

# Implantation Process of Medicine Suppliers Qualification Used in a Domiciliary Assistance Service

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**Abstract**— The Hospital Pharmacy, is subjectively known as a "clinical care, technical and administrative unit, in which the activities performed are directed to pharmaceutical assistance, by constituting the organizational structure of the hospital and functionally integrated with the other administrative units and patient care," by having as responsible the pharmacist. The present study is about a descriptive research, using quantitative methods, in which the drugs suppliers of the Pharmaceutical Supply Center (PSC) of a Home Care in the city of Vitória da Conquista were evaluated in the period from February to April of 2019. The research field is an establishment classified as Home Care, that is a care service with patients in home care and urgency and emergency removals, specialized in the care from low to high complexity, with a spread of municipal care, regional and in some cities of the south, southwest and west of Bahia. It was identified in our results that a large number of drug suppliers had their own delivery, delivered the drug by the deadline, maintained the integrity of the drug, and all the ones had the lot equal to the electronic invoice (NFE). However, some suppliers did not have the vehicle suitability for transporting the medicines, the validity of the drug supplied was less than 12 months. It is perceived the importance of the pharmaceutical professional, both in storage as well as in transportation so that everything is done within the established standards by the health agencies. The handling of the medicines so that be prevented all kind of adverse events, be it contamination, expiration date, fake lots, damaged boxes must be taken into consideration all the aspects of safety.

**Keywords**— Pharmacy, Expiration Date of Medication, Medication Contamination.

## I. INTRODUCTION

The Hospital Pharmacy, is subjectively known as a "clinical care, technical and administrative unit, in which activities are conducted for pharmaceutical assistance, by constituting the organizational structure of the hospital and functionally integrated with other administrative units and patient care," having as responsible the pharmacist (1-3).

Encountered the usual need for financial means and seen by most of health organizations, it is important that the same ones can make that suppliers not only present to them profitable and advantageous conditions, but also the warranty of being able to count on an agile and vertiginous service, reliable and of quality, besides a wide range in the line of products and hospital drugs (4, 5). The increase in spending on medicine purchases in the last years has increased in a frightening way, as a result of different conditions, in which, among them, there is the growth of the search for health care subsequent to the aging of the people, the chronicity of different disorders, consumption of new therapeutic possibilities of high cost and application of therapeutic resources more and more implemented (2,6, 7)

The third age stage hinders so much the processes of absorption, distribution, metabolism and excretion of the drugs and leading to changes in the pharmacotherapeutic treatment, however one of the factors that hinder is the pharmaceutical form and the administration routes. A series of events may occur

during the phases of absorption, distribution, metabolism, and excretion of the drug (ADME), that may lead to an increase or decrease of concentration of the same one, and for potentially toxic or underdose effects (8-10).

In the midst of every problem analyzed so far. The understanding and importance of the pharmacist in the hospital setting is perceptible and that his / her functions are very broad. Given that the main role of the hospital pharmacist is in the improvement of the use of medicines where it is going on the intervention by identifying the problems related to medications, and thus contributing for reducing this problem (2, 11, 12).

## II. METHODOLOGY

The present study is a descriptive research, with the use of quantitative methods, in which the medications suppliers of the Pharmaceutical Supply Center (PSC) of a Home Care in the city of Vitória da Conquista were evaluated in the period from February to April of 2019. The research field is an establishment classified as Home Care, that is a care service with patients in home care and emergency and urgency removals, specialized in the care from low to high complexity, with a range of municipal care, regional and in some cities of the south, southwest and west of Bahia.

The service has a physical structure for the Pharmaceutical Supply Center, destined for the storage and stock of medicines and medical hospital materials, and a specific area for the hospital pharmacy that counts on the technical and administrative sector and an area destined to the storage of medicines and materials for dispensing to the homes of the patients of home hospitalization and treatment in the ambulance.

The transport is constituted by a logistic where the receiving medication is realized that are delivered by the suppliers and the merchandise is checked through the purchase order and the invoice of the medicines, in this process the medicines are designated to a quarantine method until the invoice entry be made in the stock via online system.

As the research field did not have an evaluation routine of suppliers, the study was conducted on the steps of supplier selection, purchase evaluation, document evaluation and evaluation of the product received. It was included since the establishment of the flux activity, definition of the evaluation of standards, preparation of the evaluation instrument (nonconformities form), data collection and evaluation of results. After the planning steps, the work team was trained in order to systematize the filling process of the nonconformities form (Figure 1).

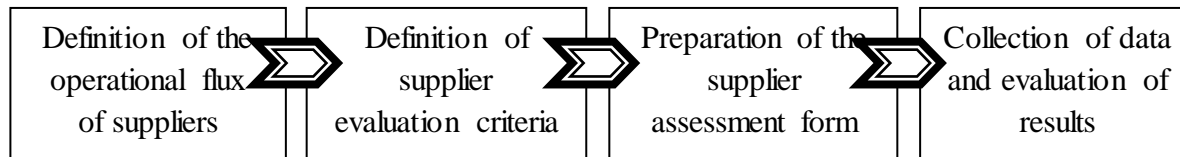


Fig.1: Stages of the methodological process of the evaluation study of drug suppliers, Vitória da Conquista (BA), Brazil, from February to April 2019.

The operation flux activities was default through agreement of the pharmacy team together with the responsible pharmacist and a pharmacy student in order to introduce on the logistic period of receiving suppliers. In such a way, that at the moment that the supplier appeared in the PSC receiving area, the conformity between the invoice and purchase order (PO) was evaluated.

Then, the invoice, the technical report and the products were evaluated, with subsequent registration of the data on the non-conformities form. Being analyzed the existence of some divergency the logistic officer was oriented to consult the pharmacist, who opted for the receiving or returning of the products according to the criticality analysis of the drugs received. Posteriorly, it was realized the storage of products and the filling of the worksheets regarding the data collected.

The nonconformities form was prepared based on ABNT and RDC norms 44/2009. It was included the following information: discrepancies in the invoices in relation to the purchase order (absence of the OC number, NRLE - National Registry of Legal Entity, delivery different from that requested in the purchase and nature of the transaction); delivery conditions and packaging integrity (temperature, identification, validity of less than a year); unidentified packaging (name of product, number of units, validity, lot); Quantity of product different from that identified (in the package and invoice) and delay on delivery of the request.

Suppliers were categorized as to their legal nature (distributors); locality (region) and category of product delivered (plain medicine, psychotropic and antimicrobial). The suppliers who performed at least one delivery in the three months evaluated were included in

the research. The data collected were computed by the Excel 2007 program of Microsoft Office, with a posteriorly simple descriptive statistical analysis.

### III. RESULTS AND DISCUSSION

It was identified in our results that a large number of drug suppliers had their own delivery, they delivered the drug on the deadline, maintained the integrity of the drug, and all the ones had the lot equal to the electronic invoice (EI). However, some suppliers did not have the suitability of the vehicle for transporting the

medicines, the validity of the supplied drug was less than 12 months. Detailed information can be observed in the description of table 1.

Medications are vital components of patient care all over the world. The World Health Organization (WHO) defines essential medicines (EMs) as products that satisfies the priority health needs of the population, that must be available on health units at all the times in appropriate quantities at an affordable price by the community (13).

Table 1.

		n	%
Delivery	Own of the Supplier	11	55
	Transporter	9	45
Suitable of the vehicle	Yes	9	45
	No	11	55
Delivery on Deadline	Yes	16	80
	No	4	20
Order EI	Yes	1	5
	No	19	95
Integrity of Medication	Yes	19	95
	No	1	5
Validity Less Than 12 Months	Yes	9	45
	No	11	55
Lote Equal the EI	Yes	20	100
	No	0	0

Source: Own Research, 2019.

EI – Electronic Invoice.

All medicines must be packaged safely and transported by safely way and secure. This should be shown if requested by a client or by any other person who has reason to verify the identity of the drug (14,15). The medicine transport is a very important point to be raised, since all the integrity of the product, durability, reliable use, is not only defined by the manufacturer, since the route that the medicine travels until reaching the final recipients are also of extremely importance for their quality (16,17).

The transport of medicines between health services is realized by companies contracted for the circulation of pharmaceuticals and other miscellaneous articles. Medicines may go along a patient from one unit to another one in an ambulance or transport authorized by the hospital or by taxi. The person who transports the medicines is responsible for their safety until they have been delivered to an authorized person and acknowledged delivery (18, 19).

Refrigerated storage for medicines that require this support is another important factor for quality,

whether it is stored in refrigerators at health centers or even on refrigerated trucks for transport, the temperature must be keeping constant so that the medicines do not have their quality compromised (20,21).

In relation to the stock of medicines its management of is vital for the pharmaceutical supply system, that involves the management of the routine pharmaceutical order process (14, 22). It helps to maintain a constant supply for the patients, thus avoiding that the stock of products and minimizing the costs of maintaining the stock. Accurate and up-to-date inventory records are crucial for proper inventory management, since they are used to calculate future needs (13, 23, 24).

### IV. FINAL CONSIDERATIONS

It is perceived the importance of the pharmaceutical professional, both in storage as well as in transportation so that everything is done within the standards established by the health agencies. The handling of medicines to prevent all the types of adverse events, be it contamination, expiration date, fake lots,

damaged boxes must be taken into account all aspects of safety.

## REFERENCES

- [1] De AHB, Karine L, Barroso V, Maria A, Costa A, Felix JA. AVALIAÇÃO DOS FORNECEDORES DE MEDICAMENTOS E MATERIAIS MÉDICO-HOSPITALARES. *Rev Bras Farmácia Hosp.* 2016;36-9.
- [2] Alves MB, Sousa JC De. Integração de Sistemas de Informação e a Cadeias de Suprimentos Farmacêuticos / Integration of Information Systems and Pharmaceutical Supply Chains. *ID line Rev Psicol.* 2019;13(44):772-86.
- [3] Nguyen JTV, Ziser KED, Penm J, Schneider CR. Impact of a pharmacy technician on clinical pharmacy services in an Australian hospital. *Int J Clin Pharm* [Internet]. 2019;(0123456789). Available from: <https://doi.org/10.1007/s11096-019-00801-x>
- [4] Souza LB DE, Souza DM DE, Souza SM DE, Silva DR, Aguilar NC. Importância Do Farmacêutico Clínico No Uso Seguro E Racional De Medicamentos No Âmbito Hospitalar. *Pensar Acadêmico.* 2018;16(1):109-24.
- [5] BOUÇAS E, MARTINS TR, FUTURO DO, CASTILHO SR DE. Acreditação no âmbito da assistência farmacêutica hospitalar: uma abordagem qualitativa de seus impactos. *Physis Rev Saúde Coletiva.* 2018;28(3):1-20.
- [6] Siqueira RMP, Andrade SMB, Cardoso LML, Cavalcante ALC. A PARTICIPAÇÃO DO FARMACÊUTICO NA IDENTIFICAÇÃO OU MONITORAMENTO DE REAÇÕES ADVERSAS A MEDICAMENTOS NO BRASIL: UMA REVISÃO INTEGRATIVA. *Rev Cult Ciência e Tecnol.* 2018;19(1):86-94.
- [7] Cameron B. The impact of pharmacy discharge planning on continuity of care. *Can J Hosp Pharm.* 1994;47(CANADA LG-English DC-19940915):101-9.
- [8] Felipe T, Xavier B. Interações Medicamentosas no Âmbito Hospitalar e a Atuação do Farmacêutico nesse Cenário. *Quando os efeitos de um fármaco são modificados devido à bibliográfica da ocorrência de interações medicamentosas potencialmente farmacêutico na reduç.* *Rev Saúde e Desenvol.* 2018;12(13):84-101.
- [9] Vermeulen LC, Moles RJ, Collins JC, Gray A, Sheikh AL, Surugue J, et al. Revision of the International Pharmaceutical Federation's Basel Statements on the future of hospital pharmacy: From Basel to Bangkok. *Am J Heal Pharm.* 2016;73(14):1077-86.
- [10] Pedersen CA, Schneider PJ, Scheckelhoff DJ. ASHP national survey of pharmacy practice in hospital settings: Prescribing and transcribing-2016. *Am J Heal Pharm.* 2017;74(17):1336-52.
- [11] Oliveira MJA de, Azevedo MLG, Larissa, Sandna Santos F dos, Ferreira SCH, Arraes MLB de M. AUTOMEDICAÇÃO E PRESCRIÇÃO FARMACÊUTICA: O CONHECIMENTO DO PERFIL DE UTILIZAÇÃO DE MEDICAMENTOS PELA POPULAÇÃO GERIÁTRICA. *Most Científica da Farmácia.* 2016;10(1).
- [12] Penm J, MacKinnon NJ, Jorgenson D, Ying J, Smith J. Need for formal specialization in pharmacy in Canada: A survey of hospital pharmacists. *Can J Hosp Pharm.* 2016;69(5):356-66.
- [13] Kefale AT, Shebo HH. Availability of essential medicines and pharmaceutical inventory management practice at health centers of Adama town, Ethiopia. *BMC Health Serv Res* [Internet]. 2019 Dec 25;19(1):254. Available from: <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-019-4087-0>
- [14] SUMERA AA, SAVERA AA, NADIR S. Importance of Storing Medicines on Required Temperature in Pharmacies and Role of Community Pharmacies in Rural Areas: Literature Review. *i-manager's J Nurs* [Internet]. 2016;6(2):32. Available from: <http://www.imanagerpublications.com/article/6045>
- [15] Fernandes O, Gorman SK, Slavik RS, Semchuk WM, Shalansky S, Bussi eres JF, et al. Development of Clinical Pharmacy Key Performance Indicators for Hospital Pharmacists Using a Modified Delphi Approach. *Ann Pharmacother.* 2015;49(6):656-69.
- [16] Fundation Trust. Medicines management policy. *NHS Found Trust.* 2018;(8).
- [17] Jelacic S, Craddick K, Nair BG, Bounthavong M, Yeung K, Kusulos D, et al. Relative costs of anesthesiologist prepared, hospital pharmacy prepared and outsourced anesthesia drugs. *J Clin Anesth* [Internet]. 2017;36:178-83. Available from: <http://dx.doi.org/10.1016/j.jclinane.2016.10.015>
- [18] Edoh T. Smart medicine transportation and medication monitoring system in EPharmacyNet. 2017 *Int Rural Elder Heal Informatics Conf IREHI* 2017. 2018;2018-Janua:1-9.
- [19] Ahmed Alomi Y. National Pharmacy Practice Programs at Ministry of Health in Saudi Arabia. *J Pharma Pharm Sci.* 2017;1(2):17-8.
- [20] Hatchett R. The medicines refrigerator and the

importance of the cold chain in the safe storage of medicines. *Nurs Stand.* 2017;32(6):53–63.

- [21] Mekonnen AB, McLachlan AJ, Brien JAE. Pharmacy-led medication reconciliation programmes at hospital transitions: A systematic review and meta-analysis. *J Clin Pharm Ther.* 2016;41(2):128–44.
- [22] Romero A, Lefebvre E. Combining barcodes and RFID in a hybrid solution to improve hospital pharmacy logistics processes. *Int J Inf Technol Manag.* 2015;14(2/3):97.
- [23] Stewart D, Al Hail M, Abdul Rouf P V., El Kassem W, Diack L, Thomas B, et al. Building hospital pharmacy practice research capacity in Qatar: a cross-sectional survey of hospital pharmacists. *Int J Clin Pharm.* 2015;37(3):511–21.
- [24] Stoner N. Are UK hospital pharmacy departments ready for the rise of gene therapy medicinal products? *Expert Opin Biol Ther* [Internet]. 2018;18(8):837–40. Available from: <https://doi.org/10.1080/14712598.2018.1495192>