Practice and Perception of Pharmacist Intervention Documentation in Saudi Arabia

Yousef Ahmed Alomi*, DBSc. Pharm, MSc. Clin Pharm, BCPS, BCNSP, DiBA, CDE, Critical Care Clinical Pharmacists, TPN Clinical Pharmacist, Freelancer Business Planner, Content Editor and Data Analyst, Riyadh, Saudi Arabia.

Elaf Mohamad Faraj, Director of Pharmaceutical Services, Fakeeh Care Services, Jeddah, Saudi Arabia.

Asma Al-Dosari, Pharm D, College of Pharmacy, Prince Nora University, Riyadh, Saudi Arabia.

Asmaa Al-Fifi, Pharm D, College of Pharmacy, Prince Nora University, Riyadh, Saudi Arabia

Razan Al-Dossari, Pharm D, College of Pharmacy, Prince Nora University, Riyadh, Saudi Arabia.

Haya Fahad bin Omar, Pharm D, College of Pharmacy, Prince Nora University, Riyadh, Saudi Arabia.

Huda Al-Jaziri, Pharm D, College of Pharmacy, Prince Nora University, Riyadh, Saudi Arabia.

Correspondence:

Dr. Yousef Ahmed Alomi, BSc. Pharm, MSc. Clin Pharm, BCPS, BCNSP, DiBA, CDE, Critical care clinical pharmacists, TPN clinical pharmacist, Freelancer Business Planner, Content Editor and Data Analyst, PO.BOX 100, Riyadh 11392, Riyadh, Saudi Arabia.

Phone no: +966504417712 E-mail: yalomi@gmail.com

Received: 14-10-2019;

Accepted: 06-12-2019.

Copyright: [©] the author(s),publisher and licensee Pharmacology, Toxicology and Biomedical Reports. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

This is an open access article distributed under the terms of the Creative Commons Attribution-Non-Commercial-ShareAlike 4.0 License



ABSTRACT

Objectives: To explore the practice and perceptions of pharmacist intervention documentation in the Kingdom of Saudi Arabia. Methods: This is a 4-month cross-sectional self-administered survey of documentation of pharmacist intervention. The study consisted of two parts: the first part collected demographic information and the second part comprised of a questionnaire with a total of 18 questions. There were domains: pharmacist intervention documentation elements, documentation of clinical impact and cost avoidance, the perception of pharmacist intervention and the barrier of pharmacist intervention documentation. All kinds of pharmacist professionals were included in the survey. We used 5-point Likert response scale system to obtain responses. There were open and close-ended questions. The survey was distributed in an electronic format through the social media (WhatsApp and others) to more than 1000 pharmacist professionals across the Kingdom of Saudi Arabia. The data were obtained through the Survey Monkey system. Results: A total of 128 pharmacists responded to the questionnaire. Of them, 106 (82.81%) were Saudi and 22 (17.19%) were non-Saudi pharmacists. Majority of the responders were in the age group of 25-34 years and 35-44 years (44.53% and 25.00%, respectively). Most of the responders had obtained their Bachelor of Science in Pharmacy degree (40 (31.25%)) and Diploma in Pharmacy (33 (25.78%)) with the majority of pharmacists (112 (87.50%)) not having accreditation for the Board of Pharmaceutical Specialty. Most of the pharmacist-reported intervention items was for brief description of the intervention (94.49 %), date of intervention (93.75%) and pharmacist's name/identification (93.70%), whereas least reported items was the effect of cost-saving (45.57%), time spent on providing intervention (51.61%) and drug therapeutic classification (65.73%). Most of the documentation of clinical impact and cost avoidance were related to the general pharmacist intervention (75.78%), adverse drug reaction (72.66%) and drug quality reporting (72.22%). Most of the barriers that prevent documentation of pharmacist intervention was lack of time (98 (76.56%)) followed by the statement "there is no system for pharmacist intervention" (43 (33.59%)) and "the analysis of pharmacist intervention does not exist" (41 (32.03%)). Conclusion: Half of the responder's showed compliance with the practice of pharmacist intervention documentation in the Kingdom of Saudi Arabia. The clinical impact and cost avoidance impact of the pharmacist does not adhere to the documentation with half of the responders. The electronic documentations of pharmacist intervention presented with half of the responders. We recommend to remove the barriers and encourage the pharmacist to carry out documentation. This will improve the system and will improve the clinical and economic benefit of the pharmacist in the Kingdom of Saudi Arabia.

Key words: Practice, Perception Pharmacist, Intervention, Documentation, Saudi Arabia.

INTRODUCTION

In the hospital setting, there is a need to document the interventions provided for continuity and productivity of the hospital. The hospital must document the medications provided to make a permanent record. This is an important part of communication between all healthcare providers including pharmacists to continue medical care based on the level of care provided. However, the pharmacist documentation system can measure the workload and ensure accountability necessary for medico-legal reasons, take responsibility for the pharmacist's role in direct patient care improving the quality of care.1 Moreover, another systematic review in an inpatient setting of the ICU showed that preventable ADRs decreased by 66%, another study that focused on antibiotic choice, dosing and drug administrations showed a mean of cost-saving of 400\$.2 Another study was conducted to evaluate a school-wide, webbased clinical intervention system to document types and impact of pharmacy students through clinical activities during the advanced pharmacy

practice experiences. All pharmacy students were trained to document interventions appropriately. Over a period of 3 years of data collection, approximately 15,393 interventions were documented. More than 5000 interventions were documented as having a long-term impact and about 4000 were documented as having an immediate impact on cost.. In this study, students documented prevention of about 4222 potential ADRs and more 1000 medication errors in the general medical setting. All interventions prevented potential ADRs, which our study also demonstrated with the use of manual method.³ All these studies show that documentation of the intervention by the pharmacist will benefit the healthcare system in terms of cost avoidance and clinical impact and will provide a better outcome for patients in terms of prevention of medication errors and ADRs. However, the practice of pharmacist intervention documentation has not been discussed in the previous studies. Another various local studies showed the pharmacist intervention documentations at healthcare institutions in Saudi Arabia.⁴⁻⁷ Various international and a few local studies conducted on practice of pharmacist intervention documentation discuss the practice and perception of pharmacist intervention documentation.⁸⁻¹⁶ Therefore, in this study, we aimed to investigate the practice and perceptions of pharmacist intervention documentation in the KSA.

METHODS

This is a 4-month cross-sectional self-administered survey of documentation of pharmacist intervention. It consists of two parts: the first part collects demographic information and the second part comprises of a questionnaire with a total of 18 questions. The domains included policies and procedures, types of data through pharmacist intervention, documentation of clinical impact and cost avoidance, analysis of pharmacist intervention and the barrier of pharmacist intervention documentation. All kinds of pharmacist professionals were included in this survey. We used a 5-point Likert response scale system to obtain responses. There were open and close-ended questions. The survey was prepared in an electronic format and was distributed through the social media (WhatsApp and other social media) to more than 1000 pharmacist professionals across the Kingdom of Saudi Arabia (KSA). The data were obtained through the Survey Monkey system. Three methods of validation were used in this study. More than two authors reviewed the survey independently and the pilot study was started. The survey data was corrected accordingly. Cronbach's alpha test value for internal validity was calculated. This survey is types which is exempted from the international guidelines of institutional review boards (IRB).17

RESULTS

A total of 128 pharmacists responded to the questionnaire. Of them, 106 (82.81%) were Saudi and 22 (17.19%) were non-Saudi pharmacists. The majority of the responders were in the age group of 25-34 years and 35-44 years (44.53% and 25.00%, respectively). Most of the responders had obtained their Bachelor of Science in Pharmacy degree (40 (31.25%)) and Diploma in Pharmacy (33 (25.78%)) and the majority of the pharmacists (112 (87.50%)) had not obtained their accreditation from the Board of Pharmaceutical Specialties. The majority of the responders (77 (60.16%), 44 (20.47%) and 39 (31.20%)) had more than 6 years of experience in pharmacy, clinical pharmacy and pharmacy administration, respectively (Tables 1 and 2). Most of pharmacists were working at hospitals with ≥600 bed capacity (23 (17.97%)) and at Medical City (22 (17.19%)) with the majority of the hospitals having accreditation by the CBAHI (84 (73.04%)) and Joint Commotion USA (68 (59.13%)) (Table 1). Most of the pharmacist-reported intervention items was "a brief description of the intervention" (94.49%), "date of intervention" (93.75%) and "pharmacist's name/identification" (93.70%), whereas the least-reported items of pharmacist intervention was "the effect of cost-saving" (45.57%), "time spent for intervention" (51.61%) and "drug therapeutic classification" (65.73%). The highest practice-related manual documentation was "the date of intervention" (46.88%), "classification of intervention" (44.09%) and "place where intervention was made." However, the highest electronic documentation was for statements "a brief description of intervention" (69.29%), "medication name" (66.41%) and "reason for making the intervention" (65.35%) (Table 3). Most of the documentation related to clinical impact and cost avoidance was for "general pharmacist intervention" (75.78%), "adverse drug reaction" (72.66%) and "drug quality reporting" (72.22%). The most clinical impact and cost avoidance documentations for adults and pediatrics interventions was (72.66%), (56.25%) respectively. While with neonates, the highest compliance of clinical impact and cost avoidance documentation was related to "drug information inquiries" (42.97%) (Table 4). The majority of the pharmacist had a good perception of documentation of pharmacist intervention (98 (76.56%)) and getting benefit from the intervention documentation (84 (66.67%)) (Table 5). Most of the barriers that prevent pharmacist intervention documentation was lack of time 98 (76.56%) followed by "there is no system for pharmacist intervention" (43 (33.59%)) and "the analysis of pharmacist intervention does not exist" (41 (32.03%)) (Table 6). Cronbach's alpha value was 0.925.

DISCUSSION

Over the past few years, the pharmaceutical care services has been expanded at all healthcare institutions in the KSA. The pharmacist practice has transformed through the last decades, from primarily focusing on medications dispensing to patient care.18,19 However, the evaluation of the pharmacy strategic plan shows that the plan has not been fully implemented.20 Moreover, the documentation impact of pharmacists toward patient care has not yet reached an optimal level. That has related to the documentation of pharmacist work and interpretation.^{4,5,7} This study focused on the practice and perception of pharmacist intervention documentation at healthcare services in the KSA. Our findings showed that most of the pharmacist intervention was straightforward information for instance date of intervention or patients name and description of medications intervention, whereas most of the important information is cost saving or time spent for intervention, which was poorly documented.13 The economic impact or workload calculation are critical elements of documentation to the higher healthcare administration. Moreover, half of the pharmacist's intervention documentation was manual even during the initiation of New Saudi Vision 2030.21-23 The computerized method of pharmacist intervention documentation is highly recommended, which should be implemented at hospital settings to improve the pharmacist intervention documentation.9,24,25 Our findings showed that reporting of cost avoidance due to documentation was related to general pharmacist intervention, ADRs, or drug quality reporting systems, which is excellent. However, most of the documentation which was inadequate was related to medication errors or poisoning incidence. These two elements have a very high impact on clinical outcomes and prevention of additional unnecessary economic burden on the healthcare system. In addition, most patients from pharmacist intervention were adults, despite pediatric or neonatal populations had very high potential required of pharmacist intervention documentations. Assuring of essential elements of intervention documentation is crucial in the pharmacy practice with an emphasis on specific population is necessary. Despite the fact that there was no fair practice of pharmacist intervention, most of the pharmacists were willing to document their intervention. A pharmacist should revise the attitude and position to correct pharmacist intervention documentation pattern quickly. Our results show multiple reasons for an inadequate documentation of pharmacist intervention such as lack of time and high amount of workload prevent the pharmacist from documenting the intervention. This will lead to a high performance indicator in reality without the evidence of work and the healthcare provider will misjudge that the pharmacist performance was poor. The other barriers to the process of documentation are policies and procedures and pharmacist does not know how and to when and where to document. However, on some occasions there are documentation systems. There was not any analysis of pharmacist intervention documentation presented to the pharmacy staff. Moreover, the pharmacist intervention pattern not reporting to higher administration or utilized the reports for healthcare professionals awareness of pharmacist's intervention documentation. As a result, the pharmacist will get into depression and are easily discouraged to document in the future. The pharmacist intervention documentation practice should be reviewed and some education and training about its improvement should be provided to the pharmacists.26 The lack of local resources, short duration of the study and the small sample size might be

Table 1: Demographic information regarding responder qualification.									
Nationality	Response Count	Response Percent	No. of hospital Licensed Beds	Response Count	Response Percent				
Saudi	106	82.81%	Board Certified Ambulatory Care Pharmacist (BCACP)	3	2.34%				
Non-Saudi	22	17.19%	Board Certified Critical Care Pharmacist (BCCCP)	6	4.69%				
Answered question	128		Board Certified Nuclear Pharmacist (BCNP)	1	0.78%				
Skipped question	0		Board Certified Nutrition Support Pharmacist (BCNSP)	2	1.56%				
Age	Response Count	Response Percent	Board Certified Oncology Pharmacist (BCOP)	1	0.78%				
18 to 24	10	7.81%	Board Certified Pediatric Pharmacy Specialist (BCPPS)	1	0.78%				
25 to 34	57	44.53%	Board Certified Pharmacotherapy Specialists (BCPS)	7	5.47%				
35 to 44	32	25.00%	Board Certified Psychiatric Pharmacist (BCPP)	0	0.00%				
45 to 54	22	17.19%	None	112	87.50%				
55 to 64	6	4.69%	Answered question	128					
65 to 74	0	0.00%	Skipped question	0					
75 or older	1	0.78%	No. of hospital Licensed Beds	Response Count	Response Percent				
Answered question	128		< 50	11	8.59%				
Skipped question	0		50-99	8	6.25%				
Academic qualifications	Response Count	Response Percent	100-199	10	7.81%				
Diploma. Pharmacy	12	9.38%	200-299	18	14.06%				
Bsc. Pharmacy	40	31.25%	300-399	16	12.50%				
Master of Science	27	21.09%	400-499	20	15.63%				
Doctor of Pharmacy	33	25.78%	= or > 600	23	17.97%				
Two years Residency (R1)	4	3.13%	Medical City	22	17.19%				
Three years Residency (R2)	9	7.03%	Answered question	128					
Ph. D	14	10.94%	Skipped question	0					
M.B.A.	8	6.25%	The hospital accreditation	Response Count	Response Percent				
Other (please specify)	5	3.91%	СВАНІ	84	73.04%				
Answered question	128		Joint Commotion USA	68	59.13%				
Skipped question	0		Canada	12	10.43%				
			Saudi Council	40	34.78%				
			None	5	4.35%				
			Answered question	115					
			Skipped question	13					

a limitation of this study. Furthermore, responding to electronic survey was limited. Further periodic studies with more extensive coverage to all healthcare services and standardized system among the pharmacists to document their interventions are highly recommended in the KSA.^{11,13}

ACKNOWLEDGEMENT

None.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

ABBREVIATIONS

MOH: Ministry of Health; **KSA:** Kingdom of Saudi Arabia; **CBAHI:** Saudi Central Board for Healthcare Accreditation; **ICU:** Intensive Care Units; **ADRs:** adverse drug reactions; **IRB:** Institutional Review Board.

ORCID

Yousef Ahmed Alomi https://orcid.org/0000-0003-1381-628X

REFERENCES

- Simonian AI. Documenting pharmacist interventions on an intranet. Am J Heal Pharm. 2003;60(2):151-5.
- 2. Lada P, Delgado G. Documentation of pharmacists' interventions in an

Table 2: The responder experience in the field of pharmacy practice.						
Years of Experiences in Pharmacy	Response Count	Response Percent				
< 1 year	15	11.72%				
1 – 3 years.	19	14.84%				
4-6 years.	17	13.28%				
> 6 year	77	60.16%				
Answered question	36					
Skipped question	0					
Years of Experiences in Clinical Pharmacy	Response Count	Response Percent				
< 1 year	21	16.54%				
1 – 3 years.	19	14.96%				
4-6 years.	15	11.81%				
> 6 year	26	20.47%				
Non	46	36.22%				
Answered question	127					
Skipped question	1					
Years of Experiences in Pharmacy Administration	Response Count	Response Percent				
< 1 year	19	15.20%				
1 – 3 years.	17	13.60%				
4-6 years.	13	10.40%				
> 6 year	39	31.20%				
Non	37	29.60%				
Answered question	125					
Skipped question	3					

Answer Options		Yes Manually		Yes electronically		No	Response Count
Date of intervention	60	46.88%	76	59.38%	8	6.25%	128
Pharmacist's name/identification	54	42.52%	81	63.78%	8	6.30%	127
Place where intervention was made	55	42.97%	79	61.72%	13	10.16%	128
Classification of intervention	56	44.09%	75	59.06%	13	10.24%	127
Medication name	52	40.63%	85	66.41%	10	7.81%	128
A brief description of intervention (free text area)	53	41.73%	88	69.29%	7	5.51%	127
Patient NHI/identification	49	38.58%	82	64.57%	15	11.81%	127
Consultant name/identification	49	38.58%	78	61.42%	15	11.81%	127
Reason for making the intervention	54	42.52%	83	65.35%	11	8.66%	127
Severity/ranking of intervention	42	33.07%	70	55.12%	31	24.41%	127
Intervention accepted or declined by other health professional	43	33.59%	72	56.25%	29	22.66%	128
Time spent on intervention	32	26.02%	57	46.34%	48	39.02%	123
Effect on cost saving	33	26.40%	50	40.00%	54	43.20%	125
Drug class/therapeutic classification		32.80%	67	53.60%	34	27.20%	125
answered question							128
skipped question							0

Table 4: Clinical impact and cost avoidance documentation of pharmacist intervention.									
Answer Options	Adults		F	Pediatrics		Neonates		Never	Response Count
Medication errors	71	55.47%	52	40.63%	37	28.91%	52	40.63%	128
Adverse drug reactions	87	67.97%	64	50.00%	48	37.50%	35	27.34%	128
Drug quality reporting	87	69.05%	61	48.41%	47	37.30%	35	27.78%	126
Patient counseling	86	67.72%	60	47.24%	37	29.13%	37	29.13%	127
Pharmacist intervention	93	72.66%	72	56.25%	52	40.63%	31	24.22%	128
Drug information inquiries	88	68.75%	66	51.56%	55	42.97%	36	28.13%	128
Poisoning information inquiries	70	55.12%	57	44.88%	46	36.22%	49	38.58%	127
Medication Reconciliation	83	65.35%	65	51.18%	48	37.80%	38	29.92%	127
answered question									128
skipped question	skipped question								0

Table 5: Documentation of pharmacist intervention perception.

Answer Options	Yes		No		l do not know		Response Count
Are you welling for your document the intervention	98	76.56%	12	9.38%	20	15.63%	128
Are you getting benefit from the intervention documentation	84	66.67%	23	18.25%	22	17.46%	126
answered question							128
skipped question							0

Table 6: The	barriers of	pharmacist	intervention	documentation.

Answer Choices	Response Count	Response Percent
Lack of time	98	76.56%
There is no benefit	24	18.75%
There is no analysis of documentations	41	32.03%
There is no system of pharmacist intervention documentation	43	33.59%
The physician refuse to document pharmacist intervention	33	25.78%
The nurse refuse to document pharmacist intervention	17	13.28%
The staff is not enough	0.78%	14.96%
No follow up and motivation	0.78%	11.81%
The physician is not responding to the bleep or call	0.78%	20.47%
Answered question	128	
Skipped question	0	

emergency department and associated cost avoidance. Am J Heal Pharm. 2007;64(1):63-8.

- DiVall DMV, Zikaras DB, Copeland DD, Gonyeau DM. School-wide Clinical Intervention System to Document Pharmacy Students' Impact on Patient Care. Am J Pharm Educ. 2010;74(1):1-14.
- Alomi YA, Alshabaar N, Lubad N, Albusalih FA. Inpatient Medication Errors and Pharmacist Intervention at Ministry of Health Public Hospital, Riyadh, Saudi Arabia. Pharmacol Toxicol Biomed Reports. 2019;5(1):44-8.
- Alomi1 YA, Fallatah AO, Al-Shubaar N, Qohal AA, Alameer LY. The Clinical Outcomes of Pharmacist Interventions in Total Parenteral Nutrition services in Riyadh City, Saudi Arabia. Int J Pharm Heal Sci. 2019;2(2):135-40.
- Alomi YA, Fallatah AO, Bahadig FA, Qahtani AAAL. The Economic Outcomes of Pharmacist Interventions in Total Parenteral Nutrition Services in Saudi Arabia.

Pharmacol Toxicol Biomed Reports. 2019;5(3s):S40-9.

- Alanazi1 AA, Alomi YA, Almaznai MM, Aldwihi M, Aloraifi IAK, Albusalih FA. Pharmacist's Intervention and Medication Errors Prevention at Pediatrics, Obstetrics and Gynecology Hospital in East Province, Saudi Arabia. Int J Pharm Heal Sci. 2019;2(2):122-8.
- Ling JM, Mike LA, Rubin J, Abraham P, Howe A, Patka J, et al. Documentation of pharmacist interventions in the emergency department. Am J Heal Pharm. 2005;62(17):1793-7.
- Fox BI, Felkey BG, Berger BA, Krueger KP, Rainer RK. Use of personal digital assistants for documentation of pharmacists' interventions: A literature review. Am J Heal Pharm. 2007;64(14):1516-25.
- Vo TH, Bardet JD, Charpiat B, Leyrissoux C, Gravoulet J, Allenet B, *et al.* Validation of a tool for reporting pharmacists' interventions in everyday community pharmacy. J Clin Pharm Ther. 2018;43(2):240-8.
- McNicol M, Kuhn C, Sebastian S. Standardized documentation workflow within an electronic health record to track pharmacists' interventions in pediatric ambulatory care clinics. J Am Pharm Assoc. 2019;59(3):410-5.
- Maes KA, Studer H, Berger J, Hersberger KE, Lampert ML. Documentation of pharmaceutical care: Validation of an intervention oriented classification system. J Eval Clin Pract. 2017;23(6):1425-32.
- Kim Y, Schepers G. Pharmacist Intervention Documentation in US Health Care Systems. Hosp Pharm. 2003;38(12):1141-7.
- Canaday BR, Yarborough PC. Documenting pharmaceutical care: Creating a standard. Ann Pharmacother. 1994;28(11):1292–6.
- Alomi Y, Bakaerman N. Documentation pattern of clinical pharmacist intervention, Riyadh, Saudi Aarbia. In: ACCP Annual Meeting, October, USA. 2007.
- Alomi YA, Alghamdi SJ, Alattyh RA. National Pharmacist Intervention Documentation System at the Ministry of Health in Saudi Arabia. Pharmacol Toxicol Biomed Reports. 2019;4(3):31-3.
- The Office for Human Research Protections. Human Subject Regulations Decision Charts. Chart. 2016 [cited 2019 Nov 4]. Available from: https://www.hhs. gov/ohrp/regulations-and-policy/decision-charts/index.html
- ASHP. ASHP Statement on Pharmaceutical Care. Am J Hosp Pharm. 1993;50:1720-3.
- American Society of Health-System Pharmacists. ASHP guidelines on a standardized method for pharmaceutical care. Am J Heal Pharm. 1996;53(14):1713-6.
- Alomi YA, Alghamdi SJ, Alattyh RA, Elshenawy RA. The Evaluation of Pharmacy Strategic Plan in Past 2013-2016 and Forecasting of New Vision 2030 at Ministry of Health in Saudi Arabia. J Pharm Pract Community Med. 2018;4(2):93-101.
- 21. Alomi YA. New Pharmacy Model for Vision 2030 in Saudi Arabia. J Pharm Pract

Community Med. 2017;3(3).

- Government of Saudi Arabia. Saudi Arabia Vision 2030. 2016. Available from: https://vision2030.gov.sa/sites/default/files/report/Saudi_Vision2030_EN_2017. pdf
- MOH S. National E- Health Strategy MOH Initiatives 2030. Ministry of Health Website. 2017. Available from: https://www.moh.gov.sa/en/Ministry/nehs/Pages/vision2030.aspx
- Nurgat ZA, Al-Jazairi AS, Abu-Shraie N, Al-Jedai A. Documenting clinical pharmacist intervention before and after the introduction of a web-based tool. Int J Clin Pharm. 2011;33(2):200-7.
- Simonian AI. Documenting pharmacist interventions on an intranet. Am J Heal Pharm. 2003;60(2):151–5.
- Rector KB, Veverka A, Evans SK. Improving pharmacist documentation of clinical interventions through focused education. Am J Heal Pharm. 2014;71(15):1303-10.