Published in final edited form as:

Pediatr Blood Cancer. 2021 September ; 68(9): e29106. doi:10.1002/pbc.29106.

Differences in Characteristics of Children with Cancer who Receive Standard versus Concurrent Hospice Care

Radion Svynarenko, PhD [Post-Doctoral Fellow],

College of Nursing, University of Tennessee, Knoxville, Knoxville, Tennessee 37996

Jennifer W. Mack, MD, MPH [Associate Professor of Pediatrics],

Department of Pediatric Oncology and Division of Population Sciences, Dana-Farber Cancer Institute, Boston Children's Hospital, Boston, MA 02214

Lisa C. Lindley, PhD, RN, FPCN, FAAN [Associate Professor | Nightingale Endowed Faculty Fellow]

College of Nursing, University of Tennessee, Knoxville, Knoxville, Tennessee 37996

Abstract

Background: The provision of Section 2302 of the 2010 Patient Protection and Affordable Care Act (ACA) allowed pediatric patients who are enrolled in Medicaid to receive hospice care concurrently with curative treatment (i.e., concurrent hospice care). Because it is a relatively new model of care and very little is known about the characteristics of children with cancer who receive it, the purpose of the current study was to compare demographic, health, and community characteristics of children who received standard hospice care versus concurrent hospice care.

Procedure: This study was a retrospective, comparison study with national Medicaid files provided by the Center for Medicare and Medicaid Services (CMS). The sample included 1,685 pediatric patients under the age of 20 who were diagnosed with cancer, were enrolled in hospice between 2011 and 2013, and received standard hospice care (n= 1,008) or concurrent hospice care (n = 655).

Results: Children of non-Hispanic White race with multiple complex chronic conditions, mental/behavioral health problems technology dependence, and brain and orbital tumors, were more likely to be enrolled in concurrent care than in standard hospice care. The proportion of children enrolled in concurrent care versus standard hospice care was larger in rural areas, low-income communities, and in the Southern states.

Conclusions: The enhanced uptake of concurrent care by traditionally underserved populations is promising. Concurrent hospice care, which allows for continued medical treatment and hospice care, could enhance access to hospice within these populations by offering a more blended model of care.

Corresponding Author: Radion Svynarenko, College of Nursing, University of Tennessee, Knoxville, Tennessee 37996, rsvynare@utk.edu, 865-974-0653.

Conflict of interests: nothing to disclosure

Keywords

pediatric hospice care; concurrent hospice care; Medicaid; pediatric oncology

Introduction

By recent estimates, more than 1,600 US children die from cancer every year.¹ Approximately 45% of these children enroll in hospice to receive end-of-life care.² The location of end-of-life care influences quality of life for both children and their families. The majority of deaths of children with cancer occur in hospital settings;² however, hospitals have limited resources for providing support to parents: many hospitals do not have dedicated space and furniture for accommodating parents of hospitalized children,^{3,4} and they lack protocols for optimal communication between parents and medical personnel^{5–7} to ensure that children and their families are satisfied with decisions they make about their care.⁸ In contrast, parents who choose to enroll in hospice receive end-of-life care in their home settings. Hospices can provide a variety of services such as durable medical equipment, pain management, and psychosocial support to parents when the child dies.^{9–11} As a result, parents who use hospice services report better quality of life, quicker adaption to normal social functioning, and less guilt than parents who chose in-hospital settings.¹²

Until recently, a barrier to hospice care utilization was that children had to forego curative treatments, therapies, and medications to enroll in hospice.² The provision of Section 2302 of the 2010 Patient Protection and Affordable Care Act (ACA) now allows pediatric patients under 21 years who are enrolled in Medicaid to receive hospice care concurrently with curative treatment (i.e., concurrent hospice care).¹³

Because concurrent hospice care is still a relatively new model of care at end of life, very little is known about characteristics of children with cancer who receive this type of care. What we do know is primarily focused on standard pediatric hospice care for children with cancer. Previous work has shown that children with brain and solid tumors were more likely to use hospice care than those with leukemia or lymphoma.¹⁴ Previous studies also showed a lack of gender differences in hospice enrollment.^{14,15} One study found that Hispanic children with cancer are more likely to enroll in hospice than children of other ethnicities,¹⁵ while another showed that Non-Hispanic White children are the primary users of hospice services.¹⁴ The latter contradiction reflects a common problem that hospice studies are often conducted on samples that are limited by community or state boundaries.¹⁶

Understanding children with cancer who receive concurrent care and how they might differ from those in standard hospice care is clinically relevant. One of the major goals of concurrent care is to smooth the transition from life-prolonging disease-oriented care to care focused on quality end of life care.¹³ However, concurrent care requires a more complex approach to care coordination, use of medication, and durable equipment than standard hospice care: both curative and hospice teams must adhere their own care protocols, procedures, and orders, while maintaining effective communication with one another.⁶ It can also be more burdensome from an administrative perspective, because each caring facility and state may have its own guidelines for insurance coverage for this type of care.¹⁷

The purpose of the current study was to compare demographic, health, and community characteristics of children who received standard hospice care versus concurrent hospice care.

Methods

Design and Data Sources

This study was a retrospective, comparison study with national Medicaid files provided by the Center for Medicare and Medicaid Services (CMS). The Medicaid dataset included person-level, administrative Medicare claims collected between 2011 and 2013 from 50 states and the District of Columbia,¹⁸ representing the most recent data available. Medicaid files were used because they are one of the few national data sources that includes pediatric hospice information. The Medicaid claims data includes information on demographics, health, and service use. Data quality is managed by CMS.¹⁹ For this study, Medicaid files were linked by Federal Information Processing Standards (FIPS) codes with two other databases: (a) 2010 U.S. Census data, for information on community income; and (b) the database of rural areas defined as such by the Federal Office of Rural Health Policy (FORHP).²⁰ The study was approved by the Institutional Review Board of the University of Tennessee, Knoxville.

Sample

The sample included pediatric patients enrolled in hospice who met three inclusion criteria: (a) hospice admission between January 1, 2011 and December 31, 2013; (b) having a diagnosis of any type of cancer according to the coding system of the International Classification of Diseases, version 9 (ICD-9)²¹ with codes ranging from 140.0 to 239.9; and (c) age under 20 years, because patients who reach the age of 21 are not eligible for concurrent hospice care. Children with missing hospice records and dates of birth were excluded, resulting in a final sample of 1,685 children. Within the total sample, two groups were identified: 1,008 children (60.7%) who received standard hospice care; and 655 children (39.3%) who received concurrent care.

Measures

Three sets of measures were created for demographic, health, and community characteristics. Demographic measures included: age (0 to 5 years, 6 to 14 years, 15 to 20 years); gender (female and male); race (non-Hispanic White and non-White); and ethnicity (Hispanic and non-Hispanic). Four measures of health were created. Multiple complex chronic conditions was defined as 2 or more conditions.⁹ Mental/behavioral disorders were based on the presence of a mental/behavioral health diagnosis.²² Whether children required complex medical technology or devices was the definition of technology dependence which identified using ICD-9 codes.²¹ Types of cancer included: leukemia or lymphoma (ICD-9 codes: 200-202 and 204-8); brain and orbital tumors (ICD-9 codes: 190-192); solid extracranial tumors, including cancers of the oropharynx (ICD-9 codes: 140-149); gastrointestinal cancers (ICD-9 codes: 150-159, 235); thoracic cancers (ICD-9 codes: 160-165); sarcomas (ICD-9 codes: 170-171); skin cancers (ICD-9 codes: 172-3, 176); breast cancers (ICD-9 codes: 174-5); endocrine and neuroendocrine cancers (ICD-9

codes: 193-4, 209, 237); and other (ICD-9 codes: 195, 199, 238, 239). Characteristics of communities were measured using rurality, income level, and geographic location. Rurality was identified using the rural-urban distinction of the Federal Office of Rural Health Policy (FORHP). Community household income was identified using data from the US Census;²³ communities where median household income level was less than \$50,000 were classified as “low income” and otherwise as “high income”. Geographic region was classified using U.S. Census Bureau classification including Midwest, Northeast, South, and West.

Data Analyses

The primary aim of the study was to compare characteristics of children with cancer who received standard versus concurrent hospice care. Descriptive statistics were reported using frequencies and percentages. Differences between children receiving standard hospice care and concurrent care were computed using the test for differences in proportions (Pearson’s χ^2) with demographic, health, and community characteristics. Statistical analyses were performed using Stata 15.0.²⁴

Results

Demographic characteristics of children in standard hospice and concurrent hospice care are presented in Table 1. Forty percent of children were between the ages of 6 and 14 years. More than half were male (53.2%), non-White (56.3%), and non-Hispanic (79.8%). Demographic differences between children enrolled in standard and concurrent hospice care were statistically significant only for race ($\chi^2 = 11.2$, $P = .001$); non-White children had higher rates of enrollment in concurrent hospice care than in standard hospice care (61.5% vs 56.3%, respectively).

Table 2 summarizes the health characteristics of children. Most children (73.1%) had multiple complex chronic conditions, and half had either mental/behavioral issues (51.0%) or depended on medical technology (51.6%). The most common cancer diagnosis was a solid extracranial tumor (58.3%), followed by brain/orbital tumors (25.4%), and leukemia/lymphoma (17.0%). Children with multiple complex chronic conditions were more likely to be enrolled in concurrent care (82.8%) than in standard hospice care (66.9%). Children with mental/behavioral health problems were more likely to be in concurrent care (55.9%) than in standard hospice care (47.9%), as were those with technology dependence (59.8% in concurrent care versus 46.2% in standard hospice). Children with brain and orbital tumors were more likely to receive concurrent hospice care (32.0%) than standard hospice care (19.8%). In contrast, children with solid extracranial tumors were more likely to receive standard hospice care (62.4%) over concurrent curative and hospice care (50.8%). For children with leukemia and lymphoma, there were no statistically significant differences in type of hospice use.

Community characteristics of children are presented in Table 3. Slightly less than half of all children resided either in rural areas (42.7%) or low-income communities (43.7%), and more than one third (37.51%) resided in the Southern region. All differences in community characteristics were statistically significant for children enrolled in standard and concurrent hospice care. Thus, the proportion of children enrolled in concurrent care versus standard

hospice care was significantly larger in rural areas (47.0% and 39.9%, respectively) and in low-income communities (50.8% and 39.2%, respectively). Receipt of concurrent care was highly disproportionate across the US regions. The proportion of children with cancer enrolled in concurrent hospice care in the South (48.04%) was three times larger than in the Northeast (14.4%) and West (16.6%).

Discussion

The goal of this study was to compare the characteristics of children who received standard versus concurrent hospice care in a national sample of Medicaid beneficiaries. Understanding the differences between children who received these two hospice care models provides critical information about health care utilization at end of life. The findings from this study revealed significant demographic, health, and community differences between those who used standard compared to concurrent hospice care.

In our national sample of children in hospice care, the findings demonstrated that children with cancer who were non-White and resided in rural, low-income areas of the South were more likely to receive concurrent care. While this study did not allow us to ascertain the reasons that some families chose concurrent care over standard hospice services, the enhanced uptake of concurrent care by traditionally underserved populations is promising. Previous work in adults has demonstrated underuse of hospice care among minority, low income, and rural populations. Some studies have shown that African American personal or cultural values can conflict with the hospice philosophy and be viewed as “giving up” on the patient.²⁵ Others have suggested that disparities in hospice use are a manifestation of structural inequalities in the health care system that underserves minorities living in poverty.²⁶ Therefore, concurrent hospice care, which allows for continued medical treatment and hospice care, might address conflicts in philosophy and improve access to care, which may ultimately reduce disparities in end-of-life care for these children with cancer. Our findings suggest that concurrent care could enhance access to hospice within these populations by offering a more blended model of care, and requires deeper investigation in the future.

Additionally, the study revealed that children who received concurrent care were significantly more medically complex at end of life than children in standard hospice care: more than 80% had multiple conditions; 56% had mental/behavioral health problems; 60% were technology dependent; they also were more likely to have brain tumors compared to their peers in standard hospice. This study provided new evidence on the complexity of health among children with cancer in hospice care. Given the health profile of the children in this study, it would be expected that most children entered concurrent hospice care after serious illnesses requiring significant family support in the home as well as a history with multiple clinicians and services. These are exactly the children who stand to benefit most from concurrent care, which allows continued support for needed cancer treatments such as radiation and chemotherapy as well as other acute or chronic medical therapies.⁶ Additional research might continue to examine the services received by children with cancer during concurrent care to better understand the patterns of care received. This is especially

important considering that concurrent care is a recent type of end-of-life care and there is lack of information on the care needs of children who receive this care.¹³

This study had several limitations to report. First, the study used administrative secondary data. These data are primarily collected to pay insurance claims for health care services and are not intended for national reporting of pediatric hospice care or end-of-life research. However, the Medicaid files are one of the very few data sources with pediatric hospice information from all states and the District of Columbia. Second, the study results are not generalizable beyond Medicaid beneficiaries. Although private health insurers might offer concurrent care, these results are limited to those enrolled in their state Medicaid plan. Third, the data for this study was limited to 2011 to 2013. While these data may be older, they represent the important early years of ACA, Section 2302. Future research should explore more current Medicaid data available through CMS as well as changes over time since passage of the ACA. Finally, the reporting of specific cancer diagnoses was limited by our Data Use Agreement with CMS. Under this agreement, we are not allowed to report any frequency or number under 10%. Thus, we were not able to report on any rare types of cancer, race, and ethnicity.

Despite these limitations, the findings from the study have implications for clinical practice among those who care for children with advanced cancer. Given the significant differences between children who received standard versus concurrent hospice care, it is important for oncology clinicians working with these children to be aware of the demographic, health, and community profiles of children receiving this care. While concurrent care should be offered to all patients who are approaching the end of life and have high needs for home care, nurses and clinicians should keep in mind that provision of concurrent care may mitigate barriers to hospice among underserved populations. Because concurrent care provides a more complex approach to care it may be recommended for children with complex medical conditions, mental or behavioral health issues, technology dependence, and brain and orbital tumors. At the same time, it may not benefit children with leukemia, lymphoma, and solid extracranial tumors because they may need more specialized care (e.g., frequent blood transfusions). When patients or family members have reservations about using hospice, concurrent care remains an important part of the discussion of services available, supporting dual goals of quality and length of life.

The results from the study also suggest opportunities for future research. Although demographic and community characteristics were examined, additional research is needed to understand concurrent hospice care among non-White, low-income, rural children with cancer. Conducting well-designed mixed-methods studies of the experiences with and outcomes of pediatric concurrent care among this underserved, understudied population might shed critical insights into the role of concurrent care to meet the needs of these children and families, while confronting actual and perceived structural racism present in end-of-life care.²⁵

In summary, this study compared the children with cancer who received standard and concurrent hospice care in a national cohort of Medicaid beneficiaries. A comprehensive set of measures was created from several databases including Medicaid data files. We sought

to compare demographic, health, and community characteristics between children who used standard versus concurrent hospice care. The findings revealed significant differences between standard and concurrent care recipients, which provides important insight into the profile of these children. We found children with cancer who received concurrent hospice care were generally non-White from low-income, rural communities in the South and they had markers of very poor health, even relative to other children at end of life. This research has implications for clinicians caring for children with cancer and researchers.

Funding:

This publication was made possible by Grant Number R01NR017848 (PI: Lindley) from the National Institute of Nursing Research. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the National Institute of Nursing Research or National Institutes of Health

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the Centers for Medicare and Medicaid Services (CMS). Restrictions apply to the availability of these data, which were used under license for this study. Data are not available under the current Data Use Agreement between CMS and the University of Tennessee, Knoxville.

Abbreviations

N

Total sample size

n

Sub-sample size

χ^2

Chi square

P

P-value

Leukemia/lymphoma

leukemia or lymphoma (ICD-9 codes: 200-202 and 204-8)

Brain and orbital tumors

brain and orbital tumors (ICD-9 codes: 190-192)

Solid extracranial tumors

Solid extracranial tumors include: cancers of the oropharynx (ICD-9 codes: 140-149); gastrointestinal cancers (ICD-9 codes: 150-159, 235); thoracic cancers (ICD-9 codes: 160-165); sarcomas (ICD-9 codes: 170-171); skin cancers (ICD-9 codes: 172-3, 176); breast cancers (ICD-9 codes: 174-5); endocrine and neuroendocrine cancers (ICD-9 codes: 193-4, 209, 237); and other (ICD-9 codes: 195, 199, 238, 239)

Rurality

Rurality according to rural-urban distinction of the Federal Office of Rural Health Policy

Low-income communities

Communities where median household income level was less than \$50,000 were classified as “low income” and otherwise as “high income.”

References

1. American Cancer Society. Cancer Facts & Figures 2020. Atlanta, GA: American Cancer Society; 2020.
2. Brock KE, Steineck A, Twist CJ. Trends in end-of-life care in pediatric hematology, oncology, and stem cell transplant patients. *Pediatr Blood Cancer*. 2016;63(3):516–522. doi:10.1002/pbc.25822 [PubMed: 26513237]
3. Thienprayoon R, Lee SC, Leonard D, Winick N. Hospice care for children with cancer: where do these children die? *J Pediatr Hematol Oncol*. 2015;37(5):373–377. doi:10.1097/MPH.0000000000000331 [PubMed: 26090871]
4. Davis R Caring for a child at the end of life. In: Price J, McNeilly P, eds. *Palliative Care for Children and Families: An Interdisciplinary Approach*. New York, NY: Palgrave Macmillan; 2009:172–191.
5. Mack JW, Wolfe J, Grier HE, Cleary PD, Weeks JC. Communication about prognosis between parents and physicians of children with cancer: parent preferences and the impact of prognostic information. *J Clin Oncol*. 2006;24(33):5265–5270. doi:10.1200/JCO.2006.06.5326 [PubMed: 17114660]
6. Miller EG, LaRagione G, Kang TI, Feudtner C. Concurrent care for the medically complex child: lessons of implementation. *J Palliat Med*. 2012;15(11):1281–1283. doi:10.1089/jpm.2011.0346 [PubMed: 22372764]
7. Bartholdson C, Lützn K, Blomgren K, Pergert P. Experiences of ethical issues when caring for children with cancer. *Cancer Nurs*. 2015;38(2):125–132. doi:10.1097/NCC.0000000000000130 [PubMed: 24945260]
8. Mack JW, Fasciano KM, Block SD. Adolescent and young adult cancer patients’ experiences with treatment decision-making. *Pediatrics*. 2019;143(5):e20182800. doi:10.1542/peds.2018-2800 [PubMed: 31000684]
9. Keim-Malpass J, Lindley LC. End-of-life transitions and hospice utilization for adolescents: does having a usual source of care matter? *J Hosp Palliat Nurs*. 2017;19(4):376–382. doi:10.1097/NJH.0000000000000361 [PubMed: 28684928]
10. Johnson K, Allen KE, West W, et al. Strengths, gaps, and opportunities: results of a statewide community needs assessment of pediatric palliative care and hospice resources. *J Pain Symptom Manage*. 2020;60(3):512–521.e7. doi:10.1016/j.jpainsymman.2020.04.009 [PubMed: 32325166]
11. Field M, Behrman R, eds. *When Children Die: Improving Palliative and End-of-Life Care for Children and Their Families*. Washington, DC: Committee on Palliative and End-of-Life Care for Children and Their Families, Institute of Medicine (US); 2002.
12. Haines ER, Frost AC, Kane HL, Rokoske FS. Barriers to accessing palliative care for pediatric patients with cancer: a review of the literature. *Cancer*. 2018;124(11):2278–2288. doi:10.1002/cncr.31265 [PubMed: 29451689]
13. Mooney-Doyle K, Keim-Malpass J, Lindley LC. The ethics of concurrent care for children: a social justice perspective. *Nurs Ethics*. 2019;26(5):1518–1527. doi:10.1177/0969733018765308 [PubMed: 29656703]
14. Kaye EC, Gushue CA, DeMarsh S, et al. Illness and end-of-life experiences of children with cancer who receive palliative care. *Pediatr Blood Cancer*. 2018;65(4):e26895. doi:10.1002/pbc.26895
15. Thienprayoon R, Lee SC, Leonard D, Winick N. Racial and ethnic differences in hospice enrollment among children with cancer. *Pediatr Blood Cancer*. 2013;60(10):1662–1666. doi:10.1002/pbc.24590 [PubMed: 23733549]

16. Lindley LC, Keim-Malpass J, Svynarenko R, Cozad MJ, Mack JW, Hinds PS. Pediatric concurrent hospice care: a scoping review and directions for future nursing research. *J Hosp Palliat Nurs*. 2020;22(3):238–245. doi:10.1097/NJH.0000000000000648 [PubMed: 32282559]
17. Laird J, Cozad MJ, Keim-Malpass J, Mack JW, Lindley LC. Variation in state Medicaid implementation of the ACA: the case of concurrent care for children. *Health Aff (Millwood)*. 2020;39(10):1770–1775. doi:10.1377/hlthaff.2020.01192 [PubMed: 33017257]
18. Leonard CE, Brensinger CM, Nam YH, et al. The quality of Medicaid and Medicare data obtained from CMS and its contractors: implications for pharmacoepidemiology. *BMC Health Serv Res*. 2017;17(1):304. doi:10.1186/s12913-017-2247-7 [PubMed: 28446159]
19. Ruttner L, Borck R, Nysenbaum J, Williams S. Guide to MAX data. Washington, DC: Mathematica Policy Research; 2015 8. Medicaid Policy Brief #21.
20. Federal Office of Rural Health Policy (FORHP). Defining Rural Population. Updated January, 2021. Accessed February 11, 2021. <https://www.hrsa.gov/rural-health/about-us/definition/index.html>
21. Feudtner C, Feinstein JA, Zhong W, Hall M, Dai D. Pediatric complex chronic conditions classification system version 2: updated for ICD-10 and complex medical technology dependence and transplantation. *BMC Pediatr*. 2014;14(1):199. doi:10.1186/1471-2431-14-199 [PubMed: 25102958]
22. Cohen E, Kuo DZ, Agrawal R, et al. Children with medical complexity: an emerging population for clinical and research initiatives. *Pediatrics*. 2011;127(3):529–538. doi:10.1542/peds.2010-0910 [PubMed: 21339266]
23. U.S. Census Bureau. American Community Survey. 2020. Accessed August 31, 2020. <https://www.census.gov/programs-surveys/acs>.
24. StataCorp. Stata Statistical Software: Release 15. College Station, TX: StataCorp LLC; 2017.
25. Washington KT, Bickel-Swenson D, Stephens N. Barriers to hospice use among African Americans: a systematic review. *Health Soc Work*. 2008;33(4):267–274. doi:10.1093/hsw/33.4.267 [PubMed: 19070274]
26. Dillon PJ, Basu A. Toward eliminating hospice enrollment disparities among African Americans: a qualitative study. *J Health Care Poor Underserved*. 2016;27(1):219–237. doi:10.1353/hpu.2016.001 [PubMed: 27763466]

TABLE 1

Demographic characteristics

	All Children (N = 1,685)		Standard Hospice Care (n = 1,023)		Concurrent Hospice Care (n= 662)		χ^2	P
	n	%	n	%	n	%		
Age Groups							3.1	.210
0 to 5 years	518	30.7%	327	32.0%	191	28.9%		
6 to 14 years	673	39.9%	392	38.3%	281	42.5%		
15 to 20 years	494	29.3%	304	29.7%	190	28.7%		
Gender							3.6	.058
Female	789	46.8%	498	48.7%	291	44.0%		
Male	896	53.2%	525	51.3%	371	56.0%		
Race							11.8	.001
Non-Hispanic White	736	43.7%	481	47.0%	255	38.5%		
Non-White	949	56.3%	542	53.0%	407	61.5%		
Ethnicity							2.1	.150
Hispanic	340	20.2%	218	21.3%	122	18.4%		
Non-Hispanic	1345	79.8%	805	78.7%	540	81.6%		

TABLE 2

Health characteristics

	All Children (N = 1,685)		Standard Hospice Care (n = 1,023)		Concurrent Hospice Care (n= 662)		χ^2	P
	n	%	n	%	n	%		
Multiple Complex Chronic Conditions	1232	73.1%	684	66.9%	548	82.8%	51.8	< .001
Mental/Behavioral Health	860	51.0%	490	47.9%	370	55.9%	10.3	< .001
Technology Dependence	869	51.6%	473	46.2%	396	59.8%	29.7	< .001
Cancer Types								
Leukemia/lymphoma	296	17.0%	182	17.8%	114	17.2%	0.1	.764
Brain and orbital tumors	415	25.4%	203	19.8%	212	32.0%	32.1	< .001
Solid extracranial tumors	974	58.3%	638	62.4%	336	50.8%	22.2	< .001

TABLE 3

Community characteristics

	All Children (N = 1,685)		Standard Hospice Care (n = 1,023)		Concurrent Hospice Care (n= 662)		χ^2	P
	n	%	n	%	n	%		
Rurality	719	42.7%	408	39.9%	311	47.0%	8.3	.004
Low-income communities	737	43.7%	401	39.2%	336	50.8%	21.8	<.001
Region							109.1	<.001
Midwest	352	20.9%	213	20.8%	139	21.0%		
Northeast	468	27.8%	373	36.5%	95	14.4%		
South	632	37.5%	314	30.7%	318	48.0%		
West	233	13.8%	123	12.0%	110	16.6%		