Smoking reduction activities in a federal program to reduce infant mortality among high risk women

Lorraine V Klerman, Crystal Spivey, Karen T Raykovich

Abstract

***Objectives*—To determine the smoking cessation/reduction services offered to pregnant women by federally funded Healthy Start projects designed to reduce infant mortality.**

***Design*—Information was obtained by questionnaires sent to all Healthy Start projects in 1999. Responses were received from 76 sites.**

***Setting*—The federal government selected the Healthy Start sites on the basis of infant mortality rates that were much in excess of the national average.**

***Patients*—The projects served largely minority clients. Most of the women were poor and eligible for Medicaid.**

***Main outcome measures*—The services that projects offered to pregnant smokers, the priority given the smoking related activities, and whether more should be done.**

***Results*—Only 23% of the sites thought that they were doing enough to help pregnant smokers stop or reduce smoking. The sites felt the national office should develop a manual of best practices, provide client materials, and organise workshops. While three quarters of the sites expected home visitors to counsel pregnant smokers, less than half provided training in this area during orientation, but most visitors received on-the-job training. Only 64% of sites gave smoking cessation/reduction activities high priority in comparison to other objectives of home visiting.**

***Conclusions*—Although Healthy Start sites were aware of the importance of smoking cessation/reduction activities for their clients, they offered a limited range of services. These projects, and others with similar objectives serving similar populations, need a better understanding of the time and money such interventions require and greater belief in their effectiveness, along with more funds, staff training and materials, and office systems that promote counselling.**

(*Tobacco Control* 2000;**9**(Suppl III):iii51–iii55)

Keywords: Healthy Start; smoking cessation services; pregnancy

Department of Maternal and Child Health, School of Public Health, University of Alabama at Birmingham, Birmingham, Alabama, USA
L V Klerman
C Spivey

Office of Planning, Evaluation and Legislation, Health Resources and Services Administration, US Department of Health and Human Services, Rockville, Maryland, USA
K T Raykovich

Correspondence to:
Lorraine V Klerman, Ryals Building, Suite 320, 1665 University Boulevard, University of Alabama at Birmingham, Birmingham, AL 35294-0022, USA;
lklerman@uab.edu

Received 13 January 2000 and in revised form 7 April 2000. Accepted 26 April 2000

Since 1991, the Health Resources and Services Administration of the US Public Health Service has been funding Healthy Start projects in selected communities. The purpose of these projects has been to reduce substantially infant mortality—that is, the deaths of infants under the age of 1 year—in communities whose infant mortality rate far exceeds the national average. Because they were to be community based programs, the Healthy Start projects were given considerable leeway in the services that they chose to sponsor. Nevertheless, since maternal smoking increases the rate of low birthweight (under 2500 g) and of sudden infant death syndrome, both of which are associated with an increased risk of infant mortality, the federal Maternal and Child Health Bureau, which administers the program, has urged its grantees to implement, directly or through contracts, activities directed at eliminating or reducing smoking during pregnancy and in the first year of the infant's life. This paper examines the smoking related activities of Healthy Start projects. Information about the smoking cessation activities undertaken by these projects and the barriers to implementation they experienced can inform similar programs aimed at women who are at high risk for adverse pregnancy outcomes.

Smoking cessation activities in Healthy Start projects

Several studies have reported the prevalence of Healthy Start smoking related activities or described them. As part of the process evaluation conducted between 1994 and 1997, the national evaluators found that all 15 of the original Healthy Start projects implemented health education programs, including classes or one-on-one instruction in smoking cessation.[1] Healthy Start staff noted, however, that clients appeared to prefer topics that provided concrete information relevant to life skills, such as nutrition and infant and child development, and were less likely to be receptive to information that made them feel uncomfortable, which might include the dangers of smoking.

Two Healthy Start projects paid particular attention to the smoking problem. In 1994, Healthy Start/New York City created a prenatal smoking cessation program targeted primarily at providers in inner city communities. The program was supported by a grant from Project ASSIST, a New York State Department of Health tobacco control initiative funded by the National Cancer Institute. A smoking cessation consultant worked with prenatal clinic directors to implement the program. Over 450 providers from the Healthy Start/NewYork City service area were trained at 22 prenatal care and 19 other health related facilities. Moreover, 14 prenatal and seven

other agencies implemented prenatal smoking cessation programs or enhanced existing ones. The evaluation forms completed at the end of the training session indicated that the providers felt that they had learned to understand pregnant smokers and the process of quitting. The training increased provider confidence and helped them learn counselling skills and to obtain culturally specific resources. Providers, however, were concerned about the time needed to counsel.[2] Healthy Start/New York City was unable to fund the activities after the demonstration phase of the program ended in 1997.

Honoring Our Children with a Healthy Start, a project implemented by the Great Lakes Inter-Tribal Council, Inc, a Native American site, attempted to learn more about the smoking problem in its area. In 1998, it determined that 57% of pregnant women in its 11 WIC (special supplemental nutrition program for women, infants, and children) sites smoked before pregnancy, 43% during pregnancy, and 42% postpartum. (This last percentage is probably an underestimate, given the high rate of postpartum relapse usually reported.) The council also conducted a survey of 18 nurses and nutritionists from 10 tribes to determine what they thought worked best in advising about smoking during pregnancy and about smoke free homes, whether they had seen much change in either area, whether there was a smoking cessation program in the tribal community, and whether the program incorporated the spiritual use of tobacco. The council currently has a grant from the Centers for Disease Control and Prevention to educate the tribal population, and particularly youth, about the dangers of smoking (M Hall, personal communication, 17 February 1999).

In a recent report on Healthy Start,[3] several projects were cited for their successes in smoking cessation. The Florida Panhandle Healthy Start project, one of the seven special project sites funded in 1995, reported that only 23% of pregnant smokers who were home visited by nurses were still smoking in the last trimester and that the percentage of smokers who resumed smoking by three months after delivery was lower in an experimental group (54%) than in a control group (75%). Other sites that claimed a decrease in smoking in their target areas included Detroit, Michigan, the Allegheny County Healthy Start project (Pittsburgh, Pennsylvania), and Birmingham, Alabama. These data are difficult to interpret because it is unclear whether the cessation was confirmed biochemically and whether those who quit spontaneously on learning they were pregnant have been included. Also, with the exception of the Panhandle study, there are no control groups, so these changes might also have occurred in women who did not participate in the Healthy Start project.

Survey of Healthy Start grantees

Although suggesting what a few Healthy Start projects are doing in the area of smoking cessation, these studies did not provide information about a large proportion of sites and particularly little about those sites with minimum activities in this area. Such information could assist the national Healthy Start office in its efforts to assist sites in selecting and implementing effective infant mortality reduction activities, as well as adding to the literature on smoking cessation programs in various sites where prenatal services are offered. A grant from the Robert Wood Johnson Foundation made possible such a survey of the smoking cessation/reduction activities among Healthy Start grantees in 1999 as part of a larger study of smoking cessation activities in programs that offered social support services, especially home visiting for pregnant women and new mothers.

Methods

In February 1999, letters and questionnaires were mailed to the 74 grantees being supported at that time. (Fifteen grants were made in 1991, seven special projects were funded in 1995, an additional 32 in 1997, and 20 more in 1998. Thus by 1999, 74 sites were receiving multi-year Healthy Start grants.) Follow up letters were sent to non-respondents in May and follow up phone calls were made by survey staff and by federal officials. By October 1999, responses had been received from 69 projects. However, five projects did not complete the questionnaire, stating that they were ineligible for the survey. In addition, two projects sent the questionnaires to their subcontractors/partners to complete so that one project submitted four questionnaires and another 10. Because the subcontractors worked independently on smoking related activities, they were included in the analyses as though they were separate sites. Thus, this analysis is based on responses from 76 sites.

The questionnaire had three sections. The first was to be answered only by projects that "sent staff members (or staff from agencies with which you contract) to visit pregnant women and/or new mothers in their homes". The second was to be answered only by projects that did case management and/or centre based counselling. The questions in these two sections were the same, with only minor changes in wording. (The responses to these questions by the case management and/or centre based counselling projects are not described in this paper. They were very similar to those provided by the home visiting projects and many projects did both types of programs.) The questions asked about the occupational background of the staff members, the criteria for home visiting or case management, content of risk assessments, smoking related counselling, worker training about smoking, referrals to smoking programs, educational materials, approach to behavioural change, and the priority given to smoking cessation/reduction. The third section was to be completed by all projects. It asked about offering smoking cessation classes or clinics and problems with attendance, whether projects thought they were doing enough to help pregnant smokers stop or reduce their smoking, and if not why, helpful activities that could be sponsored by the national Healthy

Start office, and project smoking policies. Some sites only completed this section.

Because of the limited number of Healthy Start sites, only univariate analyses were undertaken. However, the major descriptors of smoking activities were analysed in terms of selected project characteristics. The major descriptors were whether the sites offered smoking cessation classes or clinics, whether they expected home visitors to record the woman's smoking status before pregnancy on a risk assessment form, whether they expected the smoking status of other household members to be recorded, and whether the sites expected the home visitors to counsel pregnant smokers how to stop or reduce smoking. The project characteristics were whether the site was one of the 15 original ones or was funded later, how high a priority smoking cessation/reduction activities were, the percentage of workers who smoked, whether the site thought that it was doing enough to help pregnant smokers, and whether insufficient worker time or insufficient project funds were given as reasons for not doing enough to help pregnant smokers.

Results

ALL SITES

All sites were asked whether they believed that their projects were doing enough to help pregnant smokers stop or reduce their smoking and 21% replied affirmatively. Those who responded negatively were provided with a list of possible barriers to doing more. Competing priorities, insufficient worker time, and insufficient project funds were mentioned by over half of respondents and other barriers, less frequently (table 1).

The questionnaire also suggested several activities, which could be sponsored by the national Healthy Start office, and that might be helpful to the smoking cessation or reduction services in the projects. The item most favoured was a manual of best practices, followed by providing materials, organising workshops at regional or national meetings, technical assistance, putting information on a web page, and teleconferencing with other colleagues. Two projects spontaneously mentioned concerns related to Native Americans.

All sites were asked whether they offered smoking cessation classes or clinics. Less than a quarter did, although some noted that these were part of prenatal or parenting educational programs. Of those with classes or clinics, 87% had problems with attendance. A list of possible reasons for attendance problems was provided. Half of those with classes checked lack of encouragement from other household members. Other frequently cited reasons were lack of child care, inconvenient locations, and limited or inconvenient hours. Reasons that were suggested by the respondents more often placed the blame on the smoker. These reasons included lack of interest or commitment, not motivated, and tobacco use accepted. Despite this, 67% thought their classes had been a success, although none volunteered data to substantiate this.

*Table 1 Selected responses from all sites**

	Responses (%)
Project doing enough to help pregnant smokers (n=70)	21.4
If not, why not (n=55)	
Competing priorities	58.2
Insufficient worker time	52.7
Insufficient project funds	50.9
Clients have more important problems	45.5
Absence of experts to train workers	40.0
Workers' doubts about abilities to change smoking behaviour	32.7
Lack of good materials	30.9
Pregnant women reluctant to admit smoking	29.1
Lack of appropriate models	25.5
Helpful national office sponsored activities (n=73)	
Manual of best practices	83.6
Providing materials	80.8
Organising workshops at national and regional meetings	61.6
Technical assistance	52.1
Information on web page	46.6
Teleconferencing with colleagues	21.9
Offer smoking cessation classes or clinics (n=69)	23.2
If yes, problems with attendance (n=16)	86.7
Lack of encouragement from other household members	50.0
Lack of child care	37.5
Inconvenient locations	25.0
Limited or inconvenient hours	25.0
Long waiting list for enrolment	6.3
Smoking policies for sites or employees (n=75)	
Smoking not allowed in Healthy Start offices	97.3
Smoking not allowed where workers interview clients	86.3
Smoking not allowed in workers' offices	97.2

* Some percentages reflect fewer responses to particular questions.

Table 1 shows that smoking was infrequently allowed at Healthy Start sites. Thirty eight per cent of the sites thought that 10% or more of their staff members were smokers; 63% of the sites with smoking staff members believed that smoking by staff members reduced their effectiveness in counselling about smoking cessation.

HOME VISITING SITES

Sixty two sites reported that they did home visiting. The largest group of those who visited homes were paraprofessionals, although there was also considerable use of nurses. Almost four fifths of the sites stated that home visiting was done routinely for all clients, while the remainder only did home visiting for those considered at elevated risk (table 2), described as having current, or a history of, medical or obstetrical problems, substance abusers, teenagers, victims of domestic violence, smokers, and those with psychosocial problems. If sites required visitors to complete a risk assessment form, almost all expected the woman's present smoking status to be recorded, but smoking status before pregnancy and smoking status of other household members were recorded much less frequently.

The questionnaire asked whether, after initially determining the woman's smoking status, staff members checked on their progress at regular intervals (26%), when they make the next visit (61%), or not at all (13%). The regularity of checking ranged from weekly to quarterly. Less than 10% of respondents said they knew what percentage of women who were

*Table 2 Responses from sites that did home visiting**

	Responses (%)
Home visiting (n=58)	
Routine	79.3
Only for those at elevated risk	20.7
Risk assessment (n=61)	
For all clients	80.3
For some	8.2
For none	11.5
Home visitors expected to record (n=50)	
Pregnant woman's present smoking status	98.0
Pregnant woman's pre-pregnancy smoking status	58.0
Smoking status of household members	54.0
Home visitors expected to counsel pregnant smokers (n=61)	75.4
Home visitors provided training on smoking cessation/reduction (n=59)	
During orientation	42.4
On-the-job	81.4
Refer clients to smoking cessation programs elsewhere (n=60)	
Always	28.3
Sometimes	50.0
Hardly ever	21.7
Provide staff with printed or other materials (n=60)	75.0
Priority of smoking cessation/reduction activities (n=60)	
Very high	26.7
Somewhat high	36.7
Middle	25.0
Somewhat low	8.3
Very low	3.3

* Some percentages reflect fewer responses to particular questions.

smoking at the time of the first visit had stopped smoking before delivery.

Three quarters of the sites expected the home visitors to counsel pregnant smokers how to stop or reduce smoking, but less than half of the reporting sites provided training about methods of smoking cessation or reduction during the workers' orientation to the project. Eighty one per cent of the sites offered such training on-the-job—for example, during in-service sessions.

Only 28% of the projects always referred pregnant smokers to smoking cessation programs elsewhere in the project area. When asked under what circumstances the projects refer to smoking cessation programs in the project area, several mentioned client related factors, such as interest in or desire to stop smoking, while fewer mentioned program availability.

Three quarters of the sites supplied their staff with printed or other materials to give to pregnant smokers. Almost all the sites said that the materials were from outside sources; less than a third had locally produced materials. The questionnaire asked whether staff members used any particular approach to changing the behaviour of pregnant smokers. The expected answer was the "stages of change" model,[4] but this was not mentioned, rather respondents described educational approaches more generally.

In comparison to other objectives of the home visits, 63% said that smoking cessation or reduction had a very or somewhat high priority. The objective that was most often mentioned as having higher priority was prenatal care, including getting women in early and making certain that they kept their appointments. Also noted were substance abuse, breastfeeding, and "concrete" or "basic" needs.

COMPARISONS AMONG SITES

Selected descriptors of smoking activities were analysed by the project characteristics that might influence smoking related activities. It was expected that the original sites would be conducting more smoking related activities because they had been in operation from four to seven additional years, but this was not confirmed. The original sites were more likely to report that they expected home visitors to counsel pregnant smokers, trained home visitors about smoking cessation/reduction, and provided staff with materials, but the subsequent sites were more likely to state that they were doing enough to help pregnant smokers and to list smoking cessation/reduction activities as being a very or somewhat high priority. However, very few of the differences reached even a 0.10 level of significance.

Only two of the other 25 relationships tested reached significance at the 0.05 level using the χ^2 test. Sites that gave a very or somewhat high priority to smoking related activities were more likely to expect their home visitors to counsel pregnant smokers and more likely to report that they were doing enough for pregnant smokers.

Discussion

The grantee survey revealed that the Healthy Start projects were aware that smoking cessation during pregnancy and in the infant's first year was important to the health of their clients, but their smoking cessation programs, with few exceptions, were not very rigorous either because the projects did not know how to conduct them or because other activities were given higher priority in terms of the use of limited resources. As a result, although many women may have been exposed to a minimal intervention, it probably was not enough to have an impact on their smoking behaviour.

The results of this survey should be of considerable interest not only to those who are responsible for Healthy Start projects, but also to all who plan and implement programs for high risk pregnant women and new mothers. Both the answer to the question about priorities and the low level of smoking cessation/reduction interventions suggest that the projects believed that, given limited time and money, other activities were more important. This may reflect a lack of current information about the actual amount of time and money needed for such interventions, uncertainty about their effectiveness, or an unrealistic perception of the relative danger of health compromising behaviours. Such misconceptions need to be corrected. First, recent research indicates that smoking related activities do not require much time or much

money.[5] The guidelines prepared by the Agency for Health Care Policy and Research, as well as new materials being developed by the American College of Obstetricians and Gynecologists in collaboration with the Centers for Disease Control and Prevention and the Robert Wood Johnson Foundation, recommend a brief counselling session of 5–10 minutes with a trained counsellor at the first prenatal visit, supplemented by a pregnancy specific self help manual. Second, the same article[5] reports that such an intervention will increase validated cessation by 70% in pregnant smokers. Although this percentage may be lower among the low income women served by Healthy Start and similar projects, even a smaller reduction might have an impact on the incidence of low birth weight. And third, many of the other activities to which higher priority appears to be given may have lower rates of effectiveness, including routine prenatal care and treatment of drug addiction. Certainly true emergencies (such as domestic violence) and major medical problems (such as hypertension) should be cared for immediately by any home visitor, but when the immediate crisis is over, the worker should turn to the problem of smoking and help the woman address it, unless the client steadfastly refuses to discuss the issue and insistence would jeopardise the worker–client relationship. Both policymakers and program managers should be aware, however, that no method has yet been found safe and effective with heavy smokers and that there are situations under which smoking related activities should not be high priority because of emergency problems or strong client resistance.

Home visitors, outreach workers, case managers, and other staff who work with pregnant smokers need to be assisted if they are to become effective smoking cessation counsellors. It is estimated that such training would take about three hours. As the projects noted, manuals describing programs that worked in other sites, educational materials for clients, workshops at regional and national meetings, and technical assistance would also increase the number of programs that undertook smoking cessation/reduction activities and that were successful in these activities. But before any intervention can take place, the prenatal care providers or the workers must determine whether the woman is a smoker. A comprehensive set of questions[6] is recommended, supplemented if possible by biochemical testing because the rate of non-disclosure may be as high as 30%. Moreover, to increase the probability that the intervention will be successful, the providers must stress at the first and each subsequent visit how important they consider smoking cessation for the health of the woman and her child. This will require education of these providers, assisted by office systems, such as reminder stickers on charts, which make it more likely that the providers incorporate advice about smoking cessation into their discussions with pregnant smokers and new mothers. Moreover, smoking should be prohibited at any site to which pregnant women need to come for services.[7 8]

The lack of attention to the problem of smoking during pregnancy is particularly serious because of the very high rates of smoking among childbearing women in the Healthy Start projects.[9] The percentage of pregnant women who smoked, obtained from a survey of postpartum women undertaken in 1995-96 (49.5% for Native Americans, 32.8% for whites, 17.1% for African Americans, and 9.4% for Hispanics), is considerably higher than that reported in the national data (21.3% for American Indians, 16.9% for non-Hispanic whites, 10.3% for non-Hispanic blacks, and 4.3% for Hispanics in 1996).[10]

Conclusions

The results of this survey should suggest steps to be taken by both the federal government in regard to its Healthy Start projects and others who develop programs for high risk pregnant women. The Healthy Start projects are a particularly appropriate place for smoking cessation/reduction activities not only because of the high rates of smoking among their clients, but also because the women are linked to health and social support services that could provide the counselling, support, and encouragement essential to smoking cessation or significant reduction. The approaches used by the Healthy Start projects described in the beginning of this article provide models that other sites can use as they move to make smoking cessation/reduction a high priority activity at their sites.

Preparation of this article was made possible by grants from the Robert Wood Johnson Foundation and the Health Resources and Services Administration, and a training grant from the Maternal and Child Health Bureau, US Department of Health and Human Services.

1 Harrington M, Foot B, Closter E. *Using health education to reduce infant mortality: the Healthy Start experience*. Washington, DC: Mathematica Policy Research, Inc, September 2, 1998.
2 Drayton-Martin M, Manners FT, Novak NR, Shamban J. Implementation of a prenatal smoking cessation program in three inner-city communities. In Seidman DF, Covey LS, eds. *Helping the hard-core smoker. A clinician's guide*. Mahwah, New Jersey: Lawrence Erlbaum Associates, Publishers, 1999.
3 Griffin MF, Curry BS, Sullivan J. *Telling the Healthy Start story: A report on the impact of the 22 demonstration projects*. Arlington, Virginia: National Center for Education in Maternal and Child Health, November 1998.
4 Prochaska JO, DiClemente CC, Norcross JC. In search of how people change: applications to addictive behaviors. *American Psychologist* 1992;**47**:1102–14.
5 Mullen PD. Maternal smoking during pregnancy and evidence-based intervention to promote cessation. *Primary Care* 1999;**26**:577–89.
6 Mullen PD, Carbonari JP, Tabak ER, Glenday MC. Improving disclosure of smoking by pregnant women. *Am J Obstet Gyne*col 1991;**165**:409–13.
7 Chernof BA, Sherman SE, Lanto AB, Lee ML, Yano EM, Rubenstein LV. Health habit counseling amidst competing demands. Effects of patient health habits and visit characteristics. *Med Care* 1999;**37**:738–47.
8 Dickey LL, Gemson DH, Carney P. Office system interventions supporting primary care-based health behavior change counseling. *Am J Prev Med* 1999;**17**:299-308.
9 Raykovich KT, Cokkinides V. *Estimating the incidence of smoking, alcohol and illicit drug use during pregnancy in a sample of childbearing women*. Report to the Office of Planning, Evaluation and Legislation. Rockville, Maryland: Health Resources and Services Administration, December 1999.
10 Mathews TJ. Smoking during pregnancy, 1990-96. *National Vital Statistics Reports* 1998;**47**(10).