

Cancer Center Supplement to Partner with Comprehensive Cancer Control Coalitions to Study Implementation of Evidence-based Interventions

Karmanos Cancer Institute

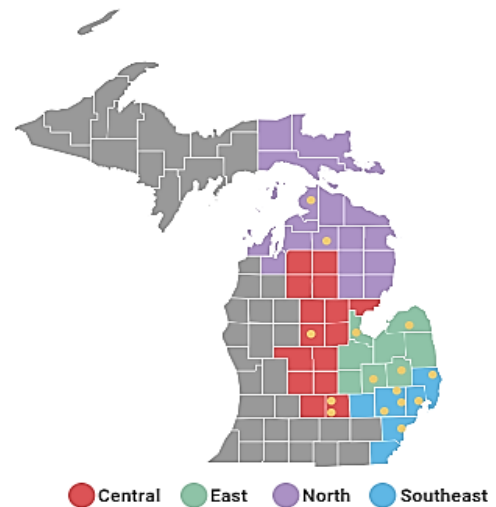
Catchment Area

Karmanos Cancer Institute (KCI) is the largest cancer research and care network in the state of Michigan. In 2014, KCI affiliated with McLaren Health Care, and there are now 16 sites serving a catchment area covering 46 of Michigan's 83 counties and 6.7 million residents who are diverse across race, ethnicity, and rurality. The catchment area is now defined as the 46-county area that is home to 95% of our patients; KCI sees one-third of all new cancer patients in the catchment area (figure 1). The southeast region of the KCI catchment area (KCI-CA) includes the metropolitan Detroit area. The city of Detroit is the largest city in the state (670,000+ residents). About 78% of Detroit residents identify as African American (AfAm), a group that disproportionately carries KCI-CA's cancer burden. Beyond the Detroit metro area, the KCI-CA is also characterized by a high proportion of rural (i.e., nonmetropolitan) residents. About 45% of the population in the central region of the KCI-CA live in a rural area while about 70% of the population in the north region are rural dwelling. Within 30 of the 46 counties, at least half of residents live in rural areas and six counties are 100% rural. In total, there are about 725,000 rural residents in the KCI-CA.

Monitoring and addressing the needs and disparities throughout this catchment area are a major part of KCI's Community Outreach and Engagement (COE) efforts and are guided by the Office of Cancer Health Equity and Community Engagement (OCHECE). In addition to monitoring cancer burden, disparities, and needs throughout the KCI-CA, COE and OCHECE's aims include facilitating community stakeholder engagement in all phases of cancer research and control efforts; linking COE efforts to development and implementation of research

across basic, clinical, and population sciences; and facilitating strategies and policies to reduce cancer burden in the KCI-CA.

Figure 1. KCI catchment area by region.



Public Health Focus

KCI's OCHECE collaborated with the Michigan Cancer Consortium (MCC) to implement strategies that address cancer plan objectives related to physical activity among cancer survivors. This project implemented the following evidence-based strategies related to physical activity priority: 1) educating survivors on the benefits of physical activity to support the prevention of new or recurring cancers or the side effects of cancer or its treatment, 2) educating survivors and providers on the importance of referrals to physical therapists for safe and appropriate exercise prescription, and 3) educating providers on current physical activity guidelines for people in cancer treatment and post-treatment survivorship and encouraging providers to refer survivors to behavioral

support interventions to assist them in adopting and maintaining a physically active lifestyle.

At a Glance

The MCC workgroup collaborated with KCI's OCHECE and Wayne State University's School of Medicine Division of Continuing Medical Education (CME) to develop and promote an online, enduring educational resource for health care providers on how to implement current American Cancer Society physical activity guidelines for people in cancer treatment and post-treatment survivorship to assist cancer survivors in adopting and maintaining a physically active lifestyle. This consortium will also implement an evidence-based approach to increase physical activity among cancer survivors: high-intensity interval training (HIIT).

The specific aims of KCI's COE efforts are as follows:

1. Monitor cancer burden, disparities, and needs throughout the KCI-CA.
2. Facilitate community stakeholder engagement in all phases of cancer research and control efforts.
3. Link COE efforts to the development and implementation of research across basic, clinical, and population sciences.
4. Promote and implement strategies and policies to reduce cancer burden in the KCI-CA.

Collaborators

Collaborators of the MCC Physical Activity in Survivorship (PAS) workgroup included representatives from the following academic and public health organizations throughout Michigan: Karmanos Cancer Institute, Spectrum Health, Michigan Medicine Inpatient Rehabilitation Department, Oakland University, Michigan State University Institute for Health Policy, Michigan Chapter of the Lymphatic Education and Research Network, State Alliance of Michigan YMCAs, Michigan State University, Michigan Medicine, Grand Valley State University, Blue Cross Blue Shield Blue Care Network

of Michigan, LPK Healthcare Research Policy Consulting Services LLC, Inter Tribal Council of Michigan Inc, OUWB School of Medicine, Leukemia and Lymphoma Society, and Karmanos Cancer Institute's OCHECE.

Understanding and eliminating barriers to programs like these are critical to improving outcomes and reducing cancer health disparities.

—Jennifer Beebe-Dimmer

The Approach

The PAS workgroup, composed of members of KCI and MCC, has focused on two strategies to increase physical activity among Michigan cancer survivors. In line with cancer plan recommendations, the workgroup has developed an educational resource for health care providers on current physical activity guidelines for people in cancer treatment and post-treatment survivorship in order to encourage providers to refer survivors to behavioral support interventions to assist them in adopting and maintaining a physically active lifestyle (i.e., short-term supervised exercise, motivational interviewing, and support groups). The PAS workgroup has been working with CME to develop and promote an online, enduring resource to be completed by oncologists, primary care physicians, and other specialists for American Medical Association **Physician's Recognition Award** credits. Experts in physical activity research and physical and occupational therapy participated in a live event held in November of 2022 with a Q&A afterward attended by 23 clinicians. KCI and MCC will be able to disseminate the enduring CME activity to its extensive professional networks.

The PAS workgroup has also implemented an evidence-based approach to increase physical activity among

cancer survivors: HIIT. Randomized controlled trials of HIIT among testicular cancer survivors aged 21–61 years showed that, compared to those in a usual care group, participants randomized to a 12-week HIIT program demonstrated significantly greater improvements in peak aerobic fitness and other cardiovascular risk factors (e.g., arterial thickness, inflammation) and improved cancer-related fatigue and quality of life. The efficacy of HIIT has also been shown with breast cancer survivors who were randomized to either a HIIT study arm (mean age = 53 years) or a low-to-moderate intensity exercise arm (mean age = 54 years). Participants in both arms demonstrated improvements in mean total body fat mass and body composition, quality of life, and cancer-related fatigue, leading authors to conclude, “Since the outcomes were similar, but HIIT takes less time, this may be a time-efficient strategy for improving certain aspects of the health of female cancer survivors.”

Dr. Beebe-Dimmer has completed similar work through *Cross-Training and Physical Activity: A Better Life Experience (CAPABLE)*. CAPABLE is a 12-week CrossFit HIIT and strength-training intervention (Clinical Trials ID: NCT0375098). Six 12-week CAPABLE programs have been conducted to date, with data available for the first two programs with 48 patients. Among the 37 patients (77%) considered adherent to the program (attending >75% of 36 one-hour sessions), investigators examined the change from baseline to end of program in results of strength and cardiovascular endurance tests; body weight and percentage of body fat; and self-reported, cancer-related quality of life. The average age of program participants was 58 years (38–79 years), 68% were female, and 73% were AfAm. The most common cancer diagnosed among participants was breast cancer (54%), followed by prostate cancer (27%) and endometrial cancer (11%). Investigators observed significant improvements in the results of all measurements and tests among participants (table 1).

Table 1. Changes in body composition and functional performance

	Baseline	Exit	Change	p-value
Body Composition				
BMI (in kg/m²)*				<.001
Mean (SD)	36.8 (9.4)	35.3 (9.1)	-1.5 (1.5)	
Weight (in lbs.)				<.001
Mean (SD)	239 (64)	230 (61)	-9 (8)	
% body fat				<.001
Mean (SD)	40.9 (7.5)	38.5 (7.7)	-2.4 (3.0)	
Trainer Assessments				
Circuit (in mins)				<.001
Mean (SD)	9.9 (1.9)	7.6 (1.4)	-2.3 (1.2)	
Bike (in cal)				<.001
Mean (SD)	9.9 (5.2)	14.9 (5.7)	5.9 (3.3)	
Sled Push (in ft)				<.001
Mean (SD)	259 (98)	355 (86)	81 (45)	
Ball Throw (in ft)				<.001
Mean (SD)	12.5 (4.4)	17.0 (5.7)	5.0 (2.6)	

* Among participants with a baseline BMI of greater than 25.0 kg/m².

There was mean reduction in body mass index (BMI) of 1.5 kg/m² among study participants with a corresponding weight loss of 9 lbs. and 2.4% body fat. Results also revealed significant progress in each of the four standardized tests (two endurance-based and two strength-based) administered by the trainers.

The PAS workgroup plans to implement CAPABLE in partnership with two clinical sites and in two 12-week cycles. Cycle 1 was conducted in partnership with KCI in downtown Detroit at the CrossFit Detroit facility in August of 2022. Twenty-two survivors completed the program (85% AfAm, 12 breast cancer survivors, 4 prostate cancer survivors, 1 lung cancer survivor, 1 endometrial cancer survivor, 1 multiple myeloma cancer survivor, 1 head and neck cancer survivor, and 2 primary caregivers). Cycle 2 will be conducted in Petoskey, Michigan, in April of 2023. The PAS workgroup chose this site because of its cancer incidence and rural/nonmetropolitan area in the KCI-CA based on Rural-Urban Continuum Codes. We will recruit 20 cancer survivors residing in this area to participate. Participants will be adults ages 18 and older diagnosed with any invasive cancer within four years of

their initial diagnosis who have been cleared by their physician to participate and are not currently participating in any other fitness program. The PAS workgroup is actively working to develop referral systems for CAPABLE to be used by health care providers interested in referring their patients to the program, including brochures and online resources that describe the CAPABLE program and provide information on steps to enroll.

Implementation Guidance

Reducing Barriers

Understanding and eliminating barriers to physical activity and programs like these are critical to improving outcomes and reducing cancer health disparities. Program surveys and focus groups help to identify some of the barriers to participation and successful program completion. Identifying additional resources to help expand high-intensity training for cancer survivors and to mitigate barriers is crucial to continued success.

Find Out More

The Office of Cancer Health Equity and Community Engagement (OCHECE) leads Karmanos Cancer Institute's community outreach and engagement (COE) efforts. The Office works to monitor the cancer burden in Karmanos' 46 county catchment area and engage our diverse communities and scientists in strategies to reduce that burden and improve cancer outcomes across all populations.

This project was funded through a P30 cancer center support grant from the National Cancer Institute to the Karmanos Cancer Institute. Additional funding for the project is provided by The Michigan Department of Health and Human Services and internal support from Karmanos Cancer Institute.

<https://karmanos.org/CAPABLE>

<https://www.karmanos.org/karmanos/office-of-community>

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National Cancer Institute (NCI)-Designated Cancer Centers' community outreach and engagement (COE) efforts should span all cancer center programs, including basic, clinical, translational, and population research. The FY21 COE supplement is designed to increase COE activities and partnerships among center staff and comprehensive cancer control coalitions. The long-term goal is to build greater connections between cancer centers and state, Tribe, territory, and Pacific Island Jurisdiction-level coalitions that will lead to smoother translation of center research findings and products into use in clinical and community settings.

To learn more, visit us at: <https://cancercontrol.cancer.gov/research-emphasis/supplement/coe>

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We observed significant improvements in performance, body composition, and quality of life among cancer survivors introduced to a 12-week high-intensity interval training program.
 —Jennifer Beebe-Dimmer



Participants stretching after a cross-training workout.

Contact

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