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Permalink

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Journal

Hospital Pediatrics, 9(7)

ISSN

2154-1663

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Publication Date

2019-07-01

DOI

10.1542/hpeds.2018-0250

Peer reviewed

Completeness of Written Discharge Guidance for English- and Spanish-Speaking Patient Families

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OBJECTIVES: Written discharge guidance for hospitalized pediatric patients should include language-appropriate key elements to ensure positive discharge outcomes. Our objective in this study was to determine the completeness of written pediatric discharge guidance and to test the hypothesis that Spanish-speaking families with limited English proficiency (LEP) receive less complete written discharge guidance than English-speaking families.

METHODS: We conducted a retrospective review of written discharge guidance provided to 100 English- and 100 Spanish-speaking families at an urban nonfreestanding children's hospital to assess the inclusion of key elements: follow-up plan, contingency plan, telephone contact, discharge medications, discharge diagnosis, and hospital course. We compared the completeness of discharge guidance (number of elements provided among number of applicable elements) between English- versus Spanish-speaking families.

RESULTS: When evaluating discharge guidance for the presence of key elements in any language, there was no significant difference between English- and Spanish-speaking families. However, the mean completeness of language-appropriate discharge guidance for English- and Spanish-speaking families was 87.8% (95% confidence interval [CI] 84.4%–91.1%) and 16.0% (95% CI 11.5%–20.4%), respectively. The ordinal logistic regression examining the association between the number of key element deficits and English- (reference group) versus Spanish-speaking families demonstrated an adjusted odds ratio of 339.8 (95% CI 112.4–1027.5).

CONCLUSIONS: Few Spanish-speaking families with LEP receive written discharge guidance in their preferred language. Complete, language-appropriate discharge guidance was identified as an area for improvement efforts to work toward improving care provided to families with LEP.

ABSTRACT

www.hospitalpediatrics.org

DOI: <https://doi.org/10.1542/hpeds.2018-0250>

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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: Supported by the National Center for Advancing Translational Sciences (grant UL1 TR001860 and linked award KL2 TR001859; Dr Rosenthal) and the National Institute of Mental Health (award K23MH101157; Dr Fernandez y Garcia) of the National Institutes of Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Funded by the National Institutes of Health (NIH).

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

Dr Platter conceptualized and designed the study, collected data, conducted the analysis, interpreted the data, and drafted the initial manuscript; Dr Hamline assisted with the concept and design of the study, interpreted the analysis, and reviewed and revised the manuscript; Dr Tancredi assisted with the concept and design of the study, assisted with the analysis and interpretation of data, and reviewed and revised the manuscript; Dr Fernandez y Garcia assisted with the concept and design of the study, collected data, interpreted the analysis, and reviewed and revised the manuscript; Dr Rosenthal assisted with the conceptualization and design of the study, supervised data collection, conducted the analysis, interpreted the data, and reviewed and revised the manuscript; and all authors approved the final manuscript as submitted.



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The quality of hospital-to-home transition has been identified as an area for targeted improvements.¹⁻³ Discharging pediatric patients is a complex process of communication that may place patients at risk for adverse outcomes. Poor communication at discharge with pediatric patients' families is linked to adverse events after discharge, medication errors, poor follow-up, and worsening health.^{1,4}

Hospital readmissions, emergency department revisits, and life-threatening illnesses are considered negative discharge outcomes.⁵⁻⁸ Among interventions for improving pediatric hospital-to-home transitions, discharge education is the most common feature linked to avoiding these negative outcomes.⁹ Written discharge guidance is an integral part of that education. Expert consensus recommendations outline that written discharge guidance should focus on key elements that are of the greatest importance to patients' care. These key elements are a follow-up plan, a contingency plan; a 24/7 telephone contact, discharge medications, a discharge diagnosis, and the hospital course.^{2,9,10}

The principal standard for the national Culturally and Linguistically Appropriate Services includes providing equitable, understandable, respectful, quality care and services that are responsive to preferred languages and health literacy.¹¹ This aspect of language-appropriate communication is especially important for discharge guidance because language barriers can severely complicate the discharge process.¹²⁻¹⁶ Patients with limited English proficiency (LEP) have worse understanding of discharge medications and lower outpatient follow-up rates when compared with English-speaking patients.^{13,17} Therefore, in addition to the key elements, effective written discharge guidance must be provided in the patient family's preferred language for receiving medical care and at their level of overall and health literacy.^{2,9} However, there are innate difficulties in producing and providing written discharge guidance in languages other than English. Specifically, providing care for LEP patients and families, both during their hospital stay

and at discharge, can be time consuming and costly.¹⁸⁻²¹

Our objective was to determine the completeness of written pediatric discharge guidance and test the hypothesis that Spanish-speaking families with LEP, in comparison with English-speaking families, receive less complete discharge guidance.

METHODS

Study Design

Setting and Eligibility

The setting was a 129-bed, urban, nonfreestanding children's hospital. We identified eligible patients by querying the electronic medical records (EMRs). Eligible patients were <18 years of age when discharged from the hospital between July 1, 2016, and June 30, 2017, from the hospital medicine, hematology-oncology, gastroenterology, nephrology, and surgery services. We included only Spanish-speaking families with LEP (because it is our threshold language²²) and English-speaking families. Language preference was recorded in the EMR on intake for all patients by asking parents or guardians their preferred language for receiving medical care.

Discharge Guidance Key Elements

We examined the packet of documents, which included patient discharge instructions and orders, which were generated in the EMR and given to patient families at discharge. We searched for 6 key elements to determine the completeness of discharge guidance: (1) follow-up plan, (2) contingency plan, (3) 24/7 telephone contact, (4) discharge medications, (5) discharge diagnosis, and (6) hospital course. The list of key elements was constructed from evidence-based recommendations and expert consensus metrics for written pediatric discharge guidance.^{2,9,10}

To be considered present, the follow-up plan key element required the name of the provider or clinic and time frame for follow-up (appointment date and time or a statement that the family would receive a scheduling call). The contingency plan element required signs or symptoms to monitor and plans for what to do in the event of such occurrences ("if-then"

statements). The 24/7 telephone contact element required a phone number to call if problems arise. The discharge medications element required the medication name and instructions for administration or was considered not applicable if no medications were to be taken at discharge. The discharge diagnosis element required the primary diagnosis name. The hospital course element required a minimum of 1 sentence or phrase providing an overview of the hospitalization.

Patient-Level Characteristics

Patient-level characteristics were obtained from the EMR. Patient demographics included preferred language, age, sex, race, ethnicity, and insurance status. To capture patients with increased medical complexity, the patient's *International Classification of Diseases, 10th Revision, Clinical Modification* codes were obtained to identify the presence of complex chronic conditions by using codes identified by Feudtner et al.²³ Use variables included inpatient discharging service, season of discharge, time of discharge (morning, afternoon, or night), and length of stay.

Data Analysis

Among eligible patients, we randomly selected 100 patients with English-speaking families and 100 patients with Spanish-speaking families with LEP. One researcher who is a pediatrician fluent in English and Spanish (E.P.) reviewed the discharge guidance documents for (1) the presence of each key element and (2) whether each key element was provided in the families' preferred language for receiving medical care. Each key element was categorized as missing, present in the preferred language, or present but not in the preferred language. A second researcher and pediatrician fluent in English and Spanish (E.F.G.) independently reviewed a random subset of 10 discharge guidance documents; the pooled κ statistic for interrater reliability was 0.78, indicating substantial agreement.

We used percentages to summarize patient-level characteristics and the presence of key elements. Categorical variable data were compared between English- and

Spanish-speaking families by using Pearson's χ^2 test. We created boxplots to compare completeness of discharge guidance for English- versus Spanish-speaking families. Completeness was presented in 2 ways: (1) percentage of applicable key elements present in any language and (2) percentage of applicable key elements present in the family's preferred language for receiving medical care.

A key element was considered deficient with respect to inclusion in a language-appropriate manner when it was either missing or present not in the patient's preferred language. A summative response scale was formed by adding the number of deficient elements (Cronbach's $\alpha = .89$). For this ordinal outcome, we performed ordinal logistic regression to examine the association between this dependent variable (range 0–6) and English- versus Spanish-speaking families. In the adjusted model, we statistically adjusted for the patient's age, sex, insurance status, complex chronic condition, inpatient discharge service, season of discharge, and time of discharge. Race and ethnicity were not included in the model because they were highly collinear with preferred language.

We used Stata 15.1 (Stata Corp, College Station, TX) for all statistical analysis.²⁴ Our university's institutional review board approved this study.

RESULTS

Of 4044 patients meeting inclusion criteria, discharge guidance for 100 English-speaking and 100 Spanish-speaking pediatric patient families were reviewed. The patient-level demographic and use characteristics, presented separately for English- and Spanish-speaking families, are shown in Table 1. Most characteristics were distributed similarly between the 2 groups. Patients with Spanish-speaking families were more likely to be Hispanic or Latino ($P < .001$), have public insurance ($P < .001$), and have a complex chronic condition ($P < .001$). Although not statistically significant, greater proportions of patients with English-speaking families were discharged earlier in the day, whereas greater proportions of patients with

Spanish-speaking families were discharged later in the day or at night ($P = .053$).

When evaluating discharge guidance for the presence of key elements, regardless of the language in which they were written, there was no statistically significant difference between English- and Spanish-speaking families. However, when evaluating discharge guidance for the presence of language-appropriate key elements, there was a significant difference between English- and Spanish-speaking families. For each of the 6 key elements, there was a higher proportion present for English-speaking families ($P < .001$ for each element). For both groups, the key element with the lowest proportion present in the patient's preferred language was hospital course; proportions were 80.0% for English-speaking families and only 4.0% for Spanish-speaking families. For English-speaking families, the key element with the highest proportion present in English was the follow-up plan (94.0%). For Spanish-speaking families, the key element with the highest proportion present in Spanish was the return precaution, but it was present in Spanish in only 32.0% of discharge guidance. Data for the presence of each key element are presented in Fig 1.

The mean completeness of discharge guidance in any language was 87.1% (95% confidence interval [CI] 84.7%–89.4%) for all patients. When separately examining English- and Spanish-speaking families, the means were 88.2% (95% CI 85.0%–91.4%) and 86.0% (95% CI 82.5%–89.4%), respectively. Completeness was calculated for each patient as a proportion, with the numerator being the number of key elements provided and the denominator being the number of applicable elements. The denominator varied between 5 and 6 elements because some patients were discharged without medications. Fig 2A shows a boxplot comparing the completeness of the written discharge guidance in any language between English- and Spanish-speaking families. This boxplot shows that the first and third quartiles for completeness were similar between English- and Spanish-speaking families when the

language in which the key element was presented was not taken into account.

When evaluating completeness of the discharge guidance, with the numerator being the number of key elements provided in the family's preferred language and the denominator being the number of applicable elements, there is a significant difference between English- and Spanish-speaking families. The mean completeness of language-appropriate discharge guidance was 51.9% (95% CI 46.1%–57.6%) for all patients. When separately examining English- and Spanish-speaking families, the means were 87.8% (95% CI 84.4%–91.1%) and 16.0% (95% CI 11.5%–20.4%), respectively. Fig 2B presents these data in a boxplot, showing that the inner quartiles of language-appropriate completeness were drastically lower for Spanish-speaking families.

The ordinal logistic regression examining the association between the number of key element deficits and English-speaking (reference group) versus Spanish-speaking families demonstrated an unadjusted odds ratio of 217.3 (95% CI 77.4–610.2). The adjusted odds ratio was 339.8 (95% CI 112.4–1027.5).

DISCUSSION

This is the first report of a study investigating the completeness of written pediatric hospital discharge guidance and how its completeness is associated with patient families' preferred language. Our study found no significant difference in the presence of key elements between English- and Spanish-speaking families if preferred language was not a factor. However, when considering preferred language, we found a significant difference in the presence of all 6 key elements in the appropriate language between English- and Spanish-speaking families. Language was an independent risk factor for increased number of key element deficits, with an impressive ordinal logistic adjusted odds ratio of 339.8 (95% CI 112.4–1027.5).

Written discharge guidance that includes the evaluated key elements is recommended by expert consensus.^{2,9} Written discharge guidance for adult patients decreases

TABLE 1 Patient Characteristics and Hospital Use Presented by Family's Preferred Language

	English-Speaking Family (N = 100)	Spanish-Speaking Family With LEP (N = 100)	P
Age group, y, n (%)			.13
0–1	31 (31.0)	19 (19.0)	
2–5	26 (26.0)	31 (31.0)	
6–11	19 (19.0)	29 (29.0)	
12–18	24 (24.0)	21 (21.0)	
Sex, n (%)			.47
Female	38 (38.0)	43 (43.0)	
Male	62 (62.0)	57 (57.0)	
Race, n (%)			<.001
White	47 (47.0)	8 (8.0)	
Black or African American	11 (11.0)	0 (0.0)	
Asian American	10 (10.0)	0 (0.0)	
Other	27 (27.0)	91 (91.0)	
Unknown	5 (5.0)	1 (1.0)	
Ethnicity, n (%)			<.001
Hispanic or Latino	26 (26.0)	95 (95.0)	
Not Hispanic or Latino	73 (73.0)	4 (4.0)	
Unknown	1 (1.0)	1 (1.0)	
Insurance status, n (%)			<.001
Private	57 (57.0)	29 (29.0)	
Public	43 (43.0)	71 (71.0)	
Service at discharge, n (%)			.40
Pediatric hospital medicine	55 (55.0)	59 (59.0)	
Pediatric gastroenterology	9 (9.0)	6 (6.0)	
Pediatric hematology-oncology	15 (15.0)	22 (22.0)	
Pediatric nephrology	4 (4.0)	2 (2.0)	
Pediatric surgery	17 (17.0)	11 (11.0)	
Month of discharge, n (%)			.12
December–February (winter)	18 (18.0)	25 (25.0)	
March–May (spring)	34 (34.0)	20 (20.0)	
June–August (summer)	22 (22.0)	21 (21.0)	
September–November (fall)	26 (26.0)	34 (34.0)	
Time of discharge, n (%)			.053
Morning (6 AM–12 PM)	14 (14.0)	10 (10.0)	
Afternoon (12 PM–6 PM)	71 (71.0)	76 (76.0)	
Night (6 PM–6 AM)	15 (15.0)	29 (29.0)	
Length of stay, median (25%–75% IQR)	2 (1–4)	2 (1–4)	
Medical complexity, n (%)			<.001
CCC	24 (24.0)	51 (51.0)	
Not CCC	76 (76.0)	49 (49.0)	

Any diagnosis is a CCC. CCC, complex chronic condition; IQR, interquartile range.

transition. Therefore, our findings in regard to Spanish-speaking families indicate potential care not consistent with national standards for Culturally and Linguistically Appropriate Services,¹¹ a disparity with potentially significant implications for health.

This disparity between English- and Spanish-speaking families occurred in California, the state that leads the nation in percentage of people who report speaking a language other than English at home (44%)²⁸ and percentage of people who report speaking English less than “very well” (19%).²⁹ Furthermore, Spanish is a threshold language²² at our hospital, and we have robust professional interpreter services, including in-house written translation services.³⁰ The findings in our study therefore raise concern that other hospitals with lower rates of Spanish-speaking patients might also be providing incomplete discharge guidance to those families. Further research is needed to understand the broader prevalence and impact on outcomes of not providing language-concordant written discharge instructions.

Optimizing communication at discharge is especially important for patients of families with LEP, regardless of specific primary language. LEP patients, in comparison with English-proficient patients, are at increased risk of worse understanding of follow-up plans, knowledge about medications, and medication errors.^{12–16} Use of professional interpreters for communication with hospitalized LEP patients and families is associated with improved communication, use, clinical outcomes, and satisfaction.^{31,32} Just as providers are expected to verbally communicate with the patient and family in their preferred language, providers should be expected to provide written communication in the preferred language. This standard is supported by national health care agencies and expert consensus on the discharge process.^{2,9,33} Title VI of the Civil Rights Act of 1964 and Executive Order 13166 require that recipients of US Department of Health and Human Services funds ensure that services are accessible to LEP individuals.^{34,35} Title VI specifically requires that vital written materials

readmission rates, more so than verbal communication between patients and their providers at time of discharge.²⁵ Written and verbal guidance, when provided together, are more effective than verbal discharge

guidance alone in reducing medication errors and increasing medication instruction compliance.^{26,27} These studies suggest that suboptimal discharge guidance likely impedes an effective hospital-to-home

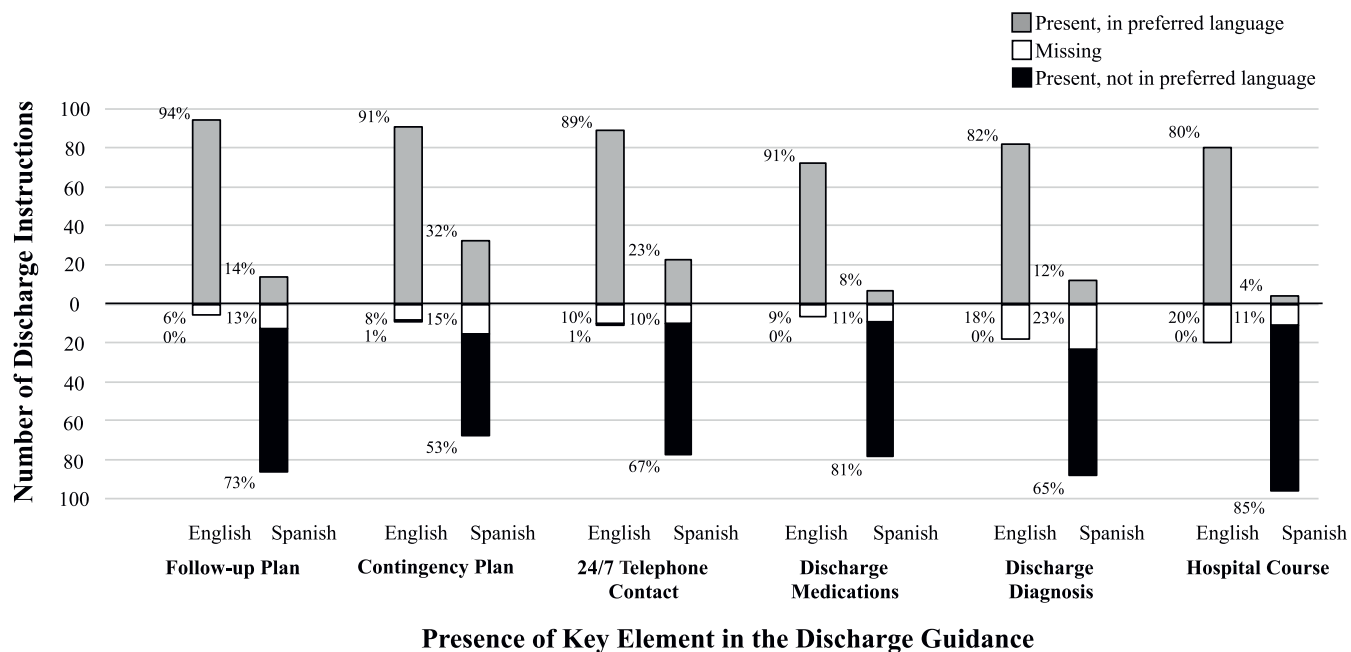


FIGURE 1 Presence of key elements and whether they were language appropriate presented by patient family's preferred language. The sample size for the discharge medications key element does not add to 100 for each group because only patients with discharge medications were included in this analysis. For each key element, *P* values were obtained by performing a χ^2 analysis to compare English-speaking versus Spanish-speaking families. All *P* values were $<.001$.

routinely provided in English are also provided in regularly encountered languages other than English.³⁴ The body of literature supporting the benefits of providing patients and families with written discharge guidance is growing, but further research is needed to determine if hospital discharge guidance should be considered a vital written health care material.³⁶

Improving the discharge processes for LEP patients and families is especially important for pediatric patients. Dosing errors with weight-based liquid medications are common in pediatric populations.¹² LEP patient families are more likely to administer the incorrect dose of liquid Tylenol and make other liquid-medication administration errors after emergency department discharge.^{14,15} Considering this, it is striking that our study showed that only 7% of Spanish-speaking families received discharge medication and dosing instructions in Spanish. Additionally, Spanish-speaking adult patients cared for by a non-Spanish-speaking physician are less likely to adhere to follow-up instructions.³⁷

Our study signals the need to focus on improvement methods that address the difficulty of providing materials in

languages other than English. We advocate for future research in LEP populations investigating the associations between incomplete language-appropriate discharge guidance, the methods to improve that guidance, and discharge outcomes (eg, communication, resource use, clinical outcomes, and satisfaction).

Further adding to the complexity of the discharge process and increasing the risk of discharge failures is that Spanish-speaking families in the United States are especially likely to have low health literacy.^{17,38,39} Health literacy is an important predictor of successfully understanding and executing instructions.⁴⁰ For patients and families with low health literacy, even complete written discharge guidance might not be adequate. We propose that future research investigates alternative means of providing complete, language-concordant, and literacy-concordant discharge guidance to Spanish-speaking families.

Standardized instructions can improve patient understanding of discharge medications and diagnosis.^{12,41,42} Therefore, although less personalized, the adoption of standardized, disease-specific discharge

instructions pretemplated in the patient family's preferred language would perhaps be an efficient and effective alternative to using professional live interpreting services in improving the completeness of language-concordant discharge instructions. Unfortunately, disease-specific templates available at this children's hospital were noted to be rarely used. Reasons for lack of use of these templates might include a lack of awareness of their existence, understanding of how to use them, and recognition of their effectiveness.

The implications for our findings must be viewed in a specific context. Our findings represent only the discharge process and materials of a single hospital. Charts were assessed for the presence of key elements, not for the accuracy of the information or translation contained within those key elements. Families' comprehension of the discharge guidance was also not assessed in this study. Additionally, Spanish-speaking families with LEP were defined as those families who indicated Spanish as their preferred language for receiving medical care on intake. English proficiency was not confirmed. Furthermore, it is possible that

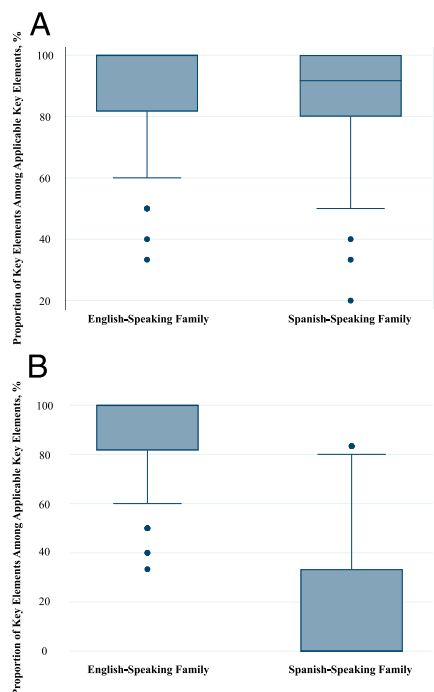


FIGURE 2 A, Completeness of discharge guidance measured by the presence of key elements in any language and comparing English-versus Spanish-speaking families. The proportion of applicable key elements was calculated as follows: numerator = number of elements present; denominator = number of applicable elements. B, Completeness of discharge guidance measured by the presence of language-appropriate key elements and comparing English- versus Spanish-speaking families. The proportion of applicable key elements was calculated as follows: numerator = number of elements present in the family's preferred language; denominator = number of applicable elements.

the family member present on intake might have been different from the family members present at the time of discharge. It is also possible that the patient's preferred language, rather than the family's preferred language, was obtained and differed. On the basis of our clinical experience, it is more likely that the pediatric patient is English speaking, whereas the parent or caregiver is Spanish speaking. This situation biases the results of

our study toward the null because discharge guidance should be in Spanish if the parent or caregiver is the intended recipient of the instructions. In light of these limitations, this study provides valuable evidence indicating a crucial area of the discharge process that is impeding LEP-patient care.

CONCLUSIONS

Our study demonstrated that strikingly few Spanish-speaking families with LEP receive written discharge guidance in their preferred language. We highlight a factor of the discharge process that may be contributing to LEP discharge failure. Complete, language-concordant discharge guidance was identified as an area requiring improvement for LEP patients and families.

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