

Cancer in CAYA (childhood, adolescent and young adulthood): a Decade of Data 2013-2022

Laura Finneran, Aline Brennan, Joe McDevitt, Hamid Heidarian Miri, Maria Theresa Redaniel, Deirdre Murray
National Cancer Registry (NCR), Cork, Ireland

Introduction

Childhood and young adult cancers place a heavy emotional and practical burden on children and their families. The disruption to daily life and long-term wellbeing makes their impact especially profound. Ongoing monitoring of trends is essential to guide care, inform policy, and improve outcomes.

Between 1994 and 2022, 9,700 cases of cancer among children, adolescents, and young adults (CAYA) aged 0–24 have been reported in the Republic of Ireland. By the end of 2022, it is estimated that 7,957 of these (82%) were still alive.

Objective

We examined incidence and survival of cancers diagnosed in children, adolescents and young adults for 2013-2022 and compared this to earlier time periods to examine any trends. Survival for 2013-2022 was also broken down by deprivation quintile.

Methods

Data on all cases of cancer diagnosed in children, adolescents and young adults, aged 0-24 years of age from 1996-2022 were extracted from the National Cancer Registry.

Deprivation quintiles were calculated using data from the Pobal HP Deprivation Index (Haase & Pratschke, 2017) at the electoral division (ED) level, incorporating data from the national censuses of 2016 and 2022.

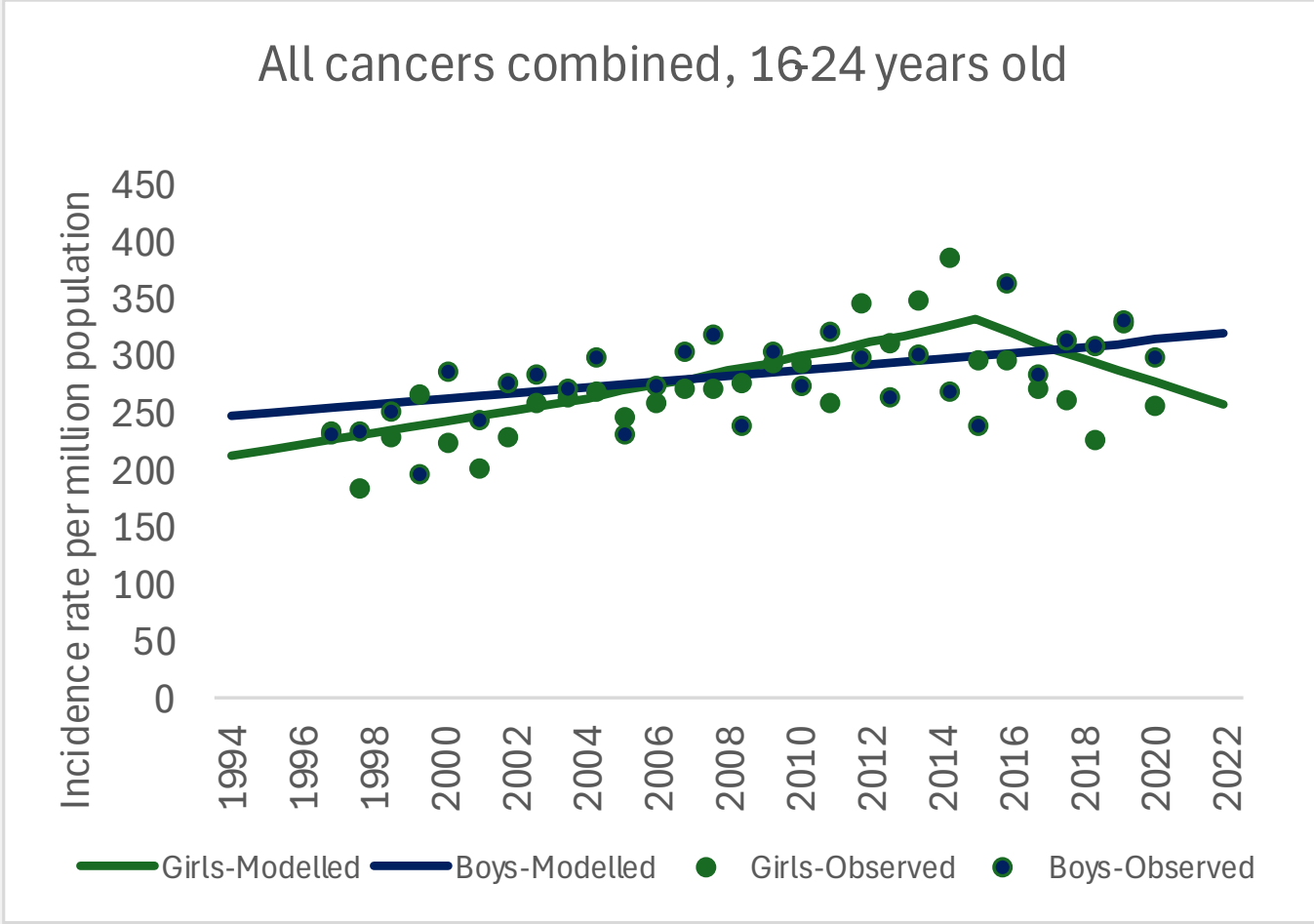
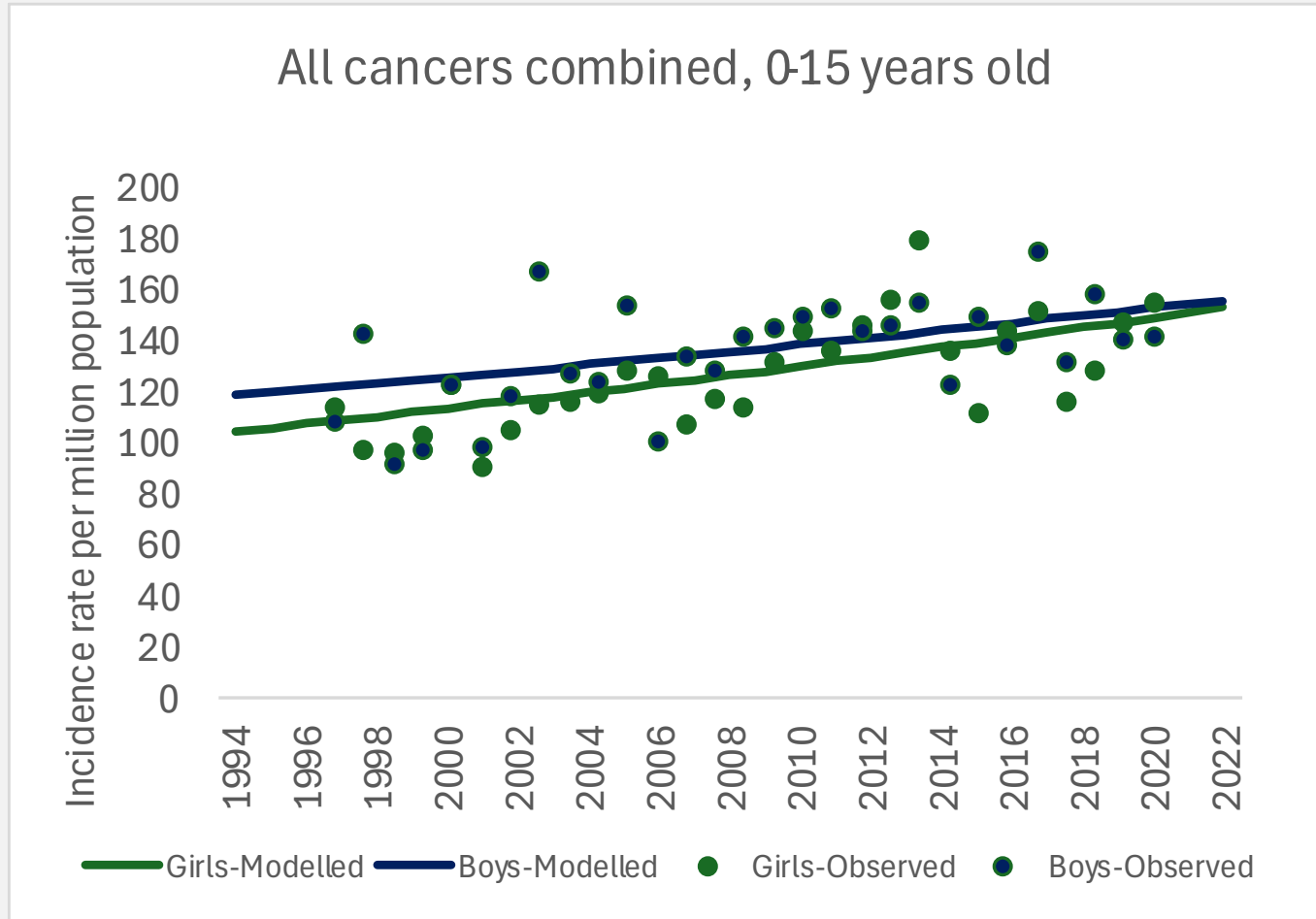
Tumours were classified using the International Classification of Childhood Cancer (ICCC). Cases were grouped into two age-groups 0-15 years (childhood) and 16-24 years (AYA).

Annual crude incidence rates (per million) were calculated and Joinpoint regression was used to model trends in incidence rates over time. Observed 5-year survival estimates were calculated overall and by deprivation quintile.

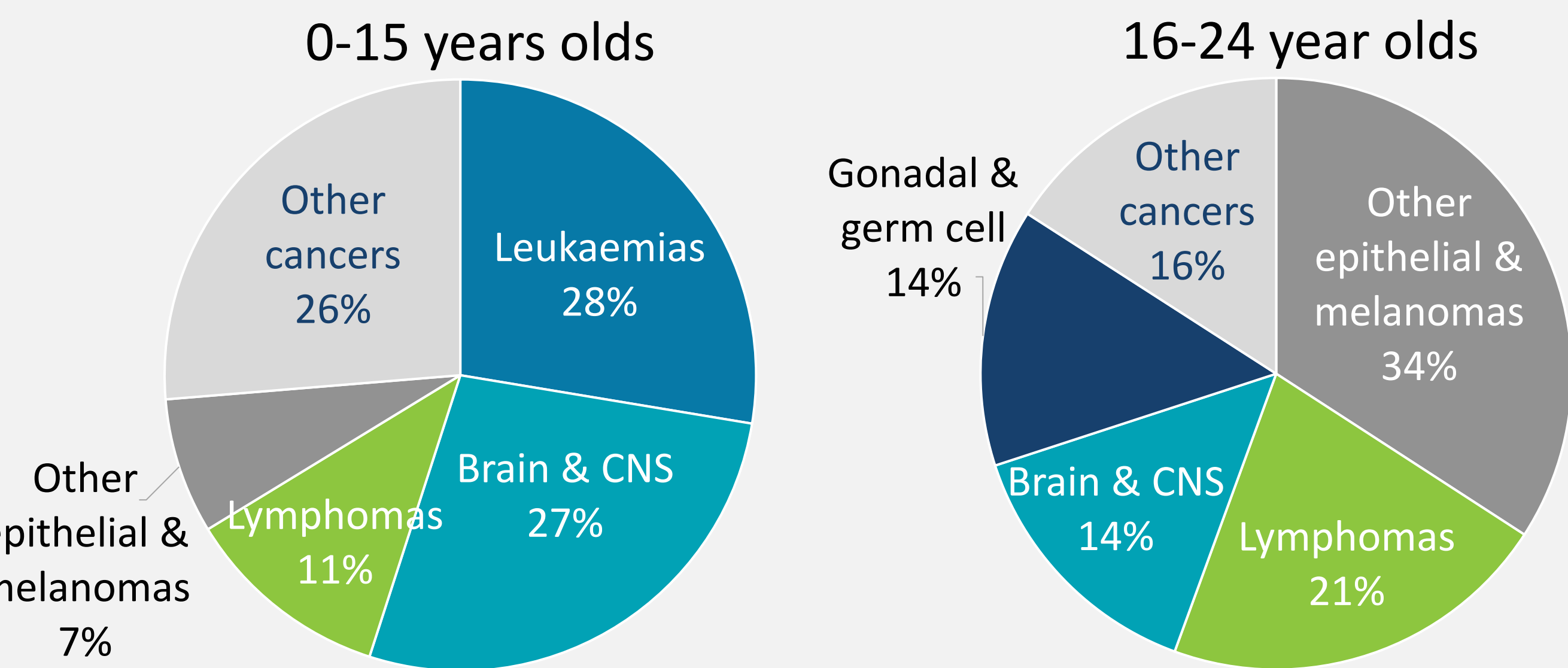
Incidence

An average of 369 new cases of CAYA cancers were diagnosed in 0-24 year olds per year during 2013-2022 (190 at ages 0-15 years, 179 at ages 16-24 years).

Overall incidence rates have been increasing since 1994 in 0-15 year old girls (APC 1.4% per year, 95%CI(0.8, 1.9)), 0-15 year old boys (0.2% per year, 95%CI(0.1, 0.4)) and 16-24 year old boys (0.9% per year, 95%CI(0.4, 1.4)). The incidence rate in 16-24 year old girls has been decreasing since 2015 (-3.6% per year, 95%CI (-7.1, 0.0)).

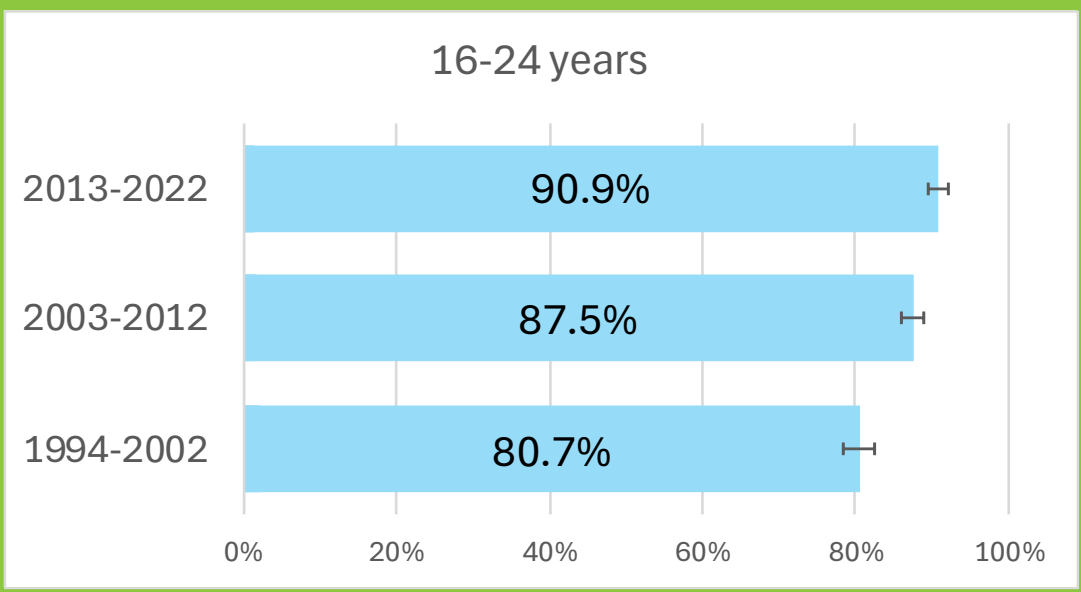
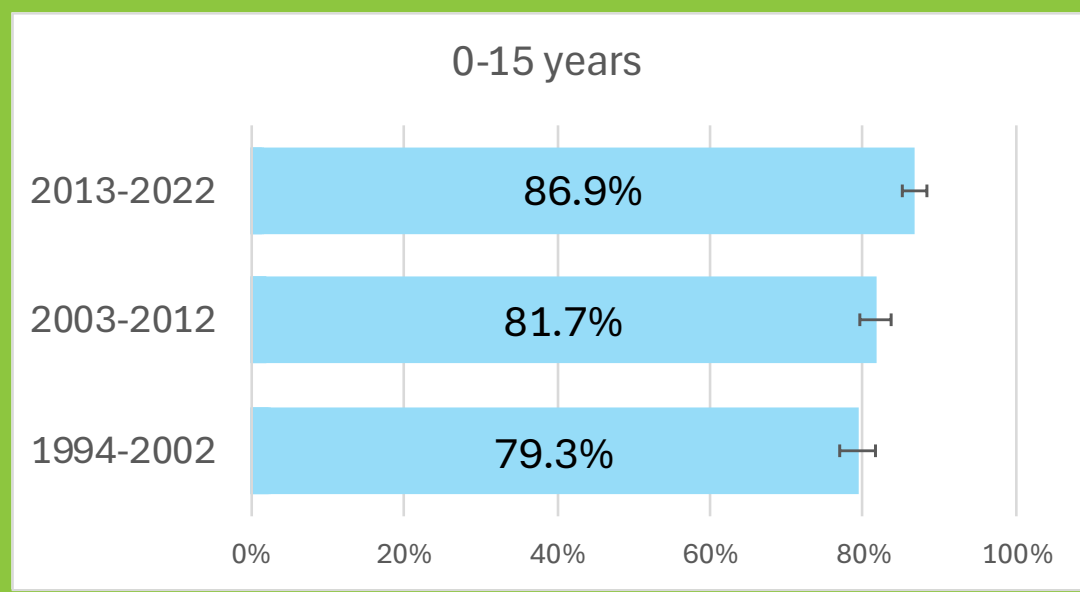


Most common cancers, 2013-2023

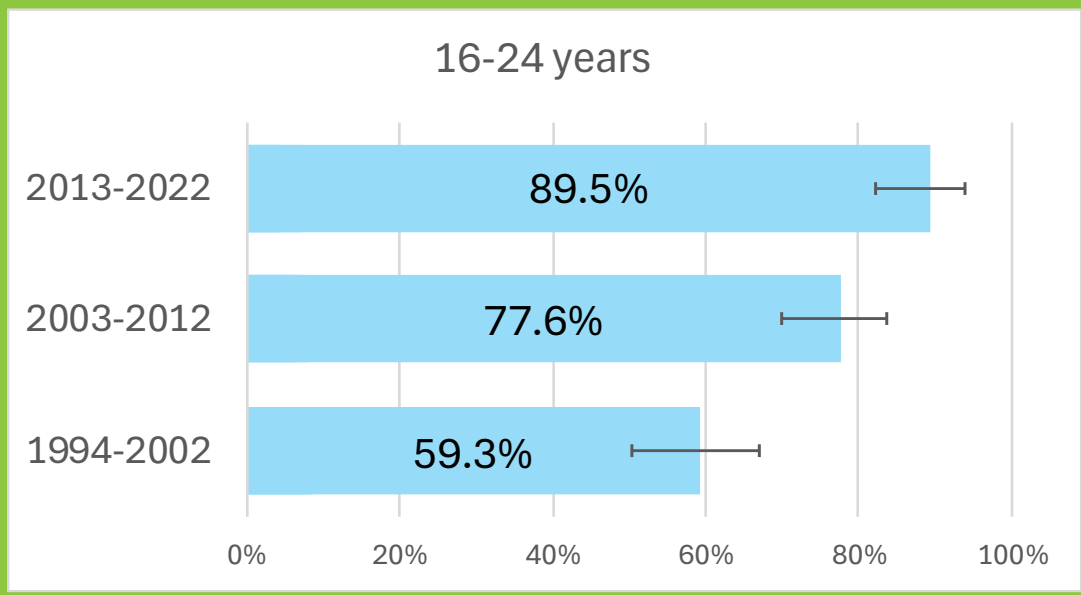
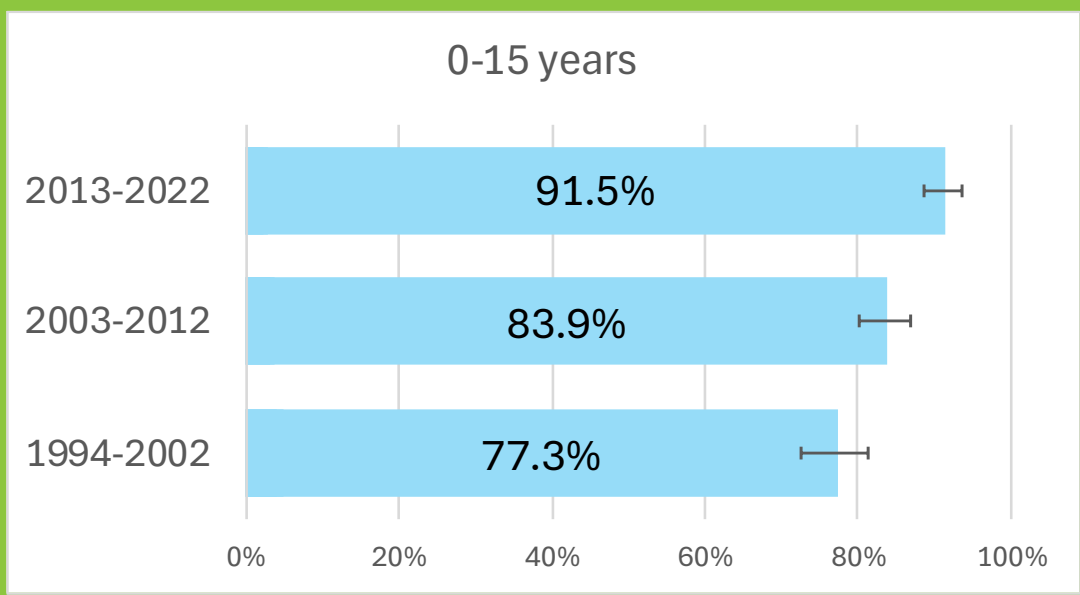


Observed 5-year survival (1994-2022)

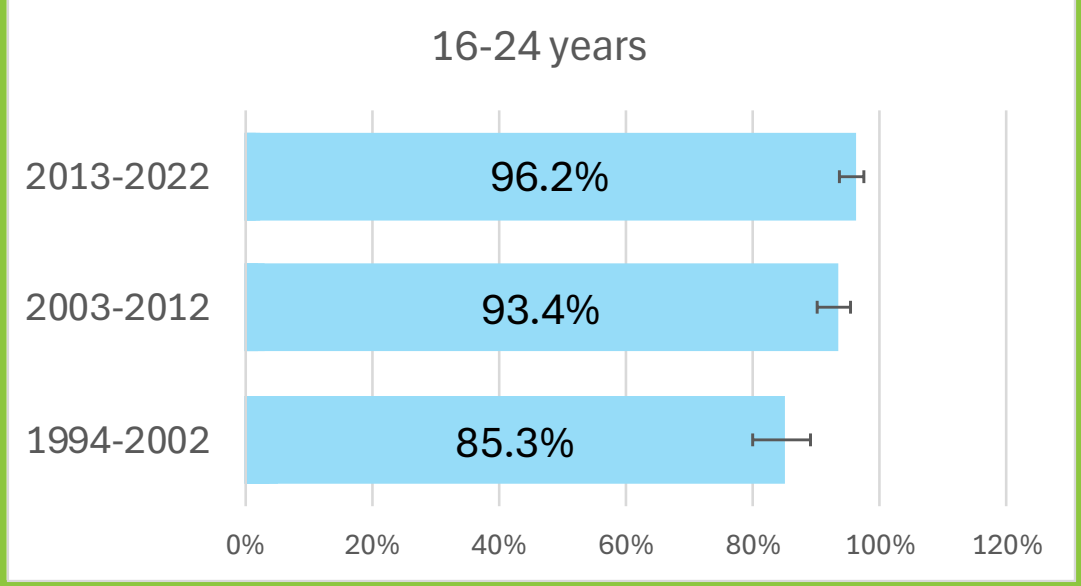
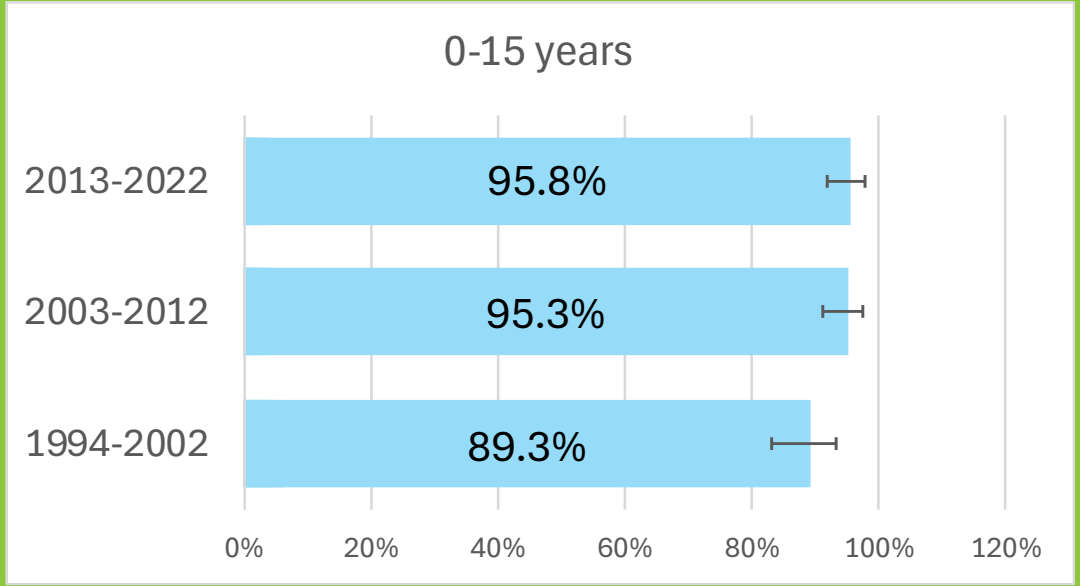
All cancers



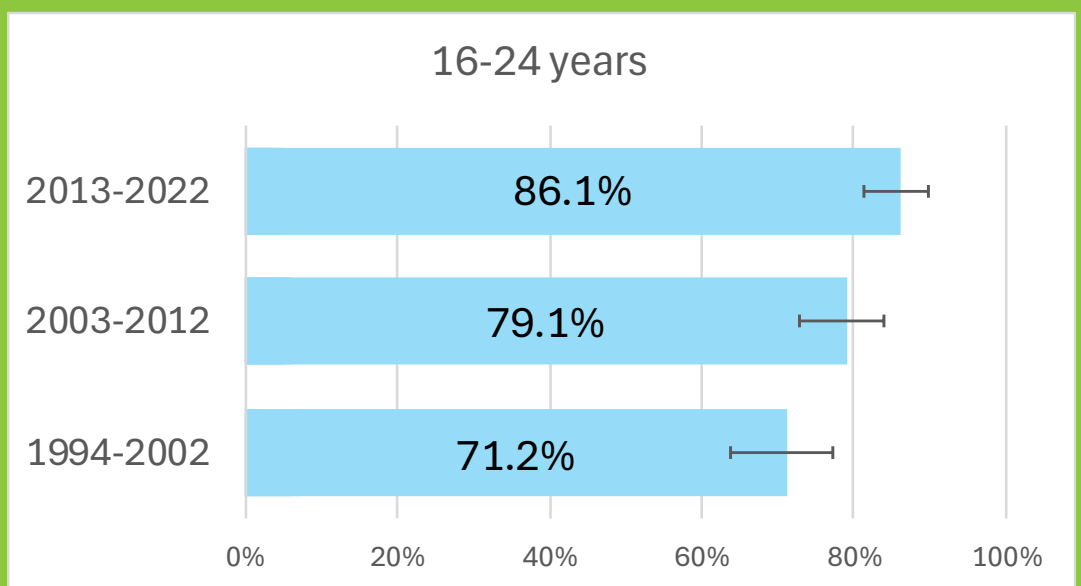
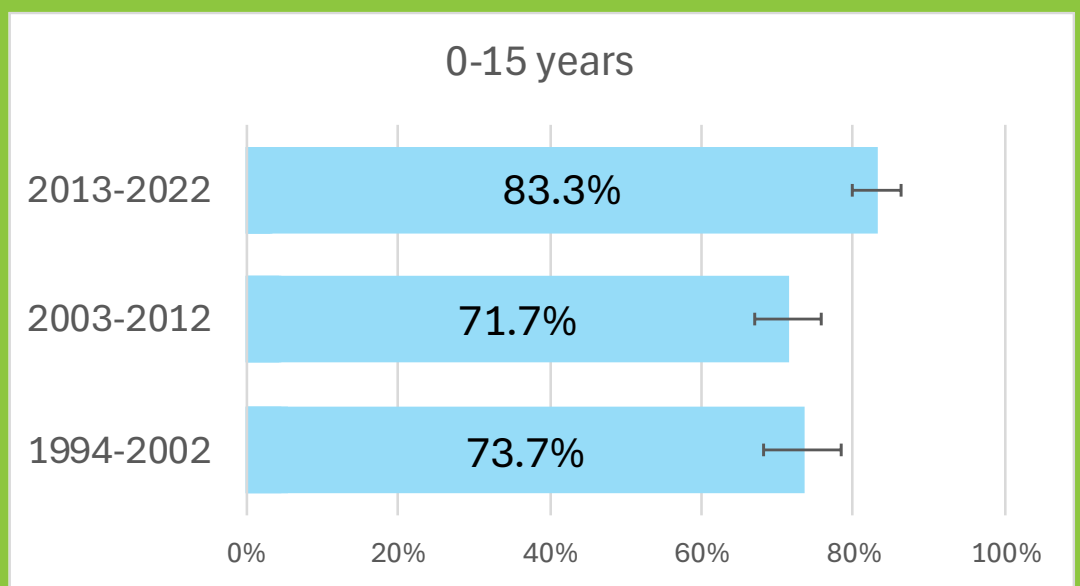
Leukaemia



Lymphomas

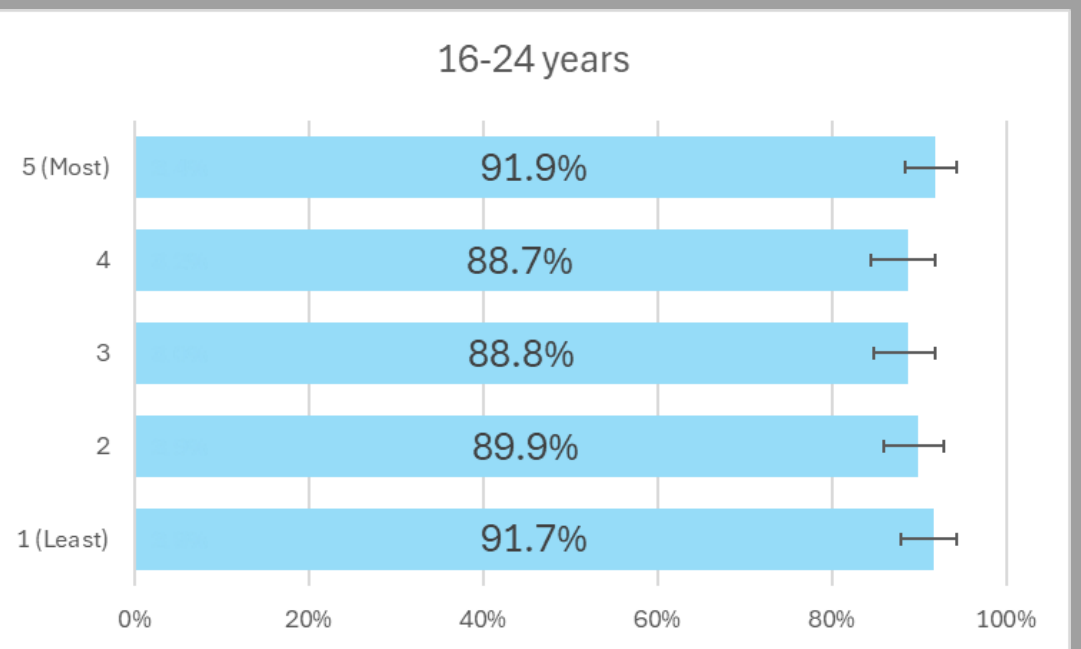
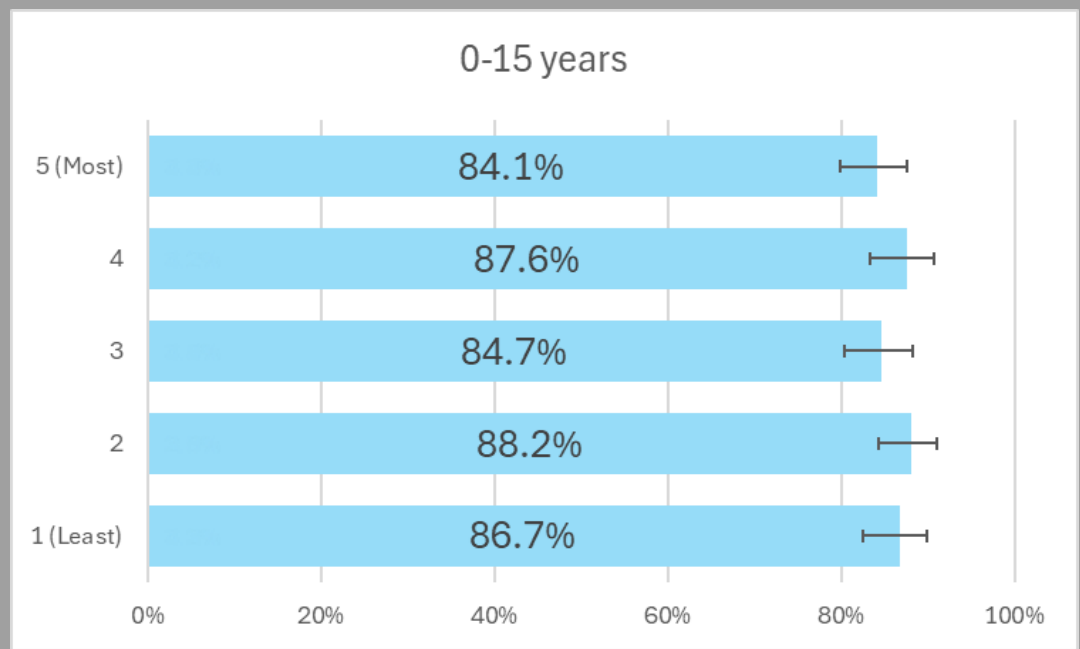


Brain and CNS

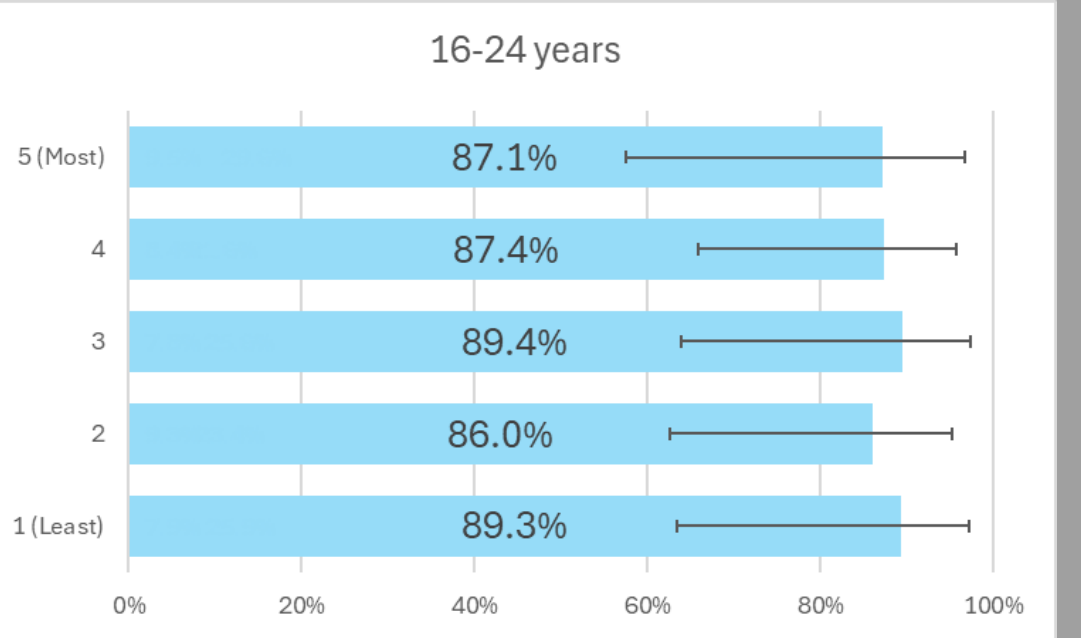
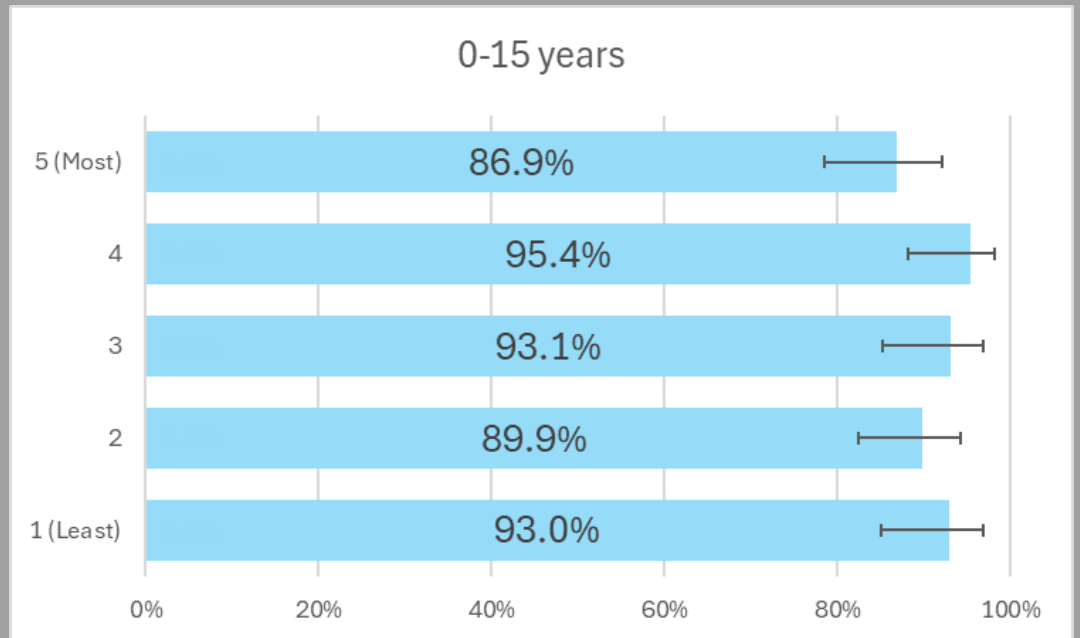


Observed 5-year survival by deprivation quintile (2013-2022)

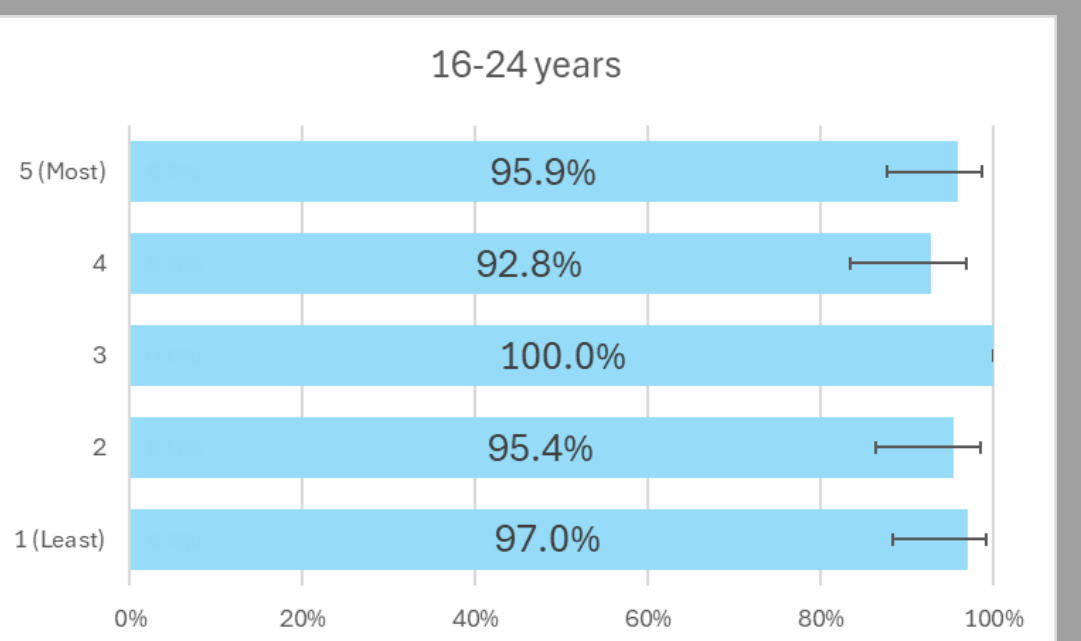
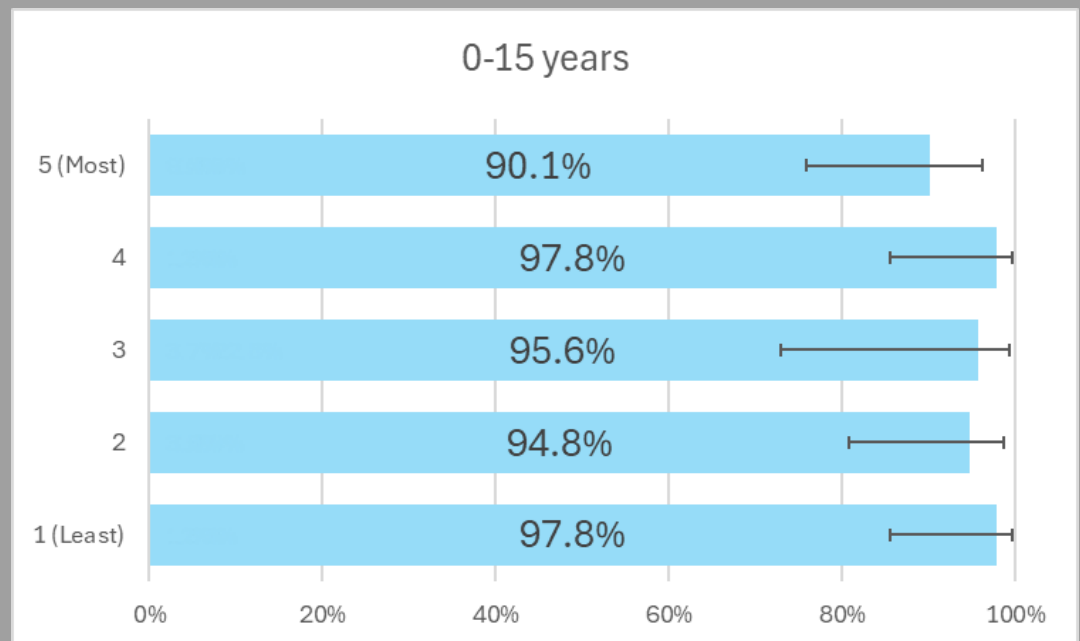
All cancers



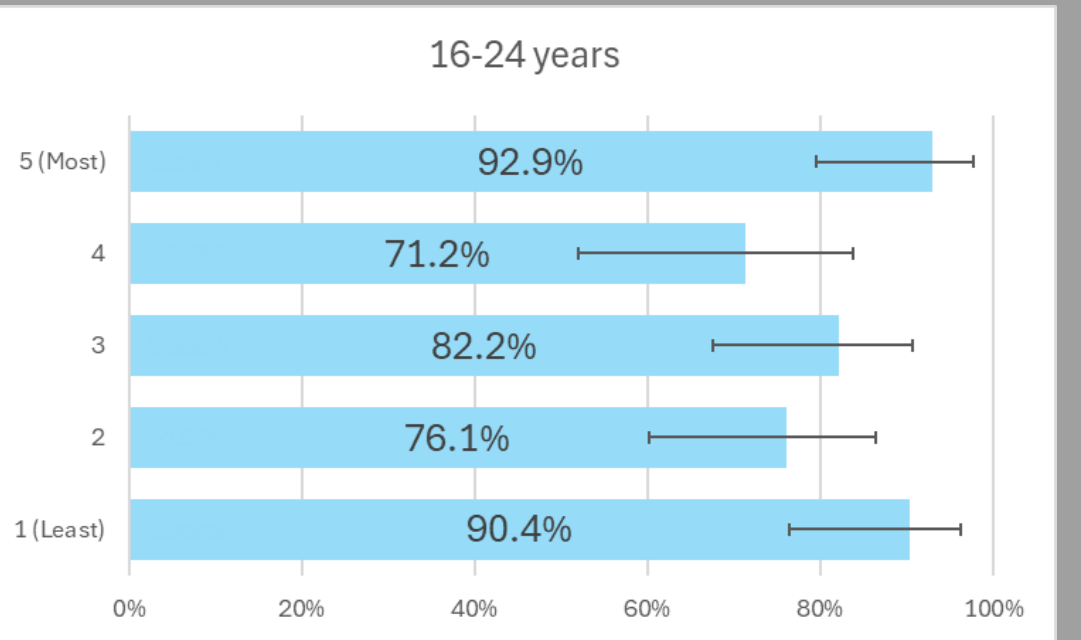
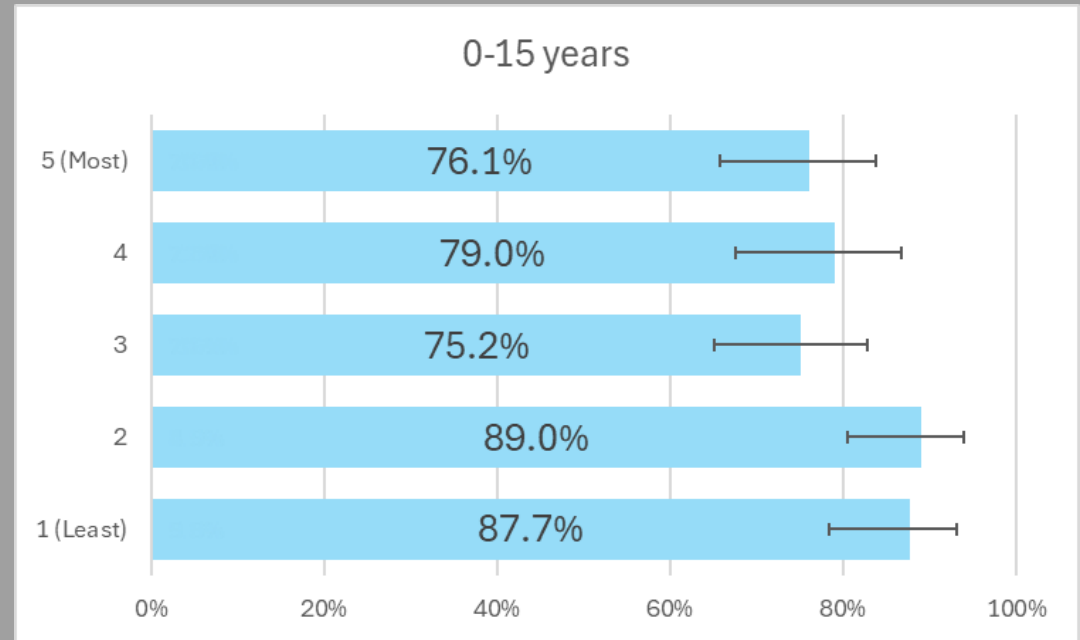
Leukaemia



Lymphomas

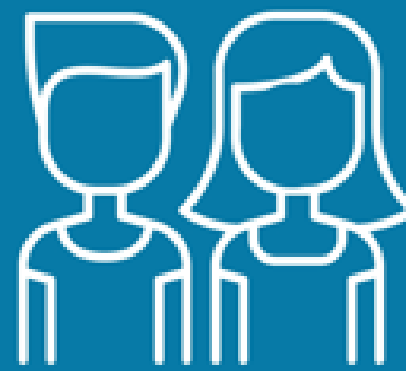


Brain and CNS



Survivors

Of the 4715 children (0-15 years) diagnosed with cancer since the NCRI was established in 1994 80% (3777) were still alive at the end of 2022.



Of the 4685 adolescents and young adults (16-24 years) diagnosed with cancer since the NCRI was established in 1994 84% (4180) were still alive at the end of 2022.

Conclusion

In Ireland, survival outcomes have improved over time for CAYA cancers. We found for children aged 0-15 with brain and CNS cancers, those living in the most deprived areas generally had lower survival rates compared to those living in the least deprived areas. For all other sites, there was no clear gradient. Continued monitoring of incidence and survival trends will be essential to guide policy, reduce disparities, and support better outcomes for all young people affected by cancer.

