SCIENCE- IN-BRIEF

TURNING SCIENCE INTO ACTION

Sustained Cardiovascular Risk Reduction Programs and Associated Health Outcomes in Rural Communities

The following is a synopsis of "Community-Wide Cardiovascular Disease Prevention Programs and Health Outcomes in a Rural County, 1970-2010," published online in January 2015 in *The Journal of the American Medical Association*.

What is already known on this topic?

Heart disease is one of the leading causes of death in the United States, prompting public health professionals to prioritize cardiovascular risk reduction programs. Many prevention preventative interventions have focused on addressing a single risk behavior (e.g. poor diet or tobacco use) or clinical risk factor (e.g. hypertension). Other initiatives have stressed only early recognition or case management upon diagnosis. These interventions often lacked population comparison groups, well-documented changes in health outcomes, and continuous engagement with the local healthcare systems. Furthermore, despite the large number of interventions in a variety of urban settings, few health professionals have conducted sustained, comprehensive and community-wide risk reduction studies in rural, low-income environments.

What is added by this article?

An initiative comprising an integrated, wide-scale set of interventions to improve cardiovascular mortality rates was implemented in Franklin County, a rural and socially disadvantaged community in west central Maine. The community collaborative aimed to address a variety of risk factors, including hypertension, cholesterol, smoking, and diet, while recording the associated health outcomes over a 40-year period (1970-2010). The Franklin Cardiovascular Health Program (FHCP) led the initiative in hopes of improving health care access and increasing engagement with clinicians. Over time, the FHCP gained widespread community support and expanded to include a variety of nonprofit and community organizations such as local businesses, hospitals, schools, and universities.

As it launched the initiative, FHCP adapted a community-based clinic model, utilizing local nurses and trained community volunteers to educate community members in town halls, churches, schools, and worksites. The initiative initially emphasized detection and control of hypertension and grew to also focus on detection and control of hyperlipidemia, decreasing tobacco use, and managing diabetes, all while emphasizing physical activity and healthy eating. Success appears to have resulted from eight strategies 1) using the most current evidence-based interventions and recommendations; 2) setting measurable objectives and monitoring progress towards these objectives; 3) ensuring that both lay and professional leadership was in place; 4) participation by primary care clinicians and members

of the community in program design, implementation and evaluation; 5) coordination with medical practices; 6) screening for risk factors; referrals; follow-up; and health education and coaching; 7) patient, physician, and health coach working together; and 8) systems for monitoring and tracking.

The main health outcomes measured were total and individual encounters with program staff, risk factor outcomes (hypertension, hyperlipidemia, and smoking), morbidity, and mortality. The FHCP screened about 50% of Franklin County adults for hypertension by the fourth year of the program. Residents with hypertension showed significant improvement in engaging in treatment and control. Once the program initiated cholesterol screening in 1986, the program screened about 40% of adults within five years, of which half had elevated cholesterol levels. Hypertension control increased from 18.3% to 43.0% (absolute increase of 24.7%), while cholesterol control increased from 0.4% to 28.9% (absolute increase of 28.5%). After smoking cessation programs were initiated, smoking quit rates in Franklin County significantly increased from 48.5% to 69.5%, which was significantly higher than the rest of Maine. In addition, county-wide mortality rates and cardiovascular-related mortality rates decreased below the state-wide rate throughout almost the entire study period.

What are the implications of these findings?

This study suggests that comprehensive, long-term interventions may account for substantial improvements in health behaviors, such as hypertension control, cholesterol control, and smoking cessation. It also suggests that the ongoing support and coordinated grassroots efforts of local clinicians, community leaders, volunteers, and organizations may have brought success in reducing mortality rates. Community health leaders may wish to consider the adoption of the most recent evidence-based health intervention strategies as they implement long-term initiatives. Future studies could continue to examine sustained community interventions in other rural settings in order to evaluate whether such interventions can be effective in other rural areas.

Resources

Centers for Disease Control and Prevention
Behavioral Risk Factor Surveillance System
http://www.cdc.gov/brfss/

CDC Wonder Compressed Mortality, 1999-2013
http://wonder.cdc.gov/cmf-ICD10.html

Record NB, Harris DE, Record SS, Gilbert-Arcari J, DeSisto M, Bunnell S. Mortality Impact of an Integrated Community Cardiovascular Health Program. Am J Prev Med. 2000;19(1):30-38.

Citation

Record N, Onion DK, Prior RE, et al. Community-wide cardiovascular disease prevention programs and health outcomes in a rural county, 1970-2010. JAMA. 2015;313(2):147-155.
The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.