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THE ANALYSIS PROCESS OF PREVENTABLE CASES OF CHILD AND FETAL DEATH: SINGLE-CASE STUDY[1]

Andriela Backes Ruoff[2], Selma Regina de Andrade[3], Talita Piccoli[4]

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[2] Doctoral Student. *Programa de Pós-Graduação em Enfermagem* (PEN), *Universidade Federal de Santa Catarina* (UFSC). CAPES Scholarship student. Florianópolis, Santa Catarina, Brazil. E-mail: andriback@gmail.com
[3] Ph.D. in Nursing. Professor of the PEN/UFSC. Florianópolis, Santa Catarina, Brazil. E-mail: selma.regina@ufsc.br
[4] Doctoral Student. PEN/UFSC. Florianópolis, Santa Catarina, Brazil. E-mail: talitapiccoli@gmail.com

ABSTRACT

Objective: to demonstrate the analysis process of preventable cases of infant and fetal death performed by a municipal committee of a capital city in Southern Brazil.

Method: a single case study with two integrated units of analysis, performed with nine institutional representatives from the committee of the prevention of infant and fetal death. The data collection was triangulated by a focused interview, direct non-participant observation, and documentary research during January and April 2016. An explanatory construction technique was used for data analysis.

Results: the case summary of infant and fetal death is shown as a discussion tool. The factors that contribute to the occurrence of infant and fetal death and the situations that provoke the deaths synthesize the analysis process regarding the death from the perspective of preventability. In the analysis process, information is used regarding the pregnant woman and the child in the network and at the three levels of health care.

Conclusion: the analysis process of preventable cases of infant and fetal death allow us to understand the factors and situations that lead to their occurrence and allow for the proposal of health care actions that may contribute to the reduction of mortality rates.

DESCRIPTORS: Infant mortality. Fetal mortality. Professional Staff Committees. Health management. Child health. Maternal and child health services.

O PROCESSO DE ANÁLISE DA EVITABILIDADE DOS CASOS DE ÓBITO INFANTIL E FETAL: ESTUDO DE CASO ÚNICO

RESUMO

Objetivo: evidenciar o processo de análise da evitabilidade dos casos de óbito infantil e fetal realizado por um Comitê municipal de uma capital do Sul do Brasil.

Método: estudo de caso único com duas unidades integradas de análise, realizado com nove representantes institucionais de um comitê de prevenção de óbito infantil e fetal. A coleta dos dados ocorreu de forma triangulada por entrevista focada, observação direta não participante e pesquisa documental durante janeiro e abril de 2016. A análise foi realizada com técnica de construção da explanação.

Resultados: o resumo do caso de óbito infantil e fetal evidencia-se como um instrumento de discussão. Os fatores que contribuem para a ocorrência do óbito infantil e fetal e as situações que desencadeiam os óbitos sintetizam o processo de análise do caso de óbito na perspectiva da evitabilidade. No processo de análise são utilizadas informações sobre percurso da gestante e da criança dentro da rede e nos três níveis de atenção à saúde.

Conclusão: o processo de análise da evitabilidade dos casos de óbito infantil e fetal permite a compreensão dos fatores e situações que levam à sua ocorrência, possibilitando propor ações de saúde que possam contribuir para redução das taxas de mortalidade.

DESCRITORES: Mortalidade infantil. Mortalidade fetal. Comitês de profissionais. Gestão em saúde. Saúde da criança. Serviços de saúde materno-infantil.

EL PROCESO DE ANÁLISIS DE LA EVITABILIDAD DE LOS CASOS DE ÓBITO INFANTIL Y FETAL: ESTUDIO DE CASO ÚNICO

RESUMEN

Objetivo: demostrar el proceso de análisis de la evitabilidad de los casos de muerte infantil y fetal realizado por un Comité municipal de una capital del Sur de Brasil.

Método: estudio de caso único con dos unidades integradas de análisis, realizado con nueve representantes institucionales de un comité de prevención de muerte infantil y fetal. La recolección de datos ocurrió de forma triangulada por entrevista enfocada, observación directa no participante e investigación documental durante enero y abril de 2016. El análisis fue realizado con técnica de construcción de la explicación.

Resultados: el resumen del caso de muerte infantil y fetal se evidencia como un instrumento de discusión. Los factores que contribuyen a la ocurrencia del óbito infantil y fetal y las situaciones que desencadenan las muertes sintetizan el proceso de análisis del caso de óbito en la perspectiva de la evitabilidad. En el proceso de análisis se utilizan informaciones sobre el recorrido de la gestante y del niño dentro de la red y en los tres niveles de atención a la salud.

Conclusión: el proceso de análisis de la evitabilidad de los casos de muerte infantil y fetal permite la comprensión de los factores y situaciones que llevan a su ocurrencia, posibilitando proponer acciones de salud que puedan contribuir a la reducción de las tasas de mortalidad.

DESCRIPTORES: Mortalidad infantil. Mortalidad fetal. Comités de profesionales. Gestión de la salud. Salud del niño. Servicios de salud materno-infantil.

INTRODUCTION

The infant mortality rate is the indicator that reflects the health status of a population, demonstrating shortcomings in relation to socioeconomic conditions, public policies, and the performance of health care services, such as access and the quality of care.[1]

The importance given to the reduction of infant mortality by the international community is established by its inclusion among the United Nations' Sustainable Development Goals, based on 17 goals and 169 targets to be reached by countries by the year 2030. Goal number three, the focus of this study, is aimed at ending the preventable deaths of newborns and children under five years of age. The emphasis is on reducing neonatal mortality to at least 12 per 1,000 live births and the mortality of children under five years of age to at least 25 per 1,000 live births.[2]

In recent years, Brazil has been making commitments to improve the quality of health care provided to pregnant women and newborns, with the intention to meet this goal. The implementation of maternal and child health care policies has contributed to the decline in the infant mortality rate, reducing from 61 deaths to 16 deaths for every one hundred thousand children under five in the period between 1990 and 2015. In addition, Brazil´s decrease in infant mortality rate has surpassed the world average of 53% in the last 25 years.[3-4]

Although the decline in infant mortality indicators is acknowledged and commendable, one aspect that remains challenging lies in preventing such deaths. The analysis of infant deaths, due to its preventability, becomes an important indicator of the performance of the health care services and its monitoring is of great relevance for its evaluation.[4] Classifying deaths as preventable events is a measure that allows the construction of indicators related to the quality of health care, which are capable of initiating research mechanisms and actions aimed at their reduction.[5]

Therefore, the importance of the committees of prevention of infant and fetal death in the monitoring and analysis of the preventability of deaths is highlighted, giving greater credence to the data collected and evaluating the quality of care provided and the conditions of user access to health care services. By showing situations that require intervention, the committees allow the formulation of actions that can reduce infant and fetal mortality.[4]

Studies conducted in Brazilian states in the Southern and Northern regions show that more than half of the cases of infant death occur due to potentially preventable causes. Analyzing the deaths with the preventability approach aims to clarify and visualize the contribution of different factors that can reduce infant and fetal mortality and provide timely and resolutive action to the health care sector. Studies presented the data collection and characterization of infant deaths in some regions of the country.[6-12] Other studies address the process of implementing the committees, highlighting the difficulties related to death surveillance and the organization of the committee.[13-14] However, these studies do not approach the analysis process of death preventability performed by the committees. Understanding this process is necessary in order to demonstrate how their activities can contribute to the reduction of infant and fetal mortality. Thus, this

study is justified, as its approach aims to highlight the actions developed by the committees in the analysis of infant and fetal death preventability.

Based on this approach and admitting theoretical propositions that: (1) more than half (67.6%) of infant deaths in Brazil are classified as preventable; (2) the committees of the prevention of infant and fetal death are collegiate organizations that analyze deaths from the perspective of preventability; (3) the analysis of the preventable cases of infant and fetal death allows the formulation of strategies to prevent new occurrences, this study aims to evidence the analysis process of preventable cases of infant and fetal death, performed by a municipal committee of a capital city in Southern Brazil.

METHOD

This is an explanatory and descriptive single-case study with two integrated units of analysis (IUA), with a qualitative approach.

The case study method is used when there is a need to understand a contemporary phenomenon in depth within its context. The single-case study is appropriate when the theory exposes a clear set of propositions and the circumstances in which they are considered true, and the subunits of analysis add more meaningful opportunities for broader analysis.[15]

The context of this study was the municipality of Florianópolis; the case was the Prevention of Infant and Fetal Death Committee, known as the Floripa Committee for Life; and the two IUAs were composed of (1) representative of the Municipal Department of Health (MDH) and (2) representatives of External Institutions (EI) of MDH, which are linked and make up the referred committee.

The study participants were members of the Floripa Committee for Life. The inclusion criteria were: to be a full member, who participated in at least two ordinary committee meetings in 2014. Based on these criteria, eight representatives from different institutions were selected. A representative of the Board of Directors of the Committee was also elected, which gave a total of nine participants. There was no refusal or withdrawal regarding study participation.

Data collection took place from January to April 2016 at the participants' workplace and during the Committee meetings. Three sources of evidence which converged triangularly were chosen for data collection, they were: a focused interview, direct non-participant observation and documentary research. Regarding the focused interview, the transcript of the nine interviews conducted with study participants with an average duration of 40 minutes served as evidence. For the non-participant observation, the records of the observations of three ordinary meetings were used as a source of evidence. The documentary research was composed of internal documents such as The Internal Regulation; The Resolution to create the Committee; Ordinance designating the members of the Committee; and three minutes relating to the ordinary meetings in which the observations were made. Ministerial documents and ministerial ordinances related to the subject were also included (ordinance of alteration to the flow of the declaration of the death, ordinance of the establishment of the surveillance of child deaths by public and private services of the Unified Health System, Surveillance of Infant and Fetal Death Manual; Prevention of Infant and Fetal Death Committee Manual; and Technical Note for Epidemiological Surveillance of Infant and Fetal Deaths).

Theoretical propositions and the development of the case description were used as an analytical strategy. These strategies allowed the development of the explanation-building analytical technique, whose purpose is to explain the phenomenon, stipulating a set of causal links.[15] Data analysis was supported with the MaxQDA®plus software. A total of 3,991 codes were generated, including the information obtained in the documentation data, interview transcripts and observations.

Codes were used to ensure the information confidentiality and participant and institution anonymity, they are represented as follows: MDH1, MDH2, MDH3, SMS4, MDH5, EI1, EI2, EI3, EI4. This study was approved by the Ethics Committee in Research with Human Beings of the *Universidade Federal de Santa Catarina*, under the opinion nº 1.356.893, CAE 50648215.3.0000.0121.

RESULTS

This single-case study is composed of two IUAs, the MDH is composed of representatives from five institutions and the EI with representatives from four institutions, as presented in Table 1.

Table 1 - Characteristics of representatives of the Floripa Committee for Life Florianópolis, SC, Brazil, 2016

Integrated analysis units	Sex	Age (years)	Profession	Length of time in institution (years)	Length of time in Committee (years)
Municipal Department of Health	F	45	Nurse	15	10
	F	41	Doctor	5	5
	F	42	Doctor	11	3
	F	53	Nurse	16	10
	F	50	Nurse	23	10
External Institution	F	48	Nurse	26	10
	F	60	Nurse	37	10
	F	53	Nurse	20	10
	F	31	Nurse	6	6

The representatives have expertise in the areas of epidemiology, pediatrics and pediatric intensive care, family and community medicine, obstetrics, hospital administration, emergency, and prehospital care. They also have experience in the field of public health, pediatrics, pediatric and neonatal intensive care, obstetrics and in class organs.

The analysis of the preventability of infant and fetal death cases was composed of the following analytical categories: (1) The summary of the infant and fetal death case as a discussion tool; (2) Factors that contribute to the occurrence of infant and fetal death; and (3) Situations that provoke infant and fetal death.

The summary of the infant and fetal death case as an instrument of discussion

One of the main activities of The Floripa for Life Committee reported by the interviewees is to analyze the preventability of the investigated cases of infant and fetal death. This analysis seeks to identify the situations that led to the occurrence of the deaths and to understand how they could have been avoided. *The Committee's main attribution is the analysis of infant, fetal and maternal deaths in order to identify the situations that led to and provoked the occurrence of these deaths* (MDH1).

It was observed that the analysis of the preventability of infant and fetal death cases occurs through a discussion on the relevant aspects contained in the case summary. The case summary is chronologically compiled using the main information contained in the death investigation form, including information on prenatal consultations, childbirth and child care.

This information is useful as it can verify if the pregnant woman and/or child received care as recommended by the Ministry of Health and can also identify where the problems in the healthcare appeared which could be improved in order to avoid death. Participants affirm that it assists in understanding what happened, in which period of gestation or child development it occurred in and why. *So, it is through the patient history. So, first, the patient history is read, if this woman did adequate prenatal care, whether she went to the consultations, what she had positive, what she needed to treat, all her periodic examinations* (EI4).

It was observed that the discussions begin with the identification of the sanitary district in which the death occurred. All the information regarding the pregnant woman and/or child within the health care network at all three levels of attention is discussed. The number of prenatal visits is checked; the dates and results of blood, urine and ultrasound examinations; the vital signs records, uterine fundus height and heart rate; description of occurrences and complications; information about the labor, delivery and the puerperium. Regarding the child, the vital signs and birth conditions and the information about the care provided in the neonatal intensive care unit until the death are discussed. The socioeconomic aspects, family constitution and planning are also discussed, as well as the work process of health institutions, and the conduct of health professionals.

Factors that contribute to the occurrence of infant and fetal death

The detailed information extracted from the case summary allows a deep and differentiated analysis of the deaths. To analyze the death is to analyze in the perspective of preventability, i.e.,

several supporting factors and contexts. *The preventability and analysis of the case are implicit, there is no separation. When you analyze a death case, you analyze from the perspective of preventability and there are several contributing factors and situations* (MDH1).

The history of the gestation and child care is included in the context of the death According to the representatives' discourse, the biological, socioeconomic and family factors and factors related to the resolution of health services interfere in this context contributing to the occurrence of deaths. *All these aspects are considered in the analysis of preventability of infant and fetal death. The context is the whole story. All the history, everything that can be recovered from the history of that gestation, childbirth and puerperium, in order to see where the problems were* (EI2).

During the discussion of the cases, this concern was expressed by the representatives by contextualizing the cause of death, seeking to associate biological issues with the socioeconomic aspects of the family and the problem-solving capability of health services.

According to the interviewees' discourse, the biological factors are analyzed through the history contained in the medical records and in the exams. Regarding the care given to the pregnant woman, information is sought through an interview conducted in the woman´s residence, from conception, considering the question of maternal self-care and the woman's opinion regarding becoming pregnant. Clinical aspects of prenatal, childbirth and puerperium are also discussed. In the care directed to the child, the conditions of the birth, new-born care and aspects of childcare are analyzed. *So, basically, prenatal care, delivery care and the initial care of the child and the pregnant woman after childbirth. The death of child at a later stage ends up involving aspects of childcare as well* (MDH3).

In order to assist the analysis process regarding the preventability of cases of infant and fetal death, two interviewees, representatives of the SMS, affirm that they base their care on ministerial protocols for prenatal care, delivery and child care to verify if the minimum necessary service was provided. *You have to know what the protocols are for prenatal care, what the protocols are for the care of the woman, the delivery, the birth, the child and the care of that child after birth, these are the principles which are used to evaluate the deaths* (MDH1).

No physical use of these protocols was observed by institutional representatives during the analysis in the meetings. The only printed material used was the No.10 International Classification of Diseases Book for the correction of the underlying cause of death on the Death Certificate.

Another factor addressed by the interviewees is related to the socioeconomic and family aspects of the pregnant woman and / or the child. The social determinants involved are analysed, such as maternal age, level of education, economic and housing situation. *Different contexts are found in the basic family unit, each family has a different economic, social situation. Because there are a lot of things that are social, we end up concluding that we could have done everything, but it's a social case that we don´t have access to* (EI1).

Factors related to the problem-solving capability of health services, such as the support of the health care network, access to low and high complexity technology assistance, the access to adequate drug treatment, institutional infrastructure conditions, the constitution and the work process of the healthcare teams, are all cited by the interviewees. *Timely access, having the medications available, the treatment, how the teams are developed, if they are properly organized, the whole service will be the apparatus for this situation* (MDH1).

During the meetings, it was observed that the analyzed factors are in line with what the interviewees reported. Therefore, it was confirmed that the most discussed points are related to the access of the pregnant woman to the health services and treatment, the medical and nursing conducts, the relationship between the healthcare team and family, the work process of the health care teams, and the socioeconomic and family factors. Documentary information establishes that, for a more comprehensive analysis of the cases of death, the difficulties of the family or the pregnant woman should still be included in the recognition of health risks or other related problems.

Situations that provoke infant and fetal death

The representatives report that the discussion on the analysis of the preventability of cases of infant and fetal death allows the identification of situations that directly or indirectly led to the death. The research into these situations allows to elucidate the weaknesses and evidence possible shortcomings in the health system and in the work process of the health care teams.

The situations that have an indirect relationship with the death are related to socioeconomic and family factors. The situations that have a direct relation are associated with the biological factors and with the problem-solving capacity of the health services. *The members discuss the aspects which they*

think are relevant to the situation, trying to highlight situations that have not been conducted in the best way or that could have been conducted differently to avoid that death (MDH3).

It was observed that the institutional representatives list the situations in an attempt to understand which and at what point of care there were shortcomings that provoked the infant and fetal death.

In the minutes of the meetings, questions regarding the Death Verification Service, such as: fetus and placenta not sent for analysis, importance of preserving the fetus in formaldehyde, situations in which the transport of the fetus or deceased child was done by the family and the need to include the evaluation of the cord, villi the and membranes in the report. Regarding the social aspects, they report that there is no family support network for pregnant women working as sex workers with chemical and/or alcohol addictions.

In relation to prenatal care, the most frequent situations recorded in the minutes are related to non-adherence to prenatal care; unplanned pregnancy; non-participation in prenatal care; insufficient number of consultations; difficult access to the health service; difficulties in requesting and evaluating exams, monitoring of fetal heart rate; treatment and screening for pre-eclampsia, gestational syphilis and urinary tract infections; poor relationship with doctors; premature birth; rupture of the placenta with loss of amniotic fluid; low birth weight; and preterm delivery at home. Concerning child care, acute or chronic fetal distress was reported with meconium release and severe cardiac disease.

DISCUSSION

As the Floripa Committee for Life is a collegiate body, it is characterized as a space with a lower hierarchy within the institution to which it is linked, however it also makes decisions for the elaboration of shared resolution strategies for the analysed cases of preventable death.[16]

The analysis process of the preventability of cases of infant and fetal death carried out by the Committee is indicated as the main attribution, as it allows to identify the situations that provoked the occurrence of these deaths, establish recommendations and to give feedback to health care institutions and professionals. Corroborating this process, a study carried out in the state of Paraná revealed that the detailed analysis of infant and fetal deaths is aimed at evaluating the quality of maternal and child care, presenting proposals for intervention measures and, above all, encouraging the competent authorities to establish prevention and control strategies.[17]

In relation to the analysis of the death, the reports of this study indicate that it is necessary to know what happened, in which period of gestation or child development it occurred in and why. The death is analyzed based on the perspective of preventability using the information regarding the pregnant woman and the child within the care network and at the three levels of health care. Several factors are considered for the analysis of the preventability of the deaths, among them, the biological, socioeconomic and family, and the problem-solving capacity of the health services through the support of the health care network, access to low and high complexity assistance, access to treatment, conditions of the institutions and the work process of the health care teams. The same occurs in the United States and China, where the national committee of these countries integrate both biological, behavioural, psychological, social and environmental factors, as well as individual factors and social determinants of health for the analysis of infant deaths.[18-19]

The social context of the family in which the pregnant woman and the child live was considered an essential factor in the analysis as the causes of preventable deaths in the municipality of Florianópolis are related to socioeconomic factors, such as the level of maternal education/schooling; and the problem-solving capacity of health services, such as the access to services, prenatal care, and care directed to children.

Considering the shortcomings experienced by the mother-child binomial and the social vulnerability to which they may be subjected to, a study that analysed social determinants of health showed that the needs in these populations can be further aggravated by the difficulty of accessing services, treatments and quality health care technology.[20] There is evidence of a relationship between the access to health care services and socioeconomic conditions, in which municipalities with fewer areas of poverty, tend to have better access to services, however, within a reality of inequalities and social inequities, there are other limitations that compromise the reach of health care.[21]

The interference of social risk factors as determinants of infant and fetal mortality, also explored in several Brazilian studies,[1,7,9,11-12,22-23] is similar to the results found by the Floripa for Life Committee. These studies indicate that more than

half of the deaths occurred in the neonatal period and were associated with mothers under 20 years of age; maternal schooling less than seven years; family income of between R$954 and R$1,908 or less; mothers who were cared for in public hospitals; difficulty in starting prenatal care; less than six medical consultations, among others related to the time of referral and attendance. It was also evidenced in a literature review which analyzed national articles and related infant mortality to prenatal care, that this relationship was due to the insufficient number of prenatal consultations or the quality of care provided to women and children.[8]

In addition to the number of completed consultations, other aspects must be considered in order to reduce deaths, such as including the early initiation of prenatal follow-up, routine examinations, detection and treatment of maternal diseases, as well as guidelines on the effects of alcohol and smoking and other care provided to the mother.[1] However, the relationship between mortality and prenatal care is not restricted to the number of consultations. It also depends on the quality of the care provided, as adequate prenatal follow-up care allows early identification and prevention of possible harm to the fetus, newborn and pregnant women. Thus, in order to associate prenatal care with the reduction of deaths, access to services and examinations is not enough, trained professionals with clinical knowledge are needed to direct interventions in adverse situations.[3]

Based on the results of this study, it can be said that the lack of support from the other public sectors needs to be overcome. A strong inter-sectoral articulation will strengthen the proposition of more consistent actions to reduce the number of deaths. It is necessary to broaden the focus, focusing on the child's health in its expanded concept, integrating the public sectors and overcoming the fragmentation of actions.

This study is limited by the scarce literature produced on the analysis process of cases of infant and fetal death, making comparisons difficult. It is also restricted to a single context, which limits the generalization of its results. However, case studies do not use generalization of results as a methodological premise, but rather a generalization based on theoretical propositions, with the intention of expanding and generalizing theories.

Further studies are recommended in the area of infant and fetal mortality as well as new investigations that specifically focus on the analysis process of death preventability.

CONCLUSION

This single case study with two IUAs showed that the Floripa for Life Committee analyses the preventability of cases of infant and fetal death based on several factors and/or contexts that directly or indirectly interfere with mortality rates.

It should be emphasized that the analysis of the preventability of infant and fetal death is essential for understanding the situations that lead to the occurrence of the deaths, allowing the integration of the social, economic and biological contexts of families.

In this context, it is expected that the results of this study contribute to local management, which can foster inter-institutional coordination in this municipality and others, as well as other management bodies of the public health system.

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Correspondence: Andriela Backes Ruoff
Rua João Marçal, 69
88036-620 - Florianópolis, SC, Brasil.
E-mail: andriback@gmail.com

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