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Verification of the Status of Issuance of Discharge Information Documents and Use of 'Okusuritecho' as Medication Handbook in Community Pharmacies

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Abstract

The activities of community pharmacies include collecting and sharing information about patients' hospitalization histories by checking medication registers, interviewing patients and their families, and providing information from other medical institutions. In 2020, an additional fee was established to provide pharmacies with information in a document form at the time of discharge from the hospital. This study aimed to verify the use of discharge information documents and medication handbooks as medication support for patients visiting community pharmacies after discharge from the hospital. We conducted this study on 97 patients who visited a community pharmacy after discharge from a community hospital between January 2021 and September 2021. In this survey, 17 (17/97) discharge drug information forms were obtained from patients. Surprisingly, 13 of the 17 patients were included in the Medication Book. In addition, information on hospitalization history was obtained from 82 patients and their families. Eleven patients (11/97, 11.3%) were subject to prescription inquiries. Thus, the discharge information documents were not widely used, and the information obtained from patient interviews and medication handbooks was utilized primarily for medication counselling at community pharmacies.

Keywords: Community pharmacy; Discharging information documents; Medication handbook; Information sharing

Introduction

In Japan, the percentage of the elderly was 28.4% of the total population as of 2019, and it continues to increase year upon year [1]. It is believed that one out of every five persons aged 85 years or older suffers from senile dementia. Even if they do not have dementia, they may inadvertently forget to take medications or fail to use them properly. The Ministry of Health, Labour and Welfare (Japan) is promoting the 'establishment of a comprehensive community-based care system that ensures medical care, nursing care, prevention, housing, and lifestyle support in a comprehensive framework so that people can continue to live independently according to their abilities in their familiar communities as long as possible, even if they require medical or nursing care [2]. As a result, even if a patient needs to be hospitalized, healthcare professionals must strengthen support before hospitalization and provide seamless medical and nursing care even after discharge so that the patient can receive continuous medical care in the community [3]. In particular, pharmacists at medical institutions need to provide information to pharmacists in community pharmacies and others at conferences held at the time of discharge to support discharge, such as the reasons for changes in medications during hospitalization and other items that require continued monitoring after discharge [4].

In Japan, an additional fee for drug information coordination at the time of hospital discharge was established in 2020. The purpose of this program is to review the patient's status during hospitalization, including any changes or discontinuation of the prescription before hospitalization, and provide information to the pharmacy in writing at the time of discharge, including the reason for the prescription review and the patient's condition after the review. However, changes in prescriptions at the time of hospitalization do not always reach the patient's usual pharmacy. In some cases, prescriptions received at this pharmacy after discharge from the hospital differed in specifications, daily dosage, and usage, leading to a prescription inquiry.

The medication handbook is 'okusuritecho' in Japanese, a small booklet for patients that contains information about the medicine and is designed for centralised management of information related to the patient's medications. In 2019, 91.7% of all patients brought their medication notebooks, and patients received personalised medication guidance at their community pharmacy [5]. However, the contents of the medication handbook are not the same before

and after hospitalization, and the progress of pharmacotherapy during hospitalization is rarely documented in notebooks. If medical institutions provide discharge information documents, it would be possible to identify the patient's condition at the time of admission, the reason for prescription changes, and the condition after the changes. Insurance pharmacies could make significantly contribute to supporting drug treatment after discharge.

We conducted a retrospective study to verify the use of discharge information documents and medication handbooks as medication support for patients visiting community pharmacies after discharge from the hospital. Furthermore, the purpose of the study was to 1) ascertain the details of and reasons for changes in prescriptions at the time of admission and the patient's condition (such as pathological conditions, laboratory values, and procedures during hospitalization) and 2) Confirm the correlation between the contents of the medication handbook and the discharge information documents. The results of this study are expected to make a significant contribution to drug therapy support and comprehensive care between hospitals, family doctors, and community pharmacies in multidisciplinary collaboration. Based on the results obtained, an evaluation was conducted to contribute to future support for pharmacotherapy in comprehensive community care.

Method

Subjects and research items

A survey was conducted on 97 patients (male, 40; female, 57) who visited the pharmacy (Marron Pharmacy Inc.) after being discharged from the hospital for nine months from January 2021 and September 2021. Furthermore, interviews regarding the purpose of hospitalization and admission status were performed during the medication counselling to patients by the family pharmacist. Marron Pharmacy is a prescription pharmacy that contributes to community healthcare mainly in Hachioji, Tokyo. Four Marron Pharmacy: Marron Pharmacy Hamura, Marron Pharmacy Koyasu, Marron Pharmacy Asagaya, Marron Pharmacy Mejiro, under the Marron Pharmacy Group participated in the survey. A total of 12 patients visited these Marron Pharmacy during the survey period. The total number of prescriptions received by the four pharmacies was 59,608, of which the applicable research rate was 97/59,608 (0.16%). Note that the patients in this study were discharged from a wide variety of medical facilities in the region. In other words, the patients in the study were family care patients who visited Marron Pharmacy after being discharged from medical institutions in the wider region during the study period.

The survey included checking whether the patients brought their discharge information documents and medication handbooks. Patient age, sex, and prescription details were obtained from prescription and electronic drug histories. Patient backgrounds are shown in table 1. All study procedures were performed according to the principles of the Declaration of Helsinki and its subsequent amendments and the national guidelines for research involving human patients. Data analysis was performed anonymously at the Josai University Sakado campus. This study was conducted with permission from the Medical Science Course Study Ethics Review Committee of Josai University (ninirin-2020-17).

Assessment items

The following items were assessed using a checklist (Table 2): (1) Confirmation that the patient brought the discharge information document and the medication handbook to the patient when visiting the pharmacy. (2) Confirmation of the consistency between the content of the prescription after discharge from the hospitalized medical institution and the content of prescription changes prescribed at the family clinic before admission to the hospital. (3) Confirmation of the need to conduct prescription inquiry and details of the questionable inquiry. (4) Bringing a medication handbook.

In addition, a comparison was made between the prescription contents before hospitalization and the prescription contents at the time of the visit, and the patient's condition (pathological conditions during hospitalization, laboratory values, prescribed drugs, and so on) were extracted from the discharge information document and medication handbook.

Results

The results of this study are expected to make a significant contribution to drug therapy support and comprehensive care between hospitals, family doctors, and community pharmacies in multidisciplinary collaboration. Based on the results obtained, an evaluation was conducted to contribute to future support for pharmacotherapy in comprehensive community care.

Subject patients

Patient backgrounds are shown in table 1. From the total, 12 patients were aged under 60 years, Seven were in their sixties, 31 in their seventies, 35 in their eighties, and 12 in their nineties.

Table 1: Survey of subjects.

Number of patients		97	
Average age		75.8	
Generation	**Under 60 years**	12	12.4%
	60s	7	7.2%
	70s	31	32.0%
	80s	35	36.1%
	90s	12	12.4%
Gender	**Male**	40	41.2%
	Female	57	58.8%

Number of patients, N=97

Table 2: Evaluation items.

Item	Answer
Age	years
Gender	Male / Female
Discharge Information document	Yes • No
Medication notebook	Yes • No
Utilization of hospitalized patients' medication registers	Yes • No
Tools to check the information at the hospitalization	Yes • No
Method of collecting hospitalization history	-
Prescription details	-
Prescription issuing source	-
Medical institution of admission	-
Department of consultation	-
Prescription change	Yes • No
Details of prescription change	Yes • No
Questionable Inquiry	Yes • No
Notes	-

Table 3 shows the status of issuing of discharge information documents and utilisation of medication handbooks for the subjects (97 patients), of which17 patients (17.5%) provided discharge information, 38 (39.2%) experienced prescription changes due to hospitalization, 90 (92.8%) brought their medication handbooks, and 11 (11.3%) required questionable inquiry when they visited the pharmacy after getting discharged.

Table 4 shows the patients who brought their medication registers, broken down by age. Ninety patients brought their medication handbooks. These included 8 patients aged under 60 years (8/12, 64%), 7 patients in their 60s (7/7, 100%), 29 patients in their 70s (29/31, 93%), 34 patients in their 80s (34/35, 97%), and 12 patients in their 90s or older (12/12, 100%). Compared with patients aged 60 years or younger, those aged 60 years and older were significantly more likely to use their medication handbooks.

Contents of discharge information documents

The discharge information documents are shown in figure 1. Of the 17 cases submitted, 15 described the prescription details at the time of discharge and the medications used during the inpatient period, 14 described history of allergies and adverse drug reactions, 10 described description of dispensing devices such as one-dose packages and crushing, 9 described change of prescription during hospitalization, 6 described description of medications continued other than those prescribed at discharge and description of the medication manager, 5 described bringing the medicine, four described transfer information and reason for change in prescription, three described duration of hospitalization and the purpose of hospitalization, two described information on the efficacy of prescription medications, and one described treatment support, medication status, and laboratory values.

Source of hospitalization history information

The sources of patient hospitalization history are shown in figure 2. Regarding the source of hospitalization history information, 17 patients obtained information from discharge information documents, 32 patients received medication notebooks, 82 patients received medication instructions, and 4 patients received the information provided by other medical institutions.

Table 3: Discharge information documents and medication notebook.

	Yes/No	Number	%
Discharge information documents	Yes	17	17.5%
	No	80	82.5%
Prescription change	Yes	38	39.2%
	No	59	60.8%
Medication notebook	Yes	90	92.8%
	No	7	7.2%
Questionnaire inquiry	Yes	11	11.3%
	No	86	88.7%

N=97

Table 4: Age of patients that brought their medication notebook.

Age	Number of patients	%
Under 60 years	8	67% (8/12)
60s	7	100% (7/7)
70s	29	94% (29/31)
80s	34	97% (34/35)
90s	12	100% (12/12)

N=90: Medication notebook (YES)

Cases of prescription inquiry

Eleven patients (11/97, 11.3%) were subject to prescription inquiries. Table 5 shows four examples of prescription inquiries that require knowledge and essential skills to make pharmacological decisions. (1) Prescription medication doses prescribed at the time of admission were not communicated to family doctors. (2) After the patient's discharge from the hospital, the administration of the

Table 5: Cases of questionable inquiries.

1. **Prescription medication doses prescribed at the time of admission were not communicated to the family doctor.** 87y, Female. After the patient's discharge from the hospital, the family doctor was informed that prescription medication, potassium powder 50%, was administered during hospitalization. However, the dosage was not noted, and a potassium powder dose of 3g was described after discharge. The patient's family later complained that the medication dosage was apparently too low compared to the prescribed dosage. After inquiring, it was discovered that potassium powder 50% had been prescribed at a daily dose of 9g during hospitalization.
2. **After the patient's discharge from the hospital, the administrator of the medication was changed to someone other than the patient.** 85y, Male. After being discharged from the hospital, the administrator of the patient's medication was changed to his partner. At the pharmacy, the spouse explained, 'After being discharged from the hospital, a family doctor instructed to stop the medication, but (I) cannot determine which medication it is.' Upon inquiry, it was confirmed that the patient had stopped taking Amlodipine, which she had been taking before admission, due to a reduction in blood pressure.
3. **Request from the family doctor to inquire about the original prescription medication at the time of discharge from the hospital.** 93y, Female. Patient was hospitalized due to a femur fracture. The patient brought back a one-dose package of medications after being discharged from the hospital and showed it to the family doctor. However, the details of the medications were unknown. After confirming the prescription details (including dosage and administration) of the drugs, feedback on the drug information to the patient's family doctor after discharge was utilized in the prescription design.
4. **Insufficient information sharing of prescription drug handover due to incomplete information will letter from hospital doctors.** 88y, Male. After being discharged from the hospital, the prescription from the family doctor's office was identical to what was written before hospitalization. The medication book confirmed that verapamil and rabeprazole, two duplicate medications, were included in the prescription at the time of discharge from the gastroenterology hospital where the patient was hospitalized. Additionally, the patient's spouse informed him that she had stopped taking rivaroxaban following her hospitalization. We inquired with the patient's family doctor about the duplication of ingredients and the possibility of resuming rivaroxaban after discharge, but he responded that it was a case requiring confirmation with the doctor in charge of the medical institution where the patient was hospitalized. The hospitalized patient's doctor confirmed that verapamil was prescribed after discharge from the hospital, that it was mistakenly prescribed, and that rivaroxaban would be restarted. The patient's prescription was finally confirmed after providing feedback to the family doctor on the details of the inquiry.

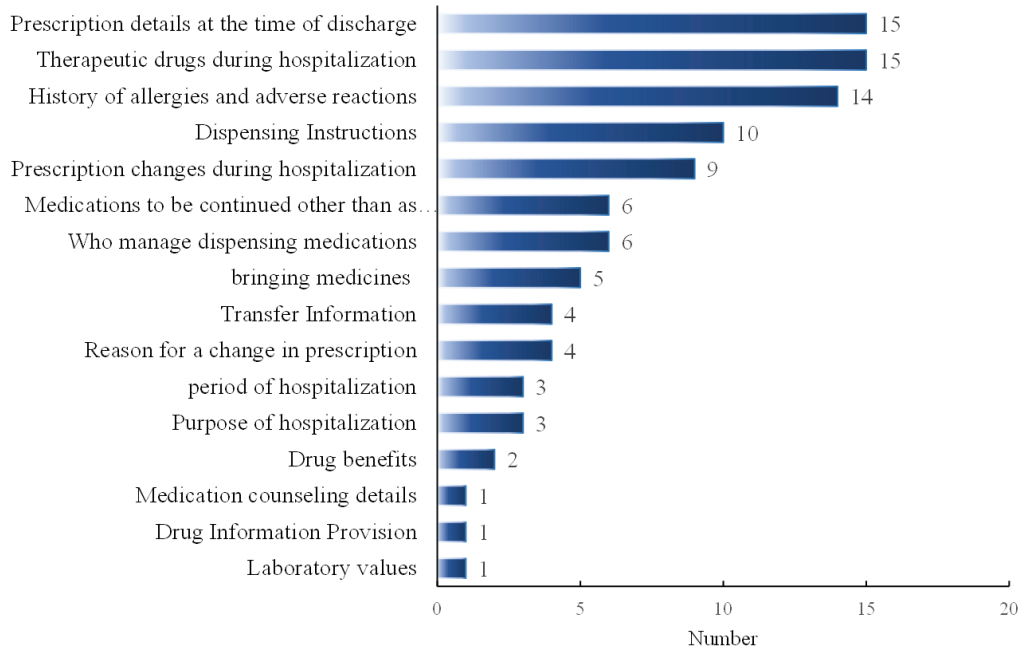

Figure 1: Description of 17 cases with discharge information documents.

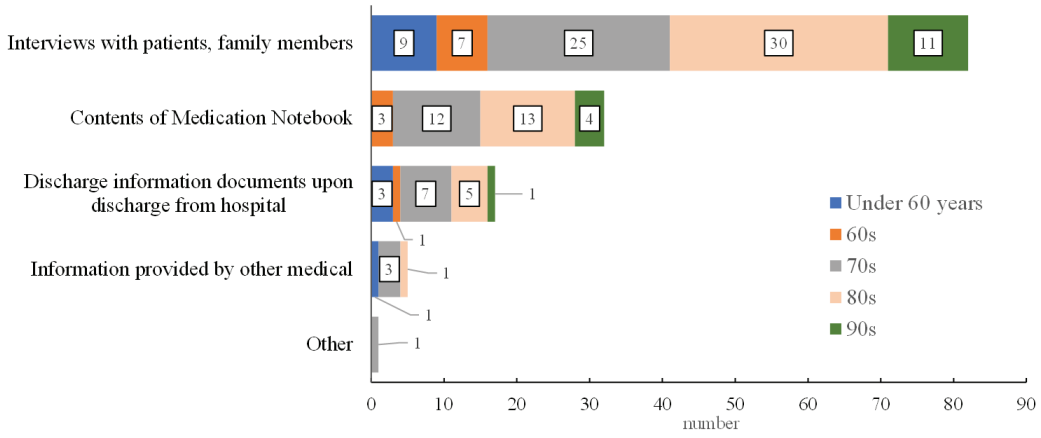

Figure 2: Source of hospitalization history information for each age group.

medication was changed to someone other than the patient. (3) Request the family doctor to inquire about the original prescription medication at the time of discharge from the hospital. (4) Insufficient information sharing of prescription drug handovers occurred due to incomplete information obtained from hospital doctors.

Discussion and Conclusion

The use of discharge information documents is on the rise following the 2019 revision of medical reimbursement. In this survey, 17 (17/97) discharge drug information forms were obtained from patients. Surprisingly, 13 of the 17 patients were included in the Medication Book. It is a bridging tool for healthcare professionals to share information. In the 1990s (in Japan), approximately 30 years had passed since the medication handbook was first advocated. It has become a well-established practice for patients to bring their medication handbooks when they visit a medical institution [6].

Table 6 shows that the percentage of patients aged 60 or over who brought their medication registers was more than 90%. The rate of bringing a medication handbook was higher among elderly patients with chronic diseases, as the elderly patients were more interested in their illnesses and treatments [7]. On the other hand, only 67% of patients under 60 years old brought their medication book. We speculated that this was because they are less likely to have chronic diseases.

Currently, the medication handbook is a widespread tool for recording information on dispensed drugs [8]. The following three items were identified as objectives for using the Medication Handbook: 1) Avoid Duplicate Prescriptions and Side Effects from Taking Multiple Drugs, 2) Prescriptions Are Filled after Checking a Patient's Medical History, 3) It is Convenient while Travelling and during Natural Disasters. The Ministry of Health, Labour and Welfare (Japan) aims to

Table 6: Template for discharge information documents.

From: XXX Hospital
To: XXX Pharmacy
Information to be provided at the time of discharge:
Prescription at discharge:
Medications used during hospitalization:
PTP, one-dose package, crushing:
Medication management:
Transfer of information:

prevent drug interactions and duplicate administration and to lead to safer and more effective drug pharmacotherapy by encouraging users to present their medication record book to physicians at each medical institution and pharmacists at pharmacies when they visit multiple medical institutions or dispense drugs at pharmacies. Verification of a patient's medication history can also expand the provision of quality information. In addition, in Japan, where frequent natural disasters such as earthquakes have cut off medical infrastructure and caused the loss of information such as medical records and drug histories, there have been confirmed cases of appropriate drug supply and provision of medical care through the use of the medication handbook. If one has a medical history book, the pharmacist will have all the necessary information required to fill their prescription properly.

In recent years, prescriptions with patient test values have been issued by hospitals, and there has been a growing trend toward confirming the proper use of medications from the perspective of community pharmacies [9,10]. However, there are still few tools available (e.g., electronic medical records in hospitals) for pharmacies to know patients' laboratory values, medical history, and medical conditions, other than interviewing patients through medication instructions.

In this study, when a patient was admitted to a medical facility and a change in drugs or prescriptions was made due to pharmacotherapy, the use of medication handbooks (32 cases), interviews by pharmacists (82 cases), and discharge information documents were found to play a significant role. This is because patients have a close relationship with their pharmacists, and the family pharmacist system is also a contributing factor [11]. Regarding the use of medication handbooks, Kimoto et al. reported that patient-centred management of pharmacotherapy can be achieved in the entire community for patients across multiple departments through information sharing on chemotherapy regimens, oral anticancer drug administration schedules, haemoglobin A1c in diabetic patients, and other information [12].

In figure 1, the contents of the 17 cases of discharge information documents included 15 cases of prescription details at discharge and medications used during hospitalization; 14 of history of allergies and adverse reactions; 10 of dispensing innovations; and 9 of changes in prescriptions during hospitalization. In general, the medication handbook contains information such as dosage, administration, number of days of administration, contraindications, and dispensing devices for prescription drugs, which are similar to the items mentioned above.

Figure 2 shows that 82 cases (82/97, 84.5%) were interviewed with patients/families as the source of hospitalization history information. In other words, the information provided by the medical institution where the patient was hospitalized to community pharmacies indicates that the contents of the medication handbook and discharge information documents are not sufficient to provide the necessary information for drug dispensing and drug administration counselling. Patients may experience adverse events if the information on pharmacotherapy is 'missing,' 'incorrect,' or 'outdated' at the time of discharge [13].

Table 6 shows an example of a discharge information documents template. In general, discharge information documents contain items such as discharge prescriptions, medications used during hospitalization, history of allergies and side effects, dispensing techniques, medication management, and other precautions. We recommend that the information in the 'information sheet' should include information such as laboratory values at the time of hospitalization, the progress of therapy, details of medication instruction during hospitalization, and reasons for changes in prescriptions. This would make it possible to suggest prescriptions, monitor side effects, and provide ongoing support for patients with a treatment plan compatible with their hospitalization after discharge.

In other words, if the centralisation of patient information becomes possible, collaborative efforts between physicians, in-hospital pharmacists, and community pharmacy pharmacists can continue, and the sharing of patient information is expected to lead to medication support and other benefits. According to a report by Urban et al., provision of information to community pharmacies from hospitals regarding medication changes at discharge was reported to be inconsistent and lacking in quality [14]. According to it, information sharing about medical conditions and treatments can help provide sustainable and seamless patient support during hospitalization and discharge. To accomplish these goals, community pharmacies must provide medication support, pharmacists must become balancers of medical collaboration, expand community collaboration, strengthen information sharing with medical institutions, and spread activities to promote understanding of pharmacists among patients, families, and multiple medical professionals. In recent years, it has become essential to develop more sophisticated pharmacotherapy and dedication to community healthcare, including home healthcare. The advancement of healthy life expectancy, not only in Japan but also in other countries, requires building a foundation for significant health promotion that underpins health. In this study, we focused on the discharge information documents and 'okusuritecho' as medication handbooks, which could serve as tools for providing information between medical institutions (hospitals) and community pharmacies. We believe that this study is important as a validation of information sharing to bridge between hospital treatment and post-discharge care with a family physician so as to realize a trusting relationship between pharmacists and patients (Figure 3). However, the most crucial role of a pharmacist is to understand the patient's feelings through counselling, and for this purpose, it is critical for medical professionals to expand their medical communication skills. Although this survey was conducted at a community pharmacy and thus represents a limited accumulation of data, we hope that it will serve as a foundation for future changes in pharmacist behaviour.

Ethical Consideration

This study was approved by the Josai University ethical committee in Saitama, Japan (ninirin-2020-17).

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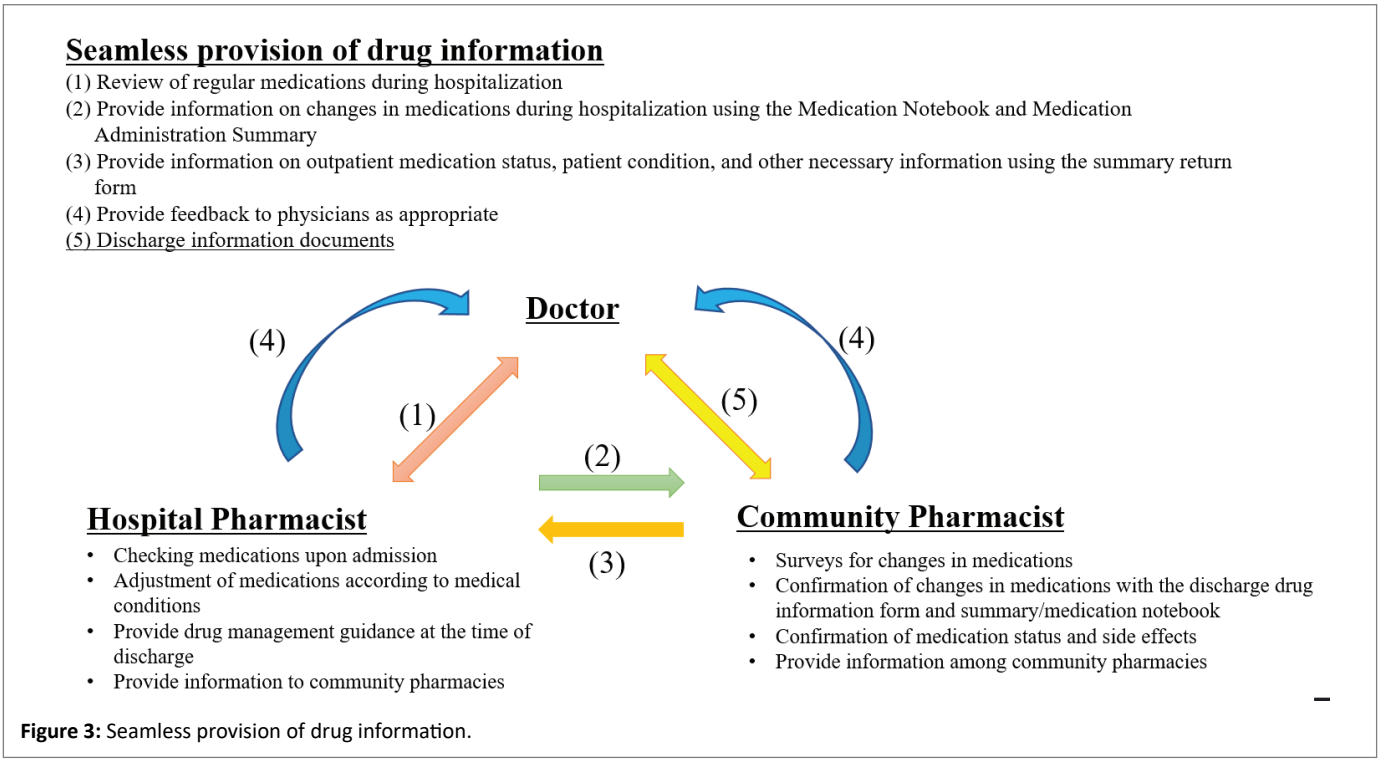

Figure 3: Seamless provision of drug information.

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Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Reimi Saito (R.S.), Toshihiko Nirasawa (T.N.), and Yutaka Inoue (Y.I.) performed the experiments, participated in the study design, carried out sampling, and helped prepare the manuscript. R.S. Shibata Mana (M. S.) and Y.I. participated in the experiments, carried out sampling, planned the study design, analyzed the experimental data, and contributed suggestions regarding the manuscript. All authors have read and approved the final manuscript.

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