Community-wide CVD prevention programs linked with improved health outcomes

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In a rural Maine county, sustained, community-wide programs targeting cardiovascular risk factors and behavior changes were associated with reductions in hospitalization and death rates over a 40 year period (1970-2010) compared with the rest of the state, with substantial improvements seen for hypertension and cholesterol control and smoking cessation, according to a study in the January 13 issue of *JAMA*.

Reducing the burden of cardiovascular disease (CVD) has been a public health priority for more than 50 years and will continue to be in the foreseeable future. Few comprehensive cardiovascular risk reduction programs, particularly those in rural, low-income communities, have sustained community-wide interventions for more than 10 years and demonstrated improvements in known risk factors and reductions in illness and death, according to background information in the article.

N. Burgess Record, M.D., of Franklin Memorial Hospital, Farmington, Maine, and colleagues studied health outcomes associated with a comprehensive cardiovascular risk reduction program in Franklin County, Maine, a low-income rural community. In the late 1960s, local community groups in Franklin County identified CVD prevention as a priority. A new Community Action Agency (CAA), a new nonprofit medical group practice (Rural Health Associates [RHA]), and later the community's hospital initiated and coordinated their efforts. With hospital medical staff sponsorship, RHA established the community-wide Franklin Cardiovascular Health Program (FCHP) in 1974.

The programs targeted hypertension, cholesterol, and smoking, as well as diet and physical activity. The current analysis included residents of Franklin County (population, 22,444 in 1970), and used the preceding decade as a baseline and compared Franklin County with other Maine counties and state averages.

In its first 4 years, FCHP screened about 50 percent of county adults. Individuals with hypertension showed significant movement from detection to treatment and blood pressure control; the proportion in control increased from 18.3 percent to 43.0 percent from 1975 to 1978, an absolute increase of 24.7 percent. After introducing cholesterol screening in 1986, FCHP reached 40 percent of county adults within 5 years, half of whom had elevated cholesterols. Over subsequent decades, cholesterol control had an absolute increase of 28.5 percent, from 0.4 percent to 28.9 percent, from 1986 to 2010. Similarly, after initiation of multiple community smoking cessation projects, community-wide smoking quit rates improved significantly, from 48.5 percent to 69.5 percent, and became significantly higher than that for the rest of Maine; these differences later disappeared when Maine's overall quit rate increased.

Franklin County hospitalizations per capita were less than expected for the period 1994-2006. The lower overall hospitalization rates were associated with $5,450,362 reductions in total in- and out-of-area hospital charges for Franklin County residents per year.

After being at or above overall Maine mortality rates in the 1960s, Franklin County rates decreased below Maine rates for almost the entire period 1970-2010. Cardiovascular specific mortality rates decreased similarly. The greatest differences coincided with periods of peak efforts to improve health care access, detect and control hypertension and hypercholesterolemia, and reduce smoking.

"The experience in Franklin County suggests that community health improvement programs may be both feasible and effective. This may be especially true in socio-economically disadvantaged communities where the needs are the greatest, as the increasing association of lower household income with higher mortality in Maine suggests," the authors write.

"Further studies are needed to assess the generalizability of such programs to other U.S. county populations, especially rural ones, and to other parts of the world."

Darwin R. Labarthe, M.D., M.P.H., Ph.D., and Jeremiah Stamler, M.D., of the Northwestern University Feinberg School of Medicine, Chicago, comment on the findings of this study in an accompanying editorial.

"This report by Record et al in this issue of *JAMA* should reinforce the importance of cardiovascular health promotion and disease prevention policies and practices at the community level; stimulate efforts in communities to document and publish their past experience in this area to inform related ongoing work; and foster wider application of program evaluation and implementation research, exploiting new data sources and technologies to accelerate replication and scaling-up of community-based prevention. Intervening developments—not least among them the Affordable Care Act—have made this task more clearly achievable today than in 1970, when the Franklin County program began. At a time when population health is increasingly important, the Franklin County program demonstrates that with an integrated concerted effort based on good evidence, the cardiovascular health of a community can be improved."

"The Franklin County, Maine, program demonstrates significant accomplishments in one northern U.S. rural community that have made a difference in cardiovascular outcomes. The experience deserves

consideration as a model for other communities to emulate, adapt, and implement."

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