

A SITUATION ANALYSIS OF THE OUTPATIENT DISPENSING SERVICE PATTERNS AMONG
HOSPITALS IN THAILAND



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การวิเคราะห์สถานการณ์รูปแบบการให้บริการจ่ายยาผู้ป่วยนอกของโรงพยาบาลในประเทศไทย



วิทยานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตรปริญญาวิทยาศาสตรมหาบัณฑิต

สาขาวิชาเภสัชศาสตร์สังคมและบริหาร ภาควิชาเภสัชศาสตร์สังคมและบริหาร

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ลิขสิทธิ์ของจุฬาลงกรณ์มหาวิทยาลัย

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การศึกษานี้มีวัตถุประสงค์เพื่อสำรวจรูปแบบการให้บริการจ่ายยาผู้ป่วยนอกในโรงพยาบาลใน
ประเทศไทยในสถานการณ์ปัจจุบัน การวิจัยมีการสำรวจโครงสร้าง กระบวนการ ผลลัพธ์ และสภาพแวดล้อมของ
การให้บริการจ่ายยาแบบทางเลือก การสำรวจนี้จัดขึ้นในรูปแบบการสัมภาษณ์ทางโทรศัพท์ และสัมภาษณ์เชิง
ลึกกับหัวหน้าแผนกเภสัชกรรมโดยใช้แบบสัมภาษณ์ที่เป็นโครงสร้างและมีเนื้อหาที่ถูกต้องทางสาระสำคัญ ผล
การศึกษาค้นคว้าจากโรงพยาบาลที่มีส่วนร่วมทั้งหมด จำนวน 197 แห่ง พบว่าโรงพยาบาลส่วนใหญ่ที่ได้รับการ
สัมภาษณ์ (97.35%) ให้บริการอย่างน้อยหนึ่งบริการของการให้บริการจ่ายยาแบบทางเลือก โดยบริการที่ได้รับความนิยม
มากที่สุดคือ "บริการจัดส่งที่บ้าน" (88.6%) ตามด้วย "บริการรับยาที่โรงพยาบาลส่งเสริมสุขภาพตำบล"
(45.1%) "บริการเติมยาที่โรงพยาบาล" (44.7%) "บริการรับยาที่ร้านขายยาในชุมชนใกล้บ้าน" (26.6%) และ
"บริการไทรฟ์-ทู" (9.8%) ในช่วงการระบาดของโรค COVID-19 มีผู้ป่วยใช้บริการทางเลือกอยู่ร้อยละ 56.07%
โรงพยาบาลยืนยันว่าการให้บริการทางเลือกช่วยลดความแออัด ระยะเวลารอคอย และเพิ่มความพึงพอใจของ
ผู้ป่วย ทั้งนี้สอดคล้องกับพฤติกรรมการช้อปปิ้งออนไลน์ปัจจุบัน การระบาดของโรค COVID-19 และนโยบายจากผู้
จ่ายเงินและองค์กรวิชาชีพ อุปสรรคที่พบ เช่น ข้อมูลผู้ป่วยไม่ครบถ้วน เพิ่มภาระงาน พื้นที่จำกัด และค่าใช้จ่าย
เพิ่มเติม การให้บริการแบบทางเลือกต้องมีโครงสร้างพื้นฐานของระบบเทคโนโลยีสารสนเทศที่ดี กระบวนการ
ทำงานที่มีประสิทธิภาพ และงบประมาณเพิ่มเติม ภายหลังการระบาดของโรค COVID-19 พบว่าการใช้
บริการทางเลือกลดลงเหลือร้อยละ 15.1% เนื่องจากผู้ป่วยมีความพึงพอใจที่จะรอรับยาที่โรงพยาบาล รวมถึง
ปัญหาในการเข้าถึงและการใช้เทคโนโลยี ท้ายที่สุดผู้บริหารส่วนใหญ่ยังเชื่อมั่นที่จะดำเนินการให้บริการทางเลือก
ต่อไป ในขณะที่พนักงานมองว่าเป็นภาระงานที่เพิ่มขึ้น จากการศึกษาจึงสรุปได้ว่าโรงพยาบาลในประเทศไทยได้
ให้บริการจ่ายยาผู้ป่วยนอกทางเลือกในช่วงโรค COVID-19 โดยการจัดส่งทางไปรษณีย์เป็นที่นิยมมากที่สุด การใช้
บริการลดลงเมื่อสถานการณ์ดีขึ้น แต่โรงพยาบาลส่วนใหญ่ยังคงให้บริการต่อไปตามทรัพยากรที่มีอยู่

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ลายมือชื่อนิสิต
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KEYWORD: outpatient dispensing service; alternative dispensing service; delivery service;
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This study aims to examine outpatient dispensing patterns in Thai hospitals, focusing on the current situation. The research explores the structures, processes, outputs, and environmental factors of alternative outpatient dispensing services. Surveys were conducted through phone interviews and in-depth interviews with pharmacy department heads using structured interviews with accurate content. Key findings from 197 participating hospitals revealed that 97.35% of interviewed hospitals offered at least one alternative outpatient dispensing service. The most popular method was home delivery (88.6%), followed by sub-district health promoting hospital medication pick-up service (45.1%), hospital refill service (44.7%), community pharmacy medication pick-up service (26.6%), and drive-thru service (9.8%). During the COVID-19 pandemic, 56.07% of patients utilized alternative services. Hospitals confirmed that these services addressed congestion, waiting time, and patient satisfaction, correlating with current online shopping behavior, COVID-19 outbreak, and policies from payers and professional organizations. Challenges included incomplete patient data, increased workload, limited space, and additional costs. Alternative service models require good IT infrastructure, efficient workflows, and extra budget. After COVID-19 pandemic, usage of alternative services decreased to 15.1% as patients preferred waiting at the hospital. Challenges with accessing and utilizing technology were reported. Administrators were confident in continuing alternative services, while staff perceived them as increased workload. In summary, Thai hospitals provided alternative outpatient dispensing services during COVID-19, with postal delivery being the most common. Usage decreased as the situation improved, but some hospitals continued based on available resources.

Field of Study: Social and Administrative Pharmacy Student's Signature

Academic Year: 2022 Advisor's Signature

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CHAPTER 1 INTRODUCTION

Rationale

Health service utilization worldwide has been increasing over time. It has been reported that hospital outpatient visits increased by 14% in the United States (US) (from 2005-2015) ⁽¹⁾ and 59.1% in the United Kingdom (UK) (from 2008-2018) ⁽²⁾. The same trend was also observed in Thailand, the Ministry of Public Health (MoPH) reported that the hospital outpatients increased by 62.1% in public hospitals (from 2013-2020) ⁽³⁾. With the increasing health service utilization, pharmaceutical services, especially outpatient dispensing service, was also growing.

Outpatient dispensing service was an important procedure ensuring that patients received correct medicines, with precise dosage, adequate quantities and clear instruction. Pharmacist dispensing is guided by the good dispensing practice which was established by WHO in 2011 and was used as guideline for pharmacist practitioners ⁽⁴⁾.

Outpatient dispensing patterns were found different across countries. In most developed countries such as the US and the UK, patients get their prescriptions from doctors, then fill their prescriptions at the community pharmacies. Taiwan and Japan, on the other hand, patients can have their prescriptions filled either at the hospitals/clinics where they see their doctors, or at the community pharmacies ⁽⁵⁻⁹⁾.

In Thailand, patients seek medical services from various settings. Majority of the Thai utilize public hospitals (47.3%), followed by community pharmacies (27.2%), private doctor clinics (11.7%) and private hospitals (5.5%), respectively ⁽¹⁰⁾. Mostly, Thai people receive medicines from the settings where they seek medical services. It was revealed by Krungsri Research in 2019 that 80% of the pharmaceutical expenditures (approximately THB 148.5 bn) was shared by hospitals, while the rest 20% (about THB 35.5 bn) was shared by community pharmacies ⁽¹¹⁾.

Since 2002, all Thai citizens have had access to medical care provided by three public health insurance schemes. As of 2021, the Universal Coverage Scheme (UCS) accounted for 70.6% of the population, while the Social Security Scheme (SSS) and the Civil Servant Medical Benefit Scheme (CSMBS) accounted for 18.6% and 7.9% of the Thai population, respectively ⁽¹²⁾. These three health insurance schemes provide free medicines if they are listed in the Thailand national list of essential medicines (NLEM). The UCS and SSS bundle the medicine cost within the outpatient capitation payment, thus it is required that patients receive their medicines from the settings where they registered and sought

medical services. The CSMBs also required that patients receive medicines from government hospitals as it was trusted that these hospitals strictly abided by the procurement restrictions. With regard to the aforementioned contexts, health care utilization rate continues to rise and consequently leads to the crowded hospital situation and the prolonged waiting time. The crowded hospital and the prolonged waiting time were more problematic among big hospitals^(13, 14). The situation not only leads to stress and dissatisfaction among patients, but also work overload and potential medical errors among health workers^(13, 14). For each visit, patients spend several hours (more than 3 hours) at the hospital while the actual interaction time with their doctors, pharmacists or other health care personnel were a few minutes each⁽¹³⁻¹⁵⁾.

Hospital pharmacy departments were also affected by the overcrowding situation. To solve the problem, many strategies including the LEAN management and the automated dispensing machine were implemented. Although these strategies helped decrease the waiting time, it did not directly solve the root cause of the overcrowding problem. A few hospitals initiated alternative outpatient dispensing services such as hospital-community pharmacy coordination and mail-order pharmacy service to alleviate the crowded hospital problems.

A hospital overcrowding problem has been recognized by the National Health Security Office (NHSO), the largest public health insurer in Thailand. Since 2001, the idea of incorporating community pharmacies into the National Health Insurance System has been introduced several times during 2004-2016. Several projects such as “The prescription refill at community pharmacy project” (2005)^{*}, “Heartfelt community pharmacy project” (2019)^{**}, and “Pick up your medicines at nearby community pharmacy project” (2019)^{***} were created with the cooperation of the NHSO, the Community Pharmacy Association (Thailand), the pharmacy council of Thailand, and the MoPH to help solve hospital overcrowding problems. These projects were created to seek appropriate models to allied community pharmacies to support government hospitals in providing outpatient dispensing services⁽¹⁶⁻¹⁸⁾. Results from these projects were positively reported, however, many limitations such as the disease scope was quite limited (e.g., hypertension and diabetes with stable condition), small sample size, and short study period. Moreover, many barriers such as inadequate incentive, small numbers of accredited community pharmacies, lack of projects’ publicity, and patients’ preference were pointed out⁽¹⁹⁻²³⁾. These projects were not further expanded or implemented.

The NHSO together with the pharmacist network initiated a new project; “Pick up your medicines at the nearby community pharmacy” ^{***}. The project was created to solve two problems; hospital overcrowding and long waiting times at the hospitals. Shortly after the program was launched in October 2019, the country was attacked by the Covid-19 pandemic. Disruption of the fatal virus urged both hospitals and community pharmacies to join the program with the joining rate of 2.5 and 2 times of what was initially planned for each setting respectively. The program helped solve the overcrowding problem by 10-20%, shortened the waiting time and traveling time by 37.5 minutes, and increased pharmacist’s counseling time by 4.5 minutes ⁽²⁴⁾. It can be claimed that the “Pick up your medicines at the nearby community pharmacy” project was the most accepted project ever implemented. Although the project was perceived as the most popular, the challenges of success of this project were 1) low-coverage and distribution of registered community pharmacies 2) non-reflective actual cost for the cost support, and 3) non-supportive information transaction system between hospitals and registered community pharmacies ⁽²⁴⁾.

Besides the hospital-community pharmacy coordination, hospitals also utilized a mail-order pharmacy service to alleviate the overcrowded hospital problem. The first government hospital to introduce mail-order pharmacy service in 2014 was Siriraj hospital, followed by Pranangkla hospital in 2015 ^(25, 26). Although the mail-order pharmacy service was proved to free the patients from the hospitals, there were concerns whether the medicines were correctly sent out to the right patients, in an appropriate physical condition and in a timely manner ^(25, 26). Moreover, expanding the new service required more staff and working space thus increasing hospital administrative costs. The patients were also required to pay for the postage cost. One of the biggest concerns was related to the regulation which literally required face to face drug dispensing in the setting with license to distribute medicines. According to the law, the mail-order pharmacy service did not comply with the Drug Act B.E. 2510 which was amended by the Drug Act (No.5) B.E. 2530. Regulations governing the mail-order pharmacy service needed to be updated. The mail-order pharmacy service was increasingly popular after the strike of Covid-19 pandemic. Many hospitals greatly respond to the government policy to ensure the safety of the patients by utilizing telehealth among patients with stable conditions and unchanged medicines. Although the mail-order pharmacy service was increasingly utilized among hospitals, this service was still limited for some specified diseases and conditions

such as stable diseases, re-medication status, non-emergency medicines, pre-registered enrollment, and restricted medicines ⁽²⁵⁻²⁷⁾.

Telepharmacy is a part of telehealth, providing long distance pharmaceutical care and pharmaceutical services by pharmacists at hospitals or community pharmacies. Moreover, Telepharmacy incorporates the mail-order pharmacy service. In 2020, the NHSO announced that it would support the postage cost of 50 Baht/parcel given that the Thailand Post was a service provider ⁽²⁷⁾. As the service would widely impact many people, the Thailand pharmacy council in 2020 stated the Declaration No. 56 to provide the standard and procedure of Telepharmacy ⁽²⁸⁾.

Furthermore, in 2021, there is a report of the disruption caused by Covid-19 effected to the dispensing service management paradigm in non-communicable disease (diabetes mellitus and hypertension) including home delivery service, receiving medicines at Tambon health promoting hospital or drugstore, encountering initiated by the third person and drive-thru service ⁽²⁹⁾.

However, hospitals may continue to utilize either the nearby community pharmacy service or the mail-order pharmacy service, or both, and other services. As of now, there is no information regarding the patterns of the hospital outpatient dispensing services. There is no information about the work process for implementation of the alternative hospital outpatient dispensing service.

Therefore, this study aims to explore the current hospital outpatient dispensing service patterns in Thailand, as well as to explore the structure, work processes, outputs and environments of the alternative hospital outpatient dispensing service patterns. The findings will reveal which service patterns are frequently implemented not only at the country level, but also at the different types of hospitals including public-private and size of hospitals. The detailed information regarding process of different outpatient dispensing services will be collected. Both general and remarkable processes will be identified. The findings from this study can be used as a reference for hospitals that would like to initiate the new service.

* *The prescription refill at community pharmacy project* โครงการจ่ายยาตามใบสั่งแพทย์

** *Heartfelt community pharmacy project* โครงการร้านยาอบอุ่น

*** *Pick up your medicines at nearby community pharmacy project* โครงการรับยาใกล้บ้าน

CHAPTER 2 REVIEW OF LITERATURE

Outpatient health service utilization

Outpatient health service utilization has been increasing for a decade worldwide. It was reported that in the United States (US) that the hospital outpatient visits increased by 14% during 2005 and 2015 ⁽¹⁾. Similar trend was observed in the United Kingdom (UK) as the outpatient attendances increased 59.1% during 2009-2019 ⁽²⁾. For Thailand, the number of public hospitals' outpatients increased by 62.1% from 2013-2020 ⁽³⁾.

With the increasing outpatient health service utilization, the pharmacy department workload was also growing. The outpatient dispensing service is an essential service to ensure patients getting correct medications with effectiveness of medicines, preventing harm from medicines and plan of medication-related needs ^(4, 30).

Traditional outpatient dispensing service

In most developed countries such as the US, UK, Australia, South Korea, patients usually obtain their prescriptions at the community pharmacies. This practice is regarded as the traditional outpatient dispensing service as it counterbalances the prescribers and the dispensers to ensure patients' safety ^(8, 9, 31-34). Exceptions can be found especially in the remote rural area where health care professionals are limited. For example, in the UK ⁽⁸⁾, the government permitted the 'rural physicians' to dispense the medicines directly to their patients to save patients' traveling costs.

According to the above-mentioned pattern, hospital pharmacists mostly focused their role and responsibility on clinical pharmacy practice such as performing medication reconciliation, participating in interdisciplinary ward rounds and meetings, therapeutic drug monitoring, adverse drug reaction management, participating in research, drug information services, and training and education. On the other hand, community pharmacists mostly involve in dispensing prescriptions and providing advice and primary care to their patients such as screening and risk assessment, as well as follow-up for some common chronic conditions ⁽³²⁾.

The traditional outpatient dispensing service in some other developed countries such as Japan and Taiwan are deviated from the previous mentioned. In these two countries, patients can choose to fill their prescriptions either at the hospital or at the clinic where they visited their physicians or fill their prescriptions at the contracted community pharmacies ⁽⁵⁻⁷⁾.

Unlike the two traditional outpatient dispensing services earlier mentioned, Thailand and some other countries in ASEAN such as Vietnam and Laos mainly provide outpatient dispensing services by the pharmacy dispensing department within the hospital. The hospital pharmacy department is the main drug dispensing channel in Thailand. Most patients under the three public schemes (UCS, SSS, CSMBS) must fill their prescription only at the hospital as the financing contract binding between insurers and providers was set up that way. The UCS and SSS utilize capitation as a payment method. Drug cost was bundling within the capitation rate. With this financial strategy, patients must receive medicines from the hospitals. The CSMBS, though utilizing fee for service payment method, the Ministry of Finance will reimburse the drug cost directly to hospitals where the eligible utilize medical services. Thus, the three insurers do not include community pharmacy as an official provider in the health insurance framework. Those who utilize community pharmacy service usually pay out of their own pockets for the medicines.

Alternative hospital outpatient dispensing services

The alternative hospital outpatient dispensing service is defined as a new service pattern which delivers the medicines to the patients while maintaining standard dispensing practice such as ensuring correct medicine with clear instructions. Defining alternative service may vary across countries as it depends on what is the current traditional service.

In Thailand, as the traditional outpatient dispensing service is the pharmacy department in the hospital, thus the alternative hospital outpatient dispensing services to be mentioned in this study will be

1. Hospital and community pharmacy linkage service
2. Mail-order pharmacy service
3. Drive-thru pharmacy service

Literature review of the three alternative services is described below.

Hospital and community pharmacy linkage service

Community pharmacy service in the US has been provided to patients for several decades. Patients usually fill or refill their prescriptions at the community pharmacy. For the first visit, patients are required to fill in a consent form which includes a general demographic along with a brief medical history and any known allergies to make a medical profile. Pharmacists, then, will check prescribed information for accuracy, validity, and

legality, then communicate the cost and related information with the patient, before preparation, labeling, rechecking, and counseling. The number of refills that will be covered will depend on medication and insurance plans. For example, plans can have a day-to-day quantity limit such as 30-day supply or week's supply such as milligrams per week for risky and narcotic drugs. Community pharmacists not only cover dispensing role but also have clinical roles such as the management and monitoring of long-term conditions such as asthma and DM, as well as delivering flu vaccinations, conducting medicines reviews, smoking cessation, diets modification, and sexual health matters advice (35, 36).

In South Korea, after the pharmaceutical reform in January 2000, the mandatory separation of drug prescribing and dispensing (SPD) was enacted. This led to prohibition of dispensing medicines by doctors and prohibition of prescribing from pharmacists. The reform also shut down the drug dispensaries at hospitals, so that patients must fill and refill their medicines only at community pharmacies. The pharmaceutical reform was implemented to solve the high expenditure which was believed to be induced by the financial incentives from the pharmaceutical industry, and the easy access for consumers to drugs (31, 34).

In Thailand, community pharmacy is perceived as the easiest access and convenient health care setting where patients can spend more time discussing their health problems and seek medical advice (17). However, the community pharmacies are not officially included as health providers under the three public health insurance schemes. Since the inception of the NHSO, Thai people have had greater access to health care services. This is confirmed by continuously increasing health care service utilization rate which resulted in hospital overcrowding problems. The NHSO foreseen the overcrowded problem and tried to collaborate with the pharmacy council to involve the community pharmacy as official service provider to solve the hospital overcrowded problems. In 2005, the NHSO issued the concept to promote registered GPP community pharmacy as a primary health care as a part of the healthcare system. To support this concept, the NHSO set up a project cooperating with hospitals and private community pharmacies to compare the clinical outcomes of the pharmacy providing healthcare services for stable chronic patients between community pharmacies and primary care units (17, 20, 21, 23, 37).

Rapeepun et al. conducted a quasi-experimental study to compare clinical outcomes in stable diabetes mellitus (DM), hypertension (HTN) and dyslipidemia (DLP)

patients who filled their prescriptions at the community pharmacies (treatment group), and who received normal services at the Phra Samuth Jadee Hospital (control group), Samut Prakan province during 2005-2006⁽²⁰⁾. For the treatment group, patients who passed criteria and consented to join the project would fill their prescriptions at the hospital for the first time, then refilled their one-month supply prescriptions at the contracted community pharmacy. The cost of service depended on patients' public insurance scheme. The hospital provided medicines to community pharmacies to assure the quality of medicines. After six months, clinical outcomes, the fasting blood sugar level, systolic blood pressure and diastolic blood pressure, between the treatment and the control group were not significantly different (p-values = 0.875, 0.770 and 0.706, respectively). Furthermore, overall satisfaction with the community pharmacy services was 63.5 percent. Patients have more time discussing their medicines with pharmacist. However, the change in the hospital pharmacist's workload remained unclear.

Phayom et al. conducted a similar quasi-experimental study during 2008-2011, to compare clinical outcomes of providing pharmaceutical care in UCS patients with DM and HTN who got prescriptions refilled between two accredited community pharmacies (the intervention group) and two primary care units (the control group), Maha Sarakham province⁽²¹⁾. The results, from 5-month follow-up showed that the proportions of patients who achieved target goals of blood pressure control and blood sugar control were not significantly different between groups 1.242 (OR 1.242; CI: 0.458-4.312) and 0.675 (OR 0.675; CI: 0.174-2.653), respectively. The community pharmacists mostly solved the drug related problem of non-adherence and made a referral to the primary care units due to an adverse drug event. Patients in the intervention group reported the highest satisfaction level with the relaxed feeling of talking to the pharmacists. Patients in the control group reported the highest satisfaction with the willingness to comply for the next schedule.

A survey study by Somsuk was conducted to evaluate the effectiveness of "Termya Termsuk" (Fill Pills Fill Happiness) project during 2015-2016⁽²³⁾. "Termya Termsuk" project was made for chronic patients such as DM or HTN patients who was considered by physicians, according to the criteria defined have option to receive medicines at the private community pharmacies instead of receiving medicines at the hospitals in Phuket province. Although, the study mentioned that the outcomes of treatments were not significantly different, the average credibility to carry out the "Termya Termsuk" project was moderate (average 3.40). The most patients who known "Termya

Termsuk” project preferred to go to refill their prescriptions at the hospitals rather than refill at the private community pharmacies. The participants reported that they were not confident in the service provided by pharmacists. Also, they were willing to stick with the hospital services as the appointment was not that often. The project was well accepted by both hospital and community pharmacist.

Until 2019, the “Pick up your medicines at the nearby community pharmacy” project has been launched in 1st October 2019 ⁽²⁴⁾ to reduce the crowding and waiting time in the hospitals by refilling the prescriptions at the registered GPP community pharmacies for the UCS patients with controlled DM, HTN, asthma and psychiatric disorder. Patients must be approved by physicians to get their medicines at pharmacies, and they have to voluntarily consent to join the project. There are 3 models for distribution of medicines from the hospitals to the pharmacies. First, the hospitals prepared each patient’s medicines and delivered them to the pharmacies. Second, the hospitals prepared sub-stock of medicines and delivered them to the pharmacies, then the pharmacies would prepare each patient’s medicines. Third, the registered GPP community pharmacies would organize by themselves, including purchasing, stock, and preparing. On 1st August 2020, there were 130 hospitals (33 tertiary, 49 secondary and 48 other service units) and 1,033 GPP community pharmacies registering for the project. In this project, 19,625 patients voluntarily consented to join the project and refilled their prescriptions at registered GPP community pharmacies more than 29,000 times. The result from the project showed that crowding in hospitals decreased by 10-20%, waiting and traveling time decreased by 37.5 minutes (22%), and pharmacist counseling increased by 4.5 minutes (56%). On the other hand, the challenges of this project were low coverage and poor distribution of accredited Good Pharmacy Practice (GPP) community pharmacies, non-reflective of actual cost, and low support of information transactions between hospitals and pharmacies.

Mail-order pharmacy service

Mail-order pharmacy service was first introduced in the 1960s in the US and widely utilized worldwide. Patients contact a mail-registered pharmacy and provide their prescription document to the service provider. The prescriptions were reviewed by at least two pharmacists and prepared by a team of pharmacists and technicians to ensure the quality of both data and product. The medicines will be delivered to patients’ homes within 7-10 days. Mail-order pharmacies usually provide automatic refills service. The

medicine will always arrive a few days before the medicines run out. Communication between patient-pharmacists is usually done by phone. Thus, mail-order pharmacy may not be appropriate for prescription that needs to be timely filed, new drug regimen, special administer technique, or medicine with cautioned adverse drug reaction ⁽³⁸⁻⁴¹⁾.

Many studies confirmed that patients utilizing mail-order pharmacy service were more adherent to their medicines than regular retail pharmacy services. Adherence to oral diabetes medication was compared in a retrospective study of Devine and Schwab. The result from both studies showed that the adherence to oral antihyperglycemic agents (AHAs) in mail-order pharmacy users was significantly higher than community pharmacy users. Devine S. et al., published in 2010 ⁽⁴²⁾, calculated the medication adherence by a medication possession ratio (MPR). The adjusted total MPR was 63.4 (95% CI: 63.1–63.7) in the retail pharmacy-only group and 84.8 (95% CI: 84.4–85.1) in the mail order group. Schwab P, published in 2019 ⁽⁴³⁾, proportion of days covered (PDC) was calculated for medication adherence. Adherence to oral AHAs was greater for mail-order pharmacy patients through 12 months (86% vs. 68%, $P < 0.001$) and sustainable through 48 months (78% vs. 62%, $P < 0.001$).

Moreover, the health outcome in mail-order pharmacy users achieved the target level more than community pharmacy users. A retrospective study of Schwab P, published in 2019 ⁽⁴³⁾, reported the glycemic control as hemoglobin A1C (HbA1C) level $< 7\%$ was not significantly different, but control as HbA1C level $< 8\%$ was greater for mail-order pharmacy users at 12 months (91% vs. 89%, $P = 0.006$) and was greater through 36 months (93% vs. 89%, $P = 0.043$). As the same way in observational study of Schmittiel J. A., et al., published in 2011 ⁽⁴⁴⁾, showed the achieved target LDL-cholesterol level, in new statin users, was significantly higher for mail-order pharmacy patients (85.0% vs. 74.2%, $p < 0.001$).

In Thailand, mail-order pharmacy service was initially aimed to reduce the crowding, waiting time and pharmacy workload in the hospital. Siriraj hospital had started the mail pharmacy project since 2014 ⁽²⁶⁾. After visiting with a physician, a patient voluntarily registers for the mail pharmacy service, signs the consent form, receives drug counseling, and pays for mail pharmacy service. Hospital pharmacy dispensary unit receives and screens the prescription, labels, and prepares the medicines which are checked by 2 pharmacists, and packs the medicine into a post parcel. Thailand post picks up the parcel and delivers them to the patients' homes within an average of 2 days. An automatic refill system is also available. The system is set up to alert the pharmacy

department 5 days before the due date. The pharmacist calls the patient, if the patient is authorized, the refill process and mail pharmacy continue. As of now the service is applied to various medicines except for temperature sensitive medicines, narcotic drugs, controlled psychotropic substances, breakable or risky medicines, and complicated instructions. The patient who participates in the mail pharmacy service must be in stable condition and have good compliance. In addition, patients must agree to pay a service charge of 150 Baht.

Pranangklaow hospital ⁽²⁵⁾, Nonthaburi province, implemented a “drug delivery address” project in August, 2014 to increase patients’ convenience and satisfaction, and also decrease the crowding and traveling cost for patients. Patients fill their prescriptions at a mailed pharmacy service point (refill pharmacy). Pharmacists evaluate patients’ medicines against the criteria and provide consultation services regarding those medicines. Patients fill the service request form, provide a postage address, then provide payment for mail pharmacy service charge of 100 Baht. The pharmacy team labels and prepares the medicines which are checked by 2 pharmacists and weighed before packing in post parcels. Post parcels are kept in lockers for the Thailand post picked up. The parcels are delivered to the patients’ home in seven days after filling the prescription. Data between August 2014 and February 2015 showed that 310 patients utilized mail pharmacy service for 812 times. Patients got 100% of correct and good quality medicines in expected delivery time. However, the barriers of operation are insufficient pharmacy manpower, restricted area of the pharmacy unit, high cost of delivery, and no recipients at home.

Tha-wang-pha hospital, a 30-bed primary hospital, also initiated a mail-order pharmacy service project in March 2020 ⁽⁴⁵⁾ among hypertension patients with good control of blood pressure. The nurse screened the participants and confirmed their addresses via telephone. Physicians prescribed a re-medication order, then the pharmacy teams interpreted, prepared, checked, informed the packaging change, labeled administrative symbols before packing to parcel. Administrative worker coordinated with the Thai post and tracked the delivery. To follow up blood pressure, officers of Tambon Health Promoting Hospital and village health volunteers will monitor the patient's blood pressure at home. The result from this project showed that blood pressure levels before and after receiving the mail-order pharmacy service had no statistically difference. Moreover, 77.4% of the patients received the medication within 2 days, 70.8% of the patients had a high

level of knowledge about drug use, 79.3% of the patients had a high level of drug use behaviors, and 96.2% of the patients were satisfied with the mail-order pharmacy service.

Additionally, in September 2020, the NHSO discussed with Thailand post to provide the “Delivery medicine through Thailand post” project for the UCS patients and to develop the standard operating procedures (SOPs) for maintaining the quality of medicines, including design of parcel, track & trace system, and special transportation control. The NHSO supported the expenditure of delivery service for the UCS patients by a rate of 50 Baht per parcel. From the last 5 months, there were 209 hospitals that delivered the medicines 144,306 times to 128,141 patients with a value of 1,399,600 Baht⁽²⁷⁾.

On 2nd June 2020, the pharmacy council of Thailand stated the declaration No. 56 2563BE (2020AD) issued establishing standards and procedures for the Telepharmacy service⁽²⁸⁾ to enforce pharmacists’ roles in both hospitals and pharmacies. Telepharmacy, in the declaration, included pharmaceutical care, pharmaceutical service, and dispensing service. Firstly, the standards of Telepharmacy service included 1) provider must be pharmacy practitioner, 2) provisioning of registration system, and recording of patient profile, 3) provisioning of confidential voice or video record for service and drug monitoring with information accessibility consent, 4) provisioning of clinical service or pharmaceutical care including patient or patient’s representative interview, prescription analysis and drug-related problems search, advice and counseling, and referral, and 5) provisioning of the standards for quality and stability control for medicines in delivery system. Secondly, the procedures of Telepharmacy service included 1) receiving prescriptions and checking patient registration, or history taking in pharmacy without fill prescriptions service, 2) considering a suitable pharmaceutical care, 3) contacting clients and making an appointment for delivery, 4) verification before advice and counseling, 5) making audio patient profile and medical records, and 6) drug monitoring.

Drive-thru pharmacy service

From the study of Hussain R. et al., published in 2010⁽⁴⁶⁾, “*drive-thru pharmacy service is one such value-added or extended pharmacy service*”. It was initiated to handle the growth of pharmacy demands with the principles to save time. During COVID-19 pandemic, drive-thru pharmacy service is also a way to ensure the safety between pharmacy staff and patients. Drive-thru pharmacy service is provided in many countries. For example, drive-thru pharmacy service has arisen in the US in the 1990s. This service

was objected to improve the availability and provision of healthcare services to less mobile senior citizens. In 2008, drive-thru pharmacy service was launched in the UK to fill prescriptions in a few minutes for busy mothers who don't want to get their children in and out of the car and commuters who need to pick up their drugs without delay. Malaysia also launched a drive-thru pharmacy service in Penang General Hospital in 2008 to reduce waiting time and resolve parking problems in the hospital. In Australia, drive-thru pharmacy service was started in 2010 for time saving and convenience. In 2011, hospital in Taipei, Taiwan, implemented a drive-thru pharmacy service as a more convenient refilling system to provide patients to pick up refilling prescriptions in a shorter time and to target those patients with limited mobility who do not need to get out of their cars and for commuters who need to pick up medications without delay.

In drive-thru pharmacy service, patients must register or request into the service. The medicine is pre-checked, labeled, checked, recorded, re-checked, and packed in advance prior to the arrival of patients via the drive through lane or window. Identification, then is confirmed, patients get medicines without getting out of the car ⁽⁴⁶⁻⁴⁸⁾.

In Thailand, Vachira Phuket Hospital implemented the “Vachira Drive Thru” project in January 2021 to reduce the risk of COVID-19 outbreak. Patients can visit the doctor at hospital or on-call and must request to get the service. Queue numbers will be sent to the patient. When a patient meets an appointment, the patient can drive through the meeting place, then receive medicines without having to exit the car ⁽⁴⁹⁾.

Conceptual Framework

To meet the objectives to explore 1) the current patterns of hospital outpatient dispensing services in Thailand and 2) the management of the alternative hospital outpatient dispensing services, the conceptual framework, detailed as follows in **Figure 1**, will frame for 2 phases and cover both public and private hospitals in Thailand.

Phase-1, we decide to know the overview of hospitals which remain for the traditional outpatient dispensing service only or adapt to provide the alternative outpatient dispensing services.

- The outpatient dispensing service was conceptualized to all activities in proceeding from filling prescription to delivery medicine and instruction to outpatient.

- The traditional outpatient dispensing service was referred to as the outpatient dispensing service where patients go to the hospitals, then visit the physicians and wait to pick-up the medicines on the same day.
- The alternative outpatient dispensing service was defined by the other outpatient dispensing services that were not the traditional outpatient dispensing service.

Phase-2, we consider the situation analysis of the alternative outpatient dispensing services provision in different hospitals, the Donabedian model will be applied to guide the conceptual framework for evaluation of the internal factor and hospitals' readiness.

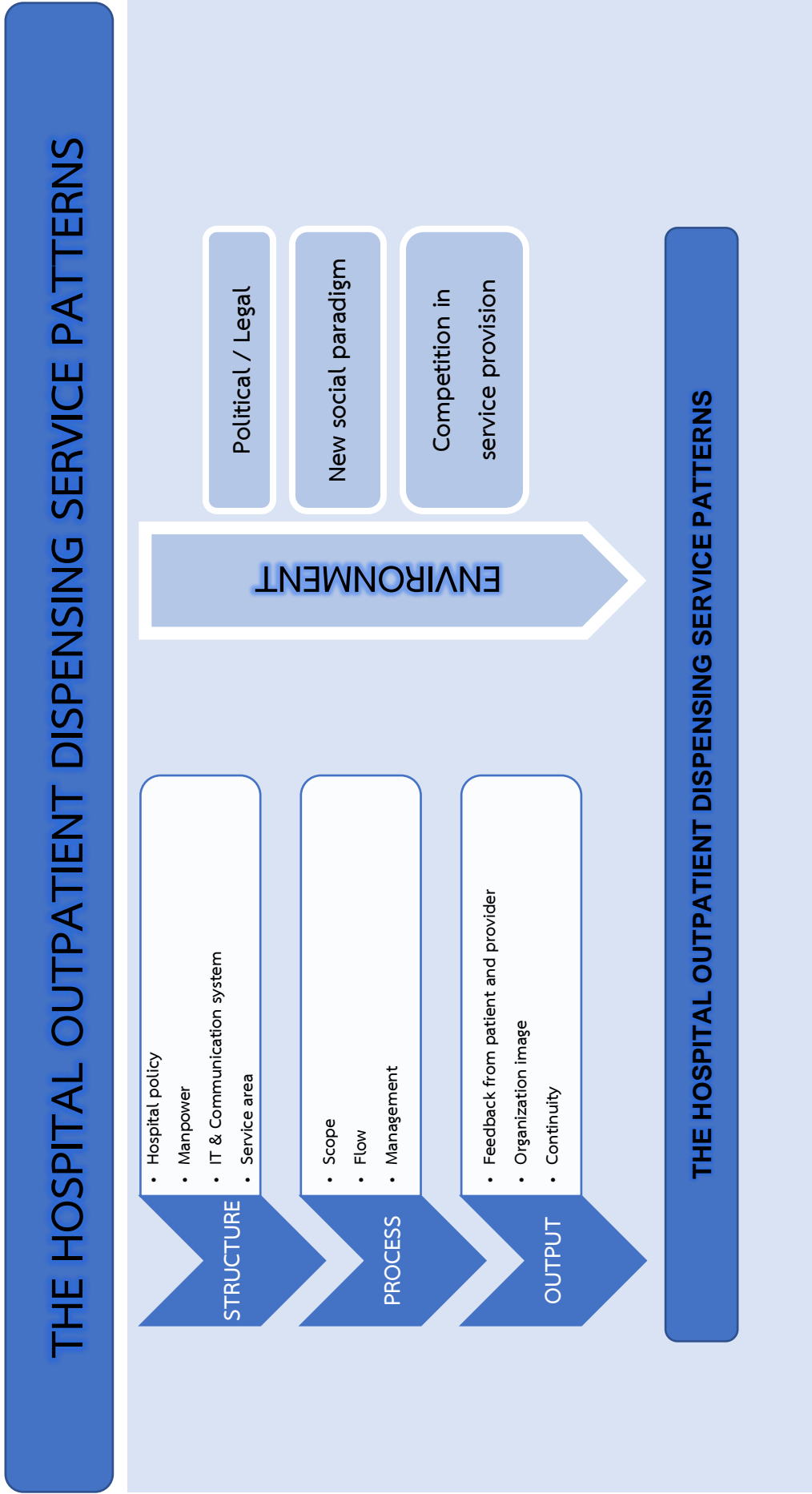
The Donabedian model ^{(50), (51)} is a project evaluation method for assessing the quality of medical care. For example, the study of Rai GK. et al., published in 2017 ⁽⁵²⁾, applied the Donabedian framework to evaluate a community pharmacy service in the West Midlands about the effectiveness of a pharmacy-based immunization service in improving uptake.

There are 3 components of measures which have each purpose to examine the desired impact. The 3 components are structure measures, process measures, and outcome measures. Under the concept of Donabedian, structure measures affect process measures, which in turn affect outcome measures.

- Structure measures reflect the characteristics of the service and also examine how facilities are set up to deliver the service, which include hospital policy, staff, place, IT and application.
- Process measures reflect how the systems and processes work to deliver the desired outcome, focusing on work flow, advertisement and service management.
- Outcome measures reflect the impact on the patient and examine the output of the work and whether it has ultimately achieved the aim. These measures regard feedback from patients and staff, institutes' achievement, and long-term services.

However, the external factors or the external environment also affect the success of service provision such as political, economic, social, technological, environmental, and competitive.

Figure 1 The applied Donabedian model for Conceptual Framework



CHAPTER 3 RESEARCH PROCEDURE

This study aimed 1) to explore the current hospital outpatient dispensing service patterns in Thailand, and 2) to explore structure, work processes and outputs of hospital outpatient dispensing service patterns. To meet these objectives, we conducted a 2-phase study as described below.

PHASE-1: Exploring the outpatient dispensing service patterns.

Study design

To explore the outpatient dispensing service patterns of hospitals across the country, the study used a cross-sectional telephone survey as a study design. Two researchers made a telephone call to the selected hospitals. Data was collected during June to October 2022.

Population and sample

The population of interest for this study were both public and private hospitals. List of public and private hospitals in Thailand frames were retrieved from the Ministry of Public Health (MoPH) ⁽³⁾ and the Healthcare Accreditation Institute (HAI) Thailand (Public Organization) ⁽⁵³⁾. The study included the respondents from the management level hospital outpatient pharmacists.

Estimating that 50% of the 1,471 hospitals utilized alternative outpatient dispensing service patterns, margin of error of 5% and 95% confidence interval, the required sample size was 305 hospitals. The sample size formula ⁽⁵⁴⁾ was shown below:

$$n = \frac{Nz^2pq}{d^2(N-1) + z^2pq}$$

N = the number of hospitals in Thailand

p = probability of hospitals providing at least one alternative outpatient dispensing service

q = 1-*p*

d = margin of error

Stratified simple random sampling was used. Hospitals were stratified into seven groups based on their type (public vs. private) and size (large, medium, or small). University hospitals (n=25), tertiary (n=51), and secondary public hospitals (n=189) and the large-size private hospitals (n=20) were selected with probability equal to one. This was to ensure that these hospitals were adequately included, and subgroup analysis can be conducted.

Other hospitals were random sampling based on probability proportional to size. (Please see the calculation detail in **Table 1**) Although the probability of each hospital in seven strata was not equal, the answer from each hospital was adjusted by the weight that each hospital represented. With this adjustment, the result would represent the country's information. In addition, this sampling method, the study can conduct a subgroup analysis and can provide pattern and magnitude of the services provided in each hospital strata.

Table 1 Stratified sampling method to select sample hospitals from each stratum

Public vs Private	Type	Beds	Population	Population by Proportion	Sample size by proportion	Probability	No. of sample	Population not yet selected	No. of sample
Public	University hospitals		25	1,094	305 x (1094/1471) = 227	1	25	227-25-51 = 151	25
	Tertiary	> 500	51			1	51		51
	Secondary	120 - 500	189						76
	Primary *	< 120	829						75
Private	Large	> 250	20	377	305 x (377/1471) = 78	1	20	78-20 = 58	20
	Medium	30 - 250	285						29
	Small	< 30	72						29
TOTAL			1,471		305		96	305-96 = 209	305

* Not included the sub-district health promoting hospitals

For each selected hospital, one management level pharmacist was solicited to participate in the study. He or she should hold a management position and have at least five-year experience in outpatient department. If the pharmacist did not consent, he or she was not included.

Two interviewers (TC and the research assistant, RA) conducted telephone interviews. The two interviewers have a hospital pharmacist background. Both of them took qualitative research courses, participated in in-depth interview workshops, and had prior experience conducting a number of in-depth interviews. The interviewers were trained and rehearsed from approaching the participants, self-introduction, reason for calling, verbal consent soliciting, screening the eligibility, questioning, and probing, as well as note taking. The interviewers sent an invitation letter with survey questionnaire to the hospital one week before the calling schedule. On the calling day the interviewer called the pharmacy department from 2:00 to 4:00 pm. The interviewer requested to speak with a management level pharmacist. If he/she was not convenient at that time, the interviewer

asked to make an appointment at the pharmacist's convenient date and time. The estimated time since self-introduction to verbal consent solicitation is approximately 5 minutes. There are nine questions for the interview which took approximately 20 minutes.

Measurement

A phone survey questionnaire focusing on the types of hospital dispensing service was developed. The questionnaire consisted of 3 parts: the hospital outpatient dispensing service pattern, opinions on the alternative hospital outpatient dispensing services and general information of the hospital. (See **Table 2**, for Thai version see **Appendix 1**) Questionnaires were phoned to selected hospitals so that respondents can provide answers by verbal.

Table 2 The survey questionnaire

Measurement	Parameter
Part I: Hospital Outpatient Dispensing Service Pattern	
<p>Which types of the outpatient dispensing services are provided in your hospital? (Answers all that applied)</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Traditional hospital dispensing service <input type="checkbox"/> Refilled prescription at the hospital pharmacy service <input type="checkbox"/> Home delivery pharmacy service <ul style="list-style-type: none"> <input type="checkbox"/> Mail by Thai post <input type="checkbox"/> Mail by private transportation e.g., KERRY etc. <input type="checkbox"/> Hospital messenger <input type="checkbox"/> Private messenger e.g., GRAB etc. <input type="checkbox"/> Village health volunteers (VHV) <input type="checkbox"/> Others (Please specify) <input type="checkbox"/> Registered GPP community pharmacy linked with the hospital service <input type="checkbox"/> Sub-district Health Promoting hospitals linked with the hospital service <input type="checkbox"/> Drive-thru pharmacy service <input type="checkbox"/> Others (Please specify)

Table 2 The survey questionnaire

Measurement	Parameter
When did the alternative outpatient dispensing services start? And why the hospital implemented the service(s)?	Open-ended (MM-YYYY) Open-ended (Reason)
Part II: Opinions on the Alternative Hospital Outpatient Dispensing Services	
In your opinion, should the hospital provide alternative outpatient dispensing services after the COVID-19 situation ends? And why?	<input type="radio"/> Yes (Reason) <input type="radio"/> No (Reason)
Is the hospital intending to provide alternative outpatient dispensing services after the COVID-19 situation ends? And how?	<input type="radio"/> Yes (Specify) <input type="radio"/> No (Specify) <input type="radio"/> Not sure (Specify)
Part III: General Information of the Hospital	
On average, how many outpatient prescriptions does your department receive each month?	Open-ended (Number)
During office hours, how many outpatient pharmacists are on duty? (Full-time and Part-time)	Open-ended (Number)
During office hours, how many outpatient pharmacist assistants are on duty?	Open-ended (Number)
Does the hospital have a network of services (such as a hospital or pharmacy) to refer or receive referrals? And what?	<input type="radio"/> Yes (Specify) <input type="radio"/> No
Does the hospital provide the Telehealth service? And what?	<input type="radio"/> Yes (Specify) <input type="radio"/> No

The content validity of the survey questionnaire has been checked by five experts: one from the university and four from the hospitals. The Index of Item-Objective Congruence (IOC) is used to judge the content validity. If the IOC score is greater or equal to 0.5, the question items are considered valid, if the score is lower than 0.5, the questionnaire is considered improved. The IOC score from five experts was 0.98, thus the questionnaire was considered valid. It was then piloted among 3 hospital pharmacists, then the questions were improved for clarity. The study proposal and tools were approved

by the Research Ethics Review Committee for Research Involving Human Research Participants, Group 1, Chulalongkorn University, Thailand on 18 May 2022 (Ethics ref: COA No. 104/65). A telephone survey was conducted after EC approval.

Analysis strategy & Statistic analysis

Descriptive statistics including counts, percentages, central tendency (mean or median) and dispersion (standard deviation or interquartile range) were used.



PHASE-2: Exploring the structure, work processes, outputs and environments of the alternative hospital outpatient dispensing service patterns.

Study design

Phase-2 of the study aimed to explore the structure, work processes, and outputs of the alternative outpatient dispensing services, focusing on home delivery service. The in-depth face-to-face semi-structured interview with field notes was conducted. Exploring and understanding how hospitals formulate their work processes and how they perceive stimulants, barriers and output would be a good source of information for those who would like to initiate the new services or improve the existing services.

Informants

The study included key informants from the Phase-1 hospital pharmacists who were willing to provide further information. Key informants were selected from the management level pharmacists who have at least five-year experience in outpatient dispensing service. The informants are required for in-depth interviews with observation until the information is saturated with no new valuable information. The key informants will be asked by the screening questions ensuring correct information.

Study tool

A semi-structured in-depth interview was compiled with an interview guide. Donabedian “structure, process, and output” was selected as a framework.

Under the “structure” domain, questions regarding hospital policy, pharmacy manpower, IT system and communication system were asked. For the “process” domain, scope of alternative outpatient dispensing services, work process, payer of an incur expense, announcement of the alternative outpatient dispensing services, patient-healthcare professional communication pathway, flow of patient information, flow of drug products, and flow of financial information. Output from the patient's, pharmacist's and hospital's perspective were assessed. Outputs include the patient's perception of the quality of alternative outpatient dispensing services. The study assessed a patient's perception from pharmacist informants. Example questions included whether a patient complained about correct drug items, timely delivery, and timely response to any inquiries. The pharmacist's feedback had also been assessed. The questions consist of workload, system readiness, coordination internally and externally with other departments

or organizations and role of pharmacy profession. Last but not least, the study assessed whether the alternative outpatient dispensing service fulfills the hospital's goal or not. Also, whether the hospital will continue providing the alternative outpatient dispensing service even after the covid-19 pandemic? Finally, the “environment” factor, questions about political or legal, new social paradigm, and competition in service provision were requested for information.

Probing techniques were used to elicit the data requirements and clarify the meaning of the informants' responses. Examples of questions and the data requirements are shown in **Table 3** (for Thai version see **Appendix 2**). The content validity of the interview guide has been evaluated and feedbacked by the same five experts. The IOC was one, which considered validity. It is then pilot tested with three hospital pharmacists. After pilot testing, the interview guide was improved for clarity. The study proposal and tools were approved by the Research Ethics Review Committee for Research Involving Human Research Participants, Group 1, Chulalongkorn University, Thailand on 18 May 2022 (Ethics ref: COA No. 104/65). In-depth interview was conducted after EC approval.

Table 3 The interview guide - Data requirements of the questions reflected dimensions

Constructs	Dimensions	Questions	Data requirements
Structure	Hospital policy	<ul style="list-style-type: none"> - What is the current hospital policy regarding outpatient dispensing service provision? 	<ul style="list-style-type: none"> - Goals: Crowded / Long waiting time - Visions: Globalization / Patient-centered / Academic / Clinician
	Pharmacy manpower management	<ul style="list-style-type: none"> - Please describe the job assignment and allocation for outpatient dispensing service provision. - How many pharmacists (full-time and part-time) and pharmacist assistants are on duty? - What is the pharmacist to prescriptions ratio? - Who is involved in the alternative outpatient dispensing services? And how many? 	<ul style="list-style-type: none"> - Number of pharmacists - Number of pharmacist assistants - Number of prescriptions - Job description - Team member
	Information Technology system	<ul style="list-style-type: none"> - Please describe the IT system that support provision of the alternative outpatient dispensing service <ul style="list-style-type: none"> • Internal IT system • External IT system 	<ul style="list-style-type: none"> - Tools: Hardware / Software - Sources: In-house / Outsource - Management: Programmer / Developer / Continue training course / Instruction / User

Table 3 The interview guide - Data requirements of the questions reflected dimensions

Constructs	Dimensions	Questions	Data requirements
Structure	Communication system & plan	<ul style="list-style-type: none"> - Whether the hospital has a communication standard of procedure (SOP) for the alternative outpatient dispensing service. - Who are assigned as responsible persons to take inquiries from patients and related hospital subunits? When? And how? 	<ul style="list-style-type: none"> - Tools: Social-media / Application - SOP: Responsible person / Responding timeline / Q&A pooled for improvement
	Service area	<ul style="list-style-type: none"> - Regarding physical environment e.g., service area management, what does the hospital / drugstore do to facilitate the activity? 	<ul style="list-style-type: none"> - Space / Agility / Accessibility
Process	Scope of services	<ul style="list-style-type: none"> - What are the requirements or conditions of enrollment for the alternative outpatient dispensing services? 	<ul style="list-style-type: none"> - Type of patients: Diseases / Stable - Type of medicines: Narcotics / Refrigerator-stored medicines - Day-Supply: 1 month / 2 months
	Work process	<ul style="list-style-type: none"> - Please describe the work process of the alternative outpatient dispensing service. 	<ul style="list-style-type: none"> - Detail of proceeding from filling prescription until patient receives medicine including number of staff, responsibility and time spent.

Table 3 The interview guide - Data requirements of the questions reflected dimensions

Constructs	Dimensions	Questions	Data requirements
Process	Flow of product	<ul style="list-style-type: none"> - How do the products flow from the hospital pharmacy department to other settings to the patient's hands? - How to track and trace? - How long does it take for drugs to reach the patients? - How does the service provide for storing the medicines before issue or no recipient? 	<ul style="list-style-type: none"> - Process: Period / Duration / Confirmation / Follow-up / Storing - Method of transportation: EMS / messenger - Tool of track & trace: Program / Telephone / Application
	Flow of patient information	<ul style="list-style-type: none"> - Please describe the transaction of patient profile or patient information between patient and hospital or hospital and other settings. 	<ul style="list-style-type: none"> - Process: Period / Confirmation / Monitoring - Tool: Program / Telephone / Application - Data: Name / Drug / Diagnosis / Lab
	Flow of financial information	<ul style="list-style-type: none"> - Please describe the transaction of expenses or financial information between patient and hospital or hospital and other settings. 	<ul style="list-style-type: none"> - Process: Period / Confirmation / Bill / Refund - Tool: Program / Application
	Announcement of services	<ul style="list-style-type: none"> - How do patients know about the alternative outpatient dispensing service? 	<ul style="list-style-type: none"> - Media: Telephone / Application / Social-media
	Timing of operation	<ul style="list-style-type: none"> - What time is the alternative outpatient dispensing service provision? 	<ul style="list-style-type: none"> - Operation time: 24 hours / office hours - Duration of waiting: 24 hours / 3 days

Table 3 The interview guide - Data requirements of the questions reflected dimensions

Constructs	Dimensions	Questions	Data requirements
Process	Who pay for the incur expenditure	- How much is the alternative outpatient dispensing service charge? And who pays?	<ul style="list-style-type: none"> - Service charge: 100 Baht / 120 Baht - Payer: Patients / Provider / Related stakeholders
	Communication pathway	<ul style="list-style-type: none"> - How do pharmacists provide advice or counseling to patients? - How can patients ask for help or give feedback to the hospital? - How do hospitals take action regarding patients' questions or feedback? 	<ul style="list-style-type: none"> - Process: Identification / Solution response / Monitoring / Duration - Tool: Program / Telephone / Application
	Record	<ul style="list-style-type: none"> - How do you record the alternative outpatient dispensing service provision? - How long have you kept those records? 	<ul style="list-style-type: none"> - Method: Voice / Picture / Documents / VDO - Consent and Confidentiality - Duration
Output	Patients' feedback	- Please describe the feedback from patients about the quality, satisfactions or errors.	<ul style="list-style-type: none"> - Quality: Correct & On-time medicines / Lost & Broken / Getting Information & Monitoring - Satisfaction: Convenience / Accessibility - Error: DRPs / Medication Errors / Misunderstand

Table 3 The interview guide - Data requirements of the questions reflected dimensions

Constructs	Dimensions	Questions	Data requirements
Output	Workers' feedback	<ul style="list-style-type: none"> - Please describe the feedback from workers about workload, readiness, coordination, or professional role. 	<ul style="list-style-type: none"> - Workload: Duty-Manpower - Readiness: IT / Time - Coordination: Complexation - Professional role: Pharmaceutical care / Man allocation
	Organization effect	<ul style="list-style-type: none"> - How does the alternative outpatient dispensing service reflect the organization's image? 	<ul style="list-style-type: none"> - Adaptation readiness: Fast or Slow / Up to date - Goals: Crowded / Long waiting time - Visions: Globalization / Patient-centered / Academic / Clinician
	Continuity	<ul style="list-style-type: none"> - Whether the hospital will continue to provide the alternative outpatient dispensing service and why? 	<ul style="list-style-type: none"> - Reason of continuing / stop in aspect of hospital and informant
Environment	Political / Legal	<ul style="list-style-type: none"> - Whether the current law or regulation facilitates or impedes alternative outpatient dispensing service? Please describe how law or regulation facilitate or impede the activities and how they should be changed in order to ensure the quality and safety of providing alternative outpatient dispensing service. 	<ul style="list-style-type: none"> - Drug act - MoPH policy - National health insurance schemes' policy - Declaration of Pharmacy council

Table 3 The interview guide - Data requirements of the questions reflected dimensions

Constructs	Dimensions	Questions	Data requirements
<p>Environment</p>	<p>New social paradigm</p>	<ul style="list-style-type: none"> - How does the patients' lifestyle or new social trend impact the initiation and maintaining the provision of alternative outpatient dispensing service? - How does the role model from other hospitals shape the design of the alternative dispensing service in your setting? - How does the pandemic disrupt the traditional outpatient dispensing service and urge the hospital to provide the alternative outpatient dispensing service? 	<ul style="list-style-type: none"> - Telehealth / Telemedicine - Online purchasing behavior - Aging population - Influencing of new practice norm from other hospitals - Patient's perception of safety - Hospital administrator's perception of safety - National policy of safety
	<p>Competition in service provision</p>	<ul style="list-style-type: none"> - Whether the hospital felt competitive in providing alternative outpatient dispensing services? 	<ul style="list-style-type: none"> - "Modern" image - Strategy to attract customer

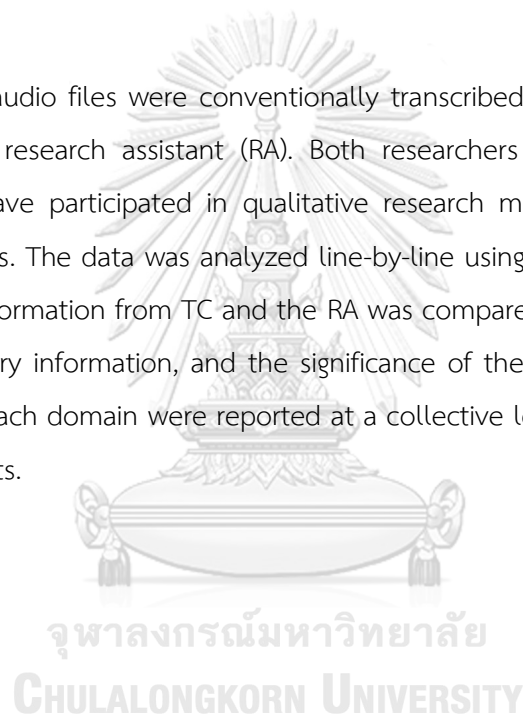
Data collection

Data was collected by face-to-face in-depth interview. The interview guide was sent to the informant a few days after the appointment confirmation so that the informant can prepare the answer before the appointment date.

The interviewer informed and asked the informant to consent for data collection and to audio record. Informants' characteristics (gender, age, position) were collected. The place and timing of the interview were recorded. All written and audio files were given identification codes to maintain the confidentiality of informants.

Analysis strategy

All coded audio files were conventionally transcribed by the researcher (TC) and rechecked by the research assistant (RA). Both researchers have a hospital pharmacy background and have participated in qualitative research method classes and in-depth interview workshops. The data was analyzed line-by-line using qualitative content analysis (QCA). Extracted information from TC and the RA was compared to ensure accuracy. There was no contradictory information, and the significance of the meaning aligned with each other. Results for each domain were reported at a collective level to ensure anonymity of individual informants.



CHAPTER 4 RESULTS

PHASE-1: Exploring the outpatient dispensing service patterns.

The phone survey was conducted from June to October 2022. The overall 305 hospitals were randomly included in this survey. A total of 223 hospitals (73.11%) were phoned and only 197 hospitals (64.59%) participated in this study. The reasons for the unattended phone survey included inaccessibility to informant (13 hospitals), unwillingness to response (eight hospitals), requiring further documents (three hospitals), and request hospital ethical approval (two hospitals). There are two university hospitals that were dropped out because they are new hospitals with different capacity compared to other established university hospitals. Ultimately, the analysis was based on data from only 195 hospitals.

The information was collected from 16 university hospitals (8.21%), 34 tertiary public hospitals (17.44%), 74 secondary public hospitals (37.59%), 65 primary public hospitals (32.33%), four large-sized private hospitals (2.05%), and two medium-sized private hospitals (1.03%). The source of data was visualized according to geographic in Thailand, with 41.54% from Northeastern, 15.74% from Bangkok and vicinity, 15.23% from Northern, 12.69% from Southern, 5.58% from Central, 5.08% from Western, and 3.55% from Eastern. The data from six private hospitals was comparatively sparse. Therefore, they were not analyzed in the main analysis. The characteristics of public hospitals and respondents were shown in **Table 4** and **Table 5**, respectively.

The characteristic data has shown that university hospitals have the highest average number of outpatient prescriptions, pharmacists, and pharmacist assistants (1,828.13 prescriptions, 25.50 persons, and 32.13 persons, respectively), whereas secondary public hospitals have the highest ratio of average number of outpatient prescriptions to pharmacist (98.04 prescriptions per one pharmacist) and the highest ratio of average number of outpatient prescriptions to pharmacist assistant (94.24 prescriptions per one pharmacist assistant).

Table 4 The characteristics of public hospitals.

Variables	Responses (N = 189)
Hospitals' characteristics	
- Number of outpatient prescriptions per day; Mean \pm SD (Min, Max)	
• University hospital	1828.13 \pm 1424.78 (200, 4800)
• Tertiary public hospitals	1329.50 \pm 642.70 (250, 3000)
• Secondary public hospitals	635.27 \pm 560.68 (30, 3800)
• Primary public hospital	261.41 \pm 149.21 (30, 700)
- Number of outpatient pharmacists; Mean \pm SD (Min, Max)	
• University hospital	25.50 \pm 26.29 (6, 108)
• Tertiary public hospitals	15.82 \pm 6.60 (3, 34)
• Secondary public hospitals	6.89 \pm 3.01 (1, 18)
• Primary public hospital	3.72 \pm 1.65 (1, 9)
- Prescriptions to Pharmacist ratio; Mean \pm SD (Min, Max)	
• University hospital	77.48 \pm 38.60 (33, 174)
• Tertiary public hospitals	89.38 \pm 41.84 (28, 200)
• Secondary public hospitals	98.04 \pm 85.52 (6, 543)
• Primary public hospital	74.55 \pm 40.01 (20, 200)
- Number of outpatient pharmacist assistants; Mean \pm SD (Min, Max)	
• University hospital	32.13 \pm 36.77 (1, 150)
• Tertiary public hospitals	22.76 \pm 12.68 (7, 52)
• Secondary public hospitals	8.70 \pm 5.22 (1, 30)
• Primary public hospital	4.46 \pm 2.08 (1, 10)
- Prescriptions to Pharmacist assistant ratio; Mean \pm SD (Min, Max)	
• University hospital	90.51 \pm 90.23 (32, 383)
• Tertiary public hospitals	68.65 \pm 42.75 (25, 200)
• Secondary public hospitals	94.24 \pm 105.60 (7, 543)
• Primary public hospital	66.05 \pm 47.20 (17, 300)

Table 5 The characteristics of respondents.

Variables	Responses (N = 195)
Respondents' demographics	
- Gender; N (%)	
• Male	39 (20.00)
• Female	154 (78.97)
• LGBTQ+	2 (1.03)
- Age; Mean \pm SD (Min, Max)	41.37 \pm 7.81 (27, 58)
• Up to 40 years old; N (%)	91 (46.67)
• More than 40 years old; N (%)	104 (53.33)
- Experience in outpatient pharmacy service; Mean \pm SD (Min, Max)	14.47 \pm 7.68 (2, 35)
• Up to 5 years; N (%)	23 (11.68)
• More than 5 years; N (%)	174 (88.32)

Current hospital outpatient dispensing service pattern

The result from the survey has revealed that hospital alternative outpatient dispensing services for mixed pattern have been currently applied to most hospitals in Thailand (97.35%; 184 hospitals). Each hospital may provide more than one alternative service. There are various formats of integration, with the format that has the highest level of integration consisting of seven services with one hospital. Following that, there are six services with two hospitals, then five services with 20 hospitals, four services with 56 hospitals, three services with 59 hospitals, and two services with 46 hospitals. The mixed pattern has been provided in 16 university hospitals, 34 tertiary public hospitals, 71 secondary public hospitals, and 63 primary public hospitals. Only five hospitals (2.65%) remain using traditional hospital outpatient dispensing service pattern. (**Figure 2A**) Those are two primary public hospitals and three secondary public hospitals. One secondary public hospital is a penitentiary hospital, and another secondary public hospital has already terminated the hospital alternative outpatient dispensing service since September 2022.

In this study, the hospital alternative outpatient dispensing services were categorized into 5 groups. (**Figure 2B, 2C**)

1. *Delivery Service*

This service consists of home delivery, workplace delivery, pick-up delivery at the convenient store, or local groceries by using Thai post, private logistics (e.g. Kerry, SCG etc.), hospital messenger, private messenger (e.g. GRAB etc.) and village health volunteers (VHV). This service is available on both patient requests via online or point of service and specific cases assigned by the hospital. It is noted that all items in delivery service before sending out must be allowed by the physician.

Delivery service is one of the most used among all services (88.59%; 163/184 hospitals). The types of hospitals that practice this service could be enumerated as follows: tertiary public hospitals (100%; 34/34 hospitals), university hospitals (93.75%; 15/16 hospitals), secondary public hospitals (87.32%; 62/71 hospitals) and primary public hospitals (82.54%; 52/63 hospitals). The type of delivery services that has been most used by hospitals is Thai post delivery service (71.17%; 116/163 hospitals). The service delivered by VHV is only available in primary and secondary public hospitals.

2. *Sub-district Health Promoting hospital linkage service*

This service provides patients' medicines for collecting at the Sub-district Health Promoting hospitals instead of collecting at the hospitals where the patients received medical follow-up. The proportion of hospitals providing this service is 83 hospitals (45.11%). The types of hospitals that apply this service were found in two types of hospital: primary public hospitals (65.08%; 41/63 hospitals), and secondary public hospitals (46.48%; 33/71 hospitals).

3. *Refilled prescription at hospital pharmacy*

The patients receive their medicines by referring to their previous prescriptions without visiting physicians. Refilled prescription is utilized at 44.57% of other services (82/184 hospitals). The types of hospitals that practice this service could be listed as follows: tertiary public hospitals (52.94%; 18/34 hospitals), university hospitals (50.00%; 8/16 hospitals), secondary public hospitals (45.07%; 32/71 hospitals), and primary public hospitals (38.10%; 24/63 hospitals).

4. *Community pharmacy linkage service*

For this service, the patients need to be covered by Universal Coverage (UC) scheme. Then, they could go to pick up their medicines at a community pharmacy. This service is provided by 26.63% (49/184 hospitals) and could be ranked as follows: tertiary

public hospitals (76.47%; 26/34 hospitals), secondary public hospitals (28.17%; 20/71 hospitals), and university hospitals (18.75%; 3/16 hospitals).

5. *Drive-thru / Making an appointment service*

For this service, patients will come to pick up their medicines at the hospital according to the time and place appointed. This service is used at 9.78% (18/184 hospitals), which consists of two different operations. This method is usually applied to medicines that require special conditions such as medicines that must keep at 2-8 °C etc.



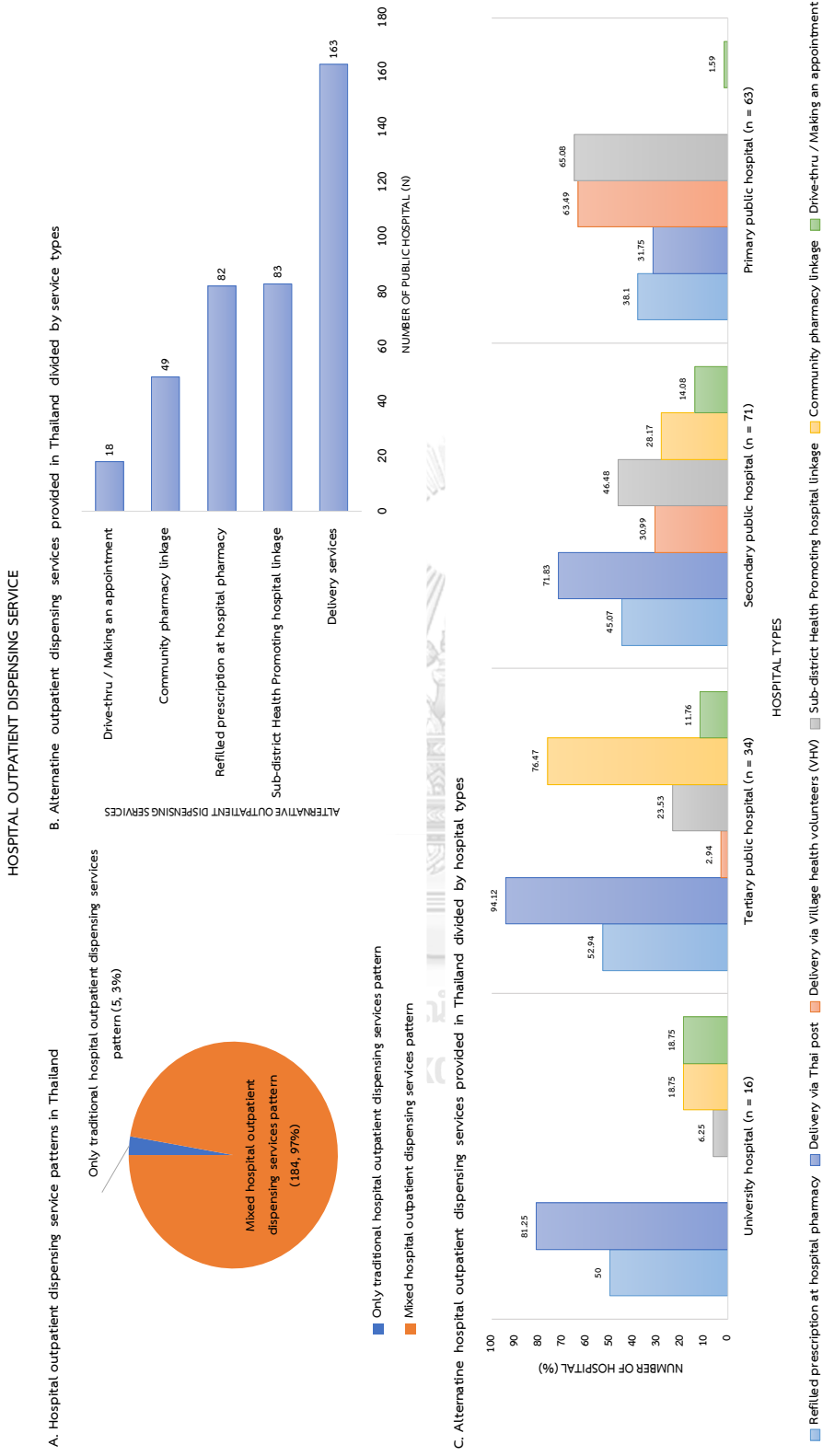


Figure 2 Hospital outpatient dispensing service.

A: Patterns of hospital outpatient dispensing service in Thailand (N, %); B: Hospital alternative outpatient dispensing service in Thailand divided by service types (N);

C: Hospital alternative outpatient dispensing service in Thailand divided by hospital types (%)

Initiation of hospital alternative outpatient dispensing services and decision to continue providing those services

The hospital alternative outpatient dispensing services mostly initiated during COVID-19 situation (beginning of the year 2020) and likely continue with mixed patterns of service. The ratios of overall services and trends are shown in **Figure 3**.

Delivery service in Thai hospitals during the COVID-19 situation reached 88.96% of overall services (145/163 hospitals) and only 11.04% (18/163 hospitals) used delivery service before the COVID-19 situation (**Figure 3A**). The main reasons for using this service are the reduction of hospital congestion, reduction of medicine waiting time, and more convenience for patients. The trend of continuation of this service is account for 76.69 % (125/163 hospitals). Surprisingly, the ratio of percentage for continuation to discontinuation of the service in primary public hospitals is almost equal (53.85:46.15) with the using of delivery service via Thai post 50.00% and VHV 57.50%. The main facilitating factors for continuation were that this service could solve the crowded hospital problem, increased patients' satisfactions by reducing the traveling time and costs, and increased patients' accessibility, compliance, and continuation to medications regardless of troubles of patients' traveling and business. Patients who were new or had unstable conditions can spend more time for doctor's examination and pharmacist's counseling when this service has been provided for patients who were stable. However, the delivery services might lead to healthcare problems such as no laboratory monitoring, missing physicians' follow-up, lack of pharmacist counseling, medication errors, drug-related problems (DRPs), and leftover medicines. It also increased the workload for workers. Patients were unwilling to pay for delivery service. Then the un-updated patient contact and incomplete medication information were important obstacles to provide hospital alternative outpatient dispensing services.

Sub-district Health Promoting hospital linkage service which began during the COVID-19 situation is 62.65% (52/83 hospitals) (**Figure 3B**). However, tertiary public hospitals that started this service before the COVID-19 situation are 62.50% of those hospitals having this service. The main purpose of Sub-district Health Promoting hospital linkage service is reduction of patients traveling to hospitals. The hospital's trend to continue this service accounts for 69.88%; nonetheless, the primary hospitals, which have the highest percentage of using this service trend to continue this service only 56.10%

(23/41 hospitals). The continuation of this service depends on the policy of restructuring of the public health service units.

Refilled prescriptions at the hospital pharmacy service in Thailand during the COVID-19 situation accounted for 68.29% (56/82 hospitals) of total hospitals providing this service (**Figure 3C**). On the other hand, university hospitals and tertiary public hospitals that started this service before the COVID-19 situation are 75.00% and 50.00% of hospitals having refilled-prescription, respectively. The main purposes of refilled prescriptions in hospitals are solving the drug-inventory problem, limitation of drug-dispensing amount, and overstock of medicine. Most hospitals (more than 60%) trends to continue this service. Especially, tertiary public hospitals have 100% continuation because it could response to the purposes of this service.

Community pharmacy linkage service in hospitals before the COVID-19 situation compared to during the COVID-19 situation has similar numbers 51.02% (25/49 hospitals) and 48.98% (24/49 hospitals), respectively. (**Figure 3D**) The main objective of provision before the COVID-19 situation was to respond to the policy of the NHSO together with the Pharmacy Council in creating a pilot project to receive drugs at drugstores near home. Although the trend in all types of hospitals that provide this service is found to be most likely to continue providing the service more than 75.00%, the number of community pharmacies and patients participating in the program is decreasing. Due to those community pharmacies are not confident in the continuity of policy, especially in monetary support, from the NHSO and government, while patients face inconvenience traveling to community pharmacies. Moreover, this service is not organized in all health insurance schemes and in all areas, especially in remote areas. On the other hand, patients who are stable and willing to receive medicines at community pharmacies can get more time for pharmacist's counseling, advice, and drug-related problems (DRPs) detecting from community pharmacists. The coordination between hospital pharmacists and community pharmacists is quite easy to communicate and understand.

Drive-thru / Making an appointment service was initiated at 88.89% (16/18 hospitals) during the COVID-19 situation and the trend to continue this service was 72.22% (13/18 hospitals) (**Figure 3E**). The main purpose of this service is to support social distancing during the COVID-19 situation. The continuation of this service depends on the situation.

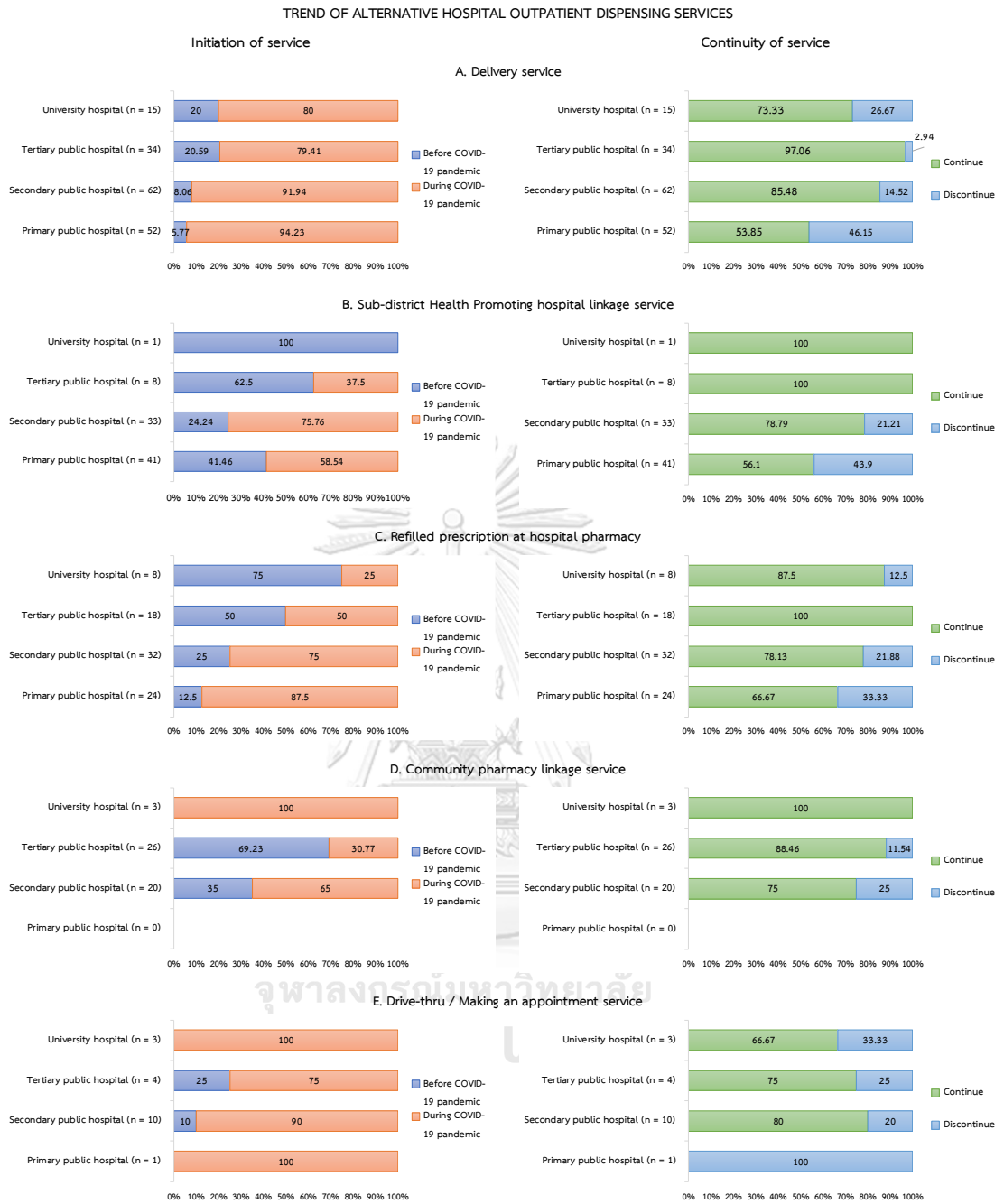


Figure 3 Trend of alternative hospital outpatient dispensing services.

A: Delivery service, B: Sub-district Health Promoting hospital linkage service, C: Refilled prescription at hospital pharmacy, D: Community pharmacy linkage service, E: Drive-thru / Making an appointment service

PHASE-2: Exploring the structure, work processes, outputs and environments of the alternative hospital outpatient dispensing service patterns.

The in-depth face-to-face interview was carried out between November 2022 and February 2023, involving four selected key informants who held managerial positions among a pool of 140 pharmacists. The primary emphasis was placed on alternative outpatient dispensing services, specifically focusing on the widely adopted home delivery service. The attributes of the key informants are presented in **Table 6**.

Table 6 The characteristics of key informants.

Code	Gender	Age (Years)	Experience (Years)	Hospital type	Interview's place	Duration of interview (min.)
ODS-001	Female	52	28	Medical school	On-site	60
ODS-002	Female	57	33	Medical school	On-site	111
ODS-003	Female	46	15	Tertiary public	Online	75
ODS-004	Male	54	29	Tertiary public	Online	30

The information was grouped according to the conceptual framework as structure, process, output, and environment effected to the provision of the alternative hospital outpatient dispensing service.

Structure

Objective

The home delivery service allows eligible patients to receive medicine outside of the hospital setting, which can help alleviate overcrowding and provide more convenience for patients, particularly during periods of crisis such as the COVID-19 pandemic. Furthermore, it also enhances the continuity of care for patients who have difficulty traveling to hospitals. However, the provision of home delivery service outside the hospital setting does not intend to facilitate patients' access to different physicians or to provide medications that deviate from the traditional pattern offered by the hospital. Thus, the quality of dispensing service remains unaffected.

Law, Regulation and Policy

The provision of home delivery service in Thailand's healthcare system is backed by policies, regulations, and guidelines from various organizations. This system is

administered by the Ministry of Public Health (MoPH), the Health Insurance System, Professional Councils, and self-service units, as delineated in **Table 7**.

Table 7 Laws, regulations and policies related to drug delivery service.

Laws / Regulations / Policies	Thai Post delivery Service
Drug Act	Dispense at registered place
Thai FDA, MoPH	Delivery of narcotic drugs, cannabis and psychotropic substances is permitted for no more than 1 month.
Civil Servant Medical Benefit Scheme (CSMBS)	Reimbursement procedure: let the hospital finance use the patient's ID code for authentication
Social Security Scheme (SSS)	N/A
Universal Coverage (UC)	Finance; support 50 ฿ / parcel
Pharmacy Council	Standard and Procedure of Telepharmacy: included of registration, assessment, counseling, and record
Hospital's criteria	Eligible patient: stable and willingness Ineligible medicine: narcotic drugs, psychotropic substances, high alert drugs, breakage risky, high weighted, refrigerated medicines

From the table, it can be observed that policies or regulations from the central authority can both act as facilitators and obstacles to the provision of home delivery services for medications. Furthermore, they do not encompass all health insurance schemes.

However, to ensure the appropriateness of patients receiving home delivery service, the hospital has established criteria for eligible patients. Patients must be those with chronic diseases whose conditions are considered stable and able to receive alternative dispensing services. Additionally, patients must express their willingness to receive the services and provide their informed consent.

“The doctor must be aware of the regulations that if it is a refrigerated medication or a drug with addictive properties, it cannot be sent by mail. The doctor will have to choose the appropriate cases accordingly” ... (ODS-001).

“The initial assessment begins at the Department of Internal Medicine, with a neurologist managing patients who are stable and receiving repeated medication.” ... (ODS-002).

Certain medications are not eligible for alternative dispensing services, including psychotic drugs, narcotic drugs, drugs with a high risk of breakage, high weight drugs, refrigerated drugs, high-alert drugs, and medications that require special consultation.

“The system will be checked to ensure that there are no prohibited medications being delivered in proximity to the patient's residence. Please note that certain restrictions apply, and we will not deliver certain medications, such as refrigerated medication, psychoactive drugs, and controlled substances. Additionally, medications that are prone to breakage or require injection will also not be delivered.” ... (ODS-003).

Organization

The hospital will establish a specialized team to provide alternative hospital outpatient services to patients, led by a physician, nurse and pharmacist who designed and implemented the work process and protocol which is supported by the public relations and IT team.

“The hospital has established a committee comprising a group of professionals who perform actual duties, with the head pharmacist for outpatient services serving as the team's coordinator. The pharmacist is responsible for coordinating all activities since they possess the necessary abilities to do so and have an overall view of the entire system, including computer systems.” ... (ODS-002).

“The Pharmacy Department is the main unit with the Assistant Director of Medical Services as the chairperson.” ... (ODS-004).

Moreover, they collaborate with external organizations such as Thailand Post, hospital messenger, and private transportation companies. There must be an agreement between the hospital and the transportation company regarding the quality of transportation and service fees. The quality of transportation includes packaging, temperature control, contamination, damage, loss, and insurance.

“At that time, we were in the process of negotiating an MOU with the company, as there were concerns regarding the delivery of goods, potential damages, expenses, and revenue that would be provided to the hospital.” ... (ODS-004).

Manpower management

As the hospital provides alternative outpatient dispensing services by utilizing existing personnel. Staff have been allocated responsibilities in different positions such as

remote counseling, system administration, coordination with other personnel from transportation companies, and packaging of medication in boxes.

"The hospital still utilizes the same staff in the pharmacy department, but they have been divided into different parts. Some of the back-end tasks may have increased, and the staff cannot be increased. The service has been divided into two areas: front-end service and alternative service." ... (ODS-003).

Time management

There is now a schedule for providing alternative outpatient dispensing services to reduce disruptions to regular medication dispensing services for patients.

"Requests received during business hours will be accepted until 4:30 PM, and the information will be sent by 5:00 PM (subject to adjustment based on workload). Patients can access the service only on official days and hours." ... (OD-003).

"Medication will be prepared at 3:00 PM, picked up by the post office at 3:30 PM, and delivered to the recipient's home on the next day." ... (ODS-004).

Point of Service

The hospital outpatient pharmacy department has established channels for patients who wish to receive alternative medication services, as well as areas for packaging or storing medicines in boxes for transportation to both patients and community pharmacies.

"For alternative medication delivery, we also have kiosks available for patients who prefer self-service. Patients can access these kiosks without having to go to the pharmacy." ... (ODS-003).

"Once the matching is complete, the medication will be sent to the packaging room, which is located in the meeting room of the hospital director." ... (ODS-001).

Inventory management

To ensure that the hospital's alternative outpatient dispensing service delivers care of the same quality as its traditional pattern, the hospital has decided to provide medication to patients at the same monthly supply as previously, every 3-4 months.

“The doctor ordered for 6 months, with the first 3 months' medication to be provided by the pharmacy and the remaining 3 months as a refill prescription.” ... (ODS-001).

“In the alternative pattern, we continue to dispense medication at the same frequency as before, every 3-4 months, without any restrictions on the number of times.” ... (ODS-004).

Financial management

In terms of the cost of providing alternative outpatient medication services, the hospital has received support from the National Health Security Office (NHSO) for some of the patients covered by the universal health coverage scheme, while other types of health coverage do not receive support from any agency. Therefore, service users are required to share the cost of services for receiving the home delivery service, and the service fees depend on the delivery method.

“The National Health Security Office (NHSO) provides support for postage costs at 50 baht. Patients under the Universal Coverage (UC) do not have to pay for postage, but if it is under other types of coverage such as Social Security Scheme (SSS) or Civil Servant Medical Benefit Scheme (CSMBS), we must charge 100 baht.” ... (ODS-004).

“If it's SCG service, they will be limited by the weight of the parcel because their destination limit is also eighty baht. They have a size and weight limitation. For this year, the price will increase to 85 baht.” ... (ODS-003).

“If this HN barcode is scanned, there will be an additional 100-baht charge for postage.” ... (ODS-001).

Technology and Communication support

The hospital outpatient pharmacy department also incorporates information technology systems and various applications to enhance the capability of providing alternative dispensing services to patients. Furthermore, the hospital outpatient pharmacy department is concerned with verifying the accuracy of information in the request form, including the recipient's name, address, and phone number, as well as implementing a modern online delivery management and tracking system that allows patients to track the delivery status in real-time.

"One issue since the very first moment of calling is the phone number is outdated, it has been used for 5 generations without being updated. Some calls can be made, while others cannot." ... (ODS-001).

The communication channels used to promote the alternative hospital outpatient dispensing service to interested parties vary and include methods such as displaying signage in the pharmacy or posting on the hospital's social media platforms such as Facebook. These methods focus on providing easy-to-access channels for patients to learn about the service.

"We have put up a notice at the counter that if you wish to receive the service, you can contact us through this channel. Additionally, we also promote the service through the hospital's online channels, such as Facebook and other online media." ... (ODS-004).

Moreover, the hospital also provided a variety of channels for patients to track their medication status, receive counseling, or provide feedback. These channels included telephone, SMS, Telepharmacy programs developed by the central department or IT team of the hospital, as well as applications such as LINE Official Account (LINE OA) or those of transportation companies.

"There will be opportunities to inform patients of their status via SMS at various stages." ... (ODS-001).

"We will also have a Line ID for the pharmacy so that patients can inform us when they have received their medicines. Sometimes they don't directly talk to the pharmacist, so they can add Line OA and chat with us. Currently, we are using this simple application for now." ... (ODS-003).

This ensures that patients can access services and receive appropriate, accurate, timely, and traceable medication with accompanying advice. Moreover, staff can access accurate, up-to-date information and communicate effectively.

Process

The processes involved in providing the drug delivery service cover the steps of patient entry and prescribing and order entry, dispensing and advice as well as coordination and follow-up, receiving feedback or addressing issues after providing the alternative hospital outpatient dispensing service. See **Figure 4**

Patient entry and prescribing.

Patients can access home delivery service through various channels, which may include receiving medications at home or traveling to the hospital by themselves. The process of providing home delivery service begins with the physician considering whether the patient is eligible for the service. This may involve a selection process based on a review of the medical records, telemedicine, or patients who have received treatment at the hospital by themselves.

“The attending physician does not engage in telemedicine. Rather, the physician conducts a thorough review of the patient's medical history to ascertain their eligibility for the alternative hospital outpatient dispensing service. Upon ensuring the patient's stability and safety, the dispensation of medications is performed and dispatched via mail.” ... (ODS-002).

“Before appointments, nurses are required to register for remote consultations. They will gather patient data seven days prior to the scheduled examination and send a list to the doctor for categorization into three groups: green, yellow, and red. Red signifies an unstable condition requiring an in-person hospital visit, while green indicates a stable condition and yellow is subject to case-by-case consideration. The doctor will then inform the nurses of eligible patients for telemedicine and provide them with a list of links. The nurses will contact the patients to confirm their willingness to undergo telemedicine examination.” ... (ODS-001).

“During the COVID-19 pandemic, one procedure entails patients registering through the hospital's application system to request home delivery of medication via the Thai postal service. The IT unit's nurses will compile and distribute a list of names to each unit's nurses, who will then prepare the patients' health record numbers for the physicians to assess the suitability of sending medication via postal service.” ... (ODS-004).

“Starting from the patient comes to check as usual. When leaving the examination room, the patient will carry a guide to contact the pharmacy room.” ... (ODS-003).

Order entry, dispensing and advice.

Once the physician has assessed that the patient is eligible for alternative outpatient dispensing services, a medication order will be issued to the hospital outpatient pharmacy. The hospital outpatient pharmacy will then undertake a comprehensive process, in accordance with established service standards, to confirm patient information,

review the medication list, and obtain consent for home delivery service. Upon a thorough evaluation of the prescription based on various criteria, the hospital outpatient pharmacy will prepare and check the medicines, package it accordingly and prepare it for delivery. The preparation and checking procedures follow the same protocol as traditional outpatient dispensing service, with the additional step of matching the medicines with relevant documents such as appointment slips, receipts, and referral information, before closing the package. The parcel is then registered for delivery for future tracking and verification. As for medication advice, it can be provided both before the medication dispensing process commences and after it has been completed. Before dispensing begins, hospital pharmacists may provide medication advice via Telepharmacy service. Following medication delivery, the availability of medication advice, patients may receive follow-up regarding medication reception, and if there are any inquiries about medication usage, the hospital outpatient pharmacy can provide advice.

“Upon the physician’s input of a medication order via the CPOE system, the order will be seamlessly processed within the CPOE framework. Notably, the medication order will be equipped with a Telemedicine barcode designed for postal service scanning and invoicing purposes. The hospital’s billing department will subsequently communicate with the patient through the RAMA application or furnish the hospital account number to facilitate payment transfer. Following the completion of the payment, the billing department will produce and furnish a receipt to the pharmacy. The pharmacy will then cross-check the medication package with the receipt and other hospital documents. If the patient opts not to use the RAMA application, they will be provided with appointment cards, blood test requisitions, and medical certificates.” ... (ODS-001).

“Following the conclusion of the telemedicine consultation conducted by the physician at the patient’s residence, the pharmacist will proceed with the implementation of Telepharmacy services. Subsequently, the pharmacist will diligently arrange the prescribed medication, carefully package it into a suitable container, and dispatch it via mail. Alternatively, the pharmacist may choose to conduct a subsequent Telepharmacy session to ensure the patient’s successful receipt of the prescribed medication.” ... (ODS-002).

“In the transportation process facilitated by SCG Company, patients are requested to present the slip to the personnel beforehand. This procedure is essential for the purpose of elucidating matters concerning payment settlement and ensuring accurate

delivery by providing the current address and telephone number. The staff then annotate the referral slip with medication delivery details, which are subsequently forwarded to the pharmacist responsible for Telepharmacy to record delivery location. Following the customary medication verification, printing the label, and preparing the medicines as usual, a second pharmacist cross-checks medication accuracy in terms of location, dosage regimen, and quantity, after which the medication is placed in a labeled bag containing the patient's name, address, phone number, and medication pickup location.” ... (ODS-003).

Coordination and follow-up, as well as receiving feedback or addressing issues after providing the alternative hospital outpatient dispensing service.

In the provision of home delivery service, it may be necessary to conduct follow-up or re-verification after medication delivery to the patient to confirm that the medicines have been received in its entirety, accurately, punctually, and without issues. Direct telephone inquiries or Telepharmacy can be employed to accomplish this, offering the advantage of comprehensive medication advice and verification. However, managing personnel for this service can be a drawback. Waiting for feedback is another follow-up method, saving both personnel and time resources. Nevertheless, comprehensive medication advice and verification may not be feasible. When the patient has received the medication and their problems have been resolved, the process of providing home delivery service by the hospital is completed.

“The “Tele-” system looks good and cool. There may be some use of a postage delivery service, but there is a disadvantage in terms of monitoring.” ... (ODS-002).

“Currently, there is a lack of real-time patient monitoring in accordance with the hospital standards inspected by the Hospital Pharmacy Association, and this is an area that requires improvement. We may encounter another issue when patients come to see the doctor in their next appointment. While the patients can communicate with pharmacists in community pharmacies and networked hospitals. Nevertheless, patients can still provide us with feedback through the LINE OA. We have placed a LINE OA QR code in the medication package box. Patients can scan the QR code, ask questions, and an admin pharmacist will be available to provide answers.” ... (ODS-003).

For the safety of the medication recipients, there should be an identification confirmation by checking documents and signing the receipt of the medication upon

successful delivery. Furthermore, warnings about side effects and instructions for use should be clearly stated on the medication label to prevent harm to the health.

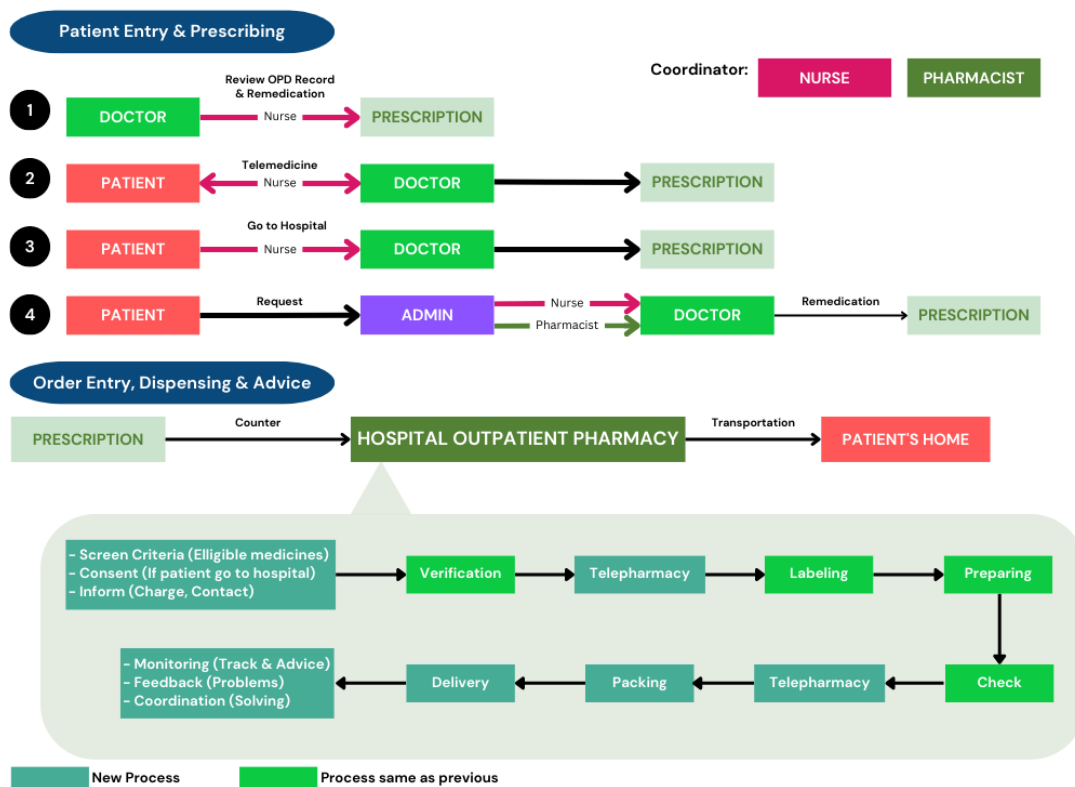


Figure 4 Procedures for alternative hospital outpatient dispensing service; delivery service.

Output

Reflection from patients' feedback

According to the feedback obtained from patients availing the medication delivery service, they express satisfaction towards the home delivery system. However, they exhibit discontentment towards the payment requirement and demonstrate a preference for receiving medications directly from the hospital. Furthermore, reports of errors within the home delivery service have been recorded, encompassing cases such as non-receipt of medication, receipt of medication meant for others, delays in receiving medication, and incomplete medication deliveries. Notably, the occurrence of these errors does not deviate significantly from the traditional outpatient dispensing service provision.

“In general, the level of satisfaction can be considered acceptable due to the elimination of waiting time for patients. However, a comprehensive and structured survey to assess the extent of satisfaction has not been conducted. It should be noted that a

significant portion of returning patients express satisfaction; nevertheless, it is important to highlight that most of these patients are elderly individuals who rely on their children to bring them to the hospital in the morning, with the expectation of completing all necessary procedures within a single day. Their preference is to avoid seeking medication from other sources. Consequently, despite their desire to receive prompt service, they are compelled to wait until their children complete their work obligations and arrive to collect them, as they are unable to return home without obtaining their prescribed medication.” ... (ODS-003).

“The primary issue pertains to financial considerations. Previously, the hospital supported financial issues by covering the expenses incurred by patients under social security and government employee schemes, in addition to a postage fee of fifty baht. However, with the gradual improvement of the COVID-19 situation, the hospital has officially declared its discontinuation of absorbing this service fee and will instead impose a hundred-baht charge. Consequently, there has been a notable decline in patient volumes, with the daily caseload decreasing from approximately 100 cases to no more than 30 cases.” ... (ODS-004).

“The common issue encountered is the misplacement of medication, where one person accidentally puts their medication in another person's bag. However, such incidents are relatively infrequent. There have been no reports of damaged medication or feedback regarding medication breakage. Additionally, delays in medication delivery have been observed, prompting patients to make follow-up calls. This situation arises from the fact that the SCG personnel, who handle the deliveries, are heavily affected by COVID-19 and are unable to make timely deliveries. While some cases of incomplete medication supplies have been noted, feedback from the recipients is expected.” ... (ODS-003).

Feedback from staffs

Hospital pharmacists have acknowledged the difficulties they face when delivering medications to patients' homes, as it results in heightened workloads encompassing operational duties, retrospective problem-solving, monitoring, and coordination. Moreover, there is a scarcity of personnel available to offer supplementary services, exacerbated by the absence of smooth information flow across departments. Additionally, challenges arise concerning outdated contact details, redundant communication at various stages, and unreliable connectivity signals.

“When patients visit the hospital in person, the transfer of data between departments may involve a combination of offline methods, such as patients submitting physical documents, and online methods, utilizing interconnected systems. However, in the context of remote healthcare services where patients receive care at home, it is imperative to strengthen the online connectivity within the hospital. Moreover, healthcare professionals, including nurses, pharmacists, finance personnel, and medical records staff, face the challenge of proactively contacting patients via telephone. Unfortunately, the phone numbers stored in the system are frequently outdated and not regularly updated, resulting in difficulties in reaching patients. Additionally, there are concerns regarding the comprehensive coverage of healthcare rights, particularly in cases involving referrals from other hospitals. Furthermore, it is common to encounter situations on appointment days where patients are unavailable, leading to inconveniences that necessitate follow-up calls or alternative means of communication, such as utilizing the Line application, which may not be ideal for elderly patients.” ... (ODS-001).

“From the perspective of healthcare workers, they may perceive it as an increased burden. However, I believe it is not an additional burden because the tasks remain the same and the patients are also unchanged. The only difference is the change in format. Nevertheless, there is a need for additional monitoring, such as packing boxes for postal delivery and potentially increasing Telepharmacy services. However, the traditional consultation process still needs to be carried out as usual. Additionally, the exchange of patient information among doctors, nurses, and pharmacists remains problematic, as sometimes patients send incomplete or missing data through the application, and the IT system fails to collect or consolidate the information properly. Another issue is related to payment. When patients make payments, there is a lack of coordination between the patient, the pharmacy, and the billing department, causing uncertainty regarding whether the patient has completed the payment.” ... (ODS-004).

Organization image

The provision of drug delivery service to patients' homes represents an alternative approach in the realm of hospital services, with the objective of improving convenience for the patients. However, its impact on the overall perception of the hospital remains limited due to the relatively low utilization rate of this service by patients.

“It is possible, but only as an alternative option. This hospital appears to have alternative options available, as they are not commonly provided by other hospitals. However, it is uncertain whether it has a significant impact that clearly reflects the hospital's image. Currently, the utilization of this service is not substantial enough to have a pronounced effect. Nonetheless, patients are aware that the hospital offers such services.” ... (ODS-003).

“I think they might appreciate the fact that we offer diverse options and provide convenience for them in cases where they prefer not to visit the hospital, considering the challenges posed by the COVID-19 pandemic.” ... (ODS-004).

Environment

Laws & Regulations

When providing medication delivery services to patients' homes, hospital pharmacists express apprehension regarding the regulations enforced by the Pharmacy Council pertaining to Telepharmacy services. These regulations encompass data recording, including the formatting and retention period, thereby introducing intricacy and challenges to service provision. Moreover, concerns arise regarding the protection of patient information confidentiality, as well as adherence to consumer protection laws and the Personal Data Protection Act (PDPA). These apprehensions within the IT department revolve around consent, access, and data storage practices.

“The newly issued regulations by the Pharmacy Council regarding Telepharmacy require data recording. It specifies that our communication with patients must be in the form of video calls, which may simplify policy-related discussions. However, these details can make the workflow more challenging, potentially affecting our ability to perform tasks effectively. Additionally, there are several consumer protection laws in place, especially concerning patient confidentiality, which restrict our ability to deliver antiretroviral (ARV) medication.” ... (ODS-003).

“The Pharmacy Council stipulates the issue of recording, and the hospital is concerned about the legal aspects, such as the specific requirements for recording and whether audio needs to be compressed or if screen captures are necessary to document actual conversations with patients.” ... (ODS-001).

“Part of it is also a matter of patient confidentiality, and the PDPA (Personal Data Protection Act) may have a part that concerns IT security. Besides, it involves the issue of

storing conversation data, whether it should be stored as files, folders, or something else. Another issue is how long we should retain the data and how." ... (ODS-004).

Social Paradigm

The impact of the evolving era has had a dual effect on the facilitation of patient drug delivery service, both stimulating and impeding its provision. Behaviors related to online media usage and a keen interest in technology act as catalysts, generating a demand for and accessibility to alternative service patterns. Simultaneously, the inclination towards visiting hospitals for medical consultations and the preferences of the elderly population serve as factors that perpetuate patients' reliance on services in the traditional pattern.

"As they rely more on online media, they become more aware. Sometimes, they come and ask why we don't do it this way or why we don't deliver it like other hospitals because they know that elsewhere they do it while here they don't. We consider it as advice for the patients. However, on the other hand, there is a presence of the elderly population who are not reached by the media. Therefore, when we provide something that they cannot access, it becomes a limitation, like when we post on Facebook or announce through LINE OA, there is a group of patients who cannot reach it. This situation has both advantages and disadvantages." ... (ODS-003).

"In my opinion, I believe that most patients want to see a doctor. Therefore, providing services in this manner requires us to try to explain to them that if the doctor believes their condition is stable, there may not be a need for them to visit the hospital again. And if possible, the doctor may have to engage in telemedicine first before considering Telepharmacy as the next step in the process." ... (ODS-004).

Competitive Advantages

The competition between hospitals in offering alternative hospital outpatient dispensing services may not exert a pronounced influence, particularly in the case of non-profit government hospitals that lack direct competitors. The primary objective behind initiating alternative service patterns is to elevate patient satisfaction. However, the commencement of such services also hinges on the hospital's preparedness factors such as cooperation of doctors and target population.

“This hospital has few competitors, so competition with other hospitals has little effect on us. As a central hospital, we are like a destination that everyone has to come to. In the case of community hospitals that cannot provide the same services, they are not competitors. As for private hospitals, they are hardly competitors anymore; instead, we have become buddies since we outsource services from them extensively. Regarding drug delivery service, I think we don't have any competitors because our target groups are already separate.” ... (ODS-003).

“The hospital itself desires to make improvements to surpass other hospitals and enhance patient satisfaction. However, the pace of progress depends on various factors and circumstances within the hospital. Is the hospital ready? Where should we start? Which department should be prioritized? This is because not all doctors are equally prepared. While younger doctors are eager to make changes, older doctors may be less interested or inclined to participate.” ... (ODS-004).

CHAPTER 5 DISCUSSION AND CONCLUSION

Discussion

This is the first national survey exploring current outpatient dispensing services using probability sampling to ensure representativeness of hospitals across Thailand. Hospitals at all levels offered some kinds of alternative services which mostly initiated during the COVID-19 pandemic. Postage drug delivery service was the most popular service adopted by most hospitals. It is likely that the hospitals will carry on those alternative outpatient dispensing services even after the COVID-19 pandemic.

The study was well reflecting the situation in government hospitals but did not capture the situation in the private hospital sector. It also had a limit on the number of hospitals being smaller than intended, because the data collection is a phone interview at the specified time and the interview period is quite long. Moreover, the study did not capture other key stakeholder's opinion e.g. patients and community pharmacists.

Alternative outpatient dispensing services were three times increasing after the attack of the covid-19 pandemic. Compared to the information collected during July 2020 by the Department of Disease Control, the Ministry of Public Health ⁽²⁹⁾, which focus on the impact of the COVID-19 situation on service to patients with non-communicable diseases, it was found that the main objective for the adjustment was to reduce congestion, increase social distancing, and focus on health equity. Whereas this study showed that there are many purposes in the initiation of the alternative outpatient dispensing services depending on each model. Although in this study it was found that the types of alternative outpatient dispensing services were like those reported by the Department of Disease Control, the order of preference for hospital was different. In the study, postal drug delivery service was found to be the most popular and followed by Sub-district Health Promoting hospital linkage service, refilled prescription service, drug delivery by VHV and community pharmacy linkage service, respectively. While the Department of Disease Control's report found that drug delivery by VHV was the most popular and followed by receiving drugs at Sub-district Health Promoting hospital linkage service, refilled prescription service, postal drug delivery service, and community pharmacy linkage service, respectively. The difference in preference rankings may be the result of differences in the proportions of sources. According to the report of the Department of Disease Control, most hospitals were community hospitals (366 hospitals) and Sub-district health promoting

hospitals (140 hospitals). On the other hand, this study included all types of hospitals by a proportion but did not gather Sub-district health promoting hospitals.

Adjustment of alternative hospital outpatient dispensing services during the COVID-19 situation doesn't happen only in Thailand. A study in Malaysia pointed to the adaptation of hospitals to provide drug delivery, pickup at pharmacy, drive-thru and contactless medicine lockers ⁽⁵⁵⁾.

Furthermore, this study also reveals that the primary public hospitals have a high percentage of discontinuing alternative outpatient dispensing service provision (over 40%). This is mainly because the primary public hospitals are mostly located in areas where patients have easy access, close to their residences, and the primary hospitals do not experience overcrowding of patients. Additionally, patients themselves have the desire to visit the hospitals and receive medicines to take home at the same time. In addition, the restructuring of the administration of sub-district health-promoting hospitals has been transferred from the Ministry of Public Health to be under the administration of the Ministry of Interior of Thailand.

In this study, it should be noted that the in-depth interviews conducted focused solely on the home drug delivery service for outpatient dispensing service. Therefore, it may not fully reflect all the alternative outpatient dispensing services that have been implemented among the hospitals in Thailand. This study has several implications for practitioners. It may be applied to use as baseline information for hospital outpatient dispensing service post COVID-19. The information from this study will help to understand the situation and be able to plan a protocol or guideline or infrastructure of the home drug delivery service to ensure quality of care and cover issue of service. Moreover, the data also helps to realize and prepare for the management of the system, workflow, finance, and human resources as well.

For a future study, the qualitative data should be elicited in detail to explore what are the barriers and facilitators of component and process to provide effective other alternative outpatient dispensing services. Furthermore, the information should not be only from administrative level but also from operational level. Due to the feedback from operators about the problem of increased workload, while the executives viewed that the workload did not increase, it only changed the working style. The future study could explore the impact of the PDPA (Personal Data Protection Act) on providing alternative

outpatient dispensing services to patients. Additionally, it could investigate the factors that could facilitate the enforcement of regulations from the Pharmacy Council regarding Telepharmacy and its practical implementation. These factors could be studied to identify best practices and potential challenges. Factors such as technological infrastructure, training and education of healthcare professionals, patient acceptance and satisfaction, regulatory compliance, and privacy and security concerns should be considered in assessing the viability of Telepharmacy services.

Conclusion

Most of the hospitals in Thailand (97%) utilized at least one of the alternative outpatient dispensing services. It is likely that the hospitals will continue to offer those services. Disruption of COVID-19 catalyzes adoption of alternative outpatient dispensing services at a faster pace than what pharmacy council and health insurer intended. However, challenges such as incomplete data, increased workload, limited space, and additional costs need to be addressed for the sustainable implementation of these services.

It is crucial for hospitals to prioritize the development of robust IT infrastructure, streamline workflow processes, and secure adequate funding to ensure the seamless delivery of alternative outpatient dispensing services. Furthermore, providing training and support to both healthcare professionals and patients in utilizing IT platforms and applications is essential.

Recommendations

In order to initiate alternative hospital outpatient dispensing services, regulations and operation protocols should have clear restricted criteria on patient status, appropriate disease, and types of medicines for inclusion. They should also be organized in all health insurance schemes. Follow-up schedule should be explicitly clarified. The communication between patients and hospital professional healthcare should be two-way and face-to-face pathway to reduce misunderstandings or setting up a hot-line service to solve the problem. The quality and safety of transportation should be standardized including temperature control, accuracy, punctuality, traceability, and assurances. Telemedicine, tele-pharmacy, and artificial intelligence (AI) should be developed to support the provision.

Regular evaluation of the alternative services should be conducted to monitor their impact on patient satisfaction, efficiency, and cost-effectiveness. Feedback from both patients and healthcare professionals can help identify areas for improvement and inform future developments. Collaboration among hospitals, community pharmacies, and relevant stakeholders can promote knowledge sharing and best practices in implementing alternative outpatient dispensing services. Sharing successful strategies and lessons learned can benefit healthcare providers across the country. Policy direction from payer and professional organizations should be aligned with the promotion and expansion of alternative outpatient dispensing services. Enhancing patient education and support regarding the use of IT platforms and applications can facilitate their participation in alternative outpatient dispensing services. Clear instructions, user-friendly interfaces, and assistance from healthcare professionals can improve patient confidence and engagement.



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APPENDIX 1

The survey questionnaire in Thai.

(ข้อมูลเพื่อการแปลผล สำหรับนักวิจัยเท่านั้น)

ID _____

โรงพยาบาล _____ ประเภท: รัฐบาล : โรงเรียนแพทย์ ตติยภูมิ ตติยภูมิ ปฐมภูมิ
 จังหวัด _____ เอกชน : ขนาดใหญ่ ขนาดกลาง ขนาดเล็ก

การวิเคราะห์สถานการณ์รูปแบบการให้บริการจ่ายยาผู้ป่วยนอกของโรงพยาบาลในประเทศไทย

A SITUATION ANALYSIS OF THE OUTPATIENT DISPENSING SERVICE PATTERNS AMONG HOSPITALS IN THAILAND

วัตถุประสงค์ เพื่อสำรวจสัดส่วนการให้บริการจ่ายยาผู้ป่วยนอกของโรงพยาบาลในประเทศไทยทั้งในรูปแบบดั้งเดิม และรูปแบบทางเลือก
 นิยาม 1. การให้บริการจ่ายยารูปแบบดั้งเดิม คือ การให้บริการจ่ายยาแก่ผู้ป่วยที่เดินทางมาพบแพทย์และรอรับยาที่โรงพยาบาล
 2. การให้บริการจ่ายยารูปแบบทางเลือก คือ การให้บริการจ่ายยาแก่ผู้ป่วยรูปแบบอื่นๆ ที่มีใ้การให้บริการจ่ายยารูปแบบดั้งเดิม
 การเก็บข้อมูล การสำรวจทางโทรศัพท์ (Phone survey) ที่ไม่ระบุชื่อผู้ตอบ

คำถามคัดกรอง

ลำดับ	คำถาม	ผ่านเกณฑ์	ไม่ผ่านเกณฑ์
1.	ท่านเป็นเภสัชกรระดับผู้บริหาร หรือไม่	<input type="checkbox"/> ใช่	<input type="checkbox"/> ไม่ใช่
2.	ท่านมีประสบการณ์การปฏิบัติหน้าที่การให้บริการจ่ายยาผู้ป่วยนอกมาเป็นเวลานานเท่าไร	<input type="checkbox"/> ตั้งแต่ 5 ปี ขึ้นไป	<input type="checkbox"/> น้อยกว่า 5 ปี
สรุป	คุณสมบัติเข้าเกณฑ์และสามารถเข้าร่วมงานวิจัยได้หรือไม่	<input type="checkbox"/> ผ่าน (ผ่าน ครบ 2 ข้อ)	<input type="checkbox"/> ไม่ผ่าน (ไม่ผ่าน อย่างน้อย 1 ข้อ)

ส่วนที่ 1 รูปแบบการให้บริการจ่ายยาผู้ป่วยนอกของโรงพยาบาล

1. โรงพยาบาลของท่าน มีรูปแบบการให้บริการจ่ายยาผู้ป่วยนอกอะไรบ้าง
2. การให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือก เริ่มต้นขึ้นตั้งแต่เมื่อไหร่ และมีวัตถุประสงค์เพื่ออะไร

ส่วนที่ 2 ความคิดเห็นต่อการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกของโรงพยาบาล

1. ในความคิดเห็นของท่าน หลังจากสถานการณ์การระบาดของโควิด-19 สิ้นสุดลง โรงพยาบาลควรมีการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกต่อไป หรือไม่ เพราะเหตุใด
2. หลังจากสถานการณ์การระบาดของโรคโควิด-19 สิ้นสุดลง โรงพยาบาลของท่านตั้งเป้าหมายที่จะจัดให้มีการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกต่อไป หรือไม่ อย่างไร

ส่วนที่ 3 ข้อมูลทั่วไปของโรงพยาบาล

1. ใบสั่งยาผู้ป่วยนอกมีปริมาณเฉลี่ยต่อวันเท่าไร
2. ในช่วงเวลาปฏิบัติงานหลัก มีเภสัชกรประจำห้องจ่ายยาผู้ป่วยนอกกี่คน เภสัชกรประจำคืน เภสัชกรชั่วคราวกี่คน
3. ในช่วงเวลาปฏิบัติงานหลัก มีผู้ช่วยเภสัชกรประจำห้องจ่ายยาผู้ป่วยนอกกี่คน
4. โรงพยาบาลของท่านมีเครือข่ายหน่วยบริการ (เช่น โรงพยาบาล หรือร้านยา) เพื่อส่งต่อหรือรับการส่งต่อการรักษาหรือไม่ อะไรบ้าง
5. โรงพยาบาลของท่านมีการให้บริการสุขภาพทางไกล (Telehealth) หรือไม่ อะไรบ้าง

~ ขอขอบพระคุณ สำหรับการสละเวลามาร่วมงานวิจัย ~

*** แบบสอบถามนี้ถูกพัฒนาขึ้นโดยผู้วิจัยตามข้อมูลจากการทบทวนวรรณกรรม เพื่อใช้สำรวจตามวัตถุประสงค์ของการศึกษา และได้ผ่านการตรวจสอบความตรงเชิงเนื้อหา (Content Validity) โดยอาจารย์ประจำภาควิชาเภสัชศาสตร์สังคมและการบริหาร คณะเภสัชศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย จำนวน 1 ท่าน และเภสัชกรประจำโรงพยาบาล จำนวน 4 ท่าน รวมทั้งทรงคุณค่า/ผู้เชี่ยวชาญเป็นจำนวนทั้งสิ้น 5 ท่าน โดยผลการตรวจสอบค่าความสอดคล้องหรือดัชนีของความสอดคล้องกันระหว่างข้อคำถามแต่ละข้อกับจุดประสงค์ (Index of Item - Objective Congruence หรือ IOC) ในแต่ละข้อคำถามอยู่ในเกณฑ์ "มีความเที่ยงตรง ใช้ได้"

APPENDIX 2

The in-depth interview guide in Thai.

(ข้อมูลเพื่อการแปรผล สำหรับนักวิจัยเท่านั้น)

ID _____

โรงพยาบาล _____ ประเภท: รัฐบาล : โรงเรียนแพทย์ ตติยภูมิ ทุตติยภูมิ ปฐมภูมิ
 จังหวัด _____ เอกชน : ขนาดใหญ่ ขนาดกลาง ขนาดเล็ก

การวิเคราะห์สถานการณ์รูปแบบการให้บริการจ่ายยาผู้ป่วยนอกของโรงพยาบาลในประเทศไทย

A SITUATION ANALYSIS OF THE OUTPATIENT DISPENSING SERVICE PATTERNS AMONG HOSPITALS IN THAILAND

วัตถุประสงค์ เพื่อสำรวจโครงสร้าง การปฏิบัติงาน ผลลัพธ์ และปัจจัยแวดล้อมจากการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกของโรงพยาบาล

- นิยาม
1. การให้บริการจ่ายยา คือ กิจกรรมทางเภสัชกรรมตั้งแต่การได้มาซึ่งใบสั่งยาจนกระทั่งผู้ป่วยได้รับยา
 2. การให้บริการจ่ายยาแบบดั้งเดิม คือ การให้บริการจ่ายยาแก่ผู้ป่วยที่เดินทางมาพบแพทย์และรอรับยาที่โรงพยาบาล
 3. การให้บริการจ่ายยาแบบทางเลือก คือ การให้บริการจ่ายยาแก่ผู้ป่วยรูปแบบอื่นๆ ที่มีใช้การให้บริการจ่ายยาแบบดั้งเดิม

การเก็บข้อมูล การสัมภาษณ์เชิงลึกจากผู้ให้คำตอบโดยตรง (In-depth Face-to-Face Interview)

ข้อมูลการสัมภาษณ์ (ผู้ให้ข้อมูล สถานที่ และเวลา)

1. เพศ ชาย หญิง ทางเลือก อายุ.....ปี ตำแหน่ง..... (ระดับบริหาร ระดับปฏิบัติการ)
2. สถานที่สัมภาษณ์..... (สถานที่จริง ออนไลน์)
3. วันที่สัมภาษณ์..... เวลาเริ่มสัมภาษณ์.....น. เวลาสิ้นสุดสัมภาษณ์.....น. ระยะเวลาสัมภาษณ์.....นาที

คำถามคัดกรอง

ลำดับ	คำถาม	ผ่านเกณฑ์	ไม่ผ่านเกณฑ์
1.	ท่านเป็นเภสัชกรระดับผู้บริหาร หรือไม่	<input type="checkbox"/> ใช่	<input type="checkbox"/> ไม่ใช่
2.	ท่านมีประสบการณ์การปฏิบัติหน้าที่การให้บริการจ่ายยาผู้ป่วยนอกมาเป็นเวลานานเท่าไร	<input type="checkbox"/> ตั้งแต่ 5 ปี ขึ้นไป	<input type="checkbox"/> น้อยกว่า 5 ปี
สรุป	คุณสมบัติเข้าเกณฑ์และสามารถเข้าร่วมงานวิจัยได้หรือไม่	<input type="checkbox"/> ผ่าน (ผ่าน ครบ 2 ข้อ)	<input type="checkbox"/> ไม่ผ่าน (ไม่ผ่าน อย่างน้อย 1 ข้อ)

แนวคำถามสำหรับการสัมภาษณ์เชิงลึก

ประเด็น	คำถาม
โครงสร้างการให้บริการจ่ายยาผู้ป่วยนอก	
นโยบาย	โรงพยาบาลของท่านมีนโยบายอะไรบ้างที่เกี่ยวกับการให้บริการจ่ายยาผู้ป่วยนอก
การบริหารบุคคล	- โรงพยาบาลของท่านมีการแบ่งงานและจัดสรรบุคลากรอย่างไร สำหรับการให้บริการจ่ายยาผู้ป่วยนอก - ในการปฏิบัติหน้าที่ให้บริการจ่ายยาผู้ป่วยนอก มีเภสัชกร (เต็มเวลาและชั่วคราว) และผู้ช่วยเภสัชกร เท่าไหร่ - อัตราส่วนการปฏิบัติหน้าที่ของเภสัชกรต่อจำนวนใบสั่งยาคือเท่าไร - ในการปฏิบัติหน้าที่ให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือก มีบุคลากรส่วนใดบ้างเข้ามามีส่วนร่วม และเท่าไร
ระบบเทคโนโลยีและสารสนเทศ	โรงพยาบาลของท่านมีระบบสารสนเทศเพื่อสนับสนุนการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกอย่างไร
ระบบการติดต่อสื่อสาร	- โรงพยาบาลของท่านมีแนวทางการติดต่อสื่อสารเพื่อการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกอย่างไร - ใครได้รับมอบหมายปฏิบัติหน้าที่ติดต่อกับผู้ป่วยและหน่วยงานอื่นๆ ในช่วงเวลาใด และอย่างไร
พื้นที่บริการ	โรงพยาบาลของท่าน หรือ ร้านยาที่ร่วมให้บริการ มีการจัดสภาพแวดล้อม อาทิ การจัดการพื้นที่บริการ เพื่ออำนวยความสะดวกให้กับบริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกอย่างไร
กระบวนการให้บริการจ่ายยาผู้ป่วยนอก	
ขอความช่วยเหลือ	ข้อกำหนดหรือเงื่อนไขการรับบริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือก มีอะไรบ้าง

ประเด็น	คำถาม
ขั้นตอนการให้บริการ	กรุณา อธิบายขั้นตอนการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือก
สายธารผลิตภัณฑ์	- ขั้นตอนการลำเลียงยาจากห้องยาโรงพยาบาลไปสู่หน่วยงานอื่น ๆ จนถึงผู้ป่วยเป็นอย่างไร - มีวิธีการติดตามและตรวจสอบสถานะอย่างไร - ใช้ระยะเวลาานเท่าไร เพื่อที่ยาจะถึงผู้ป่วย - มีวิธีการดำเนินการจัดเก็บยาอย่างไร ก่อนส่งมอบยา หรือ ไม่มีผู้รับยา
สายธารข้อมูลผู้ป่วย	การส่งต่อข้อมูลผู้ป่วยระหว่างโรงพยาบาลกับผู้ป่วย หรือ โรงพยาบาลกับหน่วยงานอื่น มีแนวทางปฏิบัติอย่างไร
สายธารข้อมูลการเงิน	การส่งต่อข้อมูลทางการเงินระหว่างโรงพยาบาลกับผู้ป่วย หรือ โรงพยาบาลกับหน่วยงานอื่น มีแนวทางปฏิบัติอย่างไร
ประชาสัมพันธ์	ผู้ป่วยทราบได้อย่างไรว่าโรงพยาบาลมีการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือก
ระยะเวลา	การจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกให้บริการในช่วงเวลาใด
ค่าบริการ	การจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกมีอัตราค่าบริการอย่างไร และใครเป็นผู้ชำระค่าบริการ
วิถีทางการติดต่อ	- เกสเซอร์ให้คำแนะนำหรือคำปรึกษาการใช้ยากับผู้ป่วยด้วยวิธีการอย่างไร - ผู้ป่วยสามารถร้องขอความช่วยเหลือหรือเสนอแนะ ดิชมได้อย่างไร - โรงพยาบาลดำเนินการอย่างไรกับข้อสงสัยหรือข้อติชมที่ได้รับจากผู้ป่วย
การบันทึก	- การให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือก มีขั้นตอนการเก็บบันทึกข้อมูลการให้บริการอย่างไร - ข้อมูลการให้บริการที่ถูกรับบันทึกไว้จะถูกเก็บไว้นานเท่าไร
ผลลัพธ์การให้บริการจ่ายยาผู้ป่วยนอก	
ผลตอบรับจากผู้ป่วย	ผลตอบรับจากผู้ป่วยต่อการบริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกเป็นอย่างไร เรื่องคุณภาพ ความพึงพอใจ และข้อผิดพลาด
ผลตอบรับจากผู้ปฏิบัติงาน	ผลตอบรับจากผู้ปฏิบัติงานต่อการบริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกเป็นอย่างไร เรื่องภาระงาน ความพร้อม การประสานงาน และบทบาทวิชาชีพ
ผลสะท้อนต่อโรงพยาบาล	การให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกสะท้อนภาพลักษณ์ของโรงพยาบาลอย่างไร
ความต่อเนื่องของบริการ	โรงพยาบาลของท่านจะให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกต่อไปหรือไม่ เพราะเหตุใด
ปัจจัยแวดล้อมการให้บริการจ่ายยาผู้ป่วยนอก	
นโยบาย และกฎหมาย	ในปัจจุบัน กฎหมายหรือระเบียบข้อบังคับช่วยผลักดันหรือกีดกันการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกอย่างไร และควรปรับเปลี่ยนอย่างไรเพื่อให้เกิดความมั่นใจในคุณภาพและความปลอดภัยในการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือก
กระบวนทัศน์สังคมสมัยใหม่	- วิถีชีวิตของผู้ป่วยหรือแนวโน้มสังคมสมัยใหม่ส่งผลกระทบต่อการเริ่มต้นและการดำเนินการดำเนินการให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกอย่างไร - การให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกในโรงพยาบาลของท่านได้รับอิทธิพลการออกแบบหรือวางโครงสร้างจากโรงพยาบาลอื่นหรือไม่ อย่างไร - การระบอบของโรคติดต่อส่งผลกระทบต่อให้บริการจ่ายยาผู้ป่วยนอกรูปแบบดั้งเดิมและรูปแบบทางเลือกอย่างไร
การแข่งขันการให้บริการ	การให้บริการจ่ายยาผู้ป่วยนอกรูปแบบทางเลือกเป็นการสร้างการแข่งขันการให้บริการของโรงพยาบาลหรือไม่ อย่างไร

~ ขอขอบพระคุณ สำหรับการสละเวลามาร่วมงานวิจัย ~

*** แบบสอบถามนี้ถูกพัฒนาขึ้นโดยผู้วิจัยพิเศษของ Donabedian ร่วมกับข้อมูลจากการทบทวนวรรณกรรม เพื่อใช้สำรวจตามวัตถุประสงค์ของการศึกษา และได้ผ่านการตรวจสอบความตรงเชิงเนื้อหา (Content Validity) โดยอาจารย์ประจำภาควิชาเภสัชศาสตร์สังคมและการบริหาร คณะเภสัชศาสตร์ จุฬาลงกรณ์มหาวิทยาลัย จำนวน 1 ท่าน และเภสัชกรประจำโรงพยาบาล จำนวน 4 ท่าน รวมผู้ทรงคุณวุฒิผู้เชี่ยวชาญเป็นจำนวนทั้งสิ้น 5 ท่าน โดยผลการตรวจสอบค่าความสอดคล้องหรือดัชนีของความสอดคล้องกันระหว่างข้อคำถามแต่ละข้อกับจุดประสงค์ (Index of Item - Objective Congruence หรือ IOC) ในแต่ละข้อคำถามอยู่ในเกณฑ์ "มีค่าความเที่ยงตรง ใช้ได้"

VITA

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