EDUCATIONAL AND COMMUNITY-BASED PROGRAMS IN RURAL AREAS: A LITERATURE REVIEW

by Larry Gamm, Graciela Castillo, and Lisa Williams

SCOPE OF PROBLEM

- Educational and community-based programs was virtually tied for sixth place with four other focus areas as a top rural health priority area.[1]
- School, worksite, health facility, and community-based health education, prevention, and intervention programs are able to access large segments of the population; however, these programs may be less prevalent in rural than urban settings.
- According to a 1994 report, only 28 percent of school districts meet the recommended standard of one school nurse per 750 students. School nurses in rural areas are often responsible for schools that are many miles apart.[2]
- Smaller employers—the mainstay of rural economies—are less likely than larger employers to offer health promotion and disease prevention programs.[3-5]
- Rural areas may lack the readiness, resources, and technical expertise necessary to develop successful and sustainable educational and community-based programs.[5-13]

GOALS AND OBJECTIVES

The Healthy People 2010 (HP2010) goal for the Educational and Community-Based Programs focus area is *to increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and improve health and quality of life*.[14] Settings such as the school, worksite, health care facility, and community are an integral part of this goal, supporting and facilitating the delivery of health promotion, prevention, and intervention programs. Each setting provides access to select populations using "existing social structures." People often have high levels of contact with such settings, both directly and indirectly. This reduces the time and resources necessary for program development and maximizes the impact by reaching large populations repeatedly.[15] Programs that combine several if not all four settings can have a greater impact than those utilizing one setting alone. While populations will sometimes overlap, the most important fact is that people who are not accessible in one setting may be so in another.

The following Healthy People 2010 objectives are addressed in this chapter:

School Setting

- 7.2. School health education
- 7.4. School nurse-to-student ratio

Worksite Setting

- 7.5. Worksite health promotion programs
- 7.6. Participation in employer-sponsored health promotion activities

Health Care Setting

- 7.7. Patient and family education
- 7.9. Health care organization sponsorship of community health promotion activities

Community Setting and Select Populations

- 7.10. Community health promotion programs
- 7.11. Culturally appropriate and linguistically competent community health promotion programs
- 7.12. Older adult participation in community health promotion activities

Pertinent to this discussion is a brief synopsis of the unique role played by each of the four settings in contributing to the health promotion of students, parents, employees, patients, and the community.

School-based programs. Local schools include populations of students who reside within defined school district boundaries. Students' roles of learning

and participating in health and physical education programs as required are central to the schools' support of healthy students. It is also possible that schools will provide a school nurse and/or invite other health professionals to offer selected health promotion, prevention, and treatment services. The "safety net" role of the school may be particularly important for students who may not be insured or lack a regular provider. Instrumental in this effort is the Health Resources and Services Administration's (HRSA) Bureau of Primary Health Care Healthy Schools/Healthy Communities Program, which offers grant support for school-based health centers targeting underserved and at-risk children (http://bphc.hrsa.gov/HSHC).

Worksite-based programs. At the worksite, employees—insured or not—are important resources for employer success. The employer is dependent on the employees' good health to avoid both absenteeism and costs of untreated illness or disability. Participation in employee health programs may be promoted as part of continued employment. The effectiveness of such programs may reduce health costs and help maintain cheaper rates for employee health insurance.

Health care organizations. These organizations have a responsibility for the health of their patient populations and for providing physicians, nurses, patient educators, social workers, and staff to serve patients. Patients tend to be dependent on professionals regarding their health status. Health care organizations are viewed as legitimate providers of primary, secondary, and tertiary prevention activities and supporters of patient compliance with treatment regimens or more extensive disease management protocols. Except for those health care organizations that share in risk via capitation or ownership in a health plan, such organizations may not be given financial incentives to engage in education and community-based program activities. Not-for-profit healthcare providers, however, may be expected to offer such activities as part of their legal obligation to their community and/or commitment of professionals to more fully address health conditions through outreach and follow-up of patients beyond the patient visit.

Community-based programs. These programs are designed to reach all residents or particular target subgroups, such as the homeless, or other groups subject to greater risks that are not fully addressed by other providers or parties. Such programs may rely upon mass media or other broad information dissemination strategies. Some of these or other more effective community-wide programs employ partnerships with other organizations and settings like those noted above and/or others such as churches, boys/girls clubs, social service organizations, local government, fraternal organizations, and the like to initiate educational and prevention programs. Similar coalitions or networks can support policy interventions such as those that enact and enforce smoking ordinances in public places or limit tobacco and alcohol sales to minors.

Finally, it should be noted, this review differs somewhat from other Rural Healthy People 2010 literature reviews because it focuses to a greater degree on intervention strategies than upon specific health conditions or provider groups. This review focuses on four settings and associated rural issues—disparities, barriers, and challenges—that are encountered in the setting as well as solutions or interventions feasible in rural areas. The chapter concludes with a review of some evaluation and sustainability issues that should be considered in pursuing education and community-based programs in rural communities.

IDENTIFIED BY PEOPLE LIVING IN RURAL AREAS AS A HIGH PRIORITY HEALTH ISSUE FOR THEM

Based on our survey of state and local rural health leaders, Educational and Community-Based Programs was virtually tied for sixth place with four other focus areas as a top rural health priority area.[1] Separate treatment of this focus area is justified in terms of its importance to addressing many of the other Healthy People 2010 focus areas. A significant portion of the research literature presented here dovetails with interventions discussed in our literature reviews of other rural health priorities. Similarly, many of our Models for Practice, which

have already appeared, offer illustrations of Educational and Community-Based Programs.

This review addresses the importance of channeling education, prevention, and intervention efforts through multiple settings. It examines the various types of populations that are intended to benefit from programs offered in particular settings and/or under different auspices in the community. For each of the four basic settings presented in Healthy People 2010, the review examines the necessity and opportunities for programs, types of programs offered, illnesses or other conditions addressed, weaknesses or barriers to progress, and proposed solutions. Finally, the chapter will review some common challenges and opportunities shared among the four settings: personnel and expertise, leadership, funding, and evaluation.

PREVALENCE AND DISPARITIES IN RURAL AND URBAN AREAS

The issues and disparities facing rural America in the delivery of educational and community-based programs are described in this section by setting (e.g., school, worksite, health care organization, and community).

School-based Setting

An estimated 14.9 million children live in non-metropolitan, rural areas.[19] Approximately 20 percent of all students in public elementary and secondary schools in the United States reside in rural areas.[18]

Children who live in rural areas—especially minority children and adolescents—are less likely to be insured than urban children.[19] For these and other school children, a school's health education programs, and in some instances a school nurse or in rarer situations a school-based health center, may be critically important to the health of rural students.

The rural school is often the most prominent institution in rural areas and may be a logical anchor for health programs.[16] The local school may be one of the largest local employers, the predominant focus of community identity among residents, the leading financial resource, and a major communications hub within a rural community. In addition to affecting students, school-based programs can influence other groups, such as teachers and parents.[17]
The school is an effective setting for presenting health promotion and disease prevention programs and for delivering primary care and treatment services for rural children. Several studies that examine the school environment's effect on children's health and health-related behavior show school-based approaches can have a powerful influence on the health behaviors of students. Such approaches have been shown to successfully improve health habits while reducing behavior-related risk factors.[25-27] Effective health promotion programs that target children may also have a positive impact on their health care costs even beyond childhood. For example, cardiovascular disease risks and eating behaviors that are established in childhood often carry into adulthood.[20-24]

Schools, too, are logical settings for delivering substance abuse programs targeting children and adolescents.[28] Such programs, however, may require approaches extending beyond traditional teaching. There is ample evidence that school-based programs emphasizing interactive approaches are more effective than non-interactive; such approaches have been equally successful for tobacco, alcohol, marijuana, and other illicit drugs.[70] Although most such interventions studied are from urban schools, success has occurred in rural schools, as well.[71] For example, an experiment targeting 36 rural schools in Midwestern communities found that classroom-based life skills training (LST) combined with efforts to strengthen families consistently demonstrated a lower alcohol new-user rate than did those schools that used LST alone or that did neither intervention.[72] A study of interventions in nearly 100 schools found they worked nearly equally well in rural, suburban, and urban schools.[73]

School-based health centers (SBHCs) are generally viewed as offering access to comprehensive physical and mental health services to school children.[29] Although relatively few of the over 90,000 public elementary and secondary schools have school-based health centers, there are an estimated 1,400 school-

based health centers in the country. A nationwide survey in 2002 found 28 percent of school-based health centers were located in rural areas, in contrast to 61 percent in urban and 12 percent in suburban areas. Only seven states reported no school-based health centers: Arkansas, Hawaii, Idaho, Montana, North Dakota, South Dakota, and Wyoming.[29]

An assessment of school-based health centers in West Virginia showed that enrollment rates in SBHCs in rural schools were significantly higher than in urban schools—86 percent and 46 percent, respectively. High utilization rates by both uninsured students and students covered by Medicaid were also found—26 percent of the uninsured and 26 percent of Medicaid. Rural school-based health centers have the potential to reach vulnerable populations where access to preventive and primary care services are inadequate.[30]

Although there can be a strong argument for school-based health centers, it is important to assess a community's perception of having a school-based health center in the planning stages and also in the evaluation stage.[74] An assessment can evaluate the "acceptability" of a center as well as the type of services that are perceived as needed. The input of community leaders, businesses, parents of school-aged children, school administrators, health providers, school staff, and students is important.[74]

School nurses have been credited historically for initiating health education and screenings in rural schools.[31] These nurses provide various services to students and occasionally to staff and parents. Services provided include health education, screenings and assessments, referrals, medications, and the supervision of students with chronic diseases. The majority of school nurses (more than 90 percent) monitor students with chronic conditions such as diabetes or asthma.[32] Recent state funding cutbacks, however, have reduced local school funding for school nurses, counselors, tutors, and other support personnel.[75] According to a 1994 report, only 28 percent of school districts meet the recommended standard of one school nurse per 750 students. Furthermore, school nurses in rural areas are often responsible for schools that are many miles apart.[32] Among schools averaging 190 students per school, over 40 percent of the respondents said their school had no services from a school nurse, and only 2 percent reported having school nurse services 40 hours a week.[7]

As a result of this shortage, it is not uncommon for school secretaries to assume many of the school nurse functions in the absence of a school nurse in some rural schools. A recent survey of school secretaries in Montana local schools found that among the 61 percent responding, nearly three-quarters of these non-health professionals do, in fact, provide care for injuries or illnesses on a weekly basis. Although lacking formal training in support of the health activities they provide, the school secretaries felt generally confident in dealing with injuries, taking temperatures, and handing out medications, among other activities. Approximately 70 percent of the surveyed school secretaries passed out prescription medication on a weekly basis, with about one-half talking to parents just as frequently regarding the health of their child.

Given the increased reliance of children on medications, the American Academy of Pediatrics issued a policy statement to guide school policymakers and to state their concerns about schools' reliance on untrained personnel in addressing children's health care needs. In the absence of state laws or regulations on this matter, school officials should seek legal advice on medication administration by non-professionals, student confidentiality, storage of medications, and related issues.[76]

One would imagine that in such schools there is also a minimum provision of health education or psychological counseling expertise. A 2003 report on the state of Washington's children noted that rural school districts, in contrast to urban and suburban districts, have limited or no access to school nurses and psychologists.[33] Rural school counselors are less likely to be licensed professional counselors and less likely, also, to be active in professional associations. Counselors usually identify financial resources and staff support as being the greatest needs.[6]

Typically, school counselors are among a loose network of physicians, school counselors, mental health workers, and child protective caseworkers who serve rural children with mild mental health problems.[77-79] Schools may have become the de facto mental health provider for the largest proportion of rural children receiving services.[77] There is some evidence that an aging school psychologist supply will further undermine the ability of schools to meet these needs.[80]

Worksite Settings

Worksites are an important setting for targeting health improvement among adults. The majority of workers are insured through employer-purchased insurance; thus, preventing illness may reduce insurance costs. Worksite prevention and health promotion can reduce illnesses and injuries that otherwise may decrease productivity, increase absenteeism, and reduce employers' profits.[37] Worksite health promotion and disease prevention programs can include all or a combination of several elements such as health education, physical fitness and nutrition, health services and benefits, counseling/assistance programs, safe and healthy work environments, as well as company policies that promote safe working conditions.[34, 35] To obtain the greatest participation in a worksite intervention, it is important to focus not only on the group's actual needs but also on their perceived needs, as they may not be the same. A needs assessment may be useful to identify health risks, health behaviors, stages of change, and priorities among workers to develop an appropriate health promotion program.[81]

Studies have found that worksite health promotion programs have resulted in reduced medical care costs and absenteeism.[36, 37] Although many studies have been conducted on worksite health promotion activities in large businesses, few have been done to examine such activities in small businesses.[5, 36] This is particularly significant given most Americans work in small businesses,[5] and rural economies are relatively more reliant on small businesses.

Smaller employers are less likely than larger employers to offer health promotion and disease prevention programs. A 2002 survey of Georgia employers found that small employers were less likely than larger ones to offer at least one such health program—68 percent versus approximately 90 percent. Although smaller employers were nearly as likely as larger ones to have smoking prohibitions or restrictions, small employers were far less likely than larger ones to have programs for physical activity, healthy eating or weight management, screening, disease management, or stress management.[4] Very similar findings regarding offerings of small and larger employers appear in a 2001 survey from Utah.[3]

A number of reasons are frequently cited for the small number of health promotion programs in small businesses. Some of these include: (1) small businesses may not have a staff member who knows how to design and organize a health program; (2) many small businesses do not offer health insurance, making them less likely to provide promotion and preventive programs; and (3) health and safety regulations often overwhelm small businesses, making them unlikely to establish health-related programs not required by law.[5]

Health Care Facility Settings

Health care facilities are a logical setting for health promotion, prevention, and treatment programs supported by their principal goal of providing health care for the ill and injured. Health providers are often trusted and respected, and patients are usually receptive to health information from providers.[15]

Rural hospitals, physician offices, and community health centers are most likely to become involved in secondary and tertiary prevention via education activities directed toward patients diagnosed and treated for particular illnesses. In some instances, for example, hospital-based case management in rural communities follows a particular patient after hospital discharge, with hospital nurses continuing to coordinate patients' care in their homes or other settings.[82] In physician offices, patient education and prevention education are viewed as part of the physician's role, and continued evaluation of effectiveness of these efforts are published.[38] Many

community health centers, including some rural centers, have been involved in the U.S. Bureau of Primary Health Care-sponsored health disparities collaboratives since 1998. These efforts call for community health centers to collaborate with other organizations to ensure the effective management of their patients' chronic illnesses such as diabetes, asthma, depression, or congestive heart failure.

Hospitals have a long history of engagement in community benefit activities, many of which are focused on health promotion and disease prevention activities. A survey of Iowa hospitals found that over 98 percent of rural hospitals offered health promotion services—most often screening programs, such as blood pressure, cholesterol, or breast cancer screening; safety and protection programs; diet/nutrition programs; and prenatal/maternal health services.[41] A study of nine small rural Pennsylvania hospitals found that a personal or family experience and/or efforts of an internal champion typically helped launch health promotion or disease prevention programs (HPDP), e.g., nutrition counseling, weight loss, diabetes management, and stroke support.[8]

For rural hospitals, the collaboration with other providers, community organizations, and employers in pooling scarce resources for HPDP activities is frequently critical. Chief among these are often hospital-school collaboratives addressing such topics as smoking cessation and oral cancer screenings. Other community organizations involved in HPDPs are churches, youth groups, civic clubs, volunteer fire organizations, employers, and fraternal groups. In recent years, support by grants from foundations is deemed helpful to the success of such programs.[8]

In the words of rural hospital chief executive officers (CEOs), the hospitals' mission, health problems emerging in the community, recognition that HPDP activities were good marketing for the facility, and encouragement of external organizations such as a hospital association or voluntary health associations often were among reasons for particular initiatives.[8] For hospitals, in general, there is evidence that active pursuit of collaboration with other hospitals and community organizations to address population health needs can be associated with desires to benefit the community as well as any of several threats—external regulation, loss of tax exempt status for nonprofit hospitals, or increased market competition.[42]

In support of health promotion activities, rural hospitals may allocate one or more full-time equivalent employee to support community health promotion services.[41] Such "loaned" employees from hospitals may become major champions and key staffers for community health partnership efforts.[8, 42]

Federally funded rural health centers are increasingly viewed by the national administration and by many national, state, and local rural health leaders as helping to address primary care needs of underserved rural areas. They may set the pace, also, for care provider prevention efforts. Although patients relying on such centers are more likely to be poor and uninsured or on Medicaid, there is evidence that rural health center patients are significantly more likely than people in the general rural population to receive more preventive services and experience decreased rates of low birth weight babies, especially among African Americans.[39] Another rural community study found that hypertensive adults who received community-oriented primary care in a neighborhood health center were more likely than adults with similar conditions treated elsewhere to have their disease detected, treated, and controlled.[40]

Community Settings

Community-based programs/collaborations have the goal of improving a community's health through a comprehensive approach that includes education, prevention, screening, and treatment.[43] Such collaboration around community health promotion activities can be especially useful in reaching special populations who are otherwise difficult to reach—rural, undereducated, economically disadvantaged, or minority groups.[26]

Community-based programs require the participation of a diverse group of leaders and members representing a cross-section of social and economic sectors of the community, age groups, genders, and

racial/ethnic groups. Community-wide participation is called for in the problem identification and assessment stage, the identification of resources available and those that are needed, the implementation and delivery of programs, and the governance of the program by the community. This helps ensure that the multiple factors affecting a population's health are considered and incorporated into interventions (e.g., programs, policies, and environments that promote healthy communities).[44-47]

A workgroup of nine partnerships in *Turning Point*, a foundation-funded initiative in cooperation with selected state and local public health agencies, developed a framework for community collaborations called the Community Health Governance Model. The model holds that "communities, in order to strengthen their capacity to improve the health and well-being of their residents, must pursue collaborative processes that attain three outcomes: individual empowerment, bridging social ties, and synergy."[12]

BARRIERS

Despite the ability of the school, worksite, health facility, and community to reach a broad audience, it is frequently a challenge to mobilize these organizations in rural areas. Retaining and recruiting participants is difficult.[12] Schools may be under-funded and unable to support school nurses, let alone underwrite a school health center. Neither board members, physicians, nor the community may press rural hospitals to become engaged in health promotion or disease-prevention strategies.[8] Even where there is interest, such health care facilities may face barriers of time or financial constraints.[8, 15] Although rural businesses may benefit from a healthier workforce with reduced health care costs, less absenteeism, and increased productivity, businesses may require more tangible, concrete, and quantifiable evidence of benefits before implementing such efforts.[11] Furthermore, many rural communities—especially minority communities—may be at a low stage of readiness (e.g., only at the unawareness or denial stage) for combating substance abuse or related problems.[83] Other challenges include "the politics of interest groups, the eroding sense of community, and the limited involvement of community residents in civic problem solving."[12]

PROPOSED SOLUTIONS OR INTERVENTIONS THAT ARE FEASIBLE IN RURAL COMMUNITIES

Rural School Settings

There are many examples of effective school-based educational programs. One of the first steps in implementing an effective program is determining the level of need. To assist in this process, the Centers for Disease Control (CDC) provides several guidelines for schools to use to assess their needs as well as to implement programs.[26, 50-52]

In 2001, the Department of Education designated seven exemplary drug prevention programs including five programs with a school-based curriculum for adolescents.[53, 54] This includes Project ALERT, a drug prevention curriculum for middle school students that is also recognized as a model program by the Center for Substance Abuse Prevention (CSAP). Results from a random assignment of 55 South Dakota middle schools to an intervention or control group note differences in students 18 months after they completed special lessons in 7th and 8th grades. Results show a reduction in smoking and alcohol misuse, but there is no significant effect on initial and current drinking or current and regular marijuana use.[53] Additionally, the Substance Abuse and Mental Health Services Administration (SAMHSA) and CSAP have catalogued 44 of the most promising school-based prevention programs in the form of a national registry of science-based prevention programs.[84]

Evidence-based prevention programs, especially those based on social cognitive behavioral theory, have attained some success in tobacco cessation among youth. Although there are fewer interventions and studies in rural settings, several studies demonstrated that school-based prevention programs can work as well in rural areas as in urban. Similarly, there is evidence that substance abuse prevention efforts targeting multiple facets of risk and

protection offer the best prospect of prevention of adolescent substance abuse.[85] Life Skills Training, implemented in many rural schools, is one program that has proven successful in reducing the prevalence of substance abuse in middle school students.[86]

The use of the American Lung Association's 10-session *Not On Tobacco* (N-O-T) program with high school smokers from West Virginia and North Carolina produced high cessation rates.[55] A pilot study of another intervention with multiple objectives produced positive results, as well, in a rural setting. Goals for Health—an interactive, peer-led (taught by trained high school students), 12-session program for 6th and 7th grade students—is designed to teach health and life skills to rural students as a means to change their behaviors of tobacco use and fat and fiber intake. A study examining this program found significant changes in attitudes concerning diet, smoking, and self-efficacy. In addition, the study noted increases in students' knowledge about dietary fat and fiber.[56] As in the foregoing illustration, many successful grassroots programs were included by student peer involvement. Such volunteer-based and peer-based programs can improve student buy-in.[57, 58]

Still another element of school-based program delivery that may prove increasingly important in rural areas is the telehealth program. Telehealth programs in schools delivering health promotion and disease prevention content have registered medium to high satisfaction scores among students, especially among female, African American, and middle school (as compared to high school) students.[59]

Although school-based programs can be an effective means of altering behavioral risks among youths, these benefits are enhanced when a concerted community-wide effort exists.[15] Integrating community-based programs with school programs can be part of a comprehensive approach that includes the role of community organizations, families, local policies, and other social factors that influence a young person's health. State agencies or other groups outside the community also can be a key part of such a comprehensive approach. An example of this approach is a pilot program in a rural/suburban area of Minnesota that provided hepatitis B vaccines to middle school students.[87] The collaboration involved local public health agencies, schools, a hospital, and managed care organizations. Vaccines were supplied by the state health department (for federal program eligible students) and by two pharmaceutical companies (for other students). A local hospital supplied nurses to administer the vaccines, and local managed care organizations provided a majority of additional funding needed for the pilot program through "one-time" grants.[87]

Other successful school programs that reach out to the community emphasize prevention and early health intervention-related activities to enhance probabilities of students remaining in school. The SAFE project model, for example, is a program designed to prevent school failure by focusing on student health, mental health, and education. The program involves many components—the school, community, and families, as well as public officials.

Given resource limitations, state and federal support of school-based health centers is vital in meeting the needs of vulnerable populations in many communities. HRSA's Bureau of Primary Health Care is instrumental in improving access to health services among underserved and at-risk children through its *Healthy Schools/Health Communities Program*. This program makes grants available to support school-based health centers that target vulnerable populations (http://bphc.hrsa.gov/HSHC).

Rural Worksite Settings

There is evidence from the research literature that worksite interventions can work with rural populations. A few reports are described below and reflect the variety of approaches.

A smoking cessation and nutrition program in a manufacturing worksite among a population that was low income, low literacy, and 45 percent African American resulted in increases in the number of smoking cessation attempts and in fruit and vegetable consumption. Results from the

intervention also showed an increased self-efficacy for dietary change and perceived risk for cancer as well as an increase in co-worker support for smoking/diet change. Program affordability was supported by a total program cost of less than $2,000 for serving 300 people.[60]

The Worksite and Community Health Promotion/ Risk Reduction Project serving six rural Virginia counties in 1987 included community groups, businesses, and state and local governments. Project activities included group discussions, educational presentations, radio and television public service announcements, health fairs, and screenings. Counseling and referrals were provided to individuals detected as at risk for cardiovascular disease or cancer. Out of 424 employees targeted in a local school system, about one-third reported increased regular physical activity, eating less high-fat foods, weight loss among overweight participants, and smoking cessation attempts. Additionally, average serum cholesterol levels were reduced by nearly 10 percentage points, and health insurance claims by school employees decreased by 20 percent.[88]

A nutrition and physical activity intervention among rural female blue-collar employees, Health Works for Women (HWW), was tailored to participants' choice of behavior priority and used two intervention strategies—tailored, individualized health messages in a "women's magazine" and a program designed to enhance support via social networks and trained female volunteers. This intervention resulted in health behavior changes including an increase in fruit and vegetable consumption.[61] The intervention used a "natural (lay) helper" model of worksite health promotion. Such natural helpers are likely to have similar sociodemographic characteristics, health behaviors, and social networks as their co-workers and an understanding of the culture of the workplace and the geographical area.

Innovative approaches to worksite or worker health developed in rural areas may or may not be applicable in more urban settings. One that may be more generally applicable is an innovative approach from Ashville, North Carolina. Ashville's municipal government paid pharmacists $40 per patient per month to provide counseling on diet, exercise, stress reduction, and medications to city employees with asthma, hypertension, or high cholesterol. Health care spending for these employees declined, as did negative clinical findings and worker absenteeism.[62, 63] Another approach that may be unique to rural areas addresses the fact that farmers are especially hard to reach because of their self-reliant nature and unwillingness to seek traditional health care. Recognizing that veterinarians are both frequent and trusted visitors to farms, one innovative project relied upon veterinarians to deliver health promotion information to adult farmers. The farmers who participated in the project reported it was a suitable way to receive health education.[64]

Reaching small and dispersed employers and worksites in rural areas has benefited from collective action reaching across communities and regions. Some examples of these programs are those conducted through rural electric cooperatives. The National Rural Electric Cooperative Association (NRECA) consists of 1,000 cooperatives with 49,000 employees in 47 states and offers programs to help employees choose quality health care. Via the internet, NRECA provides information to employees regarding providers and health plans to allow employees to compare health plans and benefits.[65]

Rural Health Care Facility Settings

As previously noted, a number of community health centers, including a number of rural centers, also participate in disease management collaboratives promoted by the Bureau of Primary Health Care. These collaboratives focus on diabetes, heart disease, and other chronic illnesses. Although comparative data are lacking on the relative amounts of involvement in disease management efforts by community health centers in rural and urban areas, there are numerous examples of rural health centers working with other organizations in the community to practice primary, secondary, and tertiary prevention addressing such diseases. Recent cases find such centers working with diabetics in the centers as well as with other diabetics served by other physicians via collaboration with a community

partnership.[66] One case reports several centers working with a number of rural hospitals and other rural organizations to help manage diabetes and hypertension among African-American adults,[67] and another describes work through rural health centers and with other organizations to address multiple needs of chronically ill, African-American older women.[89]

A recent report on collaboration between rural hospitals and rural community health centers (CHCs) in five communities identifies mechanisms for providing a continuum of care approach in service areas with high proportions of elderly persons and higher than average rates of poverty and uninsurance. Such CHC and hospital collaboration is often extended to linkages with mental health, substance abuse, oral health, home health, elderly care services, transportation, and family planning. Most striking among the many factors important to the development of such collaborations was a shared vision of the hospital and health center CEOs on serving the community, a common mission of meeting the populations' health care needs regardless of the ability to pay and increasing access to appropriate care.[68]

There is evidence, too, of rural health facilities supporting effective programs to better enable medical staffs and others to meet community health needs. For example, a rural training program in domestic violence found improvements among health professionals in screening and victim identification, making referrals, identifying workplace resources, and improving provider self-efficacy.[74]

Another rural intervention finds primary care practices focused on prevention of illness among informal caregivers and promoting their well being. The Maine Primary Partners in Caregiving project is a rural alliance between academic, medical, and social service organizations focused on primary care practices to identify stressed/burdened caregivers. The program evaluation has addressed assessment of caregiver well-being levels, caregiver utilization patterns, and best practices, among other factors.[90]

Community Settings

Community interventions frequently enroll the support of key community institutions. A smoking cessation intervention in rural Virginia counties, for example, worked with African-American churches. Results showed such programs can be successfully implemented and showed more "progress along the stages of change in the intervention than the control county."[69]

Community interventions can take distinctly different directions but still achieve success. Cardiovascular community interventions in rural areas of Sweden and the U.S. were both based on community involvement and included community advisory boards, screening, and educational efforts. While Sweden had a greater focus on individual identification of high-risk factors, counseling, and formalized nutrition education programs within schools, the U.S. educational efforts focused on media use and educational efforts within schools regarding smoking cessation as well as community-wide screenings such as health fairs.[91] Both programs were associated with a decrease in cardiovascular disease risk factors. Whereas the Swedish program saw a significant reduction of cholesterol, the U.S. program saw a reduction in smoking.[92]

For some health promotion and disease prevention targets, however, the community educational model may be of limited effectiveness. A cholesterol reduction effort among rural Pennsylvania Medicare patients with high cholesterol demonstrated that educational efforts were of limited effect in controlling cholesterol among older individuals at risk. The study underscored the importance of judging effectiveness of such interventions in comparison to a control group.[93] It is possible that some community-based partnerships may take on more institutionalized responsibility for managing the care of chronically ill patients.[94] One might anticipate that such partnerships or networks might bridge their concerns from care and secondary and tertiary prevention *forward* to an additional focus on primary prevention, disease prevention, and health promotion.

Comprehensive Strategies

Many experts point to the wisdom of employing community-wide strategies that draw simultaneously on the efforts of schools, worksites, health care facilities and professionals, and other community organizations. Community collaborations are becoming increasingly important in the protection of the public's health, particularly in the area of chronic illnesses such as diabetes [95] or marshalling attack on smoking or drug prevention.[96] The increase in risk factors for chronic illnesses and health care costs combined with limited resources burden every part of our health care system.[43]

Studies of community inter-organizational arrangements over the last 50 years have pointed to a number of factors important to the emergence and/or success of community coalitions, partnerships, or networks. Among these are recognition of common goals, resources (slack resources or need for additional resources), consensus about which organizations should participate, formalization of structure and processes, leadership skills, and effective conflict resolution within the partnership.[48, 97-101] Still other studies point to the importance of a supportive community climate [99, 100] or factors external to the community such as policy shifts, mandates, and/or funding.[42, 97]

Effective Mobilization and Sustainability

A survey of state organization leaders in three states pointed to dozens of elements important to the sustainability of community health partnerships that are largely applicable to efforts undertaken by schools, employers, and health care organizations. They fall into four categories:

- strong leadership – a driving leader, a key staff person, a lead organization, effective leader training, retention and transition, and/or avoidance of leader burnout;
- phasing success – experience an early success; make success visible, and maintain excitement;
- maintain commitment – keep organizations at the table; contend with turnover in leaders among member organizations, and reduce turf defensiveness or competition;
- attract sufficient resources or funding – garner funding; effectively deploy existing resources; attract organizations with significant resources to the community health program (CHP), and openly address money and power issues within the CHP.[48]

A study of the 20 innovative programs providing health and other "support services" to adults found similar elements that appeared to account for sustainability. Leadership, community involvement, existing infrastructure, marketing, outcome measures, financial self-sufficiency, a shared vision, and utilization of behavioral change principles were important contributors to sustainability of innovative community-based programs.[13]

More generally, issues in common for sustainability of interventions across the four settings considered in this review include personnel and expertise, leadership, funding, and evaluation.

Personnel and Expertise

Prevention efforts of rural hospitals[8] and rural schools[9, 10] may suffer from shortages of health professionals. Likewise, rural employers may lack the expertise to support preventive health services.[5] Rural communities are also viewed as having a shortage of leaders, such that, multiple state efforts to promote prevention efforts in rural communities frequently rely upon the same small group of leaders.[11] This makes it difficult to recruit and retain participants for educational and community-based programs.[12] At the same time, however, the relatively small numbers of people may attain higher degrees of coordination.

A wide variety of professional expertise may be needed to deal with the technical or clinical needs associated with prevention efforts. Knowledge of the social environment is especially critical in reaching intended beneficiaries. A project to increase mammography screening among African-American women in rural areas took into consideration social

support through individuals (lay health advisors) and organizations such as churches and other social groups as well as the location of outreach interventions, such as public places and the worksite.[102]

It is possible, too, that community-focused educational activities may concentrate on improvement objectives in the community while also working with external organizations to address problems on a larger scale. For example, an evaluation of a health promotion program in the Mississippi Delta noted that community competence evolved over a year's time from health-promoting social interactions within communities to more external interactions with outside institutions and individuals during a one-year period.[103]

Leadership

The Turning Point Initiative has developed a community health governance model that emphasizes the need for leader participation and a wide base of influence and control among participating leaders. Active leader participation can strongly influence success by determining who is involved in the process, how participants are involved, and the scope of the process.[12]

Other projects have found that diverse champions for the program are also important as well as different kinds of champions. A "process champion" is important in the initial development, since this person can encourage and facilitate intragroup relations, group development, and other group processes.[104]

Innovative community program leaders have been recognized by the Robert Wood Johnson Community Health Leadership Program over the last decade. One of 10 leaders identified is associated with the development of school-based health centers in rural Texas. Lessons of such leadership point to working within many interdependent systems, working effectively on the individual and group levels simultaneously, and the importance of maintaining a sense of one's own social responsibility and a sense of social justice.[105]

More broadly, from the perspective of state organization leaders, community health partnerships are valued for the continuity of leadership they provide in terms of serving as a structure or organizational means for focusing resources on health issues, gaining community leadership or ownership, and representing and empowering local groups.[48] For some state leaders, this is viewed principally in terms of developing the community; for others, there is value in coordinating state agency and community activities related to state-supported specific programs.[48]

Funding

Funding for community-based programs can be in the form of grants. While grants are helpful in the beginning of a project, there are some drawbacks to consider. Grants are not usually long-term funding sources. Larger organizations, such as hospitals, may have more resources available, but collaborative efforts do not usually rely upon one single organization for the majority of the funding.[103]

A study of the 20 recipients of a gerontological public health award given to innovative programs providing health and other "support services" to adults found that funding and finances were the main challenges faced by such innovations.[13]

Evaluation

Evaluation is an important component of sustainability. It can help stakeholders discuss sustainability early on in the program instead of waiting until later stages, as is commonly done, by focusing on sustainability in the strategy development stage and by tracking progress and providing feedback.[49] A system for logging events of community coalitions, for example, can become an effective means for evaluating, providing feedback, and helping to sustain community programs.[106]

Evaluations of a cardiovascular disease prevention coalition and a substance abuse prevention coalition addressed a number of measures associated with processes, impacts, and outcomes. Among these are a number of measures shared in common across most

of the prevention programs considered in this chapter: reduction in risk factors, increase in protective factors, and reduction of undesirable behaviors and outcomes.[107]

Demonstrating effectiveness may be difficult, but evaluation is indeed needed to compare successful and unsuccessful efforts to establish which elements account for success.[12] Given limited resources in the various settings considered in this chapter, it is imperative that strategies and objectives be guided by the knowledge of what works and what does not. Most of the models for practice included in Rural Healthy People 2010 offer some evidence of impacts or outcomes.[67]

COMMUNITY MODELS KNOWN TO WORK

See the Models for Practice section of the Rural Healthy People 2010 website.

SUMMARY AND CONCLUSIONS

As health care costs, chronic disease, and life expectancy increase, we are challenged to effectively manage costs and services to ensure the public's health. This is particularly a challenge for rural areas since many cost-saving measures rely upon volume and risk sharing. Since the majority of illnesses are preventable, health promotion and prevention programs are becoming increasingly critical to rural communities.

Improvement of a community's health depends on the development and sustainability of educational and community-based interventions. A community's health is a long-term and continuous goal that requires constant protection. It calls for efforts by schools, health care organizations, employers, and community-wide partnerships. Community-based programs can provide comprehensive prevention and treatment efforts through organizational collaboration that individual entities may be unable to provide due to a lack of necessary resources. Educational and community-based programs can serve to coordinate limited community resources and focus on a combination of settings that target various populations to improve outcomes and strengthen community capacity for future collaborations.

At the same time, evaluation of such programs—successful and unsuccessful ones—is called for to better understand what factors contribute to success. Simultaneously, long-term evaluation is needed to assess the essential contributors to sustainability of educational and community-based programs.

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