The Counseling African Americans to Control Hypertension Study and Ways to Enhance the Next Wave of Behavioral Interventions

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The Counseling African Americans to Control Hypertension (CAATCH) study by Ogedegbe et al in this issue of Circulation represents a carefully done study with many strengths. It recognized that blacks have the highest prevalence of hypertension and that poor hypertension-related outcomes explain most of the racial gap in mortality between blacks and whites. It represents the largest practice-based implementation trial to date of a multilevel, evidence-based intervention targeted at blood pressure (BP) control in hypertensive blacks in community health centers, where many low-income Americans receive their care. In addition, although the individual components of CAATCH (patient education, home BP monitoring, continuing medical education, physician chart audit, and feedback) have proven efficacious and effective for improving BP control, the effectiveness of a combined approach in community health centers has not been rigorously evaluated. The study was adequately powered to detect a difference of ≥4 mmHg for systolic BP and 3 mmHg for diastolic BP at 12 months between intervention and control arms assuming a 15% attrition rate. However, the intervention did not have any impact in improving BP control relative to a randomly selected control group. This disappointing result highlights the challenge of creating successful practice-based interventions in the settings where implementation at scale is possible. The lack of success begs for closer examination.

The investigators took what would be considered a standard and credible intervention approach at the time they launched this study in 2004. Patient study participants were given home BP monitors and asked to record the readings in diaries (twice per day, 3 times per week). They were also given 4 modules of interactive computerized patient education focused on the causes, complications, and treatment of hypertension; expected medication adverse effects; and methods for adoption of healthy lifestyle behaviors and 6 behavioral lifestyle telephone/group counseling sessions. Self-reported medication adherence was assessed at visits every 3 months. Providers were given monthly onsite continuing medical education based on the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure, hypertension case rounds, and quarterly chart audits of their patient office BP readings. They were also provided quarterly feedback on the values of their patient home BP readings, which were obtained from the patient diaries.

The process measures from the intervention highlight some of the challenges of an approach that is centered on education and counseling. Only 53% of patients completed all of the patient education modules; 38% returned home BP diaries for all 4 of the visits; and 45% received 4 to 6 lifestyle counseling sessions. There was a 30% attrition rate among patients and no impact on self-reported medication adherence. Among providers there was no impact on treatment intensification.

This raises 2 questions, how much of the problem of poor BP control in this population is attributed to lack of knowledge that can best be addressed through education, and can interventions like this succeed without an approach that achieves higher levels of patient and provider engagement? Without achieving rates of patient or participant engagement close to 100% we cannot say what the efficacy of this education and counseling approach would have been, but in practice the effectiveness clearly was not what the program designers had intended. Low rates of adherence to interventions that require longitudinal engagement are not unusual and suggest a potential need to rethink the general approach taken here of providing education and counseling as the primary strategy to changing behavior. The authors raise the question of whether the lack of success was because of the fact that this was a multicomponent intervention; although it is possible that the complexity confused some participants, a more fundamental problem was the low rate of engagement in the components of the intervention.

Extensive work in behavioral economics has documented ways in which people are predictably irrational, meaning that as humans they do not tend to make careful assessment of the present and future costs and benefits of each of their actions in dispassionately deciding what to do in the moment. People tend to focus much more on the present than the future, a big issue for health behaviors, because the benefits of healthy behavior are far off in the future and thereby heavily discounted. This tends to have negative implications for interventions that require upfront effort because this imposes a nonmonetary cost that reduces use. If insufficient knowledge is thought to be the main barrier to improved BP control in this population, one way to offset the immediate costs of
adherence to the intervention is to provide incentives for participation in the educational interventions. With a reasonably generous incentive, an adherence rate of close to 100% could probably be achieved, allowing for a test of the effectiveness of an intervention that combines education with incentives to ensure the education is achieved.

If this trial were started today, an alternative approach to handheld diaries for BP monitoring would be wireless devices that could communicate automatically with clinical staff and where automated feedback could be provided to individual participants. This will be a critical element of chronic disease management in the future. As we have described previously in an article on the concept of automated hovering, the basic notion is that even if a patient has multiple chronic diseases, they likely only spend a few hours a year in front of a doctor, and there are 5000-plus waking hours when providers neither know what their patients are doing nor have tools to influence them.6 Putting in a system such as a wireless device to measure BP in the homes of high-risk patients (such devices can have their own communications capabilities so that patients do not have to have wireless networks or smart phones at home) and using this to selectively provide feedback to the patient and the provider can enable much more effective disease management, because the frequency of feedback is much greater than that feasible with a personnel-based approach. In addition, smart algorithms can be developed to automate much of the feedback to patients and providers, lowering the ratio of personnel needed and making it possible for this to be a cost-effective component of a population health management system. However, it is important to recognize that improving population health is not as simple as providing wireless devices to patients with poorly controlled chronic disease. Patients chosen for such interventions because of poorly controlled disease and non-adherence likely will not use these devices all that often once the novelty wears off; in work done by our team we found that by the end of 3 months patients with poorly controlled diabetes mellitus who were asked to use a wireless glucometer and BP cuff each day only used them 50% of days. After 6 months they used the devices only on ~30% of days. In contrast, a group that received a daily lottery used the devices on ~80% of days over the first 3 months,7 highlighting the need for the technology to be tied to an engagement solution that keeps adherence to the intervention a priority given the many distractions that patients have in daily life.

The lack of impact on provider behavior in the study by Ogedegbe et al1 is disappointing but not altogether surprising. Providers in primary care tend to be stretched thin at baseline, and additional tasks, even if worthwhile, often may not get the attention that might be desirable. A group led by Mark Friedberg8 of RAND recently completed an evaluation of a medical home pilot that involved 5 insurers and found essentially no impact on either quality or cost. Lowering risk among high-risk patients ideally requires a mixture of patient engagement and adherence and treatment intensification by providers, as appropriate. Reducing risk among chronic disease may be more efficiently achieved by focusing on patient behavior because it is in the 5000-plus hours when patients are not in the clinic each year that they will decide what to eat, how much to exercise, whether to smoke, and whether to take their medications. As currently constituted, provider-centered interventions seem unlikely to really achieve behavior change among patients, unless they include an automated hovering approach that extends their reach outside the 4 walls of the doctor’s office.

Another approach to consider is the approach that behavioral economists have used that involves changing defaults to make the healthier choice the path of least resistance. Examples of this for medication adherence are programs that make 90-day instead of 30-day prescriptions standard or automatic refills for patients with stable chronic disease medication regimens.9–12 Testing these approaches in clinic settings could be a way of facilitating patient access to medications, thereby lowering barriers to adherence that could be tested in conjunction with or separate from other approaches.

Despite the disappointment that the investigators must have felt that all of the work that went into the CAATCH study led to a negative result, this is precisely the kind of large-scale pragmatic clinical trial embedded within healthcare delivery systems that is needed. As emphasized by the Patient Centered Outcomes Research Institute in a recent call for proposals, these types of tests provide the insights and information as to whether a promising idea will work in practice. Learning what does not work can be as useful as learning what works, because it is often assumed to be self-evident that some types of interventions will work; on the basis of limited data of efficacy, those interventions are sometimes deployed at scale-wasting resources that could have been more effectively deployed in other ways to improve health.

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Disclosures
Dr Volpp is a principal in and part-owner of VALHealth, a behavioral economics consulting firm, and also serves as a consultant for CVS Caremark.

References


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