

Community Partnerships: Review of Selected Models and Evaluation of Two Case Studies

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ABSTRACT Risks for cardiovascular diseases (CVDs) are established early in life with behavior patterns associated with diet and physical activity. Establishing healthy behavior patterns among children, and providing the environmental supports necessary to maintain them, has the potential to reduce future risks for chronic diseases. This paper reviews the literature on collaborative partnerships formed to address similar issues. The authors describe the evaluation of school and community partnerships facilitated by the Kansas LEAN School Intervention Project, which had the mission of reducing risks for chronic diseases, including CVDs and some cancers, among children. A multiple case study design was used with collaborative partnerships in two communities in Kansas. The results suggest that the partnerships facilitated important changes in the schools and communities. We discuss challenges and opportunities in the evaluation of school and community partnerships for health.

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INTRODUCTION

Risks for cardiovascular diseases (CVDs) begin early in life. Based on assessments of students in six public schools in New York City, researchers estimated that by age 12, approximately 40% to 60% of children have at least one modifiable risk factor for coronary heart disease.¹ Diet and exercise patterns,

strong contributors to risk for heart disease, are influenced by multiple environmental conditions such as the availability of healthful foods or exercise opportunities, peer influences, media, and family practices.²

Collaborative partnerships offer a mechanism for individuals to change community conditions that affect health.³ They engage diverse community groups, use multiple strategies, and work together to achieve a common purpose.⁴ Partnerships are alliances in which all share risks, responsibilities, resources, and rewards for the common effort.⁵ School and community partnerships might be especially well suited for reducing children's risk for chronic diseases. Within schools, teachers, foodservice personnel, and coaches can have substantial influence over children's opportunities for healthful diet and exercise. Similarly, within the broader community, restaurateurs, grocers, and parents can promote healthy environments. Collaboratively, these partners have the power to implement changes (e.g., new or modified programs, policies, and practices) in the school and community to improve children's diet and exercise patterns. There are a number of models for developing collaborative partnerships for community health. Comprehensive models include components to increase awareness (e.g., through newsletters or special events), change lifestyles (e.g., skill building or incentives), and create supportive environments (e.g., changing norms or creating new opportunities for healthier eating and exercise).⁶ Several illustrative models are discussed in this paper.

PATCH programs. The Centers for Disease Control and Prevention (CDC) developed the Planned Approach to Community Health (PATCH) program based on the PRECEDE-PROCEED model.⁷ PATCH provides training and workbooks that help identify and contact key community members, generate funds and human resources, and develop a plan for action. Although there are hundreds of community applications of the PATCH process, according to M. Kreuter (personal communication, May 1996), few have been carefully evaluated. Strengths of the PATCH program include the availability of detailed manuals and handbooks and the poten-

Work was conducted in the Kansas communities of Salina and Dighton in conjunction with Unified School Districts 305 and 482.

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tial for developing relationships among communities, health departments, and the CDC. However, procedures for implementing PATCH are somewhat complex, requiring extensive technical assistance or local expertise.³

Healthy Cities. The World Health Organization's Alma-Ata conference on primary care created global awareness of the importance of community influence over health care, emphasizing the importance of preventive intervention and the value of "health for all."^{8,9} The goals of Healthy Cities projects include forming and acting on comprehensive plans for health that involve many community sectors. For example, Healthy Cities Indiana, a six-city initiative founded in 1988, had by 1992 developed a walking program, health public service announcements, and long-range plans for solid waste recycling and crime watch programs.¹⁰ No effects on key outcomes have been reported for Healthy Cities. Strengths of the Healthy Cities model include emphasis on collaboration, participation from multiple sectors of the community, and the potential for support and communication within the Healthy Cities network. Weaknesses of the model include poor documentation of procedures, lack of a targeted mission, and heavy emphasis on planning, with little evidence of implementation or evaluation of outcomes.

Urban community development model. This model is based on principles of community development.¹¹ A designated lead agency convenes city-wide leadership, professionals, and neighborhood groups in a three-tiered partnership designed to strengthen the "social infrastructure" of the city. Partnership staff guide groups through member recruitment and collaborative planning to increase communication and accountability between leaders and constituents of communities. An academic center provides an enabling system that includes leadership training, staff training and supervision, state-wide meetings, and consultation. Initial applications were designed to reduce alcohol and drug abuse. No effects on health outcomes have been reported for this model. Strengths of the model include high citizen involvement, systematic technical assistance for sites,¹² and the inclusion of people most affected by the issue in planning and implementation. Limitations to date include no measures of effects on outcomes or whether "social infrastructures" have been strengthened.

University of Kansas (KU) Work Group model of health promotion through community development. This model was initially developed to support the Kansas Initiative, a state-wide health promotion program sponsored by the Kansas Health Foundation.³ This model has been used to address the prevention of adolescent pregnancy,¹³ adolescent substance abuse,¹⁴ and cardiovascular risk reduction.¹⁵ Model developers provide manuals¹⁶⁻¹⁸ and other forms of support in five phases of partnership development, including collaborative planning, collaborative action, community change, capacity building and health outcomes, and institutionalization and renewal.¹⁹ Community involvement includes representatives from numerous agencies and organizations, such

as schools, health professionals, business, and civic organizations. Six ongoing case studies for prevention of adolescent pregnancy and substance abuse established in 1993 have shown hundreds of changes in programs, policies, and practices consistent with their missions, such as a summer youth employment program, increased access to contraceptives, ongoing alternative activities, and ordinance changes. Although outcome data are preliminary, an earlier study of a substance abuse partnership showed an apparent relationship between high rates of community change and the community-level indicator of single-night-time vehicle crashes (SB Fawcett, RK Lewis, A Paine-Andrews, et al., unpublished data, 1995). Strengths of the model include manuals for action planning and monitoring and evaluation, a coupling of technical assistance and evaluation,²⁰ and a measure of community change that provides regular feedback to partnerships on how well they are mobilizing citizens for change.²¹ Limitations include somewhat complex monitoring and evaluation procedures that require either substantial local expertise or external support to implement.

To date, no individual model embodies the high road to community health. PATCH and the KU Work Group model provide extensive materials for conducting collaborative planning. The Urban Community Development Model and the KU Work Group model have outlined enabling systems for supporting community development. Healthy Cities has mobilized the upper echelons of communities across the globe; the Urban Community Development Model fosters the involvement of marginalized citizens who are usually left out of the social planning loop. All of the models are currently implemented in multiple communities. None of the models has demonstrated favorable health outcomes in multiple sites, which might be considered the hallmark of an effective model. This might be due to the fact that most of the health outcomes targeted by these programs take many years to accrue. Large-scale community-based interventions in the 1970s and 1980s required 5 to 10 years to demonstrate reductions in risk factors for chronic diseases.³

It is difficult to detect the effects of community partnerships. Partnerships often deliver a multitude of community interventions that target high-risk individuals, all individuals, and the environment in which individuals make health-related choices. The sum of these community interventions represents the degree to which a community has been transformed into a more health-promoting place that makes health-related choices easier.²² Given that evidence of health outcomes may take many years to accrue, a core evaluation issue involves identifying an intermediate measure of partnership outcomes.

This paper describes an evaluation of the processes and intermediate outcomes of school and community partnerships for reducing risks for chronic diseases such as CVD and some cancers among children. A multiple case study design²³ was used to examine the effects of two partnerships on school and community changes related to the mission. The community partnerships were in Salina (population 42,300) and Dighton (population 1400), Kansas. This effort was part of the Kansas

LEAN School Intervention Project, sponsored by the Kansas Department of Health and Environment and the Kansas Health Foundation. This evaluation was designed using the KU Work Group model of health promotion through community development.

METHODS

Context of the community partnerships and support organizations. Kansas LEAN, a program of the Kansas Department of Health and Environment, Bureau of Chronic Disease and Health Promotion and the Kansas Health Foundation, designed and facilitated the implementation of the Kansas LEAN School Intervention Project. Kansas LEAN has the mission of reducing chronic disease among Kansans through community-based prevention efforts.¹⁵ The KU Work Group provided technical assistance and evaluation for the project. The Kansas Health Foundation provided a 2-year grant (\$155,454) to design, pilot test, and evaluate a comprehensive chronic disease prevention program for youth in two communities. Kansas LEAN conducted focus groups with representatives from potential intervention communities throughout the state to provide background for developing the project.

Kansas LEAN School Intervention model. The Kansas LEAN model consisted of forming partnerships to make changes in schools and the broader community. In addition, there were three school-based components: (a) modifying school lunches, (b) enhancing nutrition education, and (c) increasing opportunities for physical activity. This paper focuses on evaluating the community partnership; methods for evaluating the specific school-based components, as well as the evaluation results, are described elsewhere.²⁴ Each community partnership consisted of various community sectors, such as government or business, coming together to support the school-based changes and to bring about changes in the broader community so that children and their families would have additional opportunities outside of school to select lower fat foods and participate in fitness activities.

Kansas LEAN hired on-site coordinators to facilitate intervention activities. These on-site coordinators were registered dietitians who worked approximately 20 to 30 hours per week. On-site coordinators initiated the partnerships by recruiting parents, teachers, business leaders, and other community members to participate. Coordinators also provided leadership for the group. The partnerships in Salina and Dighton emerged in different forms. Collaborators in the Salina project included existing organizations with similar missions (e.g., YWCA, the American Heart Association), local restaurants and grocery stores, and food distributors (e.g., Tony's Pizza). In Salina, the partnership held few formal meetings. The on-site coordinators discussed community needs with the partners and served as a broker, conveying ideas and assistance among partners. Existing programs were expanded

or modified to increase opportunities for physical activities and healthy eating for school-aged youth and their families.

Project collaborators in Dighton included local media representatives (the newspaper editor and cable television manager), a senior citizens' group, a sports medicine specialist, the local grocery store, preschool providers, sports coaches in all schools, the local public library, the local health department, the local extension office, parents, teachers, and representatives from the local school board. For the first 6 months, the partners met bimonthly as an entire group to develop goals and action steps for each of the four project components. Partners then formed multiple task forces to work toward implementing the goals. The task forces selected chairs and met independently. Chairs of the task forces reported progress to the coordinator informally on an ongoing basis and to the entire partnership quarterly. Few exercise facilities were located in Dighton. To increase fitness opportunities, partners focused on developing new programs, such as a noncompetitive annual track meet for young children, and enhancing sports opportunities for girls.

The community partnerships had two main functions: (a) supporting and enhancing implementation of major project components in schools (e.g., modifying school lunches and increasing opportunities for physical activity) and (b) serving as a catalyst for changes in the broader community to reduce risks for chronic diseases. These changes were intended to (a) raise the level of awareness of children's risk for chronic diseases, (b) provide information about how to reduce risks for CVD, (c) provide opportunities to engage in protective behaviors, such as regular physical activity and eating healthier foods, and (d) enable the school and community to maintain and expand efforts when the project ended.

Measurement system. Project evaluators and staff negotiated the key questions and measures used to evaluate the project by considering (a) what outcomes were important to the staff and funders, (b) what information would facilitate midcourse corrections, (c) what changes would likely be detectable (such as new or modified programs, policies, and practices), and (d) what measures were feasible to use.

Project staff and leadership selected several key questions related to the community-based partnership, including (a) were changes in the community facilitated by the partnerships? (b) how well were the partnerships implemented? (c) were the goals of the partnerships important? and (d) were community changes important to reducing children's risks for chronic diseases? Evaluators used a monitoring system and constituent surveys to address these questions. Although detailed measurement procedures are discussed elsewhere,¹⁸ the measures, methods for data collection, feedback systems, and case study designs are briefly described in the sections below.

Log monitoring system. For 2 years, project evaluators used a monitoring and feedback system²¹ to document the partnerships' activities (e.g., services provided and community actions) and to track how the school and community became

more health promoting by increasing opportunities for healthy choices (community changes). Services provided are defined as events designed to provide information, instruction, or develop skills of people in the community (e.g., ongoing basketball programs, menu planning classes). Community actions are defined as actions taken in the school or community to bring about new or modified programs, policies, or practices to reduce risks for CVDs (e.g., meeting with teachers to revise curricula). Community changes are defined as new or modified programs, policies, or practices in the school or community that are facilitated by the partnership and reduce risks for CVDs (e.g., adopting a new physical education curriculum). Table 1 provides selected example community changes facilitated by the two community partnerships.

To complete the logs, project evaluators made weekly or monthly phone calls to partnership staff about activities and accomplishments. Information about the partnerships' activities was transcribed onto log forms by evaluators. Two evaluators categorized events facilitated by the partnerships using

a list of behavioral definitions. Inter-rater reliability was calculated by dividing the number of agreements by the total number of agreements plus disagreements. The scoring system was 82% reliable for log entries in Salina and 86% reliable for Dighton log entries.

Constituent surveys. Evaluators used printed surveys to gather local citizen ratings of the importance of the projects' goals and accomplishments. At the end of the first year, evaluators mailed surveys to community members. Survey participants were selected by partnership staff and included community members who were involved with the partnership either as members of the partnership, teachers, school administrators, or potential partnership supporters. Response rates were 60% in Dighton and 67% in Salina, resulting in 12 completed surveys in Dighton and 14 in Salina. Survey items included a listing of (a) broad partnership goals (e.g., revise school lunch menus to reduce the percent calories) and (b) partnership accomplishments, which were the community

Table 1. Illustrative community changes and dates the changes were initiated in Dighton and Salina.

<i>Example Community Changes Facilitated in Dighton</i>	
<i>Programs</i>	
•	Installed fitness stations in classrooms (4/92); developed curricula (9/92) and an incentive system (3/93) for its use.
•	Sponsored "LEAN Meat—Let's Eat" night with food sampling and an analysis of the nutrition and exercise behavior of five local families. Coordinator made recommendations to the families for improvement and reported their progress in the newspaper (1/93).
•	Collaborated on initiating a fundamentals of basketball and volleyball program for girls (2/94).
<i>Policies</i>	
•	Adopted an enhanced physical education curriculum school wide (9/92).
•	Adopted a cycle menu program district wide that will facilitate low-fat product purchasing and menu planning (4/93).
•	School agreed to sponsor an annual health fair at the elementary school (3/93).
<i>Practices</i>	
•	Established a monthly column called "LEAN Corner" in the local newspaper (7/92).
•	Initiated a 3- to 5-minute daily stretch program in the classrooms to increase flexibility and develop positive habits for warm-up, cool down, and CVD fitness (10/92).
•	Added a juice vending machine to provide alternatives to soda pop (6/93).
<i>Example Community Changes Facilitated in Salina</i>	
<i>Programs</i>	
•	YMCA offered more basketball programs for children concurrent with adult exercise classes (8/92).
•	Sponsored a dietary change program, Leaner Eater, for local teachers and food servers (8/93).
•	Offered cholesterol testing to students, teachers, parents, and community members (9/93).
•	Established parent-child aerobics and line dancing classes at the local YWCA (1/94).
<i>Policies</i>	
•	School adopted the fitness components as a permanent part of the physical education curriculum (1/94).
•	School adopted the nutrition education components as a permanent part of the curriculum (1/94).
<i>Practices</i>	
•	Foodservice cooks started using exact measurements of ingredients (4/92).
•	Local physicians rotated residents through a community nutritionist's practice to give residents experience in nutrition education (5/93).
•	On-site coordinator and local physician included nutrition education in checkups for children 0-18 years of age at a local health clinic (5/93).

changes facilitated by the partnership and collected using the log system (e.g., collaborated with the YWCA to offer new parent-child aerobic classes). The survey asked respondents to rate the importance of the goals and accomplishments on a scale of 1 (least important) to 5 (very important). A section for comments was included to solicit general feedback.

Feeding data back to relevant audiences. Ongoing graphing of community changes, services provided, and community actions, similar to Figures 1 and 2, permitted regular feedback on partnership progress and accomplishments. Initially, feedback was provided monthly, and later quarterly, in meetings with partnership leadership and staff. Feedback enabled the collaborators to detect and celebrate early successes, such as a newly established cycle menu to facilitate meal planning. At times, when rates of community change lessened, staff and evaluators considered what barriers to action or change were being encountered, and whether renewed efforts were called for. Evaluators summarized the results from the constituent survey of goals and accomplishments by calculating the mean and range of the respondents' ratings. Staff and evaluators discussed these data, and staff were encouraged to focus on changes that were highly rated.

Design. A multiple case study design²³ was used to explore the effects of the community partnerships. Data were collected in a time-series fashion²³ over 27 months.

RESULTS

This section describes the data secured to answer key evaluation questions about the process and intermediate outcomes of the school and community partnerships.

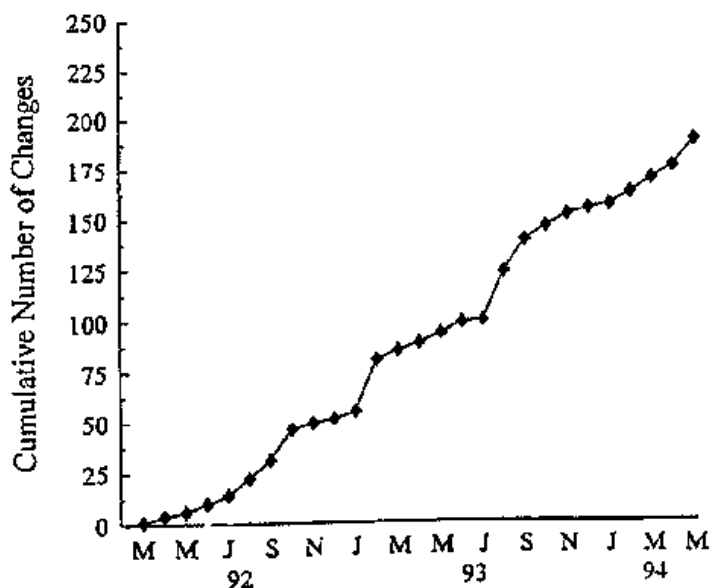


Figure 1. Cumulative number of community changes facilitated in Dighton.

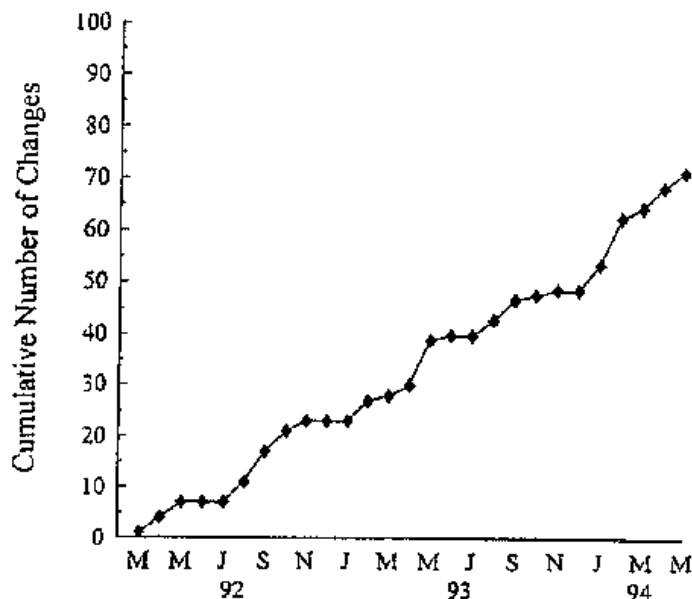


Figure 2. Cumulative number of community changes facilitated in Salina.

Were changes in the community facilitated by the partnerships? Many changes were facilitated in both communities to support the partnership's efforts. Figures 1 and 2 show the cumulative number of community changes (new or modified programs, policies, and practices) produced by the partnerships and reported by staff using the log monitoring system. A steeper line reflects more activity, a flat line indicates no activity. Illustrative community changes, such as initiating summer fitness programs, are noted in Table 1. The partnership in Dighton created over 179 community changes over a 27-month period (see Fig. 1). Cumulative community changes shows a steady climb with increases in the fall, when school opened and planned activities were implemented. Changes facilitated in Dighton included, but were not limited to, many one-time community events on fitness and nutrition, changes in classroom and physical education curricula, menu and recipe changes, changes in community sports leagues, cooking demonstrations, and health screenings.

The partnership in Salina created over 72 community changes during the same 27-month period (see Fig. 2). The partnership created a large number of changes at a steady rate during implementation. Changes facilitated in Salina included collaborating with community agencies to offer family-oriented fitness programs, changes in classroom and physical education curricula, menu and recipe changes, and several one-time fitness and nutrition events such as student dances.

How well were the partnerships implemented? Evaluators also used the log reporting system to collect information about service provision and community action to see how well the partnership was implemented. Both sites provided a high and steady rate of services over 2 years: the total number of services provided and reported in the log system was 162 in Dighton and 129 in Salina. Community actions

are precursors to community changes and can function to reinforce the persistent action needed to bring about community changes. Although staff stated that they underreported community actions, 61 community actions were reported in Dighton and 92 in Salina.

Were the goals of the partnerships important? Selected community members rated the importance of the goals of the partnership. The response categories ranged from 1 = "very unimportant" to 5 = "very important." Nearly all of the respondents reported that the goals of the partnership were "important" or "very important" to reducing children's risks for CVD. The percentage of respondents rating the partnership goals as "important" or "very important" in Dighton and Salina, respectively, were as follows: revise school lunches (100%, 93%), increase physical activity (100%, 93%), increase nutrition education at school (100%, 86%), and develop a community partnership (92%, 64%). Overall, 100% of the respondents in Salina and 92% in Dighton reported that the community was better off because of the project.

Were community changes important to the mission? Surveys of community members were also used to explore the importance of each community change in reducing children's risks for CVDs. Taken together, most respondents rated the changes as "important" or "very important" to reducing children's risks for CVDs in both Dighton (92%) and Salina (92%). Individual changes that were rated as "important" or "very important" to reducing risk by the highest percentage of respondents included changes in food preparation methods (e.g., rinsing ground beef in Dighton, 100%), reductions of fat in recipes (e.g., new cookies and casseroles in Dighton, 100%), and establishing ongoing fitness programs (e.g., family walking program in Salina, 93%). Although most respondents found all changes important or very important, fewest rated new single-day events (e.g., fitness activities at community events in Dighton, 67%) as "important" or "very important" to reducing children's risks for CVDs.

DISCUSSION

This manuscript describes two case studies that illustrate the potential effects of school and community partnerships for promoting cardiovascular health. The results suggest that both partnerships facilitated important changes in the school and the broader community. Implementation of the partnerships varied to reflect the differences in the two communities. Comparing rates of community changes and rates of community actions in the two communities suggests that fewer activities may have been needed to facilitate changes in the smaller community of Dighton. Perhaps tighter social networks in the small, rural community of Dighton enabled change to occur more efficiently.

There were a number of methodological challenges to evaluating these school and community partnerships for cardiovascular health. First, the case study design precludes

causal inferences about the effects of the intervention. Other correlated events, such as increased state- or county-wide interest in diet and exercise, could have contributed to the ease in which changes were made in each community.

Second, the monitoring system is, by design, a reactive measurement instrument. It is likely that recording events for the log monitoring system, such as community changes, prompted additional changes by staff and leadership. In addition, the activities and changes reported may be a conservative estimate of the actual numbers of activities provided and changes made, as it is likely that some events and changes were not reported.

Third, the monitoring system did not track the maintenance of changes over time. Although some of the changes were new one-time events, many were the first of a series of events or changes that have continued years after the grant period was completed (V James, L Henke, personal communication, May 1996).

Fourth, the monitoring system relied on self-reported data. Community changes are not all directly observed by the evaluators. To increase accuracy in reporting, evaluators verified a sample of reported community changes through meeting minutes, newspaper articles, and occasional direct observation. All such checks showed correspondence between events reported and other corroborating evidence that the event had actually occurred and was facilitated by the partnerships.

Fifth, few (26) community members provided feedback on the importance of the projects' goals and accomplishments. Although these data assisted project leadership in setting additional goals, the limited number and intentionally biased sample precludes generalizing the findings to all community members. In addition, community members surveyed may not have had special knowledge of the risk factors for chronic diseases. Future studies should consider expanding the distribution of assessments to include additional community members and experts in fields related to reducing children's risks for chronic diseases (e.g., physicians and researchers).

Sixth, because we lack strong community-level indicators for cardiovascular health, conclusions about the effects of the community changes on more distal health outcomes cannot yet be drawn. However, positive changes on the proximal indicators of nutrition knowledge, physical fitness, and consumption of lower fat foods were found.²¹

Despite these limitations, this study contributes to our understanding of the processes and intermediate outcomes of school and community partnerships with the mission of reducing children's risks for chronic diseases. Data from these two case studies suggest that the goals and accomplishments of the partnerships were important to the community and were implemented as planned. Staff used data about the importance of goals and accomplishments to set priorities and continue to implement community changes important to their mission. Regular discussions of the cumulative number of community changes, community actions, and services provided also contributed to continued progress of the partnership by providing opportunities to celebrate successes and redirect efforts, if necessary.

Future research is needed to further understand and improve strategies for reducing children's risks for chronic diseases. First, subsequent research should attempt to identify comparison communities to control for changes in secular trends. Second, future research should identify community-level indicators, such as the sale of whole milk versus skim milk, and collect such data for intervention and comparison communities to examine the community-level impact of such school and community partnerships.¹⁸ Finally, future research should establish the maintenance or durability of the changes produced by partnerships.

The collaborative partnerships in Salina and Dighton used elements of a variety of models, including collaborative planning,^{3,7} extensive citizen involvement,^{9,11} and support and evaluation systems.^{3,11} Under the auspices of Kansas LEAN, this school and community partnership model is being replicated in six communities in Kansas. This replication provides additional opportunities for expanding our understanding of the strengths and challenges of community partnerships for reducing risks for chronic diseases among children.

Risks for chronic disease and associated behavior patterns for diet and physical activity are established early in life. The partnerships sought to increase access and opportunities for improved diet and exercise: the aim was to make healthy choices the easy choices.²² These school and community partnerships contributed to improved diet, physical activity, and other protective factors for CVD among children and adults. Perhaps collaborative partnerships will serve as effective catalysts for change, building community capacity to address a variety of health and development concerns.

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