Marginal Health Care Expenditure among Patients with Non-Hodgkin Lymphoma: 2014-2019

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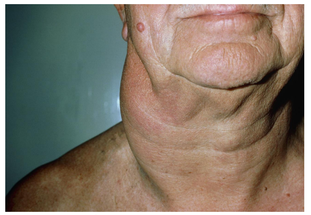
BACKGROUND

- Non-Hodgkin lymphoma (NHL) is one of the most common cancers in the United States, accounting for about 4% of all cancers. The American Cancer Society has estimated a total of 81,560 new cases of lymphoma in 2021 in the US with 20,720 deaths during the same period.
- Considering the aging of the American population, it is very likely to witness an increase in the number of lymphoma cases during the next few years.



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OBJECTIVE

This study aimed to evaluate the marginal health care expenditures among individuals with NHL compared to all other cancers.

METHODS

- This cross-sectional study included all adults (≥18 years) diagnosed with NHL and other cancers from the 2014-19 MEPS for comparative evaluation of healthcare expenditures.
- The components of healthcare expenditures included hospital inpatient, office-based visits, outpatient, emergency room, prescription medications, dental, home health, and other expenditures.
- Individuals with NHL and other cancers were identified using variables CALYMPH and CANCERDX based on the full-year consolidated MEPS Household Component. Descriptive weighted analyses were carried out to compare the total health care expenditure between individuals with NHL and all other cancers.
- A two-part model using probit and generalized linear models using the log link function was used to estimate the marginal increase in total health care expenditures for NHL compared to all other cancers. The model was adjusted for patient characteristics and comorbidities based on Elixhauser comorbidity scale.

Table 1. Patients' Demographics

Variables	NHL Group		Other Cancers Group		P Value
Age, Years	Weighted Frequency	%	Weighted Frequency	%	
18-44	105,735	14.28	2,437,956	8.74	0.0089
45-64	295,680	39.92	9,621,162	34.47	
≥65	339,262	45.80	15,849,909	56.79	
Sex					
Male	449,343	60.67	12,037,542	43.13	<.0001
Female	291,334	39.33	15,871,484	56.87	
Race/ethnicity					
White	580,387	78.36	23,463,838	84.07	0.072
Black/AA	74,116	10.01	1,674,472	6.00	
Hispanic	56,978	7.69	1,736,613	6.22	
Others	29,196	3.94	1,034,103	3.71	
Region					
Northeast	146,258	20.18	4,726,641	17.27	0.45
Midwest	187,775	25.91	6,074,010	22.19	
South	222,507	30.70	10,227,434	37.37	
West	168,302	23.22	6,342,769	23.17	
Education					
Less than high school	56,475	7.62	2,655,962	9.56	0.78
High school diploma	330,195	44.58	12,688,715	45.68	
Associates/bachelor's	181,714	24.53	6,393,465	23.02	
Masters or higher	172,293	23.26	6,039,117	21.74	
Marital status					
Single/never married	86,645	11.70	2,342,873	8.39	0.0056
Married	483,561	65.29	16,230,886	58.16	
Widowed/divorced/ separated	170,471	23.02	9,335,268	33.45	
Income category/poverty class					
Poor/near poor	113,680	15.35	3,902,061	13.98	0.45
Low income	79,199	10.69	3,622,085	12.98	
Middle income	161,320	21.78	6,928,329	24.82	
High income	386,477	52.18	13,456,553	48.22	
Insurance type					
Private	452,852	61.14	17,142,566	61.42	0.94
Nonprivate	287,825	38.86	10,766,461	38.58	
Comorbidities					
None	229,876	31.04	7,314,677	26.21	0.53
1	483,666	65.30	19,337,272	69.29	
2	18,552	2.50	860,027	3.08	
3	8,583	1.16	397,052	1.42	

RESULTS

According to the MEPS, there were 0.74 million NHL patients (95% CI=0.62-0.86) and 27.91 million patients (95% CI=26.69-29.13) with other cancers annually.

The two-part model revealed that annual healthcare expenditure for NHL was $7,283.58 (95% CI=$1,432-$13,134) higher than patients diagnosed with all other cancers.

Analysis of expenditure components revealed that office-based visits were significantly higher among NHL patients (Table 2).

Table 2. Marginal Health Care Expenditures in Lymphoma Patients by Health Care Service: Medical Expenditure Panel Survey 2014-2019

Type of Health Care Service	Marginal Expenditure, $	95% CI	Percentage of the Total Unadjusted Health Care Expenditures
Total[a]	7283.58	1432.28, 13134.89[a]	100.00
Hospital inpatient	2576.43	-1154.90, 6307.76	35.37
Office based visits[a]	2640.85	1128.80, 4152.90[a]	36.26
Outpatient	952.71	-272.14, 2177.56	13.08
Emergency room	202.65	-33.96, 439.26	2.78
Prescription medications	908.43	-339.22, 2156.08	12.47
Dental[a]	-123.79	-225.48, -22.10[a]	-1.70
Home health and others[b]	112.90	-692.41, 918.22	1.55
Total excluding prescription medications[a,c]	6349.19	1138.58, 11559.79[a]	87.17

[a] P<0.05; [b] Including vision, other medical supplies and equipment; [c] Calculated as total health care expenditures minus prescription medication expenditures; CI=confidence interval

LIMITATIONS

Our findings might have been affected by the following limitations:

- Lack of information about institutionalized individuals.
- The coding limitations of MEPS (3 vs 5 digits) that necessitated making some modifications in our comorbidity scale.
- Lack of information about NHL grading and sub types of NHL.

CONCLUSION

NHL has a high economic burden in comparison with other cancers. The excessive cost of health care can be a barrier for achieving optimal outcomes for NHL patients. Therefore, concerted efforts are needed to reduce healthcare costs for NHL, specifically in office-based visits..

References available upon request