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Use of a Patient Empowerment Tool for Hand Hygiene

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Abstract

Background—Patient empowerment is recognized as an important component of a multimodal strategy to improve hand hygiene adherence. We examined the attitudes of adult patients and parents of pediatric patients towards a new patient empowerment tool (PET) at our hospital. We also surveyed physicians to determine their perceptions about the PET.

Methods—A cross-sectional survey was performed of hospitalized children's parents and adult patients in a 531 bed tertiary care teaching hospital in West Virginia. Surveys were anonymous and self-administered. A separate survey was administered via e-mail to resident and attending physicians from the Departments of Internal Medicine, Pediatrics, and Family Medicine.

Results—Most parents and adult patients felt it was their role to speak up if a provider did not perform hand hygiene, but a smaller number actually felt comfortable using the PET. Only 54.9% of physicians felt that patients should be involved in reminding providers to perform hand hygiene. Overall, physicians indicated that they would prefer a patient to use words rather than the PET to remind them to perform hand hygiene.

Conclusions—In our study, parents and adult patients supported use of the PET, but physicians were less supportive. As the patient empowerment movement grows, we should work to improve physician acceptance of patient involvement if it is to be successful.

Keywords

Hand hygiene; Patient empowerment; Hand washing

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Background

Healthcare associated infections (HAI) contribute to significant morbidity and mortality. It is estimated that 5–10% of patients admitted to acute care hospitals in the United States will acquire an HAI.¹ In 2011, the estimated number of HAIs in US acute care hospitals was 721,800.² A significant number of HAIs are preventable, and the single most effective measure to reduce HAIs is hand hygiene.³

Strategies to improve healthcare worker hand hygiene adherence include reminders, education, and direct observation with feedback. More recently, patient involvement is recognized as an important component of a multimodal strategy to improve healthcare workers' hand hygiene adherence. Major organizations such as the Centers for Disease Control (CDC), the World Health Organization, and the Joint Commission recommend using patient participation as part of the plan to improve healthcare worker hand hygiene. The WHO's SAVE LIVES: Clean Your Hands campaign identifies patient involvement as a crucial component when implementing a hand hygiene improvement strategy. In March 2002, the Joint Commission's Speak Up campaign was established. The initiative focuses on methods to improve patient education and involvement which in turn helps prevent medical errors. One of the campaigns is Speak Up: Prevent the Spread of Infection in which patients are encouraged to remind healthcare workers to perform hand hygiene.

A number of studies have examined the role of patient involvement in healthcare worker hand hygiene. Some have used posters, patient videos, buttons, and brochures to promote patient empowerment.^{3,4,5,6,7} Most patients are interested in participating in their care, but many patients are hesitant to do so because of discomfort or embarrassment.⁸ Few studies have examined the role of family members in reminding healthcare providers to perform hand hygiene. Buser showed that the majority of parents (75%) are willing to help improve hand hygiene of providers, but only 67% would definitely act to remind a healthcare worker to wash their hands.⁹ When providers invite patients and families to be involved in their care, they are much more willing to remind healthcare workers.¹⁰ Patients and family members should feel that their input is welcome. Because nurses spend more face-to-face time with the patient, one might expect that patients would feel more comfortable reminding a nurse than a physician. Some studies have supported this theory¹¹, while other studies have shown that patients are just as comfortable reminding a physician as a nurse.^{10, 12}

If patient involvement is to be successful, healthcare workers must accept it as helpful and not as a threat. Healthcare workers have expressed concern that patient empowerment will have a negative impact on the patient-physician relationship.^{13, 14}

In our hospital, hand hygiene rates were 48% in 2015, and they have improved to approximately 75% in 2016. Strategies used in our hospital to improve hand hygiene adherence include posters, direct observations by healthcare professionals, and patient surveys. In December 2015, we added a new tool called a Patient Empowerment Tool (PET) as part of our multimodal strategy. See Figure 1. The PET consists of a picture with a reminder phrase (examples: "Did you wash your hands?" and "Please wash your hands.

Thank you!”). The laminated picture is attached to a tongue depressor to allow patients to hold the PET up for providers to see.

Due to the novelty of this tool, it was important to assess its acceptability as an intervention. Patients and their families were given one of the five PETs on admission to the hospital and asked to use the PET to remind healthcare workers to perform hand hygiene. In this study, we surveyed parents of children admitted to the pediatric floor and adult patients admitted to the medicine floor to assess their comfort level in using the PET to remind both physicians and nurses to sanitize their hands. Because parents are often protective of their children, we hypothesized that parents would be more likely than adult patients to feel comfortable and willing to use the PET to remind providers to perform hand hygiene. Hussein et al reported that hand hygiene rates are significantly higher in pediatric compared to adult wards. We wondered if parents’ involvement in reminding physicians to perform hand hygiene might be partially responsible for this difference.¹⁵ We also hypothesized that parents and patients would feel more comfortable reminding a nurse than a physician to perform hand hygiene because families and patients have more face-to-face contact with nurses. To our knowledge, this is the first study to compare attitudes about a hand hygiene patient empowerment intervention between parents of hospitalized children and adult patients.

As part of the study, we also performed a survey of primary care attending and resident physicians to assess their attitudes towards the PET and whether physicians would prefer a patient use a PET over words to remind them to perform hand hygiene. We hypothesized that resident physicians would be more supportive of patient involvement than attending physicians because current medical education emphasizes the importance of patient involvement in making medical decisions. We also hypothesized that physicians would prefer patients use a PET over words to remind physicians to perform hand hygiene because the PET is less threatening.

Materials and Methods

Study Design

This was a cross-sectional survey study of parents of hospitalized children, adult patients, and primary care physicians performed at a single hospital using an anonymous, self-administered questionnaire. The parent and patient surveys were distributed from December 2015 to June 2016, while the physician survey was distributed in November 2015. The hospital is a 531 bed tertiary care teaching hospital in West Virginia. The institution uses a multimodal strategy to improve hand hygiene. The study protocol was approved by the institutional review board.

Study Participants

We targeted hospitalized patients on 3 floors of the hospital- 1 general pediatric floor and 2 general medicine floors. On the pediatric floor, patients’ parents were asked to participate in the survey, while on the medicine floors, adult patients were recruited. All survey participants were age 18 or older. Patients who were too ill to participate were excluded, and patients who could not read or write were permitted to ask family members to help complete

the survey on the patient's behalf. Two researchers visited the floors and asked parents and patients to participate. The survey was left in the patient's room to be completed at his or her leisure. Once the survey was completed, parents and patients were asked to place the survey in an envelope and deposit the envelope into a locked survey box available at the station clerk's desk on each floor.

The physician survey was designed with REDCap, and a link was distributed via e-mail to both residents and attending physicians in the Internal Medicine, Family Medicine, and Pediatrics Departments. Respondents completed the online survey anonymously.

Parent and Patient Survey

All surveys were developed by the authors because no similar surveys are published in the literature. The parent and adult patient surveys differed slightly as the parent survey requested demographic data about both the parent and his or her child, while the adult patient survey requested only demographic data about the patient. The parent survey consisted of 21 items- 7 demographic questions, 1 general hand hygiene question, and 13 questions about the PET. The adult patient survey consisted of 18 items- 4 demographic questions, 1 general hand hygiene question, and 13 questions about the PET. The questions were designed to assess 1. whether participants felt the PET was useful, 2. whether participants felt that they should speak up when their healthcare provider did not perform hand hygiene, 3. whether participants would feel comfortable using the PET, 4. what were the reasons they would or would not feel comfortable using the PET, and 5. whether they felt the PET gave them more control over their care. Questions were asked in pairs- 1 question in reference to reminding a physician and the other in reference to reminding a nurse as we wanted to determine if participants felt differently about reminding a physician versus a nurse.

Most items were close-ended 5-point Likert scale questions. There were 2 multi-choice questions where participants were asked to identify the reasons they would or would not feel comfortable using a PET to remind a physician and a nurse to perform hand hygiene.

Prior to the survey's distribution, ten parents and ten adult patients were asked to review the survey. Based on their feedback, minor modifications were made to the survey to improve the survey's clarity.

Physician Survey

The 43 item physician survey was designed in REDCap. The survey took an average of 10 minutes to complete. Survey participants received an e-mail with the survey link. The first 5 items assessed demographic data (age, gender, resident or attending, department affiliation, and time distribution). A single item asked whether the physician supported patient involvement in reminding providers to perform hand hygiene. Depending on the answer to this question, participants were asked to select the reasons why they did or did not support patient involvement.

The remaining 32 items were organized into 6 case-based scenarios. Scenario 1 and 2 were identical except for the method by which the patient reminded the physician to perform hand

hygiene. In Scenario 1, the patient said “Doctor, please wash your hands before examining me,” while in Scenario 2, the patient used a PET to remind the physician. Scenarios 3 and 4 were paired this way as were Scenarios 5 and 6. For each case, participants were asked to use a 5-point Likert scale to assess 1. if they would wash their hands again, 2. if they would be offended, 3. if they would be embarrassed, 4. if they would be upset, and 5. if they would be grateful. Prior to survey distribution, 6 attending physicians and 3 resident physicians reviewed the survey for clarity. No modifications were made to the survey.

Statistical Analysis

Five-point responses were grouped as frequencies by grouping agree (“strongly agree” and “agree”) and disagree (“strongly disagree,” “disagree,” and “neutral”). Other items were grouped as helpful (“very helpful” and “helpful”) and unhelpful (“very unhelpful,” “unhelpful,” and “neutral”); frequently (“always” and “often”) and infrequently (“never,” “rarely,” and “sometimes”); comfortable (“very comfortable” and “comfortable”) and uncomfortable (“very uncomfortable,” “uncomfortable,” and “neutral”); and yes (“very much” and “somewhat”) and no (“none,” “little,” and “neutral”). Parent and patient responses were compared using a Chi-Square analysis as well as Fisher’s Exact Test. The physician survey responses were compared using McNemar’s test of agreement. Statistical analyses of the data were performed using *SAS version 9.4*.

Results

Parent and Patient Responses

A total of 202 surveys were distributed to pediatric patients’ parents, and 114 were returned completed (54.8% response rate). The mean age of survey participants in the parent group was 34.7 years old, and 79.5% of participants were female. A total of 245 surveys were distributed to adult patients, and 108 were completed (44.1% response rate). The mean age of participants in the adult patient group was 55.7 years old, and 53.7% of participants were female. The majority of survey participants in both groups were white. See Table 1 for Demographic information.

The majority of parents (71.9%) and adult patients (65.4%) felt the PET would help them remind a physician to perform hand hygiene. Parents were more likely than adult patients to feel that it is their role to speak up if a physician (95.6% versus 77.6%, *p* value 0.33) or a nurse (99.1% versus 86.0%, *p* value 0.68) did not perform hand hygiene. Please see Table 2.

Most parents (77.0% for physicians and 81.4% for nurses) and most adult patients (64.8% for physicians and 71.2% for nurses) felt comfortable using the PET to remind healthcare workers to perform hand hygiene. Of participants who did not feel comfortable, the most common reason was shyness. Please see Figure 2.

When asked if the PET made them feel more in control of their care, 69.6% of parents and 63.8% of adult patients agreed (*p* value 0.49).

Physician Responses

A total of 303 physician surveys were distributed- 111 to resident physicians and 192 to attending physicians. Twenty-nine residents of 111 completed the survey (26.1% response rate), and 60 out of 192 attending physicians completed the survey (31.3% response rate). See Table 3 for demographic data. The majority of participants were members of the Department of Medicine, the largest department at the institution. There was a low response rate from Pediatric residents which remains unexplained.

When asked if patients should be involved in reminding physicians to perform hand hygiene, 65.5% of resident physicians agreed, while only 49.0% of attending physicians agreed (p value 0.15). Of physicians who supported patient involvement, 34 out of 45 (75.6%) cited a positive effect on the patient relationship as the primary reason for their support. Of physicians who did not support patient involvement, 14 out of 37 (37.8%) felt that it was not the patient's responsibility to remind physicians to perform hand hygiene while 6 of 37 (16.2%) felt that it was embarrassing to the doctor and 5 of 37 (13.5%) felt that it would have a negative impact on the patient-physician relationship.

In Scenarios 1, 3, and 5, the patient used words to remind the physician to perform hand hygiene, while in Scenarios 2, 4, and 6, the patient used the PET. Physicians indicated that they would be more likely to sanitize their hands if the patient used words rather than the PET (p value 0.008). They also indicated that they would be less likely to be offended (p value of 0.003) and more likely to be grateful (p value of 0.002) if the patient used words. See Table 4.

Discussion

In this study, we examined parents' and adult patients' attitudes towards use of a PET to remind healthcare providers to perform hand hygiene. Most parents (95.6%) and patients (77.6%) felt it is their role to speak up if a physician forgets to wash his or her hands, but a lower number (77.0% of parents and 64.8% of patients) actually felt comfortable doing so. These results are similar to those found by Ottum who showed that despite 90.5% of participants feeling that patients should be involved in reminding providers to perform hand hygiene, only 64% and 54% felt comfortable asking a physician or a nurse, respectively, to perform hand hygiene.⁸ We predicted that parents would be more likely to feel comfortable using a PET than adult patients, but we did not find a significant difference between the two groups. According to Buser, most parents (75%) are willing to help improve hand hygiene of care providers, but a smaller number (67%) would definitely act to remind a provider to perform hand hygiene.⁹ To our knowledge, no studies have directly compared comfort level of parents to comfort level of adult patients.

Our participants cited shyness as the primary reason they did not feel comfortable reminding providers. Other barriers included concern that patient participation would damage the patient-physician relationship and feeling that patient participation is not the patient's role. Similarly, Kim found that patients had difficulty requesting healthcare workers to perform hand hygiene because they felt it was not the patient's role.¹⁴ Barriers to patient participation likely vary depending on institutional and cultural norms.

An explicit invitation by a healthcare worker makes it much more likely that patients will speak up. In Longtin's study, an invitation by a HCW increased intention to ask a physician (from 29.9% to 77.8%) and intention to ask a nurse (from 34.0% to 82.5%).¹⁰ Buser and Wu found similar results.^{9, 12} Our patients were encouraged to use the PET to remind providers, but many still expressed hesitancy. Barriers may vary depending on culture, and explicit invitation does not guarantee that a patient will feel confident enough to actually remind a provider. Lent found that only 5 of 193 patients (3%) at a Cleveland Veterans Affairs Medical Center reminded a provider to perform hand hygiene despite explicit invitation to do so.⁷

We found that participants were more likely to ask a nurse rather than a physician to perform hand hygiene. Other studies have found mixed results. Longtin showed that respondents showed the same level of discomfort towards reminding a physician and nurse.¹⁰ Similarly, Wu found patients and family members were equally willing to remind a physician (48.9%) and a nurse (50.8%).¹² These results stand in stark contrast to McGuckin's findings where all patients actually asked nurses to perform hand hygiene and only 35% asked physicians.⁵

Though most patients express an interest in participating in their care, healthcare providers do not always welcome that participation. We hypothesized that resident physicians would be more supportive of patient participation than attending physicians. While our results showed a trend towards this, there was no statistical difference between the two groups. Current medical education includes patient participation as an important component of the physician-patient relationship.¹⁶ No other studies have examined whether resident and attending physicians' attitudes about patient empowerment differ. Davis demonstrated that only 41% of providers felt that family member involvement would have a positive effect on the family member-provider relationship.¹³ Similarly, Kim found that only 26% of physicians and 31% of nurses supported patient participation.¹⁴ In Julian's survey of healthcare providers, the major reasons providers did not support patient empowerment were providers did not feel it was the patient's responsibility, the patient may not see that the provider previously cleansed their hands, and reminders from the patient were embarrassing or inappropriate.⁴ In our study, only 54.9% of providers felt that patients should be involved in reminding providers to perform hand hygiene. Of the providers who supported patient involvement, 75.6% felt it would positively affect the physician-patient relationship. Of those opposed, 37.8% felt it was not the patient's responsibility. Like others, our study showed there is a discrepancy between the way family members and patients view patient participation and the way physicians view it.

In our study, physicians indicated that they would prefer that a patient use words rather than a PET to remind physicians to perform hand hygiene. In the future, it would be interesting to investigate whether different groups of physicians might feel differently. For example, would pediatricians be more accepting of the PET compared to internists? We did not have a large enough sample size to make these comparisons, but in general, pediatricians at our hospital expressed more enthusiasm about the PET compared to other physicians.

This was a single institution study so the results of the study may not be generalizable to other institutions. We also examined specific populations: pediatric patients' parents and

adult patients on General Medicine floors. Other patient populations (for example, patients on Surgery floors) may have expressed different views. Another concern is that some adult patients may feel that the PET is designed more for children and may not feel as empowered to use it. On the other hand, many adult patients expressed that they liked the cuteness of the PET, and one patient even asked for PETs to share with her Girl Scout Troop. There was also a low response rate to the physician survey which consisted of 43 items. Though the physician survey took an average of 10 minutes to complete, physicians may have felt the survey was too long or time consuming.

Health care providers should not see patient participation as a threat, but instead as another tool to improve patient care. Both Pittet and McGuckin showed that patient empowerment can lead to increased hand hygiene adherence.^{3, 11} Patient empowerment encourages a safer healthcare environment and improves patient outcomes. Patients and parents do not require high medical knowledge to successfully remind healthcare providers perform hand hygiene. We should work to make patients and families more comfortable in participating in their care, but even more importantly, we need to change the culture of medicine. We should continue to address barriers to hand hygiene identified by healthcare providers.

Conclusion

Patient empowerment is a growing movement in healthcare, and it should be incorporated as part of a multimodal strategy to improve hand hygiene adherence. Its success depends on acceptance not only by patients and their families but also by healthcare providers.

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Figure 1.
Patient Empowerment Tool (PET)

Figure 2.
Reasons Participants Felt Uncomfortable Using PET to Remind Nurses or Doctors

Table 1

Demographic characteristics of 114 parents and 108 adult patients who completed the survey.

	Parents	Adult Patients
Age	34.7 (19–70)	55.7 (18–92)
Sex		
•Male	23/112 (20.5%)	50/108 (46.3%)
•Female	89/112 (79.5%)	58/108 (53.7%)
Ethnicity		
•White	108/113 (95.6%)	102/108 (94.4%)
•Non-white	5/113 (4.4%)	6/108 (5.6%)
Education		
•Middle school or below	6/113 (5.3%)	23/107 (21.5%)
•High school	46/113 (40.7%)	41/107 (38.3%)
•Trade, technical, or vocational training	22/113 (19.5%)	21/107 (19.6%)
•College	32/113 (28.3%)	18/107 (16.8%)
•Professional or graduate school	7/113 (6.2%)	4/107 (3.7%)
Relationship to Patient		
•Mother	78/114 (68.4%)	-
•Father	18/114 (15.8%)	-
•Legal guardian	9/114 (7.9%)	-
•Other	9/114 (7.9%)	-
Child's age	5.6 (0–18)	
Child's sex		
•Male	57/112 (50.9%)	-
•Female	55/112 (49.1%)	-

The denominator differed according to each item because only responders who answered the question were included. Values are presented as a mean (range) or proportion (%).

Table 2

Parents and Adult Patients' Attitudes About Use of the PET

	Parents		Adult Patients		p-value
	n	Yes	n	Yes	
Is hand hygiene important for stopping the spread of infections?	114	114 (100%)	108	107 (99.1%)	1 (0.9%)
		Helpful		Helpful	Unhelpful
Is the PET helpful to remind a doctor to perform hand hygiene?	114	82 (71.9%)	107	70 (65.4%)	37 (34.6%)
Is the PET helpful to remind a doctor to perform hand hygiene?	114	87 (76.3%)	108	79 (73.1%)	29 (26.9%)
		Frequently		Frequently	Infrequently
Should parents/ patients speak up if a doctor does not perform hand hygiene?	114	109 (95.6%)	107	83 (77.6%)	24 (22.4%)
Should parents/ patients speak up if a nurse does not perform hand hygiene?	113	112 (99.1%)	107	92 (86.0%)	15 (14.0%)
		Yes		Yes	No
Would you feel comfortable using the PET to remind a doctor to perform hand hygiene?	113	87 (77.0%)	105	68 (64.8%)	37 (35.2%)
Would you feel comfortable using the PET to remind a nurse to perform hand hygiene?	113	92 (81.4%)	104	74 (71.2%)	30 (28.8%)
		Yes		Yes	No
Does the PET give you more control of your care?	112	78 (69.6%)	105	67 (63.8%)	38 (36.2%)

Values are given as n (%).

Table 3

Demographic characteristics of 29 resident physicians and 60 attending physicians who answered survey.

	Resident Physicians	Attending Physicians
Age	28.8 (25–34)	47.1 (31–68)
Sex		
•Male	14/29 (48.3%)	32/52 (61.5%)
•Female	15/29 (51.7%)	20/52 (38.5%)
Department		
•Internal Medicine	15/29 (51.7%)	31/53 (58.5%)
•Pediatrics	1/29 (3.4%)	18/53 (34.0%)
•Family Medicine	7/29 (24.1%)	4/53 (7.5%)
•Internal Medicine and Pediatrics *	6/29 (20.7%)	0/53 (0%)

The denominator differed according to each item because only responders who answered the question were included. Values are presented as a mean (range) or proportion (%).

* Residents in the joint Internal Medicine and Pediatrics Program.

McNemar’s Test comparing Scenarios 1, 3, and 5 where patient used words to remind a physician to perform hand hygiene to Scenarios 2, 4, and 6 where patient used a PET to remind.

Table 4

	PET		p-value
Wash *	Agree	12	0.008
	Disagree	2	41
Offended	Agree	15	5
	Disagree	20	208
Embarrassed	Agree	74	15
	Disagree	13	145
Upset	Agree	18	6
	Disagree	14	209
Grateful	Agree	117	17
	Disagree	3	112

Words

Please note that the responses for Scenarios 1, 3, and 5 were collapsed together as were the responses for Scenarios 2, 4, and 6, resulting in the high number of responses.

* Physicians were asked if they would wash their hands again when asked by the patient.