

Direct costs of delivery with related obstetrical nursing practice in Birth Center

Custos diretos do parto envolvidos com a prática obstétrica de enfermagem em Casa de Parto
Costos directos del parto involucrados con la práctica obstétrica de enfermería en Centros de Parto

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ABSTRACT

Objective: Describe the direct costs of labor/childbirth related to nurse care in the obstetric practice of Birth Center. **Methods:** Type of Study: Economic Evaluation in Health with the perspective of the *Sistema Único de Saúde* as a managing organization. There were 161 medical records evaluated of women who had prenatal care in 2010, excluding from those, the ones who did not give birth in the Unit. **Results:** In the analysis, it was described and measured the resources related to the direct costs with delivery care. According to the results, the direct costs of labor/birth are 352.50 reais, each pregnant woman. The human resources computed the greatest costs. **Conclusion:** The Birth Center presented lower costs if compared to the amount designated to birth by the municipal budget.

Keywords: Health Expenditures; Humanizing Delivery; Women's Health; Obstetric Nursing.

RESUMO

Objetivo: Descrever os custos diretos do trabalho de parto e parto envolvidos com a prática obstétrica de cuidado de enfermagem em Casa de Parto. **Métodos:** Tipo de Estudo: Avaliação econômica em saúde com a perspectiva do Sistema Único de Saúde como órgão gestor. Foram avaliados 161 prontuários das gestantes que realizaram o pré-natal no ano de 2010, excluindo-se desses, as que não pariram na unidade. **Resultados:** Na análise, foram descritos e valorados os recursos envolvidos nos custos diretos da assistência ao parto. Segundo os resultados, os custos diretos do trabalho de parto/parto foram de R\$ 352,50 por gestante. Os recursos humanos computaram os maiores custos. **Conclusão:** A Casa de Parto apresentou menor custo se comparada ao valor destinado ao parto de baixo risco pelo orçamento municipal.

Palavras-chave: Gastos em Saúde; Parto humanizado; Saúde da Mulher; Enfermagem obstétrica.

RESUMEN

Objetivo: Describir los costos directos del trabajo de parto y el parto relacionados con la práctica obstétrica de cuidados de enfermería en un Centro de Partos. **Métodos:** Tipo de Estudio: Evaluación Económica en Salud desde la perspectiva del Sistema Único de Salud como organización gestora. Fueron evaluadas 161 fichas médicas de gestantes que realizaron el prenatal en el año 2010, excluyéndose las que no dieron a la luz en la unidad. **Resultados:** En el análisis fueron detallados y contabilizados los recursos relacionados a los costos directos de asistencia al parto. Según los resultados, los costos directos del trabajo de parto fueron de R\$ 352,50 por gestante. Los recursos humanos resultaron en los mayores costos. **Conclusión:** El Centro de Parto presentó menores costos cuando comparado al valor destinado al parto de bajo riesgo por el presupuesto municipal.

Palabras-clave: Gastos en Salud; Parto humanizado; Salud de la Mujer; Enfermería obstétrica.

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INTRODUCTION

Maternal deaths in Brazil fell from 120 to 56 for every 100,000 births between 1990 and 2010¹. However, this mortality related to pregnancy is serious because in 92% of the cases they are evitable.

In the Brazilian obstetric care model, that is technocratic, in 2010, 98.7% of all births took place in a hospital. Of these, a large part was through cesarean sections that obtained a rate of 52.34%². This high prevalence of cesarean sections leads to a series of losses. For the baby, a higher risk of respiratory problems, for the mother, more chance of hemorrhages and infections and for the Single Health System (SUS), higher costs.

Considering the cost of labor, the WHO estimated the world cost of excess cesareans at 2.32 billion dollars. By contrast, the costs for providing cesarean sections in countries where there is no access, the government spends only 432 million. In this light, the estimated "excess" of cesarean sections may have negative implications to the equality of countries³.

In an attempt to reverse this situation, since the 1990s, governmental measures stimulate normal delivery. In 1998, the Ministry of Health (MOH) has reduced the payment of cesarean sections in order to discourage its unnecessary use, published rulings recognizing the insertion of obstetric nurses in birth care and birth and regulated the creation of Childbirth Houses and Centers of Normal Deliveries throughout national territory⁴.

In these Health Units nurses perform a clinical protocol that is linked to the idea of promoting the secure and humanized physiological delivery through non-invasive care technologies of obstetrical nursing. These technologies were defined as a set of techniques, procedures and knowledge to be used by the nurse during her professional care relationship⁵.

Even with scientific evidence pointing to a favorable outcome in relation to perinatal morbidity and mortality, for the medical corporation, defender of the technocratic field model in obstetrics, the nurses' actions in these Health Units are a fad that poses a risk to mother and child. In addition to that, many managers at service of the medical-industrial complex, due to the lack of scientific evidence in the economy in health-focused Centers of Normal Delivery, plead not to create these Health Units claiming they are too expensive for the public budget.

Such opposition hindered the advance of Houses of Delivery in our country and therewith the implementation of the policy of humanization of labor and birth. In addition, the health care system is facing a process of unbridled incorporation of technologies, making it difficult to sustain. For this reason, for incorporation or continuity of technologies, the report of the National Commission for Incorporation of Technologies of SUS, has to take the scientific evidence on the effectiveness, accuracy, effectiveness and safety of the medicinal product, product or procedure into account; as well as the economic assessment of comparative benefits and costs in relation to the already incorporated technologies and the impact of the incorporation of technology within SUS⁶.

In this sense, we believe that evaluation of direct costs involved in the practice of obstetric nursing during care for the parturient in Home Delivery, can strengthen the arguments of the proponents of the humanized model of delivery care and Houses of Delivery. The information contained in this study can serve as a tool for decision-making with health managers and support them in the organization of care in pregnancy and post-birth and the deployment and maintenance of Houses of Childbirth in Brazil.

In view of the foregoing, the objective of this study is to describe the direct costs of labor involved with in the practice of obstetric nursing care with Home Delivery Centre David Capistrano Son in Rio de Janeiro.

METHODOLOGY

This is a partial study of Economic Evaluation in Health Care. It is a quantitative, exploratory, documentary and descriptive research of costs directly related to the technologies involved in the care of obstetrical nursing, performed in the year 2012, in the House of Delivery David Capistrano Son, situated in the Realengo neighborhood, program area 5.1, of the municipality of Rio de Janeiro.

It should be observed that economic analyzes are considered partial when there is no comparison between technologies, i.e. only one technology is evaluated by quantifying its costs and/or its consequences and that the costs correspond to the accumulation and the value of inputs used in the production of a good or service. For estimation of costs the primary method of data collection, where the data are obtained at first hand, was used - and in a retrospective approach, referring to a time past, the study used analysis of documents of the institution⁷.

The perspective adopted in the study was the Single Health System (SUS) as component service provider, and therefore, tall inputs used by the nursing staff in their practice of care based on the Methodological Guidelines: Economic Assessment Studies of Technologies in Health to the Ministry of Health were identified and quantified⁷.

Items of cost of nursing care in the pre-natal, labor/delivery and postpartum period were defined before starting the data collection process through the analysis of the protocol of the House of Delivery. However, in this article we will only discuss the cost item for nursing care to labor/delivery.

The documents analyzed were 161 records of pregnant women who carried out the pre-natal in the House of Delivery between the months of January to December 2010, and that had the delivery in this institution. They were excluded from the medical records of pregnant women who received prenatal care, but not calved in home delivery in question.

Data Collection

After the authorization to have access to medical records, the following procedures were carried out methodological:

identification of the sub-items of cost and cataloging the cost units; quantification and valuation of units of cost. It should be noted that the identification of the sub-items, the cataloging and quantification of cost units were obtained through the medical records and consultation with experts. The valuation of the units of cost was obtained through the Database of Prices in Health (BPS) of the Ministry of Health, by the DATASUS Database - Management System Table of Procedures, Medicines and prostheses and Materials of SUS (SIGTAP) and Table for the Remuneration of Public Servants from the Municipal Department of Health and Civil Defense of Rio de Janeiro (SMMS stations/DC-RJ).

The consultation of specialists should be used only when the alternatives for obtaining the relevant data are not available, or to ensure the quality of the data available⁷. The same happened in three meetings with principals and nurses who were on duty at the time of data collection, through a panel of consultations with specialists, containing seven items of open-ended questions: (a) describe the inputs used in pre-natal care in the House of Delivery; (b) describe the inputs of assistance during labor and delivery in the House of Delivery; (c) describe the inputs used in the assistance to the laceration; (d) describe the inputs used in the assistance to episiotomy; (e) describe the inputs used in the assistance to the newly born in the House of Delivery; (f) describe the inputs postpartum used to assist in the birth department in Home Delivery; (g) which the quantitative and the workload of employees working in the House of Delivery?

The calculation of the total cost and the confidence interval

The total valuation of direct costs per sub-item of cost was calculated using the unit cost (CU), based on a database of BPS, SIGTAP and SMSDC/RJ, each cost unit (UC) - for example: syringe, needle, sleeve, etc., - multiplied by the total of cost units used by pregnant women. Subsequently, we summed the values, in this way finding the value of each sub-item of cost involved in care during labor and delivery of the 161 records that were assessed.

The average cost per patient was calculated in accordance with the overall value of each sub-item of cost divided by 161 pregnant women. For better understanding of calculations we present this formula: $(CU1 \times UC1 + CU2 \times UC2 + \dots) / 161 = \text{sub-item of cost} / 161 = \text{average cost per pregnant woman}$.

It is worth saying that the estimated value of costs was not exactly the same as the true, therefore, after the valuation of the sub-items of cost, the confidence interval (CI) of same was calculated to indicate the reliability of the estimate of cost. A search that results in a small CI is more reliable than one that will lead to a larger one⁸. For the calculation of the CI we find the deviation/standard error (σ / \sqrt{n}), the media (\bar{x}) of the total value of the units of cost of each sub-item of cost and apply the formula of IC for 95%, where the index for this interval is 1.96 ($\bar{x} \pm 1.96 \times \sigma / \sqrt{n}$).

To obtain the value per hour worked in nursing (nurses and technical), configured the calculation of the average value of salary

disclosed in the Table for the Remuneration of Public Servants from the Municipal Department of Health and Civil Defense of Rio de Janeiro (SMMS stations/DC-RJ). Subsequently, these salaries were divided by the total of the monthly hour load of servants, that is, 120 hours per month; that is 30 hours per week. The valuation of nursing human resources was obtained by multiplying the total duration of labor /delivery by value of hour worked of nurses and nursing techniques.

Subsequent to these data, there was a Budgetary Impact in relation to the value of the overall cost of labor with the value of labor budgeted by the Municipality of Rio de Janeiro. This increased the general direct costs found in our search for the total number of births that occurred in the municipality of Rio de Janeiro in 2010. The same calculation was done with the values budgeted by the municipality to later subtract the two values and reach the cost increment.

It should be noted that this study was submitted to the Research Ethics Committee of SMS/DC-RJ, and approved the Protocol 02/12 on June 29.

RESULTS

The results of this study will be described in two categories that are related to cost units of practice of nursing care during labor and delivery. The first category describes the quantification and valuation per unit cost and the second presents the valuation of total direct costs.

Cost units in the practice of nursing care during labor and delivery: quantification and valuation per unit

It was evident that in the practice of care for 161 women the following resources were used: 39 Syringes 5ml (0.10 cents per unit); 38 Needles 40 x 12 (0.06 cents per unit); 29 units of 5ml of ethyl alcohol hydrated 70% (0.01 cent/5ml); 161 packets of compressa (0.24 cents per unit); 1,013 procedure gloves (0.12 cents per unit); 108 sterile gloves of 7.5 (0.56 cents per unit); 42 sterile gloves 8.0 (0.58 cents per unit); 39 injecting sterile serum 20cm (2.97 real unit); 39 intravenous catheters number 20 sterile (0.97 cents per unit); 39 cottons 1g (0.01 cent unit); 39 adhesive plasters 20cm (0.17 cents per unit); 39 equipos polifix (0.91 cents per unit); 1 catheter number 19 Soft PVC sterile (0.31 cents per unit); 12 units of 5ml of povidone-iodine aqueous solution topical use (0.06 cents per unit); 659 units of 5g of gel to sonar (0.04 cents per unit).

The following drugs: 39 ampoules of oxytocin 5 IU (0.48 cents per unit); 13 vials of serum lactate ringer - 500 ml (1.34 real unit); 27 bottles of dextrose 5% 500 ml (1.20 real unit). Concerning human resources: 1,427.84 working hours for two nurses (29.35 real time) and 714.38 for 1 nursing technician (18.76 real time).

Cincing possible occurrence of delivery are the laceration and the episiotomy. The units of cost related to laceration were: 120 needles 40 x 12 (0.06 cents per unit), 120 needles 30 x 8 (0.03 cents per unit), 120 syringes of 20 ml (0.22 cents

per unit), 122 obstetric kits suture wires (5.71 real unit), 118 injectable lidocaine 2% 20 ml (0.59 cents per unit), 120 aqueous solution of povidone-iodine topical use 10 ml (0.06 cents per unit), 178 compresses of sterile gauze (0.03 cents per unit), 83 packages of sterile glove number 7.5 (0.56 cents per unit), 36 sterile gloves number 8 (0.58 cents per unit). Costs related to episiotomy: 1 needle 40 x 12 (0.06 cents per unit), 1 needle 30 x 8 (0.03 cents per unit), 1 20 ml syringe (0.22 cents per unit), 2 obstetric kits suture wires (5.71 real unit), 1 lidocaine injectable 2% 20ml (0.59 cents per unit), 1 aqueous solution of povidone-iodine topical use 10 ml (0.06 cents per unit), 1 packs of sterile gauze (0.03 cents per unit), 1 sterile glove number 8 (0.58 cents per unit).

Cost units in the practice of nursing care during labor and delivery: valuation of total direct costs

According to table 1, among the direct costs included are the material resources that was sub-item of costs that totaled R\$ 478.00, this value being 0.84% of the total direct costs of delivery. The average cost per pregnant woman was R\$ 2.96, with a 95% CI between R\$ 2.63 and 3.29.

Table 1. Distribution of costs related to assisting the labor and delivery of low risk. Rio de Janeiro, Jan-Dec, 2012

A. Material Resources ²	Overall Total R\$ ¹
Grand Total	478.00
Total per pregnant woman (media)	2.96/IC95% ⁴ = 2.63-3.29
B. Drugs ²	Overall Total R\$ ¹
Grand Total	68.53
Total per pregnant woman	0.43/IC95% ⁴ = 0.25-0.61
C. Human Resources ³	Overall Total R\$ ¹
Grand Total	55,308.37
Total per pregnant woman (media)	343.53/IC95% ⁴ = 340.97-346.09
D. Laceration	Overall Total R\$ ¹
Grand Total	884.78
Total per pregnant woman (media)	5.49/IC95% ⁴ = 4.98-6.00
E. Episiotomy	Overall Total R\$ ¹
Grand Total	13.00
Total per pregnant woman (media)	0.08/Only one occurrence
Total cost of labor and childbirth	R\$ 56,753.11
Total cost of labor and childbirth Per pregnant woman (media)	R\$ 352.50/IC95% ⁴ = 4.04 348.46-356.54

¹ Total costs generated by 161 pregnant women; ² database of BPS; ³ Data based on table of remuneration of SMSDC/RJ; ⁴ Confidence interval.

The cost of drugs accounted for 0.12% (R\$ 68.53) of the total direct cost of labor and childbirth. The average direct cost was R\$ 0.43 per pregnant woman, with the 95% CI between R\$ 0.25 and 0.61.

Human resources constituted the largest direct costs, that is, 97.45% (R\$ 55,308.37) of the total, with an average of R\$ 343.53 per pregnant woman and 95% CI between R\$ 340.97 and 346.09.

For sub-item possible occurrences of childbirth, the lacerations were computed 1.50% (R\$ 884.78) the overall cost of labor and childbirth, the average cost per pregnant woman being R\$ 5.49 and 95% CI between R\$ 4.98 and 6.00 and the episiotomy represented the inexpressive percentage of 0.02% of the costs (only one event).

The analysis of 161 medical records showed also a direct cost of labor and childbirth of R\$ 56,753.11 and the average cost of R\$ 352.50 per pregnant woman with 95% CI between R\$ 348.46 and 356.54.

Among the material resources, the most widely used was the sleeve procedure. In average (total 1,013 gloves) used for puncture of venous access, to the touch, and during the expulsion period. The least used was the CVP catheter: only once during the need for emptying the bladder.

The cost of drugs accounted for 0.12% of the overall cost of delivery. It is worth mentioning that 76% of women did not use any type of medication for the delivery, therefore did not account for costs. Among the drugs, the most used was oxytocin ampoule 5IU (39 ampoules), which represented 28% of the costs related to drugs, because it has a unit less value than the others. These figures reflect the importance of care practice employed in the House, based on active management of labor, where the woman assumes the central role at the time of delivery.

During the childbirth assistance of 161 pregnant women, 121 pregnant women (75% of the total of pregnant women) presented laceration, and only two were third degree and an episiotomy was performed in only one case of fetal bradycardia intrauterine, which means that the perineum remained intact in 40 women.

These events reflect significantly on the cost of service in the House of Labor, because the costs related to the laceration of first and second degree were R\$ 7.30 per pregnant woman whereas the costs related to lacerations of third degree and episiotomy were R\$ 13.00.

DISCUSSION

The external validation study is related to the comparison with studies of reference on the topic discussed here. Where cost studies on this issue are scarce, the comparison of the results obtained in previous studies was limited. Discussed below are the findings of this research with six studies found that describe costs of delivery in their results.

A survey conducted in São Paulo⁹ pointed out that the average costs of direct hospital birth relating to material resources, were R\$ 68.85 per pregnant woman. This result, in the face of

cost of R\$ 2.96 per pregnant woman, found by us with material resources, evidenced that these expenses in Home Delivery were R\$ 65.89 smaller than in hospital birth.

This same survey⁹ also showed that the largest expression of consumption remained with the procedure gloves, with 8 units per pregnant woman. Comparing this result with the results of this study, it was observed that in the House of Delivery surveyed, 2 gloves less per pregnant woman were used, which could be considered little difference before the principles of non-invasive technologies of nursing care. It is however, important to consider that the research carried out at the hospital not computed costs with material resources during labor, a fact that happened in our research and that influenced the result.

Yet, according to the research above, held in São Paulo⁹ the costs of drugs by pregnant women were R\$ 3.36, and the highest expression of consumption was oxytocin with 6 units/pregnant. Here, we found significant differences in the results obtained in our study, as in the House of Delivery average direct cost of drugs was of R\$ 0.43 per pregnant woman, being R\$ 2.93 less than hospital delivery. In both scenarios although, the oxytocin has been the drug most often used in Home Delivery, used less than 1 vial per pregnant woman, which means approximately 5 ampoules of the medicinal product less per pregnant woman, if compared to hospital consumption.

In two hospitals, one public and one private, in Belo Horizonte a cross-sectional study was conducted. In this study, we analyzed the use of drugs in the period of admission of pregnant women. Epidural anesthesia was used in 72.8% of cases and local anesthesia in 22.4%. All women received medication, the more prevalent medication during the childbirth assistance being lidocaine and subsequently oxytocin¹⁰. Corroborating with these data, a different search in the Clinics Hospital of the Federal University of Minas Gerais, showed that 82% of the direct costs with a normal delivery and cesarean section, were related to medication and medical hospital equipment¹¹.

A comparative study in the County of Washington, regarding the economic implications of the onset of labor induced and spontaneous and cesarean section, concluded that the induction of labor was more expensive than the spontaneous labor. The cesarean section was the more costly intervention at birth¹².

On the other hand, in the House of Delivery the costs of medicines and medical-surgical materials accounted for less than 1%, and 76% of pregnant women did not receive any medication during labor and delivery.

It is interesting to note at this point that a cost per procedure research carried out by the Ministry of Health into birth assistance by the family doctor in home environment, showed that the costs with material resources were R\$ 2.73 and with drugs R\$ 0.008¹³. These results in relation to our evidence that the direct costs with material resources in the House of Delivery were R\$ 0.08 to less than at home, which in turn, consumed less drugs than in the House of Delivery.

In the House of Delivery surveyed human resources were the most represented costs in assistance at birth (97.45%). In this unit

of health care, midwives perform the delivery. This result is similar to the study on the costs of hospital birth conducted in São Paulo, where the authors showed that the labor costs corresponded to 76.49% of the total cost found⁹.

This study also demonstrated that in the House of Delivery not including labor, episiotomy costs R\$ 5.70 more than lacerations of first and second degrees. If all of the 118 women (73%) who had lacerations in first and second degrees and all 40 women (25%) who had no impairment of the perineum had been undergoing episiotomy routine, we would have had an additional cost of R\$ 1,192.60 in general.

Such an economy is due to the fact that the wounds of the first degree, in most cases, do not need suturing, the second degree can be easily sutured with local anesthesia and, in general, heal without complications. The lacerations of third degree, in turn, can have consequences that are more serious and require more extensive sutures in order to avoid problems such as fistulae or fecal incontinence¹⁴.

The episiotomy are perineal trauma of intentional nature that represent more risk to the woman, because the surgical vaginal cut (vaginal muscles, tissues of vulva and vagina, vessels and nerves) causes sexually significant damage, intense pain, often infectious complications and urinary tract. Thus, the low rate of episiotomy in addition to reducing the suffering of women also implies an even major economy in the health sector such as reduction of possible complications and hospitalization time¹⁴.

Taking the general costs of labor and childbirth, in the House of Delivery into account, the analyzes of 161 medical records showed a direct cost of R\$ 56,753.11, being the average of this cost of R\$ 352.50 per pregnant woman. This result is less than the amount budgeted by the municipality of Rio de Janeiro of R\$ 443.40 and R\$ 475.16, the latter being for the child-friendly model.

The average value of R\$ 352.50 per pregnant woman evidenced in this study in comparison was lower than the one held in the State of São Paulo⁹, which accounted the direct cost of a normal birth hospital to R\$ 717.44.

The general values identified in this study were also lower facing the results evidenced in Hospitals Regional University of Maringá and Clemente Faria, where in the first, direct cost of normal delivery was of R\$ 486.50 and cesarean section was of R\$ 753.01. In the second, the cost was R\$ 535.51 in normal delivery and cesarean section represented a cost of R\$ 780.45¹⁵. We emphasize that this research did not account for the cost of the labor, which possibly would further increase the cost difference in relation to Home Delivery search.

The values found in our study indicate the use non-invasive technology of nursing care such as those that promote relaxation and pain relief in childbirth, those in favor of progression of the fetus, those which stimulate the link nurse-parturient and provide confidence and security to the parturient.

To promote relaxation, nurses of this health unit incorporate in their actions the use of water, the orientation for a proper breathing and the use of massage as features that favor the relaxation of the parturient and relief are the expense of drugs¹⁶.

To encourage free movement during labor, the parturient has freedom to, move and change the dorsal position during labor, which facilitates the fetal progression and reduces the use of exogenous ocitocinas¹⁷. It is noteworthy that these practices developed by obstetric nurses lead to perineal protection in the final gestation and the cephalic detachment and reduce the need for episiotomy routine¹⁸.

Active and sensitive listening that enhances the subjective issues inherent to being a woman, so that their actions meet the demands and needs of each parturient, contributes to strengthen the bond between nurse and parturient, increasing the security of the parturient. In this sense too, nurses value the presence of a companion, and the privacy of the women in a cozy atmosphere, transmitting security and confidence to the parturient, sensations fundamental for labor and delivery to be conducted in accordance with their physiology¹⁸.

In our study, human resources reflected the higher costs of service delivery, since care technologies are the knowledge and practices of professionals. Thus, investing in human resources can result in savings to the public purse.

Thus, by associating the direct costs of the House of Delivery to care technologies developed by obstetric nurses, we can at this time define the budget impact of these technologies that are not invasive on the budget of the Municipality of Rio de Janeiro.

In this way, projecting costs of the model adopted in the researched unit, with budget for low-risk childbirth, onto units without the Friend of the Child title and onto units with the title Friends of the Child, we arrived at an Incremental Cost for the delivery, of R\$ 1,728,909.00 and R\$ 2,330,417.34 respectively.

According to the managers, the ability to full production of the House of Delivery David Capistrano is 36 births per month; this means the ability to perform 432 deliveries per year. When we have to estimate the creation of Model Houses of Delivery required to meet the demand of the year 2010 (18,999 low-risk pregnancies in the city), it would be necessary to have 44 Houses of Delivery (18,999/432 deliveries per year). We can also measure that if these health units operated at maximum capacity of 432 births per year, each one of them would have a direct annual expenditure for labor and delivery of R\$ 152,280.00 (R\$ 352,00 x 432 deliveries per year).

In the analysis of budgetary impact, the greater the insertion of the pregnant women in assistance in Home Labor researched, the lower the cost of delivery to the Health System. Although these analyzes are subsidized by analyzes of cost-effectiveness, not performed in this research, two aspects justify the option of presenting it. First the fact of technology relating to the clinical protocol of the House of Delivery presents lower costs when compared to the municipal budget for assistance to low risk childbirth hospital. Second the incorporation of the care model of the House of Delivery by the Ministry of Health, as a strategic action to qualify and humanize care and reduce maternal and neonatal mortality.

CONCLUSION

In this study, data revealed that the direct costs of normal parturition were R\$ 352.50 per pregnant woman. In this value, the most expressive costs were those related to human resources.

The study also showed that cost units and pharmacy were the least represented costs, because 76% of the women had not used medication during labor and delivery. In relation to perineal lesions, 40% of the women had the perineum intact, therefore not accounting into costs, the more extensive lacerations and episiotomy computed less than 1% of costs.

Based on 18,999 low-risk pregnancies that occurred in the municipality of Rio de Janeiro in 2010, the research showed that if these deliveries would take place in the model of the Houses of Childbirth, they would represent an annual saving of R\$ 1,728,909.00 in comparison to units that do not have the title Friend of the Child and of R\$ 2,330,417.34 for units with the title Friends of the Child.

Thus, in accordance with these findings, the savings can be invested in other areas, because, taking up the concept of opportunity cost, the reduction of costs in a technology represents an investment opportunity for improvement and increase of the operational potential of technology and new technologies for the benefit of users.

This study presented as limitations: the difficulty of comparison with other studies that had the same methodology used for the survey of the costs, the scarcity of national studies consistent with our reality, the lack of a costing system or document measurement of material consumed linked to billing of the House of Delivery, and the lack of scalability of human resources by MS.

The continuity of this research would be a complete economic assessment, not performed at this time. However, the following are other suggestions of studies: the cost-effectiveness of the pre-birth in the House of Delivery compared to other forms of pre-natal care; the cost-effectiveness of normal birth in the House of Delivery compared to normal delivery of low risk hospital; evaluation of postpartum assistance Home Delivery compared to assistance post-hospital birth; the effects of early discharge employed in the House of Delivery on the quality of the period of child care; evaluation of the cost-effectiveness of the system of early discharge compared to the system of high late; the influence of the pre-Christmas newsletter, the workshops of educational practices, in the postnatal period; the safety of care technologies employed in the House of Delivery.

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