# Pharmacist's contribution to the promotion of access and rational use of essential medicines in SUS

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**Abstract** *Objective: to describe the pharmaceutical inclusion process in a Basic Health Unit multidisciplinary team and evaluate results related to rational use and promotion of access to essential medicines. Methods: This is a descriptive, cross-sectional study conducted in a primary care health unit in the city of São Paulo. Pharmacist's activities were evaluated regarding the service structure and organization and prescribing quality improvement, guidance method creation, and implementation of clinical pharmacy service. Data measured before and after the interventions and between 2010 and 2011 were analyzed using Pearson´s chi-square test with a significance level of 5%, and odds ratio. Results: Pharmacist's activities had statistically significant result in drug shortage reduction; prescribing quality improvement associated with an increased proportion of prescriptions met; decrease in the total of prescribed drugs among patients receiving pharmacotherapeutic follow-up and, comparing the years 2010 and 2011, changes in the pharmacotherapy recommendations have gained increased acceptance level. Conclusions: Pharmacist's activities may effectively provide rational use and promotion of access to essential medicines.*

**Key-words** *Pharmaceutical services, Primary Health Care, Unified Health System*

## Introduction

Several studies have shown that the insertion of the pharmacist in the multidisciplinary team results in more cost-effective outcomes, but most of these studies were directed to the study of specific public, disease or situation[1-7].

A recently published systematic review has observed that most studies related to the provision of pharmaceutical services in primary care were conducted in the United States, United Kingdom and Canada, respectively[8]. Considering only the studies in which the pharmacist worked in the same unit as the general practitioner, in order to evaluate the impact of the insertion of this professional in the team and their interventions, most of the studies (25/38) were found to report positive effects in at least one aspect of care. More expressive results were achieved when the pharmacist interacted with the prescriber personally, reinforcing the observation that the presence of the pharmacist in the primary care services is essential to ensure effective communication and the establishment of interpersonal relationships in order to increase the probability of success in the interventions[8].

Brazil's progress in public health policies and the promotion of access to essential medicines since the National Drug Policy (PNM) in 1998 is indisputable. Studies evaluating the federal government's pharmaceutical care programs have shown a significant increase in supply of medicines through these programs as well as the fact that public procurement has become more efficient[9-11].

Although the programs for free distribution of medicines in SUS were initiated shortly after the publication of the PNM, pharmaceutical care on a systemic basis beyond the logistics aspect to include service delivery has only been prioritized more recently. In particular, for the increased supply of training in pharmaceutical and management services and funding line for this purpose. Despite these efforts, according to a study carried out by the Ministry of Health in partnership with the Pan American Health Organization (PAHO), the availability of the main medicines in inventory was 73% in health units. As for prescribed medicines, the proportion dispensed or administered at health facilities was 66%, which suggests lack of medication or compliance to selected medicines[12].

The number of pharmacists in the Unified Health System (SUS) is recent and still insufficient, especially in the dispensation of medicines in the UBS. According to data from the Region-al Pharmacy Council of the State of São Paulo (CRF-SP), 2346 (73%) of the 3214 public pharmacies in the municipalities of the State of São Paulo had no pharmacist[13]. There is no available literature that identifies how many pharmacies of the Basic Health Unit (UBS) have a pharmacist in Brazil, but a study carried out by the National Agency of Sanitary Surveillance (ANVISA) in 2009 to evaluate the influence of the pharmaceutical industry on SUS, identified lack of pharmacists in 7 out of 10 SUS pharmacies[14].

The basic elements of primary care and pharmaceutical services are the same and include centrality of patient care, treatment of acute and chronic disorders, emphasis on the prevention of diseases; documentation of the service provided, access, continuous and systematic care, integral care, responsibility for treatment, training/promotion of education and health[15]. Although the clinical impact of the pharmacist has already been studied, there is a shortage of studies that demonstrate improved access to medication, prescription quality and promotion of rational use of medicines after insertion in primary health care teams, especially when this professional accumulates administrative functions. The objective of this work is to describe and evaluate the results of the insertion of a pharmacist in the multiprofessional team of a basic health unit regarding the promotion of access and rational use of essential medicines.

## Material and methods

The work was carried out in a health unit of the Municipal Health Department of São Paulo, which is under the management contract of a social organization (Western Region Project, School of Medicine of USP). This unit includes a Medical Ambulatory Care Service (AMA), a Basic Health Unit (UBS) with four Family Health Strategy (ESF) teams, comprising 42,479 inhabitants in its area of coverage.

With the hiring of the pharmacist, in May 2007, a series of actions were initiated whose results will be presented considering different aspects of the pharmacist's performance:

*a) Structuring and organization of the service; b) Study and interventions to improve the medication prescription standard; c) Elaboration and adoption of a method for standardized guidance for patients with polypharmacy or difficulties in complying with the prescribed dosing schedule; d) Clinical Pharmaceutical Services.*

*The structure and organization of the service* comprised all activities related to the implementation of physical space improvements and managerial processes, such as changing the pharmacy location – both dispensing and inventory; daily and weekly inventories, according to the characteristics of the medicines; exchange of medications among units to reduce drug loss due to expiration; and the training of the staff - initially composed of nursing assistants who were gradually replaced by four pharmacy technicians - through biweekly meetings with a maximum duration of 30 minutes, which included a class of about 10 minutes and discussion. In this work, a professional with full technical course or at least two years of experience in drug dispensing was considered as a pharmacy technician. There were the requirements applied in the job selection process.

*The study and interventions to improve the medicine prescription standard* occurred in two stages: the intervention priorities were listed (for intervention and also for staff training) and pharmaceutical interventions were initiated. In order to list the pharmacist's intervention priorities, the prescriptions presented to the pharmacy service were studied to identify the main problems that had an impact on access to medicines. In June and July 2007, data were manually collected in standard form, referring to 1,200 prescriptions. At the time of medicine dispensing, previously trained pharmacy technicians recorded the prescribing data (source, number of prescription items, medicines prescribed by the generic name of the drug, prescribed medicines belonging to the Municipal List of Essential Medicines – REMUME – and number of medicines dispensed).

After the problems were listed, the pharmaceutical interventions to be performed were defined in meetings with all members of the pharmacy team. After the first year of work and greater integration into the team, these discussions started to involve the other professionals of the health team – nurses, physicians, administrative reception technicians, social worker and manager.

The results were compared using data from the pharmacy, collected in a standard form, in an Excel® worksheet. Data from 16,720 medical prescriptions were evaluated between July and October 2011. The average data recording rate in the data collection worksheet was 90% – comparing data from the spreadsheet and the computerized inventory control system, which was considered representative for all pharmacy services. Statistical analysis was performed using Pearson's chi-square test, with significance level of 5%. Additionally, to evaluate the association between the result and the intervention, ODDs Ratio was calculated using Epi Info® program.

From the observation that a) there were medicines whose packaging was very similar, and could confuse the patients; b) some of the patients treated were illiterate and needed individualized guidance to follow the prescribed dosing schedule; c) there was not enough time to make boxes for patient orientation; alternatives were discussed to standardize the form of individualized orientation. Therefore, *a standardized method was elaborated using a color chart and printed in calendar form*, containing pictograms representing periods of the day, such as morning, lunch and night, or actions, such as getting up or going to sleep.

Although the pharmacist started assisting patients in consultation from his hiring, when necessary, the registration of these activities was only performed from the end of 2009. Thus, the results will be presented for the years 2010 and 2011, when the staff was already qualified, pharmacy service structured and pharmacists could dedicate themselves almost exclusively to the *clinical pharmaceutical services*, emphasizing the realization of groups of health education, pharmaceutical care and the pharmacotherapeutic follow-up, when necessary. Acceptance of the pharmacist's recommendation and mean number of prescribed medications were compared using Pearson's chi-square test, at a significance level of 95%, using Epi Info® program. Adapted Dader method[16] was used in the pharmacotherapeutic follow-up.

As data for research were obtained from prescriptions and administrative records, the work was exempted from mandatory approval by the Ethics Committee, although the recommendations of CNS Resolution 466/2012 were followed.

## Results

### Structuring and organization of the service

In the first inventory of medicine stocks (05/28/2007), 168 (93%) of the evaluated medicine presented a discrepancy between the amount discriminated in the computerized system and that observed in the physical stock. In the second inventory (04/06/2007), the number was only 87 (48%). In the inventories carried out from January to October 2012, the average number of drugs with a discrepancy was only 4%. As a result

of stock management, non-dispensing of RE-MUME prescription drugs in the unit, due to the lack, was reduced from 10.7% (in 2007) to 1.3% (in 2011), p < 0.0000001. In 2010, this pharmacy became the reference service for the dispensing of tuberculostatics and oseltamivir to the Provisional Detention Centers and the hospitals of the region for being considered well organized. Also in that year, the pharmacist became part of the continuing education team in the region, participating and coordinating training courses for pharmacists and technicians of the municipal network and receiving residents of pharmacy from a program of the School of Pharmaceutical Sciences of the University of São Paulo, in 2012.

### Study and interventions to improve the medication prescription standard

Concomitant to the process of service structuring, situations that could require interventions by the pharmacist were surveyed, with particular attention to access to medicines. In the 1200 consultations evaluated between June and July 2007, prescription presented was fully met in 820 (68.3%) of them, meaning that all the prescribed medicines were dispensed; In 329 (27.4%) the prescription was partially met. In the 51 consultations where no medication was dispensed, the cause was technical or legal irregularities of the prescription.

In the initial period, 2007, 2,642 medications were prescribed, considering those present in the fully or partially met prescriptions. Of these, 1,288 (48.8%) were prescribed using the commercial name of the drug. In addition, of these 2,642 medicines, 521 (19.7%) were not part of the municipal list of essential medicines (REMUME). Of the 2,121 drugs prescribed and standardized in REMUME, 418 (15.8%) were not dispensed: 282 (10.7%) were missing and 136 (6.4%) were due to reasons related to the dosage regimen or illegibility.

The problems listed and the interventions adopted are described in Table 1. Table 2 shows the results of the pharmacist's performance to promote the improvement of the medication prescription standard, comparing data from the initial period (June and July 2007) and the post-intervention period (July to October 2011).

### Elaboration of a method for individualized and standardized guidance for patients with polypharmacy or difficulties in complying with the prescribed dosing schedule

The method adopted to guide patients with difficulties to follow the prescribed dosing regimen was elaborated and improved over three years. The guideline includes pictograms and a standardized color chart to allow the technician to identify potentially harmful interactions (eg amiodarone, simvastatin and digoxin were identified with the same color so that when used concomitantly, would alert the need for the pharmacist to be advised to assess the benefit-risk of the combination).

During 2011, 712 patients were instructed by pharmacy technicians using this method, 581 (82%) of whom returned to get their medications in the following months and to comply with the dosing regimen according to the medical prescription, according to the patient's report. In 131 (18%), the technician's orientation did not allow the understanding of the dosing schedule and the patients were referred to the pharmacist.

### Clinical Pharmaceutical Services

Table 3 describes the clinical pharmaceutical services performed during the years 2010 and 2011.

The topics addressed in the health education groups in 2010 were on the need for the continuous use of medications by diabetic and hypertensive patients; And in 2011, on topics related to the treatment of hypertension and diabetes (diet and medication use), risks of self-medication, medication storage and self-medication of children (the latter being taught at a school in the region, at the parents' meeting, at the request of school board). From 2011 onwards, in addition to promoting health education groups, the pharmacist started participating in the multidisciplinary group of tobacco control in the unit.

The reasons for the pharmaceutical care in the two years of the study were: obtaining information on access to medicines in SUS, 238 (25.2%); need for medication conciliation, 224 (23.7%); complex therapeutic regimen (*ie, 5 or more medicines prescribed*), 108 (11.4%); recent changes in pharmacotherapy (*inclusion, exclusion or replacement of medications*), 98 (10.4%); clarification of doubts about medicines, 89 (9.4%); suspected adverse drug reaction, 82 (8.7%); non compliance with pharmacological therapy, 67

**Chart 1**. Problems identified in prescriptions evaluated between June and July 2007 and interventions in a basic health unit of São Paulo.

| Problem | Interventions |
|---|---|
| **1. Technical or legal irregularities of prescription** **2. Medicines prescribed using the trade name of the drug** | . Educational intervention with the unit prescribers through face-to-face interventions; . Development of internal memos (signed by the pharmacist and the manager), given the difficulty in gathering prescribers for discussion and guidance. . During an adjustment period of six months, the pharmacy team sought the physician requesting the correction of errors in prescribing. A month before the end of this period, in April 2010, a new internal memo reinforcing the information was developed; . Internal campaigns on topics relevant to patient safety as identification of the medication, legibility of the prescription, properly described dosage regimen etc. |
| **3. Expiration of drug prescriptions for treatment of chronic conditions** | . Implemented the use of a stamp with fields for the six months of care prescription, allowing easy viewing patient how many blank fields (ie months of validity of the prescription) still remaining after the current service; . Partnership with the reception staff for scheduling patients when requested by the pharmacy. |
| **4. Drugs not in REMUME** | . Dissemination of REMUME and CEAF drug list, through a periodical publication; . Face-to-face interventions with the prescriber to recommend alternative available therapies. |
| **5. Lack of medicines contained in REMUME** | . Stock management optimization with periodic inventories; drug exchanges among units to avoid overdue losses; etc |

**Table 1**. Results of interventions performed to improve the standard of medical prescription in a basic health unit in São Paulo, comparing the previous period (June to July 2007) and subsequent (July to October 2011) with the inclusion of the pharmacist.

| | Before | After | p | Odds ratio (IC 95%) |
|---|---|---|---|---|
| **Prescriptions fully met** | **68.3%** (820/ 1.200) | **87.3%** (14,597/16,720) | < 0.0000001 | 3.19 (2.80 - 3.63) |
| **Prescriptions not met due to technical or legal irregularities** | **4.2%** (51/1.200) | **1.8%** (301/16,720) | < 0.0000001 | 0.41 (0.30 - 0.56) |
| **Prescribed medicines not included in REMUME** | **19.7%** (521/2,642) | **4.2%** (1,545/36,792) | < 0.0000001 | 0.18 (0.16 - 0.20) |
| **Prescribed medicines employing the generic name of the drug** | **51.2%** (1,354/2,642) | **94.4%** (34,732/36,792) | < 0.0000001 | 16.04 (14.68 – 17.52) |
| **Prescribed medicines (from REMUME) missing** | **10.7%** (282/ 2,121) | **1.3%** (458/35,247) | < 0.0000001 | 0.08 (0.07 - 0.10) |

(7.1%); and suspected therapeutic ineffectiveness, 39 (4.1%).

Although most of the pharmaceutical care was performed due to the identification of prob-

lems by pharmacy technicians or the pharmacist during the dispensing of medicines (846; 89.5%), some of the patients were referred by the unit's physicians: 41 (11.0 %) in 2010 and 83 (14.5%) in 2011 - with a significant increase (p < 0.0001).

The reasons for the referral of patients to pharmaceutical care, considering 2010 and 2011, were: recent changes in pharmacotherapy (68; 54.8%), complex therapeutic regimen (47; 37.9%) and suspected therapeutic ineffectiveness (9; 7.3%). In addition, the physicians at the unit requested to discuss issues related to the pharmacotherapy of patients on 28 occasions in 2010 and 61 times in 2011.

Of the 945 patients assisted by the pharmacist, pharmacotherapeutic follow-up was initiated for 105 (11.1%) - all of these patients were adherent to pharmacological treatment. However, only 64 (61.0%) continued the follow-up until the release (discharge) by the pharmacist. For these patients, average number of prescribed drugs was reduced from 7.4 ± 2.3 to 5.9 ± 1.7, p < 0.0001.

As a result of pharmaceutical care and pharmacotherapeutic follow-up, 972 recommendations were made for changes in pharmacotherapy to prescribers, of which 659 (67.8%) were accepted. As can be seen in Table 4, in which the number, type and acceptance or not of the recommendations of the pharmacist to the prescriber are described, recommendations made through face-to-face intervention were better accepted than those that used medical records and/or note (p < 0.0001). There is also an increase in the acceptance of recommendations between 2010 and 2011 (p < 0.0001).

In 2014, the report of these actions was recognized with Honorable Mention in the Incentive Award in Science and Technology for the SUS.

## Discussion

A study carried out in 2005 evaluating pharmaceutical services in Brazil observed that only 32% of the health units evaluated had stock records[12].

**Table 2**. Clinical pharmaceutical services performed between January 2010 and December 2011 in a basic health unit in São Paulo.

|  | 2010 | 2011 | Total |
|---|---|---|---|
| **Health Education Groups** | | | |
| Number of events | 04 | 10 | **14** |
| Number of participants (total) | 64 | 259 | **323** |
| **Pharmaceutical services** | | | |
| Number of visits | 374 | 571 | **945** |
| **Pharmacotherapeutic follow-up** | | | |
| Number of patients who started Pharmacotherapeutic follow-up | 38 | 67 | **105** |

**Table 3**. Description of the type and acceptance of recommendations for changes in pharmacotherapy made by the pharmacist to the prescriber in a basic health unit of São Paulo between January 2010 and December 2011.

|  | 2010 | 2011 | Total |
|---|---|---|---|
| **Recommendations to the prescriber** | | | |
| Face-to-face | 228 (59.1%) | 390 (66.6%) | 618 (63.6%) |
| Annotation in medical records and/or note | 158 (40.9%) | 196 (33.4%) | 354 (36.4%) |
| **Total** | **386 (100.0%)** | **586 (100.0%)** | **972 (100.0%)** |
| **Recommendations to the prescriber accepted** | | | |
| Face-to-face | 158 (69.3%) | 313 (80.2%) | 471 (76.2%) |
| Annotation in medical records and/or note | 74 (46.8%) | 114 (58.2%) | 188 (53.1%) |
| **Total** | **232 (60.1%)** | **427 (72.9%)** | **659 (67.8%)** |

In 2008, Vieira noted that, in municipalities with lack of medication, the most frequent problem (81%) was "absent or poor stock control", based on municipal control reports from the Federal Comptroller's Office (CGU) generated between August 2004 and July 2006[17]. The provision of computerized systems promotes the qualification of medicine programming process, but loses its function when the registration of the information is not reliable. Considering the large number of health units in the city of São Paulo, about six hundred, the purchasing schedule is very complex and the reliability of the system information becomes essential to ensure adequate planning.

Regarding the lack of medicines, there are two aspects to consider. The first would be proper management of the stock of medicines. It results in reduction of waste and allows adequate programming for the distribution of the drug from the warehouse to the unit. On the other hand, it is important to point out that there were also advances in medication management in the municipal health department, with a direct impact on the observed results, such as the increase in the supply of computers and the implementation of the computerized system in all health units, as well as inclusion of new medicines in REMUME.

No other studies were found to report increased access to medications following pharmacist interventions for data comparison or a change in prescribing standard in primary care units. However, all parameters evaluated in relation to the improvement of the prescription quality or increased access to the drugs were statistically significant and with a strong association with the intervention. It reinforces the finding of other authors that the presence of pharmacist in the primary health care service so that an interpersonal relationship with the team and the patient can be established assures better results[8].

Among the reasons for not dispensing prescribed drugs were technical or legal irregularities in prescriptions, regardless of the origin of the prescription. In Brazil, millions of prescriptions generated annually in public health services do not meet the necessary technical and legal requirements for efficient dispensing and correct use of medicines[18,19]. The Brazilian average for complete prescriptions is 46%, with a significant variation among the evaluated states: 1.1% in Goiás, 27.2% in Pará, 29.3% in Rio Grande do Sul, reaching 81.9% in Sergipe and 98.6% in Espírito Santo[20]. This scenario reflects the fact that the prescription is still not seen as a patient guidance document, but rather as a necessary formality for access[21].

Prescriptions that did not contain all the necessary information to ensure proper use of the drug (concentration, dosage schedule and treatment time) were no longer met. Since it is common that there is only one concentration of the drug in the list of essential medicines, prescribers reported that they did not understand the need to describe it in the prescription.

Incomplete or illegible prescriptions associated with the low socioeconomic and cultural level of Brazilian patients are relevant factors in exposing the various layers that make up the society, especially the elderly and children, to the possible problems related to medicines[22]. These problems feed back the demand for clinical services, often at more complex levels, reducing the cost/effectiveness of treatments, unnecessarily burdening health expenses and decreasing patients' quality of life[23].

In order to reduce the prescription of overdue continuous medications, the commitment of the pharmacy team as administrative technicians responsible for scheduling, social workers, nurses and prescribers was essential. An increase in the number of physicians due to the implantation of four ESF teams was also essential in 2011. The greatest difficulty was the divergence in the rules of dispensing and validity of prescription among the various health services and programs, generating problems for both patients and health professionals and managers (depending on the health service, the prescription is valid for 3 months (Farmácia Dose Certa), 4 months (Farmácia Popular), 6 months (UBS) or up to one year (Hospital das Clínicas de São Paulo, for example).

According to a study performed by Dal Pizzol et al.[24], the availability of essential medicines in eight primary or secondary care services of municipalities in the central-southern region of the country was on average 88.1%, varying from 53% to 93%. Emmerick et al.[20], in a study carried out in 5 Brazilian states, reported that the national average for the percentage of prescribed drugs dispensed or administered was 67.9%, varying from 89.6% in Espírito Santo to 52.6% in Rio Grande do Sul, considering the state and from 22.0% to 93.2% considering health units analyzed. Other authors report values varying from 60.3% to 80.7% of the prescribed drugs being met[19,25-27] and describe problems to calculate the indicator due to lack of dispensing annotation when supply occurs, different patterns of annotation between employees, dispensing of non-standard medicines due to free samples or

donations or not yet retaining the second way of prescription, compromising data collection. Since data collection was performed at the time of dispensing, not depending on retention of the second way or annotation, the problems reported in the calculation of the indicator were avoided. In addition, donations of medications and free samples were not accepted as the source and quality of the product could not be assured.

According to Emmerick et al.[20], the national average number of prescriptions using the generic name was 84.2%, ranging from 80.6% in Pará to 92.7% in Espírito Santo. Prescription through the generic name is an essential factor in promoting the rational use of medicines as it favors the identification of the drug by the patients. In addition, it facilitates the process of health education performed at the time of dispensing the drug.

Brazilian studies have already described the difficulty of many patients in understanding the prescribed regimen[28-32]. The understanding of prescription varied in studies conducted in other cities, and according to the methodology, ranging from 34% to 70%[25,26,31]. However, a visual identification system with the use of standardized colors and print-outs allowed the majority of patients to adequately comply with the medication prescription – according to the patients' reports – without the need for direct action of the pharmacist. It shows the relevance of the guidance given by pharmacy technicians since it would be impracticable for the pharmacist to assist all patients. In fact, the training of technicians and the systematization of medicine dispensation, in order to contribute to the identification, and even to the resolution, of some problems related to the use of medicines or the quality of the prescription allowed to optimize the time of the pharmacist. Thus, he/she can be more involved in clinical activities, which has already been reported in international studies[33-36].

All aspects evaluated in relation to clinical pharmaceutical services and integration with the multidisciplinary team showed improvement when compared to 2010 and 2011. It includes the acceptance of the recommendations of the pharmacist to the prescriber for changes in patients' pharmacotherapy. This finding is consistent with what was reported in a study in Canada describing the process of insertion of seven pharmacists into primary care teams with the support of mentors that observed that time, adaptability and support are required for the effective integration of the pharmacist[37]. Participants reported that the mentor role was essential to ensure trust

and skill development in both the care and interpersonal aspects[37]. The integration process of the pharmacist to the team was facilitated by the support of the local manager and other actors, who acknowledged the advances in the structuring of the pharmacy and the training of the team by becoming allies in the implementation of interventions. Although there was no mentor during the process, the pharmacist benefit from the experience of other pharmacists who worked in other spheres of municipal administration. The most relevant difficulties were lack of time due to the accumulation of activities and the lack of knowledge of the pharmacist's role due to the fact that there had never been one working in the unit.

The pharmacist's interventions with prescribers for changes to the prescribing standard prior to the disclosure of an internal memorandum signed by the unit manager were ignored by prescribers. This occurred because they did not believe in the approval of the manager or in the legitimacy of the pharmacist's role in issues exceeding the logistics aspect of the medicine. Despite the negative reaction, the maintenance of face-to-face interventions and the identification of the physicians who better accepted recruitment interventions as multiplier agents allowed, with the support of the manager, the establishment of a working relationship that went from respectful to harmonious and proactive over time, expanding the role of the pharmacist in clinical issues.

Among the merits of the study is the fact that it describes several actions of the pharmacist in a primary care unit in a way that can guide the action of professionals who are starting their activities. In addition, this is a real experience, which required time and coordination with other health professionals in order to achieve results, without the pharmacist being dedicated only to the assistance activities. The main limitations are the descriptive character of the study and the fact that it was performed in only one health unit (especially being a health service in which important changes occurred, such as the implementation of ESF teams. These could interfere with the acceptance by the team since these professionals are already better accustomed to multidisciplinary work).

## Conclusions

Despite the initial barriers, the integration of the pharmacist to the multiprofessional team allowed him to play an important role in reducing

problems related to medicines and improving the quality of medical prescriptions. The presence of the pharmacist in the unit to carry out the interventions was of fundamental importance for the achievement of positive results.

## Collaborations

DO Melo worked in elaboration and design, performed data analysis and interpretation; wrote the article and approved the final version to be published. LLC de Castro: carried out the critical text revision and approved the final version to be published.

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