

# Analysis of prescribing error incidence in out-patient prescription at community health center of Tilamuta Boalemo Regency

Sukmawati Ahmad Damiti<sup>1</sup>, Syamsul Thalib<sup>2</sup>, Vyani Kamba<sup>3</sup>, Ysrafil<sup>4</sup>, Hartati<sup>5</sup>

<sup>1</sup>Departement of Midwifery, Health Polytechnic of Palangka Raya, Palangka Raya City, Indonesia

<sup>2,3,5</sup>Departement of Pharmacy, Health Polytechnic of Gorontalo, Gorontalo, Indonesia

<sup>4</sup>Departement of Pharmacotherapy, Faculty of Medicine, Palangka Raya of University, Indonesia

## ARTICLE INFO

### Article history:

Received 19 Nov, 2022

Revised 7 Des, 2022

Accepted 22 Des, 2022

### Keywords:

Community Health Center  
Out-patient Prescribing  
Prescribing Error  
Tilamuta

## ABSTRACT

Prescribing error can also be referred to as the error in medicine prescription that could endanger the patients. The absence of the right preparation dose can be potentially lead to misread by the transcriber, as different medicines might have various preparation doses. The aimed of this study to identify the prescribing errors cases in patients in Tilamuta Community Health Center. The analysis on the prescription was conducted to identify the administrative and pharmaceutical completeness of the prescription. The data involved retrospective and prospective towards 300 prescriptions of out patients in Tilamuta Community Health Center by random sampling Method. The inclusion criteria employed out patient prescription for patients age 1-15 years old and 60 years old and above. The results showed that the highest percentage of prescribing error cases was in administrative error at 98,3% (295 prescription), while in the pharmaceutical error, the percentage arrived at 52,3% (157 prescription). This study was concluded that the highest prescribing error cases in Tilamuta community Health Center were the administrative error in the form of the absence of Occupational License at 96,7% or 293 prescriptions, while the pharmaceutical error at 37,3% or 112 prescriptions involved too low dosage.

This is an open access article under the [CC BY-NC](#) license.



### Corresponding Author:

Sukmawati Ahmad Damiti,  
Departement of Midwifery,  
Health Polytechnic of Palangka Raya,  
George Obos No. 30/32 Menteng, Palangka Raya City 73111, Indonesia,  
Email: [sukmawati@polkesraya.ac.id](mailto:sukmawati@polkesraya.ac.id)

## INTRODUCTION

Patient safety as an effort to prevent the occurrence of danger or injury to the patient during the treatment process. *The United States Pharmacopoeia* reported more than one million treatment errors occurred and an estimated 7,000 deaths from *medication errors* (Timbongol et al., 2016). *Medication Error* is any avoidable event that can cause or result in improper drug service or harm the patient. *Medication Error* until now remains one of the health problems that causes many various impacts for patients ranging from mild risks to even the most severe risk of causing a death (Maalangen, 2019).

Medication errors can occur in 4 phases, namely prescribing errors, transcription errors, dispensing errors, and administration errors (Khairurrijal, 2017). The three types of medication errors, the prescribing phase has the greatest risk of error, which is equal to 99.12%. Incomplete prescriptions include (absence of date of prescription writing by 53.33%, doctor's initials by 51.43%, patient's address by 84.76%, patient's weight by 100%, and patient's gender by 99.05%), writing unclear usage rules by 15.24%, and the use of unusual abbreviations by 15.24% (Nu'man et al., 2014).

This research only focuses on *the prescribing phase of medication error*, namely *administrative* and *pharmaceutic* studies of things that often occur in *prescribing errors* when viewed from several journals of potential errors, namely: prescription writing that cannot be read 0.3%, drug names abbreviated 12%, no dose of administration 39%, no number of administration 18%, not writing down dose units 59%, no 34% wear rule, no 49% route of administration, no 84% dosage form, no 16% prescription request date, incomplete patient identity (no medical record number written 62%, height 88%, patient gender 76%, age 87%, and weight 88%). Factors that cause prescribing errors are work environment factors, namely disturbances and health workers who lack knowledge, poor doctor writing, and overwork (Oktarlina and Wafiyatunisa, 2017).

The incidence of prescribing errors carried out at RSUP Dr.Mohammad Hoesin Palembang obtained prescribing errors of 9.1% and dispensing errors of 4.4% of the 792 prescriptions and 113 officers studied, prescribing errors were influenced by 35 doctors and dispensing errors were influenced by 17 Pharmacy as Technical Staff (Gloria et al., 2017).

Prescribing errors in terms of decision making include choosing the wrong drug for the patient (due to allergies, drug interactions, presence of kidney and liver disorders, inappropriate dosage and method of drug administration). Prescribing errors in prescription writing include unreadable prescriptions, writing abbreviations that are ambiguous or have dual meanings, lack of writing of important information such as the date of prescription, dosage, route, frequency of drug administration (Amalia and Sukohar, 2014).

Pharmacists must conduct prescription assessments in accordance with administrative requirements including Patient Name, age, gender, weight and height of the patient, doctor name, permission number, address and paraphrase of the doctor, Recipe date, Room/unit of origin of the recipe. Pharmaceutic requirements as follows Name of the drug, dosage form and strength, dosage and amount of the drug, stability, rules and ways of use and The clinical considerations for both inpatients and outpatients including Accuracy of indications, dosage and timing of use of the drug, Duplication of treatment, Allergies and Unwanted Drug Reactions, Contraindications, Drug Interactions. Medication error is often caused by *prescribing errors* in the inscription section of recipes, invocation recipes, prescription recipes, *signature recipes*, *prescription subscriptions*, and prescription *pro* (prescription pattern as seen in figure 1) (Pratiwi, M and Pratiwi, 2018).

The results of research at Kandou Hospital that the factors causing the *prescribing phase of medication error* include workload, the ratio between workload and human resources unbalanced, writing prescriptions does not meet the requirements for completeness of prescriptions, interference with telephone ringing, environmental conditions that lighting that is not supportive when working, and was use communication for drugs request (Yosefin Ch. Donsu et al, 2016).

One way to prevent it from happening medication errors or medication errors is to do a prescription review. In carrying out their duties, Pharmacist role in reviewing prescriptions. This is stated in the Government Regulation Republic of Indonesia Number 51 of 2009 about Pharmaceutical Work and Regulation of the Minister of Health of the Republic Indonesia Number 72 of 2016 concerning Standard Pharmaceutical Services at Hospital (Pemerintah Republik Indonesia, 2009; Kementerian Kesehatan, 2016).

Pratiwi et al, 2018 states that that a complete recipe must contain things namely *Inscriptio* includes name, address and license number of the practice of the doctor, dentist or veterinarian, date of writing the prescription. *Invocatio* includes the R/ mark on the left of each recipe writing.

*Prescriptio/ordonatio* includes the name of each drug and its composition. *Signature*, that is written rules of use of the drug. *Subscriptio* consists of the signature or paraphrase of the prescribing doctor in accordance with applicable laws and regulations.

Tilamuta Community Health Centers one of the health center in Tilamuta District, Boalemo Regency, which continues to strive to improve health services to the community, but still has some limitations. Some of the limitations of this place is that the number of doctors is only two people who have to serve around 500-800 patients every month. This condition allows the occurrence of prescribing errors. it is necessary to conduct research on the incidence of *prescribing errors* in outpatient prescriptions in Tilamuta Community Health Centers Boalemo to avoiding unwanted events.

## RESEARCH METHOD

This type of research is descriptive research with retrospective data collection based on prescription data at the Tilamuta Community Health Center for the January-May 2021 period. Data collection using a check list sheet based on indicators of prescription completeness based on administration and pharmaceuticals. The checklist sheet makes it easier for researchers to summarize the presentation of column sheets to examine the parameters to be studied (Pernama, 2017).

Variables for administration completeness prescription in *Inscriptio* include name, address and license number of the practice of the doctor, dentist or veterinarian, date of writing the prescription. *Invocatio* includes the R/ mark on the left of each recipe writing. *Prescriptio/ordonatio* includes the name of each drug and its composition. *Signature*, that is written rules of use of the drug. *Subscriptio* consists of the signature or paraphrase of the prescribing doctor in accordance with applicable laws and regulations. At the end, there is a sign *Pro* for the patient's name, address, age, and body weight. The variables for pharmaceutical completeness prescription are Low doses, high doses, and unclear prescriptions / unclear prescriptions.

The research population included all outpatient prescriptions for patients at the Tilamuta Community Health Center from January to May 2021, namely 900 prescriptions. The sampling method was random sampling with inclusion criteria: all patient outpatient prescriptions; children aged 1-15 years (pediatric prescriptions); and seniors aged over 60 years (geriatric prescriptions). Sampling using the Slovin formula so that the number of samples obtained was 279 prescriptions.

Data analysis was carried out using univariate analysis (descriptive analysis) and calculated in terms of presentation so as to produce the number of presentations intended for each phase of medication error events in the prescribing phase. The study was carried out after obtaining an ethically certificate with the number LB.01.01/KEPK/091/2021.

## RESULTS AND DISCUSSIONS

Tilamuta Community Health Center has a high number of patient visits, around 300-500 patients per month with 2 doctors and 3 pharmaceutical technicians. The lack of health resources at this Health Center is one of the reasons researchers are interested in conducting research at the Tilamuta Community Health Center. The prescription analysis is carried out on patients with an age range of 1 to 15 years and 60 years and over because this age group is prone to the emergence of problems related to drugs which are serious health problems as they can affect the quality of life of patients and have a significant economic impact. and affected by drug side effects (ESO) (Anggriani *et al*, 2016).

**Table 1.** Characteristics of drugs by prescription

| Drug Class       | n   | %    |
|------------------|-----|------|
| Antihypertensive | 130 | 43,3 |
| Antiallergic     | 80  | 26,7 |
| Antidiabetic     | 62  | 20,7 |

| Drug Class                | n   | %    |
|---------------------------|-----|------|
| Anti Fibrinotik           | 2   | 0,7  |
| Anti Fungi                | 3   | 1    |
| Anti-Asthma               | 5   | 1,7  |
| Antibiotic                | 68  | 22,7 |
| Corticosteroids           | 48  | 16   |
| Anti-Epilepsy             | 3   | 1    |
| Cholesterol               | 18  | 6    |
| Expectorant               | 21  | 7    |
| Mucolytics                | 48  | 16   |
| Analgesics & Antipyretics | 132 | 44   |
| GERD medicine             | 47  | 15,7 |
| Tuberculosis              | 30  | 10   |
| Vitamins & Minerals       | 60  | 20   |

The flow of prescription services at the Tilamuta Community Health Center in Boalemo Regency starts with patient consultation with a doctor. At this stage, the doctor will determine the history, diagnosis, and therapy and write a prescription. At the prescribing stage, *prescribing errors* by doctors. Then the doctor will write the prescription to be given to the patient and handed over to the pharmacist or assistant pharmacist at the pharmacy. Then the pharmacist will conduct a prescription screening to prevent or overcome problems that may occur in prescription writing. The following is a picture of the drugs that are often prescribed by doctors at the Tilamuta Community Health Center.

Table 1 illustrates that the characteristics of drugs based on prescriptions that are often prescribed by doctors are analgesics and antipyretics, namely 44% (132 prescriptions). This shows that most patients at the Tilamuta Community Health Center often experience pain and fever. Because analgesic and antipyretic class drugs have the effect of reducing or eliminating mild to moderate pain and are also used to lower body temperature (fever) (Asyraf *et al*, 2019).

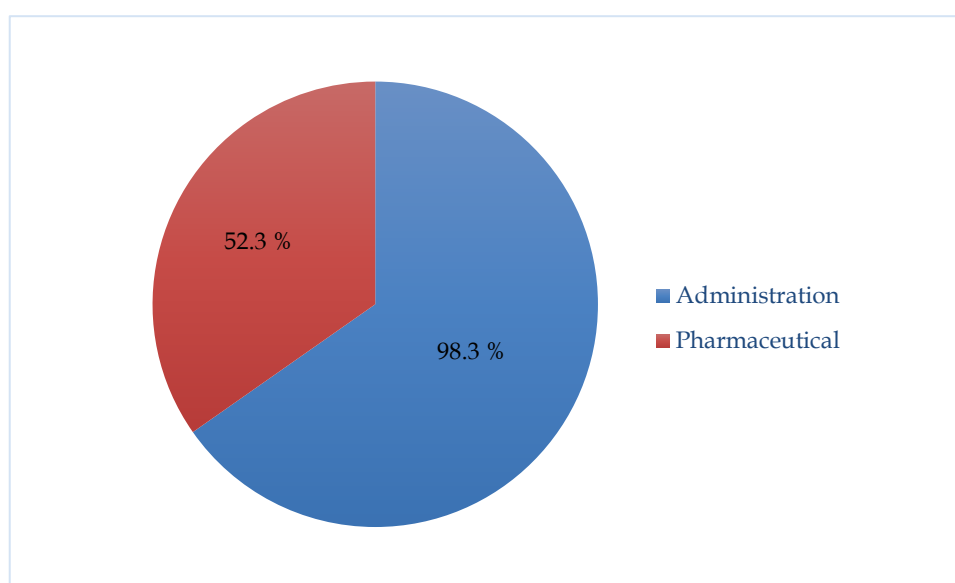
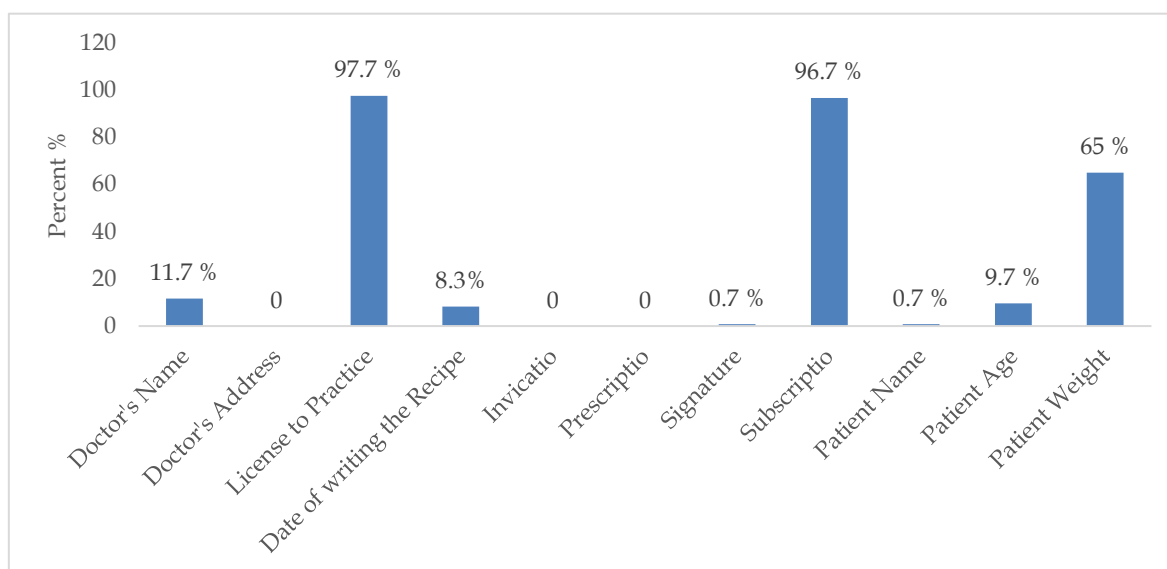


Figure 1. Prescribing error events

The highest incidence of prescribing errors seen in figure 1, was in the administrative aspect of the recipe, which was 98.3% (195 recipes). Administrative incomplete prescriptions are caused by doctors who are not used to filling out prescription information completely but only prioritizing certain information, such as the doctor's name and patient's name because the doctor's time is very limited, while the number of patients who must be provided with services is very large. As a result of administrative incomplete prescriptions, it will have a negative impact on patients and cause obstacles when the prescription is given to patients. Administrative screening is an initial screening to prevent medication errors in terms of *prescribing errors* (Junus *et al.*, 2020).

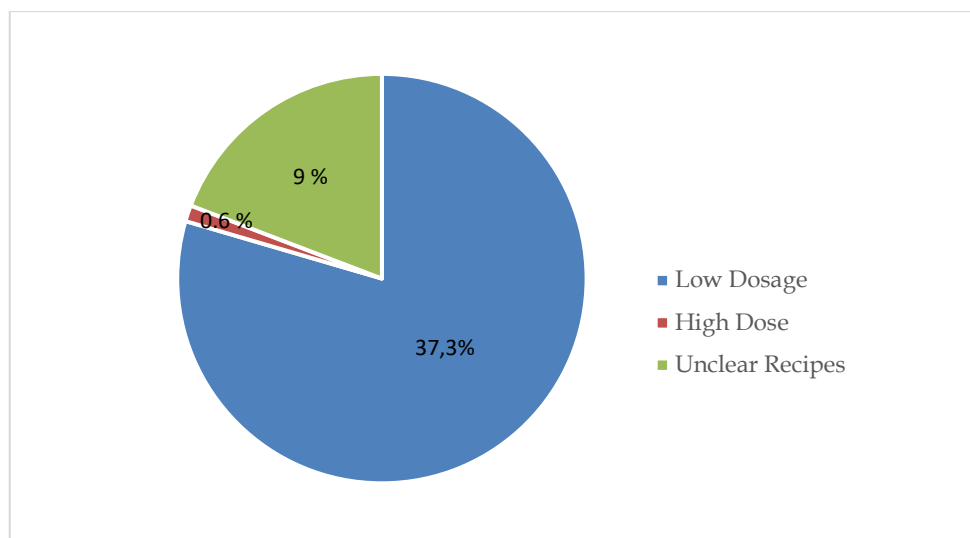
The errors in terms of recipe administration are described in the figure 2, the most common error is the Practice License of 97.7% (293 recipes). Practice License in prescriptions must be included to ensure patient safety and that the doctor concerned has rights and is protected by law in providing treatment for his patient and has fulfilled the requirements to practice as stipulated by law. In addition, it also aims to guarantee that the doctor is legally recognized in the professional practice of doctors (Putri, 2020). This is emphasized in PERMENKES (2019), regarding technical guidelines for pharmaceutical service standards at the Health Center that prescription administration requirements must include the doctor's name, doctor's Practice License number, and doctor's initials.

There are several parameters that meet the completeness aspect of the prescription, namely doctor's address 0% error, invocatio 0% error, and prescriptio 0% error. This indicates that the doctor has complied with the applicable rules because the completeness of the prescription has been printed. This statement is in accordance with Trisnawati's research (2019). The doctor's address should be stated clearly because if a written prescription is unclear or doubtful, you can directly contact the doctor in question. This will also facilitate patient service at the pharmacy. Likewise with the R/ sign which means 'take it' which is a doctor's written request. Serves as an opening word for communication between the prescribing doctor and the pharmacist (Amalia and Sukohar, 2014).



**Figure 2.** Error occurrence rate in term of administrative prescription

Apart from the administrative aspect of the prescription, a prescription review was also carried out from a pharmaceutical perspective which included too low doses, too high doses, and unclear prescriptions as shown in the following figure.



**Figure 3.** Error occurrence rate in term of pharmaceutical prescription

In the figure 3, it can be seen that the highest incidence rate was too low a dose of 37.3% (112 prescriptions). Taking the medication at too low a dose will cause the drug not to work properly in the body. For example, the drugs taken are analgesic and antipyretic, if the dose used is smaller/lower than the therapeutic dose or the dosage provisions that can heal, then no healing effect will be obtained (Asyraf, 2019). The same research was conducted by Hartati et al (2014) at the Baubau City Hospital and Santa Anna Kendari Hospital where the incidence of writing prescriptions with too small/low doses was 70.83% and 63.33%.

Likewise with too high a dose, in this study, the incidence of writing prescriptions with too high doses was 0.7% (2 prescriptions). Taking drugs with too high doses will not increase the effectiveness of the drug's work, but with excessive doses, it can cause poisoning and has the potential to damage the liver which can be followed by damage to several other organs, one of which is the kidney (Hapsari and Nugroho, 2016). The incidence of high doses in health centers is still relatively low. This shows that the doctor has applied his knowledge according to what he has obtained, such as the right dose as stated in the Regulation of the Minister of Health of the Republic of Indonesia Number 74 of 2016 concerning Pharmaceutical Service Standards at the Community Health Center that pharmaceutical requirements include the right dose.

The results of the review of prescriptions from a pharmaceutical perspective also obtained an incidence of unclear prescriptions of 9% (27 prescriptions). The reason for writing prescriptions that were unclear and incomplete (eg: dose, amount, patient's name) was due to the doctor's knowledge of the availability of medicines not being confirmed. with good, and bad writing and interruptions from the patient's family (Diana *et al.*, 2021).

## CONCLUSION

The results showed that the highest percentage of prescribing error cases was in administrative error at 98,3% (295 prescription), while in the pharmaceutical error, the percentage arrived at 52,3% (157 prescription). This study was concluded that the highest prescribing error cases in Tilamuta community Health Center were the administrative error in the form of the absence of Occupational License at 96,7% or 293 prescriptions, while the pharmaceutical error at 37,3% or 112 prescriptions involved too low dosage. The application prospects of further studies into the next to clinical studies can be carried out for drugs prescribed to patients at the Tilamuta Community Health Center.

## ACKNOWLEDGEMENTS

Acknowledgments are addressed to the health workers at Tilamuta Community Health Center for provide opportunities and directions in collecting research data.

## References

- Amalia, D. T. and Sukohar, A. (2014) 'Rational Drug Prescription Writing', 4, pp. 22-30.
- Anggriani, A., Lisni, I. and Faujiah, D. S. R. (2016) 'Analisis Masalah Terkait Obat Pada Pasien Lanjut Usia Penderita Osteoarthritis Di Poli Ortopedi Di Salah Satu Rumah Sakit Di Bandung', *Kartika Jurnal Ilmiah Farmasi*, 4(2), pp. 13-20. doi: 10.26874/kjif.v4i2.61.
- Asyraf Vivaldi Wardoyo, R. Z. O. (2019) 'Tingkat Pengetahuan Masyarakat Terhadap Obat Analgesik Pada Swamedikasi Untuk Mengatasi Nyeri Akut', 10(2), pp. 156-160. doi: 10.35816/jiskh.v10i2.138.
- Diana, K. et al. (2021) 'Jurnal Farmasi Dan Ilmu Kefarmasian Indonesia Special Issue: Seminar Inovasi Teknologi dan Digitalisasi Pada Pelayanan Kefarmasian 2020 13', (X), pp. 86-88.
- Gloria, L., Yuwono and Ngudiantoro (2017) 'Analisis Faktor Yang Mempengaruhi Medication Error Pada Pasien Kemoterapi Di RSUP DR. Mohammad Hoesin Palembang', *Majalah Kedokteran Sriwijaya*, 4(49), pp. 178-184.
- Hartati, Nike Herpianti Lolok, Achmad Fudholi, S. (2014) 'Analisis Kejadian Medication Error Pada Pasien Icu', *Jurnal Manajemen Dan Pelayanan Farmasi (Journal of Management and Pharmacy Practice)*, 4(2), pp. 125-132. doi: 10.22146/jmpf.277.
- Hapsari, I. A. and Nugroho, T. E. (2016) 'Pengaruh pemberian analgesik kombinasi parasetamol dan tramadol terhadap kadar ureum serum tikus wistar', 5(4), pp. 1054-1063.
- Junus, D. et al. (2020) 'Kelengkapan Administrasi Terhadap Pelayanan Resep Instalasi Farmasi RSUD Haji Provinsi Sulawesi Selatan Effect on the Fulfillment of Administration towards the Pharmaceutical Installation Prescription Services at RSUD Haji, South Sulawesi Province', 6(X), p. 1.
- Khairurrijal, M. A. W. (2017) 'Review : Medication Error Pada Tahap Prescribing, Transcribing, Dispensing, dan Administration', 2(4), pp. 8-13.
- Kementerian Kesehatan (2016). Peraturan Menteri Kesehatan Republik Indonesia Nomor 72 tahun 2016. Jakarta
- Maalangen, T. veren (2019) 'Identifikasi Medication Error Pada Resep Pasien Poli Interna Di Instalasi Farmasi Rumah Sakit Bhayangkara Tk. Iii Manado', 8, pp. 434-441.
- Nu'man Maiz1, Nurmainah2, E. K. U. (2014) 'Analisis Medication Error Fase Prescribing Pada Resep Pasien Anak Rawat Jalan Di Instalasi Farmasi Rsud Sambas Tahun 2014', *Analysis Of Medication Error Of Prescribing Phase In Prescription Of Pediatric Outpatient In The Pharmacy Installation At Sambas Hospital 2014* pp. 1-9.
- Oktarlina, R. Z. and Wafiyatunisa, Z. (2017) 'Kejadian Medication Error pada Fase Prescribing di Poliklinik Pasien Rawat Jalan RSD Mayjend HM Ryacudu Kotabumi Medication Error in Prescribing Phase in Polyclinic Outpatient RSD Mayjend HM Ryacudu Kotabumi', 1(November 1999), pp. 540-545.
- Pemerintah Republik Indonesia, (2009). Peraturan Pemerintah Republik Indonesia Nomor 51 Tahun 2009 Tentang Pekerjaan Kefarmasian. Jakarta.
- Pratiwi, D., M, N. R. I. and Pratiwi, D. R. (2018) 'Analisis Kelengkapan Administratif Resep di Apotek Bhumi', 6(35), pp. 6-11.
- Pernama, A. M. (2017) *Evaluasi Medication Error Pada Resep Pasien Diabetes Mellitus Tipe II Ditinjau Dari Fase Prescribing, Transcribing, Dan Dispensing Diinstalasi Rawat Jalan Salah Rumah Sakit Jakarta Utara*. UIN Syarif Hidayatullah Jakarta.
- Permenkes, RI. (2019) 'Petunjuk Teknis Standar Pelayanan Kefarmasian Di Puskesmas'. Jakarta.
- Putri, P. R. J. (2020) 'Observasi Pengkajian Resep Secara Administratif Pada Apotek X Di Kabupaten Badung', 10(1), pp. 38-45
- Timbongol, C., Lolo, W. A. and Sudewi, S. (2016) 'Identifikasi Kesalahan Pengobatan (Medication Error) Pada Tahap Peresepan (Prescribing) Di Poli Interna Rsud Bitung', *Pharmacon*, 5(3), pp. 1-6. doi: 10.35799/pha.5.2016.12930.
- Trisnawati, D. (2019). *Gambaran Kelengkapan Resep Di Puskesmas Petatal Kecamatan Datuk Tanah Datar Kabupaten Batu Bara Tahun 2018*. KTI. Politeknik Kesehatan Medan. Medan
- Yosefin Ch. Donsu et al (2016) 'Faktor Penyebab Medication Error Pada Pelayanan Kefarmasian Rawat Inap Bangsal Anak Rsud Prof.Dr.R.D.Kandou Manado', 5(3).