

Comparison of FIMR Programs With Other Perinatal Systems Initiatives

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Objectives: While the goals of fetal and infant mortality review (FIMR) programs and other perinatal systems initiatives (PSI) are similar, our knowledge of the processes they use to meet their goals is limited. This article compares a nationwide sample of FIMR programs and PSIs with regard to their roles and involvement in performance of eight essential maternal and child health services (EMCHS) as part of a national evaluation of FIMR. *Methods:* The evaluation was a cross-sectional observational study in which geographic units were sampled based on the presence or absence of a FIMR or other PSI using FIMRs as the sampling frame of reference. Telephone interviews were conducted with 74 FIMR and 62 PSI directors in the sampled communities. *Results:* Both programs performed several of the essential MCH services. FIMRs were significantly more likely to be located in a local health department than were PSIs. The results of multiple logistic regression analyses indicate that the performance of the essential MCH services by the programs was increased when both a FIMR and a PSI were in the community. FIMR programs alone had reduced odds of performing several essential MCH services than did PSIs alone. The findings also indicate that performance of some essential MCH services was reduced for FIMR programs and PSIs located in a local health department. *Conclusions:* Comparisons between FIMR and other PSIs suggest that both programs are currently engaged in diverse efforts to attain their goal of improving the health and health care delivery system for pregnant women, infants, and their families. FIMR programs appear to be more circumscribed in their activities than PSIs, but the presence of both programs in a community appears to enhance the programs' performance of the essential MCH services.

KEY WORDS: fetal and infant mortality review programs; perinatal systems initiatives; essential maternal and child health services; evaluation; local health departments.

INTRODUCTION

The goal of fetal infant mortality review (FIMR) programs is to enhance the health and well-being of women, infants, and their families by improving

available community resources and service delivery systems. The FIMR process brings multidisciplinary teams together regularly to review confidential cases of infant and fetal deaths in the community, determine the community-level factors associated with the death, develop recommendations for improving the perinatal health system, and facilitate the dissemination and implementation of the recommendations (1).

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Developing recommendations and facilitating their implementation is not unique to FIMR; what is unique to FIMR is the use of case review methodology to generate recommendations.

Other community-based, perinatal systems initiatives (PSI) have been implemented in recent years to address systems change and improve infant mortality. These initiatives involve multiple processes such as assessment, planning, and the development of relevant policy, partnerships, and program strategies to improve perinatal health in a community (2). The Federal Healthy Start (HS) initiative is a good example of a PSI (3).

While the goals of FIMRs and other PSIs may be similar, our knowledge is limited about the strategies each follows in meeting their goals, and about the impact of FIMR programs specifically, or PSIs more generally. Few rigorous evaluations of either FIMR programs or PSIs have been published. For example, community empowerment (4, 5) and community involvement (3) have been described as strategies used in Healthy Start. Similarly, reports of FIMR programs have described the structure and process of case review of fetal and infant deaths and the development and implementation of recommendations (6–13). These efforts have been limited to the study of intermediate outcomes (e.g., development of recommendations) or outputs in a single program or specific set of programs, and have not examined their impact broadly on perinatal service systems and resources.

The validity of past research on FIMR has been limited, in part due to the absence of comparison groups in prior studies (14). Accordingly, as part of the Johns Hopkins University (JHU) evaluation of FIMR programs nationwide, we compared FIMR programs with other PSIs, particularly on their performance of core public health functions operationalized as the essential maternal and child health services, [EMCHS, (14, 15)]. While the locus of responsibility for the EMCHS may rest with the local health department (LHD), organizations beyond the LHD have been shown to be involved in performing public health functions (16–18); the relative contributions of various entities with regard to public health functions has been documented in two studies (18, 19).

FIMR programs and other perinatal systems initiatives may consider involvement in some, many, or all of the essential MCH services to be critical components of their efforts to improve perinatal health systems and resources. We assessed whether or not FIMR programs and PSIs performed essential MCH services, recognizing that these programs may share

responsibility for these services with LHDs and other community organizations. In this manuscript, we report on the performance of the essential MCH services in both FIMR programs and PSIs. The two programs were evaluated alone and in combination, with adjustment for whether they were located in the local health department, given its important role in performing the essential MCH services for the community.

METHODS

Data for the analyses reported here were drawn from interviews conducted with FIMR program and PSI directors across the country, as part of the nationwide FIMR evaluation (14). A FIMR was broadly defined in the evaluation to include programs in which an interdisciplinary group meets to discuss cases of fetal and infant deaths (in some, only infant deaths), with the intent of facilitating systems changes, irrespective of program design. A PSI was defined as a broad-based, collaborative, community-oriented initiative involving multiple processes (e.g., assessment, planning, policy development), partnerships, and program strategies to improve perinatal health. Programs were not considered to be PSIs if they functioned only as personal care services, such as WIC, home visiting, and single-site prenatal programs.

As part of the FIMR evaluation, professionals from LHDs representing diverse geographic areas and population size were interviewed, and identified FIMR programs and PSIs in their community as potentially eligible for study. In addition to the program definitions, FIMR programs and PSIs were eligible for the evaluation if they began prior to June 30, 1998, and were operational for at least one year between January 1, 1996, and December 31, 1999. They also could not be solely a child death or child fatality review or state-level initiative.⁶

Using data from LHD representatives and from MCH directors in state and metropolitan health agencies, 138 FIMR programs and 257 PSI programs were identified as potentially eligible for the evaluation. Following a contact with an individual knowledgeable about the programs, 88 FIMRs and 83 PSIs were actually found to meet the eligibility criteria. The primary reasons for ineligibility were being a child death review (30%), no actual program (27%), and ineligible

⁶One exception was allowed—a FIMR in a state that was extremely rural.

time of operation (22%) for FIMRs, and being only a personal health service (62%) or a child health program (14%) for the PSIs.

DATA SOURCES

Seventy-four FIMR program (84% of eligible) and 62 PSI (75% of eligible) directors or program representatives completed some or all of a telephone interviews that contained information about the program’s structure and recommendations/objectives and about performance of the EMCHS by their programs. The EMCHS included data assessment and analysis; investigating health problems; informing and educating the public; community partnerships and mobilization; creating a locus for policy development and implementation; quality assurance and improvement; enhancing the capacity of the perinatal health workforce; and promoting access to and use of services. The questions about the EMCHS were asked for two population groups: pregnant women and infants. Complete information about the EMCHS was available for 69 FIMRs (93% of sample) and 59 PSIs (95% of sample).

ANALYSIS PLAN

We first describe the geographical, structural, other characteristics, and roles of the programs. Comparisons were then made of the percentage of FIMR and PSI programs performing activities associated with the EMCHS. Multivariate logistic models were conducted to ascertain the relative contribution of the FIMR and PSI programs to the performance of the EMCHS, while adjusting for the location of the program in a LHD, and whether or not the community had both programs, as defined from the LHD interview data.⁷ Odds ratios in each column of Table II are adjusted for the covariates in the other two columns. We present the odds of the performance of the EMCHS by FIMRs and PSIs in three ways. The odds ratios for column one (FIMR vs. PSI) represents the effect of FIMR alone (compared to PSIs alone). The odds ratios for column two represent the effect of the programs when both a FIMR and a PSI were present in a community. Finally, we present the odds ratios for the performance of the EMCHS by FIMRs and PSIs when either program was housed in a local health agency compared to when the program was

freestanding. Data are presented for only the six essential MCH services that differed significantly between FIMR programs and PSIs.

RESULTS

Geographic and Structural Characteristics of FIMRs and PSIs

No significant differences were found between communities with a FIMR or PSI by region of the country or population size (Table I). The programs were distributed across all four regional quadrants of the United States. FIMRs and PSIs were most often found in areas with populations of 250,000–999,999, and least often in communities with district or regional health departments. About half of the communities with a FIMR program also had a PSI, and vice versa. FIMRs were significantly more likely to be located within a LHD than were PSIs; PSIs were more likely to be located in a community organization or non-governmental agency (Table I).

Other Characteristics and Roles of FIMRs and PSIs

Misra *et al.* (2004) describe recommendations of the FIMR programs and their implementation

Table I. Percentage and Number of FIMRs (*n* = 69) and PSIs (*n* = 59) by Their Geographic and Structural Characteristics

	FIMR % (<i>n</i>)	PSI % (<i>n</i>)
Regional distribution		
Northeast	23 (16)	29 (17)
Southeast	35 (24)	27 (16)
Midwest	12 (8)	24 (14)
West	30 (21)	20 (12)
Population size+		
Metropolitan over 1 million	18 (12)	26 (15)
250,000–999,999	31 (21)	36 (21)
20,000–249,999	28 (19)	17 (10)
County less than 20,000	10 (7)	14 (8)
District or regional area	13 (9)	7 (4)
Location of FIMR/PSI*		
Local health department	64 (44)	37 (22)
Hospital	7 (5)	8 (5)
Community agency/organization	20 (14)	41 (24)
Other	9 (6)	14 (8)
PSI or FIMR+		
Have both in community ^a	56 (38)	55 (32)

* *p* < 0.05; +PSI (*n* = 58) FIMR (*n* = 68).

^aWe were not always able to interview both programs in a community.

⁷We were not always able to interview both programs in a community.

(20). The top five FIMR recommendations were related to SIDS, prenatal screening and care, bereavement support, care for high-risk women, and preterm labor. FIMR recommendations about adolescent pregnancy, domestic violence, genetic risks, preconceptional/interconceptional care, and nutrition were reported less often. The percent reporting recommendations is available in Misra *et al.*, 2004 (20).

PSI directors similarly reported on program objectives. The vast majority dealt with health promotion and risk reduction (92%), service system capacity and organization (34%), access to risk-appropriate care (20%), provider competencies (17%), and needs assessment and monitoring (15%). Focal topics for the PSI objectives were prenatal care (43%), low birth weight (27%), infant mortality (20%), consortium development (17%), adolescent pregnancy (14%), substance use (12%), risk assessment (10%), and parenting skills (10%).

Like FIMR programs (20), the majority of strategies used by PSIs to address their objectives were program (70%) in nature followed by practice (25%), and policy (4%). The vast majority of objectives had been implemented (88%); some were still being implemented (10%) and a small percentage (2%) had not yet been implemented.

The FIMR and PSI directors reported on what they perceived to be important roles of their program (detailed data available on request). Six of the top 10 roles for FIMR programs were related to data collection or assessment (88–97%). Four of the top 10 roles for PSIs related to advocacy (83–98%), and three involved communication or education (85–90%).

Comparisons of Essential MCH Services for FIMR and PSI Programs

At least half of the FIMRs and PSIs were engaged in MCH activities related to the EMCHS of data assessment and analysis (51–83%), community partnerships and mobilization (59–83%), providing education for the public (55–71%) and the perinatal health care workforce (64–78%), and policy development (55–85%). Both programs were less likely to engage in quality assurance and improvement, with 20–44% performing these activities.

The results of the multiple logistic regression analyses related to the performance of the essential MCH services are shown in Table II. The results indicate that the odds ratio for FIMR programs (column

one), adjusted for both having a PSI in the community and being in an LHD, was significantly less than one for collection and analysis of data about pregnant women, conducting focus groups with pregnant women, conducting needs assessments for pregnant women and infants, participating in local coalitions for pregnant women and infants, and providing expertise about the health of pregnant women when compared with PSIs. In all instances, the odds ratio estimates were less than 0.5. The presence of both a FIMR and PSI program in the community (column two) was positively associated with analysis of data about pregnant women, presentation of infant health fact sheets to community agencies, participation in the development of state regulations for pregnant women, dissemination of health reports about pregnant women and infants, providing local initiatives or programs with expertise on the health needs of pregnant women and infants, and providing educational opportunities for health care providers, compared to PSIs alone (reference group interpreted with adjustment for column one). Program (whether FIMR or PSI) performance of data collection and analysis activities including focus groups and needs assessments, provision of information to the media and consumers, most quality assurance activities, development of a systematic plan to address priority health needs for pregnant women, and provision of educational opportunities for health care providers on the health needs of infants was significantly lower when either program was housed in the LHD (column three). All significant odds ratio estimates were less than 0.5 for programs housed in health departments.

DISCUSSION

Our comparisons between FIMRs and other perinatal systems initiatives suggest that FIMR programs and PSIs are currently engaged in several essential MCH services to attain their goal of improving the health and health care delivery system of pregnant women, infants, and their families. Moreover, a positive association was seen with respect to the conduct of EMCHS activities by these programs related to data analysis, dissemination/presentation of health reports, provision of expertise to other programs or initiatives and education for health care providers on the health needs of pregnant women when both programs were located in a community. Strobino *et al.* (2004) noted a synergistic relation between the two programs whereby the conduct of the essential MCH

Table II. Three Comparisons Examining the Relationship Between the Presence of FIMR and PSIs in a Community and the Performance of the EMCHS

Performance of EMCHS by program: FIMR (<i>n</i> = 69) or PSI (<i>n</i> = 59)	Comparisons		
	Program: FIMR vs. PSI (PSI reference) OR (95% CI)	Both FIMR and PSI Programs (FIMR or PSI only reference) OR (95% CI)	Program located in LHD (Located outside LHD reference) OR (95% CI)
<i>Data assessment analysis (not in case reviews)</i>			
Data collected on the health needs of			
Pregnant women	0.24 (0.10, 0.55)*	1.32 (0.61, 2.86)	1.00 (0.45, 2.21)
Infants	0.57 (0.27, 1.22)	1.39 (0.67, 2.89)	0.68 (0.32, 1.44)
Data analyzed on the health needs of			
Pregnant women	0.26 (0.11, 0.62)	2.43 (1.08, 5.49)	0.43 (0.19, 0.98)
Infants	0.51 (0.23, 1.13)	1.68 (0.78, 3.61)	0.53 (0.24, 4.16)
Conducted focus groups, community forums or key informant surveys for			
Pregnant women	0.44 (0.21, 0.94)	1.20 (0.57, 2.56)	0.34 (0.16, 0.72)
Infants	0.51 (0.24, 1.10)	0.84 (0.39, 1.80)	0.36 (0.16, 0.78)
Conducted needs assessment for			
Pregnant women	0.27 (0.12, 0.58)	1.76 (0.80, 3.86)	0.41 (0.19, 0.90)
Infants	0.44 (0.21, 0.94)	1.54 (0.73, 3.26)	0.48 (0.23, 1.00)
<i>Community partnerships and mobilization</i>			
Health information presented to local political leaders on health needs of			
Pregnant women	0.59 (0.28, 1.21)	1.42 (0.70, 2.88)	1.00 (0.48, 2.08)
Infants	0.92 (0.45, 1.91)	0.14 (0.84, 3.45)	0.96 (0.46, 1.98)
Health information (fact sheets) presented to community agencies on the health needs of			
Pregnant women	0.59 (0.28, 1.24)	1.91 (0.93, 3.94)	0.61 (0.29, 1.26)
Infants	0.80 (0.38, 1.70)	2.72 (1.29, 5.72)	0.57 (0.27, 1.20)*
Participation in local coalitions to advocate for the health needs of			
Pregnant women	0.19 (0.07, 0.50)	2.16 (0.93, 5.01)	0.98 (0.41, 2.34)
Infants	0.26 (0.11, 0.60)	1.65 (0.76, 3.59)	0.78 (0.35, 1.74)
<i>Informing and educating the public</i>			
Provide health information to local media:			
Pregnant women	0.72 (0.33, 1.56)	0.99 (0.47, 2.08)	0.45 (0.21, 0.98)
Infants	1.19 (0.55, 2.54)	0.71 (0.34, 1.49)	0.49 (0.23, 1.06)
Provide health information to local consumers:			
Pregnant women	0.65 (0.30, 1.41)	1.08 (0.51, 2.28)	0.34 (0.16, 0.74)
Infants	0.90 (0.43, 1.91)	1.05 (0.51, 2.16)	0.46 (0.22, 0.98)
<i>Quality assurance and improvement</i>			
Local regulations to promote the health of			
Pregnant women	1.98 (0.89, 4.43)	1.95 (0.90, 4.24)	0.42 (0.19, 0.94)
Infants	1.39 (0.63, 3.08)	1.62 (0.74, 3.51)	0.43 (0.19, 0.95)
State regulations to promote the health of			
Pregnant women	0.67 (0.30, 1.49)	2.64 (1.17, 5.98)	0.32 (0.14, 0.72)
Infants	0.97 (0.43, 2.21)	1.77 (0.78, 4.00)	0.20 (0.08, 0.46)
Provided local legislative bodies with expertise on the health of			
Pregnant women	1.39 (0.65, 2.96)	1.70 (0.81, 3.54)	0.89 (0.28, 1.25)
Infants	1.48 (0.69, 3.18)	1.85 (0.88, 3.88)	0.62 (0.29, 1.32)
Provided state legislative bodies with expertise on the health of			
Pregnant women	1.05 (0.48, 2.31)	1.57 (0.73, 3.37)	0.25 (0.12, 0.55)
Infants	1.13 (0.52, 2.46)	2.10 (0.98, 4.49)	0.33 (0.15, 0.72)
Developed population-based standards of care:			
Pregnant women	2.05 (0.87, 4.81)	1.79 (0.79, 4.09)	0.43 (0.19, 1.00)
Infants	1.92 (0.78, 4.72)	1.70 (0.70, 4.08)	0.41 (0.16, 1.00)
<i>Policy development</i>			
Dissemination of health progress reports on the health of			
Pregnant women	0.81 (0.37, 1.74)	2.92 (1.40, 6.09)	0.77 (0.36, 1.66)
Infants	1.18 (0.55, 2.52)	2.57 (1.24, 5.31)	0.62 (0.29, 1.32)
Provide initiatives or programs with expertise on the health of			
Pregnant women	0.34 (0.13, 0.86)	3.44 (1.45, 8.12)	0.49 (0.20, 1.19)
Infants	0.55 (0.25, 1.21)	1.66 (0.79, 3.51)	0.53 (0.24, 1.15)

Table II. Continued.

Performance of EMCHS by program: FIMR (<i>n</i> = 69) or PSI (<i>n</i> = 59)	Program: FIMR vs. PSI (PSI reference) OR (95% CI)	Comparisons	
		Both FIMR and PSI Programs (FIMR or PSI only reference) OR (95% CI)	Program located in LHD (Located outside LHD reference) OR (95% CI)
Develop systematic plan to address the priority health needs of			
Pregnant women	0.76 (0.35, 1.63)	1.87 (0.89, 3.94)	<i>0.33 (0.15, 0.70)</i>
Infants	0.88 (0.42, 1.86)	1.61 (0.78, 3.32)	0.52 (0.25, 1.09)
<i>Enhancing workforce capacity</i>			
Education for health care providers on the health needs of			
Pregnant women	0.75 (0.31, 1.77)	<i>2.97 (1.30, 6.79)</i>	0.63 (0.27, 1.49)
Infants	1.41 (0.64, 3.10)	1.21 (0.58, 2.56)	<i>0.40 (0.18, 0.89)</i>

*For odds ratios and confidence intervals in italics; $p < 0.05$.

services in LHDs was enhanced when both programs were present than when either was alone in the community (21).

When FIMR programs were not accompanied by a PSI, they had a lower odds of being involved in data collection or analysis (other than case reviews), needs assessment, participation in other local coalitions, consumer education or giving expertise to other initiatives or programs in the community than were PSIs alone. The reason for this finding may be related to the clearly defined framework for the roles and functions of FIMR programs. The case review serves to bring together the major stakeholders in the community and the community action team provides a mechanism to identify the vehicles through which changes can be made. The FIMR, however, may often not be the program or agency implementing its recommendations. As a result, performance of some essential MCH services may be more limited for FIMR programs than for more broadly defined PSIs.

The adjusted multivariate analyses indicate that an operative factor in the performance of essential MCH services may be location of the program in the LHD. FIMRs and PSIs that were located in the LHD were significantly less likely to engage in data collection activities, provide health information, undertake quality assurance activities, and provide education for health care providers about infant health. Thus, it appears that freestanding community-based programs may be more independent contributors to the public health enterprise than are programs located in the local health agency. The reasons and context behind these findings are beyond the scope of this analysis, but warrant further study to ascertain whether these activities are being conducted by the LHD, and, therefore, do not need to be undertaken by the FIMR or PSI.

When asked about their primary roles and characteristics, FIMR directors indicated that data-related roles were primary characteristics of their programs. PSI directors, on the other hand, reported advocacy and communication as their primary roles, consistent with performance of different services when both programs are present. It is possible that when the two programs are present together they form a working alliance that best serves the perinatal health needs of their communities.

Our evaluation is not without limitations. It represents a first step in the evaluative process and was cross-sectional in design, providing information for only one point in time. The FIMRs and PSIs surveyed represent a sample of programs in existence at the time. Because we used FIMR programs as the frame of reference for selecting communities with PSIs (14), we do not know the extent to which our sampled PSIs represent the universe of such initiatives.

The essential MCH services reflect only one lens through which FIMRs and PSIs can be observed. The evaluation was also limited in its focus on performance of essential MCH services in only the FIMR programs and PSIs and LHDs (14). We do not know if there were other community programs, organizations, or initiatives engaged in these activities. Nevertheless, the findings indicate that FIMRs and PSIs may share some responsibility with local health departments in conducting essential MCH services in the community.

CONCLUSIONS

Overall the results of our evaluation indicate that FIMR programs and PSIs are engaged in the performance of several essential MCH services. FIMRs appear to be directly engaging in what they

are charged to do—taking a more specific and circumscribed approach (examining individual deaths) to reducing infant mortality and morbidity, and, accordingly are more limited in the performance of essential MCH services. PSIs appear to engage in a somewhat broader range of activities. Possibly as a result, FIMR programs and PSIs both appear to be more likely to perform essential MCH services when both programs are located in the community. Moreover, when these programs are administered within the LHD, they report performance of fewer EMCHS. Although we cannot comment on whether these findings ultimately have a positive or negative effect on the performance of EMCHS in the community, they suggest that decisions about where to locate or collocate MCH programs may have implications for their effectiveness.

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