

Longitudinal trends in hospital admissions for physical health diseases in survivors of childhood cancer in Western Australia: a population-based linked data study

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Abstract

Background. Population-level estimates of hospitalisations for physical disease in recently treated populations of childhood cancer survivors are limited. In the Australian context, the long-term effects of childhood cancer on survivors and the health system are unclear. We examined the trends in primary hospitalisations for physical disease in a whole-population cohort of 5-year childhood cancer survivors (CCS) diagnosed in Western Australia (WA) from 1982-2014. **Methods.** We examined hospitalisation records for 2938 CCS and 24 792 matched 'non-CCS' controls, discharged from 1987-2019. Andersen-Gill Cox regression models for recurrent events were used to examine hospitalisation risk. Mean cumulative counts were used to examine hospitalisation burden by time since diagnosis and attained age. Negative binomial regression models were used to examine the annual percentage change (APC) in hospitalisations. **Results.** We identified a higher risk of hospitalisation for all-cause (HR=1.8, 95%CI 1.6-2.0) physical disease in CCS than controls. Compared to controls, hospitalisation risk was highest for second malignant neoplasms (HR=13.2, 95%CI 9.9-17.6) and blood diseases (HR=5.6, 95%CI 1.8-17.1) in CCS. Characteristics associated with higher hospitalisation rates included female gender, diagnosis with malignant bone tumours, cancer diagnosis age between 5-9 years, multiple childhood cancer diagnoses, higher comorbidity, high socio-economic deprivation, and geographic remoteness. The APC in hospitalisations differed between groups (CCS APC=-3.8%; controls APC=2.4%, $p<0.05$). **Conclusions.** A higher risk of hospitalisation for physical disease was observed in CCS compared with children not diagnosed with cancer, with the risk continuing to increase up to 30 years post-diagnosis. These findings emphasise the need for continued specialised care and additional research to understand the unmet needs in this population.

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