Outpatient Satisfaction: The Role of Nominal versus Perceived Communication

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Objective. To examine the simultaneous associations of parent and coder assessments of communication events with parent satisfaction.

Study Setting. Five hundred twenty-two pediatrician–patient encounters.

Study Design. Parents reported on post-visit satisfaction with care and whether four communication events occurred. Raters also coded communication events from videotapes. Multivariate analyses predicted parent satisfaction.

Principal Findings. Satisfaction was greater when parents perceived at least three communication events. Parent and coder reports were nearly uncorrelated. Coder-assessed communication events not perceived by parents were unrelated to parent satisfaction.

Conclusions. Parents are more satisfied when most or all of the expected parent–physician communications occur. A successful pediatrician–parent communication event is one that a parent recognizes as having occurred; it is not merely one that a trained observer says occurred.

Key Words. Physician communication, parent satisfaction

Increasingly, patient satisfaction with health care is being used as an indicator of quality of care provided by health plans and providers as recommended by the Institute of Medicine's emphasis on patient-centered care (Institute of Medicine 2001). Children's health care needs differ from those of adults; it is therefore, necessary to examine satisfaction with pediatric care separately from satisfaction with adult care. The most extensive set of information about health plan and provider performance has been developed by the Consumer Assessment of Health Care Providers and Systems (CAHPS) project, sponsored by the Agency for Health Care Research and Quality and the Center for Medicare & Medicaid Services. This core CAHPS survey instrument asks adults to rate their own health care and plans; a supplementary instrument asks parents or caregivers to rate the care their children receive.

In general, ratings of children's care tend to be higher than the ratings of adult care (Zhan et al. 2002). Communication is widely recognized as a key component of patient satisfaction (Roter et al. 1997; Brown et al. 1999; Homer et al. 1999), including in the pediatric outpatient setting (Korsch, Gozzi, and Francis 1968; Freeman, Negrette, and Davis 1971; Wasserman et al. 1984; Young et al. 1985; Howell-Koren and Tinsley 1990; Street 1991, 1992a, b; Wissow et al. 1998; Mangione-Smith et al. 1999, 2001; Jessee, Nagy, and Downs 2001; Minde, Tidmarsh, and Hughes 2001; Hasnat and Graves 2003; Robinson and Heritage 2006). Racial and ethnic minority parents report less effective provider communication and staff helpfulness in care provided to children (Weech-Maldonado et al. 2001). Hispanic and Asian parents (especially those not preferring English) reported less effective provider communication and less staff helpfulness than White parents. Language barriers appear to account for much of this pattern (Morales et al. 1999; Weech-Maldonado et al. 2001).

A number of previous studies have associated increased patient/parent satisfaction with the presence of discrete communication events as recorded by third-party observers (Korsch, Gozzi, and Francis 1968; Freeman, Negrette, and Davis 1971; Wasserman et al. 1984; Young et al. 1985; Howell-Koren and Tinsley 1990; Street 1992a, b; Wissow et al. 1998; Mangione-Smith et al. 2001; Minde, Tidmarsh, and Hughes 2001). This approach might lead to clinical and policy recommendations to treat these communication acts as constituting a checklist (Jenkins and Fallowfield 2002) that needs only be fulfilled in a nominal and perfunctory manner given the pressure of the tightly timed outpatient setting. Other researchers have also found that communication as reported in parent surveys is also associated with parent satisfaction and several studies find that both third-party observations and parent reports are associated with parent satisfaction when considered separately. Street (1991, 1992a) previously reported that third-party quantitative observations of some classes of communication correlated positively with parent satisfaction with care, though not as strongly as did parents' global perceptions of physician communication.

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Our study extends prior work by using coded and parent reports about the same four specific communication events, rather than using broader-based communication measures that are not explicitly intended to measure the same communication events. Moreover, we test whether associations of coded events with satisfaction are explained by parent perceptions by examining the simultaneous associations of parent-perceived and third-party-coded communication with parent satisfaction. We consider the possibility that only those specific communication acts performed sufficiently well for patients/parents to recognize and recall them affect patient satisfaction and that previous studies reflect the indirect effect of patient-perceived communication via the proxy of third-party-coded communication. On the other hand, it is possible that acts of communication not perceived or recalled by patients nonetheless register with these patients in a way that affects their overall impression of the encounter. We test our hypothesis against this alternative using a unique dataset of standardized pediatric outpatient encounters for symptoms of upper respiratory infection in which both third-party coders viewing videotapes and parents (in a post-visit survey) were asked whether each of a series of four communication events took place during the encounter.

METHODS

Study Design

We conducted a nested cross-sectional study of 522 pediatric encounters October 2000 through June 2001 clustered within 38 pediatricians (approximately 15 encounters per physician) in 27 community pediatric practices in Los Angeles County. Five encounters (1 percent) were dropped because the outcome measure was missing, resulting in a final sample of 517 pediatric encounters. Details regarding recruitment of the physician and parent samples have been reported elsewhere (Mangione-Smith et al. 2004). English-speaking parents of children aged 6 months to 10 years who presented with upper respiratory tract infection (URI) symptoms (cough, nasal congestion, ear pain, or throat pain) and had received no antibiotics during the prior 2 weeks were invited to participate; the final eligibility criterion (established in the encounter) was an URI diagnosis.

As previously reported, 38 of 59 invited pediatricians (64 percent) agreed to participate, one to four from each of 27 practices (Mangione-Smith et al. 2004). Of the 678 parents invited to participate, 570 (84 percent) agreed. Twenty-seven participating parents were later determined to be ineligible

because their children had an ineligible (non-URI) primary diagnosis (e.g., earwax impaction or gastroenteritis), yielding a sample of 543 participating parents from 651 invited eligibles (83 percent eligible participation rate). Twenty-one encounters were not conducted in English, yielding a sample of 522 complete encounters for the current communication analysis.

All physician and parent participants gave written informed consent. All study procedures were reviewed and approved by the University of California, Los Angeles, General Campus Institutional Review Board.

Data Collection Procedures

Immediately after their child's visit, English-speaking parents completed a post-visit survey, where they indicated which of four issues were discussed with their child's physician during the visit. Two of the issues are traditional elements of an outpatient encounter: (1) their child's symptoms and (2) what they could do to make their child feel better. The other two issues are more patient/parent-centered as they involve the parent to a greater degree: (3) parent ideas about the cause of their child's illness and (4) parent ideas about how to manage their child's illness. These communication events were selected based on the prior work that showed their occurrence to be related to increased parent satisfaction with care (Mangione-Smith et al. 1999). Parents were also asked, "Thinking about the visit you just had with your child's doctor, how would you rate the care you received overall?" with response options of "outstanding," "excellent," "very good," "good," "fair," "poor," and "very poor."

Communication Conduct

Each of the 522 study encounters was videotaped. An interaction analysis-coding scheme was developed to examine whether each of the four communication events outlined above occurred (Table 1). Two trained research assistants, blinded to parent survey responses, coded approximately half of the 522 videotaped encounters. If a coder responded "yes" to any of the corresponding codes in Table 1 for a given communication event, the event was scored as having occurred.

One of the authors, RM-S, coded a 15 percent random sample of the encounters to test inter-rater reliability of the coding scheme, as measured by the κ statistic. Reliability was computed for the 15 percent of encounters, which were doubly coded. Weighted κ statistics for three of the four communication events indicated moderate inter-rater agreement above chance,

Table 1: Interaction Analysis Coding Scheme Used to Assess Whether Communication Events Occurred

<i>Communication Events</i>	<i>Communication Codes</i>
(1) Did the physician and parent discuss the child's symptoms?	(1a) Did the doctor ask the parent about their child's symptoms? 0 = No 1 = Yes (1b) Did the parent offer symptoms on their own and the doctor responded to them? 0 = No 1 = Yes
(2) Did the physician discuss what the parent should do to make their child feel better?	(4a) Did the doctor advise symptomatic treatment (e.g., pain medication, cough medicine, decongestant, Tylenol for fever)? 0 = No 1 = Yes (4b) Did the doctor advise home remedies (e.g., raising the head of the bed, running a humidifier, increasing fluid intake, eating particular foods)? 0 = No 1 = Yes
(3) Did the physician tell the parents the cause for their child's illness?	(2) Did the physician tell the parents the cause for their child's illness? 0 = No, not discussed. 1 = Yes, told viral. 1 = Yes, told bacterial. 1 = Yes, told something else, e.g., caught it from someone at school or day care.
(4) Did the physician discuss the parents' ideas about how to manage their child's illness?	(3) Did the physician discuss the parents' ideas about how to manage their child's illness? 0 = There was no talk about the parents' ideas for illness management. 0 = The parent asked about management options, but the doctor did not respond. 1 = Yes, the doctor asked the parent what they thought/wanted to do. 1 = Yes, the parent asked about management options, and the doctor responded immediately. 1 = Yes, the parent asked about management options, and the doctor responded eventually.

0.52 for telling parents how to make their child feel better, 0.52 for discussions about the cause of the child's illness, and 0.57 for discussions about the parents' ideas on how to manage their child's problem (Maclure and Willett 1987). Inter-rater agreement on whether the child's symptoms were discussed was 100 percent, resulting in a κ of 1. For the κ statistic, 0.52–0.57 are described as “moderate” agreement by Cohen (1988).

Analytic Methods

For all analyses, the physician–parent encounter, clustered within physicians within practices, was the unit of analysis. The multivariate analysis adjusted for this hierarchical structure (Williams 2000). All statistical analyses were conducted using *Stata* software version 10 (StataCorp LP 2005). Concordance beyond chance between parent and coder assessments of whether each of the four communication events occurred was assessed using the κ statistics.

We consider a simplified conceptual model (Figure 1) in which only those communication events perceived by patients directly affect parent satisfaction. We constructed one variable to indicate the number of parent-reported communication events (range 0–4) and a second variable that reflected the number of communication events that the coders noted as having occurred, but which the parent did not report (range 0–4). We chose this parameterization because we want to separate the effects of parent perceptions from the effects of what actually occurred according to third-party observers. Specifically, we want to test whether parent perceptions were all that mattered or whether actual communication added anything beyond and above parent perceptions. Several parameterizations might have permitted this, but we selected the one that minimized multicollinearity (and in particular one that minimized the correlation between parent- and coder-reported communication). In preliminary analyses, we also tested a parameterization that distinguished third-party perceptions among parent-perceived events, but we found no evidence of differential impacts on satisfaction for these two subsets of parent perceived events ($p > .05$). Combining these two subclasses thus increased statistical power to address our hypothesis.

Based on the literature (Weech-Maldonado et al. 2001; Kim, Zaslavsky, and Cleary 2005), the following additional case-mix adjusters were included in the model: parent gender, race/ethnicity, and socioeconomic status (SES), and

Figure 1: Simplified Conceptual Model of Parent–Provider Communication and Parent Satisfaction

Table 2: Distribution of Predictor Variables and Parent Satisfaction

<i>Encounter Characteristics</i>	<i>% of Encounters</i>
Brought by mother	86
Parent race/ethnicity	
White (non-Hispanic)	27
Hispanic	53
African American	12
Asian	8
Other	0
Parent education	
Less than high school	15
High school graduate	16
Some college	44
Bachelor's degree or more	24
Household income	
< US\$20,000	18
US\$20,000–US\$40,000	33
US\$41,000–US\$80,000	29
> US\$80,000	20
Child prescribed an antibiotic	41
Number of communication events	
Reported by parents	
0	2
1	8
2	16
3	34
4	40
Coded, but not reported by parents	
0	72
1	22
2	5
3 or 4	1

whether their child received an antibiotic (Mangione-Smith et al. 1999). SES was based on household income and parent education, as described elsewhere (Mangione-Smith et al. 2006). Because of the strong confounding of the parent's race/ethnicity and SES in the sample, independent estimates of race/ethnicity and SES were not well identified, and large standard errors resulted when both were included simultaneously. As described in an earlier paper (Mangione-Smith et al. 2006), we constructed a variable with eight mutually exclusive categories having sufficient sample size for precise estimates; these categories appear in Table 2. The model included independent practice site intercepts (not shown) so that estimates reflect differences in satisfaction *within* sites, rather than reflecting any confounding of communication practices with site characteristics.

RESULTS

Parents in the sample had a median annual income of approximately US\$40,000. Of the 517 parents, 86 percent were female, 53 percent were Hispanic, and 69 percent had at least some college (Table 2). In 41 percent of the pediatric visits, the child was prescribed an antibiotic. The number of the four communication events reported by parents in a given encounter was distributed as follows: none (2 percent), one (8 percent), two (16 percent), three (34 percent), and four (40 percent). The number of the four communication events reported by the coders was distributed as follows: none (< 1 percent), one (14 percent), two (41 percent), three (34 percent), and four (11 percent).

For all four communication events, parent reports and coder assessments were uncorrelated—none of the four κ s exceeded zero. In other words, parent reports and coder assessments provide unique, independent information about patient–provider communication. Parents endorsed the two parent/patient-centered communication events markedly more often than coders: discussion of parents’ ideas about how to manage child’s illness (parents, 70 percent; coders, 34 percent) and discussion of cause of illness (parents, 56 percent; coders, 32 percent). Parents and coders endorsed the standard management items at about equal rates: symptoms the child is having (parents, 96 percent; coders, 98 percent) and what the parent can do to make the child feel better (parents, 81 percent; coders, 77 percent). The frequencies with which communication events were reported by coders, but not perceived by parents were as follows: one event (22 percent of encounters), two events (5 percent of encounters), and three or four events (1 percent of encounters).

As is typical in parent and patient satisfaction (Elliott et al. 2007; Mack et al. 2007), the overwhelming majority of responses (90 percent) were above the midpoint of the scale. For analytic purposes, a four-level satisfaction variable was constructed with the following categories: outstanding (51 percent), excellent (28 percent), very good (11 percent), and good/fair/poor/very poor (10 percent). These four levels were linearly transformed to a 0–100 scale for ease of interpretation. The rescaled coefficient can be interpreted as the percentage of the maximum possible points achieved. The resulting mean satisfaction score is 73, with a standard deviation of 33.

Communication Events and Parental Satisfaction with Visit

In preliminary analyses (not shown here), we did not find evidence of differential impacts of the individual communication items on satisfaction ($p > .05$). We therefore combined the four individual items into a count. The correlation

Table 3: Multivariate Models of Parent Satisfaction

	<i>Coefficients for Satisfaction on 0–100 Scale (95% CI)</i>	
	<i>Model 1: Parent- Reported Events</i>	<i>Model 2: Parent- and Coder-Reported Events</i>
Number of parent-reported communication events		
0–2	(0)	(0)
3 or 4	8.1 [†] (0.7, 15.4)	8.7 [†] (0.6, 16.9)
Any communication event coded by observer but not reported by parent	NA	1.4 (– 5.6, 8.4)
Child brought by female adult (usually mother)	10.4 [†] (2.2, 18.6)	10.5 [†] (2.2, 18.7)
Combinations of parent SES and race/ethnicity		
High SES (any race/ethnicity)	– 5.1 (– 14.1, 4.0)	– 5.1 (– 14.2, 4.1)
Medium SES, non-Hispanic, White (reference)	(0)	(0)
Medium SES, Hispanic	– 4.1 (– 10.3, 2.0)	– 4.2 (– 10.3, 1.9)
Medium SES, African American	8.3 (– 4.3, 21.0)	8.3 (– 4.4, 20.9)
Medium SES, Asian	9.6 (– 3.1, 22.2)	9.7 (– 3.0, 22.3)
Low SES, Hispanic	1.1 (– 9.9, 12.0)	0.9 (– 9.9, 11.7)
Low SES, non-Hispanic	– 3.9 (– 26.8, 19.1)	– 3.9 (– 26.6, 18.9)
Very low SES (any race/ethnicity)	– 6.2 (– 17.2, 4.7)	– 6.3 (– 17.3, 4.7)
Child prescribed an antibiotic	3.6 (– 2.3, 9.5)	3.6 (– 2.3, 9.5)

Note. Site intercepts not shown. Analyses adjust for clustering of encounters by physician.

[†] $p < .05$.

SES, socioeconomic status.

between parent satisfaction and count of communication events is 0.160 ($p < .001$) for parent-reported events and 0.077 ($p = .079$) for coder-observed events. Analyses not shown suggests that parent satisfaction with pediatric visits for URI varied little within zero to two communication events ($p = .732$) and between three and four communication events ($p = .345$); the main distinction appears to be between 0–2 and 3–4 communication events. Thus, we dichotomized the number of parent-reported communication events into an indicator of at least three of four events reported by parents as having occurred.

Covariate-adjusted results show that parents who reported three or four of the four communication events report significantly greater satisfaction than parents who reported fewer than three such communication events by 8 points on a 0–100 scale (Table 3, model 1, $p = .032$).

Covariate-adjusted results indicate that any coded events not reported by parents (versus none) were not by themselves related to parent satisfaction ($p = .442$; results not shown). When considered together, multivariate results show that parents who report at least three communication events average

nearly 9 points more on a 0–100 satisfaction scale ($p = .037$; Table 3, model 2), but additional events reported only by the coder do not contribute anything ($p = .684$). Also notably, parent satisfaction was unrelated to whether antibiotics were prescribed in both models ($p = .221$ model 1; $p = .222$ model 2).

DISCUSSION

Our study confirms prior research linking parent–physician communication to parents’ satisfaction with quality of pediatric care. Prior research suggests that parents’ global assessment of communication with their child’s physician is more strongly correlated with parent satisfaction with care than were objective measures (Street 1991, 1992a, b)—our study confirms this finding when we examine specific communication events. Consistent with prior research, without controlling for other factors, the size of the correlation between parent satisfaction and number of communication events based on parent reports is nearly twice that of the correlation between parent satisfaction and number of events coded by an objective third party. We found that parent satisfaction was substantially greater when parents perceived three or four of four communication events (8 points higher satisfaction score on a 0–100 scale, $p = .032$) and, unlike what has been previously reported, that the presence of communication events noted by the coder but not perceived by the parents had no association with parent satisfaction after considering parent-perceived communication. This is a novel finding, which was made possible by using third-party-coded and parent reports on the same narrowly defined communication events.

In prior work, researchers found that another coded dimension of parent–physician communication events, namely length of communication, was not strongly or directly related to parent satisfaction—one study found the number of physician informational utterances coded during a given visit was unrelated to the parent’s judgment of the doctor’s informativeness (Street 1992a). A second study concludes that parents who received observer-coded moderate-length answers to their questions were most likely to report that the pediatrician had listened to them and that lengthier, in-depth responses to parent questions were unrelated to parent satisfaction (Goore et al. 2001). In our study, we are asking if specific communication events as coded and as recollected by parents influence parent satisfaction. The current study finds that not all communication events that meet standardized coding definitions are effective with respect to parent satisfaction unless actually perceived by the

parent, suggesting that the way that the content is presented matters more so than the specific content of the communication between parent and pediatrician.

Parent satisfaction may be largely driven by whether the parent perceives one or both of the parent/patient-centered communication events as having occurred, given that these events account for the majority of instances in which a parent did not perceive a coded event. Parents may respond positively to greater involvement. Alternatively, parents may have a different perspective than coders on certain communication events. For example, a brief mention of a viral origin might be coded as a discussion of the illness' cause, but a parent might not perceive it as such if it failed to convey a clear understanding of the cause. We should also acknowledge, however, that two alternative explanations are possible. First, we have a moderate reliability of coding for three of four observed communication event measures (Cohen 1988). In addition, the unmeasured κ between the two primary coders could be either higher or lower than their average κ with RM-S that is reported here. Less than excellent reliability may have weakened our ability to detect a true effect of communication not perceived by the parent. Second, although extensive CAHPS research that includes cognitive testing and interviews suggests that patients can reliably distinguish evaluations of specific behaviors, such as those measured by items in CAHPS composites (e.g., "did your doctor explain things in a way that you clearly understood") from overall impressions and evaluations (e.g., "rate your doctor on a scale from 0–10, where 0 is the worst possible doctor and 10 is the best possible doctor"; see Harris-Kojetin et al. 1999; Crofton et al. 2005), one cannot fully rule out the possibility that these results may in part reflect halo effects, wherein positive overall impressions drive evaluations of specific communication behaviors. For example, a parent with a preexisting positive relationship with the pediatrician based on the factors other than communication may be more inclined to interpret pediatrician statements that marginally satisfied the definition of addressing causes or providing home-care guidance than a parent with no such positive predisposition.

There are other limitations to this study. First, our sample is restricted to pediatric visits involving acute upper respiratory symptoms; parental responses to communication may differ for other types of pediatric encounters. Nonetheless, this is a prevalent and important class of pediatric encounters, with implications both for parental perceptions of physicians and for ensuring the appropriate use of antibiotics. In particular, understanding what motivates parent satisfaction may help prevent misguided attempts to achieve satisfaction

with inappropriate prescriptions. Second, our study only looks at whether each of four communication events was reported by parents or observed by third parties. Additional unmeasured patient-centered behaviors might both improve overall patient satisfaction and increase the perception that specific (coded) patient-centered behaviors occurred. Future research might investigate the aspects of communication events that influence the parent perceptions of these events.

A successful pediatrician–parent communication event is one that a parent recognizes as having occurred, it is not merely one that a trained observer can say technically occurred. Pediatricians thus must successfully engage parents to make the most effective use of limited time with parents. Further research into how physicians can perform communication events that parents desire in ways that satisfy parent expectations holds promise to increase the parental satisfaction with pediatric care and perhaps more broadly improve parent–physician communication, thereby improving the quality of care children receive.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article:

Appendix SA1: Author Matrix.

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