



Research Article

Through the Eyes of Healthcare Providers, the Necessity and Challenges of Implementing Medication Reconciliation at Hospital Discharge: A Qualitative Study

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ABSTRACT

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Background: Medication reconciliation can include medication reviewing and providing counseling and a list of all the medications during every transition of care.

Objectives: to explore in-depth the perspectives of Iraqi physicians and pharmacists regarding the necessity of medication reconciliation at hospital discharge and identify the possible benefits and challenges that could face its implementation.

Subjects and Methods: A qualitative study included semi-structured interviews with pharmacists and physicians working at a public teaching hospital in Iraq. The interviews were conducted face-to-face from February to March 2023. Thematic analysis was used to analyze the qualitative data generated from the interviews.

Results: In this study, 18 healthcare providers were recruited: 12 pharmacists and six physicians. All participants supported medication reconciliation adoption at hospital discharge. Pharmacists can identify unintended medications discrepancies via discharge medication reviewing, patient counseling and providing discharge list. The most frequently reported challenges to establishing medication reconciliation were a lack of clear official instructions, suboptimal physician-pharmacist cooperation, and inadequate awareness.

Conclusions: The implantation of medication reconciliation has numerous benefits in terms of enhancing patient safety and avoiding medication errors. However, it needs several prerequisites to be implemented routinely, including official enforcement and training courses to raise healthcare providers' awareness.

Introduction

Several commissions have described medication reconciliation (MR) as providing a list of all the medications patients are currently taking when they are admitted to the hospital, transferred from one care unit to another, and discharged to the home (1).

According to the Institution for Safe Medication Practices Canada (ISMP Canada), MR is a collaborative process between healthcare practitioners and patients and their families; it necessitates the

collaboration of pharmacists, physicians, nurses, and other healthcare providers (2).

Several studies have investigated the role of healthcare providers (HCPs) in the process of MR at hospital discharge (3,4). According to a survey conducted at a Saudi academic tertiary care hospital, the MR service during discharge is primarily the responsibility of the pharmacist, as opposed to during hospitalization, when other providers such as physicians and nurses are more readily available in the clinical wards (4).

In addition to physicians and pharmacists, nurses could work together to track patients after they are discharged from the hospital and communicate with both physicians and pharmacists, thereby coordinating the reconciliation process (5,6).

An effective MR at the time of discharge is an essential component of a good pharmaceutical care plan and can prevent various drug problems, especially when proposed by a pharmacist (7,8). Implementing a MR service in an institution during discharge may necessitate a number of guiding principles, such as standardization of admission reconciliation to facilitate reconciliation throughout hospitalization (9), incorporating the program into other current patient processes to ensure safe prescribing, staff training, and patient family involvement. The effectiveness of this implementation may be dependent on the institution's culture and regulations, task allocation, and staff knowledge and cooperation (9–11).

A pilot interventional study published in 2019 about implementing MR in the surgical department at a British hospital (11) found that cooperating between junior doctors and pharmacists in ordering medication lists increased the accuracy of discharge prescriptions by 51% in the study department.

The topic of MR during hospital discharge was highlighted in various studies in various countries, such as the U.K., the U.S., Lebanon, and Saudi Arabia (11–14).

However, it still receives little attention in Iraq, and the procedure of discharge MR is still not conducted universally across all public hospitals. To the best of our knowledge, this manuscript was part of the first MR research in Iraq (15).

The study objectives were to explore in-depth physicians' and pharmacists' perceptions of MR during hospital discharge as well as identify potential benefits and challenges to its implementation.

Subjects and Methods

Study Design and Settings

This is a qualitative study that included interviews with physicians from Intern Medicine and Cardiac specialties and subspecialties in a public hospital in Wasit, Iraq. The study included only internists and cardiologists, as they usually prescribe multiple chronic medications at patient discharge and patients inevitably need medication reconciliation. Furthermore, the study included pharmacists who worked in various clinical wards at the same hospital. The interviewer was a master's student researcher (a pharmacist with three years of hospital work experience).

All interviews were conducted face-to-face either at the public teaching hospital, at private clinics, or at community pharmacies. The data collection was conducted from February to March 2023. The interviews were semi-structured with open-ended questions, lasted between 15 and 30 minutes, and were interactive between the researcher (interviewer) and participants (interviewees) to provide daily practice details about the research topic.

The inclusion criteria the interviewees included physicians of the Intern Medicine specialty and Cardiology subspecialty working at the public hospital who gave permission to participate and be audio-recorded. These two specialties were selected because they usually prescribe multiple chronic medications at discharge, and patients inevitably need MR. In addition, interviews covered pharmacists who completed their rotational residency at this public hospital, including clinical wards rotation, and gave permission to participate and be audio-recorded.

Physicians and pharmacists' recruitment

Two methods of sampling were used to recruit participants in this study: purposive and snowballing. Purposive sampling targets participants with adequate knowledge and interest in the topic of

interest. Snowballing sampling means asking the existing participants to introduce or refer to other potential participants (16).

Before the interviews, the interviewees were contacted by phone (via WhatsApp, Telegram, or Viber). The contact information was obtained from the study hospital's official group of scientific activities. Some interviewees asked for the interview guide before the interview to become familiar with the interview questions.

Not all interviews were conducted at the hospital because of the workload there. Thus, some interviews were conducted at physician clinics or community pharmacies. Recruitment continued until the saturation point was reached, which determined the sample size. In simpler terms, the collection of data had stopped after reaching the saturation point, when no more new data were added (the new participants were repeating the same previous answers)(17).

The interviewees provided verbal consent before the interview to participate and audio record, and their identities were kept confidential. Each interview was audio recorded. The interviews were conducted in both English and Arabic. Then interviews were transcribed, and Arabic sentences (transcripts) were subsequently translated to English by two bilingual authors.

The interview guide The interviews were divided into three parts: the first revealed experience years, degrees, specialties, and clinical ward(s) mostly occupied in the hospital (for the pharmacists). The second part included their familiarity with the term "medication reconciliation," their implementing experience during discharge, the process's significance, the pharmacist's motivation to implement, potential medication discrepancies, access to the physician, and whether they had previously received training or a lecture on this topic. The third section discussed the primary challenges that the healthcare facility faces in implementing a MR and enhancing plans for this from their perspective (Supplementary file). The interview questions were reviewed by experts in the field to check their credibility, dependability, and representation of the study objectives(18).

Ethical consideration

study proposal was approved by both the Central Scientific Committee at the University of Baghdad College of Pharmacy and the Ethical Committee at the Ministry of Health before starting data collection. The participants' verbal permission was obtained before the interviews. Participation was entirely voluntary. No names were disclosed in order to ensure anonymity for the participants. The participants received no reward.

Thematic Analysis

In contrast to the statistical analyses of quantitative data, the thematic analysis of qualitative data depends on patients' quotes, subthemes, and themes rather than numbers. Thematic analysis was used to assess the qualitative data collected from physician and pharmacist interviews. To detect themes and patterns in the data, the 6-phase coding framework developed by Braun and Clarke (2006) for thematic analysis was utilized, which includes familiarization with the data, generation of codes, merging codes into themes, reviewing themes, determining the relevance of themes, and reporting of findings (19).

Results

The interviews were conducted with 18 HCPs (six physicians and 12 pharmacists) worked at the public hospital. Table 1 shows the characteristics of the participating HCPs.

Table 1: The characteristics of the participating healthcare providers

Pseudo Code Of pharmacists	Gender	Degree	Clinical wards	Total years of hospital experience
PHA1	Female	Master	Pediatrics	12
PHA2	Female	Higher diploma	Intern medicine	4
PHA3	Male	BSC	Pediatrics	5
PHA4	Male	BSC	Intensive care unit	5
PHA5	Female	BSC	Cardiac care unit & Intensive care unit	3
PHA6	Female	BSC	Gynecology+ Pediatrics	4
PHA7	Female	BSC	Surgery	5
PHA8	Female	BSC	Intern medicine	2
PHA9	Female	BSC	Intern medicine & Gynecology	2
PHA10	Female	BSC	Intern medicine	2
PHA11	Male	Master	Intern medicine	11
PHA12	Female	BSC	Surgery	12
Pseudo Code of physicians	Gender	Degree	Specialty	Total years of experience
DOC1	Male	Master	Intern medicine	20
DOC2	Male	Board	Intern medicine	14
DOC3	Male	Board	Intern medicine	21
DOC4	Male	Board	Cardiology	14
DOC5	Male	Board	Intern medicine	8
DOC6	Male	Board	Intern medicine	8

Interviews’ findings

As in other qualitative studies, the results are organized as a main theme, subthemes, and representative quotes from the participants’ answers for each subtheme. The participants’ quotes are written in italic font. The themes were arranged in sequence to tell the clear story and main take-home message revealed from interviews’ findings. The participating HCPs believed that MR during discharge is beneficial in many aspects. However, it faces several barriers to being implemented in Iraqi hospitals. Table 2 shows the main themes and subthemes that were generated from the interviews.

1. Most participating healthcare providers were unfamiliar with the “medication reconciliation” term.

The term "medication reconciliation" was new to all of the participating physicians and most of the participating pharmacists: "This is the first time I've heard about this term." (DOC2)

"When I first heard this term from you, I thought it was related to the communication skills between the pharmacist or physician and the patient." (DOC4) "The term is new for me; I think its related to monitoring patient medications, like identifying drug-drug interactions." (PHA4)

Three out of 12 pharmacists were familiar with the term medication reconciliation: "I am familiar with this term from the universal teaching as an activity under the name of "medication therapy management". (PHA8)

2. The participants have implemented discharge medication list occasionally.

After clearing the definition of discharge MR by the researcher, all participating HCPs have experience with discharge card. All physicians believed that they had fulfilled their own role in the discharge MR service via using the official discharge card:

"I have used to give the patient the discharge card; I am completely self-dependent to give the patient all the instructions." DOC3

"I am using a comprehensive discharge card with verbal instructions, writing patient information and medication information, in addition to writing treatment duration and diagnosis. Most of the time, I do this mission." DOC2

For pharmacists, all were educating the discharged patients about their medications. However, not for all of the patients, nor for all the medications:

"I educate the patient about the medications on the discharge card, write the recommendations and instructions on the discharge card written by the doctor, or on the medicine boxes, but only for almost 40% of patients, and the priority is for the patient who asks me for education." PHA2 "I educate the patient about the medications on the discharge card only." PHA4

3. All participants were supporters of the discharge MR.

All participants agreed on the positive impacts of the MR at discharge, including patients’ comprehensive understanding of their medications to be taken correctly as well as avoiding potential errors that could happen due to the lack of counseling.

"More than 50% of the patient’s recovery could be enhanced by the service delivered during discharge about medication counseling". PHA11 "This service by pharmacist is important as it could reduce drug adverse events, help in patient guidance and safety, and reduce medication errors that could have been overlooked by the physician". (DOC1) "There is no one with a formal title to follow up on the discharge prescriptions; pharmacist counseling is important because of their higher experience in the medication field compared to physician". (DOC2) However, two physicians preferred this counseling (MR) at hospitalization (hospital admission).

"Medication reconciliation service is more important during admission; the pharmacist should have his own touch during this time". (DOC4)

4. Discharge MR could improve patient safety.

Most of the participating pharmacists believed that MR during discharge by the pharmacist could increase patient safety.

"Patient safety increases when MR is delivered during discharge; for example, a patient may continue on an antibiotic that is supposed to stop in a week." PHA2 "Generally, pharmacist education prevents the wrong use of medications, thereby it [MR] increases patient safety." PHA5

One pharmacist did not think that the MR during discharge alone could affect patient safety all the time. "Sometimes it [MR] does not affect safety because of the patient's failure to comply with the instructions." PHA11

5. Medication Reconciliation at discharge could improve patient medication adherence.

Most of the participating pharmacists agreed that MR at discharge by the pharmacist could increase patient adherence to medication regimens: "The patients would be conscious enough to know exactly why this drug is being used, and therefore they would be willing to commit to the completion of the treatment regimen." PHA4 "I noticed when I was explaining the treatment details to patients, they felt their importance and effectiveness, so they took the treatment medications and committed to completing the regimen." PHA8 One pharmacist believed that the MR had little effect on patient adherence: "Medication reconciliation at discharge has a little effect on patient adherence to the medication regimen, as adherence depends on other factors such as patient education and culture." PHA1

6. Discharge MR reduces medication discrepancies.

Most of the participating pharmacists mentioned that there were (unintentional) medication discrepancies that were solved when they interacted during discharge: "Discrepancies like misunderstanding the doctor's instructions by the patient can occur because the doctor may speak quickly or may have written a new discharge card without seeing the patient's medication history, which may include the same treatment recently prescribed." PHA2 "Elderly patients are more vulnerable; I had to repeat more than once to get to the explanation idea; also, doctors' fonts are sometimes unclear, and I had to go back to the doctor for clarification. Another discrepancy is due to the change in medication company which may cause patients to take the same medication from the old and new companies." PHA8

Three pharmacists explained that they had less chance to identify medication discrepancies at discharge time: "Less common; sometimes there may be a mistake in transferring the prescription medication names by the resident doctors from the medical record to the discharge list". PHA7

7. Discharge MR involves physician-pharmacist cooperation.

Most pharmacists (7 out of 11) believed that MR at discharge could be delivered collaboratively: "It's collaborative; the pharmacist would deliver this service to the patient based on the doctor's recommendations and opinion". PHA1 "It is collaborative: The doctor should write the discharge card in the presence of the pharmacist to make the process more efficient. In reality, the doctor usually writes the card when the pharmacist is busy preparing the treatment". PHA6 Four out of 12 pharmacists believed that this MR service should be totally conducted by pharmacists: "I think it involves the pharmacist. And since the patient listens more to the doctor, the patient had to be obliged by the doctor to comply with the treatment and the recommendations given by the pharmacist". PHA8 All physicians believed that the service should be collaborative between pharmacist and physician: "It's collaborative; the pharmacist should be aware of issues missed by physician. Also, pharmacist's way of delivering messages to patients is important." DOC4 "It should not be delivered by pharmacist only; the physician's role is very important, as patients listen mostly to physician orders, and s/he is the one who mostly knows patient medical and medication histories". DOC6

8. The main pharmacist's motive to deliver discharge MR is humanistic

Eight (out of 12) pharmacists believed that pharmacist's education of patients during discharge comes from a humanistic motive due to the absence of clear MR regulations. In other words, pharmacists occasionally conduct discharge MR:

"Pharmacists who have a passion to do so, they will do it". PHA10 "The motive is according to the pharmacist's caring personality; also, patient safety is a motive too". PHA8 "The motive is the pharmacist's care and his sense of responsibility". PHA5 One pharmacist of 12 mentioned that his motivation is the education and instructions related to discharged patient education he had received during the post-graduation Clinical Pharmacy Program: "The clinical pharmacy program has enhanced the importance of doing this education during discharge. Besides, this was one of the requirements of the program, which included following up with the patient from admission to discharge and organizing a discharge form with instructions in Arabic". PHA2

9. The implementation of discharge MR facing several organization challenges

Pharmacists mentioned a number of challenges that could arise when using MR at discharge in Iraqi hospitals. The most frequent answers mentioned were the lack of official regulations/enforcement

and the overall awareness: "I think lack of penalty keeps pharmacists from doing it like other duties such as writing treatment orders and treatment preparation". PHA2 "There's no clear official procedure for this program. And there is no guidance for medical personnel, doctors, or nurses around this point. Besides, there is little awareness of the treatment culture among patients." PHA11 Physicians also mentioned similar challenges that could face the application of MR in Iraqi hospitals, in addition to the crowdedness within the public hospitals.

"I think the major barriers would be no official orders to obligate pharmacists to be there during discharge, a low number of pharmacists; and time limitations". DOC2 "Current routine and number of relatives with the same patient: clinical wards are crowded because of relatives of patients. I can't discuss with a pharmacist or a patient comfortably without the interference of 3-4 patient relatives, especially at night, because there is no official protection. This is social ignorance". DOC4 One physician believed that the number of pharmacists is enough while the barriers are to hospital management: "The barriers are related to management since the number of pharmacists is enough". DOC5

10. There are several facilitating strategies for adopting discharge MR

Several suggestions were proposed by the participating pharmacists to facilitate implementing MR during discharge, like training workshops, official instructions, increasing the number of staff, and providing discharge medications by hospitals:

"I suggest training courses for trainee pharmacists. It will include educating pharmacists about the program as well as educating them to consult patients about each drug." PHA1

"I suggest a ministerial order for pharmacists to be part of this work [MR]; where it becomes a normal right of the patient during discharge, so that patient doesn't get out of the hospital without an interview with a pharmacist". PHA10

"I think if patients were getting discharge medications from the hospital, this would ensure that they would receive pharmacist's counseling before discharge". PHA11

Physicians' recommendations were not much different in terms of raising pharmacist and physician awareness, official orders, securing discharge medications from the hospital, increasing the staff number, and increasing pharmacist-physician cooperation. Additionally, they suggested developing a special unit to be responsible for MR at discharge as a routine duty. "I recommend directing real duties to the clinical pharmacists and not distracting them in other exhausting management matters, in addition to educating specialist doctors so that they do not feel the pharmacists touch their authority or dignity when they refer to a particular error". DOC4 "Discharge medications should be received from the hospital pharmacy". DOC2 "I suggest there is an official unit that should be responsible for the MR during discharge and formalize it as a protocol to be as official as the admission file that patients receive upon admission". DOC5

Discussion

Key findings

Medication reconciliation at discharge stands at the crossroads of patient safety and healthcare efficiency, with the potential to reduce negative outcomes and enhance the quality of care. While the challenges facing MR at discharge in Iraq are considerable, they also present opportunities for innovation, policy reform, and the cultivation of a patient-centric healthcare environment. To the best of our knowledge, this study is the first one that seeks to spark a deeper exploration into the difficulties of MR at hospital discharge within Iraqi settings from the HCP perspective. This study also directs

attention towards sustainable solutions that prioritize patient safety and optimal healthcare delivery

Table 2: Main themes and subthemes of participants' perspectives related to medication reconciliation during discharge

Themes	Subthemes
Most of the participants were unfamiliar with the "medication reconciliation" term	It was first defined by the researcher. The procedure has been implemented before, but not under this term.
All participants were supporters of the discharge MR.	Discharge MR directs the patient to complete therapeutic regimen.
Discharge MR could improve patient safety. (pharmacists)	Discharge MR reduces the potential errors. Pharmacist education prevents the wrong use of medicines. Discharge MR prevents errors related to interactions, duplications, or treatment durations.
Discharge MR could improve patient adherence. (pharmacists)	The patient would know the drug indications and commit to the completion of the regimen. Clarifying the use of medications in the patient's language.
Most physicians supported pharmacist-led medication reviews during discharge.	A pharmacist is more experienced in the field of medications than a physician. The pharmacist is the one who understands the physician's message.
Discharge MR involves physician-pharmacist cooperation.	Discharge MR needs pharmacist and physician work collaboratively.
Several organization challenges face the implementation of discharge in hospitals	No clear official regulations regarding discharge MR. Inadequate pharmacist awareness. Inadequate patient and community awareness. Inadequate physician cooperation. Large number of relatives accompanied with one inpatient. Unavailability of discharge medications in hospitals
Strategies to facilitate applying discharge MR	Clear ministerial instructions. Training courses for hospital pharmacists. Create a follow-up patient's history file Securing discharge medications from the hospital. Adopting a special form for discharge medications.

Unfamiliarity with the term "Medication reconciliation"

According to the findings of this study, most participants were unfamiliar with the term "medication reconciliation". However, after it was defined by the researcher, it was clear that all of them had participated in some sort of discharge reconciliation based on their own knowledge and available tools. This unfamiliarity could be attributed to a few factors, such as training gaps as almost all medical and pharmacy programs in Iraq may not adequately cover the concept

of the MR process, professionals entering the field may not be familiar with this practice.

Additionally, MR term is a relatively newer practice that has gained prominence in recent years (1); professionals who graduated or received training before this practice emerging may not have been exposed to it. The healthcare field is constantly evolving, with new practices, guidelines, and regulations. Keeping up with these updates can be challenging, especially for professionals who are busy with their day-to-day responsibilities.

A cross-sectional study conducted in Jordan in 2019 evaluated community pharmacists' perceptions of MR in community pharmacies. It revealed that 58% of the participating pharmacists were unfamiliar with the term "medication reconciliation" (20).

Several benefits of medication reconciliation at discharge

All participants agreed that the implementation MR at discharge is useful for reducing medication errors that occur during patient transfer out of the hospital, resulting in better patient outcomes and avoiding potential malpractice issues. Furthermore, pharmacists feel that MR at discharge improves patient safety by reducing the chance of adverse drug reactions, and discrepancies like duplications or treatment duration errors. This is similar to recent research in Iraq, which found that pharmacist intervention during discharge could improve treatment optimization, patient adherence, and reduce prescription discrepancies (3,21). These findings, along with participants' vision, could make MR implementation easier.

Medication reconciliation demands collaboration between healthcare providers

All physicians agreed that MR at discharge is a collaborative effort between pharmacist and physician. And the majority of pharmacists agreed, with four of them (4/12) believed that MR is solely the responsibility of pharmacist. In contrast, a study conducted in an academic tertiary care hospital in Saudi Arabia in 2015 concluded that all physicians, pharmacists, and nurses recognize the necessity of patient counseling about medications at discharge, but they disagreed about each provider role assignment (4). Like our study finding, a study in Basil indicated that MR needs interdisciplinary collaboration (5). The difference between physicians' and pharmacists' perspectives could be due to traditional roles and practices of each provider which sometimes compete to have control over patient medication management in Iraqi public healthcare settings(22–24). Previous Iraqi studies revealed that physicians' acceptance and trust in pharmacists' roles in prescription reviewing and solving medication errors is critical to enhance patient medication safety (22,25,26)

Pharmacist motive to provide MR

Most pharmacists believed that the only motive for delivering MR was the pharmacist's intention to help patients. Thus, it depends on the pharmacist's interest or patient demand for this MR service at discharge. This could explain the sporadic implementation of MR by hospital pharmacists at discharge since pharmacists may not be recognized by hospital administration. Likewise, a recent survey including multiple Arabic countries indicated that Iraqi pharmacists have one of the lowest job satisfactions in the region(27)

Several Organization Challenges facing MR implementation at discharge

The pharmacists identified organizational factors as barriers which are unavailability of discharge medications inside the hospital. In some Iraqi settings, patients could leave the hospital after receiving their discharge card from physician and return home without official pharmacist checking in the hospital. This is probably because patients fill their discharge medications from community pharmacies located

outside the public hospitals. As a recent Iraqi study indicated that six out of seven medical specialties in public hospital experienced shortage in the essential medications that recommended by the guidelines(28). The shortage in essential medication in public healthcare settings was confirmed by the Iraq Pharmaceutical Country Profile 2020(29,30). When patients fill their discharge prescription from the community pharmacy, they could receive counseling from the community pharmacist (31,32). However, community pharmacists do not know the medication or hospitalization history of those patients. The lack of official regulations is challenging for a standardized discharge MR.

The participating pharmacists and physicians agreed on common challenges facing MR including the lack of official regulations regarding MR at discharge, inadequate pharmacist and patient awareness, and inadequate physician-pharmacist cooperation. Likewise, a Spanish study (2023) covering the perspectives of physicians and nurses concludes that both lack of official standardization and the inadequate healthcare practitioners' cooperation are barriers facing the conducting of MR at hospital discharge (33), in addition to the inadequate pharmacist connection with both physicians and nurses. Similarly, a Saudi qualitative study assessing the perspectives of physicians, pharmacists, and nurses identified a lack of effective communication among healthcare providers, inadequate patient awareness, and time constraints as major challenges to implement MR during care transfer (34). Additionally, a recent Iraqi study indicated several organization factors facing nurses to prevent adverse drug events in public hospitals(35).

The pharmacist's inadequate awareness could negatively impact the implementing MR properly, as a good level of pharmacist knowledge could provide good pharmaceutical care (36). Inadequate patient and community awareness could be associated with limited health literacy (37), which may result in the patient being non-adherent to treatment regimens, regardless of whether this has been cleared by the health care professional many times. This challenge was mentioned several times in previous literature as a barrier to conducting a proper MR (34,38). The large number of relatives accompanied by the patient could also be associated with the lack of standardization in workflow and patient culture and in addition to limited health literacy.

Facilitating strategies to implement MR

The facilitating strategies mentioned by the participants were actually the solutions for the barriers mentioned above: enforcing clear official regulations about MR at discharge, enhancing pharmacist awareness, securing discharge medications by hospitals, and adopting a special form for discharge medications. Enforcing clear standard regulations to formalize MR would direct the pharmacist and physicians to the patient before discharge and minimize the chance of missing the counseling from the hospital pharmacist. Most patients may not know that they should meet a HCP before leaving. This strategy was identified by the Spanish study above as a mean of improving communication in MR at discharge (33) Securing discharge medication from the hospital pharmacy, such as outpatient pharmacy was suggested by both pharmacists and physicians in different terms. This ensures that patients would meet a hospital pharmacist to review their medications before discharge. Furthermore, the Iraqi Ministry of Health has recently issued the "Guiding Pharmacist" program (on April 26, 2023), which involves chronic medication counseling by a pharmacist for patients with chronic diseases visiting hospital outpatient clinics and pharmacies. To make the discharge MR workflow smoother, hospital outpatient pharmacy could provide discharge medications to hospitalized patients before seeing pharmacist who is conducting the MR inside the hospital. This could also be a promising beginning for implementing such a program in the clinical wards for hospitalized

patients at discharge. However, the health officials need to address the root of the problem which is the shortage in medication supply to public healthcare settings which could reach to more than 40%(30). Adopting a comprehensive discharge special form is essential as indicated in a previous qualitative study in Ireland in addition to utilize information and communications technology to support the MR at discharge (38).

Limitations

This study included the perspectives of pharmacists and physicians from two specialties in one public hospital which could limit the findings' generalizability.

Conclusion

Most participating healthcare providers were unfamiliar with the "medication reconciliation" term. However, the participants have implemented discharge medication list occasionally. According to the study of physicians and pharmacists, MR during discharge is a pivotal step in the field of patient care. The pharmacists believed that discharge MR can enhance patient safety and medication adherence. Pharmacists can identify duplicated medications, treatment duration errors and other errors via the process of medication reviewing and patient counseling before discharge. The most frequently reported organization challenges to establishing medication reconciliation are getting discharge medications from outside community pharmacy (due to shortage in medications), lack of official instructions and suboptimal physician-pharmacist cooperation. The physicians and pharmacists are enthusiastic for this service to be standardized among all settings and to work cooperatively to deliver it. However, several pre-requisites are needed to implement MR routinely including securing discharge medications by hospitals, official enforcement and raising healthcare providers' awareness.

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Conflict of Interest

The authors declare that they have no competing interests

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References

- [1] National Patient Safety Goals. Effective July 2023 for the Hospital Program Goals: Improve the accuracy of patient identification, 2023. https://www.jointcommission.org/-/media/tjc/documents/standards/national-patient-safety-goals/2023/npsg_chapter_hap_jul2023.pdf
- [2] The institute for safe medication practices Canada (ISMP Canada): Medication reconciliation in acute care, Getting Started Kit. 2017. <https://www.ismp-canada.org/download/MedRec/MedRec-AcuteCare-GSK-EN.pdf>

- [3] Jabri AM, Assad HC, Al-Jumaili AA. Pharmacist role to enhance the prescribing of hospital discharge medications for patients after heart attack. *Saudi Pharmaceutical Journal*. 2020 Apr 1. <https://doi.org/10.1016/j.jsps.2020.02.009>
- [4] Al-Hashar A, Al-Zakwani I, Eriksson T, Al Za'abi M. Whose responsibility is medication reconciliation: Physicians, pharmacists or nurses? A survey in an academic tertiary care hospital. *Saudi Pharmaceutical Journal*. 2017 Jan 1. <https://doi.org/10.1016/j.jsps.2015.06.012>
- [5] Aires-Moreno GT, Silvestre CC, Araújo DCSA, Matos VTG, Marcon de Oliveira V, Ferreira CM, et al. Perceptions of nurses, pharmacists and physicians about medication reconciliation: A multicenter study. *Saudi Pharmaceutical Journal*. 2020 Nov 1;28(11):1435–9. <https://doi.org/10.1016%2Fj.jsps.2020.09.009>
- [6] Latimer S, Hewitt J, de Wet C, Teasdale T, Gillespie BM. Medication reconciliation at hospital discharge: A qualitative exploration of acute care nurses' perceptions of their roles and responsibilities. *J Clin Nurs*. 2023 Apr 1;32(7–8):1276–85. <https://doi.org/10.1111/jocn.16275>
- [7] Anderson LJ, Schnipper JL, Nuckols TK, Shane R, Le MM, Robbins K, et al. Effect of medication reconciliation interventions on outcomes: A systematic overview of systematic reviews. *American Journal of Health-System Pharmacy*. 2019 Dec 2;76(24):2028–40. <https://doi.org/10.1093/ajhp/zx236>
- [8] Dias Fernandes B, Coutinho Ribeiro L, Pereira Dos Santos JC, Rocha Ayres L, Chemello C. Medication Reconciliation at hospital admission and discharge: Evaluation of fidelity and process outcomes in a real-world setting. *Int J Clin Pract*. 2021 Oct;75(10):e14656 <https://doi.org/10.1111/ijcp.14656>
- [9] The High5s Project-Standard Operating Protocol for Medication Reconciliation Standard Operating Protocol Assuring Medication Accuracy at Transitions in Care. https://cdn.who.int/media/docs/default-source/patient-safety/high5s/h5s-sop.pdf?sfvrsn=594d8e49_4
- [10] Van Sluiseveld N, Zegers M, Natsch S, Wollersheim H. Medication reconciliation at hospital admission and discharge: Insufficient knowledge, unclear task reallocation and lack of collaboration as major barriers to medication safety. *BMC Health Serv Res*. 2012;12(1). <https://doi.org/10.1186/1472-6963-12-170>
- [11] Botros S, Dunn J. Implementation and spread of a simple and effective way to improve the accuracy of medicines reconciliation on discharge: A hospital-based quality improvement project and success story. *BMJ Open Qual*. 2019 Aug 1;8(3). <https://doi.org/10.1136/bmjopen-2018-000363>
- [12] Sebaaly J, Parsons LB, Pilch NA, Bullington W, Hayes GL, Easterling H. Clinical and financial impact of pharmacist involvement in discharge Medication reconciliation at an academic medical center: A prospective pilot study. *Hosp Pharm*. 2015;50(6):505–13. <https://doi.org/10.1310/hpj5006-505>
- [13] Alanazi AS, Awwad S, Khan TM, Asdaq SMB, Mohzari Y, Alanazi F, et al. Medication reconciliation on discharge in a tertiary care Riyadh Hospital: An observational study. *PLoS One*. 2022;17(3):e0265042. <https://doi.org/10.1371/journal.pone.0265042>
- [14] Karaoui LR, Chamoun N, Fakhir J, Abi Ghanem W, Droubi S, Diab Marzouk AR, et al. Impact of pharmacy-led medication reconciliation on admission to internal medicine service: Experience in two tertiary care teaching hospitals. *BMC Health Serv Res*. 2019 Jul 16;19(1). <https://doi.org/10.1186/s12913-019-4323-7>
- [15] Al-Jumaili AA, Ali MM. Appraising the Role of Pharmacists in Medication Reconciliation at Hospital Discharge: A Field-Based Study. *Al-Rafidain Journal of Medical Sciences* 2023 Nov 2. <https://doi.org/10.54133/ajms.v5i1S.319>
- [16] Pace DS. Probability and non-probability sampling - An entry point for undergraduate researchers. Vol. 9, *International Journal of Quantitative and Qualitative Research Methods*.
- [17] Hennink M, Kaiser BN. Sample sizes for saturation in qualitative research: A systematic review of empirical tests. *Soc Sci Med*. 2022 Jan 1;292. <https://doi.org/10.1016/j.socscimed.2021.114523>
- [18] Amin MEK, Nørgaard LS, Cavaco AM, Witry MJ, Hillman L, Cernasev A, et al. Establishing trustworthiness and authenticity in qualitative pharmacy research. Vol. 16, *Research in Social and Administrative Pharmacy*. Elsevier Inc.; 2020. p. 1472–82. <https://doi.org/10.1016/j.sapharm.2020.02.005>
- [19] Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101. <http://dx.doi.org/10.1191/1478088706qp0630a>
- [20] Farha RA, Hammour KA, Mukattash T, Alqudah R, Aljanabi R. Medication histories documentation at the community pharmacy setting: A study from Jordan. *PLoS One*. 2019 Oct 1;14(10). <https://doi.org/10.1371/journal.pone.0224124>
- [21] Yassin HT, Saaed HK, Obeid KA. Pharmacist collaborative care in heart failure management in Kirkuk city- Iraq. *Systematic Reviews in Pharmacy*. 2020;11(3):309–19. <https://dx.doi.org/10.5530/srp.2020.3.36>
- [22] AL-JUMAILI AAA, Jabri AM, Al-Rekabi MD, Abbood SK, Hussein AH. Physician Acceptance of Pharmacist Recommendations about Medication Prescribing Errors in Iraqi Hospitals. *Innov Pharm*. 2016 Aug 4;7(3). <http://dx.doi.org/10.24926/iip.v7i3.443>
- [23] Fahmi HL, Al-Jumaili AA, Younus MM. The whole experience of public hospital physicians from several specialties with biopharmaceutical effectiveness, safety, adverse drug reactions and interchangeability: A qualitative study. *Exploratory Research in Clinical and Social Pharmacy*. 2022 Sep 1;7. <https://doi.org/10.1016/j.rcsop.2022.100162>
- [24] Fahmi HL, Al-Jumaili AA. Understanding the Experience of Hospital Pharmacists with the Effectiveness, Safety, Adverse Drug Reaction Reporting and Interchangeability of Biopharmaceutical Medicines. *Iraqi Journal of Pharmaceutical Sciences*. 2022;31(1):72–86. <https://doi.org/10.31351/vol31iss1pp72-86>
- [25] Khazal AA, Jamal MY. Pharmacist Intervention to Address Drug Related Problems in Patients with Decompensated Liver Cirrhosis. *Al-Kindy College Medical Journal*. 2023 Apr 30;19(1):121–6. <https://doi.org/10.47723/kcmj.v19i1.888>
- [26] Al-Jumaili AA, Al-Rekabi MD, Doucette W, Hussein AH, Abbas HK, Hussein FH. Factors influencing the degree of physician–pharmacist collaboration within Iraqi public healthcare settings. *International Journal of Pharmacy Practice*. 2017 Dec 1;25(6):411–7. <https://doi.org/10.1111/ijpp.12339>

- [27] Al-Jumaili AA, Sherbeny F, Elhiny R, Hijazi B, Elbarbry F, Rahal M, et al. Exploring job satisfaction among pharmacy professionals in the Arab world: a multi-country study. *International Journal of Pharmacy Practice*. 2022 Apr 1;30(2):160–8.
<https://doi.org/10.1093/ijpp/riac011>
- [28] Anwer IY, Yawuz MJ, Al-Jumaili AA. In-depth assessment of Iraqi physicians' adherence to treatment guidelines for different diseases: a qualitative study. *F1000Res*. 2023 Mar 30.
<https://doi.org/10.12688/f1000research.128233.1>
- [29] Al-Jumaili AA, Younus MM, Kannan YJA, Nooruldeen ZE, Al-Nuseirat A. Pharmaceutical regulations in Iraq: From medicine approval to postmarketing. *Eastern Mediterranean Health Journal*. 2021 Oct 1;27(10):1007–15.
<https://doi.org/10.26719/emhj.21.025>
- [30] Al-Jumaili AA. IRAQ PHARMACEUTICAL COUNTRY PROFILE 2020.
- [31] Mohammed SI, Dawood EB, Abaas IS. Perceptions and attitudes of community pharmacists' towards patient counseling and continuing pharmacy education programs in Iraq. *Iraqi Journal of Pharmaceutical Sciences*. 2019 Dec 21;28(2):30–6.
<https://doi.org/10.31351/vol28iss2pp30-36>
- [32] Alhamadani F. Evaluation of Community Pharmacist's Role in Iraqi Private Pharmacies, Iraq Community pharmacy View project.
https://www.researchgate.net/publication/318563615_Evaluation_of_Community_Pharmacist's_Role_in_Iraqi_Private_Pharmacies_Iraq
- [33] Rojas-Ocaña MJ, Teresa-Morales C, Ramos-Pichardo JD, Araujo-Hernández M. Barriers and Facilitators of Communication in the Medication Reconciliation Process during Hospital Discharge: Primary Healthcare Professionals' Perspectives. *Healthcare (Switzerland)*. 2023 May 1;11(10).
<https://doi.org/10.3390%2Fhealthcare11101495>
- [34] Alanazi N, Alatawi W, Prabakar K. Medication reconciliation – Responsibilities and barriers facing physicians, pharmacists, and nurses in Saudi Arabia. *Saudi J Health Sci*. 2022;11(1):55.
http://doi.org/10.4103/sjhs.sjhs_82_21
- [35] Al-Jumaili AA, Abbood SK, Abbas AN, Rafeel HM, Mohammed FR, Ali AZ. Organization factors influencing nurse ability to prevent and detect adverse drug events in public hospitals using a patient safety model. *Saudi Pharmaceutical Journal*. 2021 Oct 1;29(10):1216–22.
<https://doi.org/10.1016/j.sjps.2021.09.003>
- [36] Kopciuch D, Paczkowska A, Zaprutko T, Ratajczak P, Nowakowska E, Kus K. A survey of pharmacists' knowledge, attitudes and barriers in pharmaceutical care concept in Poland. *BMC Med Educ*. 2021 Dec 1;21(1).
<https://doi.org/10.1186/s12909-021-02891-6>
- [37] Al-Jumaili AA, Al-Rekabi MD, Sorofman B. Evaluation of instruments to assess health literacy in Arabic language among Iraqis. *Res Social Adm Pharm*. 2015;11(6):803–13.
<https://doi.org/10.1016/j.sapharm.2015.02.002>
- [38] Redmond P, Munir K, Alabi O, Grimes T, Clyne B, Hughes C, et al. Barriers and facilitators of medicines reconciliation at transitions of care in Ireland - A qualitative study. *BMC Fam Pract*. 2020 Jun 23;21(1).
<https://doi.org/10.1186/s12875-020-01188-9>

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<https://doi.org/10.47723/hnk5gr79>