

Pharmaceutical Care: Implementation and Development Strategies, As A Tool to Contribute to Patient Safety and Improve the Quality of Care

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Abstract

In Ecuador, pharmaceutical services are limited, so measures must be taken to make the most of the potential of the pharmaceutical professional (PP) in comprehensive patient care. Hospital and community pharmaceutical care (PC) offer a solid platform, where pharmaceutical advice and health education function as key tools to obtain better clinical benefits in terms of treatment. The PP plays an essential role in health care, contributing significantly to promoting the safety, quality and effectiveness of medical treatments, especially in situations of high therapeutic complexity such as: polypharmacy, drugs with a narrow therapeutic range and non-communicable diseases. Furthermore, the need to implement strategies such as the STOPP-START criteria is emphasized to improve medication prescribing in older adults and reduce associated risks. The objective of this review article is to describe implementation and development strategies in pharmaceutical care to reinforce patient safety and improve quality of care.

Keywords: evidence-based pharmaceutical practice; pharmaceutical services; patient safety; Ecuador

Introduction

The role of the pharmaceutical professional in care derives from the complexity of the pharmacological treatment received by patients: polymedicated, chronic, catastrophic, orphan and/or rare diseases and patients with drugs with a narrow therapeutic margin. Agudelo and Torres [1] establish that the activities encompassed within the concept of PA, especially pharmacotherapeutic follow-up, have positioned FP as an active agent and co-responsible for health outcomes; This is a fundamental element in the healthcare team. This is also pointed out by Calvo, et al [2], who indicate that PA consists of the responsible provision of pharmacotherapy in order to achieve results that improve the quality of life of patients. In Ecuador, the pharmaceutical services provided to the population have several limitations. These include: the lack of knowledge of the functions of the hospital FP [3], deficits in the recruitment of pharmaceutical professionals with third-level degrees in private pharmacies [4] and the lack of plans for the development and implementation of programs that allow patients to benefit from a variety of pharmaceutical services [5], in particular, the implementation of: pharmacotherapeutic follow-up,

execution of adherence plans and schemes, education and pharmaceutical indication, correct dispensing, reconciliation of medications, pharmacovigilance and rational use of medications.

Comprehensive PA includes the pharmacist as part of the multidisciplinary health team, where our pharmaceutical work contemplates direct and personalized care to the patient, family member and/or caregiver through interviews, whose objective is to know the patient's lifestyle in order to adapt the pharmacological therapy received and identify possible problems related to medications. reducing medication errors, avoiding negative results associated with medication, and promoting adherence to treatment [6]. Calvo, et al [2], report that the main pharmacological causes that lead to overloading health systems are: medication errors and lack of adherence to treatment. It also exposes how these factors can be avoided, through the integration of a FP into the multidisciplinary health team, who performs a constant and permanent monitoring of the pharmacological therapy received, identifying adverse events caused by medication errors, suboptimal doses, duplication of medications and inappropriate prescriptions. Palchik, et al [6], point out that the occurrence of drug-related problems

increases morbidity and mortality, this condition affects the quality of life of patients and increases the health costs derived from their care.

González et al. [7] describe a quasi-experimental study carried out by FPs of hospital and outpatient units of the UC-CHRISTUS health network, which evaluated, among other things, the type of pharmaceutical interventions performed and the economic impact generated through a Standardized Pharmacotherapeutic Evaluation Process (PEEF), in which 683 interventions were generated: Prevention of Adverse Effects to Medications (EAM) (20.2%), resource utilization (13%), individualization of patient care (38.8%), prophylaxis (3.2%), participation in patient care (14.9%), and administrative or support tasks (9.8%). The cost reduction from the FP intervention was equivalent to \$492,805 US dollars, with the greatest savings generated being 60.2% due to the prevention of AM, which indicates a significant value for health facilities. Martínez, et al [8], points out that these data reflect that appropriate PA decreases public spending, values that can be redirected to improve other community and hospital pharmacy programs such as: magistral formulation, pharmacovigilance, techno vigilance, sterile and non-sterile pharmacotechnics. In Ecuador, the Ministry of Public Health, through the Official Registry of Ministerial Agreement No. AC-00028-2021, publishes the Manual Pharmaceutical Care in the Pharmacies of the Comprehensive Public Health Network, Complementary Private Network and Private Pharmacies, which states: Single Transitory Provision- Within twenty-four months from the publication of this Ministerial Agreement in the Official Registry, the National Health Authority and the Agency for Health Regulation, Control and Surveillance- ARCSA Doctor Leopoldo Izquieta Pérez or whoever takes his place, will supervise through a Plan issued for this purpose, the progressive implementation of the Manual Pharmaceutical Care in the Pharmacies of the Comprehensive Public Health Network, Complementary Private Network and in private pharmacies [9].

This manual highlights the importance of FP participation in order to achieve maximum therapeutic benefit in patients who benefit from this service, as well as to ensure the quality, safety and efficacy of the medicines dispensed. Based on this principle, the objective of this review is to expose the reality of PA in Ecuador, as well as the strategies for the implementation and development of PA

programs applied locally and internationally; And additionally, to propose improvement strategies that allow a better approach to PA in community and hospital pharmacies, both public and private.

Material and Methods

The research presents a qualitative approach, seeking to carry out a narrative review of the literature regarding pharmaceutical care strategies in hospital and community pharmacies. The study is categorized at a descriptive research level, in order to describe the problem about the reality of pharmaceutical services in the country, mainly pharmaceutical care, the type of research is documentary since it allows to observe and classify the information from both primary and secondary sources in such a way that it allows to know the reality of the pharmaceutical professional in the healthcare part, It is also retrospective in nature, since the information collected to carry out the analysis is obtained from previous information already existing in the network. A literature review of grey and white literature was carried out in the PubMed, Scielo and Elsevier databases. The key descriptors Mesh (Medical Subject Heading) were used: pharmaceutical care, adherence, schemes and pharmacotherapy, in combination with Boolean operators. In addition, it was included in the search for grey literature sources such as manuals and guides of the Ministry of Public Health of Ecuador. The selection criteria to choose an article or publication were the following: relevance of the content, source, year of publication, for which articles, theses and manuals published in the last 5 years were included.

Results and Discussion

As a result of the literature search, a total of 25 scientific publications were identified. Of these, 9 were included according to the aforementioned inclusion criteria. Excluding those scientific articles referring to "Telepharmacy", as it is not part of the objectives of this research. 2 of these publications describe the use of checklists, as tools for detecting potentially inappropriate drug prescriptions, based on the criteria: STOPP/START; and one of them also includes the detection of drugs that can be de-prescribed according to the LESS-CHRON criteria. 3 publications based their research on the analysis of medication reconciliation errors; 1 in standardized pharmacotherapeutic evaluation processes (PEEF) and another in indicators of the quality of medical prescription. The remaining two publications

describe the social determinants of health and community as limitations of the current conceptualization of pharmaceutical care.

Tools and Strategies for Pharmaceutical Care

To initiate the implementation of a pharmaceutical care program, it is necessary to identify the group of patients to whom the service should be prioritized. This is due to the fact that there are patients whose need derives from the number of comorbidities, as well as hospital admissions in the last year and the number of medications being administered, with the most vulnerable group being elderly patients. Palchik, et al [6], describe how older adults are particularly susceptible to adverse drug effects due to the increased prevalence of chronic medical conditions and age-associated physiological changes. In this context, the STOPP-START criteria are introduced, which are tools designed to detect and prevent inappropriate prescriptions and medication omissions in older people. The authors argue that the application of the STOPP-START criteria can help identify inappropriate medications or treatments that could improve the health and quality of life of elderly patients.

The STOPP (Screening Tool of Older Persons' potentially inappropriate Prescriptions) focuses on the analysis of drug interactions, side effects, and contraindications to detect medications that may be inappropriate for older adults. On the other hand, the START (Screening Tool to Alert doctors to Right Treatment) tool focuses on identifying medications that should be considered in the treatment of certain medical conditions in older people [3]. The applicability of these tools can be visualized in the study by Palchik, et al [6], in which it evaluates the case of 50 patients over 60 years of age. In this population, 94% had a prescription for potentially inappropriate medications, 58% in relation to the START criteria and the remainder in relation to the STOPP criteria; Of the latter tool, 31% referred to benzodiazepines and 15.1% to proton pump inhibitor drugs and corticosteroids. On the other hand, Magallón, et al [10], used a multidisciplinary team that developed a set of criteria based on the STOPP/START, Beers, and PRISCUS regulations to identify potentially inappropriate medications, as well as the LESS-CHRON criteria to determine which medications could be safely discontinued.

One of the main differences between the tools and strategies used in PA is that the STOPP/START tool allows the identification of clinical situations in which

pharmacological treatments are not recommended in older adult patients, while the LESS-CHRON tool is criteria that identify clinical situations for the prescription of drugs applicable to chronic patients with multimorbidity [10]. In the research by Magallón, et al [10], a population of 218 patients was analyzed, a total of 373 interventions were performed, among the most frequent are: medication reconciliation errors in 63% and the use of non-recommended drugs in 19%; The most common case was the non-recommended use of long-acting benzodiazepines in 29.6% of cases and 16.9% for antispasmodics. Deprescribing interventions accounted for 11.3% and 6.7% due to dose adjustment, therapeutic duplication and lack of adherence to treatment. The evidence described demonstrates the importance of prioritizing pharmaceutical care in older adults, applying strategic criteria to analyze the pharmacological therapy received, maintaining essential medication and suspending unnecessary treatments, always in coordination with the prescribing physician.

Pharmaceutical Care in Hospital Pharmacy

The demand for hospital services at the national level is high and the professional practice of health personnel is limited due to the short time of the medical consultation and/or the number of hospitalized patients. According to data from the Statistical Registry of Hospital Beds and Discharges of the National Institute of Statistics and Censuses (INEC), in 2022 there were 1,130,603 hospital discharges, of which 729,077 were at the public level, 313,751 in the private for-profit sector and 87,775 in the private non-profit sector. There are also 23,395 beds available in 632 health facilities nationwide [11]. As a result, there is no complete and comprehensive evaluation of the patient's clinical history, usual medication and collection of data on habits that could explain symptoms associated with the pathology and/or reason for consultation. In this sense, there are deficiencies that begin in the Emergency Department, which could be solved with the inclusion of the FP, who will exercise his functions adapting to the particularities of short stay and instability typical of these units being able to execute the so-called: medication reconciliation, as indicated by Ruiz & Calderón [12].

In the study by Magallón, et al [10], the pharmacist's contribution was evaluated through the analysis of potentially inappropriate prescriptions and the reconciliation of home treatment in elderly patients.

In 114 of 218 patients included in the study, some type of pharmaceutical intervention (FI) was performed, which included the detection of medication reconciliation errors (23.2%), commission discrepancies (17.4%), omission of drugs (52.3%), errors in dosage, route or frequency of administration (16.2%), equivocal drug intake (12.3%) and incomplete prescription (1.7%) [10]. Taladriz, et al [13], propose a similar study in which the severity of reconciliation errors produced in the emergency department in elderly patients was evaluated, where FI was performed in 328 of 351 patients analyzed. In both studies, pharmaceutical interventions managed to reduce the risk of developing adverse reactions in polymedicated patients, as well as reduce errors when taking medication, resulting in better adherence to treatment and avoiding potential risks of relapse; These variables translate into the improvement of the quality of care and the promotion of safe and effective treatment, which consequently reduces the use of health resources and therefore leads to the potential reduction of costs, with the intervention of the pharmacist being essential to reduce up to 60.2% of the value of health care, with the prevention of adverse events as the main axis [7].

Pharmaceutical Care in Community Pharmacy

Villafaina, et al [14], details the experience gained after the need to adapt the community PA model in the face of the COVID-19 health crisis and exposes the limitations of PA, among which the Social Determinants of Health (SDH) stand out, placing the screening of patients with social vulnerability from the pharmacy as a primary axis. This group includes patients with mental health problems, older people at risk of isolation and social exclusion, as well as people suffering from gender-based violence. It is considered necessary to consolidate alliances between pharmacies, community organizations, and public health departments for the timely referral of patients, without neglecting activities typical of the professional practice of pharmacy such as: the detection of drug-related problems (PRM) and negative results associated with medication (RNM), the provision of pharmaceutical advice and health education, and the development of therapeutic adherence plans [15]. In Ecuador, it is necessary to implement the community PA project, highlighting the participation of the pharmaceutical professional as an active entity in the screening of vulnerable patients and as part of the activation of the national pharmacovigilance system.

In addition, the reinforcement of the council and pharmaceutical education itself are fundamental strategies to avoid self-medication and the sale of antibiotics without a prescription. Plans that would undoubtedly present several benefits for the community and for the national health system, as it would result in the prevention of antimicrobial resistance, as well as patients who are more adherent to treatment and are more aware of the rational use of medications.

Conclusions

The pharmacist plays a crucial role in taking part in hospital care to address shortcomings such as medication reconciliation. The aforementioned studies show that pharmacist intervention can reduce medication errors, improve treatment adherence, and reduce healthcare costs. Pharmaceutical care goes beyond the dispensing of medications and focuses on a comprehensive evaluation of each patient's drug therapy. This aligns with evidence-based medicine and seeks to optimize health outcomes through therapies tailored to specific situations. Pharmacist intervention is directly related to improving the quality of care, preventing adverse events, and reducing costs in the health system. The STOPP-START criteria are very useful tools for identifying inappropriate medications in older adult patients. These criteria can help improve the quality of prescribing and the clinical safety of patients. Proper prescribing of medications is essential to ensure the safety and efficacy of medical treatment. In addition, the need for comprehensive care in the hospital environment is reflected, since the demand for services is high and the time spent on medical consultation is limited. This suggests that patients do not always receive a complete assessment of their medical history and usual medication, which can lead to a lack of important information for clinical decision-making.

Finally, effective collaboration between pharmacies, community-based organizations, and public health departments is needed to appropriately identify and refer vulnerable patients. In addition, it is highlighted that, despite this necessary adaptation, pharmacists must continue to carry out their essential professional activities such as: the detection of problems related to medications, the provision of pharmaceutical advice and health education, as well as the development of therapeutic adherence plans.

Declarations

Authors' Contribution

Steeven Cisneros: Methodology, Writing-Original Draft, Visualization.

Luisa Romero: Conceptualization, Validation, writing-Revision and editing, Visualization.

Ethical Statement

As it is a review of the literature and does not use confidential patient data, the present study does not require authorization from an ethics committee.

Data Availability Statement

Data supporting the conclusions of this study are available upon reasonable request to the relevant author. The data is not publicly available due to ethical or privacy restrictions.

Conflicts of Interest

The authors declare that they have no conflict of interest.

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