






EVALUATION OF MATERNAL, FETAL AND CHILDHOOD DEATH PREVENTION COMMITTEES IN A REGION OF THE STATE OF MINAS GERAIS, BRAZIL

AVALIAÇÃO DOS COMITÊS DE PREVENÇÃO DE ÓBITOS MATERNOS, FETAIS E INFANTIS DE UMA REGIÃO DO ESTADO DE MINAS GERAIS, BRASIL

EVALUACIÓN DE LOS COMITÉS PARA LA PREVENCIÓN DE MUERTES MATERNAS, FETALES E INFANTILES EN UNA REGIÓN DEL ESTADO DE MINAS GERAIS, BRASIL

-  Leticia Alves Rodrigues ¹
-  Eunice Francisca Martins ²
-  Regina Amélia Lopes Pessoa Aguiar ³
-  Izabela Rocha Dutra ⁴
-  Adriano Marçal Pimenta ²

¹ Secretaria de Estado da Saúde de Minas Gerais, Superintendência Regional de Saúde de Belo Horizonte, Belo Horizonte, MG - Brazil.

² Universidade Federal de Minas Gerais - UFMG, Departamento de Enfermagem Materno-Infantil e saúde Pública, Belo Horizonte, MG - Brazil.

³ UFMG, Faculdade de Medicina, Belo Horizonte, MG - Brazil.

⁴ Universidade Federal dos Vales do Jequitinhonha e Mucuri - UFVJM, Departamento de Enfermagem, Diamantina, MG - Brazil.

Corresponding author: Leticia Alves Rodrigues
E-mail: lets.ufmg@gmail.com

Author's Contributions:

Conceptualization: Leticia A. Rodrigues, Eunice F. Martins, Regina A. L. P. Aguiar, Izabela R. Dutra, Adriano M. Pimenta; **Data Collection:** Leticia A. Rodrigues, Eunice F. Martins, Izabela R. Dutra, Adriano M. Pimenta; **Funding Acquisition:** Eunice F. Martins, Adriano M. Pimenta; **Investigation:** Leticia A. Rodrigues, Eunice F. Martins, Adriano M. Pimenta; **Methodology:** Leticia A. Rodrigues, Regina A. L. P. Aguiar, Izabela R. Dutra, Adriano M. Pimenta; **Project Management:** Eunice F. Martins, Adriano M. Pimenta; **Resources Management:** Eunice F. Martins, Adriano M. Pimenta; **Statistical Analysis:** Leticia A. Rodrigues, Adriano M. Pimenta; **Supervision:** Eunice F. Martins, Adriano M. Pimenta; **Validation:** Leticia A. Rodrigues, Eunice F. Martins, Adriano M. Pimenta; **Visualization:** Leticia A. Rodrigues, Izabela R. Dutra, Adriano M. Pimenta; **Writing - Original Draft Preparation:** Leticia A. Rodrigues; **Writing - Review and Edition:** Eunice F. Martins, Regina A. L. P. Aguiar, Izabela R. Dutra.

Funding: Conselho Nacional de Pesquisa - CNPq - MCTI/CNPQ/Universal 14/2014- Process: 454411/2014-6.

Submitted on: 2019/01/04

Approved on: 2019/04/12

ABSTRACT

Introduction: the reduction of maternal and child mortality is an international and national priority due to the high potential for the avoidability of these deaths. The Maternal, Fetal, and Infant Death Prevention Committees (*Comitês de Prevenção de Óbitos Maternos, Fetais e Infantis*) are an important mechanism for monitoring maternal and child mortality. **Objective:** to evaluate the structure, processes, and results of death prevention committees in the municipalities of the Regional Health Unit (*Unidade Regional de Saúde*) of Belo Horizonte-MG according to the population size. **Method:** this is an evaluative study developed at the *Belo Horizonte* Health Region in 2015. We applied a questionnaire to the municipal technical references responsible for monitoring maternal, fetal and infant deaths. We analyzed the municipalities to the adequacy to national and state norms, in the domains structure, process and result, according to categories of the population size. We added the appropriate items were added for the assessment of each domain, establishing an adequacy score. **Results:** We evaluated 38 municipalities and various levels of the adequacy of the committees were found, with the worst percentages for the structure (5.3% as adequate) and the smaller municipalities. In the process and result domains, the adequacy percentage was 30.6%. **Conclusion:** the inadequacies revealed the need to structure the municipal committees with the provision of financial, technical and professional investments, to optimize their operational capacity and response to the deaths. The expansion of the technical and political actions of the committees and social control is another necessary improvement.

Keywords: Health Evaluation; Infant Mortality; Maternal Mortality; Perinatal Mortality; Public Health Surveillance; Community Health Nursing.

RESUMO

Introdução: a redução da mortalidade materna e infantil é prioridade internacional e nacional devido ao alto potencial de evitabilidade desses óbitos. Os Comitês de Prevenção de Óbitos Maternos, Fetais e Infantis se configuram como um importante mecanismo de vigilância da mortalidade materna e infantil. **Objetivo:** avaliar a estrutura, processos e resultados dos comitês de prevenção de óbitos nos municípios da Unidade Regional de Saúde de Belo Horizonte-MG segundo porte populacional. **Método:** trata-se de estudo avaliativo desenvolvido na Regional de Saúde de Belo Horizonte no ano de 2015. Utilizou-se questionário aplicado às referências técnicas municipais responsáveis pela vigilância dos óbitos maternos, fetais e infantis. Os municípios foram analisados quanto à adequação às normas nacionais e estaduais, nos domínios estrutura, processo e resultado, segundo categorias de porte populacional. Para a avaliação de cada domínio foram somados os itens adequados, estabelecendo-se um escore de adequação. **Resultados:** foram avaliados 38 municípios e constatados diversos níveis de adequação dos comitês, sendo os piores percentuais para a estrutura (5,3% como adequados) e os municípios de menor porte. Nos domínios processo e resultado, o percentual de adequação foi 30,6%. **Conclusão:** as inadequações evidenciadas revelaram a necessidade de se estruturar os comitês municipais com provisão de investimentos financeiros, técnicos e profissionais,

How to cite this article:

Rodrigues LA, Martins EF, Aguiar RALP, Dutra IR, Pimenta AM. Evaluation of maternal, fetal and infant death prevention committees in a region of the state of Minas Gerais, Brazil. REME – Rev Min Enferm. 2020[cited ____];24:e-1288. Available from: ____ DOI: 10.5935/1415-2762.20200017

de forma a otimizar sua capacidade operacional e de resposta ao óbito ocorrido. Outra melhoria necessária é a expansão das ações técnicas e políticas dos comitês em conjunto com o controle social.

Palavras-chave: Avaliação em Saúde; Mortalidade Infantil; Mortalidade Materna; Mortalidade Perinatal; Vigilância em Saúde Pública; Enfermagem em Saúde Comunitária.

RESUMEN

Introducción: la reducción de la mortalidad materna e infantil es una prioridad internacional y nacional debido al alto potencial de muertes evitables. Los Comités de Prevención de Muerte Materna, Fetal e Infantil son mecanismos importantes para monitorear la mortalidad materna e infantil. **Objetivo:** evaluar la estructura, procesos y resultados de los comités de prevención de muerte en los municipios de la unidad regional de salud de Belo Horizonte-MG según el tamaño de la población. **Método:** estudio evaluativo desarrollado en 2015 en la regional de salud de Belo Horizonte. Se realizó una encuesta a técnicos municipales responsables del monitoreo de muertes maternas, fetales e infantiles. Los municipios fueron analizados en cuanto a la adecuación a las normas nacionales y estatales en los dominios estructura, proceso y resultado, según las categorías de tamaño de la población. Para la evaluación de cada dominio se agregaron los ítems adecuados, estableciendo un puntaje de adecuación. **Resultados:** se evaluaron 38 municipios y se encontraron varios niveles de adecuación de los comités, con los peores porcentajes para la estructura (5,3% como adecuado) y los municipios más pequeños. En los dominios proceso y resultado, el porcentaje de adecuación fue del 30,6%. **Conclusión:** las deficiencias evidenciadas revelaron la necesidad de estructurar los comités municipales con la provisión de inversiones financieras, técnicas y profesionales, a fin de optimar su capacidad operativa y de respuesta a la muerte ocurrida. Otra mejora necesaria es la expansión de las acciones técnicas y políticas de los comités en conjunto con el control social.

Palabras clave: Evaluación en Salud; Mortalidad Infantil; Mortalidad Materna; Mortalidad Perinatal; Vigilancia en Salud Pública; Enfermería en Salud Comunitaria.

INTRODUCTION

The reduction in half of maternal and child deaths in the last two decades has been considered a major advance in the history of human development and Brazil has followed this trend.¹ The reduction in infant deaths was more pronounced than maternal mortality! These deaths plus the fetal deaths, whose occurrence has similar causes, are considered unnecessary or consented events since most of them could have been avoided with the use of the technology currently available.²⁻⁴ Thus, the Sustainable Development Goals (SDGs) have incorporated new objectives to eliminate these preventable deaths by 2030.⁵

In this sense, the incorporation of the principles of gender equality and human rights has been recommended in the planning of health policies and programs, aiming to guarantee the availability of accessible and quality care in sexual, reproductive, maternal and neonatal health.⁵ In the last three

decades, Brazil has achieved several advances in public policies with a positive impact on the rights and conditions of life and health of women and children.¹ The Unified Health System (*Sistema Único de Saúde - SUS*) has been effective in this period with increased coverage of services and the agreement on more comprehensive forms of health surveillance, shifting actions from the individual and disease level to risk surveillance.⁶ Thus, one of the recommended mechanisms for triggering preventive actions against maternal, fetal and child deaths has been surveillance of these deaths.²⁻⁴

Death surveillance involves the identification and notification of cases eligible for investigation, qualified collection of demographic and clinical data, review of assistance received in the standardized guidelines and assessment of necessary improvements.²⁻⁴ Internationally, this surveillance has adopted varied methodologies and terminologies, commonly called as death review or audit, but with the common final objective of identifying contributing factors and preventive measures against new occurrences.⁷⁻⁹ The World Health Organization (WHO) has reinforced the importance of surveillance and response to maternal and perinatal death through a continuous cycle of notification, review, analysis, and recommendations.²

Brazil has adopted a maternal, fetal and infant mortality surveillance system that includes the work of the Maternal, Fetal and Infant Death Prevention Committees (*Comitês de Prevenção de Óbitos Maternos, Fetais e Infantis - CPOMFI*). These committees are inter-institutional and multi-professional bodies of a technical-scientific, confidential and educational nature.^{3,4} They are incorporated into the structure of the epidemiological surveillance system, with the purpose of identifying and analyzing all maternal, fetal and infant deaths from data obtained in the investigation by the surveillance teams, to suggest preventive measures.^{3,4} In the state of Minas Gerais, the format of unified committees is recommended, that is, that analyze both maternal, fetal and infant deaths, rationalizing the performance and optimizing work processes.¹⁰

The successful and continued introduction of an effective mortality surveillance program requires a political commitment, an organized health care system and legal, administrative and financial support. This possibly explains the still limited adoption of this practice in developing countries.^{11,12} In Brazil, many municipalities are unable to achieve success in the implementation of the death prevention committees due to difficulties related mainly to insufficient infrastructure and technical and political issues.¹³⁻¹⁵ Even with solid bases, the surveillance of maternal and neonatal deaths demands to be better understood in their modes of operation and results obtained, contemplating the approach of the set of structures, processes, and results.

This study was proposed considering the potential of the surveillance of mortality committees, the obstacles still in force for its operationalization and the gap of systematic evaluation of this process. The evaluation is essential for decision-making in the implementation of public health policies. Also, the results obtained may generate subsidies to guide the evaluation of surveillance of maternal, fetal and infant mortality to strengthen this strategy.

OBJECTIVE

To evaluate the death prevention committees in the municipalities of the Regional Health Superintendence of *Belo Horizonte* (*Superintendência Regional de Saúde de Belo Horizonte - SRS-BH*) of the *Minas Gerais* State Department of Health (*Secretaria Estadual de Saúde de Minas Gerais - SES-MG*) in the structure, process, and outcome according to population size.

METHOD

This is an evaluation study of the structure, processes, and results of CPOMFIs in the municipalities of SRS-BH, carried out in 2015. SRS-BH guarantees the management of the State Health System in a region of which 39 municipalities are part, with a population total of 5,454,400 inhabitants, with *Belo Horizonte* as the hub municipality.¹⁶ All municipalities were invited to participate in the study and there was a refusal, therefore, we evaluated 38 municipalities.

For data collection, the questionnaire adapted in the study was "Investigation of infant and fetal deaths in the Extended Health Region of *Jequitinhonha, Minas Gerais*".¹³ The instrument addressed issues related to the general aspects, structure, processes, and results of the committees or municipal teams responsible for their duties. It was built under the logic of the Donabedian¹⁸ model for quality assessment, having the norms and flows established by the Ministry of Health (MOH)^{3,4} and the SES-MG as reference.¹⁰ The questionnaire was evaluated based on the methodological strategy of the face and content validation¹⁷ by four professionals who are experts on the subject and who act on death prevention committees. Subsequently, it was submitted to a pre-test carried out with professionals working in a local committee of a Health District of *Belo Horizonte*, and the final version of the "Questionnaire on Maternal, Fetal and Infant Death Prevention Committees" was then built.

Data collection took place from April to June 2015 with the application of the questionnaire face to face with the municipal references of the committees or those responsible for monitoring maternal, fetal and infant mortality, as indicated by the municipal health secretaries. The interviews were conducted by a nurse and a nutritionist, both trained by the researchers responsible

for data collection. Part I of the questionnaire addressed the respondent's profile (training, workload and time of participation in death surveillance activities) and the general aspects of the committee (existence, officialization, and implementation date). Table 1 describes the issues related to the structure, process and result domains, their respective areas and items.

We evaluated the structure domain for the availability of human and physical resources for the work, with the inclusion of three items. The process domain was related to the development of the committee's work and included the areas of operation/protocol and analysis/discussion, composed of six items. The resulting domain was related to the products expected from the work process of the committees, with three areas and nine items evaluated (Table 1).

We built a database with information collected from the survey respondents using a double entry in the statistical program Epi Info (version 3.5.2), which was also used to analyze the consistency of the database. For data analysis, we exported the final database to IBM SPSS Statistics software (version 18) and to the Stata Program (version 13), both licensed. This step involved the distribution of absolute and relative frequencies of the characterization variables and the adequacy variables in the items and areas.

Each item was classified as adequate (1 point) or inadequate (0 points), based on the standards referenced in the preparation of the questionnaire^{3,4,10} and presented in Table 1. We classified the areas as adequate if all of their items were adequate; partially adequate, when at least one of its items was inadequate; and inadequate when all items were inadequate. For the classification of domains, the points obtained by the appropriate items in each area were added and we established an adequacy score. Thus, they were classified as inadequate when the total score was in the first tertile, partially adequate when the total score was in the second tertile and as adequate for those in the third tertile (Table 1).

We also carried out an analysis of the distribution of the categories of adequacy of the committees by population size of the municipalities, whose categories were established according to parameters of the National Social Assistance Policy.¹⁹ Small municipalities I and II were aggregated in the small size category, with less 50,000 inhabitants; those of medium and large size, with 50,001 to 900,000 inhabitants, gathered in the metropolis, with more than 900,000 inhabitants, in the medium/large category.

The Human Research Ethics Committee of the *Universidade Federal de Minas Gerais* approved the study under the CAEE number: 39701714.9.0000.5149 of 03/03/2015, authorized by SES-MG, and complied with the ethical principles contained in Resolution 466/2012 of the National Health Council (*Conselho Nacional de Saúde - CNS*). All respondents to the questionnaire signed the Free and Informed Consent Form (ICF).

Table 1 - Domains, areas, and items of the evaluation of the committees with the respective scores and adequacy criteria

Domain	Area*	Item	Adequacy criteria
Structure			
Adequacy score: Inadequate = 1 Partially adequate = 2 Adequate = 3 Total score: 3	Human Resources	1. Composition	<u>Adequate</u> : complete minimum composition** <u>Inadequate</u> : incomplete composition
		2. Training	<u>Adequate</u> : training participation in death surveillance in the last 3 years <u>Inadequate</u> : lack of training
	Physical resources	3. Structure	<u>Adequate</u> : own or shared minimum structure - living room, computer, printer, telephone, and office supplies <u>Inadequate</u> : the absence of minimum structure
Process			
Adequacy score: Inadequate = 1-2 Partially adequate = 3-4 Adequate = 5-6 Total score: 6	Operation and protocol	1. Use of protocols	<u>Adequate</u> : use of the MOH or SES protocols as a reference, in full or with local adjustments <u>Inadequate</u> : the non-use of protocols
		2. Meeting schedule	<u>Adequate</u> : to have a schedule for committee meetings <u>Inadequate</u> : the absence of schedule for committee meetings
		3. Meeting Minutes	<u>Adequate</u> : the existence of meeting minutes <u>Inadequate</u> : the absence of meeting minutes
	Analysis and discussion	4. Use of protocols	<u>Adequate</u> : use of the proposed or adapted methodology of the manuals for discussion, analysis and closing of cases <u>Inadequate</u> : the absence of methodology for discussion, analysis, and closing of cases
		5. Source documents of FIM deaths	<u>Adequate</u> : use of hospital records, PHC records, home interviews, information system report and necropsy report <u>Inadequate</u> : Death certificate use only
		6. Source documents of maternal, fetal and infant deaths	<u>Adequate</u> : use of hospital documents in conjunction with a home interview and any outpatient document <u>Inadequate</u> : not using these sources
Result			
Adequacy score: Inadequate = 1-3 Partially adequate = 4-6 Adequate = 7-9 Total score: 9	Final avoidability classification	1. Fetal/infant classification	<u>Adequate</u> : classification of avoidability for each type of death <u>Inadequate</u> : partial or no classification
		2. Maternal classification	<u>Adequate</u> : classification of avoidability for death or no maternal death in the period <u>Inadequate</u> : partial or no classification
		3. Criteria used	<u>Adequate</u> : adoption of the Wigglesworth criteria, the SEADE Foundation or the Brazilian List was considered adequate <u>Inadequate</u> : criteria used not known
		4. Discussion for the avoidability classification	<u>Adequate</u> : discussion by the committee for the final avoidability classification <u>Inadequate</u> : the absence of discussion for the classification
	Dissemination of results	5. Disclosure	<u>Adequate</u> : disclosure of analyzes and proposals to the actors involved and the community through a meeting, bulletin, report, seminar, debate or public hearing <u>Inadequate</u> : the absence of results dissemination
		6. Report for primary health care	<u>Adequate</u> : sending a report or other document containing the analysis of the cases and the proposed measures to reduce mortality in this instance <u>Inadequate</u> : not sending a report
		7. Report to hospitals	<u>Adequate</u> : sending a report or other document containing the analysis of the cases and the proposed measures to reduce mortality in this instance <u>Inadequate</u> : not sending a report
		8. Report to municipal management	<u>Adequate</u> : sending a report or other document containing the analysis of the cases and the proposed measures to reduce mortality in this instance <u>Inadequate</u> : not sending a report
	Social mobilization	9. Partnership with social movements	<u>Adequate</u> : a partnership with the community focused on preventing maternal, fetal and child mortality <u>Inadequate</u> : the absence of community partnership

*Classification of the area: adequate = all its items are adequate; partially adequate = at least one of its items is inadequate; inadequate: all items are inadequate. **medical professionals, nurses, municipal technical references for primary health care (PHC) and epidemiological surveillance; hospital institution representatives (if there is a hospital in the municipality); social movements and the Municipal Health Council.

RESULTS

Twenty-four (63.2%) of the municipalities studied were small in population. Twenty-five (65.8%) of the total respondents were nurses, five were doctors (13.2%) and the rest were biologists, dentists, and Nursing technicians. The weekly workload was 40 hours for 23 (60.5%) of the professionals, 20 hours for nine professionals (23.7%) and 30 hours for three professionals (7.9%). The median time of respondents' participation in committee activities and/or mortality surveillance was 24 months, with a minimum of three and a maximum of 192 months (16 years).

The implementation date of the committees varied from April 2002 to August 2014, and in seven municipalities (18.4%), the respondents reported that the Municipal Committee was being implemented and its actions carried out by a minimum team. In two of the municipalities, the professionals had a committee shared with another municipality. Twenty-two (70.8%) of the total of implemented committees were official and four (12.5%) with this official in progress.

Table 2 shows the results of the structure domain. In the adequacy analysis, 20 (52.6%) municipalities were classified as partially adequate and 2 (5.3%) as adequate, all of them were medium/big in size. Regarding the HR area, half of the municipalities were inadequate, with 36 (94.7%) not adequate for the composition and 20 (52.6%) not adequate for the training of their members. Almost all municipalities were inadequate in the area of physical resources, with a minimal difference when stratified by population size.

In the adequacy analysis of the process and result domains, we excluded two municipalities, who reported that they had not yet carried out the actions planned for the death prevention committees.

In the process domain, 11 (30.6%) municipalities were classified as adequate and another 11 (30.6%) were partially adequate, with differences between their size. The totality was adequate regarding the use of the MOH manuals, 21 (58.3%) were adequate for the existence of minutes of the committee's meetings and 13 (36.1%) were adequate for the existence of a schedule for these meetings. In the area of analysis and discussion of deaths, 31 (86.1%) municipalities were classified as adequate, with 100.0% adequacy in medium/big cities (Table 3).

Table 4 shows the evaluation of the resulting domain. Thirteen (36.1%) municipalities were classified as adequate and 11 (30.6%) were classified as partially adequate, most of them (seven) of big size. The avoidability classification area was assessed as adequate or partially adequate for 30 (83.3%) of the municipalities, with a higher percentage of adequacy for fetal/infant deaths compared to maternal deaths. In the area of dissemination of results, it was found that 19 (52.8%)

and seven (19.4%) of the municipalities were partially and totally adequate, respectively. Among the items in this area, 24 (66.7%) municipalities were adequate for the dissemination of results and the highest frequency of sending reports was to PHC teams. The partnership for social mobilization actions was negative for 31 municipalities (86.1%), with no difference between the size of the municipalities.

Table 5 shows the evaluation of the relationships between adequacy categories of the structure and process domains with the adequacy categories of the resulting domain. We observed that the more adequate the structure and process domains, the higher the percentage of the adequacy of the resulting domain.

DISCUSSION

The diversity of characteristics and stages of the adequacy of the committees evaluated in this study reflected on the heterogeneity of the region, having municipalities with different structures, populations and health indicators. In this scenario, the city of *Belo Horizonte* stands out, for the organization and effective performance of its Committee for the Prevention of Deaths since the 1990s.²¹ The results also indicated the multiple challenges faced in health systems to consolidate this surveillance strategy recommended for decades.^{2,15,21} In general, the best levels of adequacy obtained for medium and big municipalities were the best technical and operational capacity of these municipalities to develop strategies for epidemiological surveillance, planning, monitoring and evaluation in health. The state has the mechanism of committees shared between municipalities in the same health region in a single committee¹⁰ to enhance the work of the committees for the municipalities of smaller population size, a condition that requires expansion in the studied region.

The percentage of municipalities in the SRS-BH with an implanted committee higher than in other national studies^{13,14} may be the result of the work carried out by the State of *Minas Gerais*, which establishes and reinforces the organization of the Committees at its various levels - municipal, hospital and regional. However, the non-officialization of some committees and the violation of the legislation^{3,4} hinder the access to necessary information^{7,22} and affect the legitimacy and implementation of recommended actions.¹³

The worst levels of the adequacy of the municipalities were found for the structure of the committees. The insufficiency of appropriate physical resources can lead to dissatisfaction and be an obstacle to a more productive action¹⁴, with impacts on the fulfillment of the proposed objectives and on the achievement of results capable of triggering preventive proposals. Thus, it is evident the need for continuous investments by health

Table 2 - Absolute and percentage distribution of adequacy categories in the structure domain, their areas, and items by population size of the municipalities, SRS-BH, 2015

Adequacy	Population size		Total
	Small	Medium/big	N (%)
	N (%)	N (%)	
HR (area)			
Inadequate	15 (62.5)	4(28.6)	19 (50)
Partially adequate	9 (37.5)	9(64.3)	18 (47.4)
Adequate	0(0)	1(7.1)	1 (2.6)
<i>Composition (item)</i>			
No	24(100)	12(85.7)	36(94.7)
Yes	0 (0)	2(14.3)	2(5.3)
<i>Training (item)</i>			
No	156(2.5)	5(35.7)	20(52.6)
Yes	9(37.5)	9(64.3)	18(47.4)
Physical Resources (item)			
No	21(87.5)	12(85.7)	33 (86.8)
Yes	3(12.5)	2(14.3)	5(13.2)
STRUCTURE (domain)			
Inadequate	12(50)	4(28.6)	16(42.1)
Partially adequate	12(50)	8(57.1)	20(52.6)
Adequate	0(0)	2(14.3)	2(5.3)

Note: SRS-BH - Belo Horizonte Regional Health Superintendence.

Table 3 - Absolute and percentage distribution of adequacy categories in the process domain, their areas, and items by population size of the municipalities, SRS-BH, 2015

Adequacy	Population size		Total
	Small	Medium/big	N (%)
	N (%)	N (%)	
Operation/protocol (area)			
Inadequate	0 (0)	--	0 (0)
Partially adequate	17 (79.2)	7 (50)	24 (68.4)
Adequate	5 (20.8)	7 (50)	12 (31.6)
<i>Use of MOH manuals - protocol (item)</i>			
No	0 (0)	--	0 (0)
Yes	22 (100)	14 (100)	36 (100)
<i>Existence of meeting schedule (item)</i>			
No	17 (77.3)	6 (42.9)	23 (63.9)
Yes	5 (22.7)	8 (57.1)	13 (36.1)
<i>Existence of meeting minutes (item)</i>			
No	11 (50)	4 (28.6)	15 (41.7)
Yes	11 (50)	10 (71.4)	21 (58.3)
Analysis/discussion (area)			
Inadequate	0 (0)	--	0 (0)
Partially adequate	5 (22.7)	--	5 (13.9)
Adequate	17 (77.3)	14 (100)	31 (86.1)

Continue...

...continued

Table 3 - Absolute and percentage distribution of adequacy categories in the process domain, their areas, and items by population size of the municipalities, SRS-BH, 2015

Adequacy	Population size		Total
	Small	Medium/big	
	N (%)	N (%)	N (%)
Analysis/discussion (area)			
<i>Use of MOH manuals - analysis (item)</i>			
No	1 (4.6)	--	1 (2.8)
Yes	21 (95.4)	14 (100)	35 (97.2)
<i>Documents used - FIM (item)</i>			
No	1 (4.6)	--	1 (2.8)
Yes	21 (95.4)	14 (100)	35 (97.2)
<i>Documents used - maternal, fetal/infant (item)</i>			
No	4 (18.2)	--	4 (11.1)
Yes	18 (81.8)	14 (100)	32 (88.9)
PROCESS (domain)			
Inadequate	11 (50)	3 (21.4)	14 (38.8)
Partially adequate	7 (31.8)	4 (28.6)	11 (30.6)
Adequate	4 (18.2)	7 (50)	11 (30.6)

*Two municipalities that reported not investigating deaths from FIM, maternal, fetal and infantile were excluded from the analysis of the process domain, leaving 36 municipalities analyzed in this domain.

Table 4 - Absolute and percentage distribution of the adequacy categories in the resulting domain, their areas, and items by population size of the municipalities, SRS-BH, 2015

Adequacy	Population size		Total
	Small	Medium/big	
	N (%)	N (%)	N (%)
Avoidability classification (area)			
Inadequate	6 (27.3)	0 (0)	6 (16.7)
Partially adequate	9 (40.9)	4 (28.6)	13 (36.1)
Adequate	7 (31.8)	10 (71.4)	17 (47.2)
<i>Classification - fetal/infant (item)</i>			
No	10 (45.5)	0 (0)	10 (27.8)
Yes	12 (54.5)	14 (100)	26 (72.2)
<i>Classification - maternal (item)</i>			
No	15 (68.2)	3 (21.4)	18 (50)
Yes	7 (31.8)	11 (78.6)	18 (50)
<i>Criteria used (item)</i>			
No	8 (36.4)	0 (0)	8 (22.2)
Yes	14 (63.6)	14 (100)	28 (77.8)
<i>Discussion (item)</i>			
No	8 (36.4)	2 (14.3)	10 (27.8)
Yes	14 (63.6)	12 (85.7)	26 (72.2)

Continue...

...continued

Table 4 - Absolute and percentage distribution of the adequacy categories in the resulting domain, their areas, and items by population size of the municipalities, SRS-BH, 2015

Adequacy	Population size		Total
	Small	Medium/big	
	N (%)	N (%)	N (%)
Dissemination of Results (area)			
Inadequate	9 (40.9)	1 (7.1)	10 (27.8)
Partially adequate	11 (50)	8 (57.2)	19 (52.8)
Adequate	2 (9.1)	5 (35.7)	7 (19.4)
<i>Disclosure (item)</i>			
No	10 (45.5)	2 (14.3)	12 (33.3)
Yes	12 (54.5)	12 (85.7)	24 (66.7)
<i>Report for PHC (item)</i>			
No	14 (63.6)	4 (28.6)	18 (50)
Yes	8 (36.4)	10 (71.4)	18 (50)
<i>Report to hospitals (item)</i>			
No	20 (90.9)	9 (64.3)	29 (80.6)
Yes	2 (9.1)	5 (35.7)	7 (19.4)
<i>Management report (item)</i>			
No	15 (68.2)	5 (35.7)	20 (55.6)
Yes	7 (31.8)	9 (64.3)	16 (44.4)
Partnership for social mobilization (item)			
No	19 (86.4)	12 (85.7)	31 (86.1)
Yes	3 (13.6)	2 (14.3)	5 (13.9)
RESULT (domain)			
Inadequate	11 (50)	1 (7.1)	12 (33.3)
Partially adequate	7 (31.8)	6 (42.9)	13 (36.1)
Adequate	4 (18.2)	7 (50)	11 (30.6)

*Two municipalities that reported not investigating deaths from FIM, maternal, fetal and infant were excluded from the analysis of the resulting domain, leaving 36 municipalities analyzed in this domain.

Table 5 - Absolute and percentage distribution of adequacy categories in the resulting domain, according to adequacy categories of the structure and process domains, SRS-BH, 2015

Domains	Result			Total
	Inadequate	Partially adequate	Adequate	
	N (%)	N (%)	N (%)	N (%)
Structure				
Inadequate	8 (66.7)	5 (38.5)	2 (18.2)	15 (41.7)
Partially adequate	4 (33.3)	7 (53.8)	8 (72.7)	19 (52.8)
Adequate	0 (0)	1 (7.7)	1 (9.1)	2 (5.6)
Process				
Inadequate	9 (75)	5 (38.5)	0 (0)	14 (38.9)
Partially adequate	3 (25)	3 (23.1)	4 (36.4)	10 (27.8)
Adequate	0 (0)	5 (38.5)	7 (63.6)	12 (33.3)

managers in the organization, technical and operational support for this strategy, even in places with a low number of deaths, which has been a challenge in other countries as well.^{2,9,13,14} Generally, the costs of this surveillance system are higher in the initial implantation process, with a subsequent decline.¹⁵

The lack of a minimum composition of human resources for the studied committees, some with very centered work on a single professional, was identified in other studies and is configured as an obstacle to the continuity of death review programs.^{11,13} Audit and review of death systems centered on a few leaders, without multi-professional and inter-institutional participation can prove to be fragile and unsustainable for conducting solid, decentralized assessments with appropriate recommendations.^{7,14,15,23,24} Thus, it is important to discuss the recommended composition for the committees and their conformity with the reality of small municipalities, with few professionals responsible for various activities. In this context, fostering the implementation of shared committees becomes a strategic option.

The lack of professional training to work on this strategy was another inadequacy found in the studied committees. This situation is similar to other studies and considered unfavorable for carrying out analyses and deliberations within the scope of the committee.^{9,11,13,15,22} This refers to the responsibility of the management bodies to promote the permanent training and qualification of the members of the committees, improving the ability to deal with accountability to society, on such a sensitive topic. One possibility for this qualification is its realization based on experience, with the discussion of cases and their referrals together with SES, in search of the transformation of reality.

In the process domain, the levels of the adequacy of the municipalities studied were higher than in the structure domain. This finding comes against the hypothesis that even with an inadequate structure, the responsible professionals or teams have carried out the required actions. It seems to have contributed to this widespread use among the municipalities of the MOH protocols^{3,4}, which guides the systematization of work and allows better effectiveness of the processes.^{9,22} However, the lack of schedule and records of the meetings, a fact evidenced in some of the municipalities, is a form of work organization that represents the little potential for systematic and continuous actions.

The use of all documents recommended for the analysis of deaths, as evidenced in most municipalities of the SRS-BH, allows an expanded analysis of death, covering not only the issues of the health system and clinical practice, but also incorporating social, cultural, economic factors and those related to health policies, recommended by several studies.^{11,23,24} For deaths occurring outside the municipality

of residence, the establishment of an inter-municipal flow of documents can facilitate obtaining this information for further analysis by the committees. Another possibility suggested by a study in India²² is the use of innovative technologies, such as database linkage, to deal with public health on a large scale and with few resources. In this sense, Brazil has information systems for deaths and births already consolidated, but not yet accessed automatically, despite having this technology.²⁵ Thus, it is relevant to invest in the processes that lead to the optimization and innovation of surveillance in health, including maternal, fetal and infant mortality.

In the evaluation of the resulting domain, the analysis found that most municipalities provide adequate or partially adequate service to the items evaluated, even with an inadequate structure. These results can be explained because some of these actions are monitored by the MOH and SES-MG through agreed indicators, whose compliance is linked to the receipt of financial resources. The lack of monitoring of the conduct and results of the analysis of deaths is identified as one of the obstacles in this strategy.⁹ However, the review of deaths should be an instrument for improving the quality of health care beyond data collection and the mere achievement of goals. The analyzes and proposals made are an instrument to render an account to society of the occurrence of deaths and to trigger preventive actions.^{11,24} In the specific case of the municipalities of SRS-BH, the use of research results to improve care practice still has challenges, especially due to the inadequacies related to the dissemination of information and social mobilization, but this is a fact similar to other national and international results.^{9,13,15,24} The low production, dissemination, and implementation of recommendations resulting from the audit of deaths highlight the insufficiency of the committees in carrying out their functions^{3,4,10} and the situation of fragile political insertion.

The interlocution with other social actors and the community was the greatest difficulty of the studied committees, in a peculiar way in small municipalities and with a reduced number of deaths. This can be explained by the non-displacement of surveillance actions at the individual level and diseases for the prevention of health risks, requiring actions in an expanded and integrated way to other sectors of society.⁶ Another hypothesis is the possibility of indirect exposure to those involved (individual, professional, institution), even if confidentiality regarding identification is maintained. This difficulty in carrying out analyzes without the sifting of punitive judgment, in an impartial, joint and interdisciplinary way, for shared decision making in the management of problems with a focus on the collective, and not on the individual, an obstacle also identified in a study carried out at Nigeria.¹¹

The legislation that regulates the committees in Brazil^{3,4,10} provides for social control through the participation of organized sectors of society, together with the government, health professionals and institutions. An important question to be assessed is whether professional corporatism can be a hindrance to popular participation, as well as for the dissemination of propositions to the bodies involved and the community. Mechanisms that facilitate the effective participation of social actors in the formulation of integrated strategies, in the control and in the evaluation of the execution of public health policy must be rethought and proposed. In Bangladesh, the death review system has adopted social autopsy as a tool to expand the dialogue with the community and favor joint decision-making on the avoidability of maternal and perinatal deaths.²³

When evaluating the relationship between the structure and process with the results, the inadequacies of human and physical resources and the operationalization of the committees can compromise the surveillance of deaths in the cities studied. Thus, as carried out in this study, a better understanding of the processes is configured as a first phase in the search for better results¹⁸. Another measure is to favor the committees with spaces for reflection and self-assessment to identify the bottlenecks and the re-elaboration of actions and investments, aiming at achieving the proposed objectives.²¹

One of the limitations of the study was the form of data collection, that is, with the use of only the interview without the inclusion of on-site observation of the structure and process, which can lead to information bias (respondent bias and/or memory). Another possible limitation was the inclusion in the analysis of the municipalities that had an implementation committee, which may have accentuated the unsatisfactory results in the structure domain, especially in the composition of the teams. We recommend further research that incorporates documentary analysis and an interview with a greater number of committee members in the evaluation of the committees. On the other hand, the study proceeds with the elaboration of the research questionnaire, which can be validated and used in the state and country for an expanded assessment of this strategy. The study also has contributions to Nursing, as nurses were the professionals who predominated in the conduct of committees and are inserted in the processes of surveillance and development of preventive actions against maternal, fetal and infant deaths at different levels of the health care network.

CONCLUSION

The study revealed high levels of the inadequacy of the municipal death prevention committees, especially in their structure and more strongly affecting the smaller municipalities.

In the evaluation of the results, there was a reduction in the inadequate evaluation in the structure and process and an increase in the partially adequate and adequate, resulting from the items related to the goals agreed by the State Government. The inadequacies evidenced emphasized the need to structure municipal committees with the provision of financial, technical and professional investments, optimizing their operational and response capacity. The expansion of the technical and political actions of the committees with social control is another necessary improvement.

REFERENCES

1. Leal MC, Szwarcwald CL, Almeida PVB, Aquino EML, Barreto ML, Barros F, *et al.* Reproductive, maternal, neonatal and child health in the 30 years since the creation of the Unified Health System (SUS). *Ciênc Saúde Coletiva*. 2018[cited 2019 June 12];23(6):1915-28. Available from: <http://dx.doi.org/10.1590/1413-81232018236.03942018>
2. World Health Organization. 2016. Strengthening country capacity on maternal and perinatal death surveillance and response. Geneva: WHO; 2016[cited 2018 Aug 21]. Available from: http://www.searo.who.int/entity/child_adolescent/topics/child_health/mdsr.pdf?ua=1
3. Ministério da Saúde (BR). Manual de vigilância do óbito infantil e fetal e do Comitê de Prevenção do Óbito Infantil e Fetal. Brasília: MS; 2009[cited 2018 July 15]. Available from: http://bvsmms.saude.gov.br/bvs/publicacoes/manual_obito_infantil_fetal_2ed.pdf
4. Ministério da Saúde (BR). Guia de vigilância epidemiológica do óbito materno. Brasília: MS; 2009[cited 2018 July 18]. Available from: http://bvsmms.saude.gov.br/bvs/publicacoes/guia_vigilancia_epidem_obito_materno.pdf
5. United Nations. Transforming our world: the 2030 Agenda for Sustainable Development. 2015[cited 2018 Aug 15]. Available from: <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf>
6. Teixeira MG, Costa MCN, Carmo EH, Oliveira WK, Penna GO. Health surveillance at the SUS: development, effects and perspectives. *Ciênc Saúde Colet*. 2018[cited 2018 Sept 14];23(6):1811-8. Available from: http://www.scielo.br/scielo.php?pid=S1413-81232018000601811&script=sci_arttext&tlng=en
7. Berg CJ. From identification and review to action - maternal mortality review in the United States. *Semin Perinatol*. 2012[cited 2018 Sept 14];36(1):7-13. Available from: <https://www.science-direct.com/science/article/abs/pii/S0146000511001492?via%3Dihub>
8. Kurinczuk JJ, Draper ES, Field DJ, Bevan C, Brocklehurst P, Gray R, *et al.* Experiences with maternal and perinatal death review in the UK—the MBRRACE-UK programme. *BJOG*. 2014[cited 2018 Sept 14];121(s4):41-6. Available from: <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1111/1471-0528.12820>
9. Agaro C, Beyeza-Kashesya J, Waiswa P, Sekandi JN, Tusiime S, Anguzu R, Kiracho EE. The conduct of maternal and perinatal death reviews in Oyam District, Uganda: a descriptive cross-sectional study. *BMC Women's Health*. 2016[cited 2018 Apr 21];16:38. Available from: <https://bmcmenshealth.biomedcentral.com/articles/10.1186/s12905-016-0315-5>
10. Secretaria de Estado de Saúde (MG). Resolução SES/MG nº 5016, de 18 de novembro de 2015. Restabelece a organização dos Comitês Estadual, Regionais, Municipais, Compartilhados e Hospitalares de Prevenção de Mortalidade Materna, Infantil e Fetal e dá outras providências. *Diário do Executivo*. 2015[cited 2018 Aug 22]. Available from: http://www.saude.mg.gov.br/images/noticias_e_eventos/00_2015/12_dezembro/2015_RESOLUCAO-SES-MG-N-5-016.pdf

11. Kok B, Imamura M, Kanguru L, Owolabi O, Okonofua F, Hussein J. Achieving accountability through maternal death reviews in Nigeria: a process analysis. *Health Policy Plan.* 2017[cited 2018 Nov 18];32:1083–91. Available from: <https://academic.oup.com/heapol/article/32/8/1083/3897344>
12. Melo CM, Aquinotis, Soares MQ, Bevilacqua PD. Death surveillance as an indicator of the quality of health care for women and children. *Ciênc Saúde Coletiva.* 2017; 22(10):3457-65. Available from: <http://dx.doi.org/10.1590/1413-812320172210.19652017>
13. Dutra IR, Andrade GN, Rezende EM, Gazzinelli A. Investigação dos óbitos infantil e fetal no Vale do Jequitinhonha, Minas Gerais, Brasil. *Reme - Rev Min Enferm.* 2015[cited 2018 May 21];19(3):597-611. Available from: http://www.revenf.bvs.br/scielo.php?script=sci_arttext&pid=S1415-27622015000300006
14. Venâncio SI, Paiva R. O processo de implantação dos Comitês de Investigação do Óbito Infantil no Estado de São Paulo. *Rev Bras Saúde Materno-Infantil.* 2010[cited 2018 Sept 15];10(3):369-75. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1519-38292010000300010
15. Biswas A, Halim A, Rahman F, Eriksson C, Dalal K. The economic cost of implementing maternal and neonatal death review in a district of Bangladesh. *J Public Health Res.* 2016[cited 2019 Jan 18];5:729. Available from: <https://www.jphres.org/index.php/jphres/article/view/729/325>
16. Secretaria de Estado de Saúde de Minas Gerais. Plano Diretor de Regionalização da Saúde de Minas Gerais (PDR/MG). Belo Horizonte; 2011[cited 2018 Dez 17]. Available from: http://www.saude.mg.gov.br/images/noticias_e_eventos/000_2016/Livro%20Plano%20Diretor%20de%20Regionalizacao%20-%20PDR-SUS-MG.pdf
17. Polit DF, Beck CT, Hungler BP. Fundamentos de pesquisa em Enfermagem: métodos, avaliação e utilização. Porto Alegre: Artmed; 2004.
18. Donabedian A. Evaluating the quality of medical care. *Milbank Q.* 2005[cited 2018 Sept 21];83(4):691-729. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2690293/>
19. Ministério do Desenvolvimento Social e Combate à Fome (BR). Política Nacional de Assistência Social (PNAS). 2004[cited 2018 Aug 10]. Available from: http://www.mds.gov.br/webarquivos/publicacao/assistencia_social/Normativas/PNAS2004.pdf
20. Lansky S. Gestão de qualidade e da integralidade do cuidado em saúde para a mulher e a criança no SUS-BH: a experiência da comissão perinatal. *Rev Tempus Actas Saúde Col.* 2010[cited 2018 Aug 15];4(4):191-9. Available from: <http://tempusactas.unb.br/index.php/tempus/article/viewFile/846/809>
21. Oliveira CM, Guimarães MJ, Bonfim CV, Frias PG, Antonino VCS, Guimarães ALS, et al. Evaluation of the adequacy of information from research on infant mortality in Recife, Pernambuco, Brazil. *Ciênc Saúde Colet.* 2018[cited 2018 Apr 13];23(3):701-14. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1413-81232018000300701&lng=en&nrm=iso&tlng=pt
22. Purandare C, Bhardwaj A, Malhotra M, Bhushan H, Shah PK. Every death counts: Electronic tracking systems for maternal death review in India. *Inter J Gynecol Obstetr.* 2014[cited 2018 Sept 21];127:S35-S39. Available from: <https://obgyn.onlinelibrary.wiley.com/doi/abs/10.1016/j.jjigo.2014.09.003>
23. Biswas A, Ferdoush J, Abdullah ASM Halim A. Social autopsy for maternal and perinatal deaths in Bangladesh: a tool for community dialog and decision making. *Public Health Rev.* 2018[cited 2018 Oct 15];39:16. Available from: <https://doi.org/10.1186/s40985-018-0098-3>
24. Armstrong CE, Lange IL, Magoma M, Ferla C, Filippi V, Ronsmans C. Strengths and weaknesses in the implementation of maternal and perinatal death reviews in Tanzania: perceptions, processes and practice. *Trop Med Inter Health.* 2014[cited 2018 June 15];19(9):1087-95. Available from: <https://onlinelibrary.wiley.com/doi/full/10.1111/tmi.12353>
25. Maia LTS, Souza WV, Mendes ACG, Silva AGS. Uso do linkage para a melhoria da completude do SIM e do SINASC nas capitais brasileiras. *Rev Saúde Pública.* 2017[cited 2018 July 14];51:112. Available from: http://www.scielo.br/pdf/rsp/v51/pt_0034-8910-rsp-S1518-87872017051000431.pdf