

The Centers for Disease Control and Prevention (CDC)- and National Cancer Institute (NCI)-funded Cancer Prevention and Control Research Network (CPCRN) has been in operation since 2004. Over that time, the Network has had 16 university members, with 8 universities currently housing CPCRN Network Centers. This report demonstrates the impact of the work done by CPCRN's investigators and summarizes the research and dissemination activities of the CPCRN, its member Centers, and its multicenter Workgroups over three time periods: the past year (through September 2018), the first four years of the current five-year funding cycle, and all network activity dating back to 2004.

By the numbers: CPCRN has had significant impact on the scientific literature in cancer prevention and control. **Since 2004, there have been 1,648 CPCRN-related publications in peer-reviewed journals, 135 of which reflected multicenter collaborations. In the current funding cycle, there have been 356 publications, 45 of which reflected multicenter collaborations, and just in the past year, CPCRN published 97 articles, 14 of which reflected multicenter collaborations. CPCRN has also led to nearly 2,000 presentations to outside organizations since 2004, with 332 in the current funding cycle (82 multicenter) and 120 in the past year (22 multicenter).** Hundreds of these presentations have been given in collaboration with research partner organizations, such as Federally Qualified Health Centers (FQHCs, 93 since 2004) and other health care providers (212 since 2004). In the past two years, the CPCRN Coordinating Center began tracking trainings and educational workshops separately from other types of presentations, and CPCRN Centers reported conducting **33 training programs or workshops in the past year, more than double the 13 conducted the previous year**, in part representing the expanded collaboration between University of North Carolina (UNC) and Oregon Health and Science University (OHSU) on delivery of CPCRN's Implementing Public Health Evidence Into Action training curriculum.

Seeking grant funding for new research and dissemination efforts is a priority for CPCRN investigators. **In the past year, CPCRN Centers submitted 36 applications for funding worth \$94 million**, five of which were related to the work of CPCRN Workgroups. **Over half (21) were funded (many are still pending), for a total of \$69 million in dollars awarded. In the first four years of the current funding cycle, CPCRN Centers submitted 167 grant applications worth \$230 million, with over half (85) of those funded, for a total of \$104 million in external funding secured** by CPCRN centers in the current funding cycle. **Since 2004, CPCRN has applied for 1,251 grants (118 of them multicenter collaborations), totaling over \$1.5 billion. Nearly 600 of those grants were funded, totaling nearly \$640 million.** Multicenter collaborations have clearly brought strength to investigators' grant applications. **Of the 118 multicenter grant applications submitted since 2004, 67 (57%) have been funded, securing over \$70 million in funding for CPCRN collaborative research.** CPCRN progress reporting data show that CPCRN members develop relationships with, and consistently partner with, state and federal breast, cervical, and colorectal cancer detection programs and health care systems such as FQHCs in their grant-seeking efforts.

Reports, Plans, and Policies Created in Conjunction with State and National Programs:

CPCRN Centers were instrumental to the creation of three reports and plans with state and national programs in the past year, listed below (with partner organization in parentheses).

1. Breast, Cervical and Colon Health Program (BCCHP) Evaluation Plan for WA State Department of Health (National Breast and Cervical Cancer Early Detection Program)
2. CCO Colorectal Cancer Screening Technical Assistance: Final Report (Oregon Health Authority)
3. Evaluation of the Oregon Colorectal Cancer Screening Project (Oregon Health Authority)

Catalyzing Action and Effecting Change: CPCRN Centers and Workgroups engaged in a variety of activities in the past year that demonstrated the Network's impact via catalyzing action and effecting change in partnership with community and policy organizations. For example, the University of South

Carolina (USC) CPCRn delivered a presentation to the South Carolina Hospital Association (SCHA) about developing a uniform health literacy assessment tool, which led to a collaboration with the SCHA and a local hospital to develop a pilot program to address health literacy and a statewide Clinic Readiness Assessment program. The presentation also sparked the interest of the Dorn Veteran Affairs Hospital to collaborate with USC to develop a health literacy program for veterans.

University of Kentucky (UK) continued dissemination of their Proactive Office Encounter framework, entering a new partnership with HealthFirst Bluegrass, after HealthFirst learned about the POE framework from UK's primary clinical partner, White House Clinics.

CPCRn investigators, through their individual and workgroup programs, have catalyzed action and effected change in the colorectal cancer screening practice programs in a number of ways: Through the work of the Modeling Evidence Based Intervention Impact Workgroup, UNC and OHSU collaborated to provide technical assistance to the Oregon Health Authority and evaluation of the Oregon Colorectal Cancer Screening Project. Furthermore, after participating in programs assessing provider awareness, knowledge, and attitudes regarding the CRC screening efforts in their clinics led by UW, changes were made to colorectal screening practices at clinics run by Sea Mar and Community Healthcare of Tacoma. UW also developed a tool to fill existing gaps in the Washington Colorectal Cancer Control and Breast and Cervical Cancer Early Detection Programs' ability to track cancer screening navigation efforts.

The CPCRn Center at the University of Iowa (UI) took several steps forward towards catalyzing action and effecting change in HPV Vaccination. First, they leveraged their network experience to successfully secure an NCI supplemental P30 grant on HPV vaccination. UI's CPCRn also contributed to the American Cancer Society's Strategic Plan to improve HPV vaccination rates, meeting at the ACS HPV Roundtable with the Iowa Department of Public Health to create a three-part strategic plan for Iowa, which was later presented to the Iowa Cancer Summit.

Significant Dissemination Communications: Some of CPCRn's work this past year was disseminated broadly over social or traditional media to reach a wide audience. For example, University of Pennsylvania's (Penn) PI Karen Glanz was featured in TV, radio, print news coverage; she was interviewed for stories about regulations for reef-safe sunscreen for a Hawaii television station and for Wharton Business Radio, and she wrote an Op-Ed for the Philadelphia Inquirer about the problems that can stem from a single diagnosis framing the way a patient is seen by medical providers. In addition, UNC's Dr. Stephanie Wheeler was featured on NPR, Reuters, HealthDay, Kaiser Health News, and multiple other print and online news sources for her work focused on the financial impact of cancer in underserved patients.

CPCRn's "Putting Public Health Evidence Into Action" Training was broadly disseminated on the CPCRn website, being viewed over 1800 times over the course of the year, drawing requests for expertise from at least seven organizations, as far away as Africa.

University of Iowa CPCRn investigator Charles Lynch published a manuscript in the Journal of the NCI that garnered international news coverage, with Reuters publishing an article entitled "Large U.S. farm study finds no cancer link to Monsanto weedkiller." And OHSU investigator Amanda Bruegl was interviewed by local news station Katu news about her CPCRn team's research discussing the gender gap around vaccination for boys vs. girls for HPV.

Requests for Scientific Expertise: CPCRn researchers are frequently sought out by outside organizations for their scientific expertise in cancer control. A brief listing of some of those requests for expertise is featured below; more details are featured in the full report:

- CWRU's Dr. Siran Koroukian was **invited by the CDC and the National Association of Chronic Disease Directors to serve on a panel** to explore evidence-based opportunities for cancer prevention during older adulthood.
- UP's CPCRn Center **reviewed CDC tip sheets for grantees** of the NBCCEDP and the CRCCP **about implementing EBIs.**

- UK's CPRN's Dr. Robin Vanderpool **was sought out by NCI to chair the NCI Accelerating Rural Cancer Control Research Conference.**
- UI's Dr. Barbara Baquero was invited to **serve as a panel reviewer for USDA.**
- UNC's Dr. Stephanie Wheeler was invited to serve as **Vice Chair for the American Cancer Society Health Policy and Health Services peer review panel, organizing committee member for the American Society of Clinical Oncology Quality Care Symposium, and Methods Theme Co-Chair for the AcademyHealth Annual Research Meeting.**
- UI's Dr. Mary Charlton was invited to join **American Cancer Society State Leadership Board.**
- UW's Dr. Beverly Green's **expertise sought out by multiple organizations**, including the NCI Special Emphasis "Moonshot" Review Panel, the NIH Health Services Organization and Delivery review panel, the Northwestern University Patient-Centered and Engagement Training Program, and an intervention workshop.
- UW's CPRN members **were invited to review FQHC proposals to participate in WA's BNCCEDP and CRCCP programs.**
- UNC's CPRN investigators **led and evaluated a workshop for the NC Colorectal Cancer Roundtable**

Other Significant Network Activities: CPRN Centers reported a wide variety of activities in the past year that they deemed as highly significant. This includes:

- **Modeling EBI Impact Workgroup efforts led to NCI grant to reduce colorectal cancer burden in vulnerable populations** – a collaboration among UNC PIs and Co-Investigators Stephanie Wheeler, Jennifer Leeman, Catherine Rohweder, Dan Reuland, and Alison Brenner, as well as OHSU Co-I Melinda Davis, resulted in over \$5.5 million in funding from NCI for a Moonshot grant titled "Scaling Colorectal Cancer Screening Through Outreach, Referral, and Engagement (SCORE): A State-level program to reduce colorectal cancer burden in vulnerable populations".
- **OHSU PI Jackilen Shannon was awarded a \$7.7 million dollar R25 training grant to launch the Knight Scholars Program** – The program will provide mentored cancer research training experiences for underrepresented and rural high school students in order to increase access to enhanced STEM opportunities in a manner that takes into account the social and geographic challenges these students may face.
- **UW PI Peggy Hannon was awarded a \$2 million dollar R01 grant to increase implementation of evidence-based interventions at low-wage worksites** - The program will increase the reach of HealthLinks to small employers with limited capacity for and access to EBIs in several states.
- **Multiple significant publications were authored by CPRN investigators:**
 - Wheeler SB, Davis MM. "Taking the Bull by the Horns": Four Principles to Align Public Health, Primary Care, and Community Efforts to Improve Rural Cancer Control. *J Rural Health*. 2017;33(4):345-349. doi: 10.1111/jrh.12263. Epub 2017 Sep 14. PMID: 28905432
 - Zeliadt, S. B., Hoffman, R. M., Birkby, G., Eberth, J. M., Brenner, A. T., Reuland, D. S., & Flocke, S. A. (2018). Challenges Implementing Lung Cancer Screening in Federally Qualified Health Centers. *American journal of preventive medicine*, 54(4), 568-575. doi: 10.1016/j.amepre.2018.01.001
 - Wheeler SB, Leeman J, Hassmiller Lich KM, Tangka F, Davis MM, Richardson LC. Data-powered participatory decision making: Leveraging systems science and simulation to guide selection and implementation of evidence-based colorectal cancer screening interventions. *Cancer J*. 2018 May/June;24(3):136-143. doi: 10.1097/PPO.0000000000000317. PMID: 29794539 PMID: PMC6047526
 - Adams, S.A., Rohweder, C.L., Leeman, J., Friedman, D.B., Gizlice, Z., Vanderpool, R.C., Askelson, N., Best, A., Flocke, S.A., Glanz, K., Ko, L.K., Kegler, M. Use of evidence-based interventions and implementation strategies to increase colorectal cancer screening in Federally Qualified Health Centers. *J Community Health*. 2018; 43:1044. <https://doi.org/10.1007/s10900-018-0520-2>.

- **CPCRN investigators reported multiple presentations they deemed highly significant:**
 - Vanderpool RC. Cancer Prevention and Control Research in Appalachian Kentucky. Cancer Epidemiologic Research in Understudied Populations Webinar Series. National Cancer Institute, Genomic Epidemiology Branch. January 17, 2018.
 - Askelson, N.M., Flocke, S.A., Friedman, D.B., Glanz, K., Heiney, S.P., Ko, L.K., Leeman, J., Parker, E.A., Rohweder, C.L., Seegmiller, L., Stradtman, L., & Vanderpool, R.C. (2017, December). How federally qualified health centers select and implement multi-level evidence-based interventions to improve colorectal cancer screening: A qualitative study. Poster presentation. 10th Annual Conference on the Science of Dissemination and Implementation in Health, Arlington, VA.
 - Shannon J, Farris PE, Dickinson C, Howes D. Interview Results from an HPV Vaccination Environmental Scan in Rural and Frontier Oregon Communities. Ignite presentation at Increasing HPV Vaccination in the United States: A Collaboration of NCI-funded Cancer Centers, June 7-8, 2018, Salt Lake City, UT.
 - Perry CK, Hemler J, Damschroder L, Woodson TT, Ono S, Cohen D. Specifying implementation strategies used by seven primary care regional cooperatives: Real-world meets theory. Podium presentation, 10th Annual Conference on the Science of Dissemination and Implementation
 - Medysky, M, Winters-Stone, K. The Contribution of Muscle and Fat Mass on Lower-Body Physical Functioning in Older Female Cancer Survivors. Poster presentation at: NIH/NCI Role of Muscle and Body Composition in Cancer Risk and Prognosis in Cancer Survivors. National Institutes of Health, Rockville, MD, Sept 25-26, 2017.
- **CPCRN Investigators conducted two highly significant training workshops over the past year:**
 - **University of Pennsylvania CPCRN hosts Tobacco Control Science Evidence Academy -** The Evidence Academy presented the latest evidence and research about new tobacco products, tobacco regulation, and smoking cessation efforts. The goal of the event was to engage public health professionals, policy makers, researchers, and clinicians to inform them of the most up-to-date research and bridge the gap between research and practice.
 - **CPCRN Implementing Evidence into Action workgroup collaborators traveled to Minnesota to train American Cancer Society using Putting Public Health Evidence into Action curriculum -** In July, 2018, CPCRN collaborators from UNC and Emory University traveled to Minneapolis to provide a day-long training to American Cancer Society (ACS) North Region staff in the hospital and healthcare systems verticals, a version adapted for a more clinically oriented audience. Positive training evaluations led to further refinements in the curriculum for future trainings, and the team is exploring ways to deliver the training to more ACS regions and in alternative formats, such as a webinar series.
- **Other significant CPCRN research activities:**
 - **The UK CPCRN provided technical assistance to healthcare systems implementing UK's Proactive Office Encounter framework –**
 - The UK CPCRN worked with the leadership, providers, and staff of the largest healthcare provider in Southeastern Kentucky, Appalachian Regional Healthcare (ARH) to provide technical assistance for the implementation of their Proactive Office Encounter (POE) framework in terms of monthly conference calls, routine in-person meetings to discuss progress and troubleshoot current or potential issues, including motivational interviewing training.
 - **The UW CPCRN provided assessment and evaluation technical assistance and support for the state's NCI Breast and Cervical Cancer Screening Program activities –** UW provided extensive consultation, implementation guidance, and evaluation technical assistance and support for WA's NBCCEDP and CRCCP; specifically they supported projects conducted by WA Department of Health and their partner organizations, including selected Federally Qualified Health Centers, and regional Prime Contractors who connect clients with BCC and CRC screening services. Their activities supported both national- and local-level NBCCEDP and CRCCP evaluation efforts, the latter as part of WA DOH's Breast, Cervical, and Colon Health Program (BCCHP).
 - **The UP CPCRN collaborated with the American Cancer Society on a CRC Screening Project –** UP's CPCRN worked with the Health Federation of Philadelphia and the American

Cancer Society, South Eastern Division, on a collaborative CRC project to improve the screening processes and/or interventions to increase CRC screening in local FQHCs.

- **The CWRU CPCRN conducted an evaluation of Cleveland's new Tobacco 21 policy** – The program evaluated the implementation of the Tobacco 21 legislation in Cleveland which raises the minimum age to purchase tobacco and vaping products from 18 to 21 years.

CPCRN Coordinating Center & Steering Committee: With leadership from the Coordinating Center, the Steering Committee finalized the Network's **new Mission Statement and Network Strategic Plan** (see *Appendix 1*) outlining the network's aspirational goals, objectives and tactics to achieve them and key performance indicators to evaluate success. The Coordinating Center also worked with Steering Committee leadership to finalize written **Guidelines for Collaboration** (see *Appendix 2*) to use in Steering Committee discussions around group norms for network collaborations.

The Network's Annual Scientific Meeting was held in Chapel Hill, NC in May 2018, including 44 in-person and 9 virtual participants via Adobe Connect. In addition to dedicated time for Workgroups and the Steering Committee to meet, content included: partnering with other thematic networks, scientific troubleshooting, advocating for academic public health in the new political reality, and building strategic communication plans.

Members were encouraged to participate in the NIH Conference on the Science of Dissemination and Implementation in Health and the Accelerating Rural Cancer Control meetings in 2018, where CPCRN hosted well-attended Networking Events.

In January 2018, the CPCRN Principal Investigators endorsed a flexible, inclusive new process to develop new CPCRN cross-center workgroups. Four new workgroups formed under this process in Year 4, including the Rural Cancer Workgroup, Multiple Cancers Workgroup, Cancer Screening Navigation Workgroup, and Organizational Theory Framework for Implementation Science (OTIS) Workgroup.

During Year 4, the Coordinating Center further developed our processes and structures to support CPCRN through the use of technology via multiple projects, including: 1.) implementing and continuing to refine our new communications and dissemination strategy with a quarterly emailed newsletter to inside and outside CPCRN audiences. Our most recent newsletter was delivered to 253 email addresses and forwarded extensively, resulting in 956 opens. 2.) We added new features to the network website, including an "Areas of Expertise" page that features an interactive Kumu presentation mapping out Network members' areas of expertise and connections, and a "Meet Our Experts" page that includes a bio, photo, areas of expertise, and contact information for each network member, that is filterable by area of expertise and Network Center.

Conclusion: CPCRN has made substantial impact in cancer prevention and control and implementation science in the past year, across the current funding cycle, and across its history dating back to 2004. Its members continue to innovate, develop, implement, and evaluate evidence-based approaches to cancer prevention and control with their local, state, and national partners, influencing everything from local clinic practices to state cancer plans to national organizations' practices and policies. ***The Network's extensive history of producing over 1,600 publications and funded grants totaling over \$600 million in research dollars demonstrate just two of many ways the Network and its investigators' expertise has, and continues to have, significant impact on the nation's dissemination and implementation of evidence-based cancer prevention and control research.***