

## Pharmacy and Pharmacist; Interchangeably Misunderstood Role

Agung Nugroho<sup>1</sup>

<sup>1</sup>Faculty of Medicine, Hasanuddin University, Indonesia

\*Corresponding Author: Agung Nugroho

### Article Info

#### Article History:

Received March 3, 2022

Revised March 28, 2022

Accepted: April 20, 2022

#### Keywords:

Pharmacy, Drugs,  
Pharmaceutical services.

### Abstract

*This article discusses the outline of a pharmacy and pharmacist. In this article, it is explained how the role of the pharmacy and pharmacist as the person in charge of a pharmacy has a big role. The purpose of implementing this article is to increase the understanding of prospective pharmacists about the roles, functions, positions and responsibilities of pharmacists in pharmacy services in pharmacies, to equip prospective pharmacists to have insight, knowledge, skills, and practical experience to do pharmacy work in a pharmacy, providing opportunities for prospective pharmacists to see and study strategies and activities that can be carried out in the context of developing community pharmacy practices in pharmacies, preparing prospective pharmacists to enter the world of work as professional pharmaceutical personnel and providing a real picture of the problems of pharmaceutical work in pharmacies.*

## Introduction

Pharmacy is a pharmaceutical service facility where pharmacists practice pharmacy (Abrahamsen et al., 2020; Xi et al., 2019). According to the Government Regulation concerning Pharmaceutical Work, what is meant by pharmaceutical work is manufacturing including quality control of pharmaceutical preparations, security, procurement, storage and distribution or distribution of drugs, drug management, service for prescription drugs, drug information services and development. medicine, medicinal ingredients and traditional medicine. Pharmacists have a role to provide direct and responsible services to patients related to pharmaceutical preparations with the aim of achieving definite results to improve the patient's quality of life (Bragazzi et al., 2020; Holle et al., 2020).

Based on the authority of the laws and regulations, pharmaceutical services have undergone a change from only focusing on drug management (drug oriented), developing into comprehensive services including drug services and clinical pharmacy services that aim to improve the quality of life of patients (Lee et al., 2019; Aljamal & Alrowili, 2019; Drovandi et al., 2018; Kennedy et al., 2019). Pharmacists are required to improve knowledge, skills, and behaviour in order to carry out direct interactions with patients (Ilardo & Speciale, 2020; Renfro et al., 2020). Forms of interaction include providing drug information and counselling to patients in need. This interaction between patient and pharmacist is expected to be able to support the achievement of therapeutic goals. Regulation of the Minister of Health of the Republic of Indonesia Number 35 of 2014 concerning Standards for Pharmaceutical Services in Pharmacies states that pharmaceutical care is a direct and responsible service to patients related to pharmaceutical preparations with the aim of achieving definite results to improve the quality of life of patients. Pharmaceutical services illustrate the interaction between pharmacists and patients, among others, providing drug information, monitoring drug use to ensure that the ultimate goal of therapy can be achieved (Teymourian et al., 2020) and the therapy process is well documented (Patsalos et al., 2018). Pharmacists can also provide counselling for patients to increase patient understanding of the therapy they are undergoing (Stranges et al., 2020; Sabra et al., 2022). This increase in understanding is expected to increase patient adherence to the therapy he is currently undergoing.

Pharmacists as the person in charge of a pharmacy have a big role in carrying out the functions of a pharmacy based on business and social values, especially their role in supporting health efforts and as distributors of pharmaceutical supplies in the community, pharmacists are required to be able to harmonize these two functions (Ung, 2020; Khoukhi et al., 2019; Amadi & Tsui, 2019). The condition of the people who are increasingly critical of their health and the ease of accessing information is a challenge for future pharmacists. Community visits to pharmacies are now not only about buying drugs, but to get complete information about the drugs they receive. Higher education readiness in providing quality and competent human resources is an important factor in producing future pharmacists who are professional and knowledgeable and have sufficient skills (Nasirin & Lionardo, 2020; Držaić et al., 2018; Ibrahim et al., 2020). The Professional Pharmacist Work Practice (PKPA) at the Kemaraya Farma Pharmacy is a tangible manifestation of the Pharmacist Professional Study Program of the Faculty of Pharmacy, Halu Oleo University in collaboration with the Kemaraya Farma Pharmacy to prepare future pharmacists who are competent in their fields.

### **Pharmacies and Pharmacist Functions Pharmacy Management**

All pharmacist activities to carry out the duties and functions of pharmacy services are called pharmacy management. Pharmacy management is entirely in the hands of pharmacists, therefore pharmacists must manage it effectively so that drugs distributed to the public will be more accountable, because the quality and safety are always maintained. Pharmacy management is divided into:

#### **Pharmaceutical Technical Activities, Selection and Procurement**

The management of pharmaceutical preparations and medical devices is a continuous process starting from the selection and planning. Budgeting, procurement, receipt, production, storage, distribution, compounding, control, return, destruction, recording and reporting, quality assurance and monitoring and evaluation, which are supported by policies, human resources, financing and management information systems that are efficient and effective. Selection is an activity to determine pharmaceutical preparations and medical devices according to the right amount, type and time according to the need in order to achieve rational drug use. Selection of pharmaceutical preparations and medical devices must be based on the pattern of disease, the needs and purchasing power of the community, evidence-based, quality and economical treatment, community culture (local community habits) and previous patterns of drug use. An activity process that aims to make available pharmaceutical preparations in sufficient quantities and types according to service needs.

Effective procurement is a process that regulates the various methods, techniques and policies that exist to make decisions about drugs to be procured, both in quantity and source. The criteria that must be met in the procurement of pharmaceutical preparations and medical supplies are pharmaceutical preparations and medical devices that have a distribution license or registration number for the quality, safety and usefulness of pharmaceutical preparations and medical devices can be accounted for, procurement of pharmaceutical preparations and medical devices originating from official channels completed with administrative requirements. Procurement activities include aspects, namely planning, an activity to determine the amount and time of procurement of pharmaceutical preparations and medical devices in accordance with the results of the selection activities, in order to ensure the fulfilment of criteria for the right type, right quantity, on time and efficiency. There are three planning methods for pharmaceutical preparations and medical devices, namely disease patterns, consumption patterns and a combination of consumption patterns and disease patterns.

## **Procurement Technical and Reception**

Technical Procurement is an activity intended to realize the results of planning. Effective procurement techniques must ensure availability in the right type and quantity at an economical price and meet quality, safety and usefulness requirements. Technical procurement can be through purchasing, making and donations. Procurement technique is an ongoing activity starting from the assessment of drug selection, determining the amount needed, adjusting needs and funds, selecting technical procurement methods, selecting procurement times, selecting good suppliers, determining contract specifications, monitoring procurement and payment processes. Procurement technique is the main determinant of drug availability and total health costs. It is an activity to receive pharmaceutical supplies that have been held in accordance with pharmaceutical regulations, through direct purchases, tenders, consignments or donations.

Acceptance is an activity to ensure the suitability of the type, specification, quantity, quality, delivery time and price stated in the contract / order. Acceptance is an activity of verification of acceptance / rejection, documentation and delivery which is carried out using a "checklist" that has been prepared for each type of product which contains, among other things, the correctness of the number of packages, the correctness of the condition of the packaging as required, the correctness of the number of units in each package, the correctness of type of product received, no visible signs of damage, correctness of product identity, application of clear marking on labels, packages and brochures, no visible discrepancies in colour, shape, damage to product contents and adequate expiration period.

## **Storage and Distribution**

Storage is an activity to organize and maintain by placing received pharmaceutical preparations and medical devices in a place deemed safe from theft and physical disturbances that can damage the quality of the drug. Storage must ensure the stability and safety of pharmaceutical preparations and medical devices. Storage methods can be carried out based on therapeutic class, dosage form and alphabetical basis by applying the principles of First First Out (FIFO) and First Expired First Out (FEFO) along with a management information system. In order to minimize drug delivery errors, it is recommended to store according to class of therapy in combination with dosage form and alphabetical. Pharmacists must pay attention to drugs that must be stored specifically such as narcotics, psychotropic drugs, drugs that require a certain temperature, flammable, cytostatic and reagent drugs. In addition, pharmacists also need to carry out quality control of pharmaceutical preparations and medical devices that are received and stored so that the quality, safety and usefulness of pharmaceutical preparations and medical devices are guaranteed.

Distribution is an activity to distribute or deliver pharmaceutical preparations and medical devices from storage to patient care units. A good distribution system must ensure continuity of distribution or delivery, maintain quality, minimize loss, damage and expiration. maintain accuracy of records, use efficient distribution methods, pay attention to laws and regulations and other applicable provisions and use a management information system.

## **Deletion and Destruction**

Pharmaceutical preparations that do not meet the requirements according to the stipulated standards must be destroyed. The elimination and destruction of pharmaceutical preparations must be carried out in a good manner and in accordance with the provisions of the prevailing laws and regulations. Procedures for drug disposal should be established which include preventing pollution in the environment and preventing the dropping of the drug among unauthorized persons. Pharmaceutical preparations to be destroyed should be stored separately and a list is made that includes the number and identity of the product. The elimination and

destruction of drugs, either by themselves or by other parties, must be documented in accordance with the provisions and regulations in force.

### **Control and Withdrawal of Pharmaceutical Preparations**

Inventory control is intended to assist the management of supply of pharmaceutical preparations and medical devices in order to have sufficient types and quantities of supplies while at the same time avoiding vacancies and accumulating supplies. Inventory control is an effort to maintain inventory levels at a certain level by controlling the flow of incoming goods through order or procurement system settings (scheduled inventory and perpetual inventory), storage and expenses to ensure inventory is effective and efficient or there is no excess and deficiency, damage, expiration, and loss and return of orders for pharmaceutical preparations.

Recall can be made at the request of the producer or an instruction from an authorized government agency. The act of withdrawal should be performed immediately upon receipt of a request for instructions for withdrawal. For withdrawals of pharmaceutical preparations that pose a major risk to health, withdrawals should be carried out up to the consumer level. If it is found that a pharmaceutical preparation does not meet the requirements, it should be stored separately from other pharmaceutical preparations and marked as not for sale to avoid confusion. The implementation of recall should be supported by an adequate documentation system (Abubakar & Haque, 2020).

### **Recording, Reporting, Monitoring and Evaluation**

Recording and reporting activities of planning needs, procurement, inventory control, return, elimination and destruction of pharmaceutical preparations must be carried out in accordance with the provisions of applicable laws and regulations. Monitoring and evaluation are a stage to observe and assess the success or suitability of the implementation of Good Pharmaceutical Services in a pharmaceutical service. To evaluate the quality of the management process of pharmaceutical preparations and medical devices, it can be measured by indicators of satisfaction and safety of patients / customers / stakeholders, time dimensions (time delivery), standard operating procedures and the success of controlling medical supplies and pharmaceutical preparations.

### **Recipe Management and Narcotics Management**

Prescribed recipes must be stored for three years. Stored recipes are marked with the date, month and year of service. Then the recipe is neatly arranged so that it can be traced whenever needed. The date closest to the month the service was placed that is easier to reach so that it can be traced quickly. For the management of narcotics and psychotropic prescriptions. At the time of service narcotics prescriptions are marked with a red line, while psychotropic prescriptions are marked with a blue line. Narcotics and psychotropic prescriptions must be properly archived and recorded in the narcotics and psychotropic drug use book. Narcotics prescriptions are archived and stored for three years based on the date and serial number of the prescription. Narcotics Order Government regulation that the Minister of Health gives permission to pharmacies to buy, mix, provide, own or store for supplies, control, sell, distribute, deliver, send, carry or transport narcotics for medicinal purposes. Procurement of narcotics at pharmacies is carried out by written order via Narcotics Order Letter to Pharmaceutical Wholesaler (PBF) PT. Kimia Farma. The Narcotics Order Letter must be signed by the PMP with the clear name, SIPA number, SIA and pharmacy stamp. One order consists of four copies and can only order one type of narcotic drug.

## **Narcotics storage and Narcotics Reporting**

The pharmacy must have a special place to store narcotics and must be properly locked. Narcotics storage in a pharmacy must meet the following requirements must be made entirely of strong materials, must have a strong double key, divided into two parts each with a different key. The first part is used to store morphine, pethidine and their salts as well as narcotics supplies, while the second part is used to store narcotics that are used daily, if the special place is a cupboard with a size of less than  $40 \times 80 \times 100$  cm, the cupboard must be attached. on walls or floors, special cabinets may not be used to store items other than narcotics, unless specified by the Minister of Health, the keys of the special cabinets must be held by authorized personnel and special cabinets must be placed in a safe place and not visible to the public prescription services containing narcotics. The pharmacy only serves the purchase of narcotics based on a doctor's prescription in accordance with the Circular of the Directorate General of Drug and Food Control among others, it is stated that pharmacies are prohibited from serving copies of prescriptions containing narcotics, even though the prescriptions have only been served partially or have not been served at all. a copy of the prescription may only be served by a pharmacy that keeps the original recipe, a copy of the prescription for narcotics with iteric writing may not be served at all. Therefore, doctors should not add iteric text to prescriptions containing narcotics.

Based on Government regulation states that the pharmaceutical industry, pharmaceutical wholesalers, government pharmaceutical storage facilities, pharmacies, hospitals, public health centres, medical centres, doctors and scientific institutions are obliged to make, submit, and store reports. periodically regarding the entry and / or release of narcotics under his control. The report includes reports on the use of narcotics and reports on the use of morphine and pethidine. The report must be signed by the pharmacist managing the pharmacy by including SIPA, SIA, clear name and pharmacy stamp, then sent to the Head of the Health Office with a copy to the head of the local Provincial Health Office, the head of the local BPOM in charge of narcotics PT. Kimia Farma (Persero) Tbk. (Especially for Kimia Farma Pharmacy).

## **Psychotropic Management and Understanding Pharmacy**

The scope of psychotropic regulation is everything related to psychotropic substances that can lead to dependence. The purpose of psychotropic regulation is to guarantee the availability of psychotropic substances for the benefit of health and scientific services and to prevent the occurrence of psychotropic abuse. Eradicating the illicit psychotropic trafficking. In general, psychotropic management includes; Ordering for Psychotropics, drugs for the psychotropic category are ordered by using a Psychotropic Order Letter signed by PMP with the SIPA number attached. The order letter is made in duplicate and each letter can be used to order several types of psychotropic substances; 1) Storage of Psychotropics, this activity has not been regulated by legislation. However, due to the tendency of psychotropic abuse, it is advisable for psychotropic drugs to be placed separately in a special shelf or cupboard and to make psychotropic stock cards; 2) Delivery of psychotropic drugs, psychotropic drugs delivered by the pharmacy, can only be done to other pharmacies, hospitals, health centres. , medical centres and doctors to users / patients based on a doctor's prescription; 3) Psychotropic Reporting, pharmacies are obliged to make and keep records of activities related to psychotropics and report their use every month to the Regency / City Health Office with a copy to the Head of the local POM Centre. and 1 copy for pharmacy archives; 4) Psychotropic extermination, psychotropic destruction is carried out if it is related to a criminal act, is produced without meeting the applicable standards and requirements and or cannot be used in the production process, expires or does not meet the requirements for use in health services and for scientific purposes. Psychotropic destruction is carried out by preparing an official report which at least

contains the place and time of destruction; name of the special permit holder; name, type, and quantity of destroyed psychotropic substances; extermination method; Signature and complete identity of the person in charge of the pharmacy and witnesses to the destruction (Asmadi, 2020; Hole et al., 2021).

Pharmacy is a pharmaceutical service facility where pharmacists practice pharmacy. The pharmaceutical work in question is the manufacture, quality control of safeguarding pharmaceutical preparations, procurement, storage and distribution or distribution of drugs, drug management, drug services or doctor prescriptions, drug information services, and development of drugs, medicinal ingredients and traditional medicines. A pharmacy is also a certain place where pharmaceutical work is carried out and the distribution of pharmaceutical preparations, in this case what is meant is drugs, medicinal ingredients, traditional medicines, and cosmetics. Meanwhile, based on the Decree of the Minister of Health of the Republic of Indonesia Number 1332 / Menkes / SK / X / 2002 concerning Amendments to the Regulation of the Minister of Health of the Republic of Indonesia Number 922 / MENKES / PER / X / 1993 concerning Provisions and Procedures for Granting Pharmacy Licenses, what is meant by a pharmacy is a certain place, the place where pharmaceutical work is carried out and the distribution of pharmaceutical preparations, other medical supplies to the public.

In its management, the Pharmacy must be managed by a pharmacist, who has taken the oath of office and has obtained a Pharmacy Practice License (SIPA) from the local Health Office. Pharmaceutical Service Standards are benchmarks that are used as guidelines for pharmaceutical personnel in providing pharmaceutical services (Ying et al., 2021; Meng et al., 2020). Pharmaceutical service is a direct and responsible service to patients related to pharmaceutical preparations with the aim of achieving definite results to improve the quality of life of patients (Blomström-Lundqvist et al., 2019). Pharmaceutical services in pharmacies include two activities, namely managerial activities in the form of managing pharmaceutical preparations, medical devices, and consumable medical materials and clinical pharmacy services. These activities must be supported by human resources, facilities and infrastructure

### **Pharmacy Duties, Functions, Pharmacist Pharmacy Manager, Duties, Obligations and Authorities**

Pharmacy duties and functions according to Government Regulation are; Pharmaceutical service facilities where pharmacists practice pharmacy. Comprehensive pharmaceutical care in terms of not only managing drugs but in a broader sense covering the implementation of providing information to support correct and rational drug use, monitoring drug use to determine the ultimate goal and possible medication errors. Pharmacists are professional personnel who have basic education and skills in the field of pharmacy and are given the authority and responsibility to carry out pharmaceutical work. Pharmacist Managing Pharmacy (PMP), namely Pharmacists who have been given a Pharmacy License (PL). In the Decree of the Minister of Health, Article 19 mentions the provisions of several delegations of responsibilities for Pharmacy managers. If the Pharmacist Managing the Pharmacy is unable to carry out his duties during the opening hours of the Pharmacy, the Pharmacist Managing the Pharmacy must appoint an Assistant Pharmacist.

A companion pharmacist is a pharmacist who has worked at a pharmacy in addition to the pharmacist who manages the pharmacy and / or replaces it during certain hours on the opening days of the pharmacy. If the Pharmacist Managing the Pharmacy and the Associate Pharmacist are unable to do their job due to certain reasons, the Pharmacist who manages the Pharmacy shall appoint a Replacement Pharmacist. Substitute Pharmacists, namely Pharmacists who replace PMP as long as the PMP is not in place for more than three months continuously, already has a Work Permit and does not act as PMP in other Pharmacies. To support activities

at the Pharmacy, if the pharmacy that is managed is quite large and dense, another workforce is needed such as a Pharmacist Assistant who is entitled to perform pharmaceutical work as a Pharmacist Assistant under the supervision of a Pharmacist, a prescription officer, namely an officer who helps the pharmacist assistant, cashier, namely person in charge of recording cash receipts and disbursements, complete with receipts and notes, administrative staff, namely officers who carry out Pharmacy administration and make reports on purchases, sales, and Pharmacy finances. Based on Health regulation explains that the Pharmacist who manages the Pharmacy is responsible for the implementation of activities carried out by the Companion Pharmacist and the Substitute Pharmacist, in managing the Pharmacy. The Associate Pharmacist is responsible for the implementation of pharmaceutical service duties as long as the person concerned is in charge of PMP.

In any transfer of pharmaceutical responsibility caused by replacement of PMP by the Substitute Pharmacist, it must be followed by the handover of prescriptions, narcotics and other pharmaceutical supplies, as well as keys for narcotics and psychotropic storage places (Helander et al., 2020). This handover must be followed by making an official report. In Article 24, it is explained that if PMP dies, the heirs of PMP are required to report the incident within 2 x 24 hours to the Head of District / City Health Office. If the Pharmacy does not have a Companion Pharmacist, the report must be accompanied by the delivery of prescriptions, narcotics, psychotropic substances, hard drugs, and keys to the narcotics and psychotropic storage places. Handover is made Handover Official Report as intended in Article 23 paragraph (2) to the Head of District / City Health Office using the APT-11 model form with a copy to the Head of the local POM Office.

### **The Pharmacist's Role and Pharmaceutical Service Standards at the Pharmacy**

A pharmacist is a bachelor of pharmacy who has graduated as a pharmacist and has taken the oath of position as pharmacist. The pharmacist's role is required to increase knowledge, skills, and behaviour in order to carry out direct interaction with patients. These interactions include providing drug information and counselling to patients in need. Pharmacists must understand and be aware of the possibility of medication errors in the service process and identify, prevent, and overcome drug-related problems, pharmacoeconomic problems, and social pharmacy (socio-pharmacoeconomic). To avoid this, pharmacists must practice according to service standards. Pharmacists must also be able to communicate with other health professionals in determining therapies to support rational drug use (Bronkhorst et al., 2020). In carrying out this practice, pharmacists are also required to monitor drug use, evaluate and document all their activities. To carry out all these activities, a Pharmaceutical Service Standard is needed.

Pharmaceutical Service Standards in Pharmacy include standards, namely the management of Pharmaceutical Preparations, Medical Devices, and Medical Consumables; and Clinical Pharmacy services. Management of Pharmaceutical Preparations, Medical Devices and Consumable Medical Materials as referred to in paragraph letter a includes planning, procurement, receiving, storing, destroying, controlling and recording and reporting. Clinical pharmacy services as referred to in paragraph letter b include prescription assessment, dispensing, drug information services (PIO), counselling, home pharmacy care, monitoring of drug therapy (PTO) and monitoring of drug side effects (MESO).

## **Drug Classification and Free medicine**

According to the Indonesian Ministry of Health, 2006 to maintain the safety of drug use by the public, the government classifies drugs into 4 parts, namely free drugs, limited free drugs, hard drugs and psychotropic drugs, and narcotics. OTC drugs are drugs that are sold freely in the market and can be purchased without a doctor's prescription. The special mark on the packaging and label of OTC drugs is a green circle with a black outline. Example: Paracetamol. Limited over-the-counter drugs are drugs that actually include hard drugs but can still be sold or purchased over the counter without a doctor's prescription, and are accompanied by warning signs. The special mark on the package and label of limited over-the-counter drugs is a blue circle with a black outline. Example: CTM. Hard Drugs and Psychotropic Drugs

Hard drugs are drugs that can only be purchased at a pharmacy with a doctor's prescription. The special mark on the package and label is the letter K in a red circle with a black outline. Example: Mefenamic Acid. Psychotropic drugs are hard drugs, both natural and synthetic, not narcotics, which have psychoactive properties through their selective influence on the central nervous system that causes distinctive changes in mental activity and behaviour. Examples: Diazepam, Phenobarbital. Narcotic drugs are drugs derived from plants or non-plants, both synthetic and semi-synthetic, which can cause a decrease or change in consciousness, loss of taste, reduce pain and cause dependence. Example: Morphine, Pethidine Narcotics drugs are marked with a medal cross or a swastika bar.

Narcotics are divided into 3 groups, namely Class I narcotics are narcotics that can only be used for the purpose of developing science and are not used in therapy, and have a very high potential to result in dependence. Examples: cocaine, opium, heroin, and marijuana. Narcotics Category II are narcotics with medicinal properties, are used as a last resort and can be used in therapy and / or for the purpose of developing science and have a high potential to cause dependence. Examples: fentanyl, methadone, morphine, and pethidine. Narcotics Category III are narcotics with medicinal properties and are widely used in therapy and / or scientific development purposes and have a mild potential to cause dependence. Example: ethylmorphine codeine, and norkodeine.

## **Pharmacy Mandatory Medicines**

According to the Indonesian Ministry of Health No.347 / MENKES / SK / VII / 1990 concerning Compulsory Pharmacy Drugs, it explains that pharmacy compulsory drugs (OWA) are hard drugs that can be delivered without a doctor's prescription by pharmacists to patients at pharmacies. Regulations regarding mandatory drug pharmacies are made to improve people's ability to help themselves to overcome health problems and improve self-medication appropriately, safely and rationally. Medicines that can be delivered without a doctor's prescription must meet the criteria not to be contraindicated in pregnant women, children under 2 years of age, and parents over 65 years. Self-medication with the drug does not pose a risk of disease progression. Use does not require special methods and or tools that must be carried out by health workers. Its use is necessary for diseases with high prevalence in Indonesia and the drug in question has a safety efficacy ratio that can be justified for self-medication.

In serving patients who need OWA, pharmacists in pharmacies are required to meet the conditions and limits for each type of drug per patient mentioned in the OWA concerned, make patient records and drugs that have been submitted, provide information, including dosage and rules of use, contraindications, side effects and others that the patient needs to pay attention to.

## Conclusion

The conclusion of the PKPA report at the Kemaraya Farma Pharmacy is that the pharmacist's role is required to improve knowledge, skills, and behaviour in order to carry out direct interaction with patients. Pharmacists must understand and be aware of the possibility of medication errors in the service process and identify, prevent, and overcome drug-related problems, pharmacoeconomic problems, and social pharmacy (socio-pharmacoeconomic). To avoid this, pharmacists must practice according to service standards. Pharmacists must also be able to communicate with other health professionals in determining therapy to support rational drug use. Pharmacists are required to improve knowledge, skills, and behaviour in order to carry out direct interactions with patients. Forms of interaction include providing drug information and counselling to patients in need. Pharmaceutical service is a direct and responsible service to patients related to pharmaceutical preparations with the aim of achieving definite results to improve the quality of life of patients. Students as prospective pharmacists have seen and studied strategies and activities that can be carried out in the context of developing community pharmacy practices in pharmacies. Students have been trained and guided about pharmaceutical work so that they are ready to enter the world of work as professional pharmaceutical personnel. Students become more trained in solving pharmaceutical work problems at a pharmacy.

## References

- Abrahamsen, B., Burghle, A. H., & Rossing, C. (2020). Pharmaceutical care services available in Danish community pharmacies. *International Journal of Clinical Pharmacy*, 42(2), 315-320. <https://doi.org/10.1007/s11096-020-00985-7>
- Abubakar, A. R., & Haque, M. (2020). Preparation of medicinal plants: Basic extraction and fractionation procedures for experimental purposes. *Journal of pharmacy & bio allied sciences*, 12(1), 1. [https://doi.org/10.4103%2Fjpbs.JPBS\\_175\\_19](https://doi.org/10.4103%2Fjpbs.JPBS_175_19)
- Aljamal, M. S., & Alrowili, A. S. M. (2019). Clinical pharmacy, pharmaceutical care, and the quality of drug therapy. *International Journal of Medicine in Developing Countries*, 3(3), 302-306. <https://doi.org/10.24911/IJMDC.51-1543620246>
- Amadi, C., & Tsui, E. K. (2019). How the quality of essential medicines is perceived and maintained through the pharmaceutical supply chain: A perspective from stakeholders in Nigeria. *Research in Social and Administrative Pharmacy*, 15(11), 1344-1357. <https://doi.org/10.1016/j.sapharm.2018.11.011>
- Anderson, C. A., Gentile, D. A., & Buckley, K. E. (2007). *Violent video game effects on children and adolescents: Theory, research, and public policy*. Oxford University Press.
- Asmadi, E. (2020). Procedure For Destruction of Evidence of The Crime of Narcotics Abuse Based on Formal Law in Indonesia. *International Journal Reglement & Society (Ijrs)*, 1(2), 77-85. <https://doi.org/10.55357/ijrs.v1i2.27>
- Blomström-Lundqvist, C., Gizurarson, S., Schwieler, J., Jensen, S. M., Bergfeldt, L., Kenneback, G., ... & Mörtzell, D. (2019). Effect of catheter ablation vs antiarrhythmic medication on quality of life in patients with atrial fibrillation: the CAPTAF randomized clinical trial. *Jama*, 321(11), 1059-1068. <https://doi.org/10.1001/jama.2019.0335>
- Bragazzi, N. L., Mansour, M., Bonsignore, A., & Ciliberti, R. (2020). The role of hospital and community pharmacists in the management of COVID-19: towards an expanded definition of the roles, responsibilities, and duties of the pharmacist. *Pharmacy*, 8(3), 140. <https://doi.org/10.3390/pharmacy8030140>

- Bronkhorst, E., Gous, A. G., & Schellack, N. (2020). Practice guidelines for clinical pharmacists in middle to low-income countries. *Frontiers in Pharmacology*, 11, 978. <https://doi.org/10.3389/fphar.2020.00978>
- Drovandi, A., Robertson, K., Tucker, M., Robinson, N., Perks, S., & Kairuz, T. (2018). A systematic review of clinical pharmacist interventions in paediatric hospital patients. *European journal of pediatrics*, 177(8), 1139-1148. <https://doi.org/10.1007/s00431-018-3187-x>
- Držaić, M., Kummer, I., Mucalo, I., Bruno, A., & Ortner Hadžiabdić, M. (2018). Identifying self-assessed competencies and areas for improvement within community pharmacist-preceptors support during pre-registration training. *BMC Medical Education*, 18(1), 1-9. <https://doi.org/10.1186/s12909-018-1413-x>
- Gopnik, A. (2012). Scientific thinking in young children: Theoretical advances, empirical research, and policy implications. *Science*, 337(6102), 1623-1627. <https://doi.org/10.1126/science.1223416>
- Heckman, J. J. (2006). Investing in disadvantaged young children is an economically efficient policy. *Committee for Economic Development*.
- Helander, A., Bäckberg, M., & Beck, O. (2020). Drug trends and harm related to new psychoactive substances (NPS) in Sweden from 2010 to 2016: experiences from the STRIDA project. *Plos one*, 15(4), e0232038. <https://doi.org/10.1371/journal.pone.0232038>
- Hole, G., Hole, A. S., & McFalone-Shaw, I. (2021). Digitalization in pharmaceutical industry: What to focus on under the digital implementation process? *International Journal of Pharmaceutics*: X, 3, 100095. <https://doi.org/10.1016/j.ijpx.2021.100095>
- Holle, L. M., Segal, E. M., & Jeffers, K. D. (2020). The expanding role of the oncology pharmacist. *Pharmacy*, 8(3), 130. <https://doi.org/10.3390/pharmacy8030130>
- Ibrahim Shire, M., Jun, G. T., & Robinson, S. (2020). Healthcare workers' perspectives on participatory system dynamics modelling and simulation: Designing safe and efficient hospital pharmacy dispensing systems together. *Ergonomics*, 63(8), 1044-1056. <https://doi.org/10.1080/00140139.2020.1783459>
- Ilardo, M. L., & Speciale, A. (2020). The community pharmacist: perceived barriers and patient-centred care communication. *International journal of environmental research and public health*, 17(2), 536. <https://doi.org/10.3390/ijerph17020536>
- Kennedy, M. C., Reast, A., Morrow, K., Bourke, F., Murphy, C., Arnett, R., & Bradley, C. (2019). Reviewing Competence in practice: reform of continuing professional development for Irish pharmacists. *Pharmacy*, 7(2), 72. <https://doi.org/10.3390/pharmacy7020072>
- Khoukhi, S., Bojji, C., & Bensouda, Y. (2019). A review of medical distribution logistics in pharmaceutical supply chain. *International Journal of Logistics Systems and Management*, 34(3), 297-326. <https://doi.org/10.1504/IJLSM.2019.103085>
- Lee, S. W. H., Mak, V. S. L., & Tang, Y. W. (2019). Pharmacist services in nursing homes: a systematic review and meta-analysis. *British journal of clinical pharmacology*, 85(12), 2668-2688. <https://doi.org/10.1111/bcp.14101>
- Livingstone, S., & Haddon, L. (Eds.). (2012). *Children, risk and safety on the internet: Research and policy challenges in comparative perspective*. Policy Press.
- Meng, L., Qiu, F., & Sun, S. (2020). Providing pharmacy services at cabin hospitals at the coronavirus epicentre in China. *International Journal of Clinical Pharmacy*, 42(2), 305-308. <https://doi.org/10.1007/s11096-020-01020-5>
- Moss, P., & Petrie, P. (2005). *From children's services to children's spaces: Public policy, children and childhood*. Routledge. <https://doi.org/10.4324/9780203995105>

- Nasirin, C., & Lionardo, A. (2020). Effective Implementation of Marketing Management of Hospital Pharmacy: A Study on the Impact of Hospital Service Quality Improvement in Enhancing the of Patients' Satisfaction and Loyalty. *Systematic Reviews in Pharmacy*, 11(5), 705-712. <http://dx.doi.org/10.31838/srp.2020.5.101>
- Patsalos, P. N., Spencer, E. P., & Berry, D. J. (2018). Therapeutic drug monitoring of antiepileptic drugs in epilepsy: a 2018 update. *Therapeutic drug monitoring*, 40(5), 526-548. <https://doi.org/10.1097/FTD.0000000000000546>
- Renfro, C. P., Wheeler, J. S., McDonough, S. L., Wang, J., & Hohmeier, K. C. (2020). Exploring employer perceptions of pharmacy technician certification in the community pharmacy setting. *Research in Social and Administrative Pharmacy*, 16(9), 1215-1219. <https://doi.org/10.1016/j.sapharm.2019.12.003>
- Ross, L. F., Saal, H. M., David, K. L., & Anderson, R. R. (2013). Technical report: ethical and policy issues in genetic testing and screening of children. *Genetics in Medicine*, 15(3), 234-245. <https://doi.org/10.1038/gim.2012.176>
- Sabra, R., Safwan, J., Dabbous, M., Rida, A., Malaeb, D., Akel, M., & Sakr, F. (2022). Assessment of knowledge, attitude and practice of Lebanese pharmacists in providing patient counselling on urinary tract infection and its treatment. *Pharmacy Practice*, 20(2), 1-9. <https://doi.org/10.18549/PharmPract.2022.2.2653>
- Sherburne Hawkins, S., & Law, C. (2006). A review of risk factors for overweight in preschool children: a policy perspective. *International Journal of Pediatric Obesity*, 1(4), 195-209.
- Stranges, P. M., Jackevicius, C. A., Anderson, S. L., Bondi, D. S., Danelich, I., Emmons, R. P., ... & Smithgall, S. (2020). Role of clinical pharmacists and pharmacy support personnel in transitions of care. *Journal of the American College of Clinical Pharmacy*, 3(2), 532-545. <https://doi.org/10.1002/jac5.1215>
- Strasburger, V. C., Mulligan, D. A., Altmann, T. R., Brown, A., Christakis, D. A., Clarke-Pearson, K., s & Noland, V. L. (2011). Policy statement-Children, adolescents, obesity, and the media. *Pediatrics*, 128(1), 201-208. <https://doi.org/10.1542/peds.2011-1066>
- Teymourian, H., Parrilla, M., Sempionatto, J. R., Montiel, N. F., Barfidokht, A., Van Echelpoel, R., ... & Wang, J. (2020). Wearable electrochemical sensors for the monitoring and screening of drugs. *ACS sensors*, 5(9), 2679-2700. <https://doi.org/10.1021/acssensors.0c01318>
- Ung, C. O. L. (2020). Community pharmacist in public health emergencies: quick to action against the coronavirus 2019-nCoV outbreak. *Research in Social and Administrative Pharmacy*, 16(4), 583-586. <https://doi.org/10.1016/j.sapharm.2020.02.003>
- Xi, X., Huang, Y., Lu, Q., Ung, C. O. L., & Hu, H. (2019). Community pharmacists' opinions and practice of pharmaceutical care at chain pharmacy and independent pharmacy in China. *International journal of clinical pharmacy*, 41(2), 478-487. <https://doi.org/10.1007/s11096-019-00802-w>
- Ying, W., Qian, Y., & Kun, Z. (2021). Drugs supply and pharmaceutical care management practices at a designated hospital during the COVID-19 epidemic. *Research in Social and Administrative Pharmacy*, 17(1), 1978-1983. <https://doi.org/10.1016/j.sapharm.2020.04.001>