Direct Medical Costs across Racial and Ethnic Groups among Children with Cancer

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Introduction

- Since the 1960s, an increasing number of childhood cancer patients have enjoyed sustained cures or remission.
- Individuals across racial and ethnic groups have not benefited on an equal basis.
  - Children with acute lymphoblastic leukemia
    - 5-year survival rates: 84% for white, 75% for black, and 72% for Hispanic children
- Is treatment less effective among minorities?
- Do minority children spend fewer health care dollars?

Objective

- To compare the total direct medical costs across racial and ethnic groups among children with cancer.

Data Sources

- Medical Expenditure Panel Survey (MEPS; 1996 to 2004)
  - Nationally representative of non-institutionalized civilians.
- Included individuals younger than 20 and with diagnoses of cancer.
- Full Year Consolidated Data Files
  - Included information on patient characteristics and health expenditures.
- Medical Conditions Files

Data Analysis

- Categories of health expenditures
  - Total health expenditures
  - Expenditures on office-based visits
  - Outpatient visits
  - Inpatient and emergency room visits
  - Home health care
  - Prescription drugs
  - Dental, vision, and other health expenditures

Data Analysis

- Consumer price indices for medical care were used to convert all expenditures to 2004 dollars.
- Racial and ethnic groups:
  - Non-Hispanic whites
  - Non-Hispanic blacks
  - Hispanic whites

Data Analysis

- Total expenditures and various categories of expenditures were compared across racial and ethnic groups.
- Multilinear regressions were used to control for confounders according to the Behavioral Model of Health Services utilization.
  - Predisposing factors
    - Age, gender, census regions, metropolitan statistical area
  - Enabling factors
    - Income categories, and insurance
  - Need factors
    - Self-perceived health status

Data Analysis

- Survey data analysis procedures in SAS 9.0 were used.
- Significance level was set *a priori* at 0.05.

Results

- Children with cancer diagnoses: 440
  - Non-Hispanic whites: 322 (weighted to 3,977,468)
  - Non-Hispanic blacks: 42 (weighted to 276,742)
  - Hispanic whites: 76 (weighted to 352,635)

Results

Racial and Ethnic Groups	Categories of Expenditures	Mean	
		Amount	% In Total
Non-Hispanic Whites	Total	3467.40	100.00
	Office-based visits	1128.67	32.55
	Outpatient Visits	236.39	6.82
	Inpatient+ER Visits	941.76	27.16
	Home Health Care	86.38	2.49
	Dental, Vision, and Other	808.08	23.31
	Prescription Drugs	266.12	7.67
Non-Hispanic Blacks	Total	2156.15	100.00
	Office-based visits	616.65	28.60
	Outpatient Visits	627.47	29.10
	Inpatient+ER Visits	405.34	18.80
	Home Health Care	0.00	0.00
	Dental, Vision, and Other	384.87	17.85
	Prescription Drugs	121.83	5.65

Results

Racial and Ethnic Groups	Categories of Expenditures	Mean	
		Amount	% In Total
Non-Hispanic Whites	Total	3467.40	100.00
	Office-based visits	1128.67	32.55
	Outpatient Visits	236.39	6.82
	Inpatient+ER Visits	941.76	27.16
	Home Health Care	86.38	2.49
	Dental, Vision, and Other*	808.08	23.31
	Prescription Drugs	266.12	7.67
Hispanic Whites	Total	5545.34	100.00
	Office-based visits	2051.95	37.00
	Outpatient Visits	734.16	13.24
	Inpatient+ER Visits	2225.97	40.14
	Home Health Care	69.31	1.25
	Dental, Vision, and Other*	108.38	1.95
	Prescription Drugs	355.53	6.41

*: $P<0.05$.

Results

Variables	Total Health Expenditures		Dental, Vision, and Other		Prescription Drugs	
	Coeffi.	P	Coeffi.	P	Coeffi.	P
Constant	27780.26	0.056	-329.54	0.653	591.04	0.183
Non-Hispanic Blacks	**-1688.65**	**0.125**	**26.54**	**0.905**	**-272.55**	**0.019**
Hispanic Whites	**1154.91**	**0.471**	**-294.23**	**0.146**	**-36.15**	**0.817**
Age	-81.29	0.245	1.28	0.913	6.15	0.329
Male	-781.67	0.390	-514.51	0.074	-4.22	0.956
Any private insurance	3018.17	0.022	643.38	<.0001	58.62	0.346
Public insurance only	912.88	0.590	523.13	0.001	434.32	0.029
Near poor	6991.94	0.039	-5.27	0.981	153.04	0.272
Low income	1427.66	0.196	36.60	0.829	419.32	0.146
Middle income	2608.09	0.046	447.82	0.005	318.73	0.021
High income	302.80	0.741	831.91	0.070	271.11	0.056
Metropolitan statistical area	2005.44	0.055	479.15	0.126	-172.10	0.214
Census region “Midwest”	1705.24	0.036	336.64	0.128	-84.54	0.487
Census region “South”	2801.74	0.146	647.48	0.263	-244.00	0.090
Census region “West”	805.53	0.452	-523.06	0.503	-68.01	0.659
Self-perceived fair health status	-25426.85	0.082	260.74	0.280	246.99	0.683
Self-perceived good health status	-27981.57	0.054	-20.92	0.932	-484.27	0.231
Self-perceived very good health status	-29988.70	0.039	350.24	0.319	-648.98	0.093
Self-perceived excellent health status	-29857.88	0.039	443.33	0.092	-687.60	0.077

Discussions

- No significant racial and ethnic disparities were identified with only few exceptions.
  - Racial disparities in prescription drug costs were significant after adjusting for confounding factors.
- Previous literature has not examined health expenditures across racial and ethnic groups among children with cancer.
- In the literature on cancer survivors, researchers have found that minorities did not appear to have used fewer health services.

Discussions

- Average annual direct medical costs were from $2,156.15 to $5,545.34 for different racial and ethnic groups.
  - Previous literature found that monthly charges among children with cancer were in the range from $100 to $1,800.

Discussions

- Previous literature have identified racial and ethnic disparities in health expenditures in the general population and among children.
- Our study results seem to suggest that children with cancer are a different population than the general population.
- Reasons?
  - E.g., children with cancer may receive assistance to enroll in the Medicaid program.

Discussions

- Outcomes of cancer rely on the complex relationship between characteristics of patients, therapy delivered, and the underlying biology of medical condition.
- Literature has suggested a few possible causes for differential outcome across racial and ethnic groups.
  - African American children are more likely to exhibit unfavorable features.
  - Minorities are not as likely to be involved in protocols.
  - Patients may have different adherence to therapy.
  - Minority patients might respond to therapies differently.

Conclusions

- Among children with cancer, we did not identify differences in the amount of health care dollars spent across racial and ethnic groups.
- Disparities in cancer outcomes observed by previous studies might be related to the way resources are employed.
- Future research is warranted to examine
  - Whether minorities have different status of adherence to therapy.
  - Whether minorities respond to therapies differently.

Limitations

- Increased sample size would have increased the statistical power.
- Information on medical conditions was reported by survey respondents.

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