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Cogitare Enfermagem

FREE COMMUNICATION

COSTS OF TRAINING NURSES IN THE INSERTION, REVISION, AND REMOVAL OF INTRAUTERINE DEVICES

HIGHLIGHTS

1. Training for IUD insertion is inexpensive.
2. The provision of IUDs by nurses increases access to care.
3. Increased supply reduces maternal morbidity and mortality indicators.

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ABSTRACT

Objective: To analyze the costs of training in reproductive planning, with nurses' insertion, revision, and removal of intrauterine devices. **Method**: Case study, with data collected between May and December 2022, in Recife, Pernambuco, Brazil. The micro-costing evaluation was carried out using absorption costing. **Results**: Data from five classes in 2022 were analyzed, totaling 70 nurses, and the expenses and direct and indirect costs of offering the course were identified. The cost per class was R$17,846.89/U$3,307.79), with an average of R$1,820.38 or U$337.39/student/edition. Compared to other similar courses, it is considered a low-cost course with promising results for the quality of sexual and reproductive health care. **Conclusion**: Investing in training nurses in reproductive planning helps to reduce the indicators of maternal and child morbidity and mortality associated with unplanned pregnancies.

KEYWORDS: Intrauterine Devices; Professional Training; Nurses; Costs and Cost Analysis; Health Care Quality, Access, and Evaluation.

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INTRODUCTION

In Brazil, access to sexual and reproductive health (SRH) services is a challenge. According to the "Birth in Brazil" survey, around 55% of pregnancies are unintended, prevalent among brown and young women. Among the challenges is the few professionals trained to offer and insert Long-Acting Reversible Contraceptive Methods (LARC), such as the Intrauterine Device (IUD)[1].

Offering short courses[2] or continuing education for health professionals is necessary to meet market demands and updates. Trained professionals improve the quality of care provided[1,3-4]. The strategy adopted in several countries is to qualify nurses for SRH care, expand access to LARCs to meet unmet demands, guarantee non-reproductive desires, and reduce the morbidity, maternal, and infant mortality indicators associated with unplanned pregnancies[5-7].

Brazilian legislation recognizes the importance of nurses in offering this service, and through Technical Note No. 31/2023, the Ministry of Health recommends that IUD insertion be carried out by doctors and nurses as long as they are qualified in the field of reproductive and family planning[8]. In 2022, the Federal Nursing Council published Resolution No. 690/2022, which supports the work of nurses through training with a workload of 70 (seventy) hours, with 20 (twenty) supervised insertions during the nursing consultation[9]. These criteria are included to calculate the cost of offering the course and the financial viability for health managers.

Among small businesses, it is common to base the product price solely on the market price without knowing the target cost of the services and, therefore, without adequate valuation[10-11]. This situation can make it difficult to maintain training on an ongoing and sustainable basis[10]. Few studies and scientific publications bring the applicability of funding health training courses into the practical context.

Therefore, it is essential to know all the costs so that real value can be assigned, fair pricing can be achieved, and the service provider can maintain accounting balance and financial health. Thus, this study aims to analyze the costs of training nurses in reproductive planning care, including IUD insertion, revision, and removal practices.

METHOD

A case study using a quantitative absorption costing methodology, using data on providing training courses for nurses in reproductive planning.

The analysis used was micro-costing. The perspective was the service provider. The absorption costing method is the most widely used in Brazil and consists of allocating all costs incurred in production (direct or indirect, fixed or variable)[12-13] to the goods or services produced.

The training data was collected during the monitoring of Classes one to five, held between May and December 2022. Each class completed a total workload of around 70 hours, including theoretical lessons, realistic simulation, outpatient practice, and postpartum insertions. The lectures, simulations, and practical classes were conducted by two obstetric nurses with master's degrees qualified to insert, revise, withdraw, and multiply the course. The theoretical and practical training took place in two public hospitals. One was from the State network, and the other was from the City of Recife, with agreements signed to train nurses.

The facilitators' qualifications were considered when paying the hourly rate during the course. Through an agreement with the SUS, educational and care practices were conducted in two health units affiliated with the Recife Municipal and Pernambuco State health networks. Therefore, the total hours of theoretical and practical lessons supervised by each person in charge were considered when calculating salaries.

The accounting department calculated the average cost of a complete training course. It analyzed the following aspects: payment of instructors, investment in permanent materials for education and assistance, annualization of equipment, medical and hospital materials, teaching materials, location, and organizational structure for maintaining the course.

Appendix A shows the costs of planning and executing the course and details the workload distribution of the trained nurses. The values were calculated using the Brazilian monetary unit, reais, and then converted into US dollars using the following conversion rate: 1 Real/BRL = 0.1976558/1 US Dollar/USD = 5.0593 Real/BRL. The conversion of monetary values to US currency was carried out to simplify the comparative analysis of the costs of courses offered in Brazil and international study publications.

Descriptive data analysis showed each class's absolute values and relative distributions of expenses and direct and indirect costs. After calculating the total cost, the average individual cost of the training course was obtained. The data was processed using Excel and Word version 2010.

RESULTS

During the study period, the average number of participants per course edition was 14, with a minimum of 10 and a maximum of 18 students, totaling 70 nurses. The average number of IUD insertions per class was 280, with a minimum of 200 insertions and a maximum of 360 devices inserted. The total estimate of insertions was around 1,400 IUDs by class five.

The supervised practices occurred in six meetings between students, instructors, and volunteers. The practice sites were the reproductive planning outpatient clinic (6-hour shifts for each pair of nurses, with 20 volunteers) for insertion and revision consultations and, in the hospital environment, for IUD insertion in the immediate postpartum period (8-hour shifts, approaching parturients during labor or up to 48 hours postpartum). Each nurse was trained when they achieved a minimum of 20 supervised insertions in outpatient and postpartum practices. Participation in healthcare blitzes was optional.

Table 1 shows the distribution of expenses and indirect and direct course costs for each class. According to the breakdown of costs, most are expenses, with staff payments accounting for 67.55%. Direct costs for assistance (reproductive planning assistance in an outpatient setting and, in the postpartum period, the purchase of medical and hospital materials, instruments for practices, and simulators) accounted for 23.59% of costs.

Indirect costs, represented by how the course is publicized and structured behind the scenes, accounted for the smallest share of expenses (8.86%). Social media costs correspond to the monthly amount invested in media and promotion. On the other hand, the costs of the virtual platform, on which the recorded lessons were deposited, the virtual office, and accounting advice are annual costs, diluted over the duration of the training for the five classes. Office supplies, copies, printouts of educational materials, and snacks were all costs incurred for each edition.

Table 1 - Distribution of total costs per course edition. Recife, PE, Brazil, 2022.

EXPENSES	ADMINISTRATIVE DEPARTMENTS	VALUES IN R$ and BY CLASS	% OF SPENDING
GENERAL MANAGEMENT		2,700.00	15.13
FINANCIAL MANAGEMENT		900.00	5.04
INSTRUCTOR 1		4,500.00	25.21
INSTRUCTOR 2		4,500.00	25.21
DIEMS AND TICKETS		200.00	1.12
SUBTOTAL		**12,800.00**	**71.72**
INDIRECT COST	**AUXILIARY DEPARTMENTS**	**BY CLASS**	**% OF SPENDING**
COMPUTER SCIENCE - SOCIAL MEDIA		2.24	2.24
COMPUTER PLATFORM RECORDED LESSONS		200.00	1.12
IT - VIRTUAL OFFICE		100.00	0.56
CLASSROOM RENTAL		480.00	2.69
ACCOUNTING ADVICE		200.00	1.12
OFFICE SUPPLIES - COPIES AND PRINTING OF EDUCATIONAL MATERIALS		100.00	0.56
AUXILIARY MATERIALS - SNACKS		200.00	1.12
SUBTOTAL		**1,680.00**	**9.41**
DIRECT COST	**FINAL DEPARTMENT**	**BY CLASS**	**% OF SPENDING**
REPRODUCTIVE PLANNING		480.00	2.69
BIRTH ROOM		480.00	2.69
MEDICAL AND HOSPITAL SUPPLIES		2,306.00	12.92
PURCHASE OF SURGICAL INSTRUMENTS*		0.282051	0.001
PURCHASE OF PELVIS FOR REALISTIC SIMULATION*		0.607472	0.003
LABORATORY MATERIAL - PREGNANCY TESTS		100.00	0.56
SUBTOTAL		**3,366.89**	**18.86**
TOTAL		**17,846.89 / U$ 3,307.79****	**100**

*Cost updated by the annualization value. Calculation in Table 2.
**Quotation date used: 30/01/2022. 1 Real/BRL = 0.1866577 US Dollar/USD / US Dollar/USD= 5.3574 Real/BRL
Source: The authors (2022).

The cost of hospital medical materials, which took into account the types and quantities of materials used per insertion, researched in the Health Price Bank (BPS), was R$115.30. For every 20 insertions, which represents the minimum quantity required for each nurse, it is R$2,306.00 or U$455.79.

The costs of pelvis models and surgical instruments had the purchase value (pelvises - R$2,178.00)/(instruments - R$4,690.90), updated by the annual value of the item, considering the annualization factor, in which the useful life of permanent materials was taken into account, and the discount rate adopted by economic evaluation studies in Brazil1[2-13]. The equation gave the value of the apportionment: Calculating the annual cost = current value of the item/annualization factor (Table 2). The apportionment is necessary because this equipment lasts more than a year and can be reused in each class.

Table 2 - Calculation of the current value of the item, considering the annualization factor. Recife, PE, Brazil, 2022.

Capital costs	Discount rate	Useful life	Annualization factor*	Current value	Current value of the item by the annualization factor
Pelvic Purchase	5%	Ten years	7,722	2,178.00	0.282051
Permanent surgical instruments	5%	Ten years	7,722	4,690.90	0.607472

*Source: Terris-Prestholt, Santos, Sweeney, Kumaranayake (2011)[14].

DISCUSSION

Nurses trained in the guidelines recommended by the Federal Nursing Council[9] can perform the procedure of inserting, revising, and removing intrauterine devices safely, efficiently, and with a good rate of acceptance of the method among users due to counseling before insertion through health education and clarification of doubts before the procedure and supervised practices[6,15-17], thus contributing to an increase in contraceptive needs met and a reduction in unintended pregnancies in the region[18].

The literature contains case reports[15-16] on the experience of training nurses in IUD insertion and even clinical trials on the effects on professional practices and the supply of LARC methods[17-18], but without analyzing the cost of carrying them out. Studies identified on cost evaluation are predominantly on undergraduate or postgraduate courses. There are few articles on the cost of training courses in the health sector.

Costing analysis studies, similar to the one in question, also used the absorption costing methodology, examining the costs of the courses offered, physical space, publicity, per diems, tickets, and fuel, the production and reproduction of teaching materials, consumables, and services by course year[19-21].

During the production process of preparing and offering courses, the cost survey was also used in an observational study in Melbourne, Australia, which evaluated the costs and cost-benefits of training doctors to work in hospital emergencies. Start-up costs were calculated: recruitment and start-up US$3,111, education US$1,257, administration US$866, and clinical change costs US$1,137 (overall cost US$6,317 per competency-trained doctor)[22].

In addition, the costs of training pediatric oncology nurses by competencies were evaluated. The analysis showed that the cost per trained nurse was $3,700, $4,350, and $5,500. The first effectiveness indicators show that retention rates are high, the institutions of origin are satisfied, and the trained nurses have shared their knowledge and improved care[23].

Given the average value of R$1,820.38 or U$337.39/student/edition found in this case report, it can be seen that, given the content's importance from a public health point of view and its positive impact on the quality of care and the quality of life of the population, it is essential to qualify more nurses to offer it.

Training professionals is a cost-effective strategy and reduces care costs and complications, as observed in a study that evaluated the reduction of neonatal mortality with low-cost educational interventions among nurses (Essential New Born Care) in Zambia[24].

It is essential, however, that public bodies consider this demand for nursing training and qualification with an interest in enabling the development of competencies among professionals in healthcare networks and thus meeting the unmet demands of the population.

Increasing the proportion of demand satisfied by contraceptive methods will help prevent unwanted pregnancies, reducing the risks of maternal morbidity and mortality (Sustainable Development Goal indicator - SDG 3.1.1) and under-five mortality (SDG 3.2.1)[25-26].

Likewise, increasing the use of contraceptives reduces the risk of pregnancy at a young age, which can facilitate women's educational success (SDG 4.3.1) and contribute to reducing the number of women and children living in poverty (SDG 1.2.1), enabling social and economic development in the region[25-26].

This study has limitations. Absorption costing includes fixed costs that do not change with the production volume. In the short term, with only a few training classes, this calculation can give the false impression of a much higher cost than would be observed if the production volume were increased (more training classes). Variable or activity-based costing could provide a more accurate view of costs by focusing on costs directly attributable to additional production in a second stage of cost data analysis.

Another limitation of this study is the small comparative capacity with other studies of similar objects of investigation involving the cost of training courses, which made it impossible to carry out a comparative benchmarking analysis with different periods. Due to gaps in the literature on the subject, it was impossible to carry out this comparative analysis. With benchmarking, it would be possible to identify areas for improvement, adopt best practices, and achieve superior course performance with the associated costs.

CONCLUSION

The cost of reproductive planning training for nurses averages R$1,820.38, or U$337.39, per student, to meet the minimum legal requirements for the professional to be considered qualified. The findings of this study provide useful information for decision-making by local health managers in terms of forecasting financial resources to make this type viable, providing adequate planning and feasibility for maintaining the offer on a long-term basis in the health care network.

It is important to discuss strategies for offering training to professionals seeking to improve their practices, diversify care, provide autonomy and safety, and meet the population's needs.

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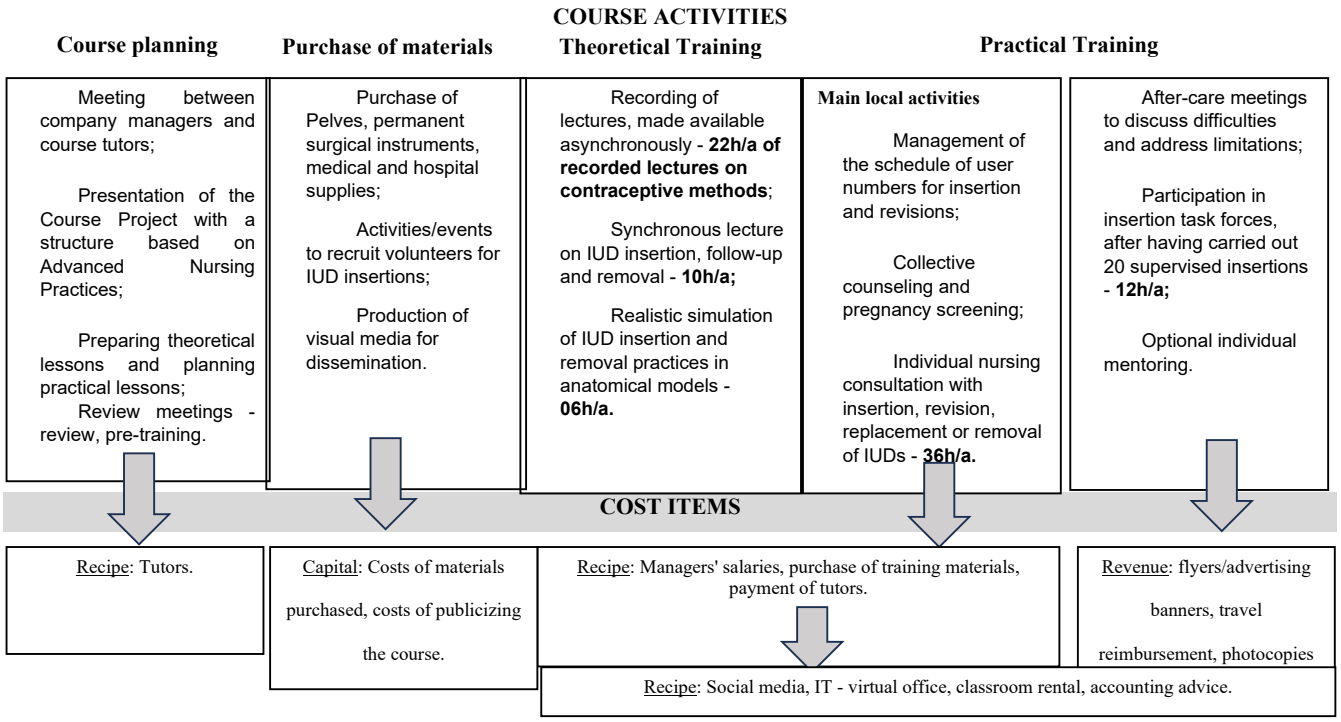
APPENDIX 1

APPENDIX 1 - Planning and execution costs of the Reproductive Planning Training Course for Nurses.



Capital costs: one-off investments.
Revenue costs: costs that tend to fluctuate in terms of the amount of project activity that will be carried out, such as salaries.
Costs in kind: those inputs necessary for a project's success but for which the public purse will not have to pay, such as volunteer activities.

Source: Adapted from Scott et al. (2023)[27]

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Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work - **Nogueira J da S, Oliveira EC da S, Bezerra AFB**. Drafting the work or revising it critically for important intellectual content - **Nogueira J da S, Souza KRF de, Lins EF da S, Oliveira EC da S, Lima ELNM, Bezerra AFB.** Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved - **Nogueira J da S.** All authors approved the final version of the text.

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