Background: Cardiovascular disease (CVD) is the leading cause of death worldwide. With improved cancer treatment and survivorship, CVD and other non-cancer events compete with cancer as the underlying cause of death. However, their mortality risk in competing risk settings is not well characterised.

Methods: We identified 21,637 individuals with a first cancer registered between January 2006 and December 2013 in the population-based Tasmanian Cancer Registry, Australia. Cumulative incidence functions were applied to assess the cumulative incidence of deaths due to specific competing events with follow-up to December 2015. Standardised mortality ratios (SMRs) and absolute excess risks (AERs) for non-cancer deaths were calculated to allow comparison with the general population.

Results: Overall, 8,844 deaths were observed with 1,946 (22.0%) from competing events (332 from subsequent cancer, 741 from CVD and 873 from other non-cancer events). The cumulative incidence of deaths due to CVD increased significantly with age at first cancer diagnosis (5-year cumulative mortality by age group: 15–64y – 0.7%; 65–74y – 2.1%; 75–84y – 6.0%; 85+y – 13.1%) and exceeded other competing events for those with a first cancer diagnosis at age 65 years or older. For the whole follow-up period, CVD deaths were as expected for the general population (SMR, 0.97; 95%CI 0.90–1.04), however within the first follow-up year, CVD deaths were more common than expected (SMR, 1.44; 95%CI 1.26–1.64; AER, 36.8/10,000 person-years). The SMR and AER for CVD deaths varied by first cancer sites showing an increased risk after a first diagnosis of lung cancer, haematological malignancies and urinary tract cancers. For other non-cancer events, the SMRs significantly increased for infectious disease and respiratory disease for the whole follow-up and within the first year of diagnosis.
Conclusions: CVD was the leading cause of competing mortality among Tasmanian cancer patients diagnosed from 2006-2013. The higher than expected risk of death due to CVD and other non-cancer events was greatest during the first year after cancer diagnosis highlighting the importance of early preventive interventions.

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