FRONTIER RURAL INNOVATIONS NETWORK

Rural voice for healthcare reform through innovation

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Background

The Frontier Rural Innovations Network (Innovations Network) is a national Practice-Based Research Network (PBRN) focusing on the improvement of the rural healthcare delivery process to meet the Triple Aim: Better Outcomes, Better Healthcare, Better Healthcare Value. A PBRN is a group of primary care practices and clinicians who conduct research collaboratively by informing each other's questions with data and critique. Clinicians can participate one of two ways or both: 1) by contributing data relative to their practice or community as evidence for a study; 2) by developing a research question and proposal for dissemination across the network. Read more about PBRNs here: http://www.ncbi.nlm.nih.gov/pubmed/17341759. The Innovations Network encompasses rural regions in Kentucky, Indiana, Louisiana, Mississippi, Virginia, West Virginia, Colorado, Washington, Montana, and Alaska (Appendix A).

Residents of frontier and rural areas of the United States are not as healthy as their urban and suburban counterparts. While there are many variables, a dearth of practical scholarly understanding and more limited access to primary care are significant contributing factors. Clinical research on rural-relevant issues is not proportionately reflected in medical literature. Primary care physicians are unevenly distributed geographically, tending to cluster around urban and suburban areas in the vicinity of the residency programs from which they graduate.

The overwhelming majority of clinical research is conducted in the Academic Medical Center model. While this paradigm has produced very useful results, it has limitations. First, only about one person out of a thousand (1/1000) receive their medical care in an Academic Medical Center (Green, LA et.al., NEJM 344:2021-2025). This limits the data set to a limited cross-section of the population. Furthermore, research questions tend to reflect the needs of the populations and viewpoints of researchers who reside within the vicinity of the Academic Medical Center. Frontier and rural health issues, which have great potential to inform the overall discussion, are proportionately missing from lines of inquiry.

Purpose

The Innovations Network is "innovative" for several reasons. First, it focuses research on rural healthcare issues, specifically improving the healthcare process to achieve the Triple Aim: Better Outcomes, Better Healthcare, Better Healthcare Value. Appendix B is a schematic of the rural healthcare system. The patient is at the center, the next concentric working outwardly from the patient

is “concerns”, the outermost being the settings where patients may receive “care”, broadly defined to include interventions performed outside the healthcare facility.

Rural healthcare issues are significantly underrepresented in medical literature, most research reflecting the suburban and urban contexts where Academic Medical Centers exist. This knowledge gap is to the detriment of the nation at large, as the Institute of Medicine (IOM) in Quality through Collaboration has identified rural areas as likely sources for innovative healthcare solutions. A lack of research on rural healthcare issues not only affects rural populations, but is also a gap in the understanding of the greater healthcare system as a whole.

Additionally, the Innovations Network engages trainees and faculty in authentic research into real healthcare issues that affect the institutions and communities in which they train and reside. Under value-based healthcare payment models and integrated delivery models, clinicians will need to continually evaluate and improve their practice. The Innovations Network will train future physicians in the new paradigm, while at the same time allowing seasoned clinicians to participate in lines of inquiry and continuing medical education related to practice transformation. Residents will work as members of an interdisciplinary team to improve the processes of the institutions and communities in which they train. Physician education programs bring value to the institutions and communities through research. The knowledge generated is meaningful to communities and institutions, thereby mitigating issues with late-stage translation, which has been identified by NIH and others, as a significant shortcoming of the traditional research paradigm. In the Innovations Network, trainees and faculty are agents of practice transformation, actively shaping the future of healthcare more than passively reacting; they are active members of the healthcare team.

Physicians tend to practice within proximity to the residency program from which they graduated. Since most residency training is conducted in an Academic Medical Center or other larger tertiary care facility located in an urban or suburban area, physicians are clustered around these communities. The training of physicians reflects their experience in these larger, relatively resource rich tertiary care settings. To alleviate the physician shortage in frontier and rural areas and train physicians to practice in their demographic and geographic context, smaller healthcare providers collaborate to operate community-based residency and clerkship programs. Community-based physician training programs are rich in hands-on training opportunities. However, a persistent challenge of community-based training programs, especially in frontier and rural areas, is supporting a high-quality academic training component. Didactic curriculum, faculty development, and research do not exist in abundance, as these are generally located in a university setting, not a rural community.

The Innovations Network is a PBRN, a research paradigm that allows clinicians and trainees in community-based programs to participate in research that has value to their communities, as well as the scientific and clinical community at-large. The Innovations Network enhances the academic capacity of community-based programs, mitigates professional isolation, which is a significant factor in rural physician attrition, and allows rural institutions and communities to “grow their own” physicians that have the broad-base of competency necessary to provide high-quality service to rural and frontier populations.

Structure

The Innovations Network is a national Practice-Based Research Network that consists of four (4) regional networks with administrative centers located in Colorado, Montana, Kentucky, and Mississippi (Appendix A). These networks extend across the aforementioned states, as well as Alaska, Washington, Louisiana, West Virginia, Arkansas, Indiana, Alabama, Tennessee, and Virginia. The regional networks have similar personnel structures, are on the same web-based collaborative platform and research processes, and are focused on a common theme: Improving the Rural Healthcare Process to meet the Triple Aim. Community Advisory Boards (CAB) guide the research processes locally and Innovations Network-wide.

Each regional network has research infrastructure, including research administration and technical support (Appendix C). An overall network Principal Investigator is the scientific leader for the network. The Overall PI assists other researchers with the development of proposals and analysis and translation of research findings, ensuring that projects have scientific rigor and align with the theme, vision, and goals of the network. Regional Networks have local scientific leadership to assist with validation and implementation issues, as well as participate in proposal development and analysis and translation of findings.

Research administration personnel include an overall Innovations Director, Regional Innovations Manager(s), and Innovations Coordinator(s). The Director is located centrally and coordinates research and education across all of the networks. Regional Innovations Managers and Coordinators are located at each network. The Manager oversees the research process and research education of the Regional Network and communicates with the National Network. The Coordinators are the direct liaison to the participating clinicians and clinics. They conduct validation training, collect data, conduct needs assessments, among other duties.

The Innovations Network has a similar structure to ensure consumer involvement in research and minimize threats to social validity. "Threats to the social validity of applied research" have been described by Tom Seekins, PhD and Glen W. White, PhD of the University of Montana and University of Kansas, respectively, in 2012. Seekins and White define social validity as "the extent to which potential adopters of research products judge them useful and actually use them." These threats include:

- Selecting irrelevant topics for research
- Lack of clarity about important consumer goals
- Misunderstanding of the acceptability of research methods
- Misunderstanding the range of intervention acceptability
- Ignoring criteria that potential adopters would use to judge the significance of outcomes and impatcs
- Misinterpreting results
- Lacking generality of findings in real live application

In 2001, the Institute of Medicine cited "patient-centered" approaches, including the patient perspective, as being a vital part of healthcare improvement. Inclusion of patient and community perspectives to reduce threats to social validity is at the core of Innovations Network research.

Researchers will utilize patient panels, focus groups, individual interviews, and community advisory boards as mechanisms to include the patient perspective in the healthcare improvement process.

Each regional network has a mechanism for patient involvement as determined by the circumstances of the research, population, subject, etc., thereby providing for comparison of processes and techniques across regions. The information and insights garnered through this array of processes inform the regional network Community Advisory Board (CAB), and consequently the national Innovations Network (Appendix D). The CAB of each regional network guides the research agenda and process, ensuring that it meets community needs, follows community principles and processes, and that data is interpreted in the proper context. Regional CABs will convene to form a national CAB that will ensure consumer involvement Innovations Network-wide. Read more about CABs here: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3103575/.

Frontier Rural Innovations Network Areas of Research Interest

- Patient Activation
- Obesity
- Diabetes
- Smoking Cessation
- Pain Management
- Transitional Care
- Swing Bed Utilization
- End of Life Care
- Integrated Behavioral Health
- Access to Primary Care
- Healthcare Payment and Delivery Models
- Inter-professional Healthcare Teams
- Provider Education
- Osteopathic Principles and Practice (OPP)

Description of Innovations Network Partners

A-OPTIC –Pikeville, KY

The Appalachian Osteopathic Postgraduate Training Institute Consortium (A-OPTIC) operates the Frontier Rural Innovations Network. A-OPTIC is accredited by the American Osteopathic Association (AOA) as an Osteopathic Postgraduate Training Institute (OPTI). A-OPTIC is a physician graduate medical education consortium. A-OPTIC provides academic resources –Research, Faculty Development, Curriculum – to community-based residency programs in rural and frontier areas of the United States, as well as administrative oversight to ensure continued program accreditation and quality improvement. A-OPTIC is also a Health Resources and Service Administration (HRSA) Teaching Health Center (THC).

A-OPTIC has three categories of Membership: Residency, Medical School, and Research. Members are currently located in nine (9) states. A-OPTIC has fourteen (14) Residency Members and two (2) Academic Members –William Carey University College of Osteopathic Medicine in Hattiesburg, MS and

the University of Pikeville - Kentucky College of Osteopathic Medicine in Pikeville, KY. A-OPTIC's Research Members include Community Care Central Colorado, an ACO in Colorado Springs, CO; the Frontier Medicine Better Health Partnership, in St. Regis, MT; International Heart Institute and University of Montana in Missoula, MT; Pacific Northwest University, Yakima, WA; and others. This network of diverse organizations has a common interest to improve access and quality of care in rural and frontier areas of the United States.

Community Care Central Colorado – Colorado Springs, CO

Community Care Central Colorado is an Accountable Care Organization (ACO) and a Regional Care Collaborative Organization (RCCO) serving Colorado in Teller, El Paso, Park and Elbert counties. An RCCO provides coordinated care for Medicaid clients by connecting them with Medicaid providers and other community and social services. Community Care helps clients get the right care when they are returning home from the hospital or nursing facility and help with other care transitions, too, like moving from children's to adult health services, or moving from a hospital to nursing care.

As part of this commitment to improving the quality and effectiveness of the care delivery process for patients, there are various Community Care research projects that are planned, ongoing, or completed. Community engagement and collaboration are key components of these initiatives.

International Heart Institute of Montana – Missoula, MT

The International Heart Institute of Montana Foundation is a unique and comprehensive research and educational facility that was created through a joint venture between St. Patrick Hospital and The University of Montana. It is located in Missoula, Montana, and is comprised of a group of professionals who are dedicated to improving patient care. The International Heart Institute Foundation cultivates high-quality cardiac care by conducting basic, translational, and clinical cardiac research while developing new technology for commercial applications and offering training and educational opportunities. The Foundation's research and education programs work closely with The International Heart Institute of Montana's cardiology team to advance medical care for heart patients everywhere.

University of Montana – Rural Institute, College of Health Professions, Family Medicine Residency of Western Montana – Missoula, MT

Since 1979, the Rural Institute, Montana's Center of Excellence in Disabilities, has sought to enhance the quality of life for people with disabilities, especially those individuals living in Montana and other rural areas across the country. Our objective is to increase the independence, productivity, community integration, and inclusion of those with disabilities through education, research, and demonstration services.

As part of the national network of University Centers for Excellence in Developmental Disabilities (UCEDDs), we share a vision that foresees a nation in which all Americans, including Americans with disabilities, participate fully in their communities. The Rural Institute employs nine faculty and over 50 staff members who are currently working on 30+ projects that cover a broad range of disability related topics which include:

- Assistive Technology

- Family and Consumer Involvement
- Health Promotion
- Health Maintenance
- Hearing Conservation
- Inclusion
- Independent Living
- Personnel Preparation
- Rural Rehabilitation
- Self-employment
- Social Security Incentives
- Supported Employment
- Transition from school to adult life

Situated on the beautiful University of Montana campus, the College of Health Professions and Biomedical Sciences is home to cutting-edge research and top-notch educators. Degree offerings include Bachelor of Arts and Master's in Social Work, Master's and Certificate of Public Health, Doctor of Pharmacy, Doctor of Physical Therapy, Master of Science and Doctor of Philosophy in Neuroscience, Biomedical & Pharmaceutical Sciences, Toxicology, and Medicinal Chemistry. The College prepares persons to serve in the professions of pharmacy, physical therapy, public health, and social work. Students also have opportunities to participate in research projects with faculty who are committed to academic excellence. Many members of the faculty have not only a national reputation but also an international reputation. As an example, the Skaggs School of Pharmacy ranks among the top 25% of pharmacy schools in total National Institutes of Health funds received. Our students are placed in many diverse learning environments in numerous rural training sites across the entire state of Montana.

The Family Medicine Residency of Western Montana is a three-year family medicine program sponsored by The University of Montana and affiliated with the University of Washington Family Medicine Residency Network and A-OPTIC. FMRWM was founded on the belief that a residency program should develop excellent physicians and should serve the community, whether in a bustling university town or a hamlet of 200 people. And, since we are fortunate enough to call Western Montana home, the program aims to inspire a work/life balance that nurtures both personal and professional passions.

Methodist Hospital Family Medicine Residency Program – Henderson, KY

The Methodist Hospital Family Medicine Residency is located in Henderson, Kentucky, and has been in existence since 2003. Through the Osteopathic Family Medicine Program, the Medical Staff of Methodist Hospital is dedicated to providing an atmosphere of learning, collaboration, and excellence to all students and residents. The residents, who choose Methodist Hospital as the healthcare facility that will enhance their education and provide practical hands on experience, enjoy a diverse environment designed to provide the highest standards of professional ethics and integrity. In partnership with the University of Pikeville - Kentucky College of Osteopathic Medicine (KYCOM) and as a member of the Appalachian Osteopathic Postgraduate Training Institute Consortium (A-OPTIC), becoming a teaching

hospital elevated Methodist to a new level of providing comprehensive, consistent, and quality healthcare to patients.

William Carey University College of Osteopathic Medicine – Hattiesburg, MS
The William Carey University College of Osteopathic Medicine (WCUCOM) educates medical students at training sites that span a five-state region of the Gulf Coast and will graduate its first class of medical students as Doctors of Osteopathic Medicine (DO) in 2014. The school pursues a mission to advance knowledge and provide leadership in addressing the shortage of primary care physicians in the Gulf South Region, particularly within rural and underserved communities. It is committed to providing the highest quality educational experience possible for its students.

University of Pikeville – Kentucky College of Osteopathic Medicine – Pikeville, KY
The mission of the University of Pikeville – Kentucky College of Osteopathic Medicine (KYCOM) is to provide men and women with an osteopathic medical education that emphasizes primary care, encourages research, promotes lifelong scholarly activity, and produces graduates who are committed to serving the health care needs of communities in rural Kentucky and other Appalachian regions.

Since its inception in 1997, more than 700 physicians have graduated from KYCOM, with 60 percent serving primarily in rural healthcare facilities in Eastern Kentucky and other regions of Appalachia. KYCOM has earned high marks in rural medicine ranking fifth among all medical schools in the nation, both D.O. and M.D., in *U.S. News & World Report's* 2014 edition of Best Graduate Schools. KYCOM is ranked second in the percentage of graduates who enter primary care residencies.

Pacific Northwest University of Health Sciences – College of Osteopathic Medicine – Yakima, WA
Based in Yakima, Washington, the College of Osteopathic Medicine (COM) is in the heart of medically underserved and rural populations. When its doors opened in 2008, it was the Pacific Northwest's first medical school in 60 years.

The four-year accredited osteopathic medical education program begins in Yakima at Butler-Haney Hall and the Cadwell Student Center. Combined, these two buildings provide 56,000 square feet of learning space including a spacious anatomy laboratory with camera projection capability, a large osteopathic manual medicine classroom, a simulation laboratory, research and study space, a student government office, student lounge, and numerous break-out rooms for small group interaction. During years three and four, students tackle the rigors of clinical rotations at hospitals and clinics throughout the Northwest where regional deans and regional coordinators support and guide their steps toward residency.

At PNWU-COM, highly capable and committed staff, administrators, and faculty, including practicing physicians, focus on high-tech, high-touch medical education, as well as osteopathic principles and practice to train the next generation of physicians. In addition, more than 650 adjunct clinical faculty share in PNWU's commitment to serve the rural and medically underserved of the Northwest.

East Central Health Network – Regional Rural Primary Care Training Campus –Decatur, MS
East Central Health Network (EC-HealthNet) is a network of community-based organizations, clinics and tertiary care, critical access, and specialty care hospitals across east central Mississippi and northern

Alabama. The network was created to coordinate health services across the region. EC HealthNet has developed a Rural Regional Primary Care Training Campus (RRPCTC) that will offer AOA and ACGME accredited residency training in Family Practice and Internal Medicine. The RRPCTC overlays the existing network of EC-HealthNet healthcare providers which includes tertiary care centers, primary care centers, and critical access hospitals. EC-HealthNet RRPCTC facilities are part of the Frontier Rural Innovations Network. Residents receive wraparound research support and have longitudinal rotations in research with a timeline for completing specific tasks culminating in a publishable product. Faculty members also have access to research support and are encouraged to participate. These components contribute to meeting the overall purpose of the EC-HealthNet RRPCTC: to train physicians in rural areas to increase the likelihood that they will choose to practice in a rural area and have the clinical philosophy and skills to care for rural residents of these communities.

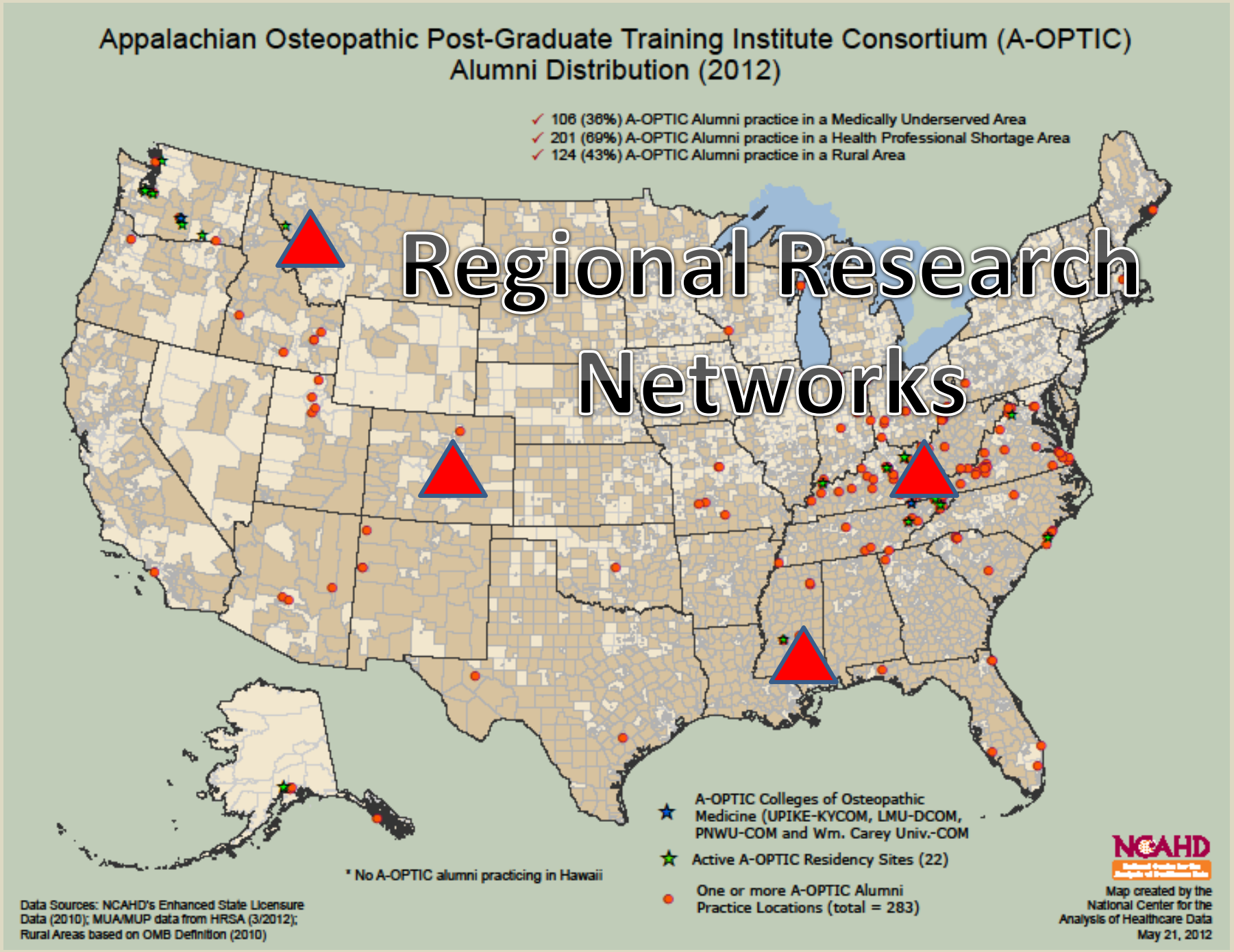
Frontier Medicine Better Health Partnership – St. Regis, MT

The Frontier Medicine Better Health Partnership (FMBHP) is a collaboration among frontier/rural healthcare communities; Interdisciplinary Medical Education Center; iVantage, an industry leader providing comprehensive hospital evaluation tools; Vree Health; and the Appalachian Osteopathic Postgraduate Training Institute Consortium (A-OPTIC).

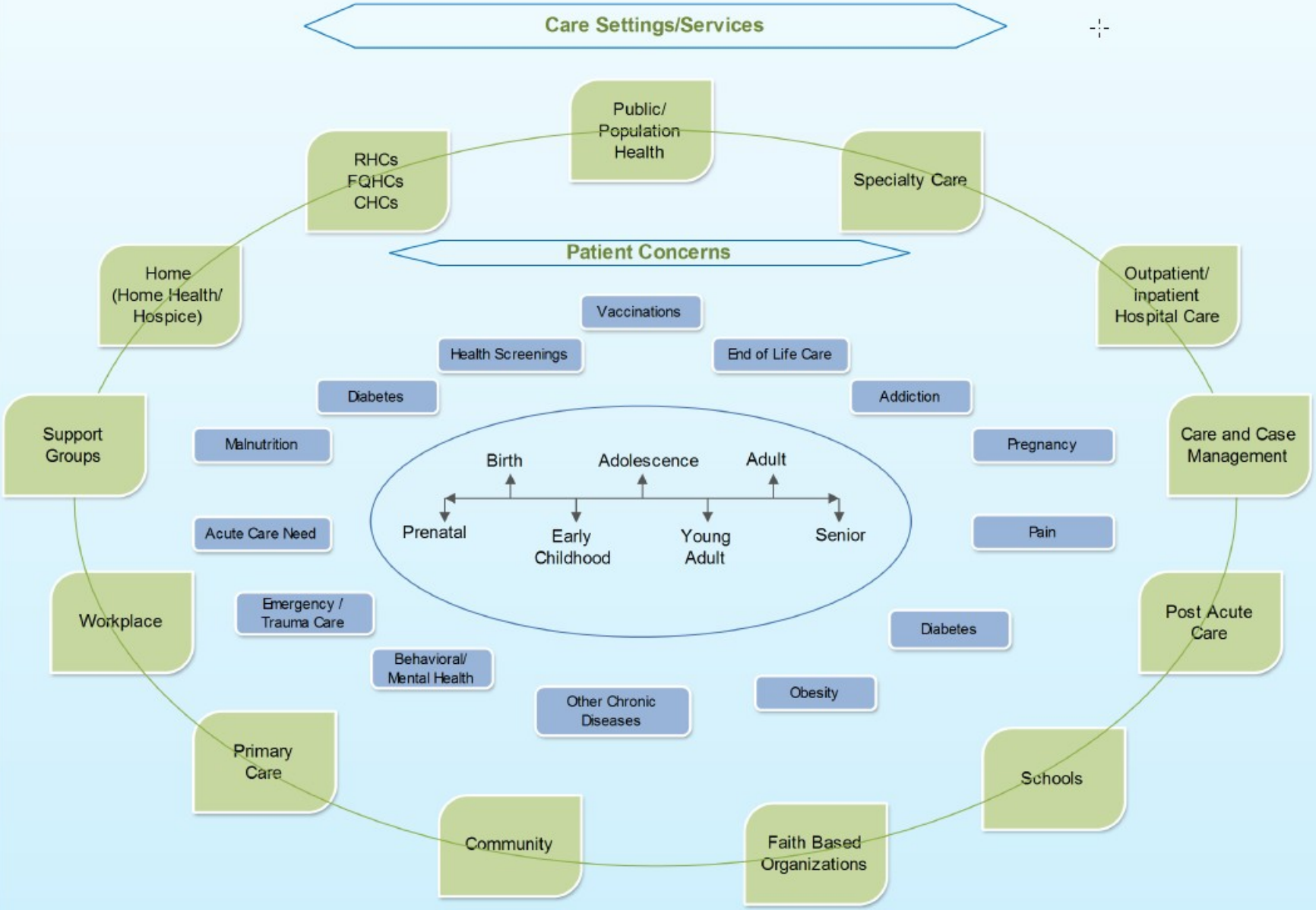
The FMBHP was formed to address the unique healthcare challenges in frontier/rural communities and develop solutions that are scalable nationwide. By working closely with a state-wide network of Critical Access Hospitals in Montana, the FMBHP plans to develop, implement, test, refine, and operate a model of healthcare delivery and payment for frontier/rural America based on community-validated best practices. The FMBHP system is supported by a "just in time" inter-professional workforce development center.

References

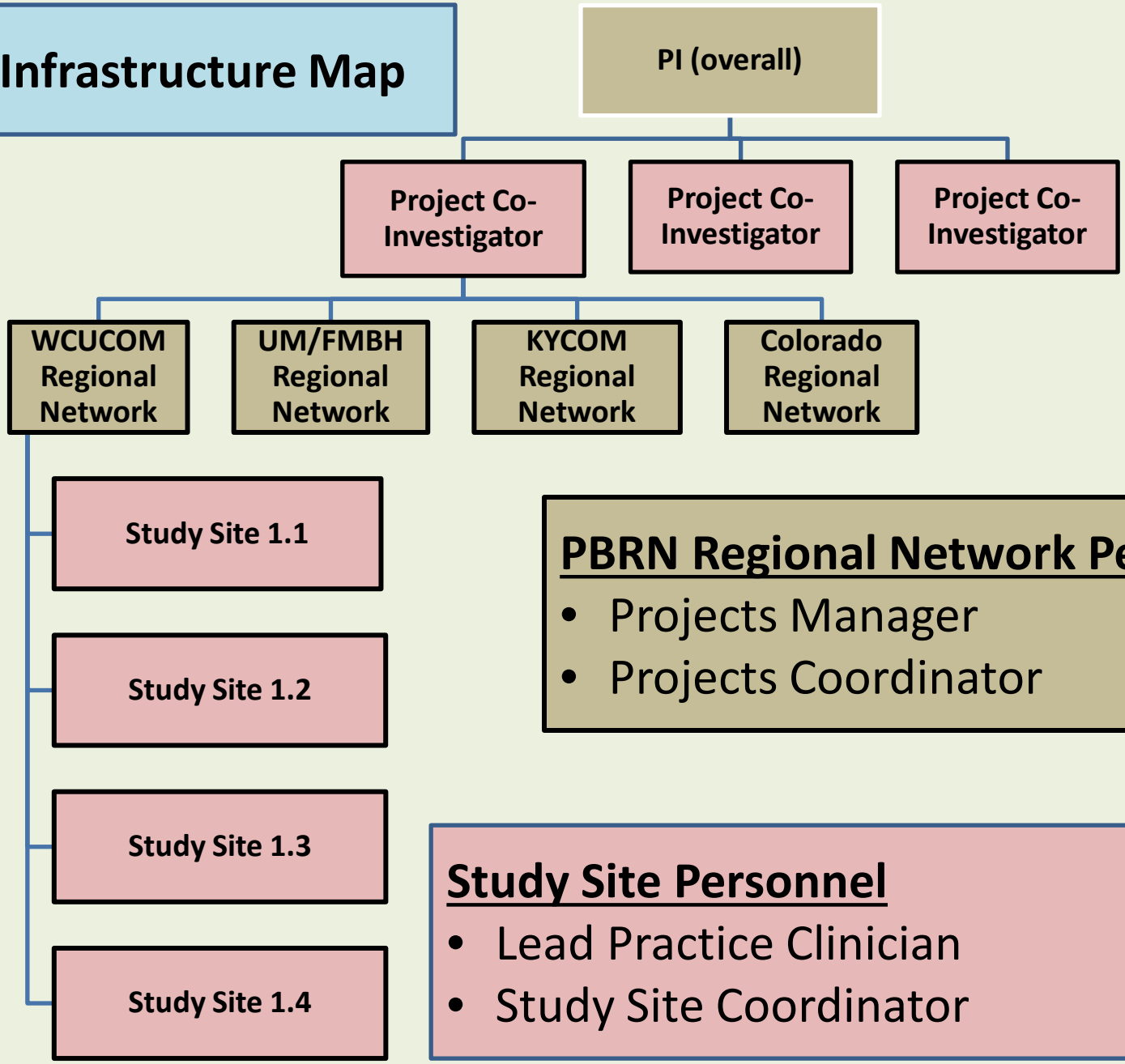
1. Graham, Deborah, Mindy Spano, et al. "Strategies for Planning and Launching PBRN Research Studies: A Project of the Academy of Family Physicians National Research Network (AAFP NRN)." *Journal of the American Board of Family medicine*. 20.2 (2007): 220-28.
2. Newman, Susan, Jeanette Andrews, et al. "Community Advisory Boards in Community-Based Participatory Research: A Synthesis of Best Processes." *Preventing Chronic Disease - Public Health Research, Practice, and Policy*. 8.3 (2011): 1-12.
3. Lobb et al. "Using concept mapping in the knowledge-to-action process to compare stakeholder opinions on barriers to use of cancer screening among South Asians." *Implementation Science.* (2013): 8-37.
4. Seekins, Tom, and Glen White. "Participatory Action Research Designs in Applied Disability and Rehabilitation Science: Protecting Against Threats to Social Validity." *Archives of Physical Medicine and Rehabilitation*. (2012).
5. Institute of Medicine. *Quality Through Collaboration: The Future of Rural Health*. 2nd ed. Washington, D.C.: The National Academies Press, 2005.
6. Green, LA et.al. *The Ecology of Medical Care Revisited.* NEJM 344:2021-2025. 2001.


Appalachian Osteopathic Post-Graduate Training Institute Consortium (A-OPTIC)
Alumni Distribution (2012)
✓ 106 (36%) A-OPTIC Alumni practice in a Medically Underserved Area
✓ 201 (69%) A-OPTIC Alumni practice in a Health Professional Shortage Area
✓ 124 (43%) A-OPTIC Alumni practice in a Rural Area
Regional Research Networks
* No A-OPTIC alumni practicing in Hawaii
A-OPTIC Colleges of Osteopathic Medicine (UPIKE-KYCOM, LMU-DCOM, PNWU-COM and Wm. Carey Univ.-COM
Active A-OPTIC Residency Sites (22)
One or more A-OPTIC Alumni Practice Locations (total = 283)
Data Sources: NCAHD's Enhanced State Licensure Data (2010); MUA/MUP data from HRSA (3/2012); Rural Areas based on OMB Definition (2010)
NCAHD
Map created by the National Center for the Analysis of Healthcare Data
May 21, 2012

Rural Health Continuum



Infrastructure Map



PBRN Regional Network Personnel

- Projects Manager
- Projects Coordinator

Study Site Personnel

- Lead Practice Clinician
- Study Site Coordinator

Community Advisory Board Structure