

Health Behavior Change Research: A Consortium Approach to Collaborative Science

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In 1998 the Office of Behavioral and Social Sciences Research at the National Institutes of Health (NIH) had the vision and courage to launch the first trans-NIH initiative to foster collaborative research across its various Institutes. This initiative reflected the fact that research on changing behaviors like smoking, sedentary lifestyle, and diet is inherently multidisciplinary and therefore requires collaboration. Further, these behaviors do not respect boundaries of disease or anatomy and transcend the mission of any single Institute of Health. The impact of these behaviors on health is of such magnitude that collaboration across NIH Institutes and institutions has become one of the most promising approaches to advance the field of health behavior change. This supplement issue reports some of the first contributions of the Behavior Change Consortium (BCC), focusing on the collaborative efforts.

One of the themes of collaboration is to search for consensus in a science that suffers dearly from too little consensus. Award-winning research in a variety of disciplines has demonstrated that those with less consensus, like the behavioral and social sciences, receive fewer grants, have more revisions and resubmissions, experience lengthier publication lags, have fewer citations, and have lower status and salaries. This seems a high price to pay for a problem most of the field does not yet fully appreciate. Fortunately, forces like the BCC have been striving to produce collective knowledge that may help forge consensus across some critical concerns of our science.

Consensus building requires collaboration, and the BCC wisely elected to include the processes of collaboration as one of its key foci. There are several major inter- and intrainstitutional barriers that inhibit rather than reward collective creativity. These include the single-scholar model, the first-author phenomenon, and the primary allegiance to a department or discipline rather than to solving common problems. The BCC sought to examine how these barriers could be bridged via effective leadership, open communication, clear rules, private and public partnerships, data sharing, and joint publication guidelines. The result has been sustainable collaboration with convictions that the whole is greater than the sum of the parts and that collective knowledge is many times stronger than that borne of solitary projects.

I have had the privilege of publishing with more than 150 different colleagues. Should anyone ask me how intelligent I am, my answer would depend on with whom I am working. Notwithstanding the lessons learned from the BCC, we do pay a

price for collaboration. Collaboration takes more time: There can be added conflicts when self-interest or those of a single institution transcend the shared interests of advancing science. If there are problems with insufficient consensus within a discipline, imagine the conflicts that can occur when trying to collaborate across disciplines. When the National Cancer Institute issued a Request for Applications (RFA) for five or six Centers of Excellence for Cancer Communication Research (RFA CA-03-007; March 21, 2002), the multidisciplinary review group could not generate enough agreement to award \$1 of the \$50,000,000 that was originally set aside. It is difficult to imagine that ever happening in the biological sciences. There seems to be a growing consensus that peer review is badly broken in the behavioral and social sciences, and, fittingly, there is no consensus on how to fix it.

Some of the biggest barriers to transdisciplinary collaboration include a lack of consensus about empirical measures, intervention modalities, and research methods. The BCC workgroups tackled many of these thorny issues. Common measures across projects, for example, helped facilitate integration among all sites, not just those with common outcomes or theoretical models. It is important to keep in mind that information is not knowledge: *Integration* of information is knowledge. Our field has an overabundance of information but not nearly enough knowledge.

In some areas, like smoking, the BCC's tobacco dependence workgroup had a somewhat simpler assignment of determining primary outcome measures—point prevalence and prolonged abstinence. Admittedly, different measures have different meaning. From a transtheoretical perspective, point prevalence measures the percentage of participants at follow-up who are in the action or maintenance stage of change. Six-month prolonged abstinence measures just those who have progressed to the maintenance stage. At our center, we use similar measures across behaviors, which permit easier integration of principles and processes of change as well as outcomes across diverse behaviors.

The BCC's physical activity workgroup examined screening for physical activity and staging for physical activity. Although there is agreement that screening is important to increase patient safety, there is no consensus on the screening criteria best suited for community interventions. The workgroup had the luxury of more than 5,000 participants from 15 diverse interventions. They found no serious study-related adverse events and suggest screening criteria that could be the basis for consensus.

With a common measure of stages of change for physical activity across nine studies with approximately 4,000 participants, the BCC found that only about 5% of the participants were in the precontemplation stage and 10% were in contempla-

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tion. In contrast, nearly half were in the action or maintenance stages. These findings reflect the fact that reactive rather than proactive procedures are most often used to recruit research participants. Reactive procedures dominate clinical interventions—where clinicians wait for patients to come to them. The problem is that most patients do not seek behavior change services; however, they will participate if we reach out to them to offer easily accessible treatments or programs. Such findings support the view that dominant clinical paradigms drive research rather than research driving practice.

Some findings also raise the troubling prospect that too much of our research fails to include major segments of society that are understudied and underserved, such as populations who are at risk and are in the early stages of change. Consider, for example, the U.S. Department of Health and Human Services Clinical Guidelines for the Treatment of Tobacco. In 1996, there were more than 3,000 studies available to provide evidence for a range of clinical treatments for smoking cessation. Strong recommendations could be made for a variety of evidence-based treatments for motivated smokers, but there was a lack of sufficient scientific evidence to support treatments for unmotivated smokers who are in the precontemplation or contemplation stages. In this case, clinical judgment had to suffice. Four years later, new guidelines were issued in part because there were 3,000 more studies available. Still, there were no evidence-based recommendations for treatments for unmotivated smokers, even though they make up more than 80% of all smokers in the United States and more than 90% of daily smokers. Our clinical practices and theoretical models can seriously limit our science. Fortunately, there are now a growing number of published population-based smoking cessation trials that can support evidence-based treatments for the large majority of smokers who are not motivated to quit in the next month.

Of course, once we proactively recruit a high percentage of unmotivated participants to our population trials, retention then becomes a major challenge. The recruitment and retention workgroup studied the strategies used across studies to reduce barriers to retention. The strategies recommended seemed to reflect basic principles and processes for changing behavior—in this case, dropout behavior. These included emphasizing and increasing the pros of participating by emphasizing the benefits of participating, giving incentives and social support. They also included reducing the cons by reducing the response burden, reducing costs like transportation, and being flexible by phone. Such principles and more can be studied in the context of not only retention in research but also retention in treatment programs based on research.

Motivational Interviewing (MI) is one the most promising approaches to treating the unmotivated or undermotivated segments of at-risk populations. The challenge for the BCC's MI workgroup was in motivating the motivators to assure that high-fidelity MI was being delivered to all treatment participants. Given the high variability in quality of services delivered by clinicians generally, this is a major challenge for treatments that are basically clinician delivered. The MI workgroup identified such strategies as intensive training, monitoring, and super-

vising as means of improving treatment fidelity. The MI workgroup did not have the opportunity to assess some other promising approaches, such as computers complementing clinicians or individualized feedback to the clinician about how each participant is either progressing or failing to progress, or the principles and processes of change that are being under- or overemphasized by individual participants at home between clinical sessions.

Too much of our research assumes that most of behavior medicine is delivered in clinics by clinicians. The fact is most primary care is delivered by patients themselves at home and is heavily behavior based. I asked 35 medical directors of major health care systems about the quantity and quality of behavior medicine that primary care patients take home to prevent or manage chronic disease. They all agreed that the quantity was typically zero and the quality was typically poor.

One of the problems of treatment fidelity that relies on intensive monitoring and supervising is that such support may not be available in the real clinical world that lacks the resources of research. This is the issue addressed by the BCC's RE-AIM workgroup that grappled with the challenge of designing for dissemination. There is a growing recognition that our field's excessive reliance on clinical efficacy trials is one of the major barriers to dissemination. Efficacy trials, for example, have the luxury of treating highly selective samples, such as motivated smokers or participants without comorbidities. The real intervention world does not have this luxury of all the controls built into clinical trials. The results can be treatments that are not effective with large segments of at-risk populations—like smokers who are not sufficiently motivated or patients with comorbidities.

The recommended solution is to move toward effectiveness trials that are much more population based and treat heterogeneous rather than homogeneous groups of participants. Such trials also sacrifice considerable controls. Our center recently completed an effectiveness trial for bullying prevention in 12 middle schools and 13 high schools across the country. This Internet-based program ran into all types of problems, such as scheduling treatment sessions at the designed intervals, censors on the schools' systems, and memory problems with confidential log-in codes. There was so much noise in the study that our sponsor seriously considered pulling the plug on the project, but to everyone's surprise, the treatment outcome signals were the strongest we have ever received from any intervention study, with odds ratios of about 4 between the treatment and control schools in both the middle schools and high schools. As the RE-AIM workgroup concluded, we are confident that this intervention will be disseminated, in part because the intervention effects were robust enough to hold up under real-world conditions that sacrifice considerable control. Behavioral intervention research doesn't need greater controls, it needs bigger effects and more impact.

The BCC produced this groundbreaking volume to share their struggles and successes in collaborating across Institutes and institutions, across the country, and across behaviors. This work can help guide us from collaboration to common measures

to common strategies for retention and treatment fidelity to one of our ultimate goals of designing for dissemination. Future collaboration also needs to focus on how we can design for innovation rather than publication and how we can have more reviewers reward high-risk research that has the potential to produce

unprecedented population impacts. For now, this innovative work from the BCC can serve as a model to help us progress to an increased consensus on key concerns that can advance our science and our practice.