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Sociodemographic Inequalities in Blood Cancer Survival in Wales

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Abstract. Research on how survival rates differ across blood cancer subtypes and vary by sociodemographic factors has been limited in the UK. Using data from 22,550 blood cancer cases in Welsh residents diagnosed between 2009 and 2019, we show marked variation in net-survival between blood cancer sub-types, significantly lower survival rates in the most deprived areas of Wales when compared to the least deprived, and higher survival rates in rural compared to mixed and urban areas. These findings not only highlight the need for policies aimed at reducing sociodemographic health disparities but also underscore the role of medical informatics in linking detailed diagnoses with sociodemographic data to inform targeted public health interventions.

Keywords. Blood cancer, haematology, sociodemographic inequalities, net-survival.

1. Introduction

Over 40,000 people are diagnosed with Blood Cancer every year in the UK, with five-year survival rates lagging behind many similarly developed nations [1]. Previous work showed significant disparities in survival between broad blood cancer sub-types [1], suggesting a need to utilise oncology codes to explore variations in survival rates among more granular sub-types and sociodemographic factors. To examine inequalities in blood cancer survival, we calculated years of life lost (YLL) and age-standardised net-survival rates in 25 blood cancer sub-types for diagnoses made in Welsh residents between 2009-2019, then compared net-survival across various levels of deprivation and rurality.

2. Methods

All analyses were conducted within the SAIL Databank (project #1642). Using the Wales Cancer Intelligence and Surveillance Unit (WCISU) registry, we identified blood cancer cases diagnosed in Welsh residents aged 15-99 between 2009 and 2019. Cases were grouped into 25 sub-types using morphology codes aligned with the HAEMACARE

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classification scheme [1], in addition to higher level amalgamations of these groups based on Sant et al. [2]. YLL were calculated as the sum of conditional remaining life expectancies at death for blood cancer-deaths, derived from Wales-specific ONS life tables. Five-year net survival rates, age-standardised using International Cancer Survival Standard weights, were estimated using the Pohar-Perme estimator.

3. Results

Between 2009 and 2019, 22,550 blood cancer cases were diagnosed in Welsh residents, with 6,310 blood cancer-related deaths resulting in 78,215 YLL. Estimated five-year net survival for all blood cancer combined was 76.8%; highest for Hodgkin's lymphoma (93.4%), and lowest for acute myeloid leukaemia (23.2%). Net survival for all blood cancers diagnosed in patients residing in the least deprived areas was 65.6% and was significantly higher than survival in the most deprived areas (54.9%) In addition, five-year net survival for all blood cancers was significantly higher in residents of rural areas (65.7%) than residents of both mixed (59%) and urban (59%) areas.

4. Discussion and Conclusions

The observed inequalities in survival among levels of rurality and deprivation could reflect disparities in access to timely diagnoses, specialist care, and treatment options [3]. For example, rural populations might benefit from closer-knit community support networks or lower healthcare system strain, while socioeconomic status could influence comorbidity prevalence, healthcare-seeking behaviour, or treatment adherence [4]. This work underscores the transformative potential of medical informatics by leveraging the SAIL Databank, a nationally linked resource, to integrate diagnoses, survival outcomes, and sociodemographic data.

Statement and Attributions

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