



Pharmaceutical care in primary care - beyond access to medication

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ABSTRACT

To describe patients and multidisciplinary teams demands for pharmaceutical care in a basic health unit. This is a descriptive and cross-sectional study which was conducted in a health unit of São Paulo, from January 2011 to July 2012. All referral patients to pharmaceutical care were accounted. Referrals were classified according to the source, the main rational and patients demand. A total of 1,164 patients were referred to pharmaceutical care, 88% of which were referred by pharmacy technicians. The most frequent reason (25.9%) was the request to participate in health education groups and rational use of medicines. Among them, 79.9% of patients were referred for noncompliance to treatment of chronic diseases. Health professionals demand the pharmacist assistance beyond the access to medication issues such as drug conciliation, non-adherence issues.

Key-Words: Pharmaceutical Care. Primary Health Care. Unified Health System.

INTRODUCTION

Due the change in demographic population, epidemiological profile, and the increase of non-communicable disease prevalence, new approaches in the primary care are essential. Provide a multidisciplinary care capable of promoting, preventing and controlling the non-communicable diseases has been considered a world priority (Mitchell *et al.* 2008; Harris *et al.* 2016; Wranik *et al.* 2016).

A recent systematic review showed that most studies related to provision of pharmaceutical care in primary care has been conducted in the US, UK and Canada (Tan *et al.* 2014). Development in healthcare and pharmaceutical practice have created opportunities for pharmacists to provide care beyond their traditional role (Albanese and Rouse 2010; Tordoff *et al.* 2012; Fang *et al.* 2013; Bishop *et al.* 2015).

Nevertheless, integration of pharmacists into multidisciplinary teams remains a global challenge, particularly in developing countries. Regardless of all regulations, many pharmacies still operate without a pharmacist in Brazil (Agência Nacional de Vigilância Sanitária 2010). Even though most Brazilian studies have presented the effectiveness of pharmaceutical care in an academic setting, i.e., they are not applicable for most primary care due to the lack of a full-time pharmacist to provide only pharmaceutical care.

Therefore, to ensure the patients' needs is decisive to discuss how to enable the pharmaceutical care and the pharmacist's integration in a multidisciplinary team. In fact, in a scenario that there is lack of pharmacists performing the pharmacy management, there will hardly be a pharmacist exclusively dedicated to pharmaceutical care in the short-term.

The pharmacist's adaptability to integrate into a multidisciplinary team, particularly in the primary healthcare, may determine the success of their role in public health (Hawthorne and Anderson 2009; Casserlie and Mager 2016). Thus, this study aims to describe patients

and multidisciplinary teams demands for pharmaceutical care in a basic health unit.

METHODS

Study design and setting

This descriptive and cross-sectional study was conducted in a health unit of São Paulo, from January 2011 to July 2012. This basic health unit was part of Unified Health System (SUS) and managed by a social health organization during the study and covered an area of 42,479 inhabitants. The health unit included a Medical Ambulatory Care Service, a Basic Health Unit (UBS) with four Family Health Strategy teams.

Pharmacy service

The pharmacy service received a mean of 300 prescriptions per day from both internal and external health units (other public or private health units). On May 2007, this health unit received its first pharmacist who modified the pharmacy structure according to legal aspects, organized the pharmaceutical service, and trained the pharmacist technician to recognized patients needing pharmaceutical care.

The pharmaceutical care was gradually implemented due to the scope of pharmacist activities, meaning management and clinical responsibilities. First, pharmacist performed educational interventions such as the delivery of internal memos to physicians in respect to the drug related problems that had been identified in internal prescriptions, the performance of face-to-face interventions with the multidisciplinary team, the distribution of technical reports during staff meetings, and for external prescribers the circulation of standardized attachments regarding legal aspects of prescriptions and the drugs available in the SUS.

The pharmacy technicians were trained by the pharmacist to screen patients for risk situations and referral to pharmaceutical care during the drug dispensing. By 2010, the organization of the pharmacy service was completed and four pharmacy technicians were part of the team and trained by the pharmacist. Then, the pharmacist could devote most of his time to the pharmaceutical care.

Data selection

Between January 2011 and July 2012, referrals to pharmaceutical care were accounted. None was excluded. Referrals were classified according to the source (health professional or pharmacy technicians), the main rationale and patients demand.

The rationale for referral was classified as:

- Health education: when patients were referred to the hypertension and diabetes groups which the pharmacist was part teaching patients on the rational use of medicines;
- Inaccessibility of drugs: when patients received a prescription with drugs not available in the SUS formulary;
- Medication conciliation: when patients had more than one prescription by different physicians including

similar drugs with different dosages or drugs of the same therapeutic class;

- Complex therapeutic regimen: when patients were under five or more medications at several dose times;
- Recent changes in pharmacotherapy: when one or more drugs were added, suspended or substituted in the drug therapy;
- Pharmaceutical Orientation: when patient reported concerns regarding the drug use, the possible adverse events or the identification of medicines in use;
- Suspected of Adverse Drug Reactions: when patients reported symptoms that could be an adverse drug reaction;
- Non-adherence: when the time between returns to pick up drugs for chronic diseases was expired;
- Therapeutic Ineffectiveness: when patient or physician reported that a drug was not resulting in the expected therapeutic effect.

Ethics

Since the data for this research were obtained from prescriptions and administrative records, the research was released from mandatory approval by the Ethics Committee, although the recommendations of CNS Resolution No. 466/2013 have been followed.

RESULTS

A total of 1,164 patients were referred to pharmaceutical care from January 2011 to July 2012: 1,024 (88.0%) by pharmacy technicians, 114 (9.8%) by physicians from the health unit, and 26 (2.2%) by social workers. Most of patients were referred to health education groups (302; 25.9%). Rationale for referral patients to pharmaceutical care and health care professionals involved are shown in Table 1.

From the total of patients, most patients (991; 85.1%) received pharmaceutical care. In addition, 7 other patients requested a pharmacist consultation. Table 2 details the demand for pharmaceutical care. Most patients demanded health education due to non-adherence to drug therapy.

DISCUSSION

In this study, most referrals to pharmaceutical care performed by physicians and by social workers involved aspects of care and not access to medicines. This finding suggests that by structuring the pharmacy, training the team, and implementing educational interventions on the health unit, may change the focus of pharmacist activities which could improve patients' health.

To implement the pharmaceutical care in a primary care requires an organized pharmacy service and a well trained staff, then the pharmacist would have time to assist the patients (Melo and Castro 2017). The presence of well trained pharmacist technicians allows the pharmacist to

Table 1 - Rational to refer patients to pharmaceutical care per health care professionals.

Rational for the referral	Health care professionals			Total N (%)
	Pharmacy technician N (%)	Physician N (%)	Social Worker N (%)	
Health education	292 (28.5)	10 (8.8)	--	302 (25.9)
Inaccessibility of drugs	215 (21.0)	--	9 (34.6)	224 (19.2)
Medication conciliation	200 (19.5)	--	3 (11.5)	203 (17.4)
Complex dose regimen	51 (5.0)	32 (28.1)	14 (53.8)	97 (8.3)
Recent changes in Pharmacotherapy	33 (3.2)	63 (55.3)	--	96 (8.2)
Pharmaceutical Orientation	87 (8.5)	--	--	87 (7.5)
Suspected Adverse Drug Reactions	79 (7.7)	--	--	79 (6.8)
Patient Medication Adherence	57 (5.6)	--	--	57 (4.9)
Therapeutic Ineffectiveness	10 (1.0)	9 (7.9)	--	19 (1.6)
Total	1024 (100.0)	114 (100.0)	26 (100.0)	1164 (100.0)

dedicate time to clinical activities. Pharmacist technicians can be trained to identify risk situations in the use of medicines at the time of dispensing (Melo and Castro 2017; Horon *et al.* 2010; Mabasa *et al.* 2010; Hall *et al.* 2011).

Our data shows that most patients needed health education particularly because of non-adherence. Other studies have shown that health education provided by pharmacists is crucial in the improvement of adherence in patients with chronic diseases (Topinková *et al.* 2012; Mossialos *et al.* 2015; Skinner *et al.* 2015). Moreover, non-adherence to the drug therapy may mislead clinicians' interpretation of patients' outcomes what may cause the prescription of unnecessary drugs, unnecessary dose adjustments, or questioning the quality of dispensed drugs.

Frequently, patients were also referred to pharmaceutical care due to the inaccessibility of drugs. This result was expected since the pharmacist is traditionally seen as drug provider (Khdour and Hallak 2012; Reis *et al.* 2015). In Brazil, the guidance on access to medicines is a challenge. Pharmacist must clearly understand the variety of public health programs provided by different entities (municipality, state or federation) and the requirements to drug dispense depending on the health program and clinical guidelines.

Table 2 – Characteristics of the referral patients that receive pharmaceutical care (total of 998 patients).

Rational	Needs of patients that received pharmaceutical care				
	n	%	n	%	
Health education	259	26.0	207	79.9	Non-adherence to drug therapy due to misunderstanding of disease chronicity and severity
			52	20.1	Initiation of hypertension and diabetes treatment
Inaccessibility of drugs	194	19.4	157	80.9	orientation regarding drugs from the specialized formulary
			37	19.1	prescribed drugs were not available in SUS (those prescriptions were from private health service)
Medication conciliation	188	18.8	105	55.9	patients from the basic health unit and followed by one or more specialist
			50	26.6	patients from the basic health unit and followed by private doctors;
			33	17.6	patients from another health unit
Complex dose regimen	89	8.9	79	88.8	patients aged more than 60 years
			10	11.2	age between 40 and 60 years
Recent changes in Pharmacotherapy	76	7.6	54	71.1	patient requested replacement of prescribed drugs by drugs available in the SUS
			15	19.7	patients initiating use of insulin
			7	9.2	others
Pharmaceutical Orientation	69	6.9	22	31.9	patients asked more information related to medicines and diseases
			27	39.1	patients presenting difficulty to recognize the drug due to changes in packaging or replacement of the manufacturer
			16	23.2	patients did not know how to use the medicines such as inhalers
			4	5.8	others
Suspected Adverse Drug Reactions	78	7.8	23	29.5	patients in use of simvastatin who presented intense muscular pain
			16	20.5	patients in use of ACE inhibitors who presented dry cough
			12	15.4	patients in use of furosemide who presented muscle cramps
			12	15.4	patients in use of metformin who presented diarrhea and metallic taste
			11	14.1	patients in use of glibenclamide who presented nocturnal hypoglycemia
			4	5.1	patients in use of reports of calcium channel blockers who presented esophagitis
Patient Medication Adherence	24	2.4	18	75.0	patients in use of chronic medication who reported non-adherence to treatment because they though was not needed
			6	25.0	others
Therapeutic Ineffectiveness	14	1.4	7	50.0	patients who did not take the medicine according to the prescribed dosage
			6	42.9	became confused when using the drug
			1	7.1	report of a technical complaint because of drug solubility problem
Patient ask for pharmacist attempting	7	0.7	7	100.0	patients asked for pharmaceutical care due to the guidance material provided by the pharmacist

Almost 200 hundred patients were assisted by the pharmacist because of inaccessibility of drugs. Most of these patients (68%) were from the private health unit. This result may be explained by the fact that the pharmacy of a basic health unit is easily access by the population and it could be place of integration between the SUS and the private health unit.

Need for medication conciliation was the third most frequently reason for referral patients to pharmaceutical care. Mainly the need for medication conciliation was the presence of more than one prescription from different physicians resulting in therapeutic duplicity. In this study, the pharmacist could perform the medication conciliation for most patients. Patients from the basic health unit can be also refer to a specialist, however the communication between the different physicians is a challenge in the SUS (Almeida *et al.* 2013). This communication may be more complicated when patients are follow in a public and private health unit ate the same time. Therefore, medication conciliation is an essential process in the pharmacist daily activities because it can prevent errors as omissions and duplications, ensuring that the drug treatment is updated and known by the patient and health professionals involved (Greenwald *et al.* 2010; Kenning *et al.* 2015; Okere *et al.* 2015).

Patients with complex dosage regimen were most elderly (79/89 88.8%), illiterate (52/89 58.4%), and / or had limited visual or auditory acuity (49/89; 55.0%). The age, illiteracy and visual acuity limitations have been reported in previous studies as complicating factors in the rational use of medicines, particularly in the treatment of chronic diseases (Williams *et al.* 2008; Corsonello *et al.* 2009; Portela *et al.* 2012; Pasina *et al.* 2013). For those patients, the pharmacist must adapt the guidance to patients' needs to ensure drug compliance and improve health outcomes. In this study, pharmacist developed a standard material to guide patients comprising colorful labels, pictograms, and an agenda that indicates the dose times. It is interesting to note that the 7 patients that asked for pharmaceutical care were look for this standard material to guide them throughout drug treatment.

Another interesting finding was that some patients from the private health unit requested replacement of prescribed drugs that are not available in the SUS. Not all prescribers from the private health unit know the drugs that SUS provides or, sometimes, prescribers do not realize that that the patient cannot afford some medication. Recently, a study found that even physicians working in the SUS did not trust SUS formulary because of the regular lack of medicines in the SUS, lack of orientation regarding patients access to medication, and the skepticism that SUS formulary were not appropriated for patients needs (Magarinos-Torres *et al.* 2014).

The findings found may be somewhat limited by the study design. The present study was performed in only one basic health unit, then our results may not be generalize to other health unit. However, the present study raises the possibility that the pharmacist should train the pharmacist technicians to overcome the barriers that hamper the implementation of pharmaceutical care.

CONCLUSIONS

In addition to practical aspects related to inaccessibility of drugs , the pharmacist must be prepared to assist patients and prescribers on the processes of requesting drugs of the Specialized Component; perform drug conciliation of prescriptions from different prescribers from public health service and, especially, from private health service; perform pharmacotherapeutic follow-up for patients who had drugs recently replaced by therapeutic alternatives available in SUS; develop different forms of guidance to identify drugs and follow-up prescribed dosing according to patients' needs; and, above all, to empower the technical team, both on issues of access and management of drugs inventory, and also on issues related to the use of medicines that may be identified when dispensing medicines.

RESUMO

Cuidado farmacêutico na atenção primária – além do acesso ao medicamento

Descrever as demandas dos pacientes e da equipe multiprofissional por atenção farmacêutica. Estudo descritivo e transversal dos registros de encaminhamentos para atendimento farmacêutico em uma farmácia da atenção primária, entre janeiro de 2011 e julho de 2012. Todos os encaminhamentos para atenção farmacêutica foram incluídos no estudo. Foram encaminhados 1.164 pacientes para atendimento farmacêutico, sendo que 88% destes encaminhamentos foram realizados por técnicos de farmácia. O motivo mais frequente (25,9%) de encaminhamento foi a solicitação para participação em grupos de educação em saúde e sobre o uso racional de medicamentos. Destes, 79,9% pacientes foram encaminhados por não adesão ao tratamento de doenças crônicas. Profissionais da saúde demandam a atuação do farmacêutico além das questões relacionadas ao acesso do medicamento, como conciliação medicamentosa e pacientes com falta de adesão ao tratamento.

Palavras-chave: Atenção farmacêutica. Atenção primária à saúde. Sistema Único de Saúde.

REFERENCES

- Agência Nacional de Vigilância Sanitária. Diagnóstico Situacional da Promoção de Medicamentos em Unidades de Saúde do Sistema Único de Saúde (SUS). Anvisa, editor. Brasília; 2010. p. 180.
- Albanese NP, Rouse MJ. Scope of contemporary pharmacy practice: roles, responsibilities, and functions of pharmacists and pharmacy technicians. *J Am Pharm Assoc.* 2010;50(2):e35-69.
- Almeida PF de, Gêrvas J, Freire J-M, Giovanella L. Estratégias de integração entre atenção primária à saúde e atenção especializada: paralelos entre Brasil e Espanha. *Saúde debate.* 2013 Sep;37(98):400–15.
- Bishop AC, Boyle TA, Morrison B, Barker JR, Zwicker B, Mahaffey T, *et al.* Public perceptions of pharmacist expanded scope of practice services in Nova Scotia. *Can Pharm J (Ott)* [Internet]. 2015;148(5):274–83. Available from: <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=4561456&tool=pmcentrez&rendertype=abstract>
- Casserlie LM, Mager NA. Pharmacists' perceptions of advancing public health priorities through medication therapy management. *Pharma Pr.* 2016;14(3):792.
- Corsonello A, Pedone C, Lattanzio F, Lucchetti M, Garasto S, Carbone C, *et al.* Regimen complexity and medication nonadherence in elderly patients. *Ther Clin Risk Manag.* 2009;5(1):209–16.
- Fang Y, Yang S, Zhou S, Jiang M, Liu J. Community pharmacy practice in China: Past, present and future. *Int J Clin Pharm.* 2013;35(4):520–8.
- Greenwald JL, Halasyamani L, Greene J, LaCivita C, Stucky E, Benjamin B, *et al.* Making inpatient medication reconciliation patient centered, clinically relevant and implementable: A consensus statement on key principles and necessary first steps. *J Hosp Med.* 2010 Oct;5(8):477–85.
- Hall KW, Raymond CB, Woloschuk DMM, Honcharik N. Organizational restructuring of regional pharmacy services to enable a new pharmacy practice model. *Can J Hosp Pharm.* 2011;64(6):451–6.
- Harris MF, Advocat J, Crabtree BF, Levesque JF, Miller WL, Gunn JM, *et al.* Interprofessional teamwork innovations for primary health care practices and practitioners: Evidence from a comparison of reform in three countries. *J Multidiscip Healthc.* 2016;9:35–46.
- Hawthorne N, Anderson C. The global pharmacy workforce: a systematic review of the literature. *Hum Resour Heal.* 2009;7(1):48.
- Horon K, Hennessey T, Gorman SK, Heukshorst S. Should pharmacy technicians provide clinical services or perform patient care activities in areas without a pharmacist? *Can J Hosp Pharm.* 2010;63(5):391–4.
- Kenning C, Protheroe J, Gray N, Ashcroft D, Bower P. The potential for using a Universal Medication Schedule (UMS) to improve adherence in patients taking multiple medications in the UK: a qualitative evaluation. *BMC Heal Serv Res.* 2015;15:94.
- Khdour MR, Hallak HO. Societal perspectives on community pharmacy services in West Bank-Palestine. *Pharm Pr.* 2012;10(1):17–24.
- Mabasa VH, Malyuk DL, Tung A, Balen RM, Nicolls TR, Rahiman NL. Using Clinical Pharmacy Support Technicians to Optimize Pharmaceutical Care in the Intensive Care Unit. *Can J Hosp Pharm.* 2010;63(1):41–5.
- Magarinos-Torres R, Esher Â, Cactano R, Pepe VLE, Osorio-de-Castro CGS. Adesão às listas de medicamentos essenciais por médicos brasileiros em atuação no sistema único de saúde. *Rev bras educ med.* 2014 Sep;38(3):323–30.
- Melo DO de, Castro LLC de. O farmacêutico promovendo o acesso e uso racional de medicamentos essenciais no SUS. *Cien Saude Colet.*
- Mitchell GK, Tieman JJ, Shelby-James TM. Multidisciplinary care planning and teamwork in primary care. *Med J Aust.* 2008;188(8 Suppl).
- Mossialos E, Courtin E, Naci H, Benrimoj S, Bouvy M, Farris K, *et al.* From “retailers” to health care providers: Transforming the role of community pharmacists in chronic disease management. *Health Policy (New York)* [Internet]. 2015;119(5):628–39. Available from: <http://dx.doi.org/10.1016/j.healthpol.2015.02.007>
- Okere AN, Renier CM, Tomsche JJ. Evaluation of the Influence of a Pharmacist-led Patient-Centered Medication Therapy Management and Reconciliation Service in Collaboration with Emergency Department Physicians. *J Manag Care Spec Pharm.* 2015;21(4):298–306.
- Pasina L, Djade CD, Nobili A, Tettamanti M, Franchi C, Salerno F, *et al.* Drug–drug interactions in a cohort of hospitalized elderly patients. *Pharmacoepidemiol Drug Saf.* 2013;22(10):1154–60.
- Portela A da S, Silva PCD da, Simões MO da S, Medeiros ACD de, Montenegro Neto AN. Indicadores de prescrição e de cuidado ao paciente na atenção básica do município de Esperança, Paraíba, 2007. *Epidemiol Serv Saúde.* 2012;21(2):341–50.
- Reis TM dos, Guidoni CM, Giroto E, Rascado RR, Mastroianni P de C, Cruciol JM, *et al.* Pharmaceutical care in Brazilian community pharmacies: Knowledge and practice. *Afr J Pharm Pharmacol.* 2015;9(9):287–94.
- Skinner JS, Poe B, Hopper R, Boyer A, Wilkins CH. Assessing the Effectiveness of Pharmacist-Directed Medication Therapy Management in Improving Diabetes Outcomes in Patients With Poorly Controlled Diabetes. *Diabetes Educ* [Internet]. 2015;41(4):459–65. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/26009557>

Tan ECK, Stewart K, Elliott RA, George J. Pharmacist services provided in general practice clinics: A systematic review and meta-analysis. *Res Soc Adm Pharm.* 2014;10(4):608–22.

Topinková E, Baeyens JP, Michel JP, Lang PO. Evidence-based strategies for the optimization of pharmacotherapy in older people. *Drugs and Aging.* 2012;29(6):477–94.

Tordoff J, Chang SY, Norris PT. Community pharmacists' perceptions of services that benefit older people in New Zealand. *Int J Clin Pharm.* 2012;34(2):342–50.

Williams A, Manias E, Walker R. Interventions to improve medication adherence in people with multiple chronic conditions: A systematic review. *J Adv Nurs.* 2008;63(2):132–43.

Wranik WD, Hayden JA, Price S, Parker RMN, Haydt SM, Edwards JM, *et al.* How best to structure interdisciplinary primary care teams: the study protocol for a systematic review with narrative framework synthesis. *Syst Rev* [Internet]. 2016;5(1):170. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/27716357>

Received on May 28th 2015

Accepted on December 8th 2016