

FACILITIES AND RESOURCES – Population Research Core

The mission of the newly proposed PRC Shared Resource (SR) is to maximize the impact of NCCC's research both in the catchment and beyond, by providing members with consultation and coordinated access to unique local and national population-based data resources and assessment tools. The PRC provides these data directly to investigators or to the NCCC Data Science Core for integration with clinical, -omic, and/or other data and subsequent analysis. In certain specialized areas, such as geospatial analysis, the PRC also provides analytic support.

Key Services provided by the PRC are as follows:

- Surveillance study consultation and access to data on catchment area cancer burdens (from LA-CSP data), disparities, trends for catchment-relevant research, especially among LA's 17 distinct racial/ethnic groups, considering detailed combinations of site/histology/staging schema, and rare cancers therein.
- Geospatial linkage (geocoding and small area data generation) and analysis to assess recruitment feasibility (evaluating small area level population characteristics), target interventions, and monitor intervention effects at individual/neighborhood level.
- Access to and interpretation of medical claims data (in SEER-Medicare) and California's prescription and hospital discharge data (linked to LA CSP), including ICD-0 and other coding schema.
- Access to neighborhood-level environmental exposure and "built environment" data (e.g. green spaces, crime data, tobacco sales to minors), especially for inclusion in risk prediction models as part of the Strategic Plan.
- Consultation on collection, preparation and analysis of novel individual-level naturalistic data (ecological momentary assessment (EMA), accelerometry and UV dosimetry).
- Consultation on appropriate standardized data elements for assessing behavioral and sociodemographic risk factors for cancer, such as social determinants of health and especially acculturation.
- Targeted faculty or staff training by request on uses of cancer registry data, medical claims data and the collection and analysis of geospatial data for cancer control.

The PRC assists Investigators with accessing key population-based Resources, such as:

- The Los Angeles Cancer Surveillance Program (LA-CSP) at NCCC/USC contains population-based cancer incidence/mortality data for our catchment area, Los Angeles County (LAC). Because LA-CSP is funded to conduct surveillance and disseminate cancer statistics only, the PRC handles data requests for NCCC research projects (Lee Cancer Epidemiol Biomarkers Prev, 2017). The California Cancer Registry enables evaluation of cancer burdens beyond LAC, for example, identifying trends in AYA cancer outcomes (Liu J Natl Cancer Inst, 2019), particularly area-level mapping of cancer burdens. The PRC currently supports seven proposals using California's SEER-Medicare linked dataset (Farias Cancer Causes Control, 2020) and California Cancer Registry data linked to hospital discharges in California for patient follow-up data (Setiawan J Natl Cancer Inst, 2019).
- Innovative Exposure Data: In response to growing collaborations between CE and CCR in environmental and GxE cancer investigations, PRC provides data on: ambient pesticide exposure to support studies of cancer etiology (Tayour Environ Epidemiol, 2019), risk assessment (Park Int J Hyg Environ Health, 2020), and policy impact; ground level UV exposure for studies of melanoma (Wojcik Epidemiology, 2019) and lymphoma; and air pollution/air toxins to explain reduced survival in breast and childhood cancers (Hall J Occup Environ Med, 2019).
- Common Data Elements: PRC provides standardized methods and tools to: determine detailed race/ethnicity; assess racial/ethnic disparities in cancer occurrence and outcome (Lee Cancer Epidemiol Biomarkers Prev, 2017); and measure acculturation and acculturative stress in survey datasets, particularly among Latinos (Tobin Ethn Dis, 2018). Examples of work are prior to official PRC formation, but provided through the same process.
- Novel Supporting Technologies: These include: 1) State-of-the-art spatial analysis and modeling, including consulting on appropriate methods for gathering, processing, and mapping the geography of variables of interest; 2) Physical activity assessment including the design, analysis, and interpretation of data including Actigraph accelerometers in large samples with linkage to other real-time exposures and covariates (Datar JAMA Netw Open, 2020); 3) Real-time smartphone data collection and ecological momentary assessment including (including prompting participants for time-sensitive responses for

contextual and behavioral variables related to environmental exposures, physical activity and obesity via smartphones); and 4) Personal UV dosimetry to provide to-the-second sun exposure data.