Population Health Assessment in NCI-Designated Cancer Center Catchment Areas

Kelly D. Blake¹, Henry P. Ciolino², and Robert T. Croyle¹

Abstract

In May 2016, the NCI announced supplemental funding for NCI-Designated Cancer Centers to conduct research to better characterize populations within cancer center catchment areas. If this initiative was intended to support primary data collection efforts to better define and describe cancer center catchment areas using a multilevel population health framework. The long-term goal was to facilitate collaborations in which researchers, providers, public health practitioners, and non-profit organizations could utilize the data to develop or expand applied cancer control research, planning, and implementation, with an emphasis on local health disparities and communication inequalities. This CEBP Focus issue on "Population Health Assessment in Cancer Center Catchment Areas" highlights the results from those catchment area data collection efforts. Articles highlight research from surveys conducted to define and describe cancer center catchment areas using both probability and nonprobability designs and a variety of sampling techniques, survey modes, and data linkages. Some articles report pooled analyses of data collected by multiple cancer centers to highlight local versus national comparisons based on standardized behavioral and demographic measures. Others examine rural–urban differences in measures relevant to cancer prevention and control. The studies published in this Focus will provide the field with a myriad of methodologic approaches for defining and describing cancer center catchment areas.

The Population Health Assessment in Cancer Center Catchment Areas supplemental funding initiative was intended to support a requirement instituted by NCI in 2012, wherein applicants to the Cancer Center Support Grant (CCSG) Funding Opportunity Announcement (FOA) were required to identify and describe their catchment areas and document research that specifically addresses the cancer burden, risk factors, incidence, morbidity, mortality, and inequities in the catchment area (1, 2). Community outreach and engagement has long been a priority of cancer centers, and requirements built into the CCSG FOA (3) in 2016 expanded the catchment area description mandate to include a section dedicated to describing community outreach and engagement efforts in NCI-Designated Cancer Center catchment areas. Hiatt and Rimer’s "New Strategy for Cancer Control Research," published in Cancer Epidemiology, Biomarkers & Prevention in 1999 (4), explicitly highlighted the importance of both behavioral and physiologic pathways in determining the appropriate targets for fundamental research, intervention, and surveillance in cancer control. It also emphasized the role that informatics and communication technologies would play in accelerating progress in cancer control activities, and highlighted the importance of monitoring and exploiting the capabilities of “the informatics and communication revolution” to accelerate the progress in cancer control outcomes at a population level. Toward that end, NCI posited that the Population Health Assessment in Cancer Center Catchment Areas supplemental funding initiative would encompass behavioral, social, and population sciences research, and produce data that would highlight catchment area populations’ access to cancer-related information; perceived trust in information sources; cancer- and health-related knowledge; and community-level factors that facilitate or hinder cancer communication and resultant health behaviors, access to care, and cancer-related outcomes. Those data can then be used to develop local-level interventions for cancer prevention, detection, diagnosis, clinical trials enrollment, and survivorship.

Supplemental funding was awarded to 15 NCI-Designated Cancer Centers (Table 1) in 2016 and was intended to enhance cancer centers’ capacity to acquire, aggregate, and integrate catchment area population data from multiple sources, as well as plan, coordinate, and enhance analyses of these data. The initiative included a collaborative effort to review and select standardized measures to be fielded within each data collection effort (see Gage-Bouchard and Rawl starting on p. 431 in this issue; ref. 5) to support comparative and pooled analyses. One conceptual underpinning of the effort was a multilevel population health framework modeled on the Robert Wood Johnson Foundation’s Culture of Health (6, 7) initiative, which is focused on achieving health equity and utilizes individual-, contextual-, and policy-level measures to inform applied community interventions to improve health. The supplemental funding also was intended to support methodologic studies to determine the extent to which local data may be linked to national estimates for calibration, comparison, juxtaposition, and, in some cases, aggregation. These methodologic studies sought to answer survey research methods questions related to the feasibility of using analytic techniques to promote integrated community-level population health assessments as part of the NCI’s national surveillance enterprise related to cancer communication and cancer prevention and control.

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Table 1. Population Health Assessment in Cancer Center Catchment Areas (2016–2017): NCI-Designated Cancer Centers and project leaders

<table>
<thead>
<tr>
<th>NCI-Designated Cancer Center (P30)</th>
<th>Project Leader</th>
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<tbody>
<tr>
<td>Abramson Cancer Center, University of Pennsylvania</td>
<td>Karen Glanz</td>
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<tr>
<td>Albert Einstein Cancer Center</td>
<td>Bruce Rapkin</td>
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<tr>
<td>Dana-Farber Cancer Institute</td>
<td>K. Viswanath</td>
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<tr>
<td>Dartmouth-Hitchcock Norris Cotton Cancer Center</td>
<td>Tracy O'Nea</td>
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<tr>
<td>Duke Cancer Institute</td>
<td>Nadine Barrett</td>
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<tr>
<td>Fox Chase Cancer Center</td>
<td>Nestor Ensminger and Susan Fisher</td>
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<tr>
<td>Markey Cancer Center, University of Kentucky</td>
<td>Robin Vanderpool</td>
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<tr>
<td>MD Anderson Cancer Center</td>
<td>Sanjay Shete</td>
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<tr>
<td>Memorial Sloan-Kettering Cancer Center</td>
<td>Joseph Osbourne</td>
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<tr>
<td>Roswell Park Cancer Institute</td>
<td>Elizabeth Bouchard</td>
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<tr>
<td>Simon Cancer Center, Indiana University</td>
<td>David Haggstrom and Susan Rawl</td>
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<tr>
<td>The Ohio State Comprehensive Cancer Center</td>
<td>Electra D. Paskett</td>
</tr>
<tr>
<td>UCSF Helen Diller Family Comprehensive Cancer Center</td>
<td>Robert Hiatt and Urmimala Sarkar</td>
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<tr>
<td>University of Hawaii Cancer Center</td>
<td>Kevin Cassel and Hye-Ryeon Lee</td>
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<tr>
<td>University of Pittsburgh Cancer Institute</td>
<td>Jian Min Yuan</td>
</tr>
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</table>

The initiative leveraged items and data from several national health-related surveys, including NCI’s Health Information National Trends Survey (HINTS). NCI developed the HINTS program (8–10) to monitor national population trends in cancer communication practices, information preferences, risk behaviors, attitudes, and cancer knowledge. HINTS provides unique population data on changing patterns, needs, and information behaviors, attitudes, and cancer knowledge. HINTS provides unique communication practices, information preferences, risk behaviors, attitudes, and cancer knowledge. HINTS provides unique population data on changing patterns, needs, and information opportunities in health; identifies changing health communication trends and practices; assesses cancer information access and usage; and provides information about how cancer risks are perceived. Although HINTS is a well-utilized public resource for health communication research, this national communication surveillance vehicle does not collect a large enough sample at smaller geographic units to be optimally useful at the local level for targeted outreach, intervention planning, clinical trials recruitment, and patient engagement. As such, methodologic questions have remained as to the feasibility of using small area samples to complement data from national surveys. For example, how do small area estimates compare with national estimates? How do nonprobability samples compare to random samples in terms of bias, error, coverage, and reliability? Can bias in local data be overcome by calibrating estimates to national anchors? Through data sharing and pooled analyses utilizing the catchment area data, these methodologic questions can be addressed, and should help identify extant disparities and intervention targets. In the larger sphere of data sharing and data repositories, we hope the field will benefit from the methodologic studies examining the extent to which local data from catchment area assessments may be linked to national datasets for calibration and aggregation.

Variation in the size and complexity of cancer center catchment areas, as defined by each center, poses some special challenges. Some cancer centers define their entire home state as their catchment area, which affords the utilization of state-level data collected by state and federal government agencies. Other cancer centers define their catchment area by identifying a subset of counties that may or may not cross state lines. Because states, counties, and cities vary substantially in their support for and implementation of public health surveillance and community assessment, the opportunities that cancer centers have to utilize or complement existing data collection infrastructure also varies accordingly. One additional complexity is that this infrastructure is not static. Year-by-year changes in funding, policies, and priorities at the federal, state, and local levels complicate the potential for trend analyses and cross-state comparisons; therefore, it is important to recognize that efforts such as those described is this CEBP Focus issue are imbedded within and partially dependent upon a larger public health data ecosystem, and are likely one of many cancer-related surveillance efforts in each individual catchment area. Variation in state and local priority-setting and funding can affect the extent to which these local catchment area data collection efforts can be aggregated and utilized in a multi-level population health framework.

Understanding the demographics, health status, health care access, and health technology and information gaps in cancer center populations is essential for addressing or ameliorating cancer-related health disparities and information inequalities. We hope that the studies published in this Focus issue will provide the field with a myriad of methodologic approaches that can be utilized for defining and describing cancer center catchment areas, utilizing either probability or nonprobability designs and a variety of sampling techniques, survey modes, and data linkages. Ultimately, we hope that the population health assessment data produced by these projects and published herein can be used to better expand applied cancer control research, planning, intervention, and implementation efforts in cancer center catchment areas, and can help NCI and the broader cancer center community better identify extant disparities and intervention targets. In the larger sphere of data sharing and data repositories, we hope the field will benefit from the methodologic studies examining the extent to which local data from catchment area assessments may be linked to national datasets for calibration and aggregation.

Disclosure of Potential Conflicts of Interest

No potential conflicts of interest were disclosed.

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