

RESEARCH ARTICLE

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National Survey of Drug Information Centers practice: Leadership and Practice management at Ministry of Health Hospital in Saudi Arabia

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Abstract

Objective: To explore the National Survey of Drug Information Centers practice in Saudi Arabia: Leadership and Practice management at Ministry of Health hospital. **Method:** It is a cross-sectional four months national survey of Drug Information Services at Ministry of Health hospital. It contained ten domains with 181 questions designed by the authors. It was derived from Internal Pharmaceutical Federation, American Society of Health-System Pharmacists best practice guidelines. This survey was distributed to forty hospital pharmacies that run drug information services. In this study, domain of Drug Monitoring and Patient Counselling System explored and analyzed. It consisted of eight questions about the written policy and procedure and application methods for Leadership and Practice management in the drug information centers. All analysis was done through survey monkey system. **Results:** The survey distributed to 45 of hospitals, the response rate, was 40 (88.88%) hospitals. The highest score of the DIC had policy and procedures with a clear mission, vision, and values were Evidence of valid Saudi Council of Health Specialties license to practice in Saudi Arabia did not exist in 3 (7.5%) hospitals while 30 (75%) of hospitals 100% applied the elements. The highest score of the Drug information centers had a space, adequate furniture, hours of operation were determined and announced as well as there was a qualified and licensed staffing. All Drug Information Centers staff had valid licenses from Saudi Commission for Health Specialties to practice in Saudi Arabia, did not exist in 6 (15%) hospitals while 30 (75%) of hospitals 100% applied the elements. The highest score of the Drug Information Centers Supervisor, reports workload statistics to the appropriate and leadership number of Full Time Employee staff and actual workload published was the answering question depends on the priority of the question did not exist in 6 (15%) hospitals while only 22 (55%) of hospitals 100% applied the elements. The highest score of the Drug Information Centers showed evidence of Quality Improvement, and the process for Drug Information Centers Networking. The reporting any questionable drug quality to Pharmacy director, did not exist in 4 (10 %) hospitals while only 25 (62.5%) of hospitals 100% applied the elements. **Conclusion:** There were an acceptable implementation leadership and practice management in drug information centers practice. The drug information centers workload analysis and quality management should improve. Drug information centers network indication required an implementation to improve the services at Ministry of Health hospital in Kingdom of Saudi Arabia.

Keywords: Drug Information Centers, Leadership, Practice management, Saudi Arabia.

INTRODUCTION

The drug information services started in the 19960s in the United States of America (USA) and United Kingdom (UK) Followed by several countries [1-4]. In the late 1980s and early 1990s, the drug information services established at hospitals in the kingdom of Saudi Arabia; with emphasis on Ministry of Health hospitals [5]. The role of drug information pharmacist well set up in the literature [6]. The analysis of drug

information inquiries and cost avoidance published before more than thirty years while before a couple of years in and recently cost efficiency in Saudi Arabia [7,8]. The investigation of a group of drug information centers in one county and network or several countries have done for more than twenty years in the USA and for more than ten years in Europe and Singapore [1,2,4,9-10]. Majority of the studies in the world surveyed drug information centers consisted of the type of activities for drug information centers, the number,

and classification of drug information inquiries. The workforces of drug information pharmacists, the resources of drug information centers, the documentation system of drug information centers, and response time of drug information inquiries were included. However, not all previous studies included detail about drug information activities or drug information policy for each activity. The authors are not familiar with any published literature about that. Also it hard to find a survey of drug information centers in Saudi Arabia or Gulf and Middle East countries. The objective of the study was to explore the National Survey of Drug Information Centers practice in Saudi Arabia: Leadership and Practice management.

METHODS

It is a national survey of Drug Information Centers (DIC) Services at MOH. It contained ten domains; Leadership and Practice Management, Medication Addition and Deletion System, Hospital Formulary System, Medication Safety System, Professional, and Public Education. The Evidence-Based Medicine-Therapeutics Guidelines (EBM-TG), Medication-Use Evaluation, Pharmacoeconomics System, Investigational Drug Services (IDS) and Professional Publications Services (PPPS), and Ethical and Legal Issue. It consisted of 181 questions designed by the authors. It drove from Internal Pharmaceutical Federation (FIP), American Society of Health-System Pharmacists best practice guidelines, the international standard of Joint Commission of Hospital Accreditation, in addition to the local standards of Saudi center of health care accreditation and minimum standards of drug information centers in Saudi Arabia [6,11-14]. This survey distributed to forty hospital pharmacies that run drug information services. The information of hospitals services taken from extensive records of General Administration of pharmaceutical care. In this study, the domain Leadership and Practice Management System explored and analyzed. It consisted 39 question about the written policy and procedure for Leadership and Practice management implementations. It included Leadership and practice management; The DIC has a clear mission, vision, and values. The DIC space is furniture adequate. Hours of operation were determined, announced, and followed. The DIC had qualified and licensed staffing, The DIC Supervisor, reports workload statistics to the appropriate and leadership number of FTE (Full Time Equivalent) staff and actual workload published. The DIC showed evidence of Quality Improvement, and DIC had a process for DIC Networking. All analysis were done through survey monkey system.

RESULTS

The survey was distributed to 45 of hospitals, the response rate, was 40 (88.88%) hospitals. The survey

distributed to 45 of hospitals, the rate of reply, was 40 (88.88%) hospitals. Of that 35 % large hospitals, 37.5 % medium size hospitals, 17.5 % small size hospitals, and 10 % National and Regional Drug Information Centers. OF those, fifteen hospitals only accredited by CIBAHI and eight hospitals only accredited by Joint commission while none of all them accredited by ASHP or Canada. The majority of responders were Saudi 38 (95%), and 28 (70%) were male gender, and 12 (30%) were female as explored in table 1. The highest score of the DIC had policy and procedures with a clear mission, vision, and values were Evidence of valid Saudi Council of Health Specialties license to practice in Saudi Arabia did not exist in 3 (7.5%) hospitals while 30 (75%) of hospitals 100% applied the elements. Followed by DIC head had signed an updated job description did not exist in 4 (10%) hospitals while 27 (67.5%) of hospitals 100% applied the elements and The DIC head had updated staff curriculum vitae did not exist in 3 (7.5%) hospitals while 26 (65 %) of hospitals 100% applied the elements as explored in table 2. The highest score of the Drug information centers had a space, adequate furniture, hours of operation were determined, announced and there was qualified licensed staffing. All DIC staff had valid licenses from Saudi Commission for Health Specialties to practice in Saudi Arabia did not exist in 6 (15%) hospitals while 30 (75%) of hospitals 100% applied the elements. All staff had a current job description did not exist in seven (17.5%) hospitals while 30 (75%) of hospitals 100% applied the elements as explored in table 3. The highest score of The DIC Supervisor, reports workload statistics to the appropriate and leadership number of FTE (Full Time Equivalent) staff and actual workload published was The answering question depends on the priority of the question did not exist in 6 (15%) hospitals while only 22 (55%) of hospitals 100% applied the elements. Followed by the DIC had the manual or electronic documentation system of its activity did not exist in 8(20 %) hospitals while only 17 (42.5%) of hospitals 100% applied the elements. The monthly workload reported for Drug Information Center did not exist in 8 (20%) while only 16 (40%) of hospitals 100% applied the elements as explored in table 4. The highest score of The DIC shows evidence of Quality Improvement, and DIC has a process for DIC Networking was Reporting any questionable drug quality to Pharmacy director did not exist in 4 (10 %) hospitals while only 25 (62.5%) of hospitals 100% applied the elements. Followed by the drug information centers had system Immediately reporting life-threatening issues to the Pharmacy Director and hospital TQM department did not exist in 6 (15 %) hospitals while only 17 (42.5%) of hospitals 100% applied the elements. Moreover, having standards for all the DIC care process did not exist in 4 (10 %) hospitals while only 15 (37.5%) of hospitals 100% applied the elements as explored in table 5.

DISCUSSION

The first edition and updated second one of Saudi Board for Accreditation of Healthcare organization in the kingdom of Saudi Arabia and joint international commission of hospital accreditation in the USA required the set policy and procedures for all pharmacy services including drug information centers [12-13]. The primary drug information center at MOH hospital started in the late 1980s and early 1990s. It was without vision or mission or job description or policy and procedures. In late 1990, the author assigned as director of the pharmacy at the biggest hospital in the MOH with more than 1000 beds. The authors implemented the policy and procedures if drug information center, and electronic documentation of drug information inquiries. In 2008 during the regional drug and poisoning information center established the full pictures of vision, mission, values, job description, policy and procedures developed and implemented [15]. In addition to establishing, the minimum started of drug information center [14], in 2012 the policy and procedures of all pharmacy services at MOH organization carried out with the approval of MOH minister [16]. In 2012, during the implementation of pharmacy strategic plan all leadership and administration of drug information center updated [5]. The authors tried to investigate with a survey of drug information centers at MOH hospital several domains with emphasis on Leadership and Practice management related issues. The finding showed that the drug information centers policy and procedures were good while workload documentation system and drug information quality management were low implementations. The drug information space furniture, and staff pharmacist was intermediate presented at hospital pharmacies. The part of the mission, vision value section our finding is lower than what reported by Rosenberg, J M et al. with a mission only [2]. Vision or value and other elements were not mentioned. The reason behind of lower than united stated report the network of drug information centers recently stated at MOH hospitals and despite that, the results were acceptable. The 24-hour coverage of drug information centers finding is better than the study by Gallo, Gary R et al. [3] and lower what reported by Rosenberg, J M et al. with a mission only [2]. That is due to shortage of drug information centers staff to cover 24 services while all of them covered 8 hours full time and newly established most of the drug information centers and difficult to cover more than 8 hours. Also, there was national drug information center through MOH hotline 937 services over 24 hours coverage, and most of the pharmacist participated in this activities[18]. The findings of qualifications of a pharmacist working at drug information centers most of them had bachelor's degree, and few Pharm D graduated as compared with the study by Gallo, Gary R et al. [3]. That is because

the college of pharmacy before 5-10 years stated Pharm d entry level and most of our graduate had not pharm D. Another finding of drug information center quality management or workload analysis cannot compare with studies it was not invigorated.

CONCLUSION

The network of drug information centers with policy and procedures is acceptable level while drug information quality management and documentation of workload analysis were inadequate. Education and training with the close flow of drug information indicators are required to improve leadership and practice management of drug information centers at MOH hospitals in Kingdom of Saudi Arabia.

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Conflict of interest: None

Abbreviation Used: KSA: Kingdom of Saudi Arabia, MOH: Ministry of Health, DIC: Drug Information Centers, IDS: Investigational Drug Services, PPPS: Professional Publications Services.

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Table 1: Demographic information of responders

Size, ownership, and accreditation of respondents			Nationality		Sex		Accreditation			
Hospital size (Number of staffed beds)	Number of hospitals	Percentages	Saudi	Non-Saudi	Male	Female	CIBAHI	JCI	Canada	ASHP
Small										
<50	1	2.5 %	1 (2.5%)	0 (0%)	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
50–99	6	15 %	6 (15%)	0 (0%)	6 (15%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Medium										
100–199	7	17.5 %	7 (17.5 %)	0 (0%)	6 (15%)	1 (2.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
200–299	8	20 %	7 (17.5 %)	1 (2.5%)	5 (12.5%)	3 (7.5%)	5 (25%)	2 (10%)	0 (0%)	0 (0%)
Large										
300–399	7	17.5 %	7 (17.5 %)	0 (0%)	4 (10%)	3 (7.5%)	4 (20%)	2 (10%)	0 (0%)	0 (0%)
400–599	7	17.5 %	6 (15%)	1 (2.5%)	5 (12.5%)	2 (5%)	6 (30%)	4 (20%)	0 (0%)	0 (0%)
More than or	0	0.00%	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Very Large										
Medical Cities	0	0.00%	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
National and Regional Drug Information	4	10.0 %	4 (10%)	0 (0%)	1 (2.5%)	3 (7.5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Missing No-Response	0	0.00 %	0 (0%)	0 (0%)	0 (0%)	0 (0%)	20 (50%)	20 (50%)	20 (50%)	20 (50%)

Total	40	100%	38 (95%)	2 (5%)	28 (70%)	12 (30%)	20 (50%)	20 (50%)	20	20
Ownership										
MOH-Hospitals	40	100%								
Non-MOH	0	0.00%								
Privates	0	0.00%								

Table 2: Drug information centers had policy and procedures							
Answer Options	1	2	3	4	5	Rating Average	Response Count
A Drug Information Center had established in the hospital Pharmacy or under Medical Affair and headed by a qualified DIC personal with appropriate experiences.	3	2	7	5	22	4.05	39
The DIC has a clear organization structure.	5	3	2	6	23	4.00	39
DIC head holds minimum Pharm.D. or Master with Board Certificate or Residency.	13	1	1	6	19	3.43	40
DIC head has signed an updated job description.	4	1	1	6	27	4.31	39
Evidence of valid Saudi Council of Health Specialties license to practice in Saudi Arabia.	3	1	1	5	30	4.45	40
The DIC head has updated staff curriculum vitae.	3	1	4	6	26	4.28	40
Evidence of work experience in hospital and DIC setting.	3	4	4	4	25	4.10	40
<i>answered question</i>							40
<i>skipped question</i>							0
The DIC has a clear mission, vision, and values							
The mission written, posted, and verbalized by DIC staff.	4	3	4	5	24	4.05	40
Vision is written, posted, and verbalized by DIC staff.	5	3	3	5	24	4.00	40
Values are written, posted, and verbalized by DIC staff.	5	3	3	5	24	4.00	40
<i>answered question</i>							40
<i>skipped question</i>							0
1: DIC is NOT applying the elements, 2: DIC is applying 25% of the elements, 3: DIC is applying 50% of the elements, 4: DIC is applying 75% of the elements, 5: DIC is applying 100% of the elements							

Table 3: The Drug information centers had space, furniture adequate. Hours of operation are determined, announced,							
Answer Options	1	2	3	4	5	Rating Average	Response Count
The space provided for DIC services allows the principal functions to carried out efficiently and effectively. Minimum 20-meter square recommended for a center staffed by 1 Equivalent Full-time Employee (FTE), an additional 5-10 meter square recommended for each additional one FTE staff member	9	9	5	7	10	3.00	40
It recommended to available Landline telephone, Internet line, Manual or online Fax, Computer, Scanner, Printer, Xerox Copy and Telephone Answer Machine and adequate furniture	6	4	6	13	11	3.48	40
Hours of operation of each DIC section defined in the policy and procedure announced within the hospital and posted at the DIC entrance.	5	4	6	4	21	3.80	40
Monthly work schedule written and announced.	7	2	5	5	21	3.78	40
<i>answered question</i>							40

<i>skipped question</i>							0
The DIC has qualified and licensed staffing.							
All DIC staff has valid licenses from Saudi Commission for Health Specialties to practice in Saudi Arabia.	6	2	1	1	30	4.18	40
All staff has a current job description.	7	0	2	1	30	4.18	40
Each staff signed his/her job description.	9	0	3	1	26	3.90	39
40% of DIC staff must be Clinical Pharmacist with minimum Pharm.D. or MSc Degree with Board Certificate and Special Training Program	14	6	3	2	15	2.95	40
<i>answered question</i>							40
<i>skipped question</i>							0
1: DIC is NOT applying the elements, 2: DIC is applying 25% of the elements, 3: DIC is applying 50% of the elements, 4: DIC is applying 75% of the elements, 5: DIC is applying 100% of the elements							

Table 4: The Drug information centers had a Supervisor reports workload statistics to the appropriate and leadership number of FTE (Full Time Equivalent) staff and actual workload published.

Answer Options	1	2	3	4	5	Rating Average	Response Count
Standard time for each function/task is determined.	11	2	10	5	12	3.13	40
The answering question depends on the priority of the question.	6	1	8	3	22	3.85	40
Monthly workload is reported for Drug Information Center.	8	2	8	6	16	3.50	40
Monthly workload is reported for MUE Services.	18	6	5	6	5	2.35	40
The monthly workload reported for Research and Clinical Trial Center.	22	3	7	4	4	2.13	40
Monthly workload reported for Patient and Family Education	14	6	9	6	5	2.55	40
Monthly workload is reported for activities (e.g. meetings, in-services, education lecture, etc.).	8	4	9	6	13	3.30	40
Workload statistics are reported monthly to the Pharmacy Director and the National Drug Information center at General Pharmaceutical Care Department through regional DI.	10	4	7	7	12	3.18	40
The DIC has the necessary workforce to operate the available service as evidenced by the workload statistics.	10	8	7	9	6	2.83	40
The DIC has the Manual or Electronic Documentation System of its activity.	8	4	5	6	17	3.50	40
<i>answered question</i>							40
<i>skipped question</i>							0
1: DIC is NOT applying the elements, 2: DIC is applying 25% of the elements, 3: DIC is applying 50% of the elements, 4: DIC is applying 75% of the elements, 5: DIC is applying 100% of the elements							

Table 5: The Drug information centers showed evidence of Quality Improvement

Answer Options	1	2	3	4	5	Rating Average	Response Count
Having standards for all the DIC care process.	4	5	7	9	15	3.65	40
Subjecting current standards to evaluation.	6	4	9	8	13	3.45	40
Developing and maintaining a plan and documented	7	3	11	8	11	3.33	40

performance and improvement of the program.							
Continually determining areas for improvement.	5	4	11	4	16	3.55	40
Immediately reporting life-threatening issues to the Pharmacy Director and hospital TQM department (e.g., morbidity, mortality, and teratogenicity), any new ADR or toxic events of new drugs.	6	2	9	6	17	3.65	40
Reporting any questionable drug quality to Pharmacy director.	4	2	8	1	25	4.03	40
<i>answered question</i>							40
<i>skipped question</i>							0
DIC has a process for DIC Networking and includes:							
Written policy and procedure for DIC Networking.	24	2	4	3	7	2.18	40
DIC Networking Monitoring system is available.	22	3	6	3	6	2.20	40
Intensive analysis is performed for all DIC Networking.	23	3	4	4	6	2.18	40
There is evidence of DIC Networking National and International.	23	4	3	4	6	2.15	40
Process for improving DIC Networking system.	19	7	5	3	5	2.18	39
<i>answered question</i>							40
<i>skipped question</i>							0
1: DIC is NOT applying the elements, 2: DIC is applying 25% of the elements, 3: DIC is applying 50% of the elements, 4: DIC is applying 75% of the elements, 5: DIC is applying 100% of the elements							

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