

# The Relation of FIMR Programs and Other Perinatal Systems Initiatives With Maternal and Child Health Activities in the Community

Donna M. Strobino, PhD,<sup>1,6</sup> Katherine M. Baldwin, MSW,<sup>1,2</sup> Holly Grason, MA,<sup>1</sup>  
Dawn P. Misra, PhD,<sup>1,3</sup> Karen A. McDonnell, PhD,<sup>1,4</sup> Mira Liao, MHS,<sup>1,5</sup>  
and Adam A. Allston, MSW, MPH<sup>1</sup>

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*Objectives:* To evaluate the association of the presence of a fetal and infant mortality review (FIMR) program, other perinatal systems initiative (PSI), or both in a community with the performance of essential maternal and child health (MCH) services by local health departments (LHDs). *Methods:* Data were obtained from telephone interviews with professionals from LHDs across the United States. Logistic regression was used to estimate the odds of a LHD conducting each essential MCH service in communities with and without FIMR programs or with and without PSIs, adjusted for geographic area. *Results:* Of the 193 communities in the sample, 41 had only a FIMR program, 36 had only a PSI, 47 had both programs, and 69 had neither. The presence of a FIMR was related to greater performance of essential MCH services in LHDs in six areas: data assessment and analysis; client services and access; quality assurance and improvement; community partnerships and mobilization; policy development; and enhancement of capacity of the health care work force. Similar findings were noted for the same broad essential services for PSIs. The comparisons of LHDs in FIMR and non-FIMR communities, however, showed greater involvement of communities with a FIMR program in essential MCH services related to data collection and quality assurance than were found for comparisons of LHDs in communities with and without a PSI. The presence of a PSI was uniquely associated with conducting needs assessments for pregnant women and infants, participation in coalitions for infants, promoting access for uninsured women to private providers and involving local officials and agencies in health plans for both populations. When both programs were present, LHDs had a greater odds of engaging in essential MCH services related to assessment and monitoring of the health of the population, reporting on progress in meeting the health needs of pregnant women and infants, and presenting data to local political officials than when either program alone was in the community. *Conclusions:* Local health departments in communities with FIMR programs or PSIs appear to be more likely to conduct essential MCH services in the community. Some of these relations are unique to FIMR, particularly for data collection and quality assurance services, and some are unique to PSIs, for example those that involve interaction with other community agencies or groups. Performance of the essential

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<sup>1</sup>Department of Population and Family Health Sciences, Women's and Children's Health Policy Center, Johns Hopkins Bloomberg School of Public Health, Baltimore, Maryland.

<sup>2</sup>JFK Partners, University of Colorado Health Sciences Center, Denver, Colorado.

<sup>3</sup>Department of Health Behavior and Education, University of Michigan School of Public Health, Ann Arbor, Michigan.

<sup>4</sup>Department of Maternal and Child Health, George Washington

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University School of Public Health and Health Services, Washington, District of Columbia.

<sup>5</sup>The Hawaii Outcomes Institute, Honolulu, Hawaii.

<sup>6</sup>Correspondence should be addressed to Donna M. Strobino, PhD, Professor and Deputy Chair, Department of Population and Family Health Sciences, Women's and Children's Health Policy Center, Johns Hopkins Bloomberg School of Public Health, 615 N. Wolfe Street, Room E4151, Baltimore, Maryland 21205; e-mail: dstrobin@jhsph.edu.

MCH services also appears to be enhanced when both a FIMR program and a PSI are present in the community.

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**KEY WORDS:** fetal and infant mortality review program; perinatal system initiative; public health functions; essential maternal and child health services; local health department; evaluation.

## INTRODUCTION

The fetal and infant mortality review (FIMR) program is a community-based strategy in which interdisciplinary groups meet to discuss cases of fetal and infant deaths in the community, and to identify problems in the health care and related service systems that may be associated with the death. Recommendations of how to address these problems along with an action plan to do so are generally the result of this process. Strategies to address the identified problems, although originating from the results of case reviews, are implemented for the benefit of the entire maternal and infant population in the community. These strategies often focus on changes across the breadth of the entire health care and related service systems, including local health agencies (1).

Evaluations of FIMR programs have been largely descriptive, providing valuable information about a specific program, for example, Keely *et al.* in York County, South Carolina (2); Klerman *et al.* in Jefferson County, Alabama (3); McCloskey *et al.* in Boston (4) or a set of programs, like Healthy Start (5, 6). Only two prior evaluations included multiple FIMR programs. In an evaluation of FIMR programs in 14 of the original Healthy Start programs, Baltay and colleagues concluded that it is feasible to establish a FIMR as part of a community-based demonstration to improve infant mortality (6). Grason and Misra's evaluation described the recommendations of FIMR programs in 16 of the 22 Federal Healthy Start programs in existence in 1996 (5). Neither of these evaluations included a comparison group of communities without FIMR programs. Roussos and Fawcett note that the lack of a comparison group and of an experimental design is a limitation of many studies of community-based collaborations (7).

We extended these studies in the Johns Hopkins University (JHU) evaluation of FIMR programs nationwide by including communities without FIMR programs and communities with other perinatal systems strategies as a comparison against which FIMR programs and their "value added" in the community could be evaluated. In addition, the current evaluation used a broad framework to assess the contri-

bution of FIMR programs to improving health care resources and service systems for pregnant women, infants, and families. This framework focused on performance of core public health functions through the conduct of essential maternal and child health (MCH) services in the community.

The Grason and Guyer framework of 10 essential public health services derived from the three core public health functions of assessment, policy development, and assurance, as applied to the MCH population (8), was used to guide the selection of outcomes for the analyses reported here. The framework was further articulated by Dievler *et al.* for use in health agencies for advocacy, organizational assessment, program planning, policy development, population education, and provider training (9). It seemed particularly appropriate for the FIMR evaluation, as the Maternal and Child Health Bureau (MCHB) specifically funded state FIMR programs in the mid-1990s, to encourage states to integrate them with performance of core public health functions in their health agencies (1).

In prior assessments of the performance of the public health systems using the public health functions framework (10–13), the functions and essential services were viewed as representing more than the activities undertaken by local health agencies. Nevertheless, these agencies have the primary responsibility for population-based services and MCH activities in the community. Accordingly, a major objective of our evaluation was to examine the extent to which the presence of a FIMR program was related to performance of the essential MCH services in local health agencies. It improves upon the earlier FIMR evaluations by including communities with no FIMR programs as well as those with other perinatal systems initiatives (PSIs) as a comparison against which FIMR programs were assessed.

## METHODS

### Study Design and Sample

Strobino, Misra, and Grason provide an overall description of the JHU evaluation of FIMR programs

nationwide (14) on which the analyses reported here are based. The design of the FIMR evaluation was a cross-sectional observational study in which geographic units were sampled, based on the presence or absence of a FIMR or another PSI. This design permitted comparison of the conduct of essential MCH services in communities with and without a FIMR program, as well as those with and without a PSI. It was not possible, however, to collect data about the mechanisms through which FIMR programs may have led to the conduct of essential MCH services or whether there were other contextual factors that may have influenced their existence in communities. As a result, the evaluation is limited in drawing conclusions about whether associations found were due to the program or due to the characteristics of communities that chose to implement a FIMR program.

Using data collected from a survey of state and metropolitan MCH directors (14), the study sample for the evaluation was drawn from U.S. counties and metropolitan areas, and divided into four types of communities that had 1) a FIMR and another PSI; 2) a FIMR only; 3) a PSI only; and 4) neither program. Other factors considered in sample selection were geographic region (East, Midwest, South, West); state representation (at least one community from each state); and population size. Communities with a FIMR program were used as the frame of reference against which comparison communities with and without a PSI were selected from the same geographic region, and with similar population size.

A total of 254 communities (203 counties and 51 metropolitan areas) were selected, assuming that an 80% response rate would yield a sample of about 200 communities. Additional criteria for sample selection were 1) a respondent from the local health department (LHD) was available to answer questions about the smallest geographic unit for which the local health unit had autonomy; and, 2) the LHD was not already represented in the sample in communities where the health unit was organized as a group of counties. For each community, a LHD representative who was knowledgeable about or responsible for MCH was contacted to participate in a telephone interview. We completed interviews with LHD personnel in 193 (76%) eligible communities between November 1999 and June 2000.

Representatives of FIMR programs and PSIs identified by the LHD respondents or in an earlier survey of MCH directors were contacted by telephone in order to determine if they met the criteria for inclusion in the evaluation. A FIMR was broadly

defined to include programs in which an interdisciplinary group met to discuss cases of fetal and infant deaths (some discussed only infant deaths) with the intent of facilitating system changes, regardless of design. A perinatal systems initiative was defined as a broad-based collaborative, community-oriented program involving multiple processes, partnerships, and program strategies to improve perinatal health. We limited the sample of eligible FIMR programs and PSIs to those in existence for at least one year between January 1, 1996, and December 31, 1999. Eighty-eight FIMRs and 83 PSIs met our sample criteria. The resulting sample included 41 communities with only a FIMR program, 36 with only a PSI, 47 with both programs, and 69 with neither.

### Data Collection

The questionnaire for the LHD interview focused on the essential MCH services (EMCHS), interactions among community agencies/groups and community coalitions (7, 15–18), the structure and organization of the LHD (19–22), and the structure and organization of perinatal services in the community. Data reported here come from questions focused on two populations—pregnant women and infants. The interview took 60–90 min to complete. Input was obtained on draft questionnaires from federal and state MCH staff, National FIMR (NFIMR) Program representatives, other researchers, and local FIMR directors/coordinators.

The essential MCH services component of the LHD interview was adapted to perinatal health from the work of Grason and Guyer and Mayer, Konstant, and Wartman on general essential MCH services (8, 23). Questions related to 8 of the 10 essential MCH services were included: *data assessment and analysis, investigating health problems, community partnerships and mobilization, promoting access to or provision of services to clients, quality assurance and improvement, policy development, enhancing the capacity of the perinatal health care workforce, and informing and educating the public*. The essential MCH services were measured through a series of questions for each service and examples were requested for each item as a check on the validity of responses.

### Data Analysis

The objective of the data analysis was to assess the association of the presence a FIMR program, PSI,

or both with the performance of essential MCH services by LHDs for the two population groups: pregnant women and infants. Comparisons were made of the percentage of LHDs that implemented the eight essential MCH services of interest between communities with and without a FIMR program or with or without a PSI. Because of constraints due to the small number of localities with only a PSI, comparisons were made between the following communities: FIMR vs. no FIMR; PSI vs. no PSI; and both a FIMR and a PSI vs. either a FIMR or a PSI. This latter comparison permitted us to assess if there was an enhanced association of having both a FIMR and a PSI relative to either program with performance of the essential MCH services in LHDs.

The chi-square test of independence was used as the basis for statistical testing to compare the percentage of LHDs that performed a specific activity measuring an essential MCH service between communities with and without FIMR programs and with and without a PSI. Logistic regression was used to estimate the odds of a LHD conducting each essential MCH service between communities with and without programs, adjusted for geographic region or population size.

In the logistic regression models, adjustment was made separately by either geographic region or population size, because the high correlation between the two variables prohibited including both in the model. These models evaluated whether or not relations between communities with and without FIMR programs and PSIs and performance of the essential MCH services by LHDs were due to variations in geographic region or population size. Because the findings were similar, the models adjusted for geographic region are reported; they account in part for differences in health department structures as well as geographic region.

## RESULTS

### Study Sample

The geographic distribution of communities with LHD interviews was relatively balanced across the country, with a tendency for more interviews to be conducted in the Southeast (32%) relative to the Northeast (20%), Midwest (23%), and West (23%), reflecting the larger number of FIMR programs located in the Southeast. Nearly three quarters (71%) of the sampled LHDs were located in major metropolitan (17%) and large urban areas (54%); the remain-

ing LHDs were located in small urban (21%) and rural areas (8%). Close to 15% were organized on a regional/district basis.

### FIMR and PSI Influences on Essential MCH Services

LHDs in communities with a FIMR program were compared to communities without a program on the eight selected essential MCH services, as were LHDs in communities with and without a PSI. Table I shows the odds ratio estimates for the relation of the presence of a FIMR or a PSI with each activity defining the essential MCH services from the logistic regression models, adjusted for geographic region. The results show that the presence of either program was significantly related to enhanced performance of the essential MCH services, but not always for the same specific MCH activities. Table II describes the common associations found for FIMRs and PSIs, as well as unique and synergistic ones when both programs were in the community. Data are not presented for investigating health problems, as they did not vary among communities.

### Data Assessment and Analysis

At least 80% of LHD respondents reported engaging in data collection about pregnant women and infants and at least 60% reported analyzing these data. Respondents in health agencies in communities with a FIMR had a two to three times greater odds of undertaking a number of data collection and analysis activities, as did LHDs in communities with a PSI, than those in communities without a program (Table I). LHDs in communities with both programs also had greater odds of conducting needs assessments than for those with either, suggesting a possible synergistic relation of the two programs combined; a similar finding was noted for LHDs in communities with a PSI when compared with those in communities without a PSI.

### Client Access to Services

The vast majority of local health agencies engaged in some outreach activities related to prenatal care, ranging from a high of 81% for networking with other agencies to a low of 35% for providing

**Table I.** Odds (and 95% Confidence Intervals) of Engaging in MCH Functions for FIMR vs. No-FIMR Communities, and Communities With Either a FIMR or PSI

	FIMR vs. no FIMR OR (95% CI)	PSI vs. no PSI OR (95% CI)	Both vs. either OR (95% CI)
<i>Data assessment and analysis</i>			
Collected data about			
Pregnant women	1.08 (0.49; 2.66)	1.74 (0.71; 4.25)	0.87 (0.25; 3.01)
Infants	2.86* (1.10; 7.42)	1.60 (0.68; 3.80)	2.74 (0.69; 10.91)
Analyzed data about			
Pregnant women	2.94* (1.27; 6.81)	2.58* (1.14; 5.83)	1.70 (0.49; 5.86)
Infants	3.55*** (1.64; 7.68)	2.41* (1.16; 5.01)	2.90 (0.88; 9.60)
Client database for			
Pregnant women	2.76** (1.41; 5.39)	1.59 (0.84; 3.02)	1.25 (0.51; 3.06)
Infants	5.68*** (2.56; 12.63)	1.66 (0.85; 3.26)	1.87 (0.66; 5.35)
Needs assessment for			
Pregnant women	1.78 (0.92; 3.45)	2.01* (1.04; 3.92)	2.64* (1.01; 6.94)
Infants	1.70 (0.90; 3.22)	2.43** (1.26; 4.67)	2.58* (1.03; 6.50)
Disseminate fact sheets about infant health	0.96 (0.52; 1.75)	1.76 (0.97; 3.20)	1.18 (0.54; 2.60)
<i>Client access to services</i>			
Support outreach for prenatal care	2.02 (0.48; 8.43)	NA	NA
Tracking system for high risk infants	2.27* (1.17; 4.38)	1.55 (0.82; 2.95)	3.24* (1.24; 8.43)
Common risk assessment for pregnant women	2.22* (1.14; 4.33)	1.56 (0.82; 2.99)	1.01 (0.42; 2.44)
Promoted increased services for uninsured pregnant women	1.56 (0.83; 2.92)	2.07* (1.10; 3.91)	1.41 (0.61; 3.30)
<i>Quality assurance and improvement</i>			
Initiated change in local regulations for			
Pregnant women	3.12** (1.50; 6.49)	3.34*** (1.65; 6.76)	1.50 (0.68; 3.30)
Infants	2.13* (1.10; 4.12)	1.59 (0.84; 3.01)	1.07 (0.49; 2.34)
Initiated change in state regulations for			
Pregnant women	2.53** (1.36; 4.72)	2.16* (1.17; 3.98)	1.46 (0.68; 3.14)
Infants	1.76 (0.97; 3.18)	1.22 (0.68; 2.18)	0.84 (0.40; 1.78)
Developed population-based standards of care for			
Pregnant women	3.16*** (1.94; 6.75)	1.92* (1.06; 3.48)	1.59 (0.73; 3.45)
Infants	2.36** (1.32; 4.23)	1.23 (0.68; 2.22)	1.19 (0.56; 2.53)
Participated in provider quality improvement	2.02* (1.11; 3.69)	1.60 (0.89; 2.90)	2.61* 1.17; 5.82)
Certified providers	3.19*** (1.59; 6.41)	1.66 (0.85; 3.26)	1.88 (0.87; 4.06)
<i>Community partnerships and mobilization</i>			
Participated in coalition for			
Pregnant women	1.96 (0.94; 4.07)	1.45 (0.71; 2.94)	0.69 (0.26; 1.86)
Infants	1.59 (0.81; 3.15)	2.45* (1.17; 5.12)	1.71 (0.63; 4.63)
Collaborated with or provided expertise to community initiatives about			
Pregnant women	3.28*** (1.61; 6.68)	2.07* (1.02; 4.22)	1.61 (0.56; 4.62)
Infants	3.55** (1.49; 8.46)	4.61*** (1.86; 11.44)	1.70 (0.41; 7.08)
Worked with			
ACOG	2.57* (1.08; 6.14)	1.56 (0.70; 3.48)	1.89 (0.70; 5.07)
AAP	0.98 (0.45; 2.12)	1.97 (0.91; 4.24)	2.84* (1.10; 7.34)
<i>Policy development</i>			
Reported on progress in meeting local health goals for			
Pregnant women	2.11* (1.07; 4.19)	2.74** (1.36; 5.56)	5.12** (1.62; 16.19)
Infants	1.72 (0.90; 3.27)	1.74 (0.91; 3.30)	3.10* (1.24; 7.77)
Involved elected officials, consumers and agencies on health plans for			
Pregnant women	1.54 (0.75; 3.18)	3.29** (1.49; 7.26)	2.13 (0.71; 6.39)
Infants	1.82 (0.89; 3.72)	2.41* (1.16; 5.02)	2.15 (0.77; 6.02)
Presented data to local political leaders about			
Pregnant women	1.13 (0.55; 2.36)	1.42 (0.69; 2.96)	1.72 (0.64; 4.68)
Infants	1.30 (0.64; 2.60)	1.87 (0.92; 3.82)	3.63* (1.24; 10.64)
Produced plan about health needs of			
Pregnant women	3.00** (1.51; 5.96)	1.51 (0.79; 2.88)	2.32 (0.89; 6.06)
Infants	2.28* (1.21; 4.32)	1.18 (0.64; 2.19)	1.69 (0.73; 3.92)

Table I. Continued

	FIMR vs. no FIMR OR (95% CI)	PSI vs. no PSI OR (95% CI)	Both vs. either OR (95% CI)
<i>Enhancing workforce capacity</i>			
Education to providers about health care for			
Pregnant women	2.32** (1.25; 4.31)	1.96* (1.08; 3.56)	1.33 (0.58; 3.05)
Infants	2.62** (1.39; 4.93)	2.30** (1.22; 4.33)	1.54 (0.61; 3.85)
Convened meeting about high-risk			
Pregnant women	3.11*** (1.66; 5.84)	1.82* (1.00; 3.39)	1.33 (0.63; 2.80)
Infants	4.63*** (2.51; 8.55)	1.52 (0.83; 2.80)	1.60 (0.72; 3.55)
<i>Informing and educating the public</i>			
Presented materials to media about			
Pregnant women	2.12 (0.99; 4.53)	0.91 (0.44; 1.87)	0.79 (0.30; 2.14)
Infants	2.13 (0.86; 5.25)	1.46 (0.62; 3.43)	2.71 (0.69; 10.63)
Education to consumers about			
Pregnant women	1.34 (0.58; 3.10)	2.13 (0.90; 5.30)	1.02 (0.31; 3.39)
Infants	1.28 (0.58; 2.82)	2.63* (1.13; 6.11)	0.84 (0.27; 2.67)

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$ .

transportation to services. In communities with a FIMR, LHDs had two to three times the odds of those in communities without a FIMR of reporting outreach activities for prenatal care including information and referral services, home visits, a perinatal service directory, and providing transportation to care. No differences were seen in these activities for communities with and without a PSI.

Many LHDs promoted the use of a common risk assessment instrument for pregnant women (67%) and for infants (53%), and had a tracking system to follow up high-risk infants (67%). Health agencies in communities with a FIMR program had greater odds of using a common risk assessment instrument for all pregnant women and of having a tracking system for high-risk infants than LHDs in non-FIMR communities. The odds of having a tracking system for high-risk infants was three times greater for communities with both programs than for those with either. Over 60% of LHDs reported involvement in activities to increase services for low-income, uninsured pregnant women from private providers. The odds of promoting access to private providers differed only for communities with and without a PSI.

#### *Quality Assurance and Improvement*

Local health agencies were less frequently involved in quality assurance activities, with 25% promoting changes in local regulations related to care for pregnant women, and 30% for infants; the respective percentages for state regulations were 43 and 48%. LHDs in FIMR communities had significantly greater odds of promoting changes in existing local

or state regulations and policies for pregnant women and of participating in development of population-based standards of care, as did LHDs in communities with a PSI, when compared with LHD in communities without these programs. About 45% of agencies participated in developing population-based standards.

#### *Community Partnerships and Mobilization*

Over three quarters of LHDs participated in a coalition to advocate for pregnant women or newborns and over 70% collaborated with other perinatal programs or initiatives. The odds of LHDs providing community initiatives with expertise about the health of pregnant women and infants in communities with a FIMR program or PSI was over twice that for LHDs in communities without a program or an initiative. LHD officials were less likely to report collaboration with professional groups. Only 18% worked with the local section of the American College of Obstetrics and Gynecology (ACOG) and 32% with the local chapter of the American Academy of Pediatrics (AAP). Local health agencies in FIMR communities had greater odds of working with the local ACOG section, while LHDs in communities with both programs had greater odds of working with the local AAP chapter than those with either program.

#### *Policy Development*

About two thirds of LHDs reported on the progress of meeting local health needs and on producing a priority health plan for pregnant women and

**Table II.** The Unique, Common, and Synergistic Significant Relations of FIMR Programs and PSI With Involvement of Local Health Departments in Essential MCH Services

	FIMR unique relations	PSI unique relations	Common relations	Synergistic relations
<i>Data assessment and analysis</i>				
Collected data about				
Pregnant women	—	—	—	—
Infants	X	—	—	—
Analyzed data about				
Pregnant women	—	—	X	—
Infants	—	—	X	—
Client database for				
Pregnant women	X	—	—	—
Infants	X	—	—	—
Needs assessment for				
Pregnant women	—	X	—	X
Infants	—	X	—	X
Disseminate fact sheets about infant health	—	—	—	—
<i>Client access to services</i>				
Support outreach for prenatal care	—	NA	NA	NA
Tracking system for high risk infants	X	—	—	—
Common risk assessment for pregnant women	X	—	—	—
Promoted increased services for uninsured pregnant women	—	X	—	—
<i>Quality assurance and improvement</i>				
Initiated change in local regulations for				
Pregnant women	—	—	X	—
Infants	X	—	—	—
Initiated change in state regulations for				
Pregnant women	—	—	X	—
Infants	—	—	—	—
Developed population-based standards of care for				
Pregnant women	—	—	X	—
Infants	X	—	—	—
Participated in provider quality improvement	—	—	—	—
Certified providers	X	—	—	—
<i>Community partnerships and mobilization</i>				
Participated in coalition for				
Pregnant women	—	—	—	—
Infants	—	X	—	—
Collaborated with or provided expertise to community initiatives about				
Pregnant women	—	—	X	—
Infants	—	—	X	—
Worked with				
ACOG	X	—	—	—
AAP	—	—	—	X
<i>Policy development</i>				
Reported on progress in meeting local health goals for				
Pregnant women	—	—	X	X
Infants	—	—	—	X
Involved elected officials, consumers and agencies on health plans for				
Pregnant women	—	X	—	—
Infants	—	X	—	—
Presented data to local political leaders about				
Pregnant women	—	—	—	—
Infants	—	—	—	X
Produced plan about health needs of				
Pregnant women	X	—	—	—
Infants	X	—	—	—

Table II. Continued

	FIMR unique relations	PSI unique relations	Common relations	Synergistic relations
<i>Enhancing workforce capacity</i>				
Provided education for providers about health care for				
Pregnant women	—	—	X	—
Infants	—	—	X	—
Convened meeting about high-risk				
Pregnant women	—	—	X	—
Infants	X	—	—	—
<i>Informing and educating the public</i>				
Presented materials to media about				
Pregnant women	—	—	—	—
Infants	—	—	—	—
Education to consumers about				
Pregnant women	—	—	—	—
Infants	—	—	—	—

infants. LHDs in communities with a FIMR or with a PSI had at least twice the odds of those in communities without a FIMR or PSI of producing reports about meeting local perinatal health goals for pregnant women. The odds was even greater for the presence both programs in the community. The odds of producing a plan to address priority health problems of pregnant women and infants was greater in LHDs in communities with a FIMR, while communities with a PSI had an increased odds of involving elected officials, consumers, and agencies on health plan for pregnant women and infants than LHDs in communities without these programs. LHDs in communities with both programs had increased odds of presenting data to local political leaders about infants than did the LHDs in communities with either program.

#### *Enhancing Workforce Capacity*

Many local health agencies undertook activities to advance the education of health care providers for pregnant women (58%) and infants (65%). The odds of undertaking these activities for pregnant women and infants was greater for LHDs in FIMR communities. This trend was also observed for LHDs in PSI communities in comparison to communities with no initiatives. About 45% of LHDs convened meetings of medical and family services providers to build capacity for or enhance the identification of high-risk pregnant women and infants. The odds of convening such meetings were three to four times greater among LHDs in communities with a FIMR, and close to two for communities with a PSI, but only for pregnant women.

#### *Information and Education for the Public*

Over three fourths of LHD respondents reported presenting materials to the media about the health of pregnant women (78%) and infants (85%), and over 80% educated consumers about health resources for the two populations. No differences were seen by presence of a FIMR program or PSI for consumer education activities.

#### **DISCUSSION**

Previous evaluations of FIMR programs have been largely descriptive and did not assess the “value added” of FIMRs in the community. Specific accounts of FIMR programs describe changes in the community, such as improved linkages among community organizations (3), improved clinical practices for mothers or newborns (2, 3), and increased community education (3). Grason and Misra noted that the vast majority of the recommendations of Healthy Start FIMR programs were either “program” (65%) or “practice” (31%) oriented, with few focused (4%) on policy (5). The recommendations were generally implemented narrowly within the span of control of resources for pregnant women and newborns in the Healthy Start programs. Baltay *et al.* also reported barriers to implementing FIMRs in Healthy Start programs related to data collection procedures, setting priorities, and establishing mechanisms for discussion of cases (6).

Our evaluation of FIMR programs nationwide is the first to present comparisons of communities with and without FIMR programs and with and without other PSIs, and, as such, to assess the “value added”



of FIMR programs. The presence of a FIMR or a PSI in the community was related to increased performance of six essential MCH services in LHDs: 1) data assessment and analysis; 2) client access to services; 3) quality assurance and improvement; 4) community partnerships and mobilization; 5) policy development; and 6) enhancement of the capacity of the health care workforce. No relation was found for investigating health problems or for informing and educating the public about perinatal health.

A common relation of the presence of a FIMR program or of a PSI was found for several MCH activities (Table II), including analyzing data, initiating local and state regulations, developing population-based standards of care, collaborating with and providing expertise to community initiatives about pregnant women and infants, and educating providers about health care for infants. A greater focus on policy development was reported by LHDs in communities with either program than was found by Grason and Misra (5) in the recommendations from Healthy Start FIMRs. This finding is likely due to the focus in our evaluation on LHD activities rather than FIMR activities, *per se*.

Also, there were differences in the results for the performance of some essential MCH services for LHDs in communities with and without a FIMR program when compared with the findings for PSIs, as shown in Table II. There were more unique relations noted for FIMR programs than for PSIs. In particular, there was greater performance of LHDs in FIMR communities of essential MCH services activities related to quality assurance, data collection, use of client databases, and use of common risk assessments instruments for pregnant women and tracking systems for high-risk infants than were found for the PSI-community comparisons. These findings are not surprising, given the objectives of FIMR programs related to data collection and to improving the health care resources in the community.

Unique relations were noted for LHDs in PSI communities for conducting needs assessments for pregnant women and infants; promoting greater access for uninsured women to private providers; participating in coalitions for infants; and involving elected officials, consumers, and agencies in systems planning related to pregnant women and infants. These findings may be related to the broader scope of the PSIs, as seen in their greater interaction with other community agencies, as noted later in this article.

An important finding relates to the increased performance of essential MCH services in LHDs where

both a FIMR and PSI were present in the community. When both were present, local health agencies engaged more frequently in several essential MCH service activities related to assessment and monitoring of the population's health, reporting progress in meeting health needs of pregnant women, and presenting data about infants than when either program alone was in the community. One reason for these findings may be that FIMR programs and PSIs frequently work together, with both often located in health departments or working collaboratively with them. The results of case studies, conducted in another phase of the evaluation not reported on here, may be helpful. In one case study site, the PSI initially funded and staffed the FIMR. In another, data gathered by the FIMR case review team were used to make the case for federal funding to initiate a Healthy Start project. This project served as the vehicle for implementing several FIMR recommendations. Nevertheless, we do not know how representative these results are of other communities with both programs in our sample.

Because our study is the first to include comparisons of communities with and without a FIMR program or with and without a PSI, there are no studies against which to directly compare our results. The sample was drawn from geographic regions across the country and an attempt was made to equalize population differences between communities that did and did not adopt FIMR programs or a PSI. While we found differences in performance of essential MCH services by presence of these programs, we cannot tease apart the extent to which these differences are a result of the programs or are due to unmeasured characteristics of the communities that adopt them. Our ability to piece together historical information about the programs and essential MCH services in other agencies or facilities in the community was limited. It is entirely possible that FIMR programs and PSIs were implemented in communities that already were more engaged in improving essential MCH services, and that this greater underlying effort is the reason for the LHDs' greater level of activity.

In order to explore this limitation, we compared interactions of LHDs with other agencies and organizations by the presence of a FIMR or a PSI in the community (data not shown). There were no differences in LHDs interaction with community agencies and groups by presence of a FIMR in the community. LHD respondents in PSI communities, however, reported greater interaction with several community groups than those without a PSI, including mental health agencies, community-based

programs, community advancement organizations, and professional organizations. LHDs in communities with both programs also reported greater interaction with hospital-related perinatal services than did LHDs in communities with either. The presence of a FIMR or PSI was not associated with the level of interactions of LHDs with reproductive-health-related or child-health-related agencies, social services agencies, prenatal and pediatric clinics, school and youth organizations, health care providers, or business-related groups in the community. Thus, greater interaction with community organizations does not appear to be a reason for the FIMR findings, but may explain some of the findings for the PSIs. Nevertheless, it is not possible to conclude whether the FIMR program, per se, the community characteristics that made it ready to adopt FIMR, or the interaction of both account for our results.

One limitation of this FIMR evaluation is that the results from the telephone surveys represent a “snapshot” of essential MCH services in LHDs and of the FIMR programs and PSIs between 1996 and 1999. This common problem was noted by Roussos and Fawcett (2000) in their review of studies of collaborative partnerships in communities; they found the evaluation period to be 4 years or less for 91% of the selected studies (7). By restricting our study period, we may not have observed an effect of newer programs where the lag time for an effect was greater than 4 years. We also included programs that were discontinued during the study period, and that may have diluted the overall impact of the programs.

The evaluation was also limited in making general inferences because our sample is not representative of all counties or metropolitan areas in the country, although it may be more so for metropolitan areas. Indeed, the local health agencies reported considerable activity related to the essential MCH services, more than we had anticipated. Thus, it is not possible to draw inferences to less populous communities or those with fewer community resources.

In order to compare communities with and without a FIMR program or PSI, it was necessary to select a respondent—a professional from the local health agency—who could describe public health services and the perinatal service system in the community. By doing so, we may not have captured some differences that distinguish communities with and without programs, especially with regard to performance of essential MCH services by other community agencies or the private sector. Our approach, however, provided us with the ability to include a compar-

ison group, a weakness of the previous evaluations of FIMR programs.

## CONCLUSIONS

Despite limitations of our evaluation, it is the first to provide a comparison against which the “value added” of FIMR programs was assessed. The findings suggest that LHDs in communities with FIMR programs were more likely to implement several essential MCH services than communities without a program. This also was true for LHDs in PSI communities, and there were no essential services for which implementation was significantly lower for communities with either program. These findings are new as our study is the first to make such comparisons of communities with and without programs, and to distinguish FIMR programs from other PSIs.

Some of the LHD activity was similar for communities with FIMR programs and PSIs, while other activities were unique to FIMR, particularly those related to data collection and quality assurance. PSIs were unique in activities such as collaborations and involvement of local leadership in planning and data dissemination activities. Moreover, implementation of some essential MCH services was enhanced in LHDs in communities with both a FIMR program and perinatal systems initiative. Thus, it appears that either the programs themselves or the processes in communities related to their implementation resulted in increased public health functions in the LHD.

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