

# Qualitative study on medication delivery services (MDS): perspective of pharmacists and caregivers

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## ABSTRACT

**Introduction:** Face to face communication between pharmacist and patient in a pharmacy is the best optimum and safest way of dispensing and delivering medications by a licensed pharmacist to a patient. Increasingly more common due to technological advances and the Covid-19 pandemic, medication delivery services are carried out at hospitals and community pharmacies as one of the value-added services (VAS) provided for patients' medicines supply.

**Objective(s):** The aim of the study was to explore opinions regarding medication delivery services (MDS) from the perspective of the pharmacist and caregivers and to identify issues in providing MDS.

**Methodologies:** This purposive sampled qualitative study involved interviewing pharmacists and caregivers who have participated in medication delivery service (MDS). Interviews were audio recorded and transcribed verbatim.

**Results:** Three themes emerged, namely factors influencing accessibility in MDS, favorable clinical outcomes and issues arising in MDS. The subthemes of factors influencing accessibility in MDS were distance, ability to travel, convenience, time, money and medication preference. The subthemes of beneficial clinical outcome were improved compliance and better continuity of medicine supply. The subthemes of issues emerged were increased resources, delay, technological barriers and new workflow.

**Conclusion:** Medication delivery service (MDS) provides many benefits to patients and health care providers. There were only a few issues that emerged from the health care providers but those were minimal and manageable.

**Keywords:** Medication delivery service (MDS); value-added service; pharmacist; innovation; technology

## INTRODUCTION

Patients with chronic illnesses requiring long term medical therapy are often provided with repeat prescriptions by outpatient clinics, to be dispensed on a monthly basis at pharmacies (Andersson et al., 2005). This highly centralised traditional counter services (TCSs) had consistently resulted in long waiting time among the local hospital pharmacies (Chan et al., 2015). The Pharmaceutical Services Programme (PSP), Ministry of Health introduced innovative ways for patients to refill their repeat prescriptions. Based on a study in a Malaysian Public Hospital, postal delivery of medicines gained popularity during the COVID-19 lockdown implemented in March 2020 nationwide because patients do not need to travel and physically present at the pharmacy, hence reducing social contact (Shin et al., 2021). Less is known on medication delivery service (MDS) carried out at in the private hospitals and community pharmacies. "Guidelines for delivery service of medications for patient by Type A Licensed Holder" was launched in February 2021 by the

Pharmaceutical Services Program, Ministry of Health Malaysia. The aim of the study was to explore opinions regarding medication delivery services (MDS) from the perspective of pharmacists and caregivers and to identify issues in providing MDS.

## METHODOLOGIES

Several stakeholders comprising of hospital pharmacists, community pharmacists and caregivers were recruited through purposive snowball sampling. Inclusion criteria included hospitals pharmacists and community pharmacists who had participated in medication delivery service for a minimum of 3 months and caregivers of patients who were able to speak and read English and had purchased medication via medication delivery service at least 3 times. Approval for the study was granted by Cyberjaya Research Ethics Review Committee [Ref UoC/CRERC/ER/382]. In-depth semi-structured interview were conducted after getting verbal and written consent of all participants. Interviews were conducted virtually using

online platform and phone calls. Interview guides were used for all participants. Study’s results showed that across 16 tests using various approaches to saturation, the sample size for saturation ranged between 5 and 24 interviews (Hennink & Kaiser, 2022). Data collection ceased when data saturation was achieved.

The interviews ran between 15 minutes to 35 minutes per participant. Interviews were audio recorded and was transcribed verbatim transcription and stored electronically as Word files. Analysis was conducted by researcher and the team comprising two senior academicians on identifying the codes. Codes were compared and differences of opinion were discussed until consensus was reached on a coding tree and themes identified. Repeating themes were identified and findings subsequently summarized.

**RESULTS AND DISCUSSION**

Demographic details of participants are presented in Table 1.

**Table 1: Demographic details of participants**

No	Group	Participant	Gender	Years of experience/ age
1	A	Hospital pharmacist	M	10 years
2	B	Hospital pharmacist	F	5 years
3	C	Hospital pharmacist	F	12 years
4	D	Community pharmacist	F	12 years
5	E	Community pharmacist	F	10 years
6	F	Caregiver	M	50
7	G	Caregiver	M	55

Three themes emerged in this study which include factors influencing accessibility in MDS, favourable clinical outcome/pharmacotherapy benefit and issues in MDSThe subthemes of factors influencing accessibility in MDS were distance, ability to travel, convenience, remote area, save time and save money. The subthemes of favourable clinical outcome were improved compliance, continuous supply and preference. The subthemes of issues emerged were increase resources, delay, technological barrier and new workflow.

3.2. Theme 1: Factors influencing accessibility in MDS

3.2.1. Subtheme 1: Distance and remote area

When the hospital pharmacists started promoting medication delivery service (MDS) to patients, patients welcomed the service of MDS. Patients have told pharmacists that MDS is a good service because with the availability of MDS service, patients do not have to travel to the hospital to pick up their medicines. Besides that, in hospitals some patients are who those who stay far distance from the hospital

or in remote areas appreciates the MDS service because the service covers sending to far and remote areas.

*Actually, 1 or 2 months even before MCO they actually welcome the idea. They said “Oh. This is good. I don’t have to purposely come to the hospital to pick up my medicines”. So, this is a bit of distance from the hospital itself with I think the furthest that I have ever sent before was someone staying in Batu Pahat because he is an oncology patient. So, usually he would like to see the resident oncologist as a ritual thing. But actually,he appreciated that the service can be extended all the way up to Batu Pahat [...]. [Hospital pharmacist, male, 10 years’ experience]*

*For hospital point of view, we are able to provide services to more patients who are stay maybe in more remote area. [Hospital pharmacist, female, 5 years’ experience]*

*Let’s say the patient is staying very nearby to the hospital, usually they won’t opt for medication delivery. They are still wanted to come and take the medication in the hospital. They prefer to come back to our hospital and collect the medication that’s one. And then for those who are stay far means some distance away from the hospital, they are quite happy with it [...]. [Hospital pharmacist, female, 12 years’ experience]*

*Those patients staying a bit far from our pharmacy, they prefer delivery. [Community pharmacist, female, 10 years’ experience]*

*Well...delivery service of medication, I would say it benefits people who stay far away from hospitals. So, the delivery service helped. She doesn’t have to travel maybe 300 km just to collect her medicines. [Caregiver, male, 55 years old]*

3.2.2. Subtheme 2: Ability to travel

Some patients may not be able to travel. For these patients, MDS will be beneficial and because they will not have to travel just to collect the medicines every month. They will only need to go the hospital during their check-ups.

*Not every patient can travel to go and get the medicines. So, I think this delivery service should keep on going [...] unless the hospital calls or you know the pharmacists call and say that ‘You need to come for next check-up and all that’. Then, you know you have to go [...] but the delivery service of medicine. I think it should keep on going because people staying few hundred kilometres away and some are, you know they can’t even walk properly and then just to take a medicine, you need to travel all the way. [Caregiver , male, 55 years old]*

3.2.3. Subtheme 3: Convenience

Most patients have been open to MDS because MDS

is convenient for them. This is because MDS reduces patient's burden and hassle of coming to the hospital every month. For example, some patients need to use multiple modes of transportation to reach the hospital. Some patients depend on family members to collect the medicine from the hospital. Their family member who have to go to work feel MDS is convenient.

*Most of them are very open and very responsive to this service. Because it actually reduces their burden and also the hassle of coming to the hospital. [Hospital pharmacist, female, 5 years' experience]*

*And then to provide the convenience to the patient because during the pandemic, Covid time, patient couldn't come to collect the medication. They were quarantined right. They do not need to travel back to the hospital, get the parking and get the medicine. So, they are actually quite happy with the medication delivery services. [Hospital pharmacist, female, 12 years' experience]*

*Delivery service actually, my mother you know she gets medicine from hospital. So, she need to travel from Kuantan by bus to KL, take a teksi and go to the hospital to collect her medicine. So, she asks them whether they can deliver this medicines in monthly basis to the house. So, they said yes. So, from there on, you know, it was very efficient. I mean it helps the patient. So, the patient don't have to depend on others to go and get the medicines for them. So, it's very very beneficial. [Caregiver, male, 55 years old]*

*I have to go to work. So, medicine delivery is helpful because medicines get delivered to my home. It is convenient for me. Otherwise, I have to drive all the way to the hospital just to get the medicines. When there is medication delivery, it is easier for me. [Caregiver, male, 50 years old]*

#### 3.2.4. Subtheme 4: Save time

MDS can save time because patient do not have to travel to collect the medicine from the hospital or community pharmacy.

*Also, save time for them. [Hospital pharmacist, female, 5 years' experience]*

*So, some customers might be interested because it saves their time. [Community pharmacist, female, 10 years' experience]*

*Well. I think delivery service for medicine should keep on going [...]it saves a lot of time you know. [Caregiver, male, 55 years' old]*

#### 3.2.5. Subtheme 5: Save money

By using MDS, patients get to save their money because they only have to pay for the delivery fee

which is cheaper compared to transportation charges of travelling.

*Because she don't have to spend money you know. So, it saves. But I think you pay a very little amount [...], just pay a certain amount for the delivery only. But it's much much cheaper medicines delivered to you instead of you going and buying. [Caretaker, male, 55 years' old]*

#### 3.2.6. Subtheme 7: Preference

One patient preferred to get their medicines from their regular hospital. The patient did not prefer buying the same medicine from the nearby community pharmacy. This is possibly due to patients' preference. Besides, the caregiver finds it confusing when community pharmacy offered them the same medicine but in different brand. The caregiver feels MDS is better provided the medicine comes from the regular hospital they go.

*Because certain medicines you can buy from pharmacy but certain medicines you cannot get from pharmacy. So, that is the difference [...]. So, sometimes we go to pharmacy and buy because in today's world there's a lot of imitation. So, people like my mother all, I told her 'Hey. These medicines, I can buy for you even in pharmacy'. She said 'Oh. No. I want my medicines from my hospital'. So, what we can do? Unless one of us go to the hospital with the prescription, take it from the pharmacy. I think medicine also you need to take the correct type of medicine you know. You go to pharmacy, they say 'This brand and this brand is the same. Only the brand differs but the medicine is the same'. See a lot of confusion. So, I think delivery service is the best. If it's coming from the clinic itself. [Caregiver, male, 55 years old]*

### 3.3. Theme 2: Favourable clinical outcome

#### 3.3.1. Subtheme 1: Improve compliance

MDS helps patients to be more compliant to their medicine regime because with MDS pharmacists can ensure patients have access to their medicines. Especially during the movement control order (MCO) when patients could not go directly to the hospital to collect their medicine, pharmacists sent patients' medicines using MDS. This ensured continuation of care for their patients.

*We also helping patients to be comply with the medicine because we are sending constantly and regularly to the patient as mentioned just then, I think if there are any changes whether it's in the dosage or changes in the brands or changes in the regime is also as part of our duty of care to also notify to the patients. So, that's one thing [...]. And I think particularly during the pandemic especially with the 2 major MCO that was occurring at that point of time. So, we were bringing rather than waiting for the patient to just come directly to our hospital, why not we bring the hospital service directly back to the patient themselves. So,*

*we are not incurring any losses in the sense of reputation or in terms of continuation of care. [Hospital pharmacist, male, 10 years' experience]*

*Also to improve compliance because they don't need to make their way here. [Hospital pharmacist, female, 5 years' experience]*

*The benefits would be to help the patients to be comply towards their medication so they would not comply because they do not have their medications. [Community pharmacist, female, 12 years' experience]*

### 3.3.2. Subtheme 2: Continuous supply

Pharmacist can ensure patients can get continuous supply of their medicine by using MDS.

*So, the main objective why we do this service is so that we can ensure the continuous supply of prescribed medication to patients. [Community pharmacist, female, 12 years' experience]*

*So, it's easier for them to get their medication regularly on time. [Hospital pharmacist, female, 5 years' experience]*

*First, is the benefit [...] is to ensure the patient continue taking their medication. [Hospital pharmacist, female, 12 years' experience]*

## 3.4. Theme 3: Issues emerged

### 3.4.1. Subtheme 1: Increase resources

In the implementation of MDS, there are a few issues that are emerged. There has been increase in operational expenses in MDS. However, the costs for operational expenses are manageable. Some hospitals bound the delivery costs of MDS to promote the service. Besides, more manpower needed to be allocated because it was a new service started.

*I mean the risk is very minimal. Those are just, you know [...], just the operational expenses like things like, we probably have to expense out on, like our consumables like you know envelopes, parcels all those things but I think in terms of manpower managements I mean in terms of resources for manpower or even like consumables. Those are manageable. [Hospital pharmacist, male, 10 years' experience]*

*Maybe slightly of the negative impact actually it also increases costs because a lot of delivery costs are bound by hospital. In order to promote this, we actually offer like free delivery at our own expenses. Other than that, also because it's a new service right. You need to allocate more manpower and more resources into making this work. Maybe you need like a extra dispatch team which we have [...]. [Hospital pharmacist, female, 5 years' experience]*

*Definitely, we will need to appoint a third party vendor*

*to do the delivery [...]. If it is out of the coverage area. So, there will be costs involvement for this case right. So, for hospital management, usually we will need to cover the costs [...]. [Hospital pharmacist, female, 12 years' experience]*

### 3.4.2. Subtheme 2: Delay

Lead time of medication delivery is important. This is to ensure patients get their medication on time. Sometimes, there can be delay in delivery due to courier delays, bad weather or delivery partner unable to reach Felda area.

*Because unlike parcels, the lead time of medication delivery is crucial. If let's say, the medication received in delay, the patient may not be able to take the medications on time. So, when we first started medication delivery, 2 of the major concern would be number 1 lead time of the delivery. [Community pharmacist, female, 12 years' experience]*

*There has been delays. For example, courier delays. So, it may not reach the patient within the expected time frame. And also, some patients may need to start on their medication almost immediately. For example, antibiotics. So, if we are doing delivery service, there's actually a significant delay in terms of getting their medication on time. Because you don't come to the counter and get your medication immediately right. So, that sought of delay and also sometimes when we have bad weather like for example, during the flood. So, you can't continue with your delivery as per schedule. [Hospital pharmacist, female, 5 years' experience]*

*For example, if the patient is staying in the Felda area. There are some delivery partners, they couldn't reach to the place. So, it may delay the delivery time [...]. That would be our challenges. [Hospital pharmacist, female, 12 years' experience]*

### 3.4.3. Subtheme 3: Technological barrier

Most MDS users are elderly members. Elderly members might not be very familiar with using technological devices like using apps, operating smart phone, online banking or writing emails. This may be a barrier for elderly members to use MDS.

*When we say about medications delivery most of the users for medication delivery are silver care members meaning to say that they are elder and it also means that probably and more likely they are not so well versed with the technology. They may not have applications or they may have a smart phone but they do not know how to actually operate the smartphone. So, this creates a barrier for the patients when it comes to medication delivery. [Community pharmacist, female, 12 years' experience]*

*And then talking about that one also, a lot of patients maybe elderly and technological barriers are problem for them because they may not be very well versed in online banking and writing emails. [Hospital pharmacist, female, 5 years' experience]*

#### 3.4.4. Subtheme 4: New workflow

In some hospitals and community pharmacies MDS is done online. When MDS is newly started, pharmacists need a new workflow. Pharmacists are also busier because they must cater to the patients in the physical pharmacy and also need to take care and follow up the patients that they deliver medicines using MDS.

*So, you need a totally new workflow to make this work because everything is done online. So, it's a new workflow through instead of through counters and staff face to face, you need emails, you need like webpage or telephone calls. [Hospital pharmacist, female, 5 years' experience]*

*We are now worse off and I would say busier because not only that we need to cater our customers or patients in the pharmacy. We also need to take care and to follow up the patients that we deliver our medications to. [Community pharmacist, female, 12 years' experience]*

MDS brings beneficial clinical outcomes to patients as it improves patients' medicine compliance, improve adherence to treatment and enhanced communication between staff and patients (Mash et al., 2022, Al-Zaidan et al., 2021, Chaomuang et al., 2022). Patients with transportation or walking difficulties greatly benefit from this delivery service (Tan & Gan, 2016). Longer term home care can prevent time away from work and loss of earnings to collect medication (Louw et al., 2020). This can improve house hold income and food security (Mash et al., 2022). Convenience and reducing burden of patients and family travelling to hospital were factors that influence accessibility in MDS. MDS greatly helps patients who stay in remote areas. Through telehealth, patients living in remote areas can get the care they need from home (Elbeddini & Yeats, 2020). From the perspective of hospital pharmacists and community pharmacists, the issues of resources emerged. One issue is the increase in resources. Operational expenses include consumables like envelopes, parcels and extra resources for manpower. Operational expenses are minimal and manageable. Some delivery costs are bound by hospital. Another issue is delay in delivery. This is because lead time is crucial in medication delivery. Technological barrier is also an issue in MDS because elderly member might not be well versed with using technological devices. New workflow is also an issue when MDS is done online. Instead of through counters, pharmacists

need to use webpages, emails and telephone calls to conduct the MDS.

## CONCLUSION

Face to face communication between pharmacist and patient in a pharmacy premise is an optimum and safe way of dispensing and delivering medications by a licensed pharmacist to patient. However, medication delivery services can be more convenient for patients to get their medicine supply. MDS is a value-added service and provides many benefits to patients and health care providers. There are a few issues that emerged in providing MDS from the perspective of health care providers but those are minimal and can be managed. Factors influencing accessibility in MDS, favourable clinical outcome and issues emerged are related to MDS. Caretakers in this study welcomed the idea of MDS and found the service convenient. Hence, pharmacists in various health care settings should promote and explain regarding the process of MDS to their patients so that patients get to know about MDS and can benefit from the service.

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