

Retrospective Assessment of Clinical Pharmacist Medication Sheets Documentation Completeness from a Sample of Iraqi Health Care Units

Manal Khalid Abdulridha¹

e-mail: pharm.mrdha@uomustansiriyah.edu.iq

Hadeel Delman Najim²

e-mail: pharm.hadeelnajim.2015@uomustansiriyah.edu.iq

Karrar Mohammed Abbas³

e-mail: karrarah84@gmail.com

ABSTRACT

Background & Aim

Medical records documentation is an important legal and professional requirement for all health professionals to ensure that the medications prescribed for patients contribute to the best possible health outcomes. The main objective was to assess the documentation completeness level of the medication sheets in the different inpatient wards of Iraqi hospitals, also to identify trends of clinical pharmacist intervention towards problems related to drugs, and to estimate physician's acceptance status of the proposed intervention.

Method

A retrospective study was conducted in a number of randomly selected hospitals as a multicenter; the sample consisted of number of randomized medication summary sheets per ward, recorded during the medication order validation process and drug-related problems were identified. Patient's demographic characteristics, drugs administered, drug-related problems description, pharmacist's recommendations, and whether or not the recommendations were accepted by the physician or not were recorded.

Result

A total number of (562) medication sheets collected from multiple wards of different hospitals, pharmacist intervention represent (23.5%) of total medication sheets across multiple wards from 3 hospitals. Medication sheets of the emergency and CCU included the majority of pharmacist interventions (64.4%), followed by medication sheets of a surgical ward (18.9%), and the least intervention was found among medication sheets of the internal medicine ward (16.6%). Drug-related problems that may arise in hospital settings are mainly dispensing errors (32.65%), unavailability of an indicated drug (15.64%). A total of 295 counseling and recommendations to patients and health care providers at the physician, nursing staff levels were implemented and documented. This retrospective pilot study confirmed the obvious incompleteness of documenting the majority of clinical pharmacist medication sheets for the inpatient particularly in the surgery ward.

Keywords: Medication Sheets, Drug-Related Problems, Physician Acceptance, Pharmacist Interventions

¹Department of Clinical Pharmacy/ College of Pharmacy/ Mustansiriyah University, Iraq.

²Department of Clinical Pharmacy/ College of Pharmacy/ Mustansiriyah University, Iraq.

³Thi-QAR health office, Iraq

INTRODUCTION:

Clinical pharmacists have licensed practitioners with advanced knowledge and Integrated training in all types of patient care settings with a focus on achieving optimal use of medications, assuring right dosing, monitoring, identification of adverse effects, and economic efficiency to achieve optimal patient outcomes.¹ On the other hand, patient safety now acquires the greatest attention in developed countries.² The medication therapy management (MTM) services empower patients to take an active role in managing their medications as well as to ameliorate actual cooperation among patients and all healthcare team; thus optimize medication use and improved patient outcomes.¹

There is increasing evidence that, at the hospital level, the most common adverse events are related to drug use, which most of them are considered preventable and constitute medication errors.³ An interesting finding of Payne *et al*,⁴ who found that the risk of unexpected hospital admissions increased with the number of medications used, but he found also that this effect was less evident for people with a high number of chronic conditions.

Even inside the best case-scenario, with the use of appropriate scientific guidelines and well-known recommendations for prescribing medication, the physician is still obliged to apply more than one guideline for the treatment of various conditions in the same patient. This will increase the chances of adverse drug reactions, drug interactions, and sooner or later possess extra risks to the patient.⁵ However, the use of non-pharmacological interventions to lessen the side effects might help too.

Medication error causes direct and indirect consequence on the patient, the direct consequence includes patient harm, increase

duration of patient hospitalization, higher costs and may result in death,⁶ while the indirect consequence includes the psychological effect on health care providers in term of confidentiality, increased work's stress and loss of faith of patient's family in the health care provider.^{7,8} Only a small percent of medication errors have the potential to cause patient harm despite they occur frequently, however, many of them go undetected or unreported because only a small fraction of them that adversely affect the patient's safety, which mustn't be underestimated.⁹

Many factors contribute to drug-related problems (DRPs) including unnecessary drug use, inappropriate drug choice, therapeutic duplication, inappropriate dosing regimen, poor physician-patient communication, and long-term medication use without periodic review.^{10,11} Kale *Aet al*,¹² defined the adverse drug events (ADEs) as the harm resulting from the use of a drug, either due to adverse drug reactions, overdoses or from the incorrect use of the drug-like dose reductions and abrupt discontinuations.

As clinical pharmacists are a primary source of scientifically valid information concerning the medicines, the pharmacists must work closely with other healthcare professionals, and be commonly involved in providing pharmaceutical care services. Pharmaceutical care services are not found in the hospital setting only, but also in the nursing home settings, and community settings of outpatient clinics.^{13,14} These pharmaceutical care services includes: patient interviews, counseling, medication reviews, drug therapy management, participation in conferences, education to a multi-disciplinary care, and healthcare staff-patient interviews.¹⁵

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Email: utjmed@utq.edu.iq

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Glanz K *et al.*,¹⁶ demonstrated the importance of interpersonal communication in the health care process, and the good communication between a patient and his physician leads to an overall improvement in physical health, chronic disease management, and a better quality of life. The key element of efficient communication is detailed medication information, which should include more than the drug name and dosage being taken, ADRs, hypersensitivity reactions, start and stop date for certain medicines, all over the counter (OTC) medications, and herbal or natural supplements.¹⁷

Educating patients to better understand their medical issues and treatment plan is an implicit aim of all treatment plans, the most important component of the patient education plan confirms the need for patients to follow prescribed treatment regimens in its entirety.^{18,19}

Later, with the advancement of knowledge on clinical pharmacy and improvement of the clinical pharmacists' expertise, the system of thinking was changed and as a result, they were accepted as one of the health members in the hospital wards.

Assuming that all the medication sheet to be processed correctly and actively according to the hospital regulations by all health care members including the pharmacist in charge, this study was designed to explore whether or not the inpatient medication sheet document the practical and prospective scope of practice of clinical pharmacists in a sample of hospitals in Iraq through observation and recording of pharmacist interventions (PIs) in medication summary sheet in a statistical manner. Also to highlight the extent of DRPs in the healthcare system along with the role of clinical pharmacists in terms of approaching and managing these problems.

MATERIALS AND METHODS:

Study design and approvals:

This study is a retrospective descriptive study carried out from September 2019 until March 2020 among different wards of Iraqi general and specialized hospitals identifying the completeness level of medication sheets documented by the clinical pharmacists and assessing the reports that contain DRPs. Official approvals were obtained from the authorities at the Mustansiriyah University /College of Pharmacy, and the Iraqi Ministry of Health.

Study size, inclusion and exclusion criteria:

The total number of reports revised was 562 medication sheet parts of inpatient records. Data from medication sheets were randomly collected from the emergency department, CCU, surgery wards, and internal medicine wards and reports that contain DRPs were collected retrospectively over the last month. All patient records containing pharmacist medication sheet was included in this study randomly. Any inpatient records lacking medication sheets were excluded.

Data collection:

The hospital medication sheets document the interventions, at the drug level, checked for interactions and identified using the Medscape interaction checker and the given code from PCNE.²⁰ At the patient level, differences such as offering proper patient counseling and if written information was provided to the patient according to the given code from PCNE. Additionally, at the hospital level, the pharmacist recorded the interventions into patient's medication records to ensure patient safety and improve the quality and continuity of care. Also, whether or not the prescription order was checked regularly by the pharmacist to ensure the correct medication, in addition to

the counseling notes to the patient and health care providers.

Acceptance by physicians:

Acceptance by physicians and implementation to PIs was evaluated. The physician response (specialists and subspecialist) as an online form-based survey towards PIs. Using the primary domain of (acceptance of the Intervention proposals) from PCNE, responses were divided to: Intervention accepted and fully implemented, intervention accepted but not implemented, and Intervention not accepted: unknown reason.

Statistical analysis:

Statistical analysis was performed using Microsoft Excel2013. Data are expressed as number and percentages. Chi-square test was used to compare percentages.P-value of <0.05 was considered statistically significant.

RESULTS:

Status of pharmacist intervention in the medication sheet:

A total number of (562) medication sheets collected from multiple wards of different hospitals, PIs represent only (23.5%) of total sheets with a significant difference from sheets without any interventions($P<0.001$), table 1.

Table 1: Status of pharmacist intervention in the medication sheet

Medication sheet	N	%	P-value
Intervention	132	23.5%	< 0.001
No intervention	430**	76.5%	
Total	562	100%	

Data presented as number (n) and percentage (%); ** P -value < 0.001 is considered highly significant

Distribution of pharmacist intervention (PIs) among hospital wards:

The distribution of PIs per wards is shown in table 2. Medication sheets of the emergency and CCU represent the majority of PIs (64.4%), followed by medication sheets of surgical ward (18.9%), and the least interventions were found among medication sheets of internal medicine ward (16.6%). There was a significant difference between PIs among inpatient medication sheets ($P<0.01$).

Table 2: Distribution of PIs among hospital wards

Hospital Wards	N	%	P-value
Surgery	25	18.9%	< 0.001
Internal Medicine	22	16.6%	
Emergency/CCU	85**	64.4%	
Total	132	100%	

Data presented as number (n) and percentage (%); ** P -value < 0.001 is considered highly significant

Causes of drug-related problems in medication sheet:

Drug-related problems that may arise in hospital settings such as administration and dosing errors (32.4%), unavailability of the indicated drug (15.5%), and drug-drug interaction (9.5%). Other DRPs include lack of drug information and laboratory monitoring (20.9%). Additionally, drug allergy, no drug prescription or unnecessary drug, and adverse drug reaction were identified from a total amount of (148) medication sheets, table 3.

Table 3: Causes of drug-related problems

Drug-Related Problems	N	%
Adverse Drug Reaction	3	2.02%
Drug-Drug Interaction	14	9.5%
Inappropriate Administration And Dosage	48	32.4%
No Drug Prescription	10	6.8%
Unavailability of Drug	23	15.5%
Unnecessary Drug	7	4.7%
Drug Allergy	12	8.1%
Others (Request For Drug Information, Drug-Lab Interaction)	31	20.9%
Total	148	100%

Data presented as number (n) and percentage (%)

Types of Pharmacist interventions among hospital wards medication sheet

The surgical ward medication sheets documented the PIs at the drug level mainly providing unavailability of the indicated drug (36%), suggesting the addition of new drugs postoperatively (24%), adjustment of dose and administration dose (8%), and recording adverse reaction and drug allergy, suggesting alternative or drug discontinuation represents (4%). Also monitoring post-operative laboratory test was seen in (16%) of medication sheets, Table 4.

The PIs in internal medicine ward medication sheets documented drug allergy (31.8%), the recommendation for changing treatment and laboratory monitoring (13.6%), suggesting alternative or new drug, and detecting adverse drug reaction represents (9.1%), and providing unavailability of the indicated drug, suggesting to discontinue drug and adjustment of dose and administration represents (4.5%).

The emergency/CCU medication sheets documented several PIs at the drug level mainly adjustment of dose and administration (35%), detecting drug-drug interactions (16%), recommendation for changing dosage form (11.7%), addition of new drugs and discontinuation of drugs (9.4%), monitoring laboratory test was seen in (8.2%) of medication sheets, recommendation for changing therapy (5.8%), and suggesting alternative drug was (3.5%).

Table 4: Types of pharmacist interventions in medication sheet

Type of Intervention	Surgery		Internal Medicine		Emergency /CCU	
	N	%	N	%	N	%
Recording Adverse Drug Reaction	1	4%	2	9.1%	0	0%
Recording Drug Allergy	1	4%	7	31.8%	0	0%
Adjustment of Dose And Administration	2	8%	1	4.5%	30	35%
Recording Drug-Drug Interaction	0	0%	0	0%	14	16.4%
Recommendation For Dosage Form Change	0	0%	0	0%	10	11.7%
Providing Unavailable Indicated Drug	9	36%	1	4.5%	0	0%
Suggestion For Drug Alternative	1	4%	2	9.1%	3	3.5%
Suggestion For New Drug	6	24%	2	9.1%	8	9.4%
Suggesting To Discontinue Drug	1	4%	1	4.5%	8	9.4%
Recommendation For Change Therapy	0	0%	3	13.6%	5	5.8%
Monitoring Lab Test	4	16%	3	13.6%	7	8.2%
Total	25	100%	22	100%	85	100%

Data presented as number (n) and percentage (%)

Counseling of patient and health care providers:

A total of 295 counseling and recommendations to patients and health care providers at physician and nursing staff levels were implemented and documented in all medication sheets collected with or without interventions. Counseling health care providers at all levels represent (29.5%), drug administration recommendations to the nurse and care providers represents (28.8%), providing drug information to all levels (24.4%), finally, patient education about proper drug usage was (17.2%), Table 5.

Table 5: Counseling patient and health care providers

Type of Pharmacist Interaction	N	%
Health Care Counseling	87	29.5%
Patient Education	51	17.2%
Providing Drug Information	72	24.4%
Administration Counseling	85	28.8%
Total	295	100%

Data presented as number (n) and percentage (%)

Status of acceptance per intervention proposal:

The pharmacists received 64 physician responses (specialists and subspecialists) as an online form based survey towards PIs recorded in a sample of medication sheets uploaded on the survey

form. The physicians accepted the intervention proposal(28.13%) of the pharmacist recommendations, and physicians accepted intervention but not implemented (65.63%), finally only (6.25%) of the physicians did not accept pharmacist intervention of unknown reasons. The results revealed a significant level of physician acceptance towards PIsbut not implemented until discussing the rationale of the recommendations ($P<0.001$), table 6.

Table 6: Status of acceptance per intervention proposal

Status of Acceptance	N	Percentage	p-value
Intervention accepted and fully implemented	18	28.13%	< 0.001
Intervention accepted, but not implemented	42**	65.63%	
Intervention not accepted: unknown reason	4	6.25%	
Total	64	100%	

Data presented as number (n) and percentage (%); ** P -value < 0,001 is considered highly significant

DISCUSSION:

A part of a clinical pharmacist job in a health care system is to identify and suggest or interfere in a professional way to correct any medication errors that could interfere with the patient’s quality of life and hence to provide better treatment regimens, their role now becomes more prominent.²¹As in the United States, Iraqpharmacists are now seeking for more opportunities to improve patient careas being a member of the health care team.²²As well, a new training program has to be adopted by medical education institutes to prepare professional board-certified clinical pharmacists as specialists to cope with the advances in all medical fields,¹²the competence allowing the pharmacist to review and document his intervention in the order sheet for treatment and medication forms (as a part of Iraqi Ministry of Health medical record containing a number of forms), listing daily medications ordered given with signatures of the doctor and the nurse who administers it.²³

Assuming that all the medication sheet to be processed correctly and actively according to the hospital regulations by all health care members including the pharmacist in charge, this study finds out the actual interference of the clinical pharmacist in a sample of hospitals in Iraq through observation and recording the PIs in medication sheet. Also to highlight the magnitude of DRPs in the healthcare system along with the role of clinical pharmacists in terms of approaching and managing these problems.

Pharmacist intervention, in the present study, represents only (23.48%) of total medication sheets among different inpatient wards, predominantly, medication sheets of the emergency and CCU which included the majority of PIs (64.4%). It is estimated that (10–30%) of hospital admissions are associated with DRPs which can be prohibited by pharmacists through providing appropriate pharmaceutical interventions.²⁴ In a descriptive cross-sectional study done in Basrah General Hospital, precise documentation of the medication history and

notes related to the patient's response to drugs is very crucial especially for the admitted patients, and having incomplete documentation of this vital information might result in undesirable treatment interrelated problems, a higher percentage (86.19%) of the badly documented pharmacological history was found.²⁴ Another study which included 304 admitted patients of two hospitals in Utrecht-Netherlands, documenting the pharmacological history of admitted patients was found to be often incomplete with (61%) of the patients' records.²⁵

Medical problems and DRPs are often considered to be overlapped, for example, any medical problem (disease, syndrome, or symptom) can be prevented, cured, or exacerbated by medications. Likewise, a DRPs (hypersensitivity reactions; idiosyncratic reactions; toxic reactions or adverse reactions) can cause or aggravate a medical problem in a way.²⁶ Accordingly, the patient re-counseling and reviewing his medical history by the clinical pharmacist beside implementation of an integrated medication therapy management (MTM) may identify DRPs, thus improving medication use and optimize patient outcomes.

In the present study, the majority of DRPs that may arise in hospital settings such as administration and dosing errors (32.65%), unavailability of indicated drug (15.6%), and drug-drug interaction (9.5%). Other DRPs include a lack of drug information and laboratory monitoring (20.9%). In a prospective study of PIs conducted in France, (42.2%) of the pharmacists' recommendations were related to drug choice (drug switch (22.2%), drug discontinuation (16.3%), addition of a new drug (3.7%) followed by dose adjustment (23.8%), optimization of administration (21.9%); change of administration route

(10.3%), administration modalities (11.6%), and need for drug monitoring (12.2%).²⁷ Findings reported in a retrospective observational study revealed that the most common causes for pharmacist intervention in ICU were inappropriate dosage and administration (34.5%), followed by PN/EN problems (18.3%), and adverse drug reactions (11.9%).²⁸ Another observational phase of a prospective study on hemodialysis patients, the types of DRPs identified according to the latest Pharmaceutical Care Network Europe classification were as follows: Failed therapy (18.69%); sub-optimal therapy (52.23%); an indication of non-administration of therapy (2.37%); and non-allergic adverse drug effects (26.71%).²⁹ It is worth noting that unavailability of indicated drugs and requesting of drug information were not reported in the previous studies highlighting some shortage in optimum health care requirements in our hospitals.

The majority of PIs in the surgical ward medication sheet deal with the unavailability of the indicated drug (36%) particularly the postoperative antibiotic of choice, also the addition of new drugs postoperatively [6 cases postoperative prophylaxis with ceftriaxone plus insulin or G/S) instead of the preoperative single-dose prophylaxis regimen]. Moreover, perioperative dose adjustment (8%) was mainly noted in insulin dosing. Adverse drug reactions and allergic reactions were reported [1 case of discontinuation of ceftriaxone due to allergic reaction], and [1 case of recording adverse drug reaction with nausea and vomiting caused by tramadol injection].

The interventions of internal medicine ward medication sheet documented by pharmacist include the followings; Recommendation for new drugs or changing treatment [3 cases of changing therapy (switching from ceftriaxone and administration of

meropenem plus metronidazole due to cephalosporin's allergy), [1 case addition of paracetamol vial, and 2 cases of addition of metoclopramide ampule as an antiemetic agent to prevent the side effect of tramadol injection],[2 cases administration of 5 units of regular insulin],[1 case discontinue of both ceftriaxone vial and azithromycin]. Adjustment of dosing was noted in 1 case, and drug replacing unavailable drug in 1 case (omeprazole was replaced by esomeprazole). Another intervention was related to drug allergy, adverse drug reaction and drug-drug interaction[7 cases particularly with penicillin and cephalosporin allergy], [2 cases reported with nausea and vomiting associated with tramadol injection], [one major or moderate drug-drug interaction with warfarin]. Lab and drug monitoring was identified as well [2 cases of checking blood glucose level and potassium levels in type 1 DM patients], [monitor liver function test for ceftriaxone vial]. Fluctuation in INR level was also monitored [1 case reported that fenofibrate caused increasing in INR level,1 case showed that thyroxin caused fluctuation in INR level,1 case reported that jaundice occurred as new illness which caused critical increasing of (INR level > 5.2), and1 case showed that chronic infectious diarrhea occurred which increased (INR level to 4.7). In a study done in central hospital of S. Francisco reported PIs was implemented for three main categories: drug, dosage and administration related antibacterial (25%) and for the central nervous system (24%) and cardiovascular system (18%) [Namely, 18% concerned acetaminophen, (13%) enoxaparin and (10%) amoxicillin/clavulanic acid], the highest acceptance rate was for dosage adjustment according to therapeutic indication (58.1%) and renal function (57.4%).³⁰ Other chart review study by the University of Oklahoma

city to estimate (66) interventions were reported, approximately (45%) of these interventions related to drug usage, and (21%) was related to pain management. Application of new therapy and treatment plan changes were the most common outcomes (42% and 32%, respectively), interventions related to drug usage or pain management each approached a (93%) acceptance rate.³¹

In a previous study, the most frequent DRPs recorded in general internal medicine, were drug interactions (21%), untreated indications (18%), overdosages (16%) and drugs used without a valid indication (10%) [Drugs most frequently involved were tramadol, antidepressants, acenocoumarol, calcium-vitamin D, statins, aspirin, proton pump inhibitors and paracetamol]. The acceptance rate of prescribers was (84%) and their satisfaction was high.³² Also in an Ethiopian study, the most frequent DRPs recorded were undue therapy(24.2%); needs further therapy (22.8%) and patient noncompliance (19.5%). While the most frequent interventions were to change the dose or the instructions of use (15.4). The acceptance rate by physicians was (68.4%).³³

Moreover, PIs recorded in the emergency/CCU medication sheet were as follows; Pharmacist recommendations in the current study reported dosing change in 30 sheets (35%). Detection of drug interaction in 14 patients (16.4%) particularly the [digoxin with metoprolol, nebivolol, aspirin, captopril, or warfarin with cordaron]. Changing therapy due to pharmacokinetic advice (5.8%) [5 cases for patients with acute kidney injury]. The adjustment of drug dosage and frequency and administration were recommended as (11.7%) of the total intervention of emergency/CCU such that [10cases carvedilol twice daily instead of once, and adjust warfarin dose according to

INR, etc.). Initiate new medication (9.4%) mainly [8 cases starting ACEI or any first-line drug in the four stages of heart failure treatment], and recommendation to discontinue medication (9.4%) (In 8 cases spironolactone temporary discontinued). Alternative drug suggestions (3.5%) were noticed in [3 cases particularly switching to ARABs instead of ACEI because of dry cough].

In previous studies, most PIs requests occurred during multidisciplinary rounds in the ICU, the predominant interventions were of drug dosage and administration adjustment (26.0%), and the provision of drug information (18.1%), indicating that the pharmacist recommendations were proactive^{34,35} and both were the key activities in the current study as well.

It is well known that pharmacist interventions in the CCU focus on providing the patient with full drug information, providing therapeutic consultation for cardiovascular and non-cardiovascular conditions, antibiotics regimen adjustment, as well as avoidance of drug interaction and duplicative drugs, and thus improvements in the quality of life.³⁶ a previous study established that during hospitalization in CCU, the clinical pharmacist can enhance dosage adjustment of inotropic agents, suggesting can aid in reducing potential mortality or discontinuation of contraindicated medicines. Also can help identifying any potential drug interactions, wrong doses, allergies, and other important jobs of pharmacist can improve patient outcomes.³⁷ without PIs errors in medication prescribing can lead to adverse patient outcomes and unplanned hospital r-admissions that might be directly linked to medication problems.³⁸

Clinical pharmacists, as they are experts in the therapeutic use of medications, they routinely supply the patients and all health

care staff with medication evaluations and recommendations.³⁹ In the current study, counseling health care providers at all levels represents (29.5%), drug administration recommendations to the nurse and care providers represents (28.8%), providing drug information to all levels (24.4%), finally, patient education about proper drug usage was (17.2%).

Results of the current study revealed a significant level of physician acceptance (65.63%) towards PIs but not implemented until discussing the rationale of the recommendations ($P < 0.001$). Matching findings identified about (92%) of all PIs were either fully or partially accepted by the physician; where partial acceptance was defined as the implementation of the recommendation pharmacist with an adjustment.³² In large tertiary university hospital in Korea, the acceptance rate of PIs was (84.1%) with most accepted by physicians within 24 hours (92.8%).⁴⁰ other results of PIs in French hospitals reported physicians acceptance rate of (73.4%) (15.3% refusals and 11.3% no adjustment).²⁸ A recent study reported that the majority of PIs proposed over the telephone were accepted by physicians of a total of 599 interventions, resulting in an acceptance rate of (71.2%).^{31,41} PIs in a previous study in Iraqi hospital revealed physician's implemented (37.4%) of proposed interventions.⁴²

CONCLUSION:

Nowadays, improvement in patients' safety has always been the goal of health-care systems in most countries. This retrospective pilot study confirmed the obvious incompleteness of documenting the majority of clinical pharmacist medication sheet for the inpatient particularly in the surgery ward. Hence a hospital-based periodic random assessments by a group of trained

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personnel with medical record documentation completion is highly recommended to be implemented by the hospital Quality Assurance Unit.

for this study through collecting patient records retrospectively.

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CONFLICT OF INTEREST:

The authors declared no financial or non-financial conflict of interest.

REFERENCES:

1. Bluml BM. Definition of medication therapy management: development of profession wide consensus. *J Am Pharm Assoc.* 2005; 45(5):566.
2. Stuchbery P, Kong DCM, DeSantis GN, Lo SK. Identification by observation of clinical pharmacists' activities in a hospital inpatient setting. *Pharmacy Practice.* 2007; 5(1):10-16.
3. Benabdallah G, Alj L, Benkirane R, Soulaymani-Bencheikh R, Cousins D, Olsson S, Pal SN. WHO Guideline: Reporting and Learning Systems for Medication Errors: The Role of PharmacovigilanceCentres. In *DRUG SAFETY.* 2015; 38(10):939-939.
4. Payne RA, Abel GA, Avery AJ, Mercer SW, Roland MO. Is polypharmacy always hazardous? A retrospective cohort analysis using linked electronic health records from primary and secondary care. *British Journal of Clinical Pharmacology.* 2014; 77(6):1073-1082.
5. Mortazavi SS, Shati M, Keshtkar A, Malakouti SK, Bazargan M, Assari S. Defining polypharmacy in the elderly: a systematic review protocol. *BMJ Open.* 2016; 6(3).
6. Mayo AM, Duncan D. Nurse Perceptions of Medication Errors: What We Need to Know for Patient Safety. *J Nurs Care Qual [Internet].* 2004; 19(3).
7. Ashcroft D, Birtwistle M, Cooke J, Hingley K MP. When do medication errors occur and who reports them? Analysis of a web-based incident reporting scheme in secondary care. *International Journal of Pharmacy Practice.* 2003; 11:R86-R.
8. Mihailidis A, Krones L, Boger J. Assistive Computing Devices: A Pilot Study to Explore Nurses' Preferences and Needs. *Comput Inform Nurs.* 2006; 24:328-36.
9. American Society of Health-System Pharmacists. ASHP guidelines on preventing medication errors in hospitals. *Am J Health-Syst Pharm.* 2018; 75:1493-1517.
10. Amariles P, Fernandez-Llimos F, Faus MJ. Terminology for problems related to drug use. *Am J Health-Syst Pharm.* 2006 63:616-617.
11. Pedrós C, Formiga F, Corbella X, Arnau JM. Adverse drug reactions leading to urgent hospital admission in an elderly population: prevalence and main features. *European Journal of Clinical Pharmacology.* 2016; 72(2):219-226.
12. Kale A, Keohane CA, Maviglia S, Gandhi TK, Poon EG. Adverse drug events caused by serious medication administration errors. *BMJ quality & safety.* 2012; 21(11):933-8.
13. Khalili H, Farsaei S, Rezaee H, Dashti-Khavidaki S. Role of clinical pharmacists' interventions in detection and prevention of medication errors in a medical ward. *International journal of clinical pharmacy.* 2011 Apr 1; 33(2):281-4.
14. Innovate I, Encourage D. Reducing prescribing errors. *Nurse Prescr.* 2018; 16(3):105-105.

15. Todd A, Holmes HM. Recommendations to support deprescribing medications late in life. *International Journal of Clinical Pharmacy*. 2015; 37(5):678-681.
16. Glanz K, Rimer BK, Viswanath K, editors. *Health behavior and health education: theory, research, and practice*. John Wiley & Sons; 2008; 28.
17. FitzGerald RJ. Medication errors: the importance of an accurate drug history. *British journal of clinical pharmacology*. 2009; 67(6):671-5.
18. Lu CY, Roughead E. Determinants of patient-reported medication errors: A comparison among seven countries. *Int J Clin Pract*. 2011; 65:733-4.
19. Szeinbach S, Seoane-Vazquez E, Parekh A, Herderick M. Dispensing errors in community pharmacy: Perceived influence of sociotechnical factors. *Int J Qual Heal Care*. 2007; 19(4):203-9.
20. Pharmaceutical Care Network Europe Association. PCNE Classification for Drug-Related Problems V9.00. 2019
21. Kaboli PJ, Hoth AB, McClimon BJ, et al. Clinical pharmacists and inpatient medical care: a systematic review. *Arch Intern Med*. 2006; 166:955-64.
22. Al-Jumaili AA, Hussain SA, Sorofman B. Pharmacy in Iraq: History, current status, and future directions. *Am J Health-Syst Pharm*. 2013; 70:368-72.
23. Lau HS, FloraxCh, Porsius AJ, De Boer A. The completeness of medication histories in hospital medical records of patients admitted to general internal medicine wards. *British Journal of Pharmacology*. 2000; 49(6):597-603.
24. Kaushal R, Bates DW, Abramson EL, Soukup JR, Goldmann DA: Unit-based clinical pharmacists' prevention of serious medication errors in pediatric inpatients. *Am J Health-Syst Pharm*. 2008; 65:1254-60.
25. Baena MI, Faus MJ, Fajardo PC, Luque FM, Sierra F, Martinez-Olmos J, Cabrera A, Fernandez-Llimos F, Martinez-Martinez F, Jiménez J, Zarzuelo A. Medicine-related problems resulting in emergency department visits. *European journal of clinical pharmacology*. 2006; 62(5):387-93.
26. Stebbins MR, Cutler TW, Parker PL. Assessment of therapy and medication therapy management. *Koda-Kimble and Young's Applied Therapeutics: The Clinical Use of Drugs*. 2012:43-57.
27. Bedouch P, Charpiat B, Conort O, Rose FX, Escofier L, Juste M, Roubille R, Allenet B. Assessment of clinical pharmacists' interventions in French hospitals: results of a multicenter study. *Annals of Pharmacotherapy*. 2008; 42(7-8):1095-103.
28. Park TY, Lee SM, Kim SE, Yoo KE, Choi GW, Jo YH, Cho Y, Hahn HJ, Lee J, Kim AJ. Pharmacotherapeutic problems and pharmacist interventions in a medical intensive care unit. *Korean Journal of Critical Care Medicine*. 2015; 30(2):82-8.
29. Hussein RA, Majeed AA, Mahmoud RA, Saihoud SA, Al-Hamadi NQ. Assessment of the documentation completeness level of the medical records in Basrah General Hospital. *The Medical Journal of Basrah University*. 2018; 36(2):50-9.
30. Falcão F, Viegas E, Lopes C, Branco R, Parrinha A, Alves ML, Leal F, Pina V, Madureira B, Cavaco P, Santos S. Hospital pharmacist interventions in a central hospital. *European Journal of Hospital Pharmacy*. 2015; 22(2):94-7.
31. Carson GL, Crosby K, Huxall GR, Brahm NC. Acceptance rates for pharmacist-initiated interventions in long-term care facilities. *Innovations in pharmacy*. 2013; 4(4).

Web Site: <https://jmed.utq.edu.iq>

Email: utjmed@utq.edu.iq

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32. Guignard B, Bonnabry P, Perrier A, Dayer P, Desmeules J, Samer CF. Drug-related problems identification in general internal medicine: the impact and role of the clinical pharmacist and pharmacologist. *European journal of internal medicine*. 2015; 26(6):399-406.
33. Mekonnen AB, Yesuf EA, Odegard PS, Wega SS. Implementing ward based clinical pharmacy services in an Ethiopian University Hospital. *Pharm Pract (Granada)*. 2013; 11(1):51-57.
34. Kang M, Kim A, Cho Y, Kim H, Lee H, Yu YJ, et al: Effect of clinical pharmacist interventions on prevention of adverse drug events in surgical intensive care unit. *Korean J Crit Care Med*. 2013; 28:17-24.
35. Berkovitch A, Maor E, Sabbag A, Chernomordik F, Elis A, Arbel Y, Goldenberg I, Grossman E, Klempfner R. Precipitating factors for acute heart failure hospitalization and long-term survival. *Medicine*. 2015; 94(52).
36. Milfred-Laforest SK, Chow SL, Didomenico RJ, et al. Clinical pharmacy services in heart failure: an opinion paper from the Heart Failure Society of America and American College of Clinical Pharmacy Cardiology Practice and Research Network. *J Card Fail*. 2013; 19:354-369.
37. Al Hamid A, Aslanpour Z, Aljadhey H, Ghaleb M. Hospitalisation resulting from medicine-related problems in adult patients with Cardiovascular diseases and diabetes in the United Kingdom and Saudi Arabia. *International journal of environmental research and public health*. 2016; 13(5):479.
38. Park TY, Lee SM, Kim SE, Yoo KE, Choi GW, Jo YH, Cho Y, Hahn HJ, Lee J, Kim AJ. Pharmacotherapeutic problems and pharmacist interventions in a medical intensive care unit. *Korean Journal of Critical Care Medicine*. 2015; 30(2):82-8.
39. Hogan DB, Kwan M. Patient sheet: Tips for avoiding problems with polypharmacy. *Canadian Medical Association Journal*. 2006; 175(8):876-876.
40. Lumbantobing R, Sauriasari R, Andrajati R. Role of pharmacists in reducing drug-related problems in hemodialysis outpatients. *Asian Journal of Pharmaceutical and Clinical Research*. 2017; 10(Special Issue October):108-13.
41. Zaal RJ, den Haak EW, Andrinopoulou ER, van Gelder T, Vulto AG, van den Bemt PM. Physicians' acceptance of pharmacists' interventions in daily hospital practice. *International Journal of Clinical Pharmacy*. 2020; 5:1-9.
42. Al-Jumaili AA, Jabri AM, Al-Rekabi MD, Abbood SK, Hussein AH. Physician acceptance of pharmacist recommendations about medication prescribing errors in Iraqi hospitals. *INNOVATIONS in pharmacy*. 2016; 7(3).

التقييم بأثر رجعي لاكتمال توثيق استمارات الأدوية الصيدلانية السريرية من عينة وحدات الرعاية الصحية العراقية ؛ دراسة الطيار

هديل دلمان نجم

منال خالد عبد الرضا

كرار محمد عباس

الملخص

الخلفية والهدف:

يعد توثيق السجلات الطبية مطلباً قانونياً ومهنياً مهماً لجميع المهنيين الصحيين للتأكد من أن الأدوية الموصوفة للمرضى تساهم في أفضل النتائج الصحية الممكنة، وكان الهدف الرئيسي هو تقييم مستوى اكتمال التوثيق لأوراق الأدوية في أجنحة المرضى الداخليين المختلفة في المستشفيات العراقية، أيضاً لتحديد اتجاهات التدخل الصيدلاني السريري المرتبطة بالمشاكل المتعلقة بالأدوية (DRPs)، ولتقدير حالة قبول الطبيب للتدخل المقترح.

طرق العمل:

دراسة بأثر رجعي أجريت في عدد من المستشفيات المختارة عشوائياً كمراكز متعددة؛ تكونت العينة من عدد من استمارات ملخص الأدوية العشوائية لكل جناح، تم تسجيلها أثناء عملية التحقق من صحة طلب الدواء وتم تحديد DRPs المشاكل الدوائية. الخصائص الديموغرافية للمريض، والأدوية التي تنطوي على نوع الردهة، ووصف DRPs، وتوصيات الصيدلي، وما إذا تم قبول التوصيات من قبل الطبيب أم لا.

النتائج:

اجمالي عدد (562) من أوراق الأدوية التي تم جمعها من أقسام متعددة من مستشفيات مختلفة، يمثل التدخل الصيدلاني (23.48%) فقط من إجمالي أوراق الأدوية عبر الردهات المتعددة مع التركيز على 3 مستشفيات، استمارات الأدوية للطوارئ ووحدة العناية المركزة شملت غالبية التدخلات الصيدلانية (64.4%)، تليها استمارات الأدوية الخاصة بجناح الجراحة (18.9%)، وأقل تدخل في أقسام الأدوية في جناح الطب الباطني (16.6%). المشاكل المتعلقة بالأدوية التي قد تظهر في المستشفيات هي بشكل رئيسي هي أخطاء الصرف (32.65%)، عدم توفر الدواء المشار إليه (15.64%). تم تنفيذ ما مجموعه 295 استشارة وتوصية للمرضى ومقدمي الرعاية الصحية على مستوى الأطباء وموظفي التمريض و موثقة.

الاستنتاج:

أكدت هذه الدراسة التجريبية بأثر رجعي النقص الواضح في توثيق غالبية استمارات الأدوية الصيدلانية السريرية للمرضى الداخليين خاصة في جناح الجراحة.

كلمات المفتاح:

استمارات الدواء؛ المشاكل المتعلقة بالأدوية ؛ قبول الطبيب ؛ تدخلات الصيدلي