

The Impact of Insurance on Satisfaction and Family-Centered Care for CSHCN

abstract

BACKGROUND: Children with special health care needs (CSHCN) have worse health outcomes and satisfaction compared with children with typical needs. Although individual characteristics influence satisfaction and family-centered care, additional effects of health insurance and state child health policies are unknown.

OBJECTIVES: To determine if satisfaction and family-centered care varied among CSHCN, after adjusting for individual characteristics, according to insurance type and state child health policies.

METHODS: We performed descriptive and multivariate analyses by using demographic, insurance, and satisfaction data from the 2006 National Survey of Children With Special Health Care Needs ($N = 40\,723$). Additional state data included Medicaid and State Children's Health Insurance Program (SCHIP) characteristics and the supply of pediatricians. We supplemented the national findings with survey data from Florida's SCHIP comprehensive care program (CMS-Duval ["Ped-I-Care"]) for CSHCN ($N = 300$).

RESULTS: Nationally, 59.8% of parents were satisfied with their child's health services, and two thirds (65.7%) received family-centered care. Adjusting for individual predictors, those uninsured and those with public insurance were less satisfied (odds ratios [ORs]: 0.45 and 0.83, respectively) and received less family-centered care (ORs: 0.43 and 0.80, respectively) than privately insured children. Of note, satisfaction increased with state Medicaid spending. Survey data from Ped-I-Care yielded significantly higher satisfaction (91.7%) compared with national levels of satisfaction in the SCHIP (54.2%) and similar rates of family-centered care (65.6%). These results suggest that satisfaction is based more on experiences with health systems, whereas family-centered care reflects more on provider encounters.

CONCLUSIONS: Insurance type affects both satisfaction and family-centered care for CSHCN, and certain state-level health care characteristics affect satisfaction. Future studies should focus on interventions in the health care system to improve satisfaction and patient encounters for family-centered care. *Pediatrics* 2009;124:S420–S427

AUTHORS: Lindsay A. Thompson, MD, MS,^{a,b} Caprice A. Knapp, PhD,^c Heidi Saliba, BA,^a Nancy Giunta, MHA, FACMPE,^a Elizabeth A. Shenkman, PhD,^c and John Nackashi, MD, PhD^a

Departments of ^aPediatrics and ^bEpidemiology and Health Policy Research and the ^cInstitute for Child Health Policy, University of Florida, Gainesville, Florida

KEY WORDS

children with special health care needs, insurance, satisfaction, quality of care

ABBREVIATIONS

CSHCN—children with special health care needs
SCHIP—State Children's Health Insurance Program
NS-CSHCN—National Survey of Children With Special Health Care Needs
FPL—federal poverty level
OR—odds ratio

www.pediatrics.org/cgi/doi/10.1542/peds.2009-1255N

doi:10.1542/peds.2009-1255N

Accepted for publication Aug 3, 2009

Address correspondence to Lindsay A. Thompson, MD, MS, University of Florida, College of Medicine, 1701 SW 16th Ave, Room 2103, Gainesville, FL 32608. E-mail: lathompson@pedu.ufl.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

Copyright © 2009 by the American Academy of Pediatrics

FINANCIAL DISCLOSURE: *Dr Nackashi is the medical director of Ped-I-Care; Ms Giunta is the executive director of Ped-I-Care; Ms Saliba is the research coordinator for Ped-I-Care; and Dr Thompson is a research consultant but has received no financial support from the institution.*

Children with special health care needs (CSHCN) have significant unmet health needs,^{1–3} and their parents have reported low satisfaction with care.⁴ Patient satisfaction is a key component of quality and can be used to assess global experiences with health care. Another important component of quality is family-centered care, which represents more specific, proximal considerations such as the doctor-patient relationship.⁵ Despite recent efforts to provide comprehensive care to CSHCN that would maximize health outcomes and improve quality of care,^{6–8} the effects on satisfaction and family-centered care are unclear.^{9–11} In addition, although individual characteristics such as race and ethnicity influence reports of satisfaction and family-centered care,^{1,12–14} it is unclear how state child health policies and the health care system affect these quality measures.

Health insurance is a gatekeeping mechanism for accessing the health care system, especially for CSHCN.¹⁵ Having insurance has been associated with reduced disparities in care,^{16–18} and expansions in insurance, such as the State Children's Health Insurance Program (SCHIP), have been shown to improve many aspects of health for CSHCN.^{19,20} Insurance also influences satisfaction^{10,15,21} and may also influence family-centered care.^{6,7,9} One pivotal study of CSHCN revealed that underinsurance and uninsurance predicted lower satisfaction versus CSHCN with insurance,⁴ yet it is not well understood how satisfaction varies across insurance types.

Because family-centered care and satisfaction are important health outcomes, and type of health insurance often depends on state child health policies, we aimed to estimate the associations of individual characteristics, type of insurance, and state child health policies with satisfaction and

family-centered care. Combining data from the 2005–2006 National Survey of Children With Special Health Care Needs (NS-CSHCN), additional state characteristics, and data from an SCHIP-funded program in Florida, we used descriptive and multivariate analyses to estimate the effects of individual characteristics and state health policy variables on satisfaction and family-centered care. We hypothesized that variance in these quality measures can partially be explained by insurance type and public child health policies.

METHODS

Data Sources

The 2005–2006 NS-CSHCN includes extensive parental reports of satisfaction and family-centered care.^{22,23} To explore additional effects of state health policies on satisfaction and family-centered care, we supplemented the NS-CSHCN data set with data from the Kaiser Family Foundation²⁴ and the annual Area Resource File²⁵ and matched these variables to the state in which the children resided. Finally, we wanted to compare results from the NS-CSHCN to data from CMS-Duval ("Ped-I-Care" [a Florida SCHIP program for CSHCN]). We chose to analyze data from the Ped-I-Care program because of the uniqueness of the program and the approval of the state to allow us to access the data from recent parent-reported telephone-survey data ($n = 300$). Ped-I-Care has a network of primary, community, and tertiary services that provide comprehensive, coordinated, and multidisciplinary care to CSHCN who reside in 16 counties in Florida. To contain costs and improve quality, the program assigns a nurse coordinator to each child and conducts daily utilization reviews. In 2005–2006, Ped-I-Care spent \$1945 per enrolled child ($n = 2146$).

Outcomes of Interest

The primary outcome variables were satisfaction and family-centered care. For the NS-CSHCN sample, we constructed a binary variable for respondents who indicated that they were usually or always satisfied with their child's care in the previous year. Likewise, for Ped-I-Care, we created a binary satisfaction variable if respondents were usually or always satisfied with the benefits received in the previous year. Family-centered care was measured by a composite of 5 questions. For the NS-CSHCN sample, a value of 1 was assigned when a parent responded "usually" or "always" to all of the following items: (1) doctor spent enough time with child; (2) doctor listened carefully to parent(s); (3) doctor was sensitive to family values and customs; (4) doctor provided needed information; and (5) doctor made parent feel like a partner.²⁶ For the Ped-I-Care survey, family-centered care was met when the respondent chose "usually" or "always" for all of the following items: (1) doctor spent enough time with child; (2) doctor listened carefully to parent(s); (3) doctor offered choices about child's health care; (4) doctor discussed good and bad things about different choices; (5) doctor asked about what choices parent(s) prefers; and (6) doctor involved parent as much as desired.

Individual Characteristics and State-Level Variables

In multivariate analyses, we controlled for individual and state-level characteristics. Individual characteristics included child's age (0–5, 6–11, or 12–17 years), gender, and race/ethnicity (white, black, Hispanic, or other). We also included the highest educational attainment of the parent/guardian (less than high school, high school graduate, or more than high school)

and household structure (1 vs 2 parents). In the NS-CSHCN sample, we captured functional health status by the question, “In the last year, what amount of time was your child affected by their condition?” (usually, always, or other). For the Ped-I-Care sample we defined functional status by the total score on the Pediatric Quality of Life Inventory.²⁷

The NS-CSHCN included data on the child’s insurance (private, public, other, or uninsured) and federal poverty level (FPL) (<200%, 200%–299%, 300%–399%, or ≥400% FPL). It also specifically identified SCHIP-eligible respondents. SCHIP participants were identified by a survey question that asked if the child was enrolled in the SCHIP program by using the specific name. However, the SCHIP name was only different from the Medicaid program name in 28 states. For example, in Alabama the SCHIP program is called ALL Kids, and Medicaid is called the Patient 1st Program. Conversely, in Indiana, both programs are called the Hoosier Healthwise Program, rendering it impossible to differentiate SCHIP and Medicaid respondents.²³

We supplemented the NS-CSHCN data set by adding state variables on Medicaid and SCHIP from the Kaiser Foundation database²⁴ and the Area Resource File.²⁵ We included the percentage of the population aged 17 years and younger who were enrolled in Medicaid, the percentage of Medicaid managed care enrollees out of the total number of Medicaid enrollees, and the average dollars spent per Medicaid-enrolled child. From the Area Resource File, we extracted data on the state numbers of pediatricians and created a rate by dividing by the number of children under the age of 18. We then dichotomized state-level variables according to their mean rates.

Analyses

All regressions that used the NS-CSHCN data were performed by using the developer-provided sampling weights. Stata 9.2 (Stata Corp, College Station, TX) was used to conduct the analyses, and a *P* value of <.05 was the accepted level of significance. For the NS-CSHCN sample we performed bivariate analyses by using the weighted data to examine the association between satisfaction and family-centered care with individual and state-level characteristics to determine if they should be included in the multivariate models. Next, we performed parsimonious multivariate logistic regressions that incorporated the state-level variables from the Kaiser Foundation database²⁴ and the Area Resource File.²⁵ Descriptive analyses were performed on the Ped-I-Care data. This study was approved by the institutional review board at the University of Florida.

RESULTS

Overall, 59.8% of the national sample reported that they were usually or always satisfied with the health services their children received, whereas 65.7% received family-centered care. These outcomes varied widely according to individual characteristics and less according to state-level variables (Table 1). All individual characteristics, compared with their referent groups, were significantly associated with lower levels of satisfaction and family-centered care (*P* < .0001). Only state-level variables were significantly associated with satisfaction.

Satisfaction and Family-Centered Care in the Total Sample

Multivariate regressions using all CSHCN in the NS-CSHCN revealed significant associations with satisfaction and family-centered care. Adjusting for individual predictors, those with-

out insurance and those with public insurance were less likely to be satisfied (odds ratios [ORs]: 0.45 and 0.83, respectively) or receive family-centered care (ORs: 0.43 and 0.80, respectively) than privately insured children (Table 2). Parents of children who usually or always have functional limitations were associated with lower satisfaction and family-centeredness. Parents of white and black children reported equivalent levels of satisfaction with care, although Hispanic respondents and those of other races/ethnicities were less satisfied than white respondents. However, black respondents were significantly less likely to report family-centered care than white respondents (OR: 0.53) and were similar to Hispanic respondents (OR: 0.43) and those of other race/ethnicities (OR: 0.68). Parental education did not predict satisfaction, but lower parental education was associated with less family-centered care.

State-level policies and state rates of pediatricians per 10 000 children influenced satisfaction. Increased Medicaid spending per child and increases in the percentage of children covered by Medicaid managed care significantly predicted increased satisfaction (by 10%). In contrast, higher state rates of pediatricians per 10 000 children predicted lower satisfaction (by 12%). None of these state characteristics were significantly associated with family-centered care.

Satisfaction and Family-Centeredness in the Subsample of Non-Privately Insured CSHCN

Specific analyses comparing uninsured CSHCN to SCHIP and Medicaid CSHCN recipients also yielded significant differences in satisfaction and family-centered care. Overall, approximately half of SCHIP (54.2%) and Medicaid (52.4%) recipients reported sat-

TABLE 1 Patient Demographic and State Characteristics of the NS-CSHCN

	Usually or Always Satisfied With Child's Health Services (<i>n</i> = 39 734), % ^a	Achieved All 5 Components of Family-Centered Care (<i>n</i> = 38 902), % ^b
Achieved outcome	59.8	65.7
Sociodemographic characteristic		
Insurance		
Private (referent)	64.1	71.8
Public	54.8 ^c	56.5 ^c
Other	55.8 ^c	61.4 ^c
Uninsured	40.0 ^c	44.5 ^c
Age of child at interview		
0–5 y	66.6 ^c	68.1 ^c
6–11 y	60.0 ^c	66.4 ^c
12–17 y (referent)	56.3	64.0
Race		
White, non-Hispanic (referent)	63.1	72.3
Hispanic	49.3 ^c	47.7 ^c
Black, non-Hispanic	57.0 ^c	52.6 ^c
Other	54.9 ^c	62.5 ^c
Family structure		
2-parent family	63.4 ^c	70.6 ^c
1-parent or other structure (referent)	53.9	57.3
Highest education of anyone in household		
Less than high school	52.2 ^c	45.8 ^c
High school graduate	58.5 ^c	59.1 ^c
More than high school (referent)	61.0	69.6
Severity of child's functional difficulty		
Usually or always affected	44.5 ^c	56.3 ^c
Somewhat or never affected (referent)	64.1	68.4
Income range		
0–199 % FPL	54.4 ^c	55.5 ^c
200–299 % FPL	57.1 ^c	66.7 ^c
300–399 % FPL	64.8 ^c	72.9 ^c
≥400 % FPL (referent)	66.9	75.7
State-level characteristics		
Pediatricians per child population		
≤14.3 pediatricians per 10 000 children (referent)	60.9	66.1
>14.3 pediatricians per 10 000 children	58.2 ^d	65.2
Medicaid spending		
\$1762 or less per child (referent)	59.2	65.5
More than \$1762 per child	60.8 ^e	66.3
Children in Medicaid per state		
≤53% (referent)	58.7	65.9
>53%	61.2 ^d	65.5
State Medicaid that is covered by managed care		
≤67% (referent)	57.8	64.8
>67%	61.4 ^c	66.5

^a This outcome was achieved if the family member responded that he or she was usually or always satisfied with the child's care.

^b This outcome was achieved if the family member was usually or always satisfied with care on 5 aspects of family-centered care: family feels like a partner in care; the doctor listens to the family; the doctor spends enough time with the family; the doctor is sensitive to family values; and the doctor provides information.

^c $P < .0001$.

^d $P < .01$.

^e $P < .05$.

isfaction compared with 39.4% of uninsured CSHCN ($P < .001$). Similarly, approximately half of SCHIP (55.6%) and Medicaid (52.6%) recipients re-

ported family-centered care, compared with 44.7% of those who were uninsured ($P < .05$). Multivariate analyses of this subsample mirrored find-

ings from the total sample, whereby uninsured children were approximately half as likely to be satisfied or report family-centered care (Table 3). Also, SCHIP and Medicaid enrollees reported equivalent rates of satisfaction and family-centered care. In this subsample, state-level Medicaid policies were associated with satisfaction. Satisfaction increased by 20% in states with higher Medicaid spending per child and decreased in states with proportionally more pediatricians (OR: 0.83; $P < .05$). Again, there were no significant associations between family-centered care and the state-level variables.

Satisfaction and Family-Centeredness in Ped-I-Care

Finally, we analyzed data from an SCHIP program for CSHCN in Florida called Ped-I-Care to use as a local-level point of reference in delineating the implications of the national survey. Descriptive analyses revealed higher satisfaction (91.7%) and similar rates of family-centered care (65.6%) compared with the NS-CSHCN sample. These rates of satisfaction were even higher than those from the national sample of those who had private insurance (OR: 6.1; $P < .0001$). In contrast, the only individual characteristic that significantly predicted increased satisfaction was higher scores on the Pediatric Quality of Life Inventory ($P < .01$), meaning children with less functional limitation.

DISCUSSION

This study of satisfaction and family-centered care among families with CSHCN reveals that fewer than two thirds of CSHCN are realizing these goals overall and that there are large variations according to individual characteristics, insurance type, and certain state-level policies. Publicly insured and uninsured children had significantly lower satisfaction and

TABLE 2 Two Models of Odds of Achieving Satisfaction Outcomes of the Entire NS-CSHCN

	Percent Usually or Always Satisfied With Child's Health Services (n = 39 625), OR (95% Confidence Interval) ^a		Percent That Achieved All 5 Components of Family-Centered Care (n = 38 150), OR (95% Confidence Interval) ^b	
	model 1	model 2	model 1	model 2
Insurance (referent = private)				
Public	0.83 (0.76–0.92) ^c	0.83 (0.75–0.91) ^c	0.80 (0.73–0.89) ^c	0.80 (0.73–0.89) ^c
Other	0.85 (0.74–0.97) ^d	0.85 (0.74–0.95) ^d	0.85 (0.74–0.98) ^d	0.85 (0.73–0.98) ^d
Uninsured	0.46 (0.38–0.55) ^c	0.46 (0.38–0.54) ^c	0.43 (0.36–0.53) ^c	0.43 (0.36–0.53) ^c
Age of child (referent = 12–17 y)				
0–5 y	1.59 (1.43–1.76) ^c	1.58 (1.43–1.75) ^c	1.27 (1.14–1.41) ^c	1.26 (1.14–1.41) ^c
6–11 y	1.17 (1.08–1.27) ^c	1.17 (1.08–1.27) ^c	1.15 (1.06–1.26) ^e	1.15 (1.06–1.26) ^e
Race (referent = white)				
Hispanic	0.64 (0.56–0.72) ^c	0.66 (0.58–0.75) ^c	0.43 (0.38–0.49) ^c	0.43 (0.38–0.50) ^c
Black, non-Hispanic	0.92 (0.83–1.03)	0.92 (0.82,1.03)	0.53 (0.47–0.60) ^c	0.53 (0.48–0.60) ^c
Other	0.74 (0.64–0.86) ^c	0.76 (0.66–0.89) ^c	0.67 (0.57–0.79) ^c	0.68 (0.58–0.80) ^c
2-parent family (referent = 1-parent)	1.26 (1.17–1.37) ^c	1.24 (1.16–1.37) ^c	1.28 (1.18–1.39) ^c	1.28 (1.18–1.39) ^c
Highest education (referent = more than high school)				
Less than high school	1.00 (0.85–1.18)	0.99 (0.84–1.17)	0.60 (0.51–0.72) ^c	0.60 (0.50–0.71) ^c
High school graduate	1.10 (1.00–1.21) ^d	1.09 (0.99–1.19)	0.80 (0.72–0.88) ^c	0.79 (0.72–0.87) ^c
Usually/always has functional difficulty	0.48 (0.44–0.52) ^c	0.48 (0.44–0.52) ^c	0.67 (0.61–0.73) ^c	0.67 (0.61–0.73) ^c
State Medicaid characteristic				
>14.3 pediatricians per 10 000 children (referent = ≤14.3)	—	0.88 (0.81–0.96) ^e	—	0.92 (0.84–1.01)
Medicaid spending more than \$1762 per enrolled child (referent = \$1762 or less)	—	1.10 (1.01–1.20) ^d	—	1.01 (0.93–1.11)
>53% children in Medicaid per state (referent = <53%)	—	1.05 (0.99–1.13)	—	0.98 (0.91–1.06)
>81% state Medicaid covered by managed care (referent = ≤81%)	—	1.09 (1.03–1.17) ^e	—	1.02 (0.95–1.10)

— indicates model 1 where community-level variables are not added.

^a This outcome was achieved if the family member responded that he or she was usually or always satisfied with the child's care. We excluded 989 respondents from the satisfaction analyses because they did not know, refused, or did not have a doctor visit in the 12 months before the survey.

^b This outcome was achieved if the family member was usually or always satisfied with the care on 5 aspects of family-centered care: family feels like a partner in care; the doctor listens to the family; the doctor spends enough time with the family; the doctor is sensitive to family values; and the doctor provides information. We excluded 1808 respondents from the satisfaction analyses because they did not know, refused, or did not have a doctor visit in the 12 months before the survey.

^c P < .0001.

^d P < .05.

^e P < .01.

family-centered care, yet they were more satisfied in states that spent more per Medicaid-enrolled child or had more children enrolled in managed care programs. It is interesting to note that reports of satisfaction and family-centered care, after adjusting for individual characteristics, were dissimilar. Satisfaction was somewhat associated with state Medicaid policies, but family-centered care, which focuses on the doctor-patient relationship, was not. It is important to note that, overall, the spectrum of insurance types influences satisfaction and family-centered care, with CSHCN with public insurance and uninsurance having lower levels than those with private insurance. Our findings suggest that enhancements in state Medicaid policies can possibly affect satisfac-

tion but are not likely to affect family-centered care.

This study is consistent with and expands on previous literature relevant to effects of policies within the health care system on the health and well-being of CSHCN.^{4,13,15–18,20,28,29} Insurance remains a central predictor of quality care. Previous research has shown that those with insurance have higher satisfaction than those without it.⁴ Findings from this study add that even for those with insurance, there are differences in satisfaction beyond those explained by individual characteristics, because having private insurance also predicted incrementally higher levels of family-centered care than other types of insurance.

The benefits of SCHIP on satisfaction, however, remain unclear. Existing lit-

erature on the SCHIP program has shown significant improvements in health outcomes, especially for subgroups traditionally at risk for disparities in care.^{3,13,28} Our results indicate that nationally, parents of children enrolled in the SCHIP have no greater satisfaction or family-centered care than parents of children enrolled in Medicaid. However, data from a Florida SCHIP program show extremely high levels of satisfaction and perhaps indicate that national data sets, which merge information across states, may be misleading. In Ped-I-Care, children receive individualized care coordination from a certified nurse for appropriate solutions to their medical needs. Although we found no significant factors that affected family-centered care, further research on its

TABLE 3 Models of Odds of Achieving Satisfaction Outcomes: CSHCN in SCHIP or Medicaid

	Percent Usually or Always Satisfied With Child's Health Services (<i>n</i> = 6663), OR (95% Confidence Interval) ^a		Percent That Achieved All 5 Components of Family-Centered Care (<i>n</i> = 6199), OR (95% Confidence Interval) ^b	
	model 1	model 2	model 1	model 2
Insurance (referent = Medicaid)				
SCHIP	0.95 (0.78–1.15)	0.92 (0.75–1.13)	0.93 (0.74–1.17)	0.96 (0.77–1.19)
Uninsured	0.52 (0.38–0.69) ^c	0.51 (0.38–0.67) ^c	0.58 (0.38–0.88) ^d	0.57 (0.38–0.86) ^d
Age of child (referent = 12–17 y)				
0–5 y	1.91 (1.50–2.44) ^c	1.90 (1.49–2.43) ^c	1.34 (1.04–1.71) ^e	1.33 (1.04–1.69) ^e
6–11 y	1.18 (0.97–1.44)	1.19 (0.97–1.44)	1.07 (0.86–1.32)	1.07 (0.87–1.33)
Race (referent = white)				
Hispanic	0.59 (0.46–0.76) ^c	0.62 (0.48–0.80) ^c	0.39 (0.30–0.51)	0.39 (0.30–0.51) ^c
Black, non-Hispanic	0.98 (0.82–1.43)	0.97 (0.78–1.24)	0.46 (0.36–0.59)	0.46 (0.36–0.59) ^c
Other	0.76 (0.56–1.04)	0.79 (0.58–1.09)	0.83 (0.59–1.14)	0.83 (0.60–1.13)
2-parent family (referent = any other)	1.16 (0.97–1.40)	1.17 (0.96–1.40)	1.05 (0.87–1.27)	1.06 (0.87–1.28)
Highest education (referent = more than high school)				
Less than high school	1.09 (0.82–1.44)	1.06 (0.80–1.40)	0.59 (0.43–0.80) ^d	0.58 (0.43–0.79) ^d
High school graduate	1.17 (0.96–1.42)	1.13 (0.93–1.37)	0.86 (0.71–1.06)	0.86 (0.72–1.06)
Usually/always has functional difficulty	0.58 (0.48–0.71) ^c	0.58 (0.48–0.70) ^c	0.75 (0.61–0.92) ^d	0.74 (0.60–0.91) ^d
State Medicaid characteristic				
>14.3 pediatricians per 10 000 children (referent = ≤14.3)	—	0.83 (0.70–0.98) ^e	—	0.95 (0.80–1.14)
Medicaid spending more than \$1762 per enrolled child (referent = \$1762 or less)	—	1.20 (1.00–1.43) ^e	—	1.04 (0.86–1.26)
>53% children in Medicaid per state (referent = ≤53%)	—	1.06 (0.89–1.26)	—	1.13 (0.94–1.36)
>81% state Medicaid covered by managed care (referent = ≤81%)	—	1.08 (0.91–1.27)	—	1.06 (0.89–1.26)

These analyses could only be performed on a subset of children in the sample where interviewers could differentiate children in SCHIP or Medicaid programs. — indicates model 1 where community-level variables are not added.

^a This outcome was achieved if the family member responded that he or she was usually or always satisfied with the child's care. We excluded 101 respondents from the satisfaction analyses because they did not know, refused, or did not have a doctor visit in the 12 months before the survey.

^b This outcome was achieved on the basis of 5 aspects of family-centered care: family feels like a partner in care; the doctor listens to the family; the doctor spends enough time with the family; the doctor is sensitive to family values; and the doctor provides information. We excluded 572 respondents from the satisfaction analyses because they did not know, refused, or did not have a doctor visit in the 12 months before the survey.

^c *P* < .0001.

^d *P* < .01.

^e *P* < .05.

organization and delivery of services is needed to document which specific components of care and management resulted in parental satisfaction.

Improving high levels of satisfaction and family-centered care are objectively important and should be a priority in health care. However, their role in health care and health care delivery seems divergent in 2 important ways. First, family-centered care is known to improve health outcomes of CSHCN, reflecting a therapeutic relationship between health providers and patients.^{8,14} In this study, only individual characteristics influenced family-centered care; we found no state-level Medicaid policies that were significant. In contrast, the relationship be-

tween satisfaction and health outcomes is unclear. Studies have shown an association between poor health outcomes and low satisfaction,^{4,15} yet these studies revealed that satisfaction may explain more about the experience families have with the health care system and less about doctor encounters. A second way in which family-centered care and satisfaction contribute to different aspects of health care quality is through their relationship with individual characteristics. Characteristics such as race and ethnicity, which are known to affect health outcomes in other research settings, were not as clearly associated with satisfaction and family-centered care. Future research should better

clarify the roles of these quality indicators on individual health and the overall health care system.

It is encouraging that we identified influential state variables, because previous research has been inconclusive in identifying effects other than the contribution of insurance.³⁰ The direct association between Medicaid spending and satisfaction could provide added incentives to states to increase funding to families with CSHCN. For example, parents of CSHCN who lived in states in which the average Medicaid funding for all children was greater than \$1762 were 10% to 20% more likely to be satisfied with their children's care than those who lived in states with funding levels below that

amount. In Florida, the average spending level for all children is \$1312 per child in 2005–2006, ranking it near the bottom of all states, yet the Florida Ped-I-Care program, which spends \$1945 per child, yielded high levels of satisfaction for GSHCN. Because health insurance policies influence satisfaction, it is important to invest additional dollars in efficient programs that produce excellent results for children.

The findings that increased pediatrician capacity decreases satisfaction is counterintuitive and deserves additional research. However, previous research has shown that increasing physician capacity beyond a specific threshold may not generate improved outcomes.^{31–33} In addition, the use of flat state rates of physicians does not allow for meaningful analyses of possible clustering within a state, acceptance of publicly insured children within the physician's caseload, or pri-

mary versus specialty care, all of which would likely affect regional health care systems. The effect of physician workforce capacity on children's health care outcomes remains controversial.

Several limitations in this study merit attention. First, we limited the quality outcomes to satisfaction and family-centered care. It is likely that other aspects of quality are important contributors to understanding the health care experiences of GSHCN. In addition, we used slightly different definitions of satisfaction and family-centered care when comparing the national sample to the Ped-I-Care sample. Given the nearly identical findings for family-centered care, however, gross inaccuracies seem unlikely. Second, comparisons of the SCHIP and Medicaid programs were limited, because survey responses could only be differentiated in 28 states in which the Medicaid and SCHIP programs had different

names. Third, the state policy variables included in the models may have been confounded by unmeasured characteristics such as regional and local policies, which we did not control for in the models.

Nonetheless, this study confirms that although parental reports of satisfaction and family-centered care for GSHCN vary according to individual characteristics, insurance type and some state-level variables provide an impetus for policy-driven improvements. Future studies need to longitudinally monitor how changes in health care policies affect satisfaction for GSHCN (especially in the population that is not privately insured) and how family-centered care might still be improved through policy change. Implementing improvements such as increased state Medicaid spending per child may yield significant incremental benefits to families and their GSHCN.

REFERENCES

- Denboba D, McPherson MG, Kenney MK, Strickland B, Newacheck PW. Achieving family and provider partnerships for children with special health care needs. *Pediatrics*. 2006;118(4):1607–1615
- Houtrow AJ, Kim SE, Chen AY, Newacheck PW. Preventive health care for children with and without special health care needs. *Pediatrics*. 2007;119(4). Available at: www.pediatrics.org/cgi/content/full/119/4/e821
- Szilagyi PG, Shenkman E, Brach C, et al. Children with special health care needs enrolled in the State Children's Health Insurance Program (SCHIP): patient characteristics and health care needs. *Pediatrics*. 2003;112(6 pt 2). Available at: www.pediatrics.org/cgi/content/full/112/6/SE1/e508
- Oswald DP, Bodurtha JN, Willis JH, Moore MB. Underinsurance and key health outcomes for children with special health care needs. *Pediatrics*. 2007;119(2). Available at: www.pediatrics.org/cgi/content/full/119/2/e341
- Van Cleave J, Heisler M, Devries JM, Joiner TA, Davis MM. Discussion of illness during well-child care visits with parents of children with and without special health care needs. *Arch Pediatr Adolesc Med*. 2007;161(12):1170–1175
- Strickland B, McPherson M, Weissman G, van Dyck P, Huang ZJ, Newacheck P. Access to the medical home: results of the National Survey of Children With Special Health Care Needs. *Pediatrics*. 2004;113(5 suppl):1485–1492
- McAllister JW, Presler E, Cooley WC. Practice-based care coordination: a medical home essential. *Pediatrics*. 2007;120(3). Available at: www.pediatrics.org/cgi/content/full/120/3/e723
- Homer CJ, Klatka K, Romm D, et al. A review of the evidence for the medical home for children with special health care needs. *Pediatrics*. 2008;122(4). Available at: www.pediatrics.org/cgi/content/full/122/4/e922
- Wood DL, McCaskill QE, Winterbauer N, et al. A Multi-method assessment of satisfaction with services in the medical home by parents of children and youth with special health care needs (CYSHCN). *Matern Child Health J*. 2009;13(1):5–17
- Cassedy A, Fairbrother G, Newacheck PW. The impact of insurance instability on children's access, utilization, and satisfaction with health care. *Ambul Pediatr*. 2008;8(5):321–328
- Newacheck PW. Insurance matters: adolescents with special healthcare needs. *J Adolesc Health*. 2007;41(4):319–320
- Farmer JE, Clark MJ, Sherman A, Marien WE, Selva TJ. Comprehensive primary care for children with special health care needs in rural areas. *Pediatrics*. 2005;116(3):649–656
- Ngui EM, Flores G. Satisfaction with care and ease of using health care services among parents of children with special health care needs: the roles of race/ethnicity, insurance, language, and adequacy of family-centered care. *Pediatrics*. 2006;117(4):1184–1196
- Turchi RM, Gatto M, Antonelli R. Children and youth with special healthcare needs: there is no place like (a medical) home. *Curr Opin Pediatr*. 2007;19(4):503–508
- Jeffrey AE, Newacheck PW. Role of insurance for children with special health care needs: a synthesis of the evidence. *Pediatrics*. 2006;118(4). Available at: www.pediatrics.org/cgi/content/full/118/4/e1027

16. Kogan MD, Newacheck PW, Honberg L, Strickland B. Association between underinsurance and access to care among children with special health care needs in the United States. *Pediatrics*. 2005;116(5):1162–1169
17. Chen AY, Newacheck PW. Insurance coverage and financial burden for families of children with special health care needs. *Ambul Pediatr*. 2006;6(4):204–209
18. Honberg L, McPherson M, Strickland B, Gage JC, Newacheck PW. Assuring adequate health insurance: results of the National Survey of Children With Special Health Care Needs. *Pediatrics*. 2005;115(5):1233–1239
19. Dick AW, Klein JD, Shone LP, Zwanziger J, Yu H, Szilagyi PG. The evolution of the State Children's Health Insurance Program (SCHIP) in New York: changing program features and enrollee characteristics. *Pediatrics*. 2003;112(6 pt 2). Available at: www.pediatrics.org/cgi/content/full/112/6/SE1/e542
20. Duderstadt KG, Hughes DC, Soobader MJ, Newacheck PW. The impact of public insurance expansions on children's access and use of care. *Pediatrics*. 2006;118(4):1676–1682
21. Ketsche P, Adams EK, Minyard K, Kellenberg R. The stigma of public programs: does a separate SCHIP program reduce it? *J Policy Anal Manage*. 2007;26(4):775–789
22. Kogan MD, Strickland BB, Newacheck PW. Building systems of care: findings from the National Survey of Children With Special Health Care Needs. *Pediatrics*. 2009;124(suppl 4):S333–S336
23. Blumberg SJ, Welch EM, Chowdhury SR, Upchurch HL, Parker EK, Skalland BJ. Design and operation of the National Survey of Children With Special Health Care Needs, 2005–2006. *Vital Health Stat 1*. 2008;(45):1–188
24. Kaiser Family Foundation. Commission on Medicaid and the Uninsured. Available at: www.statehealthfacts.org/children.jsp. Accessed November 17, 2008
25. US Department of Health and Human Resources. Area resource file. Available at: www.arfsys.com/purchase.htm. Accessed November 17, 2008
26. Kogan MD, Strickland BB, Blumberg SJ, Singh GK, Perrin JM, van Dyck PC. A national profile of the health care experiences and family impact of autism spectrum disorder among children in the United States, 2005–2006. *Pediatrics*. 2008;122(6). Available at: www.pediatrics.org/cgi/content/full/122/6/e1149
27. Varni JW. Pediatric quality of life indicator. Available at: www.pedsqol.org. Accessed November 18, 2008
28. Dick AW, Brach C, Allison RA, et al. SCHIP's impact in three states: how do the most vulnerable children fare? *Health Aff (Millwood)*. 2004;23(5):63–75
29. Gillies RR, Chenok KE, Shortell SM, Pawlson G, Wimbush JJ. The impact of health plan delivery system organization on clinical quality and patient satisfaction. *Health Serv Res*. 2006;41(4 pt 1):1181–1199
30. Mitchell JB, Khatutsky G, Swigonski NL. Impact of the Oregon Health Plan on children with special health care needs. *Pediatrics*. 2001;107(4):736–743
31. Goodman DC, Fisher ES, Little GA, Stukel TA, Chang CH. The uneven landscape of newborn intensive care services: variation in the neonatology workforce. *Eff Clin Pract*. 2001;4(4):143–149
32. Goodman DC, Fisher ES, Little GA, Stukel TA, Chang CH, Schoendorf KS. The relation between the availability of neonatal intensive care and neonatal mortality. *N Engl J Med*. 2002;346(20):1538–1544
33. Thompson LA, Goodman DC, Little GA. Is more neonatal intensive care always better? Insights from a cross-national comparison of reproductive care. *Pediatrics*. 2002;109(6):1036–1043

The Impact of Insurance on Satisfaction and Family-Centered Care for CSHCN

Lindsay A. Thompson, Caprice A. Knapp, Heidi Saliba, Nancy Giunta, Elizabeth A. Shenkman and John Nackashi

Pediatrics 2009;124;S420

DOI: 10.1542/peds.2009-1255N

Updated Information & Services	including high resolution figures, can be found at: http://pediatrics.aappublications.org/content/124/Supplement_4/S420
References	This article cites 22 articles, 10 of which you can access for free at: http://pediatrics.aappublications.org/content/124/Supplement_4/S420#BIBL
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Developmental/Behavioral Pediatrics http://www.aappublications.org/cgi/collection/development:behavioral_issues_sub
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://www.aappublications.org/site/misc/reprints.xhtml

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®



PEDIATRICS[®]

OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

The Impact of Insurance on Satisfaction and Family-Centered Care for CSHCN

Lindsay A. Thompson, Caprice A. Knapp, Heidi Saliba, Nancy Giunta, Elizabeth A. Shenkman and John Nackashi

Pediatrics 2009;124;S420

DOI: 10.1542/peds.2009-1255N

The online version of this article, along with updated information and services, is located on the World Wide Web at:

http://pediatrics.aappublications.org/content/124/Supplement_4/S420

Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 2009 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN[®]

