

The Child and Family Hospital Experience: Is It Influenced by Family Accommodation?

Medical Care Research and Review
2015, Vol. 72(4) 419–437
© The Author(s) 2015
Reprints and permissions:
sagepub.com/journalsPermissions.nav
DOI: 10.1177/1077558715579667
mcr.sagepub.com



Linda S. Franck¹, Deron Ferguson², Sarah Fryda³,
and Nicole Rubin⁴

Abstract

Patient and family experiences are important indicators of quality of care and little is known about how family accommodation affects hospital experience. We added questions about accommodation to standardized inpatient pediatric and neonatal intensive care unit family experience surveys at 10 U.S. hospitals to determine the accommodation types used by families, compare characteristics across accommodation types and explore accommodation-type influences on overall hospital experience outcomes. Parents of inpatient children ($n = 5,105$; 93.4%) most often stayed in the child's room (76.8%). Parents of neonatal intensive care unit infants ($n = 362$; 6.6%) most often stayed overnight in their own home or with relatives/friends (47.2%). Accommodation varied based on hospital, parent, and child factors. Accommodation type was a significant predictor for most hospital experience outcomes, with families who stayed at a Ronald McDonald House reporting more positive overall hospital experiences (odds ratios: ranging from 1.83 to 4.86 for contrasted accommodation types and three experience outcomes).

Keywords

patient and family experience, accommodation, CAHPS, health care surveys, child hospitalization

This article, submitted to *Medical Care Research and Review* on September 1, 2014, was revised and accepted for publication on March 7, 2015.

¹University of California, San Francisco, CA, USA

²National Research Corporation, Seattle, WA, USA

³National Research Corporation, Lincoln, NE, USA

⁴Impact Solutions LLC, Portola Valley, CA, USA

Corresponding Author:

Linda S. Franck, University of California, 2 Koret Way, N411Y, Box 0606, San Francisco, CA 94143-0606, USA.

Email: linda.franck@ucsf.edu

Introduction

Despite the decades long practice of encouraging parents and other family members to take an active part in the care of their hospitalized child, there is little evidence on how best to support overnight accommodation for families in a way that enables them to be effective participants in their child's treatment and recovery. In fact, there is very little known about where families stay when their child is hospitalized or how overnight accommodation for families influences the hospital experience. Many hospitals provide some level of bedside accommodation for one parent of a hospitalized child, such as built-in or portable beds or a reclining chair (Stremler, Wong, & Parshuram, 2008). Some hospitals provide limited on- or off-site sleeping rooms for parents or assist families with finding nearby hotel rooms (sometimes at discounted or subsidized rates). Family accommodation programs, such as Ronald McDonald House® (RMH), provide very low-cost accommodation, often on or very near hospital premises, to facilitate family proximity, family cohesion, and family-centered care during a child's hospitalization.

Patient and family health care experiences are increasingly recognized as important indicators of the quality of care (Anhang Price et al., 2014; Isaac, Zaslavsky, Cleary, & Landon, 2010). Patient experience surveys are widely used by hospitals across the United States, Canada, the United Kingdom, and Australia to collect data on patient and family experiences of inpatient and outpatient health care. These surveys commonly probe multiple dimensions of patient and family experience, such as nurse and doctor communication, responsiveness of staff, respect for patient preferences, emotional support, physical comfort, information and education, continuity and transition, coordination of care, access to care, and involvement of family and friends, among others. In U.S. adult health care settings, the Consumer Assessment of Healthcare Providers and Systems (CAHPS) surveys ask adult patients to evaluate their health care experiences and some of these evaluations have been incorporated into Medicare payment schemes (Giordano, Elliott, Goldstein, Lehrman, & Spencer, 2010). In January 2015, the Agency for Healthcare Research and Quality published the CAHPS Child Hospital Survey (Child HCAHPS) for pediatric patients (17 years and younger) and their parents or guardians with inpatient care. The Child HCAHPS includes most of the topics addressed by the adult version as well as topics that are particularly relevant to pediatric care (https://cahps.ahrq.gov/surveys-guidance/hospital/about/child_hp_survey.html; AHRQ-CMS CHIPRA Children's Hospital Boston Center of Excellence for Pediatric Quality Measurement, 2012; Co, Sternberg, & Homer, 2011).

New Contribution

The widespread use of standardized patient and family experience surveys provides a unique opportunity to investigate which accommodations families typically use and how family accommodation during a child's hospitalization is empirically associated with parent (or guardian) reports of the hospitalization experience. If there is a relationship between accommodation type and family assessment of the care experience,

then accommodation type should be captured and measured (e.g., as a demographic question) so that further research can be conducted and the results used to inform health care service improvement.

At present, however, information on where a family stayed during their child's hospitalization is not captured and therefore cannot be linked with individual survey responses and hospital experience ratings. Therefore, the aims of this cross-sectional, descriptive, multisite survey were to measure the use of various accommodation options and to investigate the influence of type of family accommodation on parent perceptions of the pediatric hospital experience. Our specific research questions were: (a) Where do parents and other family members stay overnight when their child is hospitalized? (b) Does use of the accommodation types by families differ based on patient or family characteristics? and (c) Does accommodation type influence overall family experience, willingness to recommend the hospital to a friend, or the perceived role of accommodation in enabling families be involved in their child's care, after adjusting for available patient, family, and hospital characteristics? These findings can inform hospital practices and strategy, family accommodation programs, as well as local, regional, and national policy regarding family-centered care for hospitalized children.

Conceptual Framework

Family-centered care is a health care delivery framework consisting of interrelated principles and practices that recognize the central importance of family members in an individual's health and well-being (Committee on Hospital Care and Institute for Patient and Family-Centered Care, 2012; Johnson, 2000; Johnson et al., 2008; Kuo et al., 2012). It arose in the context of children's health but has since been widely applied across the life span, all health care settings, and in health policy and research (Johnson, 2000; Patterson & Hovey, 2000; Uding, Sety, & Kieckhefer, 2007). Despite decades of work to implement family-centered care practices, lack of proximity and restricted access remain top concerns of relatives of hospitalized patients (Davidson et al., 2007) and influence perceptions of the effectiveness of communication with health care professionals and satisfaction with care (Cuthbertson, Margetts, & Streat, 2000; Davidson et al., 2007; Kenney, Denboba, Strickland, & Newacheck, 2011; Ngui & Flores, 2006).

Measuring the effectiveness of family-centered care by surveying patients and family members about their health care experience is largely based on the work of the Picker Institute/Commonwealth Program for Patient Centered Care in acute care hospitals in the mid-1990s (Gerteis, Edgman-Levitan, Daley, Delbanco, 1993). Homer et al. (1999) recognized the unique stresses and role of families in pediatric hospitalizations, noting that "there are dual patients in pediatric care: both the actual patient and the parent(s)" and that "excellent pediatric care must be family as well as child centered" (p. 1128). While most published research includes examination and adjustment of demographic factors such as child's age, child's health status, and parents' education level on the overall experience ratings of pediatric patients' families, to our knowledge no published patient and family experience research examined the types of

overnight accommodation used by families and explores whether accommodation plays a role in pediatric hospital experience ratings. We hypothesize that different types of family accommodation each embody differences in the level of psychosocial support, financial stress, and opportunity for respite from the hospital environment during a child's hospitalization, and therefore have a measurable impact on patient and family hospitalization experience.

Method

Survey Design and Data Collection

Data collection for this study leveraged two standardized, ongoing pediatric family inpatient experience surveys administered by an established health care experience measurement company, National Research Corporation (NRC; Lincoln, NE). Two questions were inserted into NRC's Inpatient Pediatric (IP) Experience Survey and the Neonatal Intensive Care Unit (NICU) Experience Survey. The two questions were placed after the standardized core section and prior to the patient and family demographic details section, in a section that individual hospitals can use to add customized questions. The first question asked: Which best describes the primary overnight accommodations your family used during your child's hospital stay? Eight response options were listed: Your own home, Home of relatives or friends, Hotel or motel, Room provided by RMH, Room provided by other charitable organization, Separate room provided by hospital, Your child's hospital room or nearby visiting/waiting area, or Other accommodations. These response options were determined after a literature search and consultation with experts.

The second question asked: On a scale from 0 to 10, with 0 being *the least helpful* and 10 being *the most helpful*, how would you rate your family's primary overnight accommodations as far as helping you stay involved in your child's care during his or her hospital stay? The 11-point 0 to 10 response scale chosen for the second question was consistent with other rating questions on the surveys. The 0 to 10 scale is widely used in the CAHPS survey instruments across multiple health care settings, including its Hospital CAHPS survey (HCAHPS; Darby, Hays, & Kletke, 2005).

Inpatient Pediatric and NICU Questionnaires

The IP and NICU surveys were originally derived from the Picker Institute's adult survey measurement model and wording. In 2009, the surveys were refreshed to align with the emerging CAHPS methodology and format, including minor question rewording and adjustment of response scales. Most questions ask for the respondent's reports on the frequency of staff behaviors or events, rather than ratings or level of agreement, such as the following example: "How often did the hospital staff include you in discussions about your child's care?" Most questions use the following 4-point response options: *Never*, *Sometimes*, *Usually*, *Always*. The surveys are available for review from NRC (nationalresearch.com).

While the IP and NICU instruments are designed to provide several scoring options, such as “positive” or “problem-based” scores, in this study we apply the scoring method used for public reporting of Hospital CAHPS survey results on the Centers for Medicare and Medicaid Services (CMS) website, *Hospital Compare* (www.medicare.gov/hospitalcompare). Responses were dichotomized into “top-box” positive or lower box negative scores (e.g., 1 vs. 0). Item level results were then reported as the percentage of positive responses. Positive responses for the 4-point response items included only the most positive option (i.e., *Always*). Five-point items include only the most positive two options (i.e., *Always* and *Almost always*), and items using a 0 to 10 scale included only the two highest (i.e., 9 and 10), as positive responses.

Sample Selection

At the time of the hospital selection for this study, 49 hospitals were using NRC’s IP and NICU surveys and met the inclusion criteria: (a) each had an average pediatric survey response volume of over 10 surveys per month and (b) each used the same version of the IP or NICU surveys. These 49 hospitals were contacted and invited to participate in the project. Of the 49 hospitals deemed eligible to participate, 10 hospitals agreed. The most common reasons for declining participation were the hospital’s participation in the CAHPS Hospital Survey–Child version (Child HCAHPS) pilot study or other new major hospital initiative. Six of the 10 participating hospitals were children’s hospitals, which included the five hospitals with an affiliated RMH and one hospital without. The four general hospitals had substantial pediatric patient populations but did not have an affiliated RMH. All participating hospitals were located within metropolitan areas. The payor mix varied across the hospitals, with the percentage of Medicaid patients treated at each of the hospitals ranging from about 10% to 50%. There were no significant differences between the 10 hospitals that participated in the study and the 39 that did not with respect to hospital-type characteristics (children’s or general; metropolitan or rural, teaching or nonteaching), affiliation with an RMH or percentage of Medicaid patients. Participating hospitals varied in size between 180 and 640 beds, with an average size of 378 beds overall, compared with an average of 472 beds for the 39 nonparticipating hospitals ($p = .13$). There was no difference between the groups in the number of critical care beds (28 for participating hospitals and 24 for nonparticipating hospitals; $p = .73$).

Survey Procedures

The two additional questions were added to the surveys and the cover letters were amended to describe the research project. Data collection followed a two-wave mail methodology with an initial mailing to the parent (or guardian) within 2 weeks of the child’s discharge and a follow-up mailing after an additional 4 weeks. Per NRC’s usual survey management procedures, the surveys were administered continuously throughout the year for each hospital, and the number of surveys mailed to patients was adjusted each month according to historical response rates and targets set by each hospital.

Because coordinating a simultaneous start date among the 10 sample hospitals was neither practical nor necessary for the study, the beginning dates of participation varied by hospital, with the earliest beginning point on December 31, 2012, and the latest beginning point on March 29, 2013. Returns were collected until a total of 5,500 returns was reached, with the number of days of participation varying between 207 and 296 days among the 10 hospitals, and the final mailing occurring on October 23, 2013. Completed surveys arriving at NRC after 42 days of the mailed date were excluded from the study, which is consistent with HCAHPS methodology (CMS, 2014). Of the 6,086 returned questionnaires, the majority (81%) had been returned within 3 weeks and 96% of all questionnaires were returned within 6 weeks (42 days). Of the 6,086 returns, 231 (3.8%) were excluded due to arrival after the 42-day limit, leaving 5,855 returns meeting the cutoff date and study period criteria. The mean number of days for receipt of questionnaires after mailing was 13.6 days ($SE = 0.11$). While this research was qualified as exempt from formal review by the university's institutional review board, we followed the institutional review board's guidelines for wording cover letters, including describing opt-out procedures and providing contact information.

Data Analysis

Descriptive statistics were examined for all variables. Three of the eight accommodation types: child's room, own home, and RMH, together accounted for over 90% of nonmissing responses, with the remaining accommodation types each comprising less than 2.5% of responses. For analysis the responses for staying in the home of a relative or friend (2.0%) were combined with those for "own home" because in both types parents had readily accessible social support in addition to their lodging. The "Other" category included "Hotel or Motel" (2.4%), "Room provided by other charity" (0.4%), "Separate room provided by hospital" (2.1%), and "Other accommodations" (1.2%). Once combined, the "Other accommodation" category comprised 6.1% of responses. Some respondents did not answer the accommodation-type question (6.5%), however, this missing rate was not inordinately high compared with other questions on the survey nor determined to be systematic in any other respects.

Several covariates were available for analysis, including child age (for IP surveys) and gender, length of stay, child's health status (for IP surveys), and child's race and ethnicity (or parent's race and ethnicity for NICU surveys), parent's education, language spoken at home, hospital type, and travel distance to the hospital. Patient age was categorized into the following four age groups: <1 year, 1 to 6 years, 7 to 12 years, and 13+ years. Child length of stay was categorized as 1 to 2 days, 3 to 5 days, 6 to 10 days, 11 to 21 days, and more than 21 days. Child health status after discharge was determined from parent responses on a 5-point scale to the question on the survey, "In general, how would you rate your child's overall health." Parent self-reported age was categorized into the following five age groups: 18 to 24 years, 25 to 34 years, 35 to 44 years, 45 to 54 years, and 55 years and older. Parent self-reported education was categorized into high school or below, some college or 2-year degree, and 4-year college graduate or higher. Child's (or parent's) race was dichotomized as White or non-White,

ethnicity as Hispanic or non-Hispanic, and language as English or non-English. Hospital type was a dichotomous indicator distinguishing between children's ($n = 6$) and general acute care hospitals ($n = 4$).

Travel distance for families was measured by the distance in miles between the geocoded location of the hospital and the geocoded zip code centroid of the family's mailing address used for the survey. Travel distance was collapsed into the following four categories: 0 to 25, 26 to 50, 51 to 100, and more than 100 miles. Travel distance was transformed to a log base 2 value and used as a continuous variable in multivariate analyses. Travel distances of less than 1 mile were given a value of zero on the log-transformed scale.

We examined the frequency of families' use of different accommodations and differences in characteristics across accommodation types. In all analyses of effects on experience, we focused on two global measures of experience, "overall rating" and "would recommend," and our added custom question on "accommodation helpfulness," using the top box scoring method reported by CMS described earlier, where the scales to these questions were dichotomized into "0" and "1" to reflect negative and positive responses. We compared unadjusted positive score differences for the two global measures, overall rating and recommendation, and for the helpfulness of accommodation in patient care involvement across accommodation types using chi-square tests of independence.

We used logistic regression to estimate the effect of accommodation type on hospital experience, adjusting for patient, family, and hospital covariates. While the two surveys are similar in content, several demographic covariates were not available for the NICU survey, and our examination revealed some key differences in the proportions of families using different accommodation types between the surveys. We therefore conducted analyses and estimated separate models for the IP and NICU surveys. We estimated three models for each of the survey versions (IP and NICU), with dependent variables as "overall rating," "would recommend," and "accommodation helpfulness," all scored as top box.

The models for the IP sample included all child covariates (gender, age group, overall health rating, special needs, and length of stay, race, and ethnicity), all parent covariates (age group, education, language spoken at home, and distance traveled), and indicators for each hospital to adjust for hospital-related effects. The models for the NICU sample had fewer covariates available, including distance, length of stay, and parent's education, race, ethnicity, and language. The accommodation-type variable was a categorical indicator using the collapsed accommodation categories described above for Home, RMH, Child's room, or Other. The hospital-type indicator (children's or general) was not included in the models due to its high correlation with the hospital indicators and accommodation types; we assume that the individual hospital indicators adequately capture site-specific effects, including type of hospital. Pairwise adjusted odds ratios (ORs) were calculated for each accommodation type compared with the others for the relative likelihood of parents reporting a positive score on each of the experience measures. Data analysis was conducted using SAS® v. 9.2 (Cary, NC). A p value of .05 was considered statistically significant.

Results

There were 5,855 surveys returned from parents/guardians of children discharged from the hospitals, of which 380 were excluded because of missing data for accommodation type and 8 cases excluded because of spurious entries. The final sample included 5,467 responses. Of these, 93.4% were from parents of infants and children who completed the IP survey and 6.6% were from parents of neonates who completed the NICU survey. Of those returning the IP survey, 5.9% were for infants and children admitted to the pediatric ICU. The response rate for the IP survey overall was 18%, varying from 12% to 30% across hospitals. The response rate for the NICU survey was 25%, varying from 19% to 29%.

Families' Use of Accommodations During a Child's Hospitalization

Most parents of inpatient children stayed in their child's room (76.8%). The next most common overnight accommodation was their own home or that of a relative or friend (13.2%). The third most common accommodation was at an RMH (4.4%), and the remainder (5.5%) stayed in other accommodations, including in a hotel (2.4%), another room provided by the hospital (1.6%), or other unspecified accommodation (1.5%). All of the patient, family, and hospital characteristics with the exception of child gender differed across the accommodation types (Table 1).

In contrast to the parents of pediatric inpatients, the parents of NICU infants stayed in their own home overnight or at a home of a relative or friend (47.2%), at an RMH (26.8%), in the infant's room (11.3%), or in other accommodations (14.6%), including another room provided by the hospital (8.6%), in a hotel (3.0%), or in another unspecified accommodation (3%). Similar to the parents of inpatient children, all of the patient, family, and hospital characteristics with the exception of child gender differed across the accommodation types (see Table 2).

Variation of Hospital Experience Scores Across Types of Accommodation

For the IP survey, positive ratings of the overall hospital experience and willingness to recommend the hospital to friends or family differed across accommodation type, as did positive ratings of the helpfulness of accommodation in enabling parents to be involved in their child's care. For each outcome, families using the RMH reported higher positive scores than the three other types of accommodation, with the highest differential observed for the helpfulness of accommodation (see Table 3). Detection of significant differences was more limited for the NICU survey due to the smaller sample; however, a similar pattern of positive ratings was observed for the three overall experience measures across the three major accommodation types. Positive ratings were highest for the families that stayed at an RMH, except in comparison with the "Other" category for the overall rating and recommendation measures.

Table 1. Comparison of Patient, Family, and Hospital Characteristics by Accommodation Type—Inpatient Pediatric Sample.

Variable	Home/ Relative/ Friend % ^a	RMH % ^a	Child's room % ^a	Other (including separate hospital room, hotel) % ^a	p Value
Total sample: N = 5,105	13.2	4.4	76.8	5.5	
Child gender ^b					.440
Male	13.9	4.3	76.2	5.6	
Female	12.4	4.6	77.6	5.5	
Child age (years) ^c					<.001
<1	14.4	8.4	70.9	6.3	
1-6	12.5	3.4	78.8	5.4	
7-12	11.2	2.7	81.6	4.5	
13 or older	15.3	3.4	75.5	5.9	
Child overall health ^d , M (SD) (1 = excellent to 5 = poor)	1.90 (0.988), n = 656	2.18 (1.08), n = 218	1.88 (0.96), n = 3,828	2.05 (1.07), n = 269	<.001
Child has special needs ^b					<.001
Yes	14.2	8.2	70.8	6.8	
No	13.0	3.4	78.7	5.0	
Parent gender ^b					<.001
Male	15.9	6.1	69.2	8.8	
Female	12.8	4.1	78.2	4.9	
Parent age (years) ^c					<.001
18-24	15.1	8.3	69.1	7.4	
25-34	11.7	5.3	77.6	5.4	
35-44	14.0	3.3	77.5	5.3	
45-54	12.8	3.5	79.3	4.4	
55 or older	18.9	3.8	73.0	4.3	
Parent education ^c					<.001
High school or less	18.3	6.0	67.3	8.5	
Some college	11.9	4.1	79.8	4.1	
College graduate/ graduate school	11.5	3.6	80.4	4.5	
Language spoken at home ^b					<.001
English	10.5	4.2	81.0	4.3	
Spanish/other	28.8	5.5	54.1	11.6	

(continued)

Table 1. (continued)

Variable	Home/ Relative/ Friend % ^a	RMH % ^a	Child's room % ^a	Other (including separate hospital room, hotel) % ^a	<i>p</i> Value
Child's race ^b					<.001
White	9.4	4.2	82.5	3.9	
Non-White	20.1	4.6	67.2	8.0	
Child's ethnicity ^b					<.001
Non-Hispanic	11.3	4.0	79.5	5.1	
Hispanic	25.4	6.5	61.1	7.0	
Distance travelled (miles) ^c					<.001
0-25	17.2	1.0	76.5	5.3	
26-50	10.0	6.0	79.7	4.3	
51-100	6.7	9.6	78.2	5.6	
>100	5.1	13.8	72.6	8.5	
Length of stay (days) ^c					<.001
1-2	13.2	1.6	79.6	5.7	
3-5	12.1	5.1	78.1	4.7	
6-10	13.2	9.7	71.1	6.0	
11-21	17.3	19.9	56.1	6.6	
>21	19.7	31.5	43.3	5.5	
Children's hospital ^b					<.001
No	16.6	0.0	76.1	7.3	
Yes	12.8	5.0	76.9	5.3	
Affiliation with RMH Chapter ^b					<.001
No	18.1	0.0	73.9	8.0	
Yes	12.2	5.4	77.4	5.0	

Note. RMH = Ronald McDonald House.

a. Percentage of total responses for each item.

b. Chi-square test.

c. Kruskal-Wallis test.

d. One-way analysis of variance.

Effect of Accommodation Type on Hospital Experience, Controlling for Patient and Hospital Characteristics

Models explaining the likelihood of a positive report from IP families for each of the global experience measures were significant (likelihood ratio test: $p < .001$). Accommodation type was a significant predictor for the two overall outcomes, with

Table 2. Comparison of Patient, Family, and Hospital Characteristics by Accommodation Type—Neonatal Intensive Care Unit Sample.

Variable	Home/relative/ friend % ^a	RMH % ^a	Child's room % ^a	Other (including separate hospital room, hotel) % ^a	p Value
Total sample: N = 362	47.2	26.8	11.3	14.6	
Child gender ^b					.857
Male	46.8	27.5	10.4	15.3	
Female	47.9	25.7	12.9	13.6	
Parent education ^c					.005
High school or less	47.6	25.4	20.6	6.4	
Some college	44.9	32.1	7.0	16.0	
College graduate/ graduate school	51.4	19.1	13.3	18.1	
Language spoken at home ^b					<.001
English	48.1	27.2	8.7	16.0	
Spanish/other	45.8	20.0	31.4	2.8	
Parent race ^b					.002
White	46.6	30.0	7.3	16.2	
Non-White	49.1	18.9	19.8	12.3	
Parent ethnicity ^b					.040
Non-Hispanic	47.1	28.2	9.4	15.3	
Hispanic	48.9	15.6	22.2	11.3	
Distance traveled (miles) ^c					<.001
0-25	61.1	9.3	14.2	15.4	
26-50	36.6	41.5	12.2	9.7	
51-100	1.8	78.8	0	9.8	
>100	4.9	75.6	2.4	17.1	
Length of stay (days) ^c					<.001
1-2	14.8	25.9	31.5	27.8	
3-5	28.7	7.6	16.1	27.6	
6-10	57.4	26.2	4.9	11.5	
11-21	64.9	22.1	5.2	7.8	
>21	63.9	31.3	3.6	1.2	
Children's hospital ^b					<.001
No	5.0	0.0	11.3	33.8	
Yes	45.0	34.4	11.4	9.2	
Affiliation with RMH Chapter ^b					<.001
No	57.2	0.0	19.9	22.9	
Yes	41.6	42.0	6.5	10.0	

Note. RMH = Ronald McDonald House.
 a. Percentage of total responses for each item.
 b. Chi-square test.
 c. Kruskal–Wallis test.
 d. One-way analysis of variance.

Table 3. Comparison of Positive Global Experience and Domain Scores by Accommodation Type.

Global experience measures ^a	Home/ relative/ friend %	RMH %	Child's room %	Other (including separate hospital room, hotel) %	p Value ^b
<i>Inpatient pediatric sample</i>					
Hospital experience	81.7	90.13	81.9	9.6	.011
Would recommend to friends and family	86.1	93.8	87.7	80.6	<.001
Accommodation helped maintain involvement in child's care	78.4	92.5	73.8	70.0	<.001
<i>Neonatal intensive care unit sample</i>					
Hospital experience	76.9	87.6	80.5	88.2	.094
Would recommend to friends and family	82.5	91.7	87.8	92.5	.095
Accommodation helpful in maintaining involvement in child's care	60.0	87.5	58.5	78.4	<.001

Note. RMH = Ronald McDonald House.

a. Percent reporting positive score.

b. Chi-square test.

RMH showing the clearest difference from the reference accommodation, which was specified as home/home of relatives or friends. The covariate-adjusted ORs comparing each accommodation type with the others for the IP sample are shown in Figure 1, Panel A, for overall hospital experience. The pairwise ORs show that positive overall experience scores were more likely from families who stayed at an RMH when compared with home, $OR = 2.03$ [1.16, 3.54], child's room, $OR = 1.83$ [1.09, 3.09], or other accommodation, $OR = 2.09$ [1.13, 3.86]. There was greater likelihood of positive scores for willingness to recommend the hospital to friends or family (OR home: 2.62 [1.34, 5.14]; room: 2.42 [1.28, 4.59]; other: 3.38 [1.65, 6.93]; see Figure 3, Panel B), as well as positive ratings of the helpfulness of accommodation in enabling parents to be involved in their child's care (OR home: 3.19 [1.78, 5.73]; room: 4.27 [2.46, 7.39]; other: 4.86 [2.62, 9.02]; Figure 3, Panel C). To test for robustness of estimates using a different scoring methodology, we conducted ordinal logistic regression using the original question scales (rather than the aforementioned top box scoring described). The results from these sensitivity analyses were substantially the same, with similar (significant) magnitudes and ordering for the accommodation type ORs, and similar adjustment covariate parameter estimates.

Important (significant) adjustment covariates included patient age, parent education, English language spoken at home, parent rating of child health, and travel distance (see Table 4). Among the most significant adjustment covariates were child's

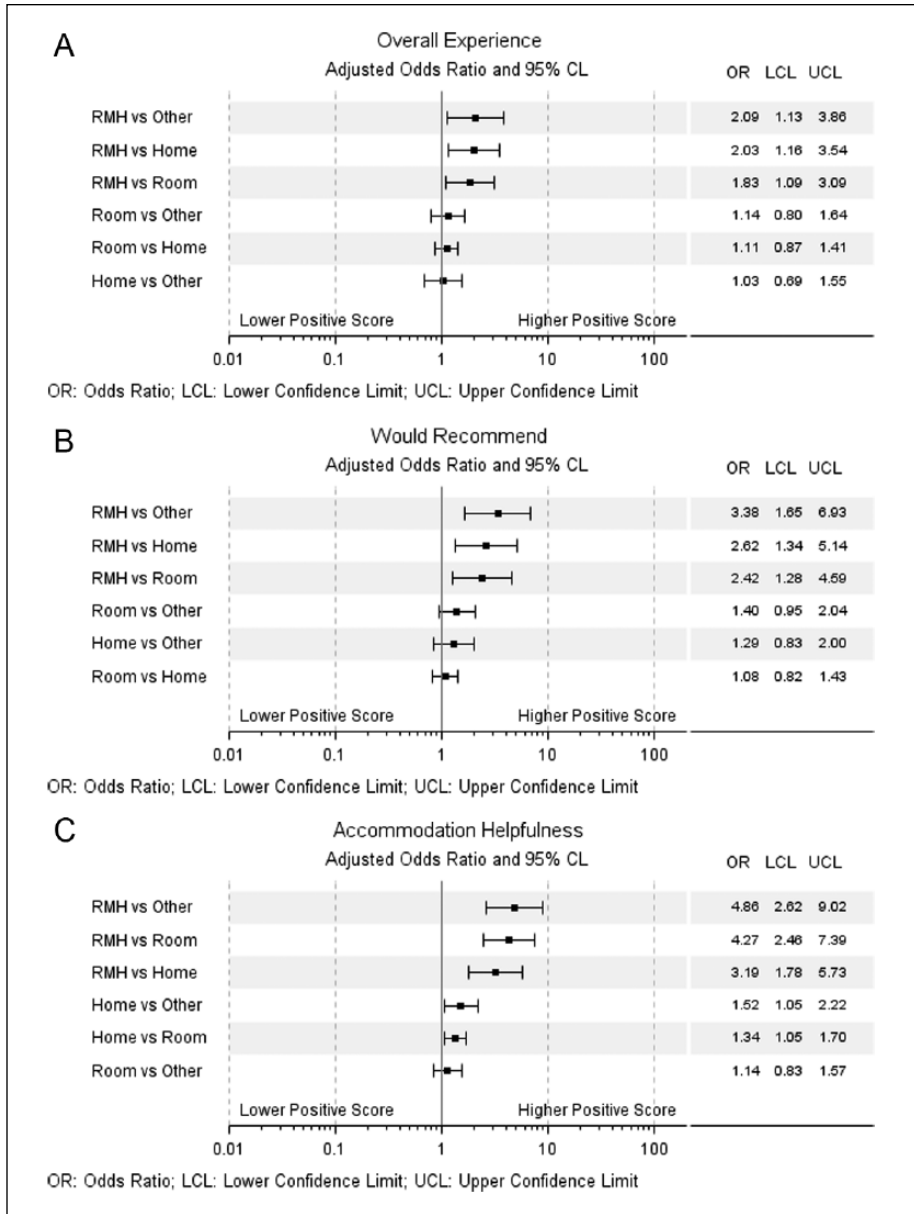


Figure 1. Panels A to C. Pairwise odds of higher positive scores for family accommodation types.

Note. RMH = Ronald McDonald House. Odds ratio adjusted for patient/parent age, patient/parent gender, length of stay, travel distance, hospital (indicator), child with special needs, child health rating, parent education, child's race (White/non-White), child's ethnicity (Hispanic/non-Hispanic), parent language (English/non-English).

Table 4. Multivariable Logistic Regression Analysis of Global Experience Measures With Accommodation-Type Predictor Variable.

Covariate ^a	Adjusted odds ratios [95% CI]		
	Overall experience	Would recommend	Accommodation helpfulness
Accommodation type (ref = home)			
RMH	2.03 [1.16, 3.54]*	2.62 [1.34, 5.14]*	3.19 [1.78, 5.73]*
Room	1.11 [0.87, 1.41]	1.08 [0.82, 1.43]	0.75 [0.59, 0.95]*
Other	0.97 [0.64, 1.46]	0.78 [0.50, 1.20]	0.66 [0.45, 0.96]*
Distance (log 2)	1.05 [1.00, 1.10]	1.06 [1.00, 1.12]	1.05 [1.00, 1.09]
Length of stay (ref = 1-2 days)			
3-5 days	1.10 [0.90, 1.35]	1.23 [0.97, 1.57]	1.13 [0.95, 1.35]
6-10 days	1.00 [0.74, 1.34]	0.77 [0.56, 1.07]	1.07 [0.81, 1.41]
11-21 days	0.90 [0.59, 1.38]	0.78 [0.49, 1.22]	0.75 [0.52, 1.10]
21 or more days	1.58 [0.90, 2.76]	0.98 [0.56, 1.73]	0.81 [0.50, 1.29]
Patient's age group (ref ≤ 1 year)			
1-6 years	1.11 [0.90, 1.37]	1.37 [1.08, 1.75]*	1.29 [1.07, 1.56]*
7-12 years	1.36 [1.04, 1.78]*	1.49 [1.09, 2.03]*	1.48 [1.17, 1.87]*
13 or more years	1.15 [0.86, 1.56]	1.39 [0.98, 1.96]	1.77 [1.35, 2.31]*
Patient's gender (ref = female)	0.94 [0.80, 1.10]	0.97 [0.81, 1.17]	0.93 [0.81, 1.07]
Child with special needs (ref = no)	1.07 [0.86, 1.32]	1.04 [0.81, 1.33]	0.95 [0.78, 1.16]
Child's health rating (1 = excellent to 5 = poor)	0.66 [0.61, 0.72]*	0.63 [0.57, 0.70]*	0.79 [0.73, 0.85]*
Parent's age (ref = 18-24 years)			
25-34 years	1.09 [0.77, 1.54]	1.29 [0.89, 1.88]	0.92 [0.67, 1.27]
35-44 years	1.42 [0.97, 2.06]	1.58 [1.05, 2.38]*	0.93 [0.66, 1.31]
45-54 years	1.36 [0.88, 2.11]	1.47 [0.90, 2.39]	0.72 [0.49, 1.07]
55+ years	2.09 [1.16, 3.79]*	2.58 [1.29, 5.14]*	0.99 [0.58, 1.66]
Parent's gender (ref = female)	0.93 [0.73, 1.20]	1.08 [0.81, 1.43]	1.14 [0.92, 1.40]
Parent's education (ref ≤ high school)			
Some college or associate degree	0.93 [0.73, 1.20]	0.99 [0.75, 1.32]	0.76 [0.61, 0.95]*
4-year college degree or above	0.60 [0.47, 0.77]*	0.75 [0.56, 0.99]*	0.59 [0.47, 0.73]*
Parent non-White (ref = White)	0.95 [0.77, 1.16]	0.88 [0.70, 1.10]	0.94 [0.78, 1.12]
Parent Hispanic (ref = non-Hispanic)	1.57 [1.13, 2.18]*	1.21 [0.85, 1.72]	1.09 [0.83, 1.44]
Language not English (ref = English)	2.08 [1.46, 2.97]*	1.67 [1.15, 2.43]*	1.39 [1.04, 1.85]*

Note. RMH = Ronald McDonald House.

a. Facility indicators included in model (estimates not shown).

health rating (lower health rating was associated with lower odds of positive score), patient's age (parents of infants associated with lower odds of positive score), and

parent's education (higher education associated with lower odds of positive score). The hospital indicators resulted in significant variation in the odds of positive scores for some hospitals (not shown).

The logistic regression models for the NICU sample included all available parent variables (education, race, ethnicity, language spoken at home, and distance traveled) and indicators for each hospital. Only two of the models were significant (would recommend hospital to a friend and accommodation type helped maintain involvement in child's care, $p < .045$ and $p < .001$, respectively), and significant parameters were limited to the accommodation type and parent education variables (see eTable 1 in the supplement available online at <http://mcr.sagepub.com/supplemental>). Although ORs comparing each accommodation type had wider confidence intervals, the relative ranking of the comparisons was similar, with parents staying in the RMH more likely to have a positive rating compared with the other accommodation types, after controlling for the parent- and hospital-level factors (see e-Figure 1 in the supplement <http://mcr.sagepub.com/supplemental>).

Discussion

To our knowledge, this is the first time that the proportion of parents using different types of overnight accommodation during their child's hospitalization has been described. It is also the first time relationships between accommodation type and patient/family hospital experience ratings have been demonstrated either in the pediatric or adult hospital settings. The importance of the family in the care of hospitalized children has long been recognized (Gooding et al., 2011; Johnson, 2000; Kuo et al., 2012) and consideration of the family experience in assessment of health care quality is a recent development (Anhang Price et al., 2014; Co et al., 2011; Giordano et al., 2010; Isaac et al., 2010). However, the specific conditions of physical proximity that enable or impede families to actively participate in a hospitalized patient's care have largely been neglected in contemporary research, as has been the supportive role played by different types of accommodation.

Family participation in a child's hospital care is allowed, encouraged or expected, but families often face logistical and financial challenges in achieving proximity to their ill child because of difficulties with transportation, food and lodging, care of other children or family members, and lost wages due to absence from employment (Difazio & Vessey, 2013). The previous research with families of children with special health care needs suggests that these difficulties influence perceptions of the effectiveness of communication with health care professionals and satisfaction with care (Kenney et al., 2011; Ngui & Flores, 2006). The few studies that have explored the specific influence of accommodation on family involvement in pediatric inpatient care suggest positive effects on parent and patient outcomes with greater availability of nearby overnight accommodation (Taylor & O'Connor, 1989; Wigert, Berg, & Hellstrom, 2010). A large survey of family members who stayed at an RMH found that families believed the accommodation helped their family to stay together and that their ability to stay nearby improved their child's recovery. Cultural differences were also

evident, with Hispanic families believing more strongly that their proximity to their child, facilitated by the RMH accommodation, shortened their child's hospital stay (Franck, Gay, & Rubin, 2013).

If health services are to be designed for greater patient and family involvement, then more needs to be known about the challenges families face with regard to overnight accommodation and its influence on their involvement in their ill child's care. This includes basic information such as distance between the hospital and the family home and the availability of overnight accommodation, as well as information on the need for child or elder care, employment and transportation constraints. Differences in hospital experience related to demographic, clinical, and hospital factors warrant further exploration and the findings should be used to improve opportunities for meaningful family involvement and to design services that better meet the needs of families.

The independent effect of accommodation type on parents' experience during their child's hospitalization is another important finding of the present study. In particular, the families who stayed at the RMH had more positive overall experience scores than families who stayed in other accommodation types. We hypothesize that the supportive services in the RMH approach to supporting the whole family, communal housing that facilitates social support from other families sharing similar experiences, and the aim to create a "home away from home" may account for its stronger association with positive hospital experiences (Franck et al., 2013). Although the RMH program is intended to serve the specific needs of families who live far from a specialty medical facility, newer programs such as Ronald McDonald Family Rooms (www.rmhc.org), in-hospital community areas that provide space for respite for parents, child life programs, and other options have been developed to better meet the support needs of families who live closer to the hospital. Further research will be needed to explore the effectiveness of strategies to increase access to support services, what aspects of the RMH experience are particularly related to perceptions of hospital experience, and whether these features can be replicated in other family support models.

Further research will be needed to confirm the findings; however, given the strength of findings across a large sample from 10 geographically and size-varied hospitals providing pediatric care in the United States, it is clear that an item about family accommodation should be included in all hospital experience surveys so that its influence on hospital experience can continue to be studied. Examination of the differences in accommodation type use for families of pediatric inpatients and infants in the NICU as well as investigation of the influence of accommodation type on specific dimensions of patient and family experience will be useful in understanding the relationships and identifying opportunities for interventions. Parent education level, language spoken at home, race, Hispanic ethnicity, distance traveled, and length of hospital stay differed across the accommodation types.

Individual hospitals can use the present findings to ensure that families are being appropriately referred to available accommodation options and that services are designed to better meet the needs of families to maximize involvement in patient care. As recognition of the importance of families in a child's hospital care has grown, more

space for family members is being programmed into new hospital construction (Facilities Guidelines Institute, 2014; White, Smith, & Shepley, 2013). For example, single patient rooms are becoming more common in the inpatient setting but usually do not provide adequate accommodation for more than one family member. Moreover, bedside accommodation is associated with poorer parent sleep than nearby RMH family accommodation (Franck et al., 2014). Given the limited resources and high costs of facilities, research is urgently needed to better understand the strengths and limitations of the different approaches to family accommodation, how to assess and prioritize family needs and preferences, and to develop support systems that maximize the available accommodation to achieve greater family participation in their child's hospital care. There is unlikely to be a single effective approach to the issue and accommodation options that offer respite and support for families during a child's hospitalization may be best accomplished through partnerships between hospitals and governmental and/or charitable agencies.

Experience survey scores are routinely adjusted to remove from comparisons the predictable effects of differences in patient characteristics that are outside of a hospital's control and which might bias hospital comparisons (O'Malley, Zaslavsky, Elliott, Zaborski, & Cleary, 2005). We believe that providing support to families with respect to family accommodation is a quality-distinguishing activity that is largely within hospitals' control and therefore should not be "factored out," so that hospitals have an incentive to innovate in providing these family-centered support services. However, demographic questions pertaining to accommodation should be included on surveys, as this information can inform local, regional, and national health care service planning.

The study findings should be considered in light of its limitations and strengths. Although diverse in many key respects, the hospital sample was a convenience sample and may not be representative. The response rate, although in a range typical for HCAHPS surveys (Centers for Medicare & Medicaid Services, 2014), also limits the generalizability of the findings. Moreover, the findings for the NICU survey and with respect to the less frequently used accommodation types, must be considered with caution due to the small sample sizes. Strengths of the study included its methodology, imbedding the research question in well-established, well-validated ongoing survey procedures, the overall size of the sample, and diversity of the participating hospitals and respondents.

In summary, the findings from this study suggest that parent overnight accommodation for hospitalized infants and children varies based on hospital, parent, and child factors. Moreover, relationships between parent overnight accommodation type and patient experience have been demonstrated. These findings should inform efforts to advance family-centered care at the local, regional, and national levels, to broaden hospital practices and strategy and to bolster family accommodation alternatives available when needed.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Rubin served as CEO of Ronald McDonald House Charities of Southern California from 2006 to 2011.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was supported in part by a grant from the Ronald McDonald House Charities, Inc.

References

- Agency for Healthcare Research and Quality. (2015). *The CAHPS Child Hospital Survey*. Retrieved from https://cahps.ahrq.gov/surveys-guidance/hospital/about/child_hp_survey.html
- AHRQ-CMS CHIPRA Children's Hospital Boston Center of Excellence for Pediatric Quality Measurement. (2012). *Child HCAHPS*. Retrieved from <http://www.childrenshospital.org/research-and-innovation/research-labs/center-of-excellence-for-pediatric-quality-measurement-cepqm/cepqm-measures/pediatric-hcahps>
- Anhang Price, R., Elliott, M. N., Zaslavsky, A. M., Hays, R. D., Lehrman, W. G., Rybowski, L., . . . Cleary, P. D. (2014). Examining the role of patient experience surveys in measuring health care quality. *Medical Care and Research Review, 71*, 522-554. doi:10.1177/1077558714541480
- Centers for Medicare & Medicaid Services. (2014). *July 2014 Public Report: October 2012–September 2013 discharges*. Retrieved from <http://www.hcahponline.org/SummaryAnalyses.aspx>
- Co, J. P., Sternberg, S. B., & Homer, C. J. (2011). Measuring patient and family experiences of health care for children. *Academic Pediatrics, 11*(3 Suppl.), S59-S67.
- Committee on Hospital Care and Institute for Patient and Family-Centered Care. (2012). Patient- and family-centered care and the pediatrician's role. *Pediatrics, 129*(2), 394-404.
- Cuthbertson, S. J., Margetts, M. A., & Streat, S. J. (2000). Bereavement follow-up after critical illness. *Critical Care Medicine, 28*, 1196-1201.
- Darby, C., Hays, R. D., & Kletke, P. (2005). Development and evaluation of the CAHPS hospital survey. *Health Services Research, 40*, 1973-1976.
- Davidson, J. E., Powers, K., Hedayat, K. M., Tieszen, M., Kon, A. A., Shepard, E., . . . Armstrong, D. (2007). Clinical practice guidelines for support of the family in the patient-centered intensive care unit: American College of Critical Care Medicine Task Force 2004–2005. *Critical Care Medicine, 35*, 605-622. doi:10.1097/01.CCM.0000254067.14607.EB
- Difazio, R. L., & Vessey, J. A. (2013). Non-medical out-of-pocket expenses incurred by families during their child's hospitalization. *Journal of Child Health Care, 17*, 230-241.
- Facilities Guidelines Institute. (2014). *Guidelines for design and construction of hospital and health care facilities*. Dallas, TX: Author.
- Franck, L. S., Gay, C. L., & Rubin, N. (2013). Accommodating families during a child's hospital stay: implications for family experience and perceptions of outcomes. *Families, System & Health, 31*, 294-306.
- Franck, L. S., Wray, J., Gay, C., Dearmun, A. K., Alsberge, I., & Lee, K. A. (2014). Where do parents sleep best when children are hospitalized? A pilot comparison study. *Behavioral Sleep Medicine, 12*, 307-316.
- Gerteis, M., Edgman-Levitan, S., Daley, J., & Delbanco, T. L. (1993). *Through the patients' eyes: Understanding and promoting patient centered care*. San Francisco, CA: Jossey-Bass.
- Giordano, L. A., Elliott, M. N., Goldstein, E., Lehrman, W. G., & Spencer, P. A. (2010). Development, implementation, and public reporting of the HCAHPS survey. *Medical Care Research and Review, 67*, 27-37.

- Gooding, J. S., Cooper, L. G., Blaine, A. I., Franck, L. S., Howse, J. L., & Berns, S. D. (2011). Family support and family-centered care in the neonatal intensive care unit: Origins, advances, impact. *Seminars in Perinatology*, *35*, 20-28.
- Homer, C. J., Marino, B., Cleary, P. D., Alpert, H. R., Smith, B., Crowley Ganser, C. M., . . . Goldmann, D. A. (1999). Quality of care at a children's hospital: The parent's perspective. *Archives of Pediatrics & Adolescent Medicine*, *153*, 1123-1129.
- Isaac, T., Zaslavsky, A. M., Cleary, P. D., & Landon, B. E. (2010). The relationship between patients' perception of care and measures of hospital quality and safety. *Health Services Research*, *45*, 1024-1040.
- Johnson, B. H. (2000). Family-centered care: Four decades of progress. *Families, Systems & Health*, *18*, 137-156.
- Johnson, B. H., Abraham, M., Conway, J., Simmons, L., Edgman-Levitan, S., Sodomka, P., . . . Ford, D. (2008). *Partnering with patients and families to design a patient- and family-centered health care system: Recommendations and promising practices*. Bethesda, MD: Institute for Family-Centered Care.
- Kenney, M. K., Denboba, D., Strickland, B., & Newacheck, P. W. (2011). Assessing family-provider partnerships and satisfaction with care among US children with special health care needs. *Academic Pediatrics*, *11*, 144-151.
- Kuo, D. Z., Houtrow, A. J., Arango, P., Kuhlthau, K. A., Simmons, J. M., & Neff, J. M. (2012). Family-centered care: Current applications and future directions in pediatric health care. *Maternal and Child Health Journal*, *16*, 297-305.
- Ngui, E. M., & Flores, G. (2006). 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*, *117*, 1184-1196.
- O'Malley, A. J., Zaslavsky, A. M., Elliott, M. N., Zaborski, L., & Cleary, P. D. (2005). Case-mix adjustment of the CAHPS Hospital Survey. *Health Services Research*, *40*, 2162-2181.
- Patterson, J., & Hovey, D. L. (2000). Family-centered care for children with special health needs: Rhetoric or reality. *Families, Systems, & Health*, *18*, 237-251. doi:10.1037/h0091849
- Stremler, R., Wong, L., & Parshuram, C. (2008). Practices and provisions for parents sleeping overnight with a hospitalized child. *Journal of Pediatric Psychology*, *33*, 292-297.
- Taylor, M. R., & O'Connor, P. (1989). Resident parents and shorter hospital stay. *Archives of Disease in Childhood*, *64*, 274-276.
- Uding, N., Sety, M., & Kieckhefer, G. M. (2007). Family involvement in health care research: The "Building on Family Strengths" case study. *Families, Systems, & Health*, *25*, 307-322. doi: 10.1037/1091-7527.25.3.307
- White, R. D., Smith, J. A., & Shepley, M. M. (2013). Recommended standards for newborn ICU design, eighth edition. *Journal of Perinatology*, *33*(Suppl. 1), S2-S16.
- Wigert, H., Berg, M., & Hellstrom, A. L. (2010). Parental presence when their child is in neonatal intensive care. *Scandinavian Journal of Caring Sciences*, *24*, 139-146.