Category: Catchment Area Data, Social Determinants of Health, and Equity – Work in Progress – Staff

Early-Onset Cancer Incidence Trends Among Hispanics in the Houston Methodist Neal Cancer Center Catchment Area, 2000-2022

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1. Background

Early-onset cancer is a growing public health concern in the United States. Hispanics represent one of the fastest-growing and largest demographic groups in Texas and in the Houston Methodist Neal Cancer Center catchment area (HMNCC-CA), making it an urgent priority to understand the longitudinal patterns of early-onset cancer burden in this population.

National studies have documented rising early-onset breast, colorectal, pancreatic, thyroid, liver, and gastrointestinal cancers among U.S. Hispanic residents. These patterns are thought to reflect the historical, documented Southeast Texas Gulf Coast environmental exposures, as well as the region's rising obesity rates, higher rates of diabetes and metabolic syndrome, persistent poverty, and socio-economic barriers to access preventive health care that can delay cancer detection and ultimate outcomes. Cancer screening and diagnostic barriers are also known to contribute to late-stage cancer detection in the Hispanic community.

Therefore, there is an unmet need to examine the longitudinal trends in early-onset cancer in the rapidly growing, increasingly demographically diverse Gulf Coast region.

2. Goals

Average annual percent change (AAPC) in adult, early-onset cancer incidence among Hispanic residents was computed over a 22+ year period to compare trends within the HMNCC-CA to both Texas and the U.S. Furthermore, we sought to identify specific cancer sites with the greatest increases, to inform targeted cancer prevention and control strategies.

3. Solutions and Methods

Using the National Cancer Institute's Surveillance Epidemiology and End Results (SEER) Research Plus Limited-Field Database (21 registries) for 2000-2022, we conducted Joinpoint Regression to calculate AAPC estimates, corresponding Confidence Intervals (CIs) and statistical significance of trends over time. By geographic region, analyses were conducted for the HMNCC-CA (i.e., Brazoria, Chambers, Fort Bend, Galveston, Harris, Jefferson, Liberty, and Montgomery Counties), Texas, and the U.S. age-adjusted incidence rates were standardized to the 2000 U.S. population. Results were stratified by race/ethnicity to examine the Hispanic population, in aggregate.

4. Outcomes

Within the HMNCC-CA, we observed a non-significant decline in early-onset cancer incidence among all residents (AAPC –0.25%, $p>0.05$). However, early-onset cancer incidence among Hispanic adults in the HMNCC-CA significantly increased (AAPC=0.91%, $p<0.05$), similar to observed rates for early-onset cancer incidence among Hispanic residents in Texas (AAPC= 0.82%) and the U.S. (AAPC= 0.92%). When adult, early-onset cancer incidence was examined by cancer site among Hispanic residents, we noted statistically significant increases in thyroid (+4.0%), corpus uteri (+3.8%), testis (+2.6%), stomach (+2.4%), kidney and renal pelvis (+2.3%), rectum (+2.3%), acute lymphocytic leukemia (+2.2%), chronic

myeloid leukemia (+2.2%), and colorectal cancers (+2.2%). In contrast, declines were observed for lung/bronchus (–2.2%) and liver/intrahepatic bile duct cancers (–2.9%).

5. Lessons Learned and Future Directions:
Early-onset cancer incidence is rising more rapidly among Hispanic adults compared to other race/ethnic groups in our 8-county HMNCC-CA. These observations mirror the disproportionate increases seen for Hispanic adults at the national and state levels. With the appreciation of historic chemical and environmental exposures in the Texas Gulf Coast region, future work will integrate environmental factors into cancer trend data modeling, using the EPA's RSEI database to evaluate chemical releases, exposure pathways, and hazard scores at the census tract level. We will incorporate census tract-level incidence and mortality data from the Texas Cancer Registry, allowing for identification of more granular regions to pinpoint our catchment area cancer burden. We will also identify geographical cancer burden "hot spots" and work with our community outreach and engagement team for targeted development and delivery of cancer prevention and control interventions.