Culturally and Linguistically Appropriate Hospital Services Reduce Medicare Length of Stay

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Introduction: Almost 40% of the 63 million Americans who speak a language other than English have limited English proficiency (LEP). This communication barrier can result in poor quality care and potentially adverse health outcomes. Of particular interest is that the greatest proportion of LEP adults are aged >65 years and will face barriers and delays in accessing high-quality care. Age cohort variation of LEP burden has not been widely addressed. Culturally and linguistically appropriate hospital care delivery can mitigate these barriers.

Methods: In order to test whether culturally competent services reduced length-of-stay (LOS), we linked organizational cultural competence surveys across two-states (CA+FL) for comparison across Medicare acute care LOS. Using the 2013 American Hospital Association Database, and Hospital Compare Data from CMS (N=184), we compared hospital structure with culturally and linguistically appropriate services related to improved care delivery for LEP populations and aging LEP populations. We utilized Kruskal-Wallis to test group differences and a negative binomial regression to model median LOS. All analyses were conducted using SAS 9.4 (Cary, NC).

Results: Median LOS across all hospitals was 4.7 days (mean 5.7, standard deviation 6.3). Most hospitals were not-for-profit (46.7%), small (<150 beds, 54.4%), Joint Commission accredited (67.9%), and in urban areas. We found shorter median LOS when hospital units identified cultural or language needs at admission (Wald χ^2 3.82, P=.0506). Hospitals' identification of these needs at discharge had no impact on LOS. Hospitals that accommodated patient cultural or ethnic dietary needs also reported lower median LOS (Wald χ^2 12.93, P=.0003). Structurally, public hospitals,

Introduction

Almost 40% of the 63 million people in the United States who speak a language other than English, speak English less than "very well," defining them as limited English proficient (LEP).[1] People who are LEP experience communication barriers that can result in poor quality of care and potentially adverse health outcomes. Furthermore, recent American Community Survey (ACS) data indicate that the greatest proportion of adults who are LEP are aged >65 years compared with age categories <65 years.[2] Older adults who are LEP face exacerbated barriers and delays in accessing high-quality care. In spite of the evidence highlighting these disparities, improving the availability of culturally and linguistically appropriate services has not been widely addressed in health care.

Culturally and linguistically appropriate services include care delivered to patients in a language that they understand or care that is sensitive to patient cultural, religious, or other individual preferences.[3] Social and cultural barriers can lead to access barriers, medical errors and misunderstandings between patients and providers.[3,4] Addressing cultural and linguistic barriers

accredited hospitals, and hospitals that reported system membership were predictive of a lower median LOS.

Discussion: Our findings demonstrate that patient outcomes are responsive to culturally and linguistically appropriate services. Further, our findings suggest understanding of culturally competent care in hospitals is lacking. A larger and multi-level sample across the United States could yield a greater understanding of the role of culturally and linguistically appropriate care for a rapidly growing population of diverse older adults. *Ethn Dis.* 2020;30(4):603-610; doi:10.18865/ed.30.4.603

can improve patient-provider communication, patient experiences of care, and help deliver equitable high-quality patient outcomes that benefit both patients and hospitals.[5] Our study objective was to assess the impact of culturally and linguistically appropriate care on Medicare length-of-stay (LOS) at acute care hospitals in two states with significant aging LEP populations.

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Culturally and Linguistically Appropriate Care Delivery

Studies suggest hospital-level factors play a significant role in providing context and support for the delivery of culturally and linguistically appropriate services.[6] This includes strategic and financial orientation in concert with hospital services that

can influence decision-making.[6,7] Hospitals must also be responsive to a federal mandate, through Executive Order 13166,[8] which requires institutions who receive any federal funding (eg, Medicare or Medicaid) to provide language access services to LEP patients.[9]

To guide hospitals in implementing the federal mandate in support of appropriate care, the Culturally and Linguistically Appropriate Services (CLAS) standards were released shortly after the federal mandate in 2000 to help health care organizations achieve the goals presented by the mandate as a combined set of guidelines and policies specific to health care delivery.[10] To this end, hospitals have made progress in addressing language barriers in hospitals, where recent estimates suggest nearly 70% offer an interpreter or translated materials.[1]

However, our knowledge of the delivery of culturally and linguistically appropriate care remains significantly fragmented since there is little data available at the hospital level. This was shown in a previous study we conducted that demonstrated the significant disconnect between where language services were being provided by hospitals and where they were needed by the population being served.[1,7,11]

The limitation to the federal mandate on language services is the lack of oversight to ensure accountability and institutional buy-in, a task often left to hospitals and accrediting bodies. Instead, research shows a lack of strategic orientation in support of the delivery of culturally and linguistically appropriate care.[7,12]

Quality of Care Delivery

The absence of culturally and linguistically appropriate care can impact the quality of care delivery for vulnerable patients by increasing time to treatment, reducing quality of patient-provider communication, increasing risk of adverse events, and increasing LOS.[13-15] Often, language barriers result in more invasive diagnostic procedures and longer recovery times, thus contributing to longer stays.[15]

LOS, ie, the time, in days, that an individual remains as an inpatient, is a widely utilized measure of efficiency and quality of care. We utilize LOS as a proxy related to timeliness of care.[16] An extended LOS can result in higher costs for patients and strain on patients and their families. LOS has become an increasingly valuable quality measure in health care systems research due to the potential for unfavorable financial and clinical outcomes.[17] LOS can be influenced by a multitude of factors including the practice style of clinicians, the number of available beds, and the access to social services, home health, and skilled nursing care.[18] LOS is also affected by the service type of the hospital (eg, acute or specialty) and for-profit ownership.[18,19] Additionally, physician involvement in the facility, volume in the hospital, and the insurance status of the patient may also play a role.[14,17,19-21] Time spent in the hospital could be dependent on issues related to a patient's needs such as the severity of their disease, rate of recovery, comorbidity, measures of socioeconomic status, or additional costs

for a longer stay.[22] We explore LOS as it relates to culturally and linguistically appropriate care delivery.

A Commonwealth Fund report on quality improvement at Massachusetts General Hospital explored the role of culturally competent care in timely and efficient care delivery.[23] Their study found the length of a patient's stay or the length of time needed to receive crucial medical services could dramatically be improved with greater attention to delivering tailored care. For example, the availability of interpreters in a hospital can prevent miscommunication between a provider and a patient, which can lead to unnecessary tests that could result in a delay in care or possible adverse events.[23,24] While disparities in income and race/ethnicity in care delivery are well understood, fewer studies evaluate the impact of culturally competent services on LOS.[17] This is often due to a lack of data specific to hospital cultural competence and equitable care delivery. Our study seeks to intersect culturally and linguistically competent care with LOS.

Methods

To examine the role of culturally competent care on LOS, we linked organizational cultural competence surveys across two-states (California and Florida) for comparison with our Medicare acute care LOS outcome. Data collection methods for the cultural competence survey were previously published.[11,25] Briefly, CEOs of acute care hos-

pitals in California and Florida were surveyed in 2005 and 2013 respectively, about their culturally and linguistically appropriate services, training, management practices, and other organizational factors associated with culturally competent care delivery. Thirty-three percent of hospitals across both states self-reported their responses and we merged these data, using hospital Medicare ID, with the 2013 American Hospital Association Database (AHA), (N=184). The AHA database includes comprehensive information on more than 6,000 US hospitals including structural, bed days, and care delivery service processes.[26] Our study utilized only acute care, non-federal hospitals that were sampled in CA and FL with a final analysis sample size of 184 hospitals. To develop our outcome variable of LOS for Medicare acute care patients, total facility Medicare staffed bed days were divided by total facility Medicare discharges. We excluded any long-term and rehabilitation facilities to ensure a focus only on acute care bed days.

Our primary independent variables of interest included measures of culturally and linguistically appropriate services. These measures were obtained from the hospital surveys to evaluate the cultural and linguistic readiness of hospitals. These activities and services included: 1) identification of the cultural and language needs of in-patients in the admission screening; 2) consideration of cultural and language needs during discharge planning; 3) accommodation of ethnic/cul-

tural dietary preferences of inpatients; 4) tailoring of patient education materials for different cultural and language groups; 5) tailoring of clinical assessments for different cultural and language groups; 6) collection of preferred language and race data; and 7) whether or not the hospital posted signs providing directions in languages other than English. At the hospital level, we analyzed hospital ownership (not-for-profit, for-profit, or public non-federal), bed size (small, medium, or large), accreditation by the Joint Commission (yes or no) and hospital location (urban or rural).

Statistics

We utilized Kruskal-Wallis ANOVAs to test group differences and a negative binomial regression to model median LOS. We developed an inverse propensity weight (IPW) in order to account for significant differences between responding and non-responding hospitals based on: bed size, ownership, and urban/rural status. There was no difference in response rate by state or difference in the time lag between surveys in each state (2005 for CA and 2013 for FL) as evidenced by our sensitivity analyses. Given the correlation among the culturally and linguistically appropriate care delivery measures, we used a ROC curve to determine a subset of measures for best model fit and included those in the multivariable model. Of the initial seven we surveyed, we included: hospital unit identifies cultural or language needs of inpatients during admission screen, ethnic/

Table 1. Characteristics of responding hospitals in California and Florida, N=184

Hospital Characteristics		n (%)
Hospital bed size	Small (<150 beds)	100 (54.35)
	Medium (150-300 beds)	37(20.11)
	Large (300+ beds)	47 (25.54)
Hospital location	Rural	11 (7.01)
	Urban	146 (92.99)
Ownership of hospital	Not-for-profit	86 (55.13)
	For-profit	31 (19.87)
	Gov, non-federal	39 (25.00)
Hospital belongs to a system	No	75 (40.76)
	Yes	109 (59.24)
Hospital has Joint Commission accreditation	No	32 (20.38)
	Yes	125 (79.62)
Culturally and Linguistically Appropriate Services		
Hospital collects data on preferred language	No	19 (11.45)
	Yes	147 (88.55)
Hospital has Commission of Cancer Accreditation	No	109 (69.43)
	Yes	48 (30.57)
Hospital unit identifies cultural or language needs of inpatients during admission screening	No or unknown	3 (1.66)
	Some units	87 (48.07)
	Most units	91 (50.28)
Hospital unit considers cultural or language needs during discharge planning	No or unknown	3 (1.66)
	Some units	83 (45.86)
	Most units	95 (52.49)
Clinical assessments are tailored to different cultural or language need	No or unknown	32 (18.08)
	Some units	93 (52.54)
	Most units	52 (29.38)
Ethnic/cultural dietary preferences of inpatients are accommodated	No or unknown	19 (10.56)
	Some units	91 (50.56)
	Most units	70 (38.89)
Language services provided by hospital	No	41 (26.11)
	Yes	116 (73.89)
Patient education is tailored to different cultural and language groups	No or unknown	21 (11.67)
	Some units	80 (44.44)
	Most units	79 (43.89)
Hospital posts signs providing directions in languages other than English	No	71 (34.44)
	Yes	109 (60.56)

Table 2. Negative binomial maximum likelihood estimates on LOS, N=184

Hospital Characteristics		$x\beta$	Wald 95% CI	P	$e^{x\beta} - 1$
Hospital bed size	Small (<150 beds)	Ref	-	-	-
	Medium (150-300)	.37	-.10 - .85	.13	.45
	Large (300+ beds)	.13	-.14 - .40	.36	.14
Hospital location	Rural	Ref	-	-	-
	Urban	-.41	-.92- .10	.12	-.34
Ownership of hospital	Not-for-profit	-1.23	-2.28 - .17	.02	-.71
	For-profit	-.70	-1.11- .29	<.01	-.50
	Gov, non-federal	Ref	-	-	-
Hospital belongs to a system	No	Ref	-	-	-
	Yes	-.71	-1.12 – .30	<.01	-.50
Hospital has Joint Commission Accreditation	No	Ref	-	-	-
	Yes	.74	.23 – 1.25	<.01	1.10
Culturally and Linguistically Appropriate Services					
Hospital unit identifies cultural or language needs of inpatients during admit screen	No or unknown	Ref	-	-	-
	Some units	1.17	.16 – 2.17	.02	2.21
	Most units	.86	-.14 – 1.86	.09	1.36
Ethnic/cultural dietary preferences of inpatients are accommodated	No or unknown	Ref	-	-	-
	Some units	-.55	-.88 – .21	<.01	-.42
	Most units	-.40	-.78 – .02	.04	-.33
Clinical assessments are tailored to different cultural or language need	No or unknown	Ref	-	-	-
	Some units	.00	-.32 – .32	1.00	.00
	Most units	-.07	-.45 – .30	.71	-.07

cultural dietary preferences of inpatients are accommodated, and clinical assessments are tailored to different cultural or language need as these were the measures that demonstrated best model fit.

A negative binomial (negbin) regression was employed due to the non-normal distribution of our count data as LOS did not meet Ordinary Least Squares (OLS) assumptions. We further assessed the dispersion and p-value to ensure our model was appropriate for our data. To improve ease of interpretation we took the exponent of the negative binomial log-odds coefficient and subtracted one in order to interpret coefficients as incidence rate ratios, or proportionate change in risk of increase in LOS for every unit change in the category of each independent variable (eg, not-for-profit to for-profit) based on well-established inferential methods.[27] All data management and analyses were conducted using SAS 9.4 (Cary, NC).

RESULTS

Median LOS across all hospitals was 4.7 days (mean 5.7, standard deviation 6.3). Most hospitals were not-for-profit (55.1%), small (<150 beds, 54.4%), Joint Commission accredited (79.6%), and in urban areas (93.0%) (Table 1). The majority of responding hospitals reported collecting data on patients preferred language (88.6%) and providing language services (73.9%). Fewer hospitals reported posting signage

around the hospital in languages other than English (60.6%). Additional details can be found on Table 1.

In the multivariable negative binomial regression model (Table 2.), we found that hospitals with units that identified cultural or language needs at admission (P=.02) had over 2-fold greater odds of experiencing a one-day increase in LOS compared with the reference group. Hospitals with some units that accommodated patient cultural or ethnic dietary needs reduced LOS by 42% (P<.01) and 33% (P=.04)

Our findings suggest that LOS is responsive to some culturally and linguistically appropriate services.

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if most units accommodated this patient need compared with the reference group. Clinical assessments and identification of cultural or language needs at discharge had no impact on LOS in our study. We found a significant 71% decrease in the likelihood of a one-day LOS increase for not-for-profit hospitals (P<.01) and 50% lower likelihood among for-profit hospitals (P<.01), compared with public, non-federal hospitals (reference group). A similar 50% decrease in the likelihood

of a LOS increase was observed among hospitals that belonged to a system compared with those that did not (P<.01). Conversely, Joint Commission accredited hospitals had 1.10 greater rate of experiencing a one-day increase in LOS than non-accredited hospitals (P<.01).

Discussion

Our study explored the role of culturally and linguistically competent care on LOS. Our findings suggest that LOS is responsive to some culturally and linguistically appropriate services. Further, our findings show that the provision of culturally and linguistically care in hospitals is lacking in many hospitals. Our findings are consistent with Betancourt and other researchers in the field who consistently demonstrate the persistence of a gap in the provision of culturally and linguistically appropriate care and the impact on equity and health outcomes.[5,24,28-31] This continued disparity is especially concerning given the growing age and diversity of the adult population in the United States. Our study provides a closer look at the provision, intensity, and quality of culturally competent practices in hospitals; most studies are limited to a general understanding of these services. However, we acknowledge limits to the generalizability of our findings. A smaller response rate limits more extensive analytical approaches, though our significant exploratory findings are promising. A larger and multi-level study across the United States may yield

a greater understanding of the role of culturally and linguistically appropriate care for a rapidly growing population of diverse older adults. While quality of care delivery can be measured in many ways, the use of LOS as our outcome measure was selected due to its availability and connection to care delays in LEP populations. It is a helpful measure of efficiency but not always an exact measure of quality and in this case does not assess LOS for racial/ethnic minority Medicare patients. We excluded bed days that were long-term care or rehabilitation to limit LOS variation. Additional outcomes to consider for future work that would provide more insight into the experience of diverse patients are readmissions, adverse event, and patient-reported outcomes (PROs).

Conclusion

Culturally and linguistically appropriate care delivery is an attainable and timely goal for health care organizations. Improving our understanding of the systemic and delivery factors that continue to limit wider dissemination and implementation will contribute to buy-in and institutional support to improve outcomes for an increasingly diverse and aging population. While hospitals are not fully prepared to offer culturally competent care, variation in the provision of these services indicates some effort to respond to our growing diverse aging population. Increasing leadership support through education and greater accountability as

well as making tools available to integrate culturally and linguistically appropriate care into existing clinical processes would help to ensure that these services become a part of standard care practice.

CONFLICT OF INTEREST

No conflicts of interest to report.

AUTHOR CONTRIBUTIONS

Research concept and design: Schiaffino, Weech-Maldonado; Acquisition of data: Schiaffino, Ruiz, Weech-Maldonado; Data analysis and interpretation: Schiaffino, Ruiz, Yakuta, Contreras, Akhavan; Manuscript draft: Schiaffino, Yakuta, Contreras, Akhavan, Prince; Statistical expertise: Schiaffino, Ruiz, Yakuta; Acquisition of funding: Yakuta; Administrative: Schiaffino, Contreras, Akhavan, Prince; Supervision: Schiaffino, Ruiz, Prince, Weech-Maldonado

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