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## Risk of early death in adolescents and young adults with cancer: a population-based study

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### Abstract

**Background:** Advancements in treatment and supportive care have led to improved survival for adolescents and young adults (AYAs) with cancer; however, a subset of those diagnosed remain at risk for early death (within 2 months of diagnosis). Factors that place AYAs at increased risk of early death have not been well studied.

**Methods:** The Surveillance, Epidemiology, and End Results registry was used to assess risk of early death in AYAs with hematologic malignancies, central nervous system tumors, and solid tumors. Associations between age at diagnosis, sex, race, ethnicity, socioeconomic status, insurance status, rurality, and early death were assessed.

**Results:** A total of 268 501 AYAs diagnosed between 2000 and 2016 were included. Early death percentage was highest in patients diagnosed with hematologic malignancies (3.1%, 95% confidence interval [CI] = 2.9% to 3.2%), followed by central nervous system tumors (2.5%, 95% CI = 2.3% to 2.8%), and solid tumors (1.0%, 95% CI = 0.9% to 1.0%). Age at diagnosis, race, ethnicity, lower socioeconomic status, and insurance status were associated with increased risk of early death in each of the cancer types. For AYAs with hematologic malignancies and solid tumors, risk of early death decreased statistically significantly over time.

**Conclusions:** A subset of AYAs with cancer remains at risk for early death. In addition to cancer type, sociodemographic factors also affect risk of early death. A better understanding of the interplay of factors related to cancer type, treatment, and health systems that place certain AYA subsets at higher risk for early death is needed to address these disparities and improve outcomes.

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