

ORIGINAL ARTICLES

## A case study about the implementation of the regulation on prescription for health insurance out-patients in a general hospital in Vietnam, 2022

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### ABSTRACT

**Objectives:** Prescribing is an activity that plays a crucial role in ensuring safe and rational drug use. However, inappropriate prescription practices are still common worldwide, including in Vietnam. This study aimed to analyze the prescriptions of outpatients with health insurance cards at Cam Ranh General Hospital, Khanh Hoa Province in 2022.

**Methods:** The study design was a cross-sectional study incorporating both quantitative and qualitative research methods. The study involved 400 outpatient prescriptions with Health Insurance cards in 2022, combined with in-depth interviews with hospital leaders, heads of the Medical Examination Department, the Pharmacy Department, health insurance supervisors, and group discussions with seven physicians working in the Medical Examination Department.

**Results:** The research findings showed that the hospital had a good compliance rate of 100% regarding administrative procedures in prescription writing. Prescription omission of instructions for follow-up visits, dietary regimens, and rest constituted 27.7% of cases. Outpatient prescriptions containing antibiotics accounted for 23.3%, while those containing vitamin tablets accounted for 9.3%. The misuse rate of Vinpocetine tablets was 30%, and Ginkgo biloba tablets accounted for 25%. The average number of drugs per prescription was 3.1. Prescriptions with drug interactions accounted for 3.5%. Rejected health insurance payment claims for prescriptions accounted for 3.5%.

**Conclusion:** To enhance the safety and rationality of prescription writing, the hospital should implement software that alerts drug interactions and monitors the appropriate use of medications

**Keywords:** Prescription, outpatient prescriptions, Health Insurance, outpatient care, drug use.

### INTRODUCTION

Prescriptions serve as the legal basis for prescribing, dispensing, and providing medications according to a prescription. Prescription writing plays a crucial role in ensuring the safe and rational use of drugs. If prescriptions are not appropriate, it can lead to serious consequences both economically and health-wise. Each country has its regulations regarding prescription writing to

suit the conditions of that particular country. The most important requirement is that prescriptions must be clear, rational, and accurately indicate the medications to be used. However, the problem of inappropriate prescribing is widespread worldwide, including in Vietnam.

According to a systematic review using WHO drug use indicators in Ethiopia, the highest average number of drugs per



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encounter was 2.5 while the lowest was 0.98. The percentage of generic drug use was ranged from 70.5% to 100%. The highest percentage of encounters with an antibiotic was 85%. The lowest percentage of drugs prescribed from the essential drugs list was 81.4%. The highest percentage of drugs actually dispensed and adequately labeled was 96.16% and 96.25%, respectively (1). A research study conducted at Thanh Hoa General Hospital in 2016 showed that antibiotic prescriptions accounted for 74.5% of all prescriptions (2). In a research study conducted by Bui Thi Cam Nhung at Thanh Hoa Obstetrics Hospital, 94% of prescriptions were for vitamins. Vitamin prescriptions are mainly intended to boost the immune system and improve the patient's health. However, the misuse of vitamin prescriptions can lead to wastage and increased risk of drug interactions (3).

Cam Ranh General Regional Hospital has implemented the use of electronic prescription software for outpatient prescriptions and established a team to check outpatient prescriptions. However, there are still many shortcomings in the outpatient prescription process, and on average, the Health Insurance Agency rejects payment for approximately 20.000.000 VND worth of erroneous prescriptions, accounting for 30% of the total amount rejected by the hospital (4).

This study was conducted to analyze the current situation of outpatient prescriptions covered by health insurance and propose measures to improve the safe and rational use of medications for the patient and efficient use of Health Insurance (HI) funds.

## METHODS

**Study design:** A mixed-methods research combining quantitative and qualitative approaches.

**Research subjects:** Prescriptions in 6 early months of 2022.

**Study site and time:** The study conducted from March to October, 2022 in Cam Ranh Hospital, Khanh Hoa province.

**Sample size and sampling method:** We selected 400 prescriptions using systematic random sampling from a total of 25,273 prescriptions in 6 early months of 2022. From 25,273 outpatient medical prescriptions stored in the electronic prescription software, a list was made and numbered from 01 to 25,273. The  $k$  coefficient is  $25,273/400 = 63$ . A random number  $i$ , with  $1 \leq i \leq 65$ , was drawn, and the number 10 was obtained. After that, prescriptions with sequential numbers 10, 73, 136, 199, 262, ..., were selected until the sample size was 400 prescriptions and the time was suitable according to the above calculation.

After obtaining quantitative results, we conducted in-depth interviews with hospital leaders, the heads of the Outpatient & Pharmacy Department, the Health Insurance supervisor, and group discussions with 7 doctors working in the Outpatient Department to understand the underlying reasons.

**Research variables:** We developed a toolkit based on the research by author Le Quang Lenh and by the provisions of Circular No. 52/2017/TT-BYT of the Ministry of Health regarding prescriptions and outpatient prescription writing at healthcare facilities (5).

Quantitative variables included indicators of adherence to administrative regulations regarding prescription writing, prescribing antibiotics, vitamins, and reimbursable medications, number of medications prescribed per prescription, duration of treatment according to the prescription, medication interactions, and health insurance rejection of prescriptions. Qualitative topics

focused on the reasons contributing to the current situation of prescription writing.

**Data analysis:** Quantitative data were processed using Microsoft Excel 2016 software, calculating percentages, mean values, and standard deviations. In-depth interviews and group discussions were recorded, and the obtained information was transcribed into text format by the researchers. The content of in-depth interview was analyzed and quoted based on relevant research objectives.

**Ethics approval:** The study was conducted after receiving approval from the Ethics Committee of the Public Health University, according to decision No. 193/2022/YTCC-HD3, and with the consent of the Director of Cam Ranh General Regional Hospital.

## RESULT

Implementation of administrative procedures and prescription regulations Table 1 shows the implementation of administrative procedures, such as the patient's full name, age, diagnosis, signature, and clear indication of the doctor's name and address, with a 100% compliance rate. However, the recording of patient instructions is lower, reaching only 72.3% (Table 1). The reason for the low rate of recorded patient instructions may be attributed to: "*Omissions often occur when the nurse assisting the doctor fails to input all the doctor's instructions into the software, especially during busy periods*" (In-depth interview 1).

**Table 1. Implementation of administrative procedures (n=400)**

Required items	Number of prescriptions filled with information according to the required items	%
Name of patient	400	100
Name of parent (prescription of children < 6 years old) (n = 168)	168	100
Age	400	100
Write number of month (prescription of children < 6 years old) (n=168)	168	100
Gender	400	100
Address of patient	400	100
Specific Diagnosis	400	100
Signature of Prescriber	400	100
Name, position of Prescriber	400	100
Date of Prescription	400	100
Instruction of using medicines	289	72.3

Regarding the implementation of the prescription regime, the prescription clearly states the name of the medication, the correct dosage, the frequency of use, the route of administration, and the timing of medication,

all of which are fully adhered to 100%.

The average number of medications in a prescription is  $3.09 \pm 1.51$ . Prescriptions with 2 types of medications account for the

highest proportion at 40.25%, followed by prescriptions with 3 types of medications at a rate of 24.75%. In reality, it has been observed that *“The more medications in a prescription, the higher the risk of unfavorable drug interactions. Therefore, on average, each prescription includes about 3 medications. However, for patients with multiple coexisting conditions, doctors may prescribe more medications”* (In-depth Interview 2; Focus group discussion 1).

### Use of antibiotics and vitamins

Table 2 shows that the proportion of prescriptions containing antibiotics accounts for 23.25% of the total 400 studied prescriptions, mostly consisting of prescriptions with one antibiotic. The average duration of antibiotic use is 6.4 days, with only 12.9% of prescriptions using antibiotics for more than 7 days. Prescriptions containing vitamins amount to 37, accounting for a rate of 9.25%.

**Table 2. Proportion of antibiotic and vitamin use in outpatient prescriptions**

Name of medicine	Number of prescriptions	%
Prescription without Antibiotic (n=400)	307	76.8
Prescription with Antibiotic (n=400)	93	23.3
Of which: One type of Antibiotic (n=93)	86	92.5
Two types of Antibiotic (n=93)	07	7.5
Prescription without Vitamin	363	90.8
Prescription with Vitamin	37	9.3

The prescription with drug interactions. Using the online search software “Medscape” to look up drug interactions, there were 14 prescriptions found to have one drug interaction, accounting for a rate of 3.5%. Table 3 shows that 8 prescriptions had Level 1 drug interactions, which are mild and not significant, and do not require medication alteration. There were 6 prescriptions with

Level 4 drug interactions, indicating severe interactions and contraindications for concurrent use of medications. The possible causes could be: *“Young doctors not carefully reading the medication instructions from the manufacturers, leading to prescribing contraindicated drugs, affecting the health and lives of patients”* (In-depth interview 3).

**Table 3. Classification of levels of drug interactions (n=14)**

Levels of drug interaction	Number	%
Level 1 (Minor, not important)	8	57.1
Level 4 (Ccontraindication)	6	42.9
<b>Total</b>	<b>14</b>	<b>100</b>

### Prescription rejected for payment by health insurance

In the case of conditionally prescribed medications, if doctors prescribe them

incorrectly according to regulations, it will be considered improper medication prescribing, and health insurance will reject payment.

Table 4 shows that health insurance does not cover payments for Vinpocetine and Ginkgo biloba medications.

**Table 4. Conditionally prescribed medications (n=28)**

No	Name of drug	Number of prescriptions	Number of incorrectly prescribed prescriptions	%	Count by
1	Ginkgo biloba	8	2	25	Total of prescription with Ginkgo biloba
2	Vinpocetin	20	6	30	Total of prescription with Vinpocetin
<b>Total</b>		<b>28</b>	<b>8</b>	<b>28.5</b>	<b>Total of prescription with Ginkgo biloba &amp; Vinpocetin</b>

Reason for health insurance denial of payment due to incorrect prescription according to the regulations of health insurance on conditional payment drugs: *“According to the provisions of Circular No. 30/2018/TT-BYT issued by the Ministry of Health, health insurance only covers the cost of Ginkgo Biloba and Vinpocetine drugs for specific diagnoses and does not cover them when used as regular dietary supplements”* (In-depth interview 4). Therefore, the health insurance’s refusal to pay is in accordance with the regulations. The incorrect prescription according to the health insurance regulations is because the doctor did not update information about the conditional drugs: *“Prescribing drugs that do not meet the payment conditions is an error of the prescribing person who has not updated information about the conditional drugs”* (In-depth interview 2). Additionally, it is also due to the lack of strict supervision and clinical pharmacists: *“The supervision of prescription drugs still overlooks inappropriate prescriptions and irrational drug use. The hospital lacks clinical pharmacist supervision of prescription drugs”* (In-depth interview 5).

## DISCUSSION

### Compliance with administrative procedures and prescription regulations

The hospital has implemented outpatient health insurance prescriptions through electronic prescription software, which provides convenience for doctors and patients. Administrative procedures such as patient’s full name, age, diagnosis, and clearly signed by the doctor are all carried out with a 100% compliance rate. However, the percentage of prescriptions with patient instructions is relatively low at 72.3%. This shortcoming is often due to the assisting nurse’s failure to record all of the doctor’s instructions in the software, especially during busy periods. The average number of medications per prescription is 3.09, and there are no additional prescriptions for patients receiving outpatient health insurance for purchasing external medications or prescribing cosmetics and functional foods. This result is higher than the WHO recommendation of 1.5 to 2 medications per prescription (6). The higher average number of medications per prescription than WHO recommendations is

due to doctors prescribing medications for longer time (from 20-30 days) for patients with chronic diseases. The practice of prescribing medications with longer days aimed at addressing the issue of hospital overcrowding, reducing medical examination costs covered by health insurance, and the number of hospital visits.

### **Use of antibiotics and vitamins**

The percentage of antibiotic prescriptions at the hospital is 23.25%. Outpatient antibiotic prescriptions are based on experience rather than standardized antibiotic guidelines. This rate is in line with the WHO recommendation of 20-30% and lower than many other hospitals in the country, such as Ninh Hoa General Hospital, which had a rate of 29.75% in 2019 (7). According to the treatment guidelines of the Vietnam Ministry of Health, for common infections, the duration of antibiotic prescription is 5-7 days (8). The average duration of antibiotic use in outpatient health insurance prescriptions in this study is 6.4 days, which is consistent with the Vietnam Ministry of Health's guidance (9). The proportion of prescriptions containing vitamins at the Cam Ranh Regional General Hospital is relatively low at 9.25%. This is also the result of strict control over the prescription of vitamins by the Clinical Pharmacy Division and the leadership of the Outpatient Examination Department to avoid the misuse of vitamins. The hospital has a policy of limiting vitamin prescriptions because health insurance warns that they will not cover payments due to a lack of laboratory tests proving vitamin deficiency.

### **Proportion of prescriptions with drug interactions**

The percentage of prescriptions with drug interactions is 3.5%. Among the 14 prescriptions with interactions, 08 prescriptions have level 1 interactions, and

06 prescriptions have level 4 interactions (contraindications). Level 1 interactions do not pose a danger to patients but should be considered when prescribing for patients. However, this study identified 6 level 4 interactions that are dangerous for patients. A study by Luong Vu Bao in 2016 reported a higher rate of unfavorable drug interactions in prescriptions at 4.3% (10). Drug interaction is a particularly important concern for the hospital, and the leadership has provided numerous instructions and measures to minimize drug interactions. The Drug and Treatment Council has actively worked on this issue. Regular organization and supervision of prescriptions, organizing drug review sessions to learn from experience. After each activity, written notifications are sent to all clinical departments. However, the results have not yet met the requirements. One possible issue is the lack of a drug interaction alert system besides the level of professional competence. The prescribing doctors are subjective and do not regularly update their knowledge of drug interactions. Another issue is the shortage of personnel, especially specialists. Therefore, young doctors are sometimes assigned to outpatient examinations, and general practitioners are assigned to specialty clinics.

### **Prescription rejected by health insurance**

The prescribed medication does not meet the payment conditions, and prescribing contraindicated medications is an error of the prescriber failing to update information on conditionally approved drugs. Although hospitals typically supervise outpatient prescriptions, there is still a certain percentage of incorrectly prescribed medications that violate regulations, resulting in health insurance refusal to pay and causing financial losses for the hospital. For example, the misuse of conditionally approved drugs such as Vinpocetine and Ginkgo biloba. The

reason is that doctors do not remember all the conditions and the list of conditionally approved drugs specified in Circular No. 30/2018/TT-BYT dated October 30, 2018, resulting in incorrect prescription according to the instructions of the Circular (11). Furthermore, the supervision of prescriptions in the hospital is still not strict enough and fails to thoroughly review prescriptions that do not meet the payment conditions of the health insurance agency.

Limitations of the study: The research only focuses on the current situation of outpatient prescription practices and some indicators within the prescriptions, without delving into the analysis of rationality in dosage and usage, as well as the cost of prescriptions.

## CONCLUSIONS

The hospital complies with regulations regarding administrative information in prescription writing; the rate of antibiotic and vitamin use in prescriptions is low. However, there are misuse of conditional drugs such as Vinpocetine and Ginkgo biloba tablets. Prescriptions with drug interactions account for 3.5%. To enhance safe and rational prescribing, the hospital needs to equip itself with software that warns of drug interactions and the use of conditional drugs. Additionally, it is necessary to strengthen supervision on antibiotic prescription.

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