

Practice-based Research Networks: Improving Health and Healthcare in Rural Communities

EVIDENCE, ADVICE, AND TOOLS FOR REACHING OUT TO REMOTE COMMUNITIES

[Practice-Based Research Networks \(PBRNs\)](#) provide an engaging environment for clinicians to connect with each other, share best practices, offer training opportunities, and access useful resources and tools. These opportunities are particularly important for clinicians practicing in rural areas that may be geographically isolated from other colleagues and have reduced means of collaborating. In an effort to address this need, a number of research initiatives conducted by PBRNs provide guidance and resources for clinicians practicing in rural areas. A variety of these resources are highlighted throughout this document.

PBRNs originated as groups of primary care clinicians and practices working together to answer community-based health care questions and translate research findings into practice. Through this model, practice-based clinicians work with investigators experienced in clinical and health services research. Currently, 54 members of the PBRN community have stated a focus on serving rural populations. Together, these practices serve over 48 million patients.

Rural Americans are a population group that experiences significant health disparities including being older, poorer, and



having reduced access to health care when compared to urban populations. AHRQ identifies Americans living in rural areas as a priority population and encourages research on identifying evidence-based ways of improving their health care delivery. Areas of focus include development of innovative technologies to engage rural populations and the treatment of high-impact diseases in rural communities such as obesity, cancer, and substance abuse.

Specific PBRNs covering these areas of interest are highlighted below.

Innovative Technologies & Practices to Engage Rural Populations

Rural Americans experience a number of unique risk factors that put them at increased risk for poor health. Inadequate access to health care services due to geographic isolation is one such factor. Although one-fifth of the U.S. population lives in rural areas, only 10% of physicians practice in rural areas.¹ In an effort to engage and provide better access to health care services for rural populations, the PBRN community has been on the cutting edge of the development of

¹ van Dis J. MSJAMA. Where we live: health care in rural vs urban America. JAMA. 2002 Jan 2;287(1):108. PMID: 11754718.

Summary Highlights:

- One-third of PBRNs have practices in rural areas.
- PBRNs generate innovations and virtual communities to overcome isolation for both clinicians and patients.
- PBRNs offer methods, evidence, tools, and resources such as remote monitoring technologies, distance-learning methods, and best practice for community-based interventions to help clinicians in rural areas serve their patients.

innovative technologies. The following studies described PBRN initiatives to engage rural populations using innovative technologies and practices.



Oregon Rural Practice-based Research Network (ORPRN)

[A qualitative study of rural primary care clinician views on](#)

[remote monitoring technologies](#): Remote monitoring technologies (RMTs) may improve the quality of care, reduce access barriers, and help control medical costs. Despite the role of primary care clinicians as potential key users of RMTs, few studies explore their views. This study explores rural primary care clinician interest and the resources necessary to incorporate RMTs into routine practice. The authors conclude

that adoption of RMTs by rural primary care clinicians may be influenced by equipment purpose and functionality, implementation resources, and payment. Clinician and staff engagement will be critical to actualize RMT use in routine primary care.

[The Rural Older Adult Memory \(ROAM\) Study: A Practice-based Intervention to Improve Dementia Screening and](#)

[Diagnosis](#): The aim of this study was to evaluate the feasibility of screening and diagnosing dementia in patients aged 75 years or older in six rural primary care practices in a PBRN. Clinicians and medical assistants were trained in dementia screening using the ROAM protocol via distance-learning methods. Results included a substantial increase in screening for dementia, a modest increase in the proportion of patients who were diagnosed with dementia or mild cognitive impairment, and improved clinician confidence in diagnosing dementia. The study team identified barriers to full uptake of the protocol, including logistic challenges in implementing practice change and clinicians' attitudes toward dementia screening and diagnosis.

[A pilot study evaluating alternative approaches of academic detailing in rural family practice clinics](#): Academic detailing

is an interactive, convenient, and user-friendly approach to delivering non-commercial education to health care clinicians. This pilot project assessed the feasibility, effectiveness, and satisfaction with academic detailing delivered face-to-face as compared to a modified approach using distance-learning technology. The recipients were four family medicine clinics within the Oregon Rural Practice-based Research Network (ORPRN). Each clinic received four outreach visits over an 8-month period. Topics included treatment-resistant depression, management of atypical antipsychotics, drugs for insomnia, and benzodiazepine tapering. Respondents who received in-person detailing reported a higher likelihood of changing their behavior compared to respondents in the distance detailing group for five of the seven content areas.

“We become a part of these communities... We are able to help practices with limited resources have more state-of-the-art practices available to patients.”

Lyle J. Fagnan, MD, ORPRN

Reflections and Resources for Clinicians Serving Rural Communities

Oregon Rural Practice-based Research Network (ORPRN)

[Turning on the care coordination switch in rural primary care: voices from the practices--clinician champions, clinician partners, administrators, and nurse care managers](#): This study sought to understand the acceptability and feasibility of office-based nurse care management in medium to large rural primary care practices. A qualitative assessment of Care Management Plus (a focused medical home model for complex patients) implementation was conducted using semi-structured interviews with four staff cohorts. Cohorts included clinician champions, clinician partners, practice administrators, and nurse care managers. Although staff were positive about the care coordination concept, model acceptability was varied, and additional study is required to determine sustainability.

[Engaging the underserved: a process model to mobilize rural community health coalitions as partners in translational research](#): Academic partners transformed four established Community Health Improvement Partnerships (CHIPs) into Community Health Improvement and Research Partnerships (CHIRPs). The intervention consisted of three elements: an academic-community kickoff/orientation meeting, delivery of eight research training modules to CHIRP members, and local community-based participatory research (CBPR) pilot studies addressing childhood obesity. ORPRN conducted a mixed methods analysis of pre- /post-surveys, interviews, session evaluations, observational field notes, and attendance logs to evaluate intervention effectiveness and acceptability. The CHIRP process builds on existing infrastructure in academic and community settings to foster CEnR. Brief research training and pilot studies around community-identified health needs can enhance individual and organizational capacity to address health disparities in rural and underserved communities.

Kentucky Ambulatory Network (KAN)

[Population Health Management and Quality Improvement for the Practicing Clinician](#):

The University of Kentucky's Kentucky Ambulatory Network (KAN) and Division of Community Medicine, Owensboro Health, and the Appalachian Osteopathic Postgraduate Training Institute Consortium partnered to create and provide eight modules on Population Health Management and Quality Improvement. Health care changes are impacting the way we deliver care with a focus of managing populations (and not mere individuals) to improve the care that is delivered at lower health care costs. Population Health Management is a set of skills and processes that will assist in these efforts. The first three modules are complete and available at www.cecentral.com/PHM. Clinicians can earn continuing education (CE) credits for completing these modules, and anyone is welcome to view them for their content.

KAN and its partners offer online community medical education to practicing clinicians.

Visit their website for more information:

<http://www.cecentral.com/PHM>

[Central Appalachia Interdisciplinary Pain Education Collaborative \(CAIPEC\)](#): CAIPEC is a multi-faceted continuing education (CE) approach targeted at health professions in Kentucky and West Virginia (areas that suffer from opioid overuse and inappropriate prescribing practices). CAIPEC brings State organizations, academic institutions, and targeted stakeholders together to deliver evidence-based chronic pain education and delivery interventions. CE activities include Webcasts, live round-table community meetings, Web-based enduring material, and a "Chronic Pain Practice Toolkit" that can be used for Maintenance of Certification (MOC) Part IV PI-CME credit. CAIPEC effectiveness will be evidenced by measured changes in practitioner knowledge and attitudes plus impact on implementation, and practice performance will be evaluated in a



controlled study of (patient-level) pain evaluation and (population-level) opioid prescriptions rates. KAN's role in this project is to recruit the clinics/ providers in Kentucky who will participate in the Chronic Pain Practice Toolkit aspect of the project, and to implement the Toolkit intervention within these clinics.

High Plains Research Network (HPRN)

[The Colorado Asthma Toolkit Program: a practice coaching intervention from the High Plains Research Network](#):

The Colorado Asthma Toolkit Program was initiated to establish a method for improving asthma care by providing to primary care practices coaching, training, and support for (1) evidence-based asthma diagnosis and treatment and (2) education and activation of patients toward effective self-management of their illness. A collaborative program was initiated involving two academic medical institutions and the High Plains Research Network. Focus groups were conducted with rural Colorado patients and health care clinicians to assess need and determine the most effective intervention strategies. The authors concluded that the Colorado Asthma Toolkit Program successfully disseminated asthma care training into a majority of area rural health care practices. Acceptance by practices was



attributable to flexible, in-office coaching and provision of spirometry. Significant shifts seen in asthma-management practices are likely to reduce hospitalizations and emergency department visits.

Cancer Screening and Prevention

Although cancer screening rates have increased over time, increases have been lower among individuals with less education, income, health insurance and those residing in rural areas. PBRNs have been active in conducting research to improve screening and other preventive services in rural populations. The

following sections highlight some of this work.


High Plains Research Network (HPRN)

[Use of colon cancer testing in rural Colorado primary care practices](#): To determine rates of being up-to-date with screening or ever having had a test for colorectal cancer (CRC), as well as correlates for testing among patients living in a rural area who visit a provider, HPRN conducted a cross-sectional survey of 570 patients aged 50 and over seen at a HPRN practice. The investigators found that prevalence of being up-to-date with CRC testing in the HPRN was on par with statewide CRC testing rates, but more than three-quarters of patients who had not yet been screened had no intention of getting tested for CRC, despite having a medical home.

[Testing to prevent colon cancer: how rural community members took on a community-based intervention](#): In this article, HPRN described their experience with participatory research to improve colorectal cancer screening in their network. HPRN convened a Community Advisory Council (CAC) to provide input, feedback, innovation, and dissemination efforts.

Learn more about the Toolkit at respiratorytoolkit.org/research/



 Learn more about how HPRN participated in a community-partnered intervention to increase screening for colorectal cancer in rural Colorado in this short video:

[Testing to Prevent Colon Cancer: What's a farm auction got to do with it?](#)

PBRNs: *Rural Health*

The CAC participated in an intensive training on colon cancer prevention and spent 6 months developing a locally relevant intervention-Testing to Prevent Colon Cancer. CAC members participated in all aspects of the research including intervention messaging, survey design, recruitment, implementation, analysis and interpretation of data, and dissemination of results including presentations at national venues and coauthoring manuscripts.

Iowa Research Network (IRENE)

[A randomized controlled trial to improve colon cancer screening in rural family medicine: an Iowa Research Network \(IRENE\)](#)

study: IRENE researchers conducted a randomized controlled trial to improve CRC screening in 16 rural family physician offices. Subjects due for CRC screening were randomized within each practice to one of four groups: (1) usual care; (2) physician chart reminder; (3) physician chart reminder, mailed education, CRC reminder magnet, and fecal immunochemical test (FIT) (mailed education/FIT); or (4) all the preceding plus a structured telephone call to the patient from project staff to provide education, assess interest in screening, explain the screening tests, and address barriers (mailed education/FIT plus phone call). The investigators found that CRC screening rates increased significantly among patients who were overdue for screening after they received mailed educational materials and a FIT. The addition of a phone call did not further increase screening rates.

Substance Abuse Treatment

Although substance abuse is often perceived to have a greater impact on urban areas, adults and teens in rural areas are as likely to abuse drugs and alcohol as those in larger cities. Factors contributing to substance abuse in rural areas include poverty, unemployment, lower levels of education, and geographic isolation. Further compounding this problem, rural areas have more limited access to resources to prevent and treat substance abuse.² PBRNs are working to combat these disparities as demonstrated by the research studies highlighted in this section.



Oregon Rural Practice-based Research Network (ORPRN)

[Chronic opioid therapy and preventive services in rural primary care: an Oregon rural practice-based research network study:](#)

The investigators conducted a retrospective cohort study in seven primary care clinics within ORPRN to evaluate a possible association between chronic opioid therapy (COT) for chronic non-cancer pain (CNCP) and receipt of various preventive services. The study found that patients using COT for CNCP were less likely to receive some preventive services.

American Academy of Family Physicians National Research Network (AAFP NRN)

[Improving use of narcotics for nonmalignant chronic pain: a lesson from Community Care of North Carolina:](#) In this article, the authors describe the development, implementation, and effects of collaborative effort to reduce diversion of prescription drugs in rural Caldwell County, NC. A task force developed and implemented a practice guideline that encouraged the following: 1) signing of pain contracts, 2) requiring patients to undergo random urine drug testing, and 3) requiring random pill counts. North Carolina implemented a statewide registry in 2007 that contained information on virtually all opioid prescriptions filled by pharmacies. From 2005 to 2007, opioid pill confiscations decreased by 300 percent. Authors conclude that this countywide medical initiative appears to have resulted in a significant improvement in the abuse and diversion of medically derived opioids.

² <http://www.raconline.org/topics/substance-abuse>. Accessed July 13, 2015.



PBRNs: Rural Health

Where to Learn More

PBRNs Focusing on Rural Populations	
<p>AAFP National Research Network (AAFP NRN)* www.aafp.org/nrn Location: Kansas (With 800 Practices Across 50 States)</p>	<p>UNC Practice Based Research Network (NCnet) http://ncnc.unc.edu/networks/ncnet/ Location: North Carolina (With 197 Practices in 1 State)</p>
<p>Alliance of Chicago Community Health Services (ACCHS) www.alliancechicago.org Location: Illinois (With 200 Practices Across 11 States)</p>	<p>Nemours Primary Care Research Collaborative (Nemours PCRC) http://pbrn.ahrq.gov/pbrn-registry/nemours-primary-care-research-collaborative Location: Delaware (With 20 Practices Across 3 States)</p>
<p>The Appalachian Research Network (AppNET) http://www.etsu.edu/com/appnet/default.aspx Location: Tennessee (With 17 Practices Across 3 States)</p>	<p>National Interdisciplinary Primary Care PBRN (NIPC-PBRN) http://pbrn.ahrq.gov/pbrn-registry/national-interdisciplinary-primary-care-pbrn Location: Iowa (With 50 Practices Across 15 States)</p>
<p>A. T. Still University, School of Osteopathic Medicine in Arizona PBRN (ATSU SOMA PBRN) https://sites.google.com/a/atsu.edu/practice-based-research-network/ Location: Arizona (With 12 Practices Across 9 States)</p>	<p>North Texas Primary Care Practice Based Research Network (NorTex) https://www.unthsc.edu/research/nortex/ Location: Texas (With 101 Practices in 1 State)</p>
<p>Asthma Training To Accelerate Communication and Knowledge (ATTACK) http://pbrn.ahrq.gov/pbrn-registry/asthma-training-accelerate-communication-and-knowledge Location: California (With 28 Practices Across 2 States)</p>	<p>Okinawan Remote islands-Practice Based Research Network (Okinawa-PBRN) http://pbrn.ahrq.gov/pbrn-registry/okinawan-remote-islands-practice-based-research-network Location: Tokyo (With 10 Practices)</p>
<p>Community Care (CC PBRN) http://pbrn.ahrq.gov/pbrn-registry/community-care Location: Colorado (With 24 Practices in 1 State)</p>	<p>Oregon Rural Practice-based Research Network (ORPRN)* http://www.ohsu.edu/xd/outreach/oregon-rural-practice-based-research-network/ Location: Oregon (With 50 Practices in 1 State)</p>
<p>Care Coordination Institute (CCI) http://ccihealth.org Location: South Carolina (With 450 Practices Across 10 States)</p>	<p>Post-Acute Therapeutics and Health (PATH) Clinical Research Institute (PATH Clinical Research Institute) http://pbrn.ahrq.gov/pbrn-registry/post-acute-therapeutics-and-health-path-clinical-research Location: Washington (With 900 Practices Across 43 States)</p>
<p>Collaborative Care Research Network (CCRN) http://pbrn.ahrq.gov/pbrn-registry/collaborative-care-research-network Location: Kansas (With 84 Practices Across 27 States)</p>	<p>Pediatric Diagnostic Center PBRN (PDC PBRN) http://pbrn.ahrq.gov/pbrn-registry/pediatric-diagnostic-center-pbrn Location: California (With 5 Practices in 1 State)</p>
<p>Central Texas Primary Care Research Network (CenTexNet) http://dorfam.sw.org Location: Texas (With 35 Practices in 1 State)</p>	<p>Research Involving Outpatient Settings Network (RIOS Net) http://fcm.unm.edu/research/rios-net/index.html Location: New Mexico (With 30 Practices in 1 State)</p>



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PBRNs Focusing on Rural Populations	
<p>Cystic Fibrosis Newborn Screening Practice Based Research Network (CFNBS PBRN) http://www.cdph.ca.gov/programs/nbs/Pages/NBSCFParents.aspx Location: California (With 15 Practices in 1 State)</p>	<p>The Studying, Acting, Learning and Teaching Network (SALT-Net) http://upstate.edu/fmed/research/saltnet.php Location: New York (With 22 Practices in 1 State)</p>
<p>Chronic Obstructive Pulmonary Disease Ventura County Medical Center (COPDVCMCPBRN) http://pbrn.ahrq.gov/pbrn-registry/chronic-obstructive-pulmonary-disease-ventura-county-medical-center-pbrn Location: California (With 15 Practices in 1 State)</p>	<p>South Carolina Pediatric Practice Research Network (SCPPRN) http://www.musckids.org/pediatrics/research/scpprn/ Location: South Carolina (With 16 Practices in 1 State)</p>
<p>Consortium for Southeastern Hypertension Control (COSEHC) www.cosehc.org Location: North Carolina (With 170 Practices Across 10 States)</p>	<p>Southeast Regional Clinicians Network (SERCN) http://pbrn.ahrq.gov/pbrn-registry/southeast-regional-clinicians-network Location: Georgia (With 1600 Practices Across 9 States)</p>
<p>Centre for Studies in Primary Care (CSPC) http://pbrn.ahrq.gov/pbrn-registry/centre-studies-primary-care Location: Ontario (With 30 Practices)</p>	<p>San Francisco Bay Area Collaborative Research Network (SF Bay CRN) www.sfbaycrn.org Location: California (With 200 Practices in 1 State)</p>
<p>Eastern Carolina Association for Research & Education (E-CARE) http://www.nc-e-care.com/ Location: North Carolina (With 26 Practices in 1 State)</p>	<p>Southern Illinois Practice Based Research Network (SIPBRN) Location: Illinois (Operating in 1 State)</p>
<p>HamesNet (HamesNet) http://pbrn.ahrq.gov/pbrn-registry/hamesnet Location: Georgia (With 46 Practices in 1 State)</p>	<p>Southern Illinois Practice Research Organization (SIPRO) www.sihf.org Location: Illinois (With 31 Practices in 1 State)</p>
<p>Health Choice Network-Practice Based Research Network (HCN-PBRN) http://pbrn.ahrq.gov/pbrn-registry/health-choice-network-practice-based-research-network Location: Florida (With 313 Practices Across 10 States)</p>	<p>Appalachia SMART-NET, PBRN (SMART-NET USA) Location: Massachusetts (With 320 Practices Across 9 States)</p>
<p>Holistic Healthcare and Research Centre (HHRC) http://www.hhcro.org/ Location: Andhra Pradesh (With 15 Practices in 1 State)</p>	<p>Southwestern Ohio Ambulatory Research Network (SOAR-Net) https://www.med.wright.edu/soarnet/ Location: Ohio (With 15 Practices in 1 State)</p>
<p>High Plains Research Network (HPRN)* http://www.ucdenver.edu/academics/colleges/medicalschool/departments/familymed/research/PBRN/HPRN/Pages/HPRN.aspx Location: Colorado (With 56 Practices in 1 State)</p>	<p>ShowMe Research Network (SRN) http://pbrn.ahrq.gov/pbrn-registry/showme-research-network-0 Location: Missouri (With 20 Practices in 1 State)</p>



PBRNs: Rural Health

<i>PBRNs Focusing on Rural Populations</i>	
Iowa Research Network (IRENE)* http://www.medicine.uiowa.edu/familymedicine/irene/ Location: Iowa (With 186 Practices in 1 State)	Texas A&M Health Science Center Rural and Community Health Institute (TAMHSC-RCHI) www.rchitexas.org Location: Texas (With 60 Practices in 1 State)
Improvement Science Research Network (ISRN) http://www.ISRN.net Location: Texas (With 135 Practices Across 50 States)	The Dartmouth Practice-based Research Network (The Dartmouth CO-OP Project) www.Dartmouthcoopproject.org Location: New Hampshire (With 575 Practices Across 4 States)
Kentucky Ambulatory Network (KAN)* http://www.ccts.uky.edu/ccts/KAN Location: Kentucky (With 60 Practices in 1 State)	Frontier Rural Innovations Network (The Innovations Network) http://www.frontierrural.org Location: Kentucky (With 25 Practices Across 10 States)
Kansas Patients and Providers Engaged in Prevention Research (KPPEPR) http://pbrn.ahrq.gov/pbrn-registry/kansas-patients-and-providers-engaged-prevention-research Location: Kansas (With 50 Practices in 1 State)	UMass Family Medicine PBRN (UMass Family Medicine PBRN) http://pbrn.ahrq.gov/pbrn-registry/umass-family-medicine-pbrn Location: Massachusetts (With 10 Practices in 1 State)
LA Net Community Health Resource and Research Network (LA Net) www.lanetpbrn.net , www.projectechola.org Location: California (With 100 Practices in 1 State)	Upstate New York Practice Based Research Network (UNYNET) http://fammed.buffalo.edu/unynet/ Location: New York (With 49 Practices in 1 State)
Minnesota Academy of Family Physicians Research Network (MAFPRN) http://www.mafp.org/research Location: Minnesota (With 135 Practices Across 2 States)	University of Tennessee Pharmacist Practice Based Research Network (UT Pharm Net) http://pbrn.ahrq.gov/pbrn-registry/university-tennessee-pharmacist-practice-based-research-network Location: Tennessee (With 8 Practices in 1 State)
Mecklenburg Area Partnership for Primary Care Research (MAPPR) www.mapprnc.org Location: North Carolina (With 97 Practices Across 2 States)	Ventura County Medical Center Diabetes Data Control Project Practice Based Research Network (VCMCDDCP) http://healthyventuracounty.org/healthy-eating/diabetes-diet-prevention/ Location: California (With 28 Practices in 1 State)
Medical Education Research Network (MedEdNet) www.medednet.org Location: Oregon (With 60 Practices Across 24 States)	WWAMI region Practice and Research Network (WPRN) http://pbrn.ahrq.gov/pbrn-registry/wwami-region-practice-and-research-network Location: Washington (With 49 Practices Across 5 States)
Minnesota Pharmacy Practice-Based Research Network (Minnesota Pharmacy PBRN) http://www.mpha.org/associations/9746/files/PBRN/index.html Location: Minnesota (With 366 Practices in 1 State)	West Virginia Practice Based Research Network (WVPBRN) https://pbrn.ahrq.gov/pbrn-registry/west-virginia-practice-based-research-network Location: West Virginia (With 53 Practices in 1 State)

*Featured in this summary.



PBRNs: *Rural Health*

For more information on these and other AHRQ-registered PBRNs, visit the [PBRN Registry](#). Use the PBRN Registry [advanced search feature](#) to search for networks by location, type of network, health conditions of interest, and geographic coverage.

Citations

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