

Are Parents Who Feel the Need to Watch Over Their Children's Care Better Patient Safety Partners?

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OBJECTIVES: Many parents report needing to watch over their child's hospital care to prevent mistakes. In this study, we assessed whether needing to watch over care predicts parent performance of recommended safety behaviors to reduce medication errors and health care–associated infections.

METHODS: At admission, we surveyed 170 parents about their need to watch over care, demographics, and hospitalization factors. At discharge, parents were surveyed about medication awareness and hand hygiene behaviors. Logistic regression was used to examine how parents' need to watch over care predicted each behavior, adjusting for demographics and hospitalization factors.

RESULTS: Thirty-eight percent of parents reported needing to watch over care. Most parents (77%) reported frequently or very frequently asking providers for drug names or doses. Fewer parents asked to check drug or infusion accuracy (29%) or to show or read aloud medication labels (21%). Few parents reminded providers to clean hands (4%), but most stated they would be comfortable asking (82%) and likely to speak up if a provider did not (78%). After adjustment, parents needing to watch over care were significantly more likely to ask providers to check drug or infusion accuracy (adjusted odds ratio = 4.59, 95% confidence interval 2.14–9.94) and for drug name or dose (adjusted odds ratio = 3.04, 95% confidence interval 1.25–7.39).

CONCLUSIONS: Parents who report the need to watch over care are more likely to perform behaviors specific to safe medication use (but not hand hygiene) compared with those not reporting this need. Opportunities exist to engage parents as safety partners by leveraging their need to watch over care toward system-level safety initiatives.

ABSTRACT

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Due in part to vulnerabilities arising from their incomplete development, hospitalized children are largely dependent on adults for performance of behaviors that can support safer care. Although adult and pediatric medication errors occur at similar rates, potential adverse drug reactions in children occur at 3 times the adult rate.¹ Rates of hospital-related infections in children, many of which are preventable through hand hygiene, vary substantially between age groups and pediatric specialties.^{2,3} Experts and governing bodies have suggested family engagement in care can improve safety for hospitalized children.^{4,5} Published literature suggests parents may also recognize their potential role in reducing or mitigating errors.⁶ In addition, about two-thirds of parents of children hospitalized at a prominent US children's hospital felt the need to watch over their child's care to ensure mistakes were not made.⁷ However, whether this need to watch over care results in recommended parent behaviors that can influence the safety of their child's hospital stay is unknown.^{8,9}

Although patient engagement in care is thought to potentially improve safety,^{8,10} questions about the evidence base and feasibility of this strategy have been raised. Although few would disagree that patient engagement in care is highly desirable for a whole host of reasons, there is limited but growing evidence to support the effectiveness of partnering with patients to improve patient safety.^{11–14} In addition, whereas some patients may be willing to participate,^{15,16} others are not.¹⁶ Many patients may feel unprepared to be a partner in improving safety and may be reluctant to undertake recommended steps to mitigate errors.^{15,17} In recent literature, researchers have highlighted several of the perceived barriers to having patients as safety partners. These include barriers at the organizational level (eg, willingness of providers to accept patients and families as patient safety partners), personal characteristics of the patient or family (eg, education or health literacy), and characteristics of the type of partnership desired or the behaviors required.^{15,18–21} Thus, it is possible that although some parents may feel the need to watch over

their child's care, health care systems may be able to do more to support parents as safety partners. Understanding whether this existing need to watch over care translates into the actual performance of specific safety behaviors could guide health care organizations toward next steps in their efforts to engage parents as safety partners.

To inform any such efforts to engage parents as patient safety partners, we sought to understand parent performance of recommended safety behaviors in 2 areas (medication awareness and hand hygiene) and whether parent performance of these behaviors was related to parents' self-reported need to watch over their child's care to ensure mistakes are not made.

METHODS

Participants

During the period from October 2010 to May 2011, English-speaking families of children hospitalized across 3 hospital units were approached to participate in a prospective observational study of parental views and behaviors related to the safety of care in our 61-bed academic children's hospital. To represent children's hospital patients broadly, including both acute and chronic disease admissions, we collected data from 4 services: 2 general pediatric hospitalist services, the pulmonary service, and the hematology and oncology service. Our hospitalist service admits mainly children with acute concerns (eg, dehydration or respiratory distress) whereas the other services admit mostly children with ongoing or chronic illnesses (eg, cystic fibrosis, sickle cell disease, or pediatric cancers). Children with stigmatizing reasons for hospitalization (eg, child neglect or mental health concerns) or whose parents were unavailable to consent (eg, either absent or sleeping during our recruitment visits) were not eligible for participation. Among parents of 233 eligible admissions in our continuous convenience sample, 194 agreed to learn about the study from our research team. Ultimately, parents of 170 of these admissions (87%) agreed to participate. When 2 parents were present, parents decided which parent would complete the consent process and surveys. Our institution's institutional review board approved the study protocol.

Survey Items and Variable Construction

Within 24 hours of admission, parents completed survey items known or theorized to influence safety behaviors, including demographics and hospitalization characteristics, as well as a single, previously published item inquiring about the need to watch over their child's care: "When my child is in the hospital I feel that I have to watch over the care that he/she is receiving to make sure that mistakes aren't made."⁷ At discharge, parents completed 6 items assessing their own performance of recommended safety behaviors while the child was hospitalized.

The 6 items representing behaviors parents can do to help ensure a safe hospital stay for their child were selected from the published literature.^{22,23} Three items focused on medication safety behaviors. These included asking a health care provider (1) for the name or dose of a drug, (2) to show or read aloud medication labels, or (3) to check drug or infusion accuracy (4-point Likert scale; 1 = very frequently, 4 = never).²⁴ Three additional items focused on hand hygiene behaviors, including (1) ever reminding a provider to clean hands during the hospitalization (yes or no), (2) how likely they would be to speak up if a provider did not clean their hands, and (3) their comfort asking a provider to clean their hands (the latter 2 on 4-point Likert scales of 1 = very likely or comfortable to 4 = very unlikely or uncomfortable). On the basis of distributions of the responses, the 5 items with 4-point response options were dichotomized (0 = 3 or 4; 1 = 1 or 2).

Our main predictor variable, parental need to watch over care to ensure mistakes do not occur, was constructed as in the previously published study, with responses on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) and referred to hereafter as "parental need to watch over care."⁷ In consideration of the response distributions and consistent with previously published work, we dichotomized responses such that a response of 4 or 5 indicated a need to watch over the child's care.^{7,25}

Demographics included parent (age, sex, education, and race) and child (age, sex,

and health status) characteristics. Hospitalization characteristics included reason for hospitalization and length of stay. Response options for reason for hospitalization were informed by our pilot study, national data on common causes of pediatric hospitalizations, and similar studies.^{7,26} These options included a checklist of common reasons in lay terms (eg, a breathing problem) as well as medical diagnoses (eg, asthma) and an “other” response in which families could provide free text. In instances of multiple responses, all reasons for hospitalization were retained and analyzed. The free-text responses were sorted into other checklist categories when appropriate or into new categories if needed.

Analyses

Means, SDs, and proportions were used to describe our participants, their hospitalization characteristics, their need to watch over their child’s care, and parent performance of recommended safety behaviors. Adjusted logistic regression was used to create models relating parent performance for each of the recommended safety behaviors (outcome) to the parent’s reported need to watch over care (predictor), adjusting for parent, child, and hospitalization characteristics. To parsimoniously account for potential confounding by a number of parent, child, and hospitalization characteristics (variables in Table 1) in this observational study, we used regression-based propensity score analysis. Variables for the propensity score model were chosen to accommodate the effect size of parental need to watch over care by using the best subset procedure based on the lowest Akaike’s Information Criterion value among these best subset models, with up to 7 degrees of freedom. Models were adjusted for the propensity score and parent education, which was significantly associated with parent safety behaviors.²⁷ Results are summarized as adjusted odds ratios (aORs) and 95% confidence intervals (CIs). Analyses were performed by using Stata 11.2 (StataCorp, College Station, TX). All tests of significance were at the $P < .05$ level and were 2-tailed.

TABLE 1 Parent, Child, and Hospitalization Characteristics by Need to Watch Over Care ($N = 170$)

	Need to Watch Over Care?				<i>P</i>
	Yes ($n = 65$)		No ($n = 105$)		
Mother, % (<i>n</i>)	88	(57)	83	(87)	.39
White, non-Hispanic, % (<i>n</i>)	84	(54)	85	(88)	.85
Parent education, % (<i>n</i>)					.20
High school or less	17	(11)	20	(21)	
Some college	29	(19)	40	(42)	
Bachelor’s degree or more	54	(35)	40	(42)	
Parent age, y, mean (SD)	36	(7.7)	34	(7.7)	.19
Female child, % (<i>n</i>)	49	(32)	52	(55)	.69
Child age, y, mean (SD)	6	(5.8)	6	(5.3)	.94
Child health status, % (<i>n</i>)					
Excellent to good	86	(56)	81	(85)	.38
Reason for hospitalization ^a , % (<i>n</i>)					
Breathing problem	34	(22)	27	(28)	.32
Gastrointestinal problem	17	(11)	19	(20)	.73
Fever	23	(15)	15	(16)	.20
Asthma	12	(8)	7	(7)	.21
Cancer	8	(5)	11	(12)	.43
Hematologic disease	5	(3)	9	(9)	.38
Infection	11	(7)	18	(19)	.20
Other	15	(10)	14	(15)	.84
Length of stay, d, % (<i>n</i>)					.71
1	62	(40)	58	(61)	
2–3	17	(11)	19	(20)	
4–7	8	(5)	12	(13)	
More than a week	14	(9)	10	(11)	

Values may not add to 100% because of rounding.

^a Because parents could indicate multiple reasons for hospitalization, more than 170 reasons for hospitalization were noted.

RESULTS

Parent, Child, and Hospitalization Characteristics

Thirty-eight percent of parents ($n = 65$) agreed or strongly agreed that they needed to watch over care to prevent mistakes (Table 1). The characteristics of parents who needed to watch over care were not significantly different from those who did not. In general, parents were predominantly white, non-Hispanic mothers with a wide range of educational attainment and an average age of 34 to 36 years. On average, children were young (6 years of age) and most were in good to excellent health. The most common reasons for hospitalization as reported by parents were breathing problems, gastrointestinal problems, and

fever. Parental need to watch over care was not significantly related to any of these characteristics.

Parent Performance of Recommended Safety Behaviors

Overall, most parents (77%) reported asking a health care provider about the name or dose of a drug (Table 2). Fewer parents reported asking a health care provider to show or read aloud medication labels (21%) or to check drug or infusion accuracy (29%). Most parents reported being comfortable asking providers to clean their hands (82%) and being likely to speak up if a provider did not clean their hands (78%). However, few parents ever reminded a provider to do so (4%). Parents who needed

TABLE 2 Percent (*n*) of Families Performing Recommended Safety Behaviors (*N* = 170)

	Overall	Need to Watch Over Care?		<i>P</i>
		Yes (<i>n</i> = 65)	No (<i>n</i> = 105)	
Asked provider for the name or dose of a drug	77 (131)	86 (56)*	71 (75)*	.03*
Asked provider to show or read aloud medication labels ^a	21 (36)	23 (15)	20 (21)	.60
Asked provider to check drug or infusion accuracy	29 (50)	46 (30)*	19 (20)*	<.001*
Comfortable asking provider to clean his or her hands ^a	82 (139)	75 (49)	86 (90)	.09
Likely to speak up if provider does not clean his or her hands ^a	78 (132)	75 (48)	80 (84)	.45
Ever reminded provider to clean his or her hands	4 (6)	8 (5)*	1 (1)*	.03*

Values are expressed as % (*n*).

^a One family did not report if they performed this behavior.

* *P* < .05 for the comparison between parents who did and did not feel the need to watch over care.

of hospitalized children.^{25,28} In addition, because parents are advocating for a child who often cannot self-advocate, rather than for themselves, their efforts may be perceived more kindly by health care workers, especially if health care workers specifically invite parents to do so.^{16,29–31} Thus, this population could represent a logical target for initial trials of new efforts to engage patients and families as partners in patient safety. For those who do not feel the need to watch over care, other interventions such as raising awareness of potential opportunities to engage as safety partners may be warranted.

Our findings align with those from previous studies in which researchers suggested potential challenges to having patients or families act as partners in patient safety.^{15,18–20} Specifically, we found that more parents reported frequently engaging in medication safety behaviors, whereas few parents frequently reminded providers to clean their hands. This finding may be related to attributes of the parent or the desired behavior.^{15,18–20} For example, parents may simply have difficulty recognizing when hand washing is needed.²⁹ Parents may also be more aware of the potential for medication error and less aware of the importance of preventing health care-associated infections. However, the authors of a recent study suggest that large proportions of patients are, in fact, aware of the infection risk posed by poor hand hygiene.³² In addition, because parents may be viewed as simply learning about their child's medications, inquiring about medications is something that a parent can do without seeming to question the health care team's behaviors. A parent can autonomously inquire about medications, but reminding a provider to clean their hands directs another person's behavior and can be seen as questioning whether the behavior has been or will be done. Patients are particularly reluctant to perform behaviors that appear to question the professionalism of the doctor or health care team member, and asking about hand hygiene has been noted as particularly problematic for this reason.^{15,17,32–34}

To guide and support parents toward effective behaviors that can improve safety,

to watch over care were significantly more likely to have asked the provider the name or dose of a drug, asked a provider to check drug or infusion accuracy, and to have reminded a provider to clean their hands (Table 2).

Parental Need to Watch Over Care and Safety Behaviors

In adjusted propensity score models, parents who agreed that they needed to watch over their child's care were significantly more likely to have asked a provider for the name or dose of a drug (aOR = 3.0; 95% CI 1.3–7.4) and to check drug or infusion accuracy (aOR = 4.6; 95% CI 2.1–9.9) during the hospital stay. Behaviors related to hand hygiene were not significantly related to the need to watch over care, including parents' comfort in asking a provider to clean his or her hands (aOR = 0.5; 95% CI 0.2–1.1) and their likeliness to speak up if a provider did not clean his or her hands (aOR = 0.8; 95% CI 0.4–1.7) (Table 3).

DISCUSSION

With this work, we expand on important previously published work on patients and family members as partners in patient safety. In general, parents reported being comfortable reminding providers to clean their hands and were highly likely to have performed recommended safety behaviors such as asking providers for the name or dose of a drug during the stay. Compared with parents who did not feel the need to watch over their child's care,

parents who did feel this need were, as hypothesized, significantly more likely to engage in 2 of the recommended safety behaviors: asking a provider for the name or dose of a drug or to check drug or infusion accuracy. We suggest that there are opportunities to partner with those families who feel the need to watch over their child's care by advising parents of specific behaviors they can perform to reduce the risk of harm to their child while he or she is hospitalized. In addition, parents rarely reminded providers to clean their hands, suggesting an opportunity to further engage parents in our efforts to reduce health care-associated infections.

Parents who report needing to watch over their children's care to ensure mistakes are not made are significantly more likely to be engaged as partners to improve patient safety, particularly around medication safety. In addition, by virtue of the need to watch over care, they already possess 2 key attributes that would make them excellent partners in improving patient safety.²⁰ First, by their endorsement of needing to watch over care to prevent mistakes from happening, it appears they are already aware that mistakes can happen in hospitals. Second, they have a focus on preventing harm, recognizing that through their own actions they may be able to prevent mistakes from being made or detect and correct them before harm occurs. According to 2 studies in US children's hospitals, parents who feel this need comprise about 35% to 65% of parents

TABLE 3 aOR and 95% CI for Association of Parent Safety Behavior With Need to Watch Over Care (N = 170)

	Asked Provider for the Name or Dose of a Drug (Model I)	Asked Provider to Show or Read ALOUD Medication Labels (Model II)	Asked Provider to Check Drug or Infusion Accuracy (Model III)	Comfortable asking Provider to Clean His or Her Hands (Model IV)	Likely to Speak Up if Provider: Does Not Clean His or Her Hands (Model V)
Watched over care	3.0 (1.3–7.4)*	1.7 (0.8–3.9)	4.6 (2.1–9.9)*	0.5 (0.2–1.1)	0.8 (0.4–1.7)

All models were adjusted for propensity score and parent education. Values are expressed as aOR (95%CI).

* $P < .05$.

health care organizations and policy makers can engage parents at a higher level in organizational redesign and policy-making activities.^{35,36} These efforts could address known barriers to engaging patients and families as partners in patient safety, such as awareness, knowledge, and beliefs about the effectiveness of their engagement³⁷; power differentials between patients and various members of the health care team³⁸; and system factors that support their engagement.^{35,36} Awareness could be raised through campaigns that highlight how an organization is supportive of patients and families as partners in improving patient safety^{16,39} and through initiatives aimed at providers at the frontlines of care.^{40,41} One such initiative at Dana-Farber Cancer Institute involved a campaign to encourage patients to report environmental hazards and concerns to staff or physicians.¹³ This concept of inviting patients as partners has also been used to address patients' concerns about whether it is within their role to ask providers about hand-washing.³² With regard to knowledge, organizations conducting interventions can address gaps by supplying parents with information on the organization's safety initiatives and associated behaviors parents can do. Examples of this strategy include "consumer fact sheets" or the Centers for Disease Control and Prevention's "Hand Hygiene Saves Lives" video.^{42,43} Distributing drug information sheets and medication schedules can also provide information that patients and families need to be better patient safety partners. Lastly, parents may need to know that their efforts can be effective and are welcomed because patients may believe that they cannot influence safety or that engaging in this manner could negatively affect their relationships with health care providers.¹⁶ Health care organizations could promote testimonials from patients and families who have acted to improve safety as a way of instilling confidence and also imparting a desire to have patients and families as safety partners. Framing a parent's need to watch over their child's hospital care as a normal, nonjudgmental response with a potential positive impact may also be a useful step in engaging parents as "vigilant partners."^{44–46}

As with all observational studies, certain limitations should be considered. First, as a single institution study, our findings may not generalize to children's hospitals broadly. For example, compared with another published study, fewer parents at our institution felt the need to watch over care to ensure mistakes are not made.⁷ Specifically, 38% of our parents indicated they needed to watch over their child's care, whereas 63% of parents in the previous study indicated this need. This is likely because the average age of children in our study was greater and we included fewer minority families, who have been noted to report more need to watch over their child's care.⁷ Also, because of institutional review board requirements, we have limited data on the parents who refused to learn about the study or did not consent. Given that absent or sleeping parents constituted our most common reason for study exclusion, our study may have enrolled more parents with a greater need to watch over care (ie, parents who felt the need to watch over care were more likely to remain with their child). However, our recruitment rate for eligible parents was high, exceeding that of the previous similar study.⁷ With short hospitalizations that are typical of many acutely ill children, the length of time between parents being asked about their need to watch over care and the safety behaviors was often relatively short. This may have resulted in overestimation of parent performance of recommended safety behaviors, especially if parents believed these behaviors were socially desirable. Because of the need to limit the survey to a reasonable number of items, we also lack data on previous experiences with health care or medical error, self-efficacy with performing safety behaviors, or general beliefs about the safety of the health care system broadly,^{20,29} all of which could influence views about the need to watch over care. Lastly, because our data arise from self-report, whether these reports reflect actual behavior is unclear. Future work could provide direct observations of parent behavior.

CONCLUSIONS

Parental need to watch over care was significantly associated with the

performance of 2 recommended safety behaviors, both related to medication safety. Interestingly, parents who reported needing to watch over care to prevent mistakes from occurring were not more likely to engage in recommended hand hygiene behaviors important to preventing health care-associated infections. With our results, we suggest system-level opportunities to guide the engagement of parents as partners in patient safety by leveraging their need to watch over care while raising awareness of high-priority safety initiatives and the desired parent-driven behaviors.

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REFERENCES

1. Kaushal R, Bates DW, Landrigan C, et al. Medication errors and adverse drug events in pediatric inpatients. *JAMA*. 2001;285(16):2114–2120
2. Ford-Jones EL, Mindorff CM, Langley JM, et al. Epidemiologic study of 4684 hospital-acquired infections in pediatric patients. *Pediatr Infect Dis J*. 1989;8(10):668–675
3. Raymond J, Aujard Y; European Study Group. Nosocomial infections in pediatric patients: a European, multicenter prospective study. *Infect Control Hosp Epidemiol*. 2000;21(4):260–263
4. Stucky ER; American Academy of Pediatrics Committee on Drugs; American Academy of Pediatrics Committee on Hospital Care. Prevention of medication errors in the pediatric inpatient setting. *Pediatrics*. 2003;112(2):431–436
5. Institute of Medicine. *Patients Charting the Course: Citizen Engagement and the Learning Health System: Workshop Summary*. Washington, DC: National Academies Press; 2011
6. Frey B, Ersch J, Bernet V, Baenziger O, Enderli L, Doell C. Involvement of parents in critical incidents in a neonatal-paediatric intensive care unit. *Qual Saf Health Care*. 2009;18(6):446–449
7. Tarini BA, Lozano P, Christakis DA. Afraid in the hospital: parental concern for errors during a child's hospitalization. *J Hosp Med*. 2009;4(9):521–527
8. Agency for Healthcare Research and Quality. 20 tips to help prevent medical errors in children. 2002. Available at: <http://archive.ahrq.gov/consumer/20tipkid.htm>. Accessed July 24, 2017
9. Joint Commission on Accreditation of Healthcare Organizations. Speak up initiatives. 2014. Available at: www.jointcommission.org/speakup.aspx. Accessed July 21, 2017
10. Joint Commission on Accreditation of Healthcare Organizations. *Patients as Partners: How to Involve Patients in Their Own Care*. Oakbrook Terrace, IL: Joint Commission Resources; 2006
11. Entwistle VA, Mello MM, Brennan TA. Advising patients about patient safety: current initiatives risk shifting responsibility. *Jt Comm J Qual Patient Saf*. 2005;31(9):483–494
12. Stock R, Mahoney ER, Dawn G, et al. Developing a community-wide electronic shared medication list. In: Henriksen K, Battles JB, Keyes MA, Grady ML, eds. *Advances in Patient Safety: New Directions and Alternative Approaches (Vol 4: Technology and Medication Safety)*. Rockville, MD: Agency for Healthcare Research and Quality; 2008
13. Weingart SN, Simchowitz B, Eng TK, et al. The you CAN campaign: teamwork training for patients and families in ambulatory oncology. *Jt Comm J Qual Patient Saf*. 2009;35(2):63–71
14. McGuckin M, Waterman R, Storr IJ, et al. Evaluation of a patient-empowering hand hygiene programme in the UK. *J Hosp Infect*. 2001;48(3):222–227
15. Hibbard JH, Peters E, Slovic P, Tusler M. Can patients be part of the solution? Views on their role in preventing medical errors. *Med Care Res Rev*. 2005;62(5):601–616
16. Schwappach DL, Wernli M. Am I (un)safe here? Chemotherapy patients' perspectives towards engaging in their safety. *Qual Saf Health Care*. 2010;19(5):e9
17. Marella WM, Finley E, Thomas AD, Clarke JR. Health care consumers' inclination to engage in selected patient safety practices: a survey of adults in Pennsylvania. *J Patient Saf*. 2007;3(4):184–189
18. Hall J, Peat M, Birks Y, et al; PIPS Group. Effectiveness of interventions designed to promote patient involvement to enhance safety: a systematic review. *Qual Saf Health Care*. 2010;19(5):e10
19. Peat M, Entwistle V, Hall J, Birks Y, Golder S; PIPS Group. Scoping review and approach to appraisal of interventions intended to involve patients in patient safety. *J Health Serv Res Policy*. 2010;15(suppl 1):17–25
20. Buetow S, Davis R, Callaghan K, Dovey S. What attributes of patients affect their involvement in safety? A key opinion leaders' perspective. *BMJ Open*. 2013;3(8):e003104
21. Kelly MM, Xie A, Carayon P, DuBenske LL, Ehlenbach ML, Cox ED. Strategies for improving family engagement during family-centered rounds. *J Hosp Med*. 2013;8(4):201–207
22. Schwappach DL, Wernli M. Chemotherapy patients' perceptions of drug administration safety. *J Clin Oncol*. 2010;28(17):2896–2901
23. Bittle MJ, LaMarche S. Engaging the patient as observer to promote hand hygiene compliance in ambulatory care. *Jt Comm J Qual Patient Saf*. 2009;35(10):519–525
24. Dillman DA, Smyth JD, Christian LM. *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. Hoboken, NJ: Wiley & Sons; 2009
25. Cox ED, Carayon P, Hansen KW, et al. Parent perceptions of children's hospital safety climate. *BMJ Qual Saf*. 2013;22(8):664–671
26. Agency for Healthcare Research and Quality. HCUP Kids' Inpatient Database (KID). 2006. Available at: <https://www.hcup-us.ahrq.gov/kidoverview.jsp>. Accessed July 24, 2017

27. Rosenbaum PR, Rubin DB. The central role of the propensity score in observational studies for causal effects. *Biometrika*. 1983;70(1):41–55
28. Tarini BA, Christakis DA, Lozano P. Toward family-centered inpatient medical care: the role of parents as participants in medical decisions. *J Pediatr*. 2007;151(6):690–695, 695.e1
29. Wu KS, Lee SS, Chen JK, et al. Hand hygiene among patients: attitudes, perceptions, and willingness to participate. *Am J Infect Control*. 2013; 41(4):327–331
30. Watt I, Birks Y, Entwistle V, et al. *A Review of Strategies to Promote Patient Involvement, a Study to Explore Patient's Views and Attitudes and a Pilot Study to Evaluate the Acceptability of Selected Patient Involvement Strategies. Patient Safety Research Programme PS/034*. York, United Kingdom: University of York; 2009
31. Dowell D, Manwell LB, Maguire A, et al; MEMO Investigators. Urban outpatient views on quality and safety in primary care. *Healthc Q*. 2005;8(2):S2–S8
32. Michaelsen K, Sanders JL, Zimmer SM, Bump GM. Overcoming patient barriers to discussing physician hand hygiene: do patients prefer electronic reminders to other methods? *Infect Control Hosp Epidemiol*. 2013;34(9):929–934
33. Waterman AD, Gallagher TH, Garbutt J, Waterman BM, Fraser V, Burroughs TE. Brief report: hospitalized patients' attitudes about and participation in error prevention. *J Gen Intern Med*. 2006;21(4):367–370
34. Hrisos S, Thomson R. Seeing it from both sides: do approaches to involving patients in improving their safety risk damaging the trust between patients and healthcare professionals? An interview study. *PLoS One*. 2013;8(11): e80759
35. Holden RJ, Carayon P, Gurses AP, et al. SEIPS 2.0: a human factors framework for studying and improving the work of healthcare professionals and patients. *Ergonomics*. 2013;56(11):1669–1686
36. Carman KL, Dardess P, Maurer M, et al. Patient and family engagement: a framework for understanding the elements and developing interventions and policies. *Health Aff (Millwood)*. 2013; 32(2):223–231
37. Doherty C, Stavropoulou C. Patients' willingness and ability to participate actively in the reduction of clinical errors: a systematic literature review. *Soc Sci Med*. 2012;75(2):257–263
38. Davis RE, Koutantji M, Vincent CA. How willing are patients to question healthcare staff on issues related to the quality and safety of their healthcare? An exploratory study. *Qual Saf Health Care*. 2008;17(2):90–96
39. McGuckin M, Govednik J. Patient empowerment and hand hygiene, 1997–2012. *J Hosp Infect*. 2013;84(3):191–199
40. The Joint Commission. Busting the myths about engaging patients and families in patient safety. 2016. Available at: https://www.jointcommission.org/assets/1/18/PFAC_patient_family_and_safety_white_paper.pdf. Accessed September 29, 2017
41. The National Patient Safety Foundation. *Safety is Personal: Partnering With Patients and Families for the Safest Care*. Boston, MA: National Patient Safety Foundation; 2014
42. Miranda DJ, Zeller PK, Lee R, et al. Speaking plainly: communicating the patient's role in health care safety. In: Henriksen K, Battles JB, Marks ES, Lewin DI, eds. *Advances in Patient Safety: From Research to Implementation (Vol 4: Programs, Tools, and Products)*. Rockville, MD: Agency for Healthcare Research and Quality; 2005
43. Garcia-Williams A, Brinsley-Rainisch K, Schillie S, Sinkowitz-Cochran R. To ask or not to ask?: the results of a formative assessment of a video empowering patients to ask their health care providers to perform hand hygiene. *J Patient Saf*. 2010;6(2):80–85
44. Schwappach DLB. Review: engaging patients as vigilant partners in safety: a systematic review. *Med Care Res Rev*. 2010;67(2):119–148
45. Rosenberg RE, Rosenfeld P, Williams E, et al. Parents' perspectives on "keeping their children safe" in the hospital. *J Nurs Care Qual*. 2016;31(4):318–326
46. Hurst I. Vigilant watching over: mothers' actions to safeguard their premature babies in the newborn intensive care nursery. *J Perinat Neonatal Nurs*. 2001;15(3):39–57

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