Population Attributable Fractions of Cancer in Korea: Estimates and Projections to 2030

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Background : Cancer was the leading cause of death in Korea in 2022 (27% of all deaths). Quantifying the impact of modifiable risk factors is essential for guiding prevention strategies. Quantifying the impact of modifiable environmental risk factors is crucial for setting evidence-based prevention strategies and policy priorities that can reduce cancer burden.

Methods : We estimated population attributable fractions (PAFs) for cancers in Korea (2015–2030) for IARC Group 1 carcinogens and risk factors with convincing/probable evidence from WCRF. Relative risks came from Korean cohort analyses and meta-analyses. Exposure prevalence was derived from KNHANES and other national surveys. Cancer incidence and mortality data were from the Korea Central Cancer Registry and Statistics Korea. Projections for 2025–2030 used joinpoint regression. Joint PAFs accounted for overlapping effects.

Results : In 2020, environmental risk factors explained 35% of cancer incidence and 40% of mortality. Leading contributors were smoking (13.2% incidence; 20.7% mortality), infections (10.7%; 12.2%), and unhealthy diet (6.1%; 5.7%). Eliminating five shared factors—smoking, alcohol, unhealthy diet, obesity, physical inactivity—could prevent ~25% of cases and 30% of deaths. By 2030, smoking, infections, and diet are projected to remain largest contributors, with rising burdens from obesity, inactivity, and reproductive factors. Tobacco-related burden in women is increasing, calling for gender-specific control measures.

Conclusions : A large share of Korea's cancer burden is preventable through interventions on modifiable risk factors. Integrating prevention into broader NCD control policies could produce synergistic benefits. Future studies should refine PAF estimates by including additional risk factors and updated exposure data. Keywords: cancer prevention, population attributable fraction, environmental risk factors, Korea, epidemiology, non-communicable diseases

Inequalities in liver resection for bowel cancer liver metastases: A competing risk analysis

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In England, the probability of undergoing liver resection (LR) among patients with colorectal cancer liver metastases (LM) varies. We evaluated socioeconomic (SE) inequalities in the probability of LR within 1 year of LM diagnosis and examined the impact of geographical access to hepato-pancreato-biliary (HPB) units.Adult patients (15–99 years) diagnosed with colorectal cancer (CRC) in England between 2015 and 2022 were extracted from the National Cancer Registration Dataset and LM were identified from linked Hospital Episode Statistics data. Both synchronous (sLM: -1 year to +3 months of CRC diagnosis) and metachronous LM (mLM: ≥3 months after CRC diagnosis) were included. Driving time from the centroid of each patient's Lower Super Output Area of residence at CRC diagnosis to the nearest HPB unit was estimated using the Google Maps Platform. We derived the cumulative probability (CP) of LR and its difference (adjusted for sex, age and clinical factors) between the least (Q1) and most deprived (Q5) SE groups. A competing-risk analysis was conducted using flexible parametric hazard models, treating death as a competing risk.There were 38,980 patients with sLM and 27,298 with mLM. The 1-year CP of LR was 7.7% and 19.4%, respectively. Median driving time to the nearest HPB unit was 46 minutes (interquartile range: 29–72 minutes). The adjusted CP of LR (Q1 vs. Q5) was: 1) sLM: 6.9% (95% confidence interval: 5.9–8.0%) vs. 4.8% (4.0–5.7%) and 2) mLM: 5.3% (4.5–6.3%) vs. 4.8% (3.9–5.7%). This corresponds to absolute differences of 2.1% (1.1–3.1%) for sLM and 0.5% (-0.1–1.2%) for mLM, respectively, in a reference group. Longer driving times were generally associated with higher hazard ratios (HRs) for LR.In conclusion, most deprived patients with sLM tended to have a lower probability of LR, after accounting for competing risk of death and individual clinical factors. Counterintuitively, LR probability increased with longer driving times.

Inequalities in Net Survival for 20 Solid Cancer Sites Across Prefectures in Japan, 2012–2015

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Background : Regional variation in cancer survival is a key indicator of equity in cancer care and the appropriate allocation of healthcare resources. We evaluated prefectural differences in site-specific net survival across Japan, accounting for age and stage.

Methods : Data were from population-based cancer registries in 44 prefectures meeting quality criteria in the Monitoring of Cancer Incidence in Japan (MCIJ) project. Patients aged ≥15 years with solid cancers diagnosed during 2012–2015 were included. Prefecture-specific excess hazards of death within 5 years were estimated over background mortality from sex-, age-, year-, and prefecture-specific national life tables. Excess hazard ratios (EHRs) were calculated relative to the 44-prefecture mean and visualized in funnel plots. Analyses covered all stages combined (crude and age-adjusted) and age-adjusted localized and advanced cancers.

Results : For all stages combined, most cancer sites—except laryngeal cancer in both sexes and skin cancer in females— had prefectures with excess hazard ratios (EHRs) significantly above or below the 44-prefecture mean, indicating regional variation in survival. These differences persisted after age adjustment. In localized cancers, prefectures with multiple sites showing high EHRs also tended to have high EHRs in advanced cancers, revealing regional clustering. Conversely, for some sites with minimal variation in localized cancers, marked inequalities emerged in advanced cancers, highlighting the need for more detailed stage classification and analyses incorporating treatment patterns. Appropriate handling of unknown-stage cases remains essential.

Conclusions : Prefectural differences in net survival were not explained by age and persisted after stratifying localized cancers. Further investigation of diagnostic systems, treatment, and social determinants is needed to address these inequalities.

Inequalities in cancer mortality between people with and without disability: a nationwide data linkage study of 10 million adults

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Background : Cancer is a major yet under-recognised contributor to the mortality gap between people with and without disability. Our study aims to quantify these inequalities to inform cancer control efforts to reduce the gap.

Methods : We used nationally-linked data (2011-2022) to construct a cohort of over 10 million adults in Australia aged 25-74 years. Disability was measured in the 2011 Census as requiring assistance in core daily activities and cancer deaths identified in national death registrations. We estimated age-standardised and age-specific cancer mortality rates, and absolute and relative mortality inequalities between people with and without disability.

Findings : The study included 10,414,951 people. Over 93,940,222 person-years, 219,257 cancer deaths occurred. The largest absolute inequalities were for lung cancer in both females and males (67 and 103 more deaths per 100,000 person-years, respectively), followed by breast cancer in females (54 more deaths), prostate cancer in males (31 more deaths), and colorectal cancer in both sexes (30 more deaths in females and 44 more in males). By 5-year age group, lung cancer was the leading contributor to absolute inequalities in females and males aged 35 years and older. In females, across most age groups, breast cancer was the second largest contributor to absolute inequalities. In males, colorectal cancer was the second largest contributor across most age groups, with prostate cancer contributing substantially to absolute inequalities in those aged 55 years and older. A substantial proportion of differences in cancer deaths between people with and without disability in both females and males were driven by lifestyle-related cancers.

Interpretation : People with disability had higher cancer mortality than people without disability. Efforts should prioritise interventions that work for people with disability across the cancer control pathway.

Risk of ovarian cancer by race and ethnicity: Results from the Ovarian Cancer Cohort Consortium

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Background and Aims : Epithelial ovarian cancer (EOC) incidence differs by race/ethnicity, with White women having the highest age-standardised rates (10.4 cases/100,000, US SEER 2023) and Black women having the lowest rates (8.9). This study used the Ovarian Cancer Cohort Consortium (OC3) to examine EOC risk by race/ethnicity and investigate reproductive and lifestyle factor associations with EOC risk across race/ethnicity groups.

Methods : This study included 920,834 participants and 7,654 incident EOC cases pooled from seven U.S. cohorts including Non-Hispanic White (N=6,479), Hispanic (264), Black (582), Asian (237), Native Hawaiian/Pacific Islander (61) and Asian//Pacific Islander (31) cases. A multivariable logistic regression model estimated odd ratios (OR) and 95% confidence intervals (CI) for EOC risk, adjusting for time-varying age, menopausal status, oral contraceptive use, and parity.

Results : Compared to Non-Hispanic White women, Hispanic (OR=0.72, 95%CI=0.62-0.83), Black (OR=0.51, 95%CI=0.46-0.58), Asian (OR=0.64, 95%CI=0.55-0.74) and Asian//Pacific Islander (OR=0.49, 95%CI-0.2-0.75) women had lower EOC risk whereas Native Hawaiian/Pacific Islander (OR=0.90, 95%CI=0.68-1.20) women had similar incidence. Heterogeneity was observed across race/ethnicity in risk estimates for parity, age at menarche and menopause, BMI, oral contraceptive use, and postmenopausal hormone use ($p \leq 0.005$). Inverse associations with parity (≥3 vs 0 children) were most pronounced for Black (OR=0.71, 95%CI=0.54-0.95) and Asian (OR=0.56, 95%CI=0.37-0.84) women. Factors that increased risk in selected groups were BMI (Black women only, ≥30 vs <25 kg/m^2, OR=1.60, 95%CI=1.23-2.09) and age at menopause (Hispanic women, ≥55 yrs vs <45, OR=3.18, 95%CI=1.62-6.25).

Conclusion : These results indicate differences in EOC risk associations by race/ethnicity. These differences should be considered to develop improved precision prevention strategies.