The Prevention Research Centers as Models of Practice-Based Evidence

Two Decades On

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Medicine and health services research adapted the business model of continuous quality improvement to provide practice-based evidence of what people need and what works in real time, real circumstances, and with real employees and patients. Continuous quality improvement has been one of medicine's best applications of participatory research and evaluation to answer the growing concern that academic medical research and evidence-based medicine were failing to translate fully to practice.[1] Primary care researchers and practitioners have extended this participatory approach to Practice-Based Research Networks (PBRNs) to build sufficient numbers of patients to power the studies of practices and to increase the external validity or generalizability of the results.[2] What has public health developed as a counterpart to continuous quality improvement and PBRNs to respond to the suggestion that if we want more evidence-based practice, we need more practice-based evidence?

The Rise of Prevention Research Centers

In 1986, Congress appropriated funds under Public Law 98-551 for the Centers for Disease Control and Prevention (CDC) to establish university-based Centers for Research and Demonstration of Health Promotion and Disease Prevention. CDC funded the first three centers that year at the universities of North Carolina, Texas, and Washington. A decade later, there were 14. They had come to be referred to as Prevention Research Centers (PRCs), an expedient abbreviation that might have lost in its connotation some of what Congress sought in its language authorizing "demonstration projects in health promotion, disease prevention and . . . technique to improve public health." At the decennial mark, the CDC commissioned an Institute of Medicine (IOM) committee to review the state of the PRCs. The independent committee found much to celebrate and to praise in CDC's stewardship and the stimulus the PRCs had provided for schools of public health and departments of community and preventive medicine, but it concluded that the centers had, indeed, not yet accomplished some of those mandates for "providing the public health community with workable strategies to address major public health problems. . ."[3] In this supplement to the *American Journal of Preventive Medicine,* a series of papers emerging from the second decade of the Centers signal the achievement of some of the goals inherent in the "health promotion" part of the name and the "research and demonstration" approach to public health development and community partnerships. In particular, they illustrate the PRCs' emphasis on the testing and dissemination of workable strategies for public health agencies.

The CDC deserves much of the credit for the utility of the research products evident in these papers. These articles and the PRC partnerships that produced them reflect a maturing and harvesting of the early CDC investment in the research centers and the CDC's encouragement of a more participatory approach to the research to ensure its relevance and utility. There has also been a secular trend that could be traced over the 2 decades from an academic dependence on theory rather than public health problems as the starting point for research and misplaced precision and control in the methods of research at the expense of generalizability and diffusion.

IOM Recommendations for PRCs

This commentary will not attempt to trace the entire range of changes in PRC functioning and productivity addressed by the IOM Committee evaluating the first decade of the program and the first 13 centers funded during that period. It will concentrate on a subset of the IOM Committee's recommendations[3] of particular pertinence to this special issue of the AJPM:

1. PRCs should document the impact of their activities on public health research, practice, and policy, both locally and nationally (pp. 5, 41–42).
2. PRCs should adopt a community-based approach to their research and demonstration efforts (pp. 5, 42–43); the CDC should develop strategies for improving community input into the PRCs (pp. 8, 49–50, 54).

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3. The PRC program, as a whole, should increase its focus on dissemination efforts (pp. 6, 43–46). The PRCs should increase their dissemination research efforts (pp. 6, 46–47). The CDC should set expectations for dissemination research in the PRC program and encourage the PRCs to communicate their findings concerning dissemination and implementation methods among themselves and to the broader public health community (pp. 8, 55).

Impact on the Direction of Public Health Research, Practice, and Policy

The simple fact that the series of papers in this supplement has research products considered worthy of dissemination is the first clue that utility and application have prevailed in the PRC research portfolio after a decade in the late 1980s and early 1990s when schools of public health and departments of preventive medicine seemed to have tilted toward more academic research. The academic drift was signaled by priority on the testing of single theories above the transdisciplinary use of blended theories to solve complex problems as the justification for research priorities.[4] On the methodologic side, the academic imperative pushed public health researchers toward a misplaced emphasis on experimental control at the expense of representativeness and relevance of the interventions being tested and the circumstances in which they were being tested.[5] By laying greater emphasis in the past decade on the testing of interventions in real communities and in real time, PRCs, with CDC encouragement, have helped correct the academic drift of public health research.

A 2006 bibliometric study of articles published by the PRCs and self-identified as their best, found that they had a respectable citation average of 14 each after more than 5 years. The study also found little correlation between the academically defined Impact Factor (Institute of Scientific Information) of the journals and the PRCs' perception of journal influence.[6] This would suggest that the PRCs recognize that their impact on the field is not synonymous with their academic impact as conventionally defined and measured. Our best hope for increasing balance in university support for the more practice-based and practice-relevant research is that greater weight will be given in appointment, promotion, and tenure decisions to these types of research. Recommendations and guidelines for movement in that direction have been made by a commission report for Community-Campus Partnerships for Health (www.ccph.info).

Community-Based and Participatory Approaches to Research and Demonstration

The second set of IOM recommendations quoted previously pertains to a partnering of researchers and community end-users of the expected research results. If one-sided research of the theory-driven type was justified as academically "proactive," and the undisciplined attempts to research whatever the community demands criticized as "reactive," then the more balanced, participatory approach recommended by the IOM could be seen as "interactive."[7] Participatory approaches to health research have had a strong run since that decennial turning point in 1996, thanks to initiatives of the CDC,[8] the Agency for Healthcare Research and Quality, and some other federal agencies and foundations in the United States,[9] the IOM itself,[10] and growing support from Canadian health research funding agencies.[11] Examples of such partnering and participation in research arise in the articles on dissemination and utilization of research in this issue because the widely shared assumption is that if end-users are engaged at least in helping set the research question and in interpreting the results, if not also in gathering and analyzing data, they will be more likely to apply the findings in practice, programs, and policies.

Dissemination and Research on Dissemination

The IOM committee saw a bottleneck of accumulated research in the PRCs in the mid-1990s, much of it failing to get beyond publication in scientific or professional journals. Most research before that time was submitted for funding without much attention to the question of dissemination and implementation, just as demonstration programs had been funded without much attention to sustainability. Increased emphasis on dissemination revealed an inadequate evidence base for guiding dissemination efforts, so the IOM Committee made dissemination research an additional recommendation. The articles in this supplement to the *American Journal of Preventive Medicine* offer case examples of dissemination, literature reviews, and conceptual frameworks for understanding dissemination and research on specific efforts to enhance dissemination, adoption, and implementation.

The PRCs as a Practice-Based Research Network

With CDC encouragement and support, the PRCs appear to have become, in a comparatively amorphous way, a PBRN. Unlike those in medical, nursing, and dental specialties, the PRC network is not a consortium of clinical settings with an ongoing arrangement between specific practice settings and a centralized group of researchers. The PRC consortium is among academic centers across the country, each with a group of researchers and each with a set of relationships to its own community, state, or regional public health practice, program, and policy settings. This organization achieves some of the other features of PBRNs, such as permitting the collection and sharing of data about the

processes and outcomes of health interventions across settings; enhancing sample sizes by pooling data across settings; obtaining diversity of populations and settings to increase external validity; and testing the uptake, adoption, and maintenance of interventions or programs in different settings. In its most recent effort to find some consensus among the PRC researchers and their national and local stakeholders, the CDC sponsored a concept-mapping survey and arrived at a single logic model for the PRC program.[12]

This comparison of the CDC-funded PRC network of practice-based research settings and the PBRNs funded by the Agency for Healthcare Research and Quality and the Robert Wood Johnson Foundation, for example, becomes more meaningful when one observes the degree to which measurement instruments and data collection methods are being shared and standardized across settings and among PRCs.[13,14] This is adding value to the productivity of individual PRCs, just as the Agency for Healthcare Research and Quality and the Robert Wood Johnson Foundation have sought to obtain synergy across their multiple PBRNs by convening them periodically and encouraging the use of common instruments and measurement protocols.[15]

Conclusion

At the end of their first decade, the PRCs were strong on research output, but weak on three dimensions of the original mandate: tracking their impact on practice and policy, engaging their communities of public health practice, and taking their products to scale through dissemination. The last of these three dimensions called for additional research on dissemination, as well as more concerted dissemination efforts. Even as the IOM report was working its way through clearance and publication, the CDC had already successfully turned the corner in steering the second decade of the PRC program in these three directions and accelerated its efforts to emphasize assessment of impact, partnering with public health practice, and disseminating results. Under the leadership of the University of New Mexico's PRC, various investigators and partner community groups have illustrated in the series of papers in this supplement how the subject of diffusion can be addressed by a PRC and how its successful pursuit as a public health research topic involves a blending of theories, practice-based participatory research approaches, and the assessment of impact of research products on public health practice.

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