments for households with no telephones or multiple telephones, multiple eligible children in the household, nonresponse, oversampling of black and Hispanic children, and poststratification to match population control estimates from Vital Statistics.

## Dependent Variables

To assess whether a child has a specific clinician, parents were asked, "Is there a particular doctor or other health care provider that you usually take (child) to for well-child care? By health care provider I mean any nurse, nurse practitioner, physician assistant, or other person who may have provided health care to (child)." All parents were told by the interviewer, "Well-child care visits are visits that are made to a doctor or health care provider who takes care of (child) when he/she is not sick but needs a check-up or a shot."

Provider choice was assessed by asking parents who reported having a specific clinician how they chose the child's clinician. Response options included 1) already using the provider for another family member, 2) recommended by a friend or someone you trust, 3) selected from a list, or 4) assigned by the child's health plan or clinic. Parents who were already using the provider for another family member were asked a follow-up question on how the provider was originally chosen, with response options of 1) recommended, 2) selected from a list, or 3) assigned. We use 2 measures of assignment: 1) parent report that the NSECH child was assigned to a clinician and 2) parent report either that the NSECH child was assigned or that the clinician was originally assigned to another family member, thereby accounting for the original selection method for parents who reported a previous relationship with the specific clinician. The 10% of children who had a specific clinician and whose selections method was "other, not specified" are excluded from this analysis.

## Independent Variables

Parents reported whether their child had a usual setting for well-child care. Those with a usual setting identified 1 of the following settings: physician or nurse practitioner in a private or group practice, community health center/public clinic, hospital clinic, and an urgent care or walk-in clinic. Approximately 2% receive care in an emergency department or other setting and are excluded from bivariate and multivariate analysis.

We define managed care participation among insured children using 2 gatekeeping indicators asked of the respondent: 1) having to sign up with a primary care provider (PCP) or clinic and 2) requiring a referral/approval to see another doctor for specialty care. Because managed care gatekeeping applies only to insured children, in multivariate analyses, we impute gatekeeping as absent for uninsured children to retain this subgroup in the models.

Health insurance, measured at the time of the interview, is defined as follows: 1) exclusively private, 2) exclusively public (Medicaid, the State Child Health Insurance Program, CHAMPUS/

TriCare, Medicare, and/or Title V), 3) both public and private or some other coverage (public and private insurance and/or Indian Health Services or a limited benefit plan), or 4) no current insurance.

Child health status is measured using 2 measures. First, children with special health care needs are identified using 2 of the 5 items of the Children With Special Health Care Needs Screener.<sup>35</sup> Questionnaire length restrictions precluded using all 5 items. A child has special health care needs when the child has a medical or behavioral condition that has lasted or is expected to last at least 12 months and requires 1) prescription medication and/or 2) more medical services than usual for children of the same age. Previous validation shows that these 2 items capture ~90% of the children 0 to 18 years identified as having special health care needs on the basis of the full 5-item Children With Special Health Care Needs Screener.<sup>35</sup> Second, children's health status was measured using a global rating with 5 response options, dichotomized for analysis as 1) "excellent" or "very good" or 2) "good," "fair," or "poor."

Other independent variables include maternal education and child race/ethnicity. Child's race/ethnicity was categorized as Hispanic; non-Hispanic white; non-Hispanic black; and other non-Hispanic. Hispanic children were further categorized as having a more acculturated parent or a less acculturated parent on the basis of the language of interview (English or Spanish). Preferred language is 1 proxy for acculturation, which may be an important determinant of health care access,<sup>36</sup> and no other acculturation measure was available in the survey. National Center for Health Statistics imputed child race/ethnicity for the 2.8% of children ( $N = 93$ ) with missing information.<sup>34</sup> Region of the country (Northeast, South, Midwest, West) was examined because of possible regional differences in PCP supply and practice patterns.

### Statistical Analysis

Descriptive statistics were used to present the prevalence of having a specific clinician and the method of provider choice among children with a single clinician. Bivariate associations, including subgroup comparisons, were assessed using the  $\chi^2$  test of independence. Multivariable logistic regression was used to identify the determinants of having a specific clinician and determinants of the method of provider choice. Models were estimated first using only health care setting and insurance factors and second adding child health status and sociodemographic factors. Predictor variables were included in the multivariable models when they were associated with the outcome variable in bivariate analysis at  $P < .10$ . Because of its relevance for health care access and inclusion in most previous studies, child's health status was included in regression analysis irrespective of bivariate association. Survey respondent (mother, father, other) was included in multivariable analysis to account for possible differences in familiarity with the child's usual setting on the basis of the survey respondent. In multivariable analysis of provider choice, sample size limitations caused several categories for some independent variables to be collapsed on the basis of inspection of the bivariate associations. These include categories of Hispanic race/ethnicity, maternal education, and household income. Complex survey estimation procedures in Stata 7.0 were used to account for survey design.

## RESULTS

### Setting of Well-Child Care

Nearly all (98%) young children have a usual setting for well-child care. Most (73%) receive well-child care from a physician or a nurse practitioner in a private or group practice setting (Table 1).

Although the modal setting of well-child care among young children is a group practice, the proportion differs by health insurance type. Approximately 86% of privately insured children, 61% of publicly insured children, and 49% of uninsured children aged 4 to 35 months receive care in a private group practice setting. A community health center/public clinic is less frequently the regular setting for privately insured children (9%) than for publicly insured (25%), publicly and privately insured (20%), or uninsured (38%) children.

Approximately 56% of insured children are required by their health plan to sign up with a PCP, whereas 65% need approval or referral to obtain specialty care. Managed care gatekeeping does not vary between children with private insurance, public insurance, or both public and private insurance.

### Association Among Continuity of Clinician, Usual Setting, and Insurance

Table 2 shows that approximately half (46%) of young children receive well-child care from a specific clinician. Health care setting is associated with the likelihood of having a specific clinician. Approximately half (46%) of the children in private group practices or in community health centers (50%) have a specific clinician, whereas rates are lower for children in a hospital clinic (37%) or in an urgent care or walk-in setting (38%;  $P < .01$ ).

Rates of having a specific clinician for well-child care are highest among privately insured (51%) and lower among publicly insured (37%) and uninsured (28%) children ( $P < .05$ ). Subgroup comparisons show that among children in private group practices, more privately insured than publicly insured have a specific clinician (49% vs 37%;  $P < .01$ ). Among children who receive well-child care in community health centers, privately insured are also more likely than publicly insured children to have a specific clinician (71% vs 40%;  $P < .01$ ). Additional bivariate

**TABLE 1.** Usual Setting of Well-Child Care for US Children 4 to 35 Months

	Physician or Nurse Practitioner in Private or Group Practice		Community Health Center/Public Clinic		Hospital Clinic		Urgent Care or Walk-in Clinic	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Total*	73	1435	17	373	6	156	2	55
Health insurance type								
Private	86†	775	9	87	2	35	2	17
Public	62	382	25	154	10	67	3	17
Private and public	61	203	20	58	10	37	4	15
Uninsured	49	75	38	74	7	17	3	6

Percentages are weighted and adjusted for survey design effect.

\* 2% of children are reported to have an "other" usual setting

†  $P < .01$  ( $\chi^2$  test of independence of health insurance type and usual setting).

**TABLE 2.** Having a Specific Clinician By Insurance, Setting, and Managed Care Gatekeeping

	% Having a Specific Clinician for Well-Child Care									
	Total		Private		Public		Public and Private		Uninsured	
	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%	<i>n</i>
Total	46	930	51†	465	37	249	53	158	28	58
Location of well-child care										
Private or group practice	46*	653	49‡	375	37	157	51	95	34	26
Community health center/public clinic	50	165	71	50	40	55	60	35	26	25
Hospital clinic	37	63	39	16	28	25	51	17	—	5
Urgent care or walk-in clinic	38	21	52	10	—	6	—	4	—	1
Insurance requires PCP sign-up										
Yes	46	479	49	254	40	138	46	86	—	—
No	47	377	51	200	32	106	61	69	—	—
Approval needed for specialty care										
Yes	49	540	52	290	40	155	55	94	—	—
No	44	289	48	153	29	77	51	57	—	—

Percentages are weighted and adjust for survey design effects.

—denotes that estimate does not meet standard of reliability and precision (coefficient of variation exceeding 0.3)

\*  $P < .01$  ( $\chi^2$  test of independence of having specific clinician and usual setting).

†  $P < .05$  ( $\chi^2$  test of independence of having specific clinician and health insurance type).

‡  $P < .01$  ( $\chi^2$  test of independence of having a regular clinician by setting and insurance type).

analysis shows that children who visit community health centers and have specific clinicians are more likely than the other children in this setting to be non-Hispanic white, living in the Midwest, and in middle-income households (\$35 000–\$60 000 annually; data not shown). Fewer uninsured than insured children have a specific clinician in any setting, with only 34% in private group practices and 26% in community health centers having a specific clinician.

Neither managed care gatekeeping measure (PCP sign-up requirement; approval/referral required for specialty care) is associated with having a specific clinician among insured children. There is also no statistically significant association with managed care gatekeeping among the subgroup of publicly insured children. Among publicly insured children, 40% with the PCP sign-up requirement and 32% without it have a specific clinician ( $P = .06$ ), whereas 40% with the specialty care approval requirement and 29% without it have a specific clinician ( $P = .06$ ).

**Association Among Continuity of Clinician, Child Health Status, and Sociodemographic Factors**

A larger percentage of non-Hispanic white (49%), black (40%), and Hispanic children with more acculturated parents (46%) have a specific clinician (Table 3). The lower rate among Hispanic children is primarily attributable to the subgroup of children identified with a less acculturated parent (based on Spanish language interview). Comparing subgroups of Hispanic children shows that fewer Hispanic children with less acculturated parents than Hispanic children with more acculturated parents have a specific clinician (29% vs 46%;  $P < .001$ ).

Children with special health care needs are no more likely than other children to have a specific clinician for well-child care (55% vs 45%). There is also no association with global health status. Children whose mother has less than a high school education less frequently have a specific clinician than children whose mother has at least a high school

**TABLE 3.** Having a Specific Clinician, by Child and Family Factors

	Have Specific Clinician	
	%	<i>n</i>
Child characteristics		
Child age		
4–9 mo	45	201
10–18 mo	50	321
19–35 mo	44	408
Child race/ethnicity and parent acculturation*		
Non-Hispanic white	49†	361
Black	40	200
Hispanic, more acculturated	46	208
Hispanic, less acculturated	29	125
Other	62	36
Presence of special health care need		
CSHCN	55	68
Not CSHCN	45	842
Global health status		
Excellent or very good	46	765
Good, fair, poor	43	165
Parent and household characteristics		
Maternal education		
Less than high school	36†	156
High school graduate	47	291
More than high school	49	483
Household income		
<\$17 500	40	215
\$17 501–\$35 000	44	237
\$35 001–\$60 000	51	190
>\$60 000	48	190
Region of country		
South	41	307
Northeast	46	159
Midwest	51	187
West	48	277

CSHCN indicate child with special health care needs.

\* Based on child race/ethnicity and the language of the interviewed parent.

†  $P < .01$  ( $\chi^2$  test of independence).

education ( $P < .01$ ). Region of the United States and household income are not associated with having a specific clinician.

### Multivariable Findings for Having a Specific Clinician

Multivariable analysis using only health care factors (insurance type, usual setting of well-child care, managed care gatekeeping) shows lower odds of having a specific clinician for children who are publicly insured (odds ratio [OR]: 0.6; 95% confidence interval [CI]: 0.44–0.83) or uninsured (OR: 0.5; 95% CI: 0.28–0.96; Table 4). Odds are higher for children whose usual setting is a community health center or clinic than for children in group practices. Because bivariate results show that more privately insured than publicly insured children within community health centers have a specific clinician (Table 3), the multivariable model tests this hypothesis using an interaction term. Results show that the higher odds of continuity in community health centers than in private group practice is attributable to greater continuity among the small number of privately insured children in community health centers (OR: 2.4; 95% CI: 1.1–5.2). Odds of having continuity are higher for

children with managed care gatekeeping (requiring approval for specialty care; OR: 1.5; 95% CI: 1.1–2.0), although having a PCP sign-up requirement does not increase odds of continuity.

When both health care and child and family determinants are examined in multivariable logistic regression, the associations between health care factors and continuity remain, with the exception that uninsured children no longer have lower odds than insured children. Odds are higher for privately insured children in community health centers/clinics (OR: 2.3; 95% CI: 1.0–5.2) and for children in managed care (OR: 1.4; 95% CI: 1.0–1.9). Odds are lower for publicly insured children (OR: 0.7; 95% CI: 0.4–0.9) and for Hispanic children with a less acculturated parent (OR: 0.6; 95% CI: 0.4–0.9). Presence of a special health care need, maternal education, household income, and region of the country are not associated with continuity of clinician when controlling for other factors.

**TABLE 4.** Multivariate Determinants of Having a Specific Clinician

	Health Care Factors*			Health Care and Child/Family Factor†				
	OR	P Value	95% CI	OR	P Value	95% CI		
Health care setting								
Private or group practice	1.00			1.00				
Privately insured in CHC/public clinic	2.36	.03	1.08	5.17	2.32	.04	1.03	5.25
CHC/public clinic	1.12	.60	0.73	1.74	1.20	.43	0.76	1.88
Hospital clinic	0.77	.28	0.48	1.24	0.78	.32	0.48	1.28
Urgent care center	0.76	.46	0.37	1.57	0.74	.43	0.34	1.58
Health insurance								
Private	1.00			1.00				
Public	0.60	<.001	0.44	0.83	0.66	.03	0.45	0.97
Public and private	1.12	.35	0.82	1.73	1.21	.34	0.82	1.80
Uninsured	0.52	.04	0.28	0.96	0.65	.19	0.34	1.24
Managed care								
No PCP requirement	1.00			1.00				
Required to sign up with PCP	0.80	.13	0.60	1.07	0.83	.20	0.62	1.11
No approval required	1.00			1.00				
Need approval for specialty care	1.47	.01	1.08	1.98	1.38	.04	1.02	1.88
Health status								
Not CSHCN	—	—	—	—	1.00			
CSHCN	—	—	—	—	1.54	.13	0.88	2.70
Child race/ethnicity and parent acculturation								
Non-Hispanic white	—	—	—	—	1.00			
Black	—	—	—	—	0.85	.34	0.60	1.19
Hispanic, more acculturated	—	—	—	—	0.98	.90	0.70	1.37
Hispanic, less acculturated	—	—	—	—	0.59	.02	0.39	0.91
Other	—	—	—	—	1.44	.32	0.70	2.99
Maternal education								
Less than high school	—	—	—	—	0.78	.25	0.51	1.19
High school	—	—	—	—	0.97	.83	0.71	1.31
More than high school	—	—	—	—	1.00			
Household income								
<\$17 500	—	—	—	—	1.00			
\$17 500—35 000	—	—	—	—	0.87	.47	0.59	1.28
\$35 001—60 000	—	—	—	—	0.98	.94	0.63	1.54
>\$60 000	—	—	—	—	0.84	.48	0.51	1.37

CHC indicates community health center.

Dependent variable is having a specific clinician.

\* Referent categories are West region; regular setting of care is private group practice; exclusively privately insured; not having to sign up with a PCP or practice/clinic; not requiring a referral/approval to see a specialist. Insured children who have missing data for gatekeeping variables are excluded. Model also controls for respondent (mother, father, other).

† N = 1683. Referent categories are West region; regular setting of care is private group practice; exclusively privately insured; not requiring a referral/approval to see a specialist; not CSHCN; white child race/ethnicity; mother respondent; having more than a high school education; having annual household income >\$60 000. Included variables that are not displayed include respondent (mother, father, other) and region of country (West, Northeast, Midwest, South).

### Selection of Pediatric Providers

The following section describes how the provider was chosen for the 46% of young children who have a specific clinician. Most (89%) parents of these children reported choosing the child's provider. For 39%, the provider was already caring for another family member, whereas 32% selected the clinician on the basis of a recommendation (of these, most [76%] received a recommendation from a family member or a friend, whereas the remainder received a recommendation from another health care provider). Approximately 18% of parents selected the provider from a list. The remaining 11% were assigned by a clinic or a health plan. When previous assignment to a family member is accounted for, 15% are identified as having an assigned provider.

Table 5 shows that using either assignment measure, the proportion of children with an assigned provider varies by usual setting of care and by insurance status. Children in community health cen-

ters or in hospital outpatient settings have twice the rate of assignment as children in private group practice. Publicly insured children are 3 times as likely as privately insured children to have been assigned to their provider. Children in managed care are no more likely to be assigned than insured children who are not in managed care.

Children with special health care needs and those with poorer global health are equally likely as other children to be assigned. Hispanic children are almost twice as likely as non-Hispanic white children to be assigned by the clinic or health plan. Assignment is also more frequent among children who have a lower educated mother and are in the lowest income households.

In multivariable analysis, odds of assignment are higher for children who are receiving well-child care in a community health center or hospital clinic, uninsured, or in managed care (Table 6). Odds of assignment do not differ by race/ethnicity, maternal

**TABLE 5.** Method of Provider Choice, Among Children With a Specific Clinician

	Provider Was Assigned to Child		Provider Was Assigned to Child or Originally Assigned to Other Family Member†		Total N
	%	P Value	%	P Value	
<b>Health care setting</b>					
Private or group practice	8	<.01	10	<.01	595
CHC/public clinic	18		27		146
Hospital clinic	28		33		57
<b>Insurance</b>					
Private	7	.01	9	<.01	432
Public and private	10		12		135
Public	20		26		223
Uninsured	19		42		49
<b>Managed care</b>					
Required to sign up with PCP	10	.41	14	.67	430
No PCP requirement	12		16		391
Need approval for specialty care	12	.76	16	.77	488
No approval required	11		14		310
<b>Region</b>					
Northeast	7	.34	9	.17	150
Midwest	9		14		168
South	13		19		274
West	13		13		247
<b>Special health needs</b>					
CSHCN	13	.64	16	.83	61
Not CSHCN	10		14		759
<b>Health status</b>					
Excellent/very good	10	.17	13	.05	696
Good/fair/poor	16		24		143
<b>Child race/ethnicity and parent acculturation</b>					
Non-Hispanic white	8	<.01	12	.01	317
Black	16		24		138
Hispanic, more acculturated	17		20		124
Hispanic, less acculturated	26		27		101
<b>Maternal education</b>					
Less than high school	24	<.01	28	.01	143
High school	8		15		256
More than high school	9		11		440
<b>Income</b>					
<\$17 500	21	<.01	24	<.01	195
\$17 500–35 000	8		9		210
\$35 000–60 000	9		15		171
>\$60 000	7		7		176

\* Method of choosing child's clinician is assignment by a clinic or health plan, rather than being recommended by someone, already using the provider for another family member, or selected from a list, among children with a specific clinician.

† Method of choosing child's clinician is assignment by a clinic or health plan, either for the child or originally for someone else in the family.

**TABLE 6.** Multivariate Determinants of Clinician Assigned by Clinic or Health Plan

	Provider Was Assigned to Child*				Provider Was Assigned to Child or Originally Assigned to Other Family Member†			
	OR	P Value	95% CI		OR	P Value	95% CI	
Health care setting								
Private or group practice	1.00				1.00			
CHC/public clinic	1.79		0.95	3.39	2.50	.01	1.20	5.19
Hospital clinic	3.02	<.01	1.36	6.71	3.57	<.01	1.58	8.06
Urgent care center	1.04	.95	0.29	3.78	2.76	.17	0.65	11.64
Health insurance								
Private	1.00				1.00			
Public	1.20	.65	0.54	2.68	1.47	.33	0.67	3.24
Public and private	1.02	.97	0.43	2.39	0.95	.90	0.43	2.10
Uninsured	1.90	.30	0.56	6.45	6.63	<.01	1.92	22.86
Managed care								
Required to sign up with PCP	0.59	.14	0.30	1.19	0.82	.52	0.44	1.52
No PCP requirement	1.00				1.00			
Need approval for specialty care	1.98	.08	0.92	4.26	2.07	.04	1.05	4.08
No approval required	1.00				1.00			
Child race/ethnicity and parent acculturation								
Non-Hispanic white	1.00				1.00			
Black	1.54	.29	0.69	3.42	1.73	.11	0.88	3.41
Hispanic	1.71	.15	0.82	3.58	1.27	.48	0.65	2.52
Other	0.81	.78	0.18	3.54	0.85	.81	0.23	3.13
Maternal education								
Less than high school	1.87	.08	0.93	3.76	1.51	.23	0.77	2.95
High school or above	1.00				1.00			
Household income								
<\$17 500	1.65	.20	0.76	3.61	1.19	.64	0.57	2.47
≥\$17 500	1.00				1.00			

Base is children with a specific clinician. Model also includes presence of special health care need and respondent parent. Referent categories are regular setting of care is private group practice; exclusively privately insured; no PCP sign-up requirement; not requiring a referral/approval to see a specialist; white child race/ethnicity; maternal education high school or above; household income >\$17 500. \* Method of choosing child's clinician is assignment by a clinic or health plan, rather than being recommended by friends/family, already using the provider for another family member, or selection from a list. † Method of choosing child's clinician is assignment by a clinic or health plan, either for the child or originally for someone else in the family.

education, or household income when controlling for health care factors. Few differences in the odds of assignment are found when only the child's assignment to a provider, not previous assignment of a family member, is considered.

### DISCUSSION

Using a new measure of health care continuity, this national study shows that although nearly all young children have a usual place for well-child care, only half (46%) are reported to have a specific clinician. Because half of all pediatric visits are scheduled within the first 3 years of life, this low rate suggests that a large proportion of anticipatory guidance is not being provided in the context of a longitudinal relationship. This study is also the first to suggest that although most parents who reported a longitudinal relationship have chosen their child's physician, assignment to a provider is more common among children who are uninsured, in community health centers, or in managed care compared with other children.

Our findings support recent studies showing that continuity and longitudinality in pediatric care are multidimensional, involving both a particular place and a particular person. The studies show that low rates of clinician continuity are not limited to those who lack a usual source or receive care in discontinuous settings, such as urgent care centers or emer-

gency departments. Although several previous studies showed that children in community health centers/public clinics may receive less continuity in well and sick care,<sup>23,37</sup> our findings suggest that children in private group practices as well as in community health centers receive preventive care from multiple physicians. Past studies may have underestimated the multiple providers of care for children in private office settings.

A British study found low clinician continuity in group practices,<sup>38</sup> but this is the first US study to show low rates of continuity for children in office-based settings. Changes in how care is provided for young children may explain the finding. Pediatric care is increasingly being provided in group practices where >1 physician and/or nonphysician may share in providing preventive care.<sup>39</sup> A recent AAP survey showed that the modal setting for pediatricians who provide health supervision to children under age 3 is a pediatric group practice (32%), with only 9% in solo practice.<sup>40</sup> Solo practice among all pediatricians declined from 14% in 1993 to 11% in 2000, whereas pediatric group practice increased from 20% to 28%.<sup>40</sup> A growing workforce of female physicians including pediatricians who are more likely to work part time<sup>41</sup> may be affecting both practice structure and continuity. The percentage of pediatricians who work part-time increased from 11% in 1993 to 15% in 2000.<sup>42</sup>

Children's risk for discontinuity is exacerbated by changes in insurance coverage, from employer switches in offered health plans, and by gaps in eligibility for the major public programs Medicaid and State Child Health Insurance Program. Parents of young children are younger than the average parent and are most likely to experience job changes and corresponding health plan switches.<sup>43</sup> These factors may compromise parents' attempts to have a longitudinal relationship.

It is a tenet of primary pediatric care that having a provider who knows the child and the family is needed for effective anticipatory guidance, parent education, and communication with the parent. Well-child care emphasizes anticipatory guidance that is responsive to the child's and the family's changing developmental and psychosocial needs. Although the pediatric literature on this topic is limited, findings from studies of adults show that having a specific clinician is important for preventive health care quality. Adults tend not to consider teams of primary care providers as their own doctors.<sup>44</sup> Approximately half of adults nationally who have a primary physician say that 1 or more other clinicians in the practice also provide care to them, and these adults rate their own clinician better than other clinicians on the team on measures of knowledge of the patient as a person and explanations of medical problems.<sup>45</sup> Patients report greater satisfaction and adherence to medical recommendations when they experience visit-based continuity and believe that the clinician knows them.<sup>18</sup> Adults who always see the same PCP for both sick and preventive care give the highest continuity ratings<sup>44</sup> among adults who report having a primary care physician. Most adults also prefer clinician continuity to immediate access to a physician, as well as convenient appointment times.<sup>45</sup> Longitudinality may have even greater relevance in pediatric than adult care because it enables the clinician to understand developmental progress and to target a broad set of guidance and counseling topics on the basis of family need. Although it may be adequate to see any clinician within the usual setting when care is needed, several pediatric studies suggest that parents report better access and satisfaction when there is continuity with a specific clinician.<sup>23,46,47</sup> A recent study of children with a specific clinician showed higher interpersonal quality ratings by parents of children with greater continuity index scores on the basis of longitudinality in well-child and sick visits combined.<sup>27</sup> Among adults, a relationship with a personal physician is known to be valued more for preventive care and psychosocial issues than for acute illness care.<sup>48</sup>

Managed care requirements might be expected to increase the likelihood that an enrolled child will have a designated PCP. Studies among adults show small although statistically significant increases for those in managed care in the probability of having a specific clinician.<sup>19</sup> Our study finds no association between a PCP sign-up requirement and continuity in well-child care. Small sample size precludes this study from detecting anything other than a large difference in continuity between publicly and pri-

vately insured children. Managed care requirements may have the largest impact among publicly insured children given that barriers to continuous primary care are more prevalent for low-income children, who are most at risk for access problems and discontinuity.

This study also examined whether parents chose their child's provider. Previous research shows that adults in an health maintenance organization who choose their PCP are more satisfied with several features of their care than those who are assigned<sup>31</sup> and are more likely to adhere to treatment regimens (among adults with diabetes).<sup>30</sup> Whereas most parents with a specific clinician chose their young child's provider, parents of children in community health centers are less likely than parents in group private practices to make a choice. Parents who seek care in these settings may not have the option to choose their clinician, and there may be greater staff turnover that interferes with continuity. Nonwhite and particularly less acculturated Hispanic parents either have less choice or fail to make a choice when faced with options. Possible reasons include lack of familiarity and disenfranchisement with the health care system, predominant use of settings where choice is less available, lack of providers in their geographic area who meet their linguistic or cultural needs and who might be selected if available, or lack of contact with other parents and family/friends about health care sources.

There are several limitations to this study. First, this study uses a new measure that has not been used widely. Different definitions of usual source (setting or person) and regular provider have been used to measure continuity of care.<sup>1</sup> Most previous national surveys of pediatric care (eg, Medical Expenditure Panel Survey, National Health Interview Survey) ask about a usual provider for care when the child is sick or advice is needed about their health. The Consumer Assessment of Health Plan Satisfaction asks whether there is 1 provider (doctor or nurse) who knows the child best. The importance of word choice in assessing primary care relationships and content underscores the need for additional testing and validation. Second, this study did not directly measure the duration of relationship with the specific clinician ("longitudinality") or measure continuity of visits as assessed in measures that quantify the number of PCPs seen and the sequence of visits, using a continuity index implemented in clinical settings.<sup>26,27,49</sup>

In conclusion, parents of more than half of young children report not having a specific clinician for well-child care. That only half of the children in mainstream health care settings have a specific clinician suggests the need for additional study of how emerging health care delivery patterns affect the context and quality of well-child care. Children whose parents are least likely to be empowered consumers of health care, as a result of lower education and lower acculturation, are also less likely to choose their child's provider. Although these results should be considered provisional, they show the need for additional research to determine whether children



are better served by having a specific clinician or if receiving care at the same site is adequate to ensure quality of care and outcomes.

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