

Family Perspectives on Whiteboard Use and Recommendations for Improved Practices

Preetam Cholli, BA,^a Elaine C. Meyer, PhD, RN,^{b,c} Marguerite David, RN,^c Marilyn Moonan, MSN, CPN,^c Judith Mahoney, MSN, NE-BC,^c Eileen Hession-Laband, RN, MBA, NE-BC,^d David Zurakowski, PhD,^e Sigall K. Bell, MD^{b,f}

OBJECTIVES: To explore pediatric family perspectives and preferences regarding whiteboard use, as well as recommendations for using whiteboards as tools for patient-centered communication and care.

METHODS: Semi-structured interviews were conducted with 29 families in a pediatric urban academic hospital inpatient surgical service, exploring whiteboard experiences and suggestions. Parent responses were manually recorded during interviews. Quantitative data were analyzed by using descriptive statistics.

RESULTS: Of all families, 66% reported using the whiteboard, and 52% were informed about it by staff. Among users, parents who were informed of the whiteboard used it actively (writing to share information) 6 times more often than those who used it passively (as a visual reference). Pictorial whiteboard analysis found that 42% of whiteboards had parent writing. Of these, 80% had contact information alone. Among reasons for whiteboard nonuse, 58% were modifiable, including not knowing about it, assuming it was intended for staff, believing no one would read it, or physical inaccessibility. Parents overwhelmingly identified nurses as whiteboard users (81%) compared with physicians (who families did not identify as users). The majority (76%) of families offered recommendations to improve whiteboard effectiveness.

CONCLUSIONS: Of all families, approximately one-half were not informed about whiteboards and one-third did not use them. Reasons for nonuse were largely modifiable. Parents made aware of their whiteboard by their care teams demonstrated increased likelihood of active whiteboard use, highlighting the importance of education and suggesting a gap in harnessing the full potential of whiteboards as communication tools. Families' recommendations can help inform whiteboard practices to strengthen communication and care.

ABSTRACT

^aUniversity of Massachusetts Medical School, Worcester, Massachusetts; ^bInstitute for Professionalism and Ethical Practice, Boston Children's Hospital, Boston, Department of Psychiatry, Boston Children's Hospital, Harvard Medical School, Boston, Massachusetts; ^cDepartment of Nursing, Boston Children's Hospital, Boston, Massachusetts; ^dPerformance Improvement Department, Beverly Hospital, Beverly, Massachusetts; ^eDepartment of Anesthesia, Boston Children's Hospital, Boston, Massachusetts; and ^fDepartment of Medicine, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts

www.hospitalpediatrics.org

DOI:10.1542/hpeds.2015-0182

Copyright © 2016 by the American Academy of Pediatrics

Address correspondence to Preetam Cholli, 6 Rosemary Lane, Chelmsford, MA 01824. E-mail: preetam.cholli@umassmed.edu

HOSPITAL PEDIATRICS (ISSN Numbers: Print, 2154-1663; Online, 2154-1671).

FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: No external funding.

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

Whiteboards can enable continuous bidirectional exchange of information between clinicians and patient families, including treatment updates and patient family preferences.^{1,2} Whiteboards are considered to be valuable tools by hospital providers across disciplines³ and have the potential to improve teamwork, communication, and patient care.^{1,4}

Although whiteboards are commonly used in hospital settings, their efficacy is not well studied and may be limited by a lack of established guidelines or best practices for their implementation.⁵ Among the few available resources, clinician-based recommendations for optimal whiteboard use include the following: (1) keep whiteboards accessible and visible from hospital beds; (2) fasten erasable pens to whiteboards; (3) standardize whiteboard information fields; (4) include fields for various factors (eg, the day and date; names of the patient, bedside nurse, and primary physician[s]; goal[s] for the day; anticipated discharge date; family contact information; and patient and family questions); (5) facilitate whiteboard updates through bedside nurses; and (6) use audits and early feedback during whiteboard rollout.

However, far less is known about actual whiteboard use and preferences from family perspectives, limiting more comprehensive best practices. The goal of the present study was to examine pediatric family experiences with whiteboards and to outline recommendations for patient-centered whiteboard use based on their perspectives.

METHODS

Whiteboards were introduced on the surgical units at our academic medical center after the opening of a new building in 2004. The choice of whiteboard type and style was driven by the varying wall space in patient rooms. Nursing staff and educators outlined the essential whiteboard components to be filled. To establish consistency in whiteboard use, all staff were trained after the initial rollout, but over the next decade, whiteboard use began to be highly variable by unit and nurse. The present quality improvement initiative aimed to assess how whiteboards were

used organically in day-to-day practice and how this use might be improved.

We conducted standardized, semi-structured interviews with families of patients on the surgical unit of an urban pediatric academic hospital, with the goal of interviewing 30 families. The interview queried family perspectives about: (1) orientation to whiteboards located by their child's bedside; (2) whiteboard use by providers and family members; (3) overall satisfaction with care; and (4) recommendations for improving whiteboard use. These topics were part of a broader interview guide designed to explore family needs, experiences, and satisfaction on the surgical unit (interview guide available on request). The interview was developed by a multidisciplinary team consisting of 2 nurses, a physician, a student, and a patient family liaison with collective expertise in quality improvement, patient safety, and patient engagement (S.B., E.C.M., and E.H.-L.) and survey development (E.C.M. and S.B.). After the interview was developed, it was shared with a larger team of 7 pediatric nurses and nurse practitioners, educators, and patient engagement leaders for feedback and revision.

We planned to pilot test the interview guide with families and revise questions that families found confusing or had difficulty answering. However, after 8 surveys, only 1 question pertaining to the whiteboard was found to require revision ("Were you aware of the whiteboard by your child's bedside?") This question was modified to "Did anybody inform you about the whiteboard by your child's bedside?" for greater clarity. For the modified question, only responses for the updated version ($n = 21$) were included in the analysis; for all other questions, all data were included ($n = 29$).

Interviews were performed over 12 days during a 3-week period on a single surgical unit by using a convenience sample of pediatric patients and their families admitted and available at that time. To represent a diversity of patient family experiences, we interviewed English-speaking families with planned and unplanned admissions, as well as those with short- and long-term hospital stays.

We defined short length of stays as ≤ 3 days before the interview. Families were approached if: (1) they were admitted to the unit at least 1 day before being interviewed; and (2) their child was not scheduled for a surgery that day. On each interview day, the interviewers reviewed the unit's patient list with the charge nurse, who excluded families if he or she felt an interview would be detrimental to care. The remaining list was divided into planned and unplanned admissions categories, and families were interviewed as they appeared on the list, organized according to room number. If a family was out of the room or not available, we attempted to return to their room later in the day.

Interviews were conducted with either or both parents, depending on who was present and willing to participate. If both parents were present, they were surveyed at the same time. In some instances, parents provided >1 response; in these cases, all responses were recorded and contributed to the total denominator of responses for that question.

Interviews were conducted by dyads of the project team, consisting of 1 student and either a nurse or a patient family liaison. After obtaining verbal consent, 1 team member led the interview and the other manually recorded parent responses. At the conclusion of the interview, parents were asked consent for a picture of the patients' whiteboard to be taken. Photographs were edited to eliminate all identifying patient and treatment information and were permanently deleted after data extraction for analysis.

Parent responses about whiteboard use were analyzed by using descriptive statistics and compared with satisfaction ratings solicited from the interview ("Overall, how well do you feel your, your child's, and your family's needs have been met?") by using unpaired t tests. For structured open-ended questions, frequency of responses was tabulated. Whiteboard pictures were analyzed to identify degree of completeness. We calculated completeness by dividing the number of whiteboard fields filled by the number of fields available. Poster-style whiteboards, which lacked

information fields, were excluded from this analysis. Associations between whiteboard completeness and family satisfaction were assessed using the Pearson correlation coefficient (*r*). This research was determined to be a quality improvement initiative by the institutional review board at our hospital.

RESULTS

Demographic Characteristics

Interviews were conducted with 36 parents of 29 pediatric patients (Table 1). The mean patient age was 9.5 years (range, 1–21 years). Of the families with available data on length of stay until interview (*n* = 27), 48% had short stays. The median length of stay before the interview was 3.5 days (range, 1–49 days).

TABLE 1 Demographic Data

Characteristic	Value
Patient demographics (<i>n</i> = 29)	
Age, mean ± SD, y	9.5 ± 5.8 (range, 1–21)
Sex, (%)	
Female	18 (62)
Male	11 (38)
Days in hospital before interview	
Median	3.5
Range	1–49
Admission, (%)	
Planned	15 (52)
Unplanned	14 (48)
Previously admitted	17 (65)
Family demographics ^a (<i>n</i> = 29)	
Age, mean ± SD, y	38.6 ± 8.6
Respondent, (%)	
Mother	20 (69)
Father	2 (7)
Both	7 (24)
Ethnicity ^a , (%)	
White	26 (90)
African American	3 (10)
Marital status, (%)	
Married	22 (76)
Single	5 (17)
Divorced	2 (7)

^a Family demographic data are reported by family (*n* = 29), not by total respondents (*N* = 36).

Whiteboard Use by Families

Although 66% (19 of 29) of families reported they used the whiteboard, only 52% (11 of 21) of families stated that they were specifically informed about it. Families used the whiteboard in various ways (Table 2), and nonusers (10 of 29) provided several reasons for not using it (Table 3).

Seventeen percent of family descriptions involved actively using the whiteboard for keeping records and treatment information or for communicating with the care team (ie, beyond contact information). An additional 14% involved passively referring to previously written treatments, diets, schedules, or care plans (Table 2). Of all reasons for nonuse (*n* = 12), 58% were modifiable (Table 3). Of families with available data, those who were informed of the whiteboard (11 of 21) used it actively 6 times more often than they used it passively (55% vs 9%, respectively), whereas families who were not informed (10 of 21) used it 1.5 times more actively than passively (30% vs 20%). In this subset of families with available data, 62% (13 of 21) were users and 38% (8 of 21) were non users. Among users, 62% (8 of 13) had been informed of the whiteboard by their care team, while 63% (5 of 8) non users had not been informed. Whiteboard pictures were taken in 72% (21 of 29) of all family interviews (with parents' permission). Upon analysis, 42% of photographed whiteboards had parent writing; 80% contained contact information alone, and 10% included parent messages for

staff. No significant differences in whiteboard use were found between planned and unplanned admissions or between short and longer hospitalizations.

Whiteboard Use by Hospital Staff

Of families, 73% (19 of 26) reported their care teams used the whiteboard. Families overwhelmingly identified nurses as whiteboard users (81%), followed by assisting staff (9.5%) and “unspecified” (9.5%). Physicians were never identified as whiteboard users. There was notable diversity in whiteboard styles across rooms, with different styles having varying fields and visual–spatial arrangement. Among families who consented to have their whiteboard pictures taken, pictorial analysis revealed that 90% of nurse names, 50% of attending names, and 60% of child life specialist name fields on all whiteboards were filled. No significant relationships were found between whiteboard style and average degree of completeness.

Whiteboard Use and Satisfaction

Families' mean overall satisfaction with how their needs were met was rated 4.4 of 5 on a Likert scale. There were no significant differences between satisfaction across whiteboard types, and there was no correlation between whiteboard completeness and parent satisfaction.

Recommendations

When asked for suggestions to improve whiteboard use, 76% (22 of 29) of families, including users and nonusers, provided

TABLE 2 Types of Whiteboard Use Cited by Families Who Used the Whiteboard (*n* = 19)

Types of Whiteboard Use (<i>n</i> = 29) ^a	Frequency Reported, (%)
Active uses	
Writing personal contact information	18 (62.0)
Writing messages for the care team	10 (34.5)
Recordkeeping, writing treatment information	3 (10.3)
Writing and updating team member names, roles	2 (6.9)
Writing messages for other family members	2 (6.9)
Passive uses	
Referencing team member names	1 (3.4)
Referencing the schedule, plan of care	10 (34.5)
Referencing information about their child's diet, treatment	6 (20.7)
Decorative uses	
Posting get well cards	2 (6.9)
	2 (6.9)
	1 (3.4)

^a Some families provided multiple responses regarding how they used the whiteboard; each response was included in the descriptive analysis.

TABLE 3 Reasons for Nonuse Identified by Families Who Did Not Use the Whiteboard (*n* = 10)

Reasons for Nonuse (<i>n</i> = 12) ^a	Frequency Reported, (%)
Modifiable reasons	7 (58.3)
Not informed	2 (16.7)
Never thought to use	2 (16.7)
Unsure if seen by staff	1 (8.3)
Assumed for staff only	1 (8.3)
Inaccessible	1 (8.3)
Nonmodifiable reasons	5 (41.7)
No need	3 (25.0)
Prefers alternative communication	2 (16.7)

^a Multiple reasons were provided by some families; each was included in the descriptive analysis.

recommendations. Nearly one-half of families with recommendations wanted to chart care goals on the whiteboard. Suggestions also included improving visibility/accessibility, designating space for questions, and actively encouraging patient family and physician use (Table 4).

DISCUSSION

Although whiteboards are common in patient care, their use has largely been driven by ad hoc clinician practices. Little is known about patient family preferences for whiteboard use or whether whiteboards affect communication and patient satisfaction. Our findings suggest that whiteboards are used haphazardly, and their potential as a communicative medium is largely untapped. Approximately one-third

of the study families did not use whiteboards and approximately one-half were never informed about their whiteboards, suggesting that many parents could benefit from learning about this tool for asynchronous communication with their team. Of users, a minority used the whiteboard for direct care-related purposes with only 10% including parent messages for staff. Among attending name fields, 50% were not documented. As families navigate the complexities of care teams in academic settings, making it clear to families who is “in charge” and to whom they can turn with questions or for support can be critical.

Although whiteboards cannot replace person-to-person communication, using the boards as a bridge to facilitate provider–family communication holds promise for better engaging patients and families in their care. Whiteboards can improve patient knowledge, as well as the ability to identify one’s physician, goals of admission, and discharge date.⁵ They can also improve shared decision-making.⁶ Although further research examining the relationship between whiteboard use and patient activation is needed, increased patient activation has been linked to the quality of communication between patients and their physicians.⁷ Families informed of the whiteboard were 4 times more likely to use it actively than uninformed families. For whiteboard nonusers, we found that their reasons might be largely modifiable through educational intervention for families. More than one-third of nonusers did not use the whiteboard because they

were not informed about it, did not think to use it, or assumed it was for staff only.

Families themselves recommended improving whiteboard accessibility and orienting families at entry to its use. Recommendations offered by 76% of families, including those who did not use the whiteboard, signals interest in its greater use and potential effectiveness. Many family recommendations (eg, outlining plan, goals, medications, tests) suggest a desire for engagement in their child’s care.

We found considerable overlap between parents’ recommendations and clinicians’ suggestions for whiteboard use outlined in the literature.³ Specifically, parents and nurses both prioritized outlining care goals and plans of the day, dedicated space for family questions, and encouraging physicians to be actively involved in whiteboard use. The synergy between parent and clinician perspectives suggests the potential for a shared “whiteboard culture,” recognizing its potential to improve teamwork, patient family advocacy, and patient-centered care. As technology rapidly develops, whiteboards will almost certainly become more sophisticated and interactive. Building on our findings and gaining additional knowledge regarding barriers and motivators of use may help ensure that these tools reach their full potential.

Our results confirm previous findings that nurses are more likely to use whiteboards than physicians³ and that staff relate to whiteboards differently depending on their role.⁸ Families perceived the physicians’ lack of involvement in whiteboard use, and they desired more physician engagement in this area. Because physicians and nurses receive and relay different information to and from families, the whiteboard may supplement or strengthen interprofessional communication by offering a common forum.

In addition to small sample size, project limitations include a lack of generalizability, as our results apply to families from a single, urban academic center. There is also a possible discordance between relating a single day’s whiteboard data with satisfaction, a longitudinal measure. In addition, we did not specifically ask about

TABLE 4 Family Recommendations for Whiteboard Use

Family Recommendation	% Families Offering Recommendations (<i>n</i> = 22)
Update staff’s names, roles, and contacts	63.6
Maintain plan and goals for the day, week, and overall stay	45.5
Increase whiteboard size, visibility, accessibility	22.7
Include medical/treatment information (eg, medication schedule, physician visits, scheduled tests)	22.7
Encourage parents to list names and contact information	13.6
Encourage physician involvement in whiteboard use	9.1
Share upcoming hospital events	9.1
Other (eg, orient families to whiteboard at time of admission; update board regularly; include space for comments and questions)	18.2

respondents' language backgrounds or assess their health literacy, which may be an unrecognized barrier to whiteboard use and merit further investigation. Although a diversity of experience was sought by approaching families of both planned and unplanned admissions and longer and shorter stays, we were unable to incorporate patient perspectives on whiteboard use because many children were being treated or resting postoperatively during interview. Lastly, the exclusion of families for whom nursing staff felt interviews were unadvisable may bias our findings, limiting the full spectrum of family perspectives and experiences.

CONCLUSIONS

Whiteboards are commonly used by families, independent of whiteboard type, length of stay, or planned versus unplanned admissions. However, approximately one-third of families did not use whiteboards, and a gap remains in harnessing their full potential. Only a small minority of families actively wrote on the whiteboards or used them for direct care-related purposes. Parents informed of their whiteboard demonstrated an increased likelihood of active whiteboard use, highlighting possible roles for education and orientation. With approximately one-half of attending names missing from whiteboards, more complete information may help better orient patients and families to who is in charge, particularly in academic settings with many team members. Aligning parents' recommendations for whiteboard use with

clinician perspectives may be an effective means of strengthening family-staff communication and engagement.

Acknowledgments

We thank the patients and families we interviewed, our colleagues at the Institute for Professionalism and Ethical Practice at Boston Children's Hospital, and Dr Craig Lillehei for his support and assistance. Dr Bell thanks the Arnold P. Gold Foundation for a career development award in humanism through a Gold Professorship.

REFERENCES

1. Communicating effectively with patients and families. In: Frampton S, Guastello S, Brady C, et al. Patient-centered care improvement guide. Derby, CT: Planetree, Inc; 2008:78. Available at: <http://patient-centeredcare.org/>. Accessed July 20, 2015
2. Scanlon K. Improving patient-staff communication through whiteboards—North Shore-Long Island Jewish Hospital. Available at: www.rwjf.org/en/about-rwjf/newsroom/newsroom-content/2008/06/improving-patient-staff-communication-through-white-boards.html. Accessed July 20, 2015
3. Sehgal NL, Green A, Vidyarthi AR, Blegen MA, Wachter RM. Patient whiteboards as a communication tool in the hospital setting: a survey of practices and recommendations. *J Hosp Med*. 2010; 5(4):234–239. Available at: http://hospitalmedicine.ucsf.edu/downloads/patient_whiteboards_as_a_communication_

[tool_in_the_hospital_setting_jhm.pdf](#). Accessed July 20, 2015

4. Rutherford P, Lee B, Greiner A. Transforming Care at the Bedside. IHI Innovation Series White Paper. Boston, MA: Institute for Healthcare Improvement; 2004. Available at www.ihl.org/resources/Pages/IHIWhitePapers/TransformingCareattheBedsideWhitePaper.aspx. Accessed July 20, 2015
5. Tan M, Hooper Evans K, Braddock CH III, Shieh L. Patient whiteboards to improve patient-centred care in the hospital. *Postgrad Med J*. 2013;89(1056):604–609. Available at: <http://pmj.bmj.com/content/89/1056/604.long>. Accessed July 20, 2015
6. Singh S, Fletcher KE, Pandl GJ, et al. It's the writing on the wall: whiteboards improve inpatient satisfaction with provider communication. *Am J Med Qual*. 2011;26(2):127–131. Available at: <http://ajm.sagepub.com/content/26/2/127.full.pdf+html>. Accessed July 21, 2015
7. Alexander JA, Hearld LR, Mittler JN, Harvey J. Patient-physician role relationships and patient activation among individuals with chronic illness. *Health Serv Res*. 2012;47(3 pt 1): 1201–1223
8. Hertzum M. Electronic emergency-department whiteboards: a study of clinicians' expectations and experiences. *Int J Med Inform*. 2011;80(9):618–630. Available at: www.sciencedirect.com/science/article/pii/S1386505611001262. Accessed July 20, 2015

Family Perspectives on Whiteboard Use and Recommendations for Improved Practices

Preetam Cholli, Elaine C. Meyer, Marguerite David, Marilyn Moonan, Judith Mahoney, Eileen Hession-Laband, David Zurakowski and Sigall K. Bell

Hospital Pediatrics 2016;6;426

DOI: 10.1542/hpeds.2015-0182 originally published online June 28, 2016;

Updated Information & Services	including high resolution figures, can be found at: http://hosppeds.aappublications.org/content/6/7/426
Supplementary Material	Supplementary material can be found at:
References	This article cites 5 articles, 1 of which you can access for free at: http://hosppeds.aappublications.org/content/6/7/426#BIBL
Subspecialty Collections	This article, along with others on similar topics, appears in the following collection(s): Administration/Practice Management http://www.hosppeds.aappublications.org/cgi/collection/administration:practice_management_sub Interpersonal & Communication Skills http://www.hosppeds.aappublications.org/cgi/collection/interpersonal_-_communication_skills_sub Quality Improvement http://www.hosppeds.aappublications.org/cgi/collection/quality_improvement_sub
Permissions & Licensing	Information about reproducing this article in parts (figures, tables) or in its entirety can be found online at: http://www.hosppeds.aappublications.org/site/misc/Permissions.xhtml
Reprints	Information about ordering reprints can be found online: http://www.hosppeds.aappublications.org/site/misc/reprints.xhtml

Hospital Pediatrics®

AN OFFICIAL JOURNAL OF THE AMERICAN ACADEMY OF PEDIATRICS

Family Perspectives on Whiteboard Use and Recommendations for Improved Practices

Preetam Cholli, Elaine C. Meyer, Marguerite David, Marilyn Moonan, Judith Mahoney, Eileen Hession-Laband, David Zurakowski and Sigall K. Bell

Hospital Pediatrics 2016;6;426

DOI: 10.1542/hpeds.2015-0182 originally published online June 28, 2016;

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

<http://hosppeds.aappublications.org/content/6/7/426>

Hospital Pediatrics is the official journal of the American Academy of Pediatrics. A monthly publication, it has been published continuously since 1948. Hospital Pediatrics is owned, published, and trademarked by the American Academy of Pediatrics, 345 Park Avenue, Itasca, Illinois, 60143. Copyright © 2016 by the American Academy of Pediatrics. All rights reserved. Print ISSN: 1073-0397.

American Academy of Pediatrics

DEDICATED TO THE HEALTH OF ALL CHILDREN®

