Disparities in Hospitalization Outcomes Among Pediatric Cancer Patients: A Nationwide Healthcare Cost Utilization Project (HCUP) Analysis

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Introduction: Pediatric cancer poses major health and economic challenges, with Medicaid-insured and low-income children facing disproportionate hospitalization burdens. One study found that socioeconomic status explained 44% of excess mortality among Black and 31% among Hispanic children with acute lymphoblastic leukemia. Yet, inpatient care patterns remain underexplored. This study examines socio-demographic and institutional predictors of hospitalization outcomes among pediatric cancer patients.

Methods: This retrospective cross-sectional study analyzed the 2019 and 2022 HCUP Kids' Inpatient Database. Pediatric cancer admissions were identified using NEO001–NEO074 codes. Dependent variables included length of stay (LOS), total charges, debilitation, and mortality risk scores. Predictors included insurance, Zip income quartile, race, sex, admission year, hospital and county characteristics. Multivariate analyses using linear and ordinal logistic regressions were conducted in SPSS v31.0 on significant factors in bivariate analyses ($p<0.05$). This study received Indiana University IRB exemption (#27940) on 7/2/2025.

Results: The sample comprised 46,322 admissions. Longer hospital stays were significantly ($p<0.05$) associated with Black race (B=0.318), uninsured (B=0.625), publicly insured (B=0.865), lower-income ZIP codes (B=1.044, 0.633, and 0.350 for quartiles 1,2, and 3 respectively), and admission to government hospitals (B=1.135). Total charges were significantly higher with Hispanic, Asian/Pacific Islander, and other racial groups (B=31,746.43, 30,302.35, and 30,016.68 respectively) uninsured status (B=78,176.82), and 2022 admission year (B=13,687.92), but significantly lower with lower income (B=-26,126.61, -18,725.60, and -20,683.30 for quartiles 1,2, and 3 respectively) and rural, urban non-teaching or government hospitals (B=-57,581.43, -72,394.08, and -42.574.95 respectively). Higher debilitation was associated with ($p<0.05$) public or no insurance (OR=1.146 and 1.207 respectively), and lower debilitation with females (OR=0.773) and rural and urban non-teaching hospitals (OR=0.611 and 0.520 respectively). Mortality risk increased with Black race (OR=1.010) and decreased with Hispanic ethnicity (OR=0.923) and urban non-teaching hospital admission (OR=0.811). LOS and total charges were positively correlated. ZIP income and debilitation were negatively correlated.

Conclusion: Public insurance, lower income, and certain racial groups were significant predictors of longer stays, greater debilitation, and disparities in total charges. Government and non-teaching hospitals had lower costs. These patterns reflect structural inequities, warranting policy reforms and equitable resource allocation.