Evaluating the Feasibility of Incorporating In-Person Interpreters on Family-Centered Rounds: A QI Initiative

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ABSTRACT

OBJECTIVES: No best practice has been defined for incorporating in-person interpreters into family-centered rounds (FCRs) for patients with limited English proficiency (LEP). We hypothesized that addressing barriers to scheduling in-person interpreters would make FCR encounters more likely, and thus ensure more equitable care for LEP patients.

METHODS: A quality improvement initiative was conducted from October 2014 to March 2016 to arrange in-person interpreters for LEP patients during FCRs on the inpatient pediatric service of a large, urban, tertiary care center in Boston. Main interventions included establishing a protocol for scheduling interpreters for rounds and the implementation of a form to track process adherence. Our primary outcome was the percentage of FCR encounters with LEP patients with an interpreter present. Our balancing measures were patient satisfaction, which was assessed using validated surveys administered weekly by nonphysician team members through convenience sampling of families present on the wards, and rounds duration.

RESULTS: There were 614 encounters with LEP patients during the intervention, 367 of which included in-person interpreters. The percentage of encounters with LEP patients involving interpreters increased from 0% to 63%. Form completion, our primary process measure, reached 87% in the most recent phase. English-proficient and LEP patients reported similar satisfaction with their rounding experience amid a modest increase in rounds duration (preintervention, 105 minutes; postintervention, 130 minutes; P = .056).

CONCLUSIONS: Using quality improvement as a framework to address key barriers, we successfully implemented a process that increased the participation of in-person interpreters on FCRs on a busy pediatric service.
METHODS

Setting

The pediatric ward at our hospital manages 1800 admissions annually, with patients aged 2 days to 22 years. Seventy-one percent are publicly insured, and 70% are multiracial or people of color. The ward has 22 beds staffed by 1 attending physician who oversees the care of an average of 15 patients across 2 teams, each consisting of a supervising resident, 2 interns, and 2 medical students.

Each morning, the team that has admitted patients in the previous 24 hours rounds with the attending while the second team rounds simultaneously without the attending. Interns and students present all patients using patient-centered language, and LEP patients are prioritized when interpreters arrive on the floor. Families are first asked about the status of their child and if they have any questions. The brief presenting history or overnight events, laboratory and radiology results, and presenting provider’s medical assessment are interpreted verbatim during brief pauses. The interpreter then facilitates a family-provider discussion about the medical plan. An interdisciplinary “huddle” follows rounds, during which supervising residents, the attending physician, a social worker, a case manager, a nurse manager, and a ward assistant review each patient’s plan.

Approximately 30% of patients at our institution have LEP, which is defined as preferring to communicate about care in a non-English language. Our Interpreter Services Department offers in-person interpretation in 15 spoken languages, 4 of which are available 24 hours per day, 7 days per week, and telephonic and video interpretation in 240 languages. Of those with LEP, the majority are Spanish speaking (48%), Haitian (18%), and Cape Verdean (9%).

Planning the Intervention

Residents, students, and the pediatric director of quality initiated this project. Institutional review board exemption was granted for patient survey data. The improvement team consisted of physicians, interpreters, unit coordinators, and a nurse manager, each of whom regularly provided stakeholder perspectives on process improvements. The team’s driver diagram is depicted in Fig 1. Using the Model for Improvement and plan-do-study-act (PDSA) cycles, the team designed interventions to standardize interpreter scheduling and consistently gather accurate process measures, balancing measures, and outcomes data. Interventions were designed for weekdays only because of weekend staffing limitations. Members of the improvement team oriented trainees to the protocol in person at the start of each block. Informal feedback that was gathered verbally in person during each block from trainees and attending physicians as well as comments documented on the interpreter rounding form (Supplemental Fig 5) were compiled by the improvement team and used to guide iterative improvements. Trainees were encouraged to share real-time feedback with the project lead via telephone or e-mail.

PDSA Cycles

Fig 2 depicts the intervention as it occurs now at our institution.

Cycles 1 and 2

The first PDSA cycles (phase 1) were focused on creating a standardized protocol for identifying LEP families and scheduling interpreters before rounds. Patient language was added for each patient on the written sign-out, a list of patients maintained by the supervising residents. The resident who was present at the time of admission was asked to document patient language on the basis of the patient or

Approximately 25 million people in the United States have limited English proficiency (LEP). In the past 2 decades, this population has grown by 80%, and its growth is projected to continue. LEP patients encounter cultural and language barriers that negatively impact health outcomes, including longer hospital stays and a greater number of adverse events that are more severe than those experienced by English-proficient (EP) peers. Through telephonic, video, and in-person modalities, professional interpreters increase patient comprehension and improve clinical outcomes for LEP patients, with levels of satisfaction equivalent to those in EP patients.

Family-centered rounds (FCRs) are encounters in which the entire interdisciplinary medical team, including attending physicians, trainees, and nurses, engage the family as collaborators in the care plan. This is the standard of care recommended by the American Academy of Pediatrics, with well-described advantages for English-speaking families, including improved patient outcomes, satisfaction, and safety. Although not well studied in LEP populations, it seems likely that interpretation is necessary for the benefits of FCRs to reach these patients. Recent findings have revealed greater satisfaction with in-person versus telephonic interpretation during FCRs, resulting in the recommendation from Seltz et al that interpreters be routinely scheduled for FCRs. And whereas providers perceive a lack of interpreters on FCRs for LEP patients as culturally insensitive, before this initiative, our own institution had no process to ensure interpreter participation on rounds, thus systematically denying the benefits of FCRs to LEP patients.

Therefore, in October 2014, we initiated a quality improvement (QI) project to incorporate in-person interpreters into morning FCRs. Our specific aim was to increase the percentage of FCR encounters with LEP patients on the inpatient pediatric ward at which in-person interpreters were present to 75% by March 2016 while maintaining high patient satisfaction for all families.
family's self-identified preferred language for care or the resident's perception of need for an interpreter. Each morning, the supervising resident listed each LEP patient on a new interpreter rounding form and submitted it to the unit coordinator, who then called to schedule interpreters. The resident later used the same form to record rounds duration and interpreter participation.

Resident feedback revealed that whereas interpreter presence added coordination complexity to FCRs, the new challenge was justified given the timely and critical information that teams now obtained via the interpreter. Review of interpreter rounding forms revealed that interpreters were not always requested by the resident completing the form if a member of the medical team reported having adequate second-language skills. Despite iterations of improvement, forms were often incomplete or discarded before QI team retrieval for data collection, likely because the process remained dependent on busy supervising residents.

**Cycles 3 to 6**

These cycles of change (phase 2) were focused on improving form completion. Rotating medical students assumed responsibility for the intervention from start to finish, which involved (1) listing LEP patients on the interpreter rounding form, (2) copying the form and giving 1 copy to the unit coordinator (who scheduled interpreters), and (3) turning in the completed remaining copy after rounds to

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**FIGURE 1** Streamlined incorporation of in-person interpreters into FCRs for LEP patients. RN, registered nurse.

**FIGURE 2** Current weekday protocol for scheduling interpreters for FCRs.

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HOSPITAL PEDIATRICS Volume 8, Issue 8, August 2018 473
a QI team folder. The improvement team worked with medical school leadership to integrate student participation in rotation-specific QI initiatives into clerkship expectations during inpatient rotations. Resident and student teams received a weekly e-mail about their form completion and interpreter rates to boost self-awareness.

Medical student participation notably increased weekly form completion. Teams continued to struggle with the inability to anticipate a specific time at which interpreters might arrive. They occasionally missed busy interpreters who could not wait for teams to finish an ongoing rounding encounter.

Outcome Measures

Our primary outcome measure was the percentage of FCR encounters with LEP patients that incorporated in-person interpreters, as documented on the interpreter rounding forms; this was calculated by dividing the number of LEP patients who were documented as having discussed the care plan using an in-person interpreter by the total number of LEP patients listed. Ad hoc interpretation was excluded.

Process Measures

Process measures included the percentage of completed rounding forms, or the proportion of forms on which the primary aim measure for all patients was documented and retrieved by the QI team, and the percentage of encounters for which an interpreter was requested even if one was not present on rounds. The latter was calculated by dividing the number of LEP patients for whom an in-person interpreter was requested by the total number of LEP patients listed.

Balancing Measures

Balancing measures included patient satisfaction and duration of rounds to assess if incorporating interpreters would lengthen rounds and disrupt clinical workflow. Rounding forms included the start and end time of rounds to calculate the total rounding time, and differences were measured by using a Student’s t test. Patient satisfaction surveys were used to track whether the intervention was negatively affecting patient experience.

QI

Statistical process control (SPC) charts were used to track the primary outcome and process measures. Charts were updated in accordance with standard QI guidelines.15

Patient Satisfaction

Because response rates to hospital-administered satisfaction surveys were extremely low, the quality team constructed a streamlined survey using the US Agency for Healthcare Research and Quality’s Consumer Assessment of Healthcare Providers and Systems Child Hospital Survey (question 1) and the hospital’s Press Ganey patient experience survey (question 2) (Supplemental Fig 6). Both surveys are validated for use with both EP and LEP families and have been used to assess communication between families and physicians and overall family experience with an inpatient stay, respectively.16,17 Members of the improvement team conducted surveys in person and used telephone or video interpretation as needed for LEP families on the basis of a convenience sample of families that were physically present on the floor 1 afternoon per week. Family members were surveyed for patients aged 0 to 17 years; patients ≥18 years old were surveyed directly. Families were excluded if they were absent from rounds or had already been surveyed. Baseline patient satisfaction data were obtained before the first PDSA cycle.

EP and LEP families were asked 2 questions, which were used to assess overall experience and scored on a Likert scale: (1) “During morning rounds, how often have doctors explained things in a way you could understand?” Answer options were “never,” “sometimes,” “usually,” or “always.” (2) “Which of the following answers best describes your experience during morning rounds today?” Information given to your family about your child’s condition and treatment.” Answer options were “very poor,” “poor,” “fair,” “good,” or “very good.” Responses documented as “missing or don’t know” were excluded from analysis. SPC charts were generated for both outcomes, dichotomizing the first question to “always” versus all other responses and the second to “good” or “very good” versus all other responses.

Data management was undertaken with Excel 15 (Microsoft Corporation, Redmond, WA). Analyses were conducted by using Stata 13 (Stata Corp, College Station, TX). All tests were 2-sided and considered significant at P < .05.

RESULTS

Outcome Measures

Between October 2014 and March 2016, 614 of 2942 total rounding encounters (21%) occurred with LEP patients as identified on interpreter rounding forms. Only 2 requests were made for a language for which an interpreter was not available in person (Bengali). For encounters with primary outcome documentation, in-person interpreters were available >75% of the time for all requested languages except Spanish (71%), Vietnamese (69%), and French (53%). On average, 2 LEP patients were seen between the 2 teams with an in-person interpreter on days when interpreters were present on rounds. The mean monthly percentages of LEP patient encounters with an in-person interpreter present during FCRs are plotted in the SPC chart in Fig 3. Two months of baseline measurement revealed that 0% of LEP patients had an FCR encounter with an in-person interpreter. During phase 1, this improved to 43% as teams began initiating the scheduling protocol; however, they did not return rounding forms to the QI team folder consistently. With improved form completion in phase 2, the percentage of encounters with in-person interpreters reached 63%.

Process and Balancing Measures

An SPC chart for our primary process measure, weekly rounding form completion, is displayed in Fig 4. Form retrieval was inconsistent for the first 12 weeks of the
intervention but greatly improved with the recruitment of students. With weekly feedback to teams in PDSA 5, we achieved a sustained shift, with multiple weeks reaching 100%.

Duration of rounds was used as a balancing measure to assess the impact on rounding efficiency. Rounds duration increased modestly from baseline (mean, 105 minutes; SD, 11 minutes) to postintervention (mean, 130 minutes; SD, 41 minutes; \( P = .056 \)); this 25 minute difference represents an increase of 1.7 minutes per patient for the average total inpatient census of 15 or 12.5 minutes per LEP patient for the average LEP census of 2.

Patient Satisfaction

From October 2014 (baseline, preintervention) to October 2015 (PDSA 6), 158 families were surveyed, 65 of which had LEP (41%), and 93 were EP (59%). Ten families declined the survey or could not complete it. The most common languages spoken by LEP respondents were Spanish (26% overall; 65% of LEP) and Haitian Creole (5% overall; 12% of LEP).

Overall, patient satisfaction with communication was high and comparable for both LEP and EP patients (Table 1). SPC charts revealed an improvement in the percentage of LEP families responding “always” to “During [rounds], how often have doctors explained things in a way you could understand?” and consistently high ratings of “good” or “very good” to describe information given to both LEP and EP families about their child’s condition and treatment (Supplemental Figs 7 and 8, respectively).

DISCUSSION

In this QI initiative, our 2 main interventions were a standardized protocol that was used to assign responsibility for scheduling interpreters and a rounding form used to schedule interpreters and review care team process adherence. The percentage of FCR encounters with LEP patients that included in-person interpreters increased from 0% at baseline to 63% amid only a modest average increase in rounding time of 1.7 minutes per patient. Throughout the initiative, high levels of patient satisfaction for both LEP and EP families were maintained.

Success in the Primary Aim

The use of standardized protocols, as well as care bundles and checklists, are well-recognized strategies for achieving success in QI across diverse disciplines and areas of patient care.18–20 Thus, the implementation of a streamlined protocol for scheduling interpreters was likely a main contributor to improvement in our aim.

Another key strength of our initiative was the incorporation of learners. Whereas the authors of much of the literature surrounding trainees and QI have focused on curricular methods, the authors of some existing literature have documented that
resident knowledge, attitudes, and skills related to QI, as well as patient outcomes, can be enhanced through trainee involvement in improvement initiatives.21–23

Our initiative was housestaff led and completed in partnership with rotating students. In particular, the involvement of students caused a sustained increase in form completion and documentation of our primary aim.

High Patient Satisfaction

Our survey results reveal that this initiative did not negatively impact EP or LEP patient satisfaction with communication or rounding interactions, which remained high throughout. Importantly, the authors of previous literature indicate that cultural differences may affect validity in comparing satisfaction survey responses between groups. For example, Hispanic families may rate care subjectively more highly on surveys despite reporting care practices that are similar to white families.24 However, surveys were administered anonymously by nonclinician staff, and respondents were guaranteed confidentiality to minimize this effect.

Research on the benefits of FCRs in LEP populations is limited. Researchers in 1 related study highlighted significant barriers in communication; however, they also described positive experiences by Spanish-speaking families when Spanish-speaking providers or in-person interpreters were present.11 Our findings are consistent given that LEP families remained satisfied with their care during FCRs after the incorporation of in-person interpreters. We believe that enhanced opportunities for direct communication and clarification with the medical team likely helped maintain high LEP family satisfaction. Future researchers should address ways to approach the customization of rounds to optimize communication, outcomes, and satisfaction for the diverse LEP population.

TABLE 1 Comparing Patient Satisfaction Survey Responses Between LEP and EP Families

<table>
<thead>
<tr>
<th>Question</th>
<th>EP (n = 93)</th>
<th>LEP (n = 65)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: During morning rounds, how often have doctors explained things in a way you could understand? 1 (never) to 4 (always)</td>
<td>3.83</td>
<td>3.69</td>
<td>.14</td>
</tr>
<tr>
<td>2: Which of the following answers best describes your experience during morning rounds today? Information given to your family about your child’s condition and treatment 1 (very poor) to 5 (very good)</td>
<td>4.26</td>
<td>4.47</td>
<td>.06</td>
</tr>
</tbody>
</table>

* Five LEP families elected not to answer question 1 and question 2; 1 EP family did not answer question 2.
Modest Increase in Rounds Duration

We documented only a modest increase in the duration of rounds, which was potentially related to the fact that only 2 LEP patients, on average, were seen with interpreters each day. Whereas this increase likely resulted in part from our intervention, other factors, such as season and census, likely also contributed.

Ultimately, we appreciate that busy hospitalist services must realize significant gains from any rounding time increase. Whereas FCR encounters may seem more time intensive than older, traditional rounding models, FCRs can save time overall. Muething et al described that families participating in FCRs are more likely to be in agreement with the care plan and experience an improvement in discharge timeliness. Furthermore, Rosen et al described that family participation impacted the plan of care in 90% of interactions. In addition to the benefits to patient care and satisfaction, enhanced communication during rounds likely improves efficiency by enhancing family comprehension and addressing critical questions early and thus streamlining later discussions or discharge processes.

Limitations

There were several limitations to our study. First, given the known benefits of FCRs for EP families, we focused our efforts on a process measure as opposed to a patient-centered outcome, such as decreasing adverse events. Anand et al, for example, demonstrated improved PICU-specific mortality in Hispanic children after a multilevel care delivery intervention, including expanded interpreter and bilingual provider access. Such outcomes, which benefit from greater resources and volume to evaluate reliably, should be a focus of future research. In addition, the nature of our project as a QI initiative resulted in analysis that was likely underpowered to detect some true differences among families, and convenience sampling for patient satisfaction surveys may have biased these results.

Our interventions were developed in the context of a single care setting with a large, dedicated interpreter services department and therefore are not generalizable. Institutions with a greater proportion of LEP patients or fewer interpreter resources may need to mobilize different yet equally valid methods of interpretation (eg, recruiting physicians with verified second-language skills or video interpretation); associated costs may be another critical limitation. Although our inpatient ward admits patients with varying levels of acuity, complexity, ages, and diagnoses, we did not specifically evaluate these subgroups for differences in their responses to the intervention or between the EP and LEP populations. Given that LEP families with children with special health care needs report particularly poor health care access and quality, this group should be a particular focus in future study. Despite significant improvements, rounding encounters without interpreters still occur at our institution. Weekends were intentionally excluded because of staffing limitations but should be incorporated moving forward. Additionally, the constant rotation of trainees and students at times jeopardizes rounding form completion. Trainees with second-language skills sometimes act as ad hoc interpreters despite lacking interpreter certification; these encounters are worrisome given the well-established findings that increased clinically significant communication and safety errors occur with ad hoc versus certified interpreters. Education of trainees on the dangers of this approach is needed. Lastly, we have yet to implement an evidence-based process for LEP screening and instead rely heavily on resident interpretation of proficiency. Future PDSA cycles should include a focus on long-term sustainability (specifically, transitioning the responsibility of daily LEP family identification to a full-time staff member and using a standardized language preference screening process on admission and an electronic medical record–generated LEP patient list).

The researchers of at least 1 previous study have shown that a QI initiative can increase the use of telephonic interpreter services for LEP patients in the pediatric setting. The authors of other literature have outlined the barriers that make the underuse of in-person interpreters common and have promoted QI science as a tool to decrease the disparities in care faced by the pediatric population. To our knowledge, this is the first published study that was focused on delivering an equitable FCR experience for LEP patients by increasing in-person interpreter participation through a trainee-led QI initiative.

CONCLUSIONS

This project revealed the feasibility of using QI methodology to better align care delivered to LEP patients with that of their EP peers by increasing the participation of in-person interpreters on FCRs. By developing a standardized protocol for scheduling interpreters and creating a rounding form to assess their impact, we were able to overcome barriers LEP patients face in accessing interpretive services for their care. Importantly, we were able to show the benefits of QI science in addressing disparities in care delivery with this project and that trainees can have a meaningful impact on such challenges. Further study is needed to reveal whether similar interventions will achieve equivalent results in other contexts.

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