

# Replicating a Community Initiative for Preventing Adolescent Pregnancy: From South Carolina to Kansas

This article describes a replication of the School/Community Sexual Risk Reduction Model for adolescent pregnancy prevention in several Kansas communities. The model was implemented initially in two communities in South Carolina. First, we describe the School/Community Model—its history, major program components, evaluation results, and the conceptual framework for the Kansas replication. Second, we describe the School/Community Sexual Risk Reduction Replication Initiative, including the collaborators, early implementation, strategies for grantmaking, contexts and sites, technical assistance and evaluation, and reinvention of the model. We conclude with a discussion of the challenges and opportunities of replicating broad-scale community initiatives for preventing adolescent pregnancy. Key words: adolescent pregnancy, community, prevention, reinvention

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**E**ACH YEAR approximately 10% of the female adolescents in the United States (more than 1 million) become pregnant,<sup>1</sup> and approximately half of those who become pregnant (533,483 in 1990) give birth.<sup>2,3</sup> The United States has the highest rate of teen pregnancy among industrialized nations.<sup>2</sup> A 1990 national survey of the sexual risk behavior of 9th through 12th graders revealed that over half of the students reported having had sexual intercourse.<sup>4</sup> Accordingly, reduction of ado-

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lescent pregnancy to no more than 5% of female adolescents is a national health objective for the year 2000.<sup>5</sup>

Adolescent pregnancy has a variety of consequences for young mothers and their children and for society. The greatest negative impact of pregnancy is experienced by disadvantaged adolescents.<sup>6,7</sup> They are more likely to drop out of school, be unemployed, and have a lower income<sup>8</sup> than adults who are parents.<sup>2,9</sup> Parenting adolescents are more likely to be dependent on public assistance.<sup>10</sup> In 1992, public expenditures to mothers who had their first child as teenagers were approximately \$34 billion.<sup>11</sup> Further, approximately 25% of unmarried adolescent females who give birth become pregnant again within one year.<sup>2</sup>

There are also health consequences for adolescents who become pregnant and for their children. Since adolescents are less likely than adult pregnant women to seek prenatal care,<sup>12</sup> they are more likely to have higher rates of infant death and disease.<sup>9,12</sup> They also have higher rates of physical complications during pregnancy, such as hypertension.<sup>12</sup> Miscarriages, stillbirths, and low-birthweight infants are twice as common among adolescents than adult women.<sup>12,13</sup>

A variety of personal and environmental factors appear to contribute to risk for adolescent pregnancy. Personal risk factors for adolescent pregnancy include early onset of puberty, poor school performance, lack of information about contraceptive use and the consequences of adolescent pregnancy, and low perceived expectations for educational or career opportunities.<sup>7,14,15</sup> Environmental and psychosocial risk factors include per-

ceived peer and sibling models who engage in (or are perceived to engage in) sexual intercourse, inconsistent parental rules for and supervision of dating, economic deprivation, poor access to high-quality education, and poor access to contraceptives.<sup>7,14,15</sup>

Factors that protect against pregnancy are frequently the inverse of risk factors. That is, an adolescent performing well in school with consistent rules about dating, high expectations for education and job opportunities, and access to (and effective use of) contraceptives is less likely to become pregnant.<sup>14,15</sup> Preventive interventions attempt to reduce risk for and enhance protection against adolescent pregnancy.

To address a problem of such complexity, numerous authorities propose the implementation of broad-based comprehensive prevention interventions with an appropriately high dosage level.<sup>15-17</sup> Santelli and Beilenson<sup>15</sup> suggested several important components of an adolescent pregnancy prevention program including peer education, skills training for parents regarding setting limits for dating, social support for parents, enhancing school performance, and access to and effective use of contraceptives. Dryfoos<sup>7</sup> also identified several promising components: intervention before middle school, access to capacity-building and career and life option services, and public commitment to pregnancy prevention by local leaders. She also noted the importance of targeting both males and females, confidential access to contraception, availability of pregnancy testing and abortion services, involvement of mentors, school commitment

and involvement, curricula that include social skills training and life planning, involvement of community service agencies, and crisis intervention services for high-risk youths.

The social ecological approach to health promotion emphasizes the interactive and transactional nature of behavior-environment relationships.<sup>18-20</sup> This approach highlights the importance of implementing preventive interventions that target both personal and environmental factors. Preventive interventions should reflect an understanding of the interaction between the various personal and environmental factors associated with adolescent pregnancy and establish strong collaborative relationships among individuals and organizations from multiple community sectors, such as schools and health organizations.<sup>21,22</sup> The aim of such efforts is to create environments supportive of adolescent health through planned and sustainable community change.<sup>21</sup>

The necessity of a comprehensive approach to preventing adolescent pregnancy is illustrated in the initiative described in this article. The School/Community Sexual Risk Reduction Model for the prevention of adolescent pregnancy was replicated in several Kansas communities in three counties. The model was implemented initially in two counties in South Carolina. First, we describe the School/Community Model—its history, major program components, evaluation results, and the conceptual framework for the School/Community Sexual Risk Reduction Replication Initiative in Kansas. Second, we describe the replication initiative, including the col-

laborators, early implementation, strategies for grantmaking, contexts and sites, technical assistance and evaluation, and reinvention of the model. We conclude with a discussion of the challenges and opportunities of replicating broad-scale community initiatives for preventing adolescent pregnancy.

## **HISTORY OF THE SCHOOL/COMMUNITY MODEL**

The School/Community Sexual Risk Reduction Model is a comprehensive, community-wide strategy for preventing adolescent pregnancy.<sup>23</sup> It is based on the principles of social learning theory,<sup>24</sup> innovation diffusion theory,<sup>25</sup> and behavioral science approaches to public health.<sup>22</sup> McGuire's<sup>26</sup> classical persuasion communication model<sup>26</sup> and Ajzen and Fishbein's<sup>27</sup> belief-attitude-intention model are also relevant to the School/Community Model. The School/Community Model includes many of the components of successful adolescent pregnancy prevention programs outlined by Santelli and Beilenson<sup>15</sup> and Dryfoos.<sup>7</sup>

A premise of the School/Community Model is that the risk factors associated with adolescent pregnancy are numerous, interrelated, and not easily remedied. Its hypothesis is straightforward: The greater the number of important changes in school and community contexts related to the mission, the greater the likelihood of reducing the number of adolescent pregnancies. The aim of the model is to facilitate appropriate doses of multiple interventions directed to the general population and higher doses of targeted programs to at-risk youths.

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The broad goal of the School/Community Model is to improve social and health status in the community through long-term change in environmental factors and personal behavior related to health. The outcome objective is to reduce unintended pregnancy among never-married teens and preteens. The primary behavioral objective is to promote abstinence and postpone the age of first intercourse. The secondary behavioral objective is to promote effective contraceptive use among teens who choose to be sexually active.

To achieve these objectives and reduce risk and enhance protection against adolescent pregnancy, relevant sectors of the community (eg, schools, health organizations) work together to implement an array of interventions including

- graduate coursework in sexuality education for teachers;
- seminars and training for community members, parents, and agency professionals in sexuality education;
- comprehensive age-appropriate K-12 sexuality education in schools;
- access to health services and contraceptives;
- collaboration with school administrators to facilitate the development

and implementation of school interventions;

- mass media to increase awareness and involvement;
- peer support and education; and
- alternative awareness and skill development activities for youths.

Each of these program components is composed of more specific elements (Table 1). For example, enhanced sexuality education includes courses for teachers and community members, monthly in-service training for teachers, mini-courses for parents and clergy, and a resource library with information about health and sexuality. In addition, the specific elements of the program components, such as sexuality education and alternative activities for youths, occur in a variety of contexts to extend the reach of the initiative. For example, peer support for not engaging in unsafe sexual activity, education, and alternative activities for youths are provided in schools, religious organizations, and community organizations such as city parks and recreation programs.

The first application of the School/Community Sexual Risk Reduction Model began in October 1982 in Bamberg County, SC. It was expanded in March 1992 to include Hampton County, SC. Both counties are rural and predominantly African American, more than a quarter of the population (28.2% in Bamberg and 27.7% in Hampton) live below the poverty line, and more than a third (37.1% in Bamberg and 40.8% in Hampton) of residents 18 years or older do not have a high school diploma.<sup>28</sup> Implementation of the model in South Carolina was underwritten initially by a

**Table 1.** Major Program Components of the School/Community Sexual Risk Reduction Model

Program components	Program elements
Enhance sexuality education	Teach courses for teachers, community members, and agency professionals on human sexuality and teaching methods Provide monthly in-service for training teachers on timely sexuality education topics and teacher newsletters Provide minicourses for parents, clergy, and community members on sexuality and talking to youths about sex Maintain a resource library with information about health and sexuality
Implement age-appropriate, comprehensive K-12 sexuality education	Educate youths in the following topic areas: knowledge of consequences of unplanned pregnancies; sexually transmitted diseases; importance of abstinence; understanding growth and development; skills in assertiveness, communication, problem solving, and decision making specific to sexuality; and knowledge and skills for effective contraceptive use Hold student focus groups to determine the level of sexuality education they are receiving and what they would like to have in their schools Conduct focus groups with teachers to document the level of sexuality education provided
Increase access to health services and contraceptives	Provide in-service training in assessment and revision of school nursing services Establish linkages with health care providers to increase access and decrease barriers to services (eg, school-linked clinic) Establish linkages and pursue opportunities to conduct Early Prevention, Screening, Diagnosis, and Treatment screening and access to Medicaid-provided medical services for youths
Collaborate with school administrators Use the mass media to increase awareness and involvement	Meet regularly with administrative staff, parent advisory groups, health councils, and other groups involved in school health decisions Assess student knowledge, attitudes, and behavior related to sexual issues Provide bulletin boards, newsletters, and flyers Arrange for special events, speakers, forums, and speakers bureaus Develop public service announcements (radio, television, print) Solicit television, radio, and newspaper coverage of problem and initiative
Provide peer support and education	Provide training for peer leaders in reproductive health, sexuality education, providing peer support and assistance, community health and education resources, and decision-making skills Facilitate peer support groups
Provide alternative activities for youths	Coordinate summer youth programs Staff after-school programs Establish mentoring and job opportunities
Establish community linkages	Participate in networking, interagency councils, and social agencies
Establish programs in religious organizations	Provide training and special programs

5-year grant from the Office of Adolescent Pregnancy Programs, US Department of Health and Human Services. Since 1987, funding has been provided by the South Carolina Health and Human Services Finance Commission through community block grant funds and more recently by the Medicaid Family Planning fee-for-services programs. The majority of funding provides for a director, outreach coordinator, administrative aide, and part-time outreach workers at each site. Support staff for technical assistance and program evaluation are based at the University of South Carolina, School of Public Health.

The effectiveness of the School/Community Model was assessed by comparison of the effects in Bamberg County with four areas that were similar to the intervention area in sociodemographic characteristics.<sup>23</sup> The base measure of comparison was the estimated pregnancy rate (EPR), an annual indicator calculated from data provided by the South Carolina Office of Vital Records and Public Health Statistics of the number of pregnancies that occurred per 1,000 females ages 14 through 17 years. (The EPR is computed using this formula: Live births plus fetal deaths plus induced abortions divided by the number of females ages 14–17 years multiplied by 1,000.) Vincent et al<sup>23</sup> showed a 54% decrease in EPR during years 2 and 3 of the project and comparison groups experienced an increase.

A reanalysis of the data provided by Research Triangle Institute scientists confirmed that the initial decreases in the estimated pregnancy rate were due to the intervention.<sup>29</sup> This follow-up report also

identified critical program components not described in the original report that likely contributed to the reduced pregnancy rate, including enhanced access to contraceptives, particularly through the efforts of a school nurse who provided access to public family planning clinics and distributed condoms. The extended time series analysis indicated that the estimated pregnancy rate started to increase and returned to baseline levels by year 6 of the project. The follow-up report concluded that the increases in the estimated pregnancy rate can be explained by the loss of momentum in the program, the reassignment of a proactive school nurse, the closing of a health department satellite clinic, and a state policy change that prohibited the distribution of contraceptives in school-based clinics. Their final conclusions were that communities can prevent unintended pregnancy among adolescents if they devote the necessary resources, try a combination of approaches, and sustain their efforts over time.<sup>29</sup>

## REPLICATION INITIATIVE IN KANSAS

The mission of the School/Community Sexual Risk Reduction Replication Initiative is to replicate the School/Community Model for preventing pregnancy among adolescents in Kansas. The three health objectives for the initiative are (1) by 1996, reduce by  $x\%$  (as determined by each site) pregnancies among never-married teens and preteens; (2) by 1996, increase by  $x\%$  the reported level of sexual abstinence and the age of initial sexual intercourse, and (3) by 1996, increase by

x% the reported use of contraception among teens who choose to be sexually active. The strategies of the replication initiative are the same as in the South Carolina applications—that is, to involve parents, teachers, leaders of religious organizations, community leaders, health providers, and youths in such activities as teacher participation in graduate sexuality education, parent-child communication sessions about sexuality, peer support programs, contraceptive access, and alternative activities for youths.

### Framework

Replication of the School/Community Model in the Kansas sites and the evaluation of its effects are the primary purposes of the replication initiative, which is funded by the Kansas Health Foundation. Replication of the model demands that the conceptual anchors and core components are implemented and sustained over time. Fig 1 provides a conceptual framework for the replication initiative. The framework draws on models for health promotion and community development<sup>21,22</sup> and expands the School/Community Model to include more emphasis on collaborative planning to help ensure the replication of the model in the three distinct communities. The planning component also reflects a variety of changes in programs, policies, and practices related to the mission of the replication initiative.

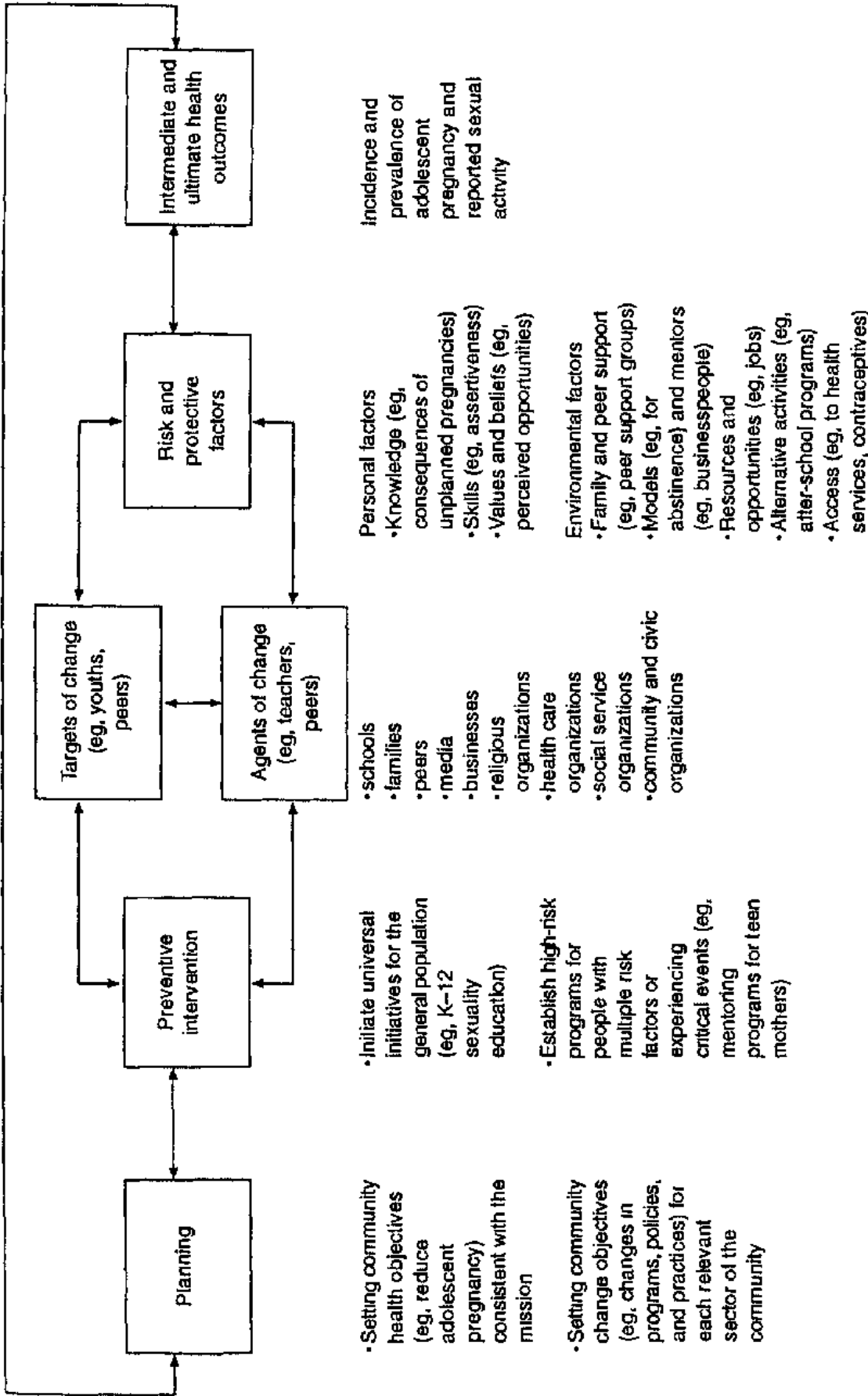
This interactive and transactional framework comprises four phases of development of community initiatives. First, during the planning phase, the mission, health objectives, strategies, and action plans are developed. These in-

clude identifying specific objectives for changes to be sought in programs (eg, K-12 comprehensive age-appropriate sexuality education), policies (eg, in-school access to contraceptives), and practices (eg, expanded hours for after-school programs) related to reducing risk for and enhancing protection against adolescent pregnancy. Second, during the intervention phase, universal initiatives for all adolescents (eg, sexuality education in schools) and targeted interventions for at-risk youths (eg, peer support or mentoring programs) are implemented. These are intended to influence the critical behaviors, such as abstinence or support for abstinence, of key targets of change, such as adolescents or peers, and agents of change, such as teachers, parents, and peers. The interventions are implemented in a variety of community sectors, such as schools, religious organizations, and health organizations, to reach key targets and agents of change.

Third, after significant numbers of interventions are in place, changes in risk and protective factors are effected. These include changes in personal factors, such as knowledge about the consequences of adolescent pregnancy, and environmental factors, such as access to contraceptives. Lastly, as risk and protective factors are positively influenced, changes in the incidence and prevalence of the ultimate health outcome, estimated pregnancy among adolescent females, occur.

### Collaborators

To design, implement, and evaluate the School/Community Sexual Risk Re-



**Fig 1.** Framework for Community Initiatives for Preventing Adolescent Pregnancy. Adapted from Fawcett S, Paine A, Francisco V, Vliet M. Promoting health through community development. In: Glenwick D, Jason LA, eds. *Promoting Health and Mental Health in Children, Youth, and Families*. New York, NY: Springer; 1993. © 1993, Springer Publishing Company, Inc, New York, NY 10012. Used by permission.



duction Replication Initiative, a partnership was established among the model originator, a senior program officer from the Kansas Health Foundation, a program codirector, and a research and technical assistance team from the Work Group on Health Promotion and Community Development at the University of Kansas. These partners worked closely together to design the replication initiative; provide technical assistance and support; and design and implement a comprehensive evaluation of the process, outcome, and impact of the initiative. This team collaborated with staff and members of community projects in three Kansas communities funded by the initiative.

The mission of the Kansas Health Foundation is to improve the quality of health in Kansas. To meet that mission, the Foundation identified specific strategies, including health promotion-disease prevention, in areas such as prevention of adolescent pregnancy. As with all of the projects within the health promotion-disease prevention area, the Foundation approached adolescent pregnancy with the goal of primary prevention using a community-based approach to foster successful outcomes and long-term sustain-

ability of the project beyond the term of the grant.

To determine how best to approach the issue of adolescent pregnancy prevention in Kansas, Foundation officials reviewed the literature and visited programs that had achieved documented decreases in teen pregnancy and showed consistency with the Foundation's values of a community-based approach, primary prevention, and sustainability. These site visits led to the selection of the School/Community Sexual Risk Reduction Model originally implemented in South Carolina.

Working closely with the replication initiative collaborators, the Foundation developed the replication plan, which included three goals: (1) replicating the School/Community Model in selected sites in Kansas, (2) providing technical assistance and support, and (3) evaluating the process and outcome of the replication initiative. The Kansas Health Foundation awarded 3-year grants of up to \$150,000 per year for projects in Geary County (a mid-size community with a military base), Franklin County (a rural community), and a low-income urban neighborhood in Wichita. A contract was awarded to the model originator and codirector (author Vincent) to help to ensure fidelity to key components and elements of the model. Vincent identified key elements that applicants in Kansas would need to demonstrate to qualify as potential sites. Additionally, he identified the key accomplishments or markers each site would need to complete at specific points in time during the development process. The Foundation also contracted with author Paine-Andrews to

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***The partners worked closely together to design the replication initiative; provide technical assistance and support; and design and implement a comprehensive evaluation.***

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serve as codirector with Vincent. Paine-Andrews' role was to provide guidance, along with the technical assistance and evaluation team, to each of the sites in their replication efforts.

The Work Group on Health Promotion and Community Development at the University of Kansas had primary responsibility for technical assistance and evaluation. Technical assistance was initially provided during two statewide conferences, a grant preparation workshop, and one-on-one support for applicants. Technical assistance supported the application process and continued after funding to assist with planning, implementation, and plans for long-term sustainability. The evaluation procedure was introduced to grant applicants during the grant preparation workshop and again to grantees in the early months of the grant to enable them to begin implementation of the evaluation.

### **Early implementation**

During the first year of the School/Community Sexual Risk Reduction Replication Initiative, the request for proposals (RFP) was developed, and two statewide conferences were held to convene individuals interested in adolescent health to raise awareness about the extent of the problem and the importance of a comprehensive approach to address primary prevention. The Foundation formally introduced the RFP at these two conferences.

Following the conferences, a grant preparation workshop was held for individuals who submitted letters of intent. The workshop introduced grant appli-

cants to a method of strategic planning for preventing adolescent pregnancy.<sup>30</sup> It also described the major components of the School/Community Model, the evaluation framework for the replication initiative, the technical assistance that was available, and the content and process of the grant application. Because the Foundation was interested in enabling those with competence but little grant-writing experience to participate, technical assistance was provided throughout the planning and application process. Technical assistance equalized the competition among those with varied grant-writing experience and made clear the expectations for replication.

To assist with the review of applications, the Kansas Health Foundation created a Technical Review Committee (TRC), a small group of individuals with particular expertise in adolescent health, adolescent pregnancy prevention, and community initiatives. The purpose of the TRC was to increase the expertise provided in the review process and to have informed experts available as specific questions arose. The TRC reviewed the grant applications, and several members participated in site visits to each prospective grantee. The criteria used to select sites included leadership capacity, level of the problem, collaboration among community sectors, completeness of the action plan, and likelihood of sustainability.

Based on recommendations from the TRC, the Foundation awarded 4-year grants to the three sites. Grants were first awarded in July 1993. All three sites have been approved for their second and third years of funding. The grants were

made with the understanding that funding each year would be contingent on evidence of progress provided by the evaluation. In the first year, progress was reflected in process measures (faithful implementation of key components) and the intermediate outcome measure of community change, including new or modified programs (eg, peer support or alternative activities), policies (eg, contraceptive access on school grounds), and practices (eg, enhanced sexuality education) related to prevention of adolescent pregnancy. The intermediate outcome measure of community change was used as an early marker of eventual impact.<sup>31</sup> In subsequent years, progress will be based on levels of community change, reported changes in behavior such as decreases in the age of first intercourse and increases in contraceptive access and use, and ultimately reductions in the estimated pregnancy rate according to vital statistics.

Technical assistance is necessary to achieve faithful replication of the model. There are a limited number of individuals in Kansas with formal preparation in the area of public health and with specific skills in organizing community initiatives. Technical assistance was provided by the University of Kansas Work Group, which included individuals with academic preparation in public health, sexuality education, and health promotion and community development.

### Context and sites

Three sites received awards from the Kansas Health Foundation to replicate the School/Community Model: Geary

County, Franklin County, and an urban neighborhood of Wichita.

### **Geary County**

According to the 1990 Census, Geary County, Kan, had a population of 30,453 that was 68.8% white, 23.6% African American, and 6% Hispanic. Geary County has the highest teen pregnancy rate in Kansas. The 5-year (1989–1993) estimated pregnancy rate among women aged 15 to 19 years in Geary County was 159.7 per 1,000. The school district serves as the lead agency for the grant. Geary County is home to a military base, Fort Riley, and as a result has a highly transient population. In addition, Geary County is the 7th-poorest county in Kansas and had a median family income of \$24,231.

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***Because many adolescents who come into contact with the program leave this military community, changes in sexual activity and pregnancy are difficult to detect.***

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Because the lead agency for Geary County is the school district, the site is positioned well for implementation of the school components of the model such as sexuality education. Geary County also has a school-linked youth clinic that provides access to some types of contraceptives as well as to general health services. The transiency of this military community poses a challenge for the consistent involvement of community members in project efforts. Also, because many adolescents who come in contact with the

program components leave the community, changes in sexual activity and pregnancy are difficult to detect.

### **Franklin County**

According to the 1990 Census, Franklin County, Kan, had a population of 21,994 that was 97% white, 1% African American, and 2% Hispanic. Franklin County is rural, with 10 distinct communities and four school districts. The 5-year (1989–1993) estimated pregnancy rate for women aged 15 to 19 years in Franklin County was 80.5 per 1,000. The median family income was \$30,210. A satellite office of a regional prevention center, the Douglas County Citizen's Committee on Alcoholism (DCCCA), serves as the lead agency. DCCCA expanded its mission to include prevention of adolescent pregnancy.

The four school districts in Franklin County make the task of securing support for the school components of the model particularly challenging. The school districts vary in their willingness to implement key components such as sexuality education and an assessment of youth attitudes, knowledge, and behavior related to sexual issues. The health department is supportive and involved in project efforts. For example, health department staff are part of the advisory committee and have implemented an assessment of contraceptive use among youths using the health clinic. As discovered in the initial South Carolina application of the model, in rural communities traveling large distances to obtain contraceptives from the health department makes contraceptive access more difficult. In addition, the small size of the

communities in Franklin County makes the purchase of contraceptives by adolescents a public act with attendant social consequences. Increasing access to contraceptives in this rural community may require strategies for reducing the negative social consequences for purchasing them, such as establishing a policy at local pharmacies in which orders for contraceptives can be phoned in and placed in bags to be picked up.

### **Wichita**

According to the 1990 Census, the city of Wichita had a population of 304,011, with a population of 462,000 in the surrounding Sedgwick County. Sedgwick County is 83.7% white, 8.8% African American, and 1% Native American. The 5-year (1989–1993) estimated pregnancy rate for women aged 15 to 19 years in Sedgwick County was 92.2 per 1,000.

Wichita is the largest city in Kansas. This project serves an area within northeast Wichita, a predominantly African American neighborhood with a population of approximately 29,270 that was 57.2% African American, 36.6% white, 2.5% Asian American, and 1.5% Native American. The birthrate (births and fetal deaths) for women aged 15 to 19 years in the targeted area in Wichita is 141.9 per 1,000 (the pregnancy rate is unavailable due to lack of abortion data by target area) and in Sedgwick County was 73.7 per 1,000. The median family income for this area, which includes some of the lowest income neighborhoods in Kansas, was \$13,445.

Wichita Metropolitan Family Preservation, Inc. (WMFP), which serves as the

lead agency, is a grassroots organization with a mission of serving African American families in this metropolitan neighborhood. WMFP has personal and cultural ties to its African American community and also serves an Asian community near the agency. WMFP offers a variety of programs including mentoring, peer education, and family planning. The agency also has strong collaborative relationships with other community-based and religious organizations. Many of the youths living in the neighborhood are bused to schools throughout the city, affecting the dose of school and community components available to individual youths who may be at risk. Staff concentrate the higher doses of the school components in the schools with the highest number of youths attending from the target areas. Staff have formed relationships with school administrators, principals, teachers, nurses, and others to facilitate the development and implementation of program components in the schools.

Collaborative relationships formed in each site provide tremendous opportunities for learning about the necessary adaptation of the School/Community Model in these rural, military, and urban communities. Ongoing research with these communities will increase our understanding about interactions among personal and environmental factors and their effects on community change and adolescent pregnancy in highly diverse contexts.

### **Support and evaluation**

The program codirectors and Foundation program officer provide overall direction for the replication initiative, and the Work Group provides technical assistance

and evaluation. The major partners of the replication initiative work collaboratively to support the efforts of local sites.

Technical assistance has been primarily in the areas of strategic planning, implementation, and institutionalization of local efforts. Technical assistance with planning included helping identify specific changes in programs, policies, and practices to be sought in schools, religious organizations, and other relevant sectors of the community. It also involved identifying key targets and agents of change and securing the support and involvement of key influential people, such as school officials, and grassroots leadership, including pastors of African American churches. Support for implementation included providing information about the School/Community Model components, such as strategies and tactics for increasing contraceptive access and developing comprehensive sexuality education. The Work Group has also provided support for developing plans for financial sustainability and institutionalizing new programs and practices in the community related to reducing risk for and enhancing protection against adolescent pregnancy.

Technical assistance is provided as needed on site and during bimonthly meetings with all three sites. Consultants with special expertise in preventing adolescent pregnancy and developing community initiatives have also been brought in to provide assistance during workshops and one-on-one consultations.

The Work Group on Health Promotion and Community Development used the conceptual framework (shown in Fig 1) to design an evaluation system sensi-

tive to each of the phases of development of community initiatives.<sup>21</sup> The evaluation is designed to answer key questions about process (eg, How well is the initiative being implemented?), outcome (eg, What new programs, policies, or practices related to adolescent pregnancy have resulted from project efforts?), and impact (eg, Does the initiative have an impact on the estimated pregnancy rate among adolescents?).

The evaluation was an integral aspect of the support system, providing ongoing information on process, outcome, and impact. The process evaluation was planned to monitor the nature and fidelity of the replication efforts. The outcome aspect examined alterations in risk and protective factors by tracking changes in programs, policies, or practices related to prevention of adolescent pregnancy. Impact measures included the estimated pregnancy rate, which is the bottom-line indicator of progress toward the ultimate health outcome of reduced adolescent pregnancy.

During the first year of implementation, data on process (eg, services provided) and intermediate outcomes (eg, new programs, practices, or policies established to reduce risk or enhance protection) were collected monthly and regularly communicated to site staff and leadership. Such data helped project staff celebrate accomplishments and focus energies to increase and maintain the community changes necessary for impact. These data also helped identify potential areas for technical assistance. For example, the scarcity of sexuality education for teachers and students suggested the need to identify alternative ways to se-

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***The scarcity of sexuality education for teachers and students suggested the need to identify alternative ways to secure community support as well as resources for enhancing this component of the model.***

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cure community support as well as resources for enhancing this major component of the School/Community Model.

Another outcome measure is reported sexual knowledge, attitudes, and behaviors of adolescents. Data from the first annual baseline assessment of behavior indicate that high percentages of youths reported engaging in sexual activity but much lower percentages reported using contraceptives. These data have been (and will continue to be) used to secure community support for and involvement in project activities.

The impact measure of estimated pregnancy rate among females aged 10 to 14 and 15 to 19 is secured from the state health department. Rates are tracked over time to show evidence of impact. At the end of the third year of the replication initiative, we will also use structured interviews to analyze events. This qualitative information will be used to interpret the meaning of key events according to participants and to help refine the development and successful implementation of the initiative.

### **Reinvention of the model**

*Reinvention* refers to the modification of an innovation by a user as it is adopted

and implemented.<sup>25,32</sup> Reinvention is necessary to adapt innovations, such as the specific elements of the School/Community Model, to the needs of local contexts and to solve problems and take advantage of opportunities different from those encountered by the innovation in its original form. For example, each of the Kansas sites is addressing the problem of adolescent pregnancy; however, the specific dimensions of the problem are different in these rural, military, and urban contexts, requiring some modification in the application of the model. Further, minor reinvention of program elements helps establish local ownership of the innovation.<sup>25</sup> For instance, each site assumed its own name and implemented components such as alternative activities for youths in a variety of different ways consistent with local needs and resources. Reinvention is necessary to respond to constraints within key organizations or community sectors whose collaboration is necessary to implement the innovation.<sup>33</sup> For example, varying responsiveness from the schools sector required different arrangements for improving access to contraceptives. Lastly, because the original application of the School/Community Model took place in a small rural community, applying the model in urban and military communities will likely require some adaptation with careful attention to ensuring the implementation of key program components. Further, school district size and centrality will affect the amount of reinvention of the implementation of program components.

Collaboration with staff and leadership of each of the three Kansas sites will per-

mit analysis of the reinvention of program components of the School/Community Model. The challenge will be to ensure replication of the model in each of the three distinct sites while enabling and tracking necessary modifications. We will continue to monitor program adoption and adaptation in each site throughout the replication initiative to determine whether program modifications influence changes in outcomes of interest.

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The challenges faced in the replication initiative provide tremendous opportunities for learning. A particular challenge will be to ensure replication of the model, first conducted in a small rural community, and its effects in three distinct communities (rural, military, and urban). Monitoring of necessary reinvention will help discover which components were modified, in what ways they were adapted, and why. Such monitoring provides opportunities for furthering the understanding about reinvention and how it affects the outcomes of interest, adolescent pregnancy and associated risk and protective factors.

This replication initiative also provides opportunities for understanding and improving community initiatives for preventing adolescent pregnancy. Careful monitoring of program implementation and intermediate outcomes will contribute to understanding and improvement of program components associated with desired outcomes. Tracking key outcomes (eg, changes in programs, policies, and practices related to adolescent pregnancy) and the ultimate health im-

pact (ie, estimated pregnancy rate among women aged 15 to 19) will enhance the understanding of the relationship between such intermediate and ultimate outcomes.

The replication initiative is a comprehensive preventive community initiative. Each site acts as a catalyst to facilitate and establish new programs, policies, and practices that target a variety of personal and environmental factors associated with adolescent pregnancy within

multiple community sectors. These transformational efforts illustrate the interactive and transactional nature of change: Behaviors of key agents effect changes in the environment that, in turn, influence the behavior of key targets and agents, which have further effects on the social and physical design of the environment. Such community partnerships attempt to fulfill the promise of creating and maintaining environments supportive of adolescent health and development.

## REFERENCES

1. Trussell J. Teenage pregnancy in the United States. *Fam Plann Perspect.* 1988;20:262-272.
2. Alan Guttmacher Institute. *Sex and America's Teenagers.* New York, NY: Alan Guttmacher Institute; 1994.
3. Henshaw S, Van Vort J. Teenage abortion, birth, and pregnancy statistics: an update. *Fam Plann Perspect.* 1989;21:85-88.
4. Sexual behavior among high school students—United States, 1990. *MMWR.* 1992;40(51&52):885-888.
5. US Dept of Health and Human Services. *Healthy People 2000. National Health Promotion and Disease Prevention Objectives.* Washington, DC: Government Printing Office; 1990. DHHS Publication No. PHS 91-50213.
6. Dryfoos J. A new strategy for preventing unintended teenage childbearing. *Fam Plann Perspect.* 1984;16:193-195.
7. Dryfoos J. *Adolescents At-risk: Prevalence and Prevention.* New York, NY: Oxford University Press; 1990.
8. Davis S. Pregnancy in adolescents. *Adolesc Gynecology* 1989;36:665-680.
9. Furstenberg F. The social consequences of teenage parenthood. *Fam Plann Perspect.* 1976;8:148-164.
10. Higgins P. *Teenage Pregnancy: An Intractable Problem? A Literature Review.* St. Paul, Minn: Amherst H. Wilder Foundation; 1988.
11. US Public Health Service. *Reducing Teenage Pregnancy Increases Life Options for Youth.* Washington, DC: Government Printing Office; 1994.
12. Makinson C. The health consequences of teenage fertility. *Fam Plann Perspect.* 1985;17:132-139.
13. Morris L, Warren C, Aral S. Measuring adolescent sexual behaviors and related health outcomes. *Public Health Rep.* 1993;108:31-36.
14. Hawkins D, Catalano R, Associates. *Communities That Care.* San Francisco, Calif: Jossey-Bass; 1992.
15. Santelli J, Beilenson P. Risk factors for adolescent sexual behavior, fertility, and sexually transmitted diseases. *J Sch Health.* 1992;62(7):271-279.
16. Brindis C. *Adolescent Pregnancy Prevention: A Guidebook for Communities.* Palo Alto, Calif: Stanford Center for Research in Disease Prevention; 1991.
17. Carnegie Corporation. *Turning Points: Preparing America's Youth for the 21st Century.* Washington, DC: Carnegie Council on Adolescent Development; 1989.
18. McLeroy K, Steckler A, Bibeau D. The social ecology of health promotion interventions. *Health Educ Q.* 1989;12:63-71.
19. Stokols D. Establishing and maintaining healthy environments: toward a social ecology of health promotion. *Am Psychol.* 1992;47(1):6-22.
20. Winett R, King A, Altman D. *Health Psychology and Public Health. An Integrative Approach.* New York, NY: Pergamon Press; 1989.
21. Fawcett S, Paine A, Francisco V, Vliet M. Promoting health through community development. In: Glenwick D, Jason LA, eds. *Promoting Health and Mental Health in Children, Youth, and Families.* New York, NY: Springer; 1993.



22. Green L, Kreuter M. *Health Promotion Planning: An Educational and Environmental Approach*. 2nd ed. Mountain View, Calif: Mayfield, 1991.
23. Vincent M, Cleane A, Schluchter M. Reducing adolescent pregnancy through school and community-based education. *JAMA*. 1987;257:3382-3386.
24. Bandura A. *Social Learning Theory*. Englewood Cliffs, NJ: Prentice Hall; 1977.
25. Rogers E. *Diffusion of Innovations*. New York, NY: Free Press; 1983.
26. McGuire W. The nature of attitudes and attitudes change. In: Lindsay G, Aronson E, eds. *Handbook of Social Psychology*. Reading, Mass: Addison Wesley; 1969:3.
27. Ajzen I, Fishbein M. *Understanding Attitudes and Predicting Social Behavior*. Englewood Cliffs, NJ: Prentice Hall; 1980.
28. US Dept of Commerce. *1980 Census of the Population: General Population Characteristics: South Carolina PC 80-1-B42*. Washington, DC: US Dept of Commerce; 1982.
29. Koo H, Dunteman G, George C, Green Y, Vincent M. Reducing adolescent pregnancy through a school and community-based intervention. Denmark, South Carolina, revisited. *Fam Plann Perspect* 1994;26:206-211.
30. Fawcett S, Paine AL, Francisco VT, Richter KP, Lewis RK, Harris KJ, Williams EL. *Preventing Adolescent Pregnancy: An Action Planning Guide for Community-Based Initiatives*. Lawrence, Kan: Work Group on Health Promotion and Community Development; 1994.
31. Fawcett SB, Francisco VT, Lewis RK, Paine-Andrews A, Richter KP. Community change: An early marker of impact by community health initiatives. Submitted for publication; 1994.
32. Rice R, Rogers E. Reinvention in the innovation process. *Knowledge Creation Diffusion Utilization*. 1980;1:499-513.
33. Bauman LJ, Stein REK, Ireys HT. Reinventing fidelity: the transfer of social technology among settings. *Am J Community Psychol*. 1991;19:619-639.