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Abstract

Background: The burden of chronic non-communicable diseases is challenging many countries that provide universal health coverage, which necessitates healthcare reform. Health information technology (IT) solutions can aid healthcare reform efforts. However, without proper information management, these efforts are futile. In this study, we examine Kuwait as a case of a high per-capita GDP country that faces information management challenges to draw insights that can be generalized to other developed countries. **Objectives:** (*i*) uncover the status-quo of information management practices in public hospitals and (*ii*) offer recommendations to improve them. **Methods:** This study analyzes qualitative and quantitative accreditation-related data pertaining to the compliance with the Information Management standard at all secondary-care public hospitals over two accreditation cycles. **Results:** Overall, public hospitals are making positive progress in their compliance with Information Management standard. However, issues exist with (*i*) developing and implementing an information management plan, (*ii*) involving the appropriate stakeholders in selecting health IT solutions, and (*iii*) access to the Internet by staff and patients. **Discussion:** The evidence underscores the importance of proper information management driven by clear centralized strategic plans. The role of health information management leaders in hospitals should not be sidelined. Embracing health IT solutions with strong information management practices can aid healthcare reform efforts.

Keywords (MeSH): Health Information Management, Kuwait, Health Informatics, Policy, Electronic Health Records.

1. Introduction

Healthcare systems around the globe face grand challenges that hinder their efforts to deliver care services effectively and efficiently while improving the health of the population (Vos et al., 2017).

Globally, the toll of chronic non-communicable diseases, e.g. diabetes and hypertension, has become virtually unbearable and the proliferation of these diseases among the growing populations threatens the economies of many countries (Arredondo and Aviles, 2015). Even in developed countries with universal health coverage, an affluent population, and a high per-capita GDP, these challenges continue to persist (Tordrup et al., 2013). Similar to many developed countries, the demand for healthcare services in the oil-rich State of Kuwait has been on the rise as its population continues to grow older and live longer (Gulseven, 2016; Younis et al., 2015). Additionally, the dramatic changes in the population's socioeconomic status in the post-oil era have promoted a sedentary lifestyle and a high-calorie diet (Al-Haifi et al., 2013; Allafi et al., 2014). Such lifestyle promotes the wide spread of non-communicable diseases such as diabetes (Awad and Alsaleh, 2015; Shaltout et al., 2017), hypertension (Channanath et al., 2013, 2015) and cardiovascular diseases (Alarouj et al., 2013), which are claiming large sums of money and, more importantly, the lives of many people (Mokdad et al., 2014).

In light of these challenges and the burden of rising costs, maintaining the status quo of universal access to healthcare cannot be maintained anymore. Hence, healthcare reform efforts became a top priority for healthcare system leaders globally, including resource-rich countries (Behbehani, 2014; Conway et al., 2014). Higher quality of care, improved health outcomes, and reduced costs are important targets for all healthcare reform efforts (Berwick et al., 2008). For achieving these targets, the successful and effective adoption of health information technology (IT) solutions, such as electronic

health records (EHRs), by healthcare institutions becomes paramount (Buntin et al., 2010; Koru et al., 2016). These solutions can enable the healthcare organization to better manage the information and improve care coordination among healthcare providers (Williams et al., 2017). Additionally, health IT solutions can collect and monitor dynamic quality measures over-time (Buntin et al., 2010) as well as eliminate duplication and waste in healthcare by making the results of prior diagnostic tests and interventions available at all points of care (Koppel R et al., 2005).

Unfortunately, recent evidence highlights limitations and quality issues related to data associated with these solutions such as incomplete records (Wright et al., 2015) or miscoded data (de Lusignan et al., 2010). Merely having an electronic record for a patient does not mean that the information in that record is sufficient for safe and effective healthcare practice (Weiskopf et al., 2013). Therefore, the adequate management and governance of health information is a necessary precursor to the effectiveness of health IT solutions. Ineffective information management will not aide healthcare reform efforts but rather create additional problems, increase hazards, and introduce additional barriers to realizing the benefits of healthcare reform (Zeng et al., 2009).

To date, little is known about the pressing challenges, gaps, and opportunities concerning information management practices in Kuwait's healthcare institutions. The aim of this empirical research is to (i) uncover the status-quo of information management practices in public hospitals and (ii) offer recommendations to improve these practices. The evidence from this research will inform several key

stakeholders such as hospital administrators, health information management professionals, informaticians, governments, and policymakers.

2. Background

The healthcare system in the State of Kuwait offers universal access to healthcare services with 70% of healthcare services being provisioned by the public or government sector represented by the Ministry of Health (MoH) (Kuwait Ministry of Health, 2015). This public healthcare system is distributed across Kuwait's six governorates and is organized into three levels: Primary, secondary, and tertiary. The primary healthcare centers, conveniently located in the residential areas across the country, provide the first line of primary care services and the entry point into the healthcare system. Secondary care is provided through six general hospitals, while tertiary care is provided via specialized and diseases-focused hospitals and centers (Regional Health Systems Observatory- EMRO, 2006). The workforce, clinicians and administrators, working in this system are multi-national and come from diverse educational and cultural backgrounds (Katoue and Ker, 2018).

To better manage health information, Kuwait has made significant investments in the digital health infrastructure since 2000 (Weber et al., 2017). A variety of health IT solutions have been implemented at MoH facilities (Alhuwail and Barnes, 2011), including EHRs at primary healthcare centers (Al-Azmi et al., 2006; Al-Jafar, 2013) and hospitals (Alquraini et al., 2007), as well as Picture Archiving and Communication Systems (Buabbas et al., 2016). However, the maturity and adoption levels of these

solutions vary greatly among healthcare facilities and to our knowledge no formal evaluation was performed to assess them. The higher education institutions in Kuwait, namely Kuwait University and the Public Authority for Applied Education and Training, train health information management professionals who will work in the medical records departments at the healthcare institutions. However, the remaining health and allied health professionals receive minimal information management training throughout their academic curriculum.

An important effort in moving health IT and health information management towards having a more impactful role in health delivery is reaching certain maturity milestones established by globally-recognized standards. The National Accreditation Program for Hospitals (NAPH) in Kuwait, established by the Quality and Accreditation Directorate (QAD) at MoH, provides means to facilitate improvements in health information management. The NAPH is concerned with improving care quality and enhancing patient safety through creating, implementing, monitoring, and evaluating programs and standards of quality and safety across all sectors of MoH.

The NAPH was established in 2008 and originated from Accreditation Canada's Client Centered Accreditation Program (Ladha-Waljee et al., 2014). The program is tailored to make it appropriate and applicable to the context of Kuwait's healthcare system and the nature of care services provisioned by MoH hospitals. The program provides a process for hospitals to assess, monitor and improve their performance on an ongoing basis. The program is composed of 12 standards that cover a wide range

of important areas and services such as human resources, clinical services, and information management.

Currently, there are debates in the literature about the value of accreditation and whether it is worth the time and money. Yet, many healthcare organizations and systems around the world are engaged in accreditation activities (Greenfield and Braithwaite, 2009). However, there is still no definitive evidence suggesting that accreditation brings no benefits (Ovretveit and Gustafson, 2003). In this paper, we focus on the benefits of compliance with the standards as a result of engaging in accreditation activities, and not necessarily the benefits or value of accreditation. We acknowledge that while compliance with accreditation standards does not a guarantee the attainment of superior quality, it establishes a baseline of minimum expectations that are required.

3. Methods

Approach and Data Sources

The convergent-design mixed methods approach is used to gain a comprehensive, context-specific, and rich understanding of the research topic (Guetterman et al., 2015). This approach allows for an integrative collection and analysis of both quantitative and qualitative data at similar times (Bazeley, 2012). Prior to data collection, the required ethical approvals were granted from the ethical review board at MoH. This study analyzes accreditation-related data from hospitals providing secondary care

services. Specifically, this study examines anonymous data collected by QAD at MoH pertaining to the compliance with the Information Management standard at each hospital. Refer to **Error! Reference ource not found.** for detailed information about the standard and its related criteria. The dataset contains numerical self-assessment scores and surveyors' scores in addition to the surveyors' comments over nine criteria as illustrated in Table 1. Overall, the dataset covers two accreditation cycles with cycle one taking place in 2012-2013 and cycle two taking place in 2016-2017.[1]

[insert Table 1]

Accreditation Process

Initially, organizations begin by completing a self-assessment survey evaluating their compliance with the set forth national standards on a predetermined 5-point scale ranging from 'no compliance' to substantial compliance'. This is followed by an on-site survey conducted by an expert team of healthcare professionals, or surveyors. The surveyors are MoH healthcare providers trained on the accreditation-related assessments and evaluations. The on-site surveys validate the hospitals' self-assessment scores and serve as a means of external peer review and validation. The surveyors' visits entail team interviews, touring the hospital, reviewing all relevant documentation, facilitating various focus group interviews, and finally completing the survey report. After the survey, organizations

[1] A 10th criterion related to indicators of performance for safety was introduced in the 2nd cycle. This criterion was not included in the analysis as its scores only form a baseline.

receive a report highlighting the results of the survey, the hospital's strengths, recommendations for improvement, and an accreditation decision. Organizations are encouraged to follow-up on the recommendations from the report and continue to make ongoing improvements to their services.

Participants

All public hospitals providing secondary care services are included (N=6). The hospitals' names are concealed to protect their identity given that they represent the entire population of public hospitals that provide secondary care services. For comparative purposes, a compound measure is developed to classify hospitals by size. This measure considers the number of beds and outpatient visits. The hospitals were ranked as small (n=2), medium (n=2), and large (n=2); Small hospitals have less than 400 beds and report less than 150,000 outpatient visits whereas large hospitals have 800+ beds and report 250,000+ outpatient visits.

Analysis

A basic descriptive analysis is performed on the numerical surveyor-reported scores. Across the two accreditation cycles and for each criterion along with its sub-parts, the differences in surveyors' scores were calculated. The surveyor scores are considered for calculations because the scores represent an evaluation by external experts and are based on evidence supplied by the hospital. Investigating the surveyor team scores is more reliable since scores are evidence-based as explained earlier. The

qualitative data formed by the surveyors' comments are used to support the evidence and justify the results. The Framework method (Gale et al., 2013) is used to analyze this qualitative data. The analysis was iterative, and the data were sorted, summarized, and synthesized in key themes according to the Information Management criteria.

4. Results

Information Management Practices

For an overview of hospitals' performance in each criterion of the Information Management standard spanning the two accreditation cycles, refer to 2. To protect the anonymity of hospitals, the size information cannot be disclosed. Interestingly, the results indicate no meaningful patterns related to the hospital's size or even the scope of services it provides. Overall, public hospitals in Kuwait are making positive progress in their information management practices over the span of accreditation cycles. Notably, criterion 1.0 and 3.0 are the least to witness big improvements over the two accreditation cycles. These two criteria refer to establishing and implementing an information management plan, instituting policies for data privacy and security. The accessibility to the World Wide Web by the clinical staff to obtain information that supports safe patient care is the one criterion that improved significantly. With respect to contributing data to external databases in accordance with laws or regulations, the majority of hospitals did exceptionally well and have either maintained their

high-level of compliance or improved it; Only H6[2] remained partially compliant. To illustrate the magnitude of change across the two cycles for each hospital, refer to Figure 1. The following is a brief review of the findings related to each criterion across hospitals.

[insert Table 2]

[insert Figure 1]

Information management plan – The majority of hospitals struggle to develop and implement an information management plan to meet their information needs. H1 and H4 have a deteriorating rate of improvement in complying with this criterion. Only H5 has substantial compliance in this regard. One issue is the need to engage all the relevant departments in developing this plan. One survey team suggests that the "information management plan needs to be developed in collaboration with other clinical and professional departments" – (s4).[3] There is also a need to "integrate the information management with clinical and administrative services" – (s2). Another survey team notes that "comprehensive plans, policies and protocols need to be written down, and communicated to staff and later monitored" – (s3). The data also indicates that some hospitals need to improve and increase the availability of training about information management to all staff members, both clinical and non-clinical staff; "The team is encouraged to develop comprehensive schedule for education and training in information management" – (s6).

[2] H refers to hospital followed by the number assigned to it in this study.
[3] Indicates a representative quote from the survey team comments.

Technology selection – Only two hospitals, H4 and H5, involve the appropriate clinical, managerial, and information technology staff in the selection and integration of health IT systems and solutions for the hospital. While the remaining hospitals show improvements in compliance with this criterion, H1 regressed. Additionally, H6 shows improvement in compliance, however, partially. The survey teams encourage to "involve the departments appropriately in the selection of information technology" – (s2).

Data privacy and security – The majority of hospitals excel in protecting the privacy and security of the information. Only H6 remains at a medium compliance with this criterion. Interestingly, H2 and H5 show declining rates of improvement in this matter. Some of the issues noted by the survey team include the lack of policies that restrict unauthorized access to patients' records; "Develop and implement a policy to ensure a restricted access for authorized staff to medical records" – (s6). Additionally, the data about some hospitals indicates the absence of a back-up system for patient records, whether paper or electronic. The survey teams suggest the "establishment of a back-up data system" – (s2). Surveyors also advise that clients' trust in the hospital's ability to protect information is critical; "To gain the trust of the hospital client, hospital should improve medical record management." – (s4).

Information transfer – In this criterion, all hospitals improved their processes related to transmitting data effectively and efficiently. Only H3, H4, and H5 have functioning EHRs and hence their high levels of compliance with this criterion as noted by the surveyors. The lack of electronic systems such

as EHRs, laboratory information systems, and radiology information systems, contribute to lower levels of efficiency and sometimes ineffective information transfers; "Lack of the electronic medical file system or Hospital Information System is a challenge to share information" – (s6).

Aggregating information – Two thirds of hospitals (n=4) show improvements in compliance with this criterion, which in turn is concerned with aggregating information and data to support patient care, administrative decision making and quality improvement initiatives. However, H1 showed a decline in compliance while H6 shows no improvement and remains partially complaint. This is largely attributed to the lack of electronic informatics solutions; "No comprehensive computerized hospital wide system yet" – (s2). Survey teams suggest that "electronic data management need to be implemented to improve acquisition of data" – (s4)

Analytics for decision-making – For this criterion, nearly all hospitals improved their compliance attainment. However, for H1, the compliance dropped to a low level of compliance (from up to 75% to up to 25%). One survey team indicates that the "data collected is not fully utilized towards generating more reports to improve decision-making by administration" – (s3).

Information exchange – All hospitals show improvement with respect to contributing data and information to serve the various statistical reports generated by MoH as well as external databases in accordance with laws or regulations. Only H6 remains in medium compliance with this criterion. One

survey team suggests that an integrated informatics solution across the hospital can "help improve efficiency and communication" – (s5).

Access to Internet – All hospitals indicate improvements with providing access for staff to obtain information that can support safe patient care. Only H5 is substantially complaint with this criterion. The remaining hospitals report minor to medium compliance. One survey team indicate issues with monitoring and enforcing appropriate use policies for the Internet; "We recommend compliance and monitoring Internet use policy" – (s1). Another team suggests that access to the Internet should be also made available to patients; "To provide Internet to staff and clients" – (s1).

Quality and safety performance indicators – The evidence suggests that all hospitals identify the required indicators of performance for quality in their information management efforts and monitor them as part of their quality improvement activities. Only H3 and H5 are substantially compliant, while H6 remains in minor compliance with the criterion.

Other issues – Survey teams report several other challenges that are relevant to information management. The diversity of the languages spoken by the hospital's staff can be a barrier to the effective implementation of information management; "Challenges: There are language barriers, especially for information management, human resources pose challenges" – (s6). The evidence also suggests misalignment between strategic and operational plans, which in turn can negatively impact

information management; "Area for Improvement: The linkage between strategic and operational plans among the senior leaders and staff" – (s3).

5. Discussion

The results from this study indicate an overall positive improvement in compliance with the Information Management standard by hospitals providing secondary care services. This improvement could be the result of becoming more aware of the standard and the attempts by hospitals to attain higher levels of compliance (Devkaran and O'Farrell, 2014).

The effectiveness of information management practices is dependent on formulating, communicating, and adhering to a clear strategic plan. The evidence suggests that hospitals without a clear or comprehensive information management plans, which are inclusive of all the stakeholders, are not able to attain the desired levels of compliance with the information management standard. This shows the grand importance of having a comprehensive information management plan that aligns with existing national strategies.

Currently, in Kuwaiti public hospitals, there is no designated leadership position responsible for information management practices across the hospital. While the information systems/technology vendors or departments at hospitals often assume this function, they remain mainly focused on supporting the technology infrastructure. In turn, this creates a huge gap in supporting safe patient-centered care via good health information management (Snyder et al., 2011).

Additionally, the results indicate that some hospitals need to improve the availability and accessibility to information management training to all staff members. Without properly investing in training the staff on the important aspects of information management practices as well as the proper use of technology tools/systems, hospitals will not reap the benefits and their information management efforts will likely be wasted or at best under-utilized (McAlearney et al., 2012). Ongoing professional training and mentorship should also be available to the professionals working in the medical records department (Bates et al., 2014).

Preserving the security and confidentiality of data and information is a primary concern for hospitals globally. With rising rates of adopting health informatics solutions, cybersecurity has been a major topic of interest (Kuo et al., 2014; Perakslis, 2014). The evidence points that hospitals have improved their security practices related to information management, however, it is concerning that hospitals are still facing issues with unauthorized access to patients' physical records. Adopting EHRs with the appropriate privacy and security mechanisms in place can be an effective solution (Fernández-Alemán et al., 2013).

As highlighted from the surveyors' comments, organizations who adopt and deploy integrated informatics solutions, such as EHRs, have better scores compared with their peers who do not. However, the current levels of adoption and maturity of health informatics solutions in Kuwait are limited (Weber et al., 2017). While some hospitals have some electronic solutions such as EHRs or laboratory information system, these solutions are operating in a silo and do not interface with other

systems in or outside the hospital. Hospitals should adopt, implement, and maintain integrated health informatics solutions to support the various functions within the hospital as well as outside of the hospital and across the nation.

Towards More Digitally-Mature Healthcare Systems

With the rapid advances in the adoption of digital health tools and systems, it becomes paramount that healthcare leaders develop and embrace a digitally-enabled health informatics strategy. If not already in place, regulators should spearhead and develop a national strategic digital health and informatics plan that encompasses information management. Throughout its lifecycle, the plan should be inclusive of all relevant stakeholders, including patients and their advocates.

Additionally, healthcare institutions should be involved in continuous assessments to uncover their digital health maturity. These assessments will allow the institutions to uncover their strengths, highlight areas for improvement, and aid in prioritizing which issues or areas to focus on. The HIMSS EMRAM evaluation (Pettit, 2013) and the NHS Digital Maturity assessment (Johnston, 2017) are examples of such assessments that can be used.

Moreover, clinical informatics leadership roles, i.e. Chief Clinical Informatics Officer, and Chief Nursing Informatics Officer, should be clearly defined and integrated into the organizational structure of the healthcare institution (Kannry et al., 2016). Academic institutions should also prepare to meet the demand for these roles and integrate health information management and informatics training into

the academic curriculum for all health and allied-health disciplines (Cooper, 2009). This will help prepare the future workforce to work with digital health solutions and truly embrace the power that these solutions provide for enhancing healthcare delivery.

Strength and Limitations

The evidence uncovered in this study was captured by healthcare professionals with a wealth of experience working at MoH and was performed consistently over two cycles with several years between the cycles. The dataset is rich with both quantitative data (self-reported hospital score and surveyors' score) and qualitative data (comments from survey team). However, some interesting phenomena could not be further explored such as reasons why a hospital declined in a complying with a specific criterion. Also, the dataset does not systematically evaluate the informatics infrastructure and setup at the time of the survey to better understand the information management context and the level of its automation. Rich feedback from the healthcare organizations and their views about information management challenges and opportunities can be valuable. Lastly, the results can be informative for policymakers and hospital administrators in Kuwait when evaluating their information management practices. However, given the similarities between the healthcare system in Kuwait and many of the developed countries, (e.g. many of the Economic Co-operation and Development (OECD) countries), the findings can potentially be applicable. However, careful consideration of the contextual determinants is required before assuming generalizability.

6. Conclusion

The socio-economic context and the challenges facing the healthcare system in the State of Kuwait, as well as many developed countries, necessitates careful consideration of information management practices in healthcare institutions. The role of health information management in aiding healthcare reform efforts can no longer be postponed or ignored. Today, digital health solutions that are governed by strong health information management act as the circulatory system of the modern healthcare system 'transporting' the necessary information to the various parts of this system. When the arteries of this system are 'constricted' or 'clogged' with absent, fragmented, inefficient, or isolated information management practices or systems, the consequences are dire! It is time to reform healthcare through strong information management governance powered by informatics.

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Conflict of Interest

The Authors declare that there is no conflict of interest.

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Appendix 1

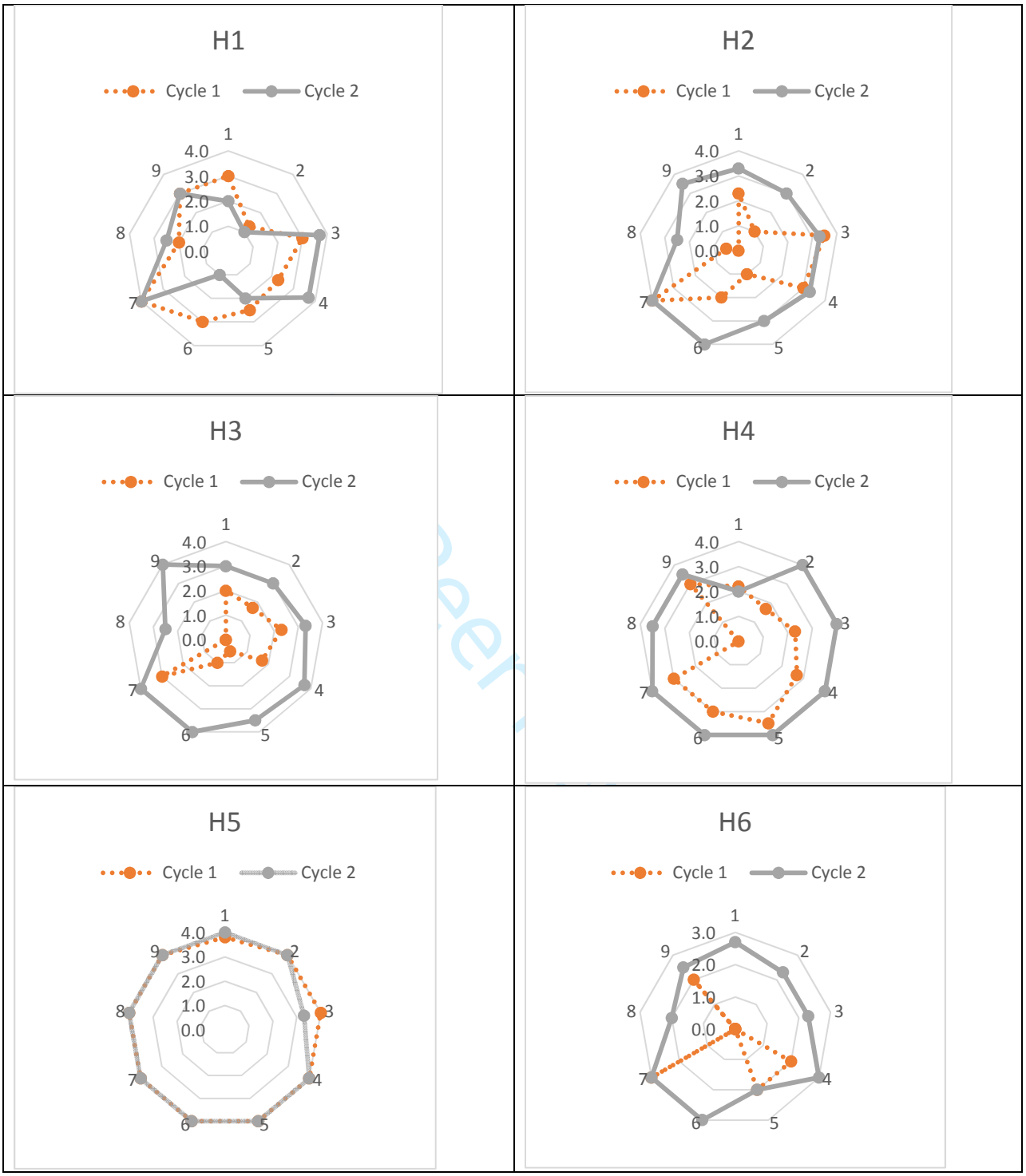

Figure 1: Radar diagram for each hospital with respect to its progress in attaining the criteria in the Information Management standard across the two accreditation cycles.

Table 1: Criteria of the Information Management standard considered in this study.

Criterion Number	Label	Criterion Description*
1.0	*Information management plan*	Management develops and implements an information management plan to meet the information needs of all hospital services.
2.0	*Technology selection*	Appropriate clinical, managerial, and information technology staff participate on behalf of the hospital in selecting, integrating, and using information management technology.
3.0	*Privacy & security*	There are processes to ensure security and confidentiality of data and information.
4.0	*Information transfer*	There are processes for effectively and efficiently transmitting data.
5.0	*Aggregating information*	There are processes for aggregating clinical and administrative data.
6.0	*Analytics for decision-making*	Management uses information to make decisions, strategically plan, and identify and prioritize quality improvement initiatives.
7.0	*Information exchange*	The hospital contributes to external data bases in accordance with laws or regulations.
8.0	*Access to Internet*	There is internet access for staff to obtain information which supports safe patient care.
9.0	*Quality and safety performance indicators*	Indicators of performance for quality and safety are identified for information management and are monitored as part of the quality improvement and safety activities.

* Descriptions are extracted from the Information Management Standard. Refer to Appendix 1.

Table 2: Rate of compliance with Information Management criteria for each hospital between accreditation cycles.

Criterion	H1	H2	H3	H4	H5	H6	Average
(1) Info. Mgmt. Plan							
Cycle 1	3.0	2.3	2.0	2.2	3.8	0.0	**2.2**
Cycle 2	2.0	3.3	3.0	2.0	4.0	2.7	**2.8**
% Δ*	-20.0%	20.0%	20.0%	-4.0%	4.0%	54.0%	**12.3%**
(2) Tech. Selection							
Cycle 1	1.3	1.0	1.7	1.7	4.0	0.0	**1.6**
Cycle 2	1.0	3.0	3.0	4.0	4.0	2.3	**2.9**
% Δ*	-6.0%	40.0%	26.0%	46.0%	0.0%	46.0%	**25.3%**
(3) Privacy & Security							
Cycle 1	3.0	3.5	2.3	2.3	4.0	0.0	**2.5**
Cycle 2	3.7	3.3	3.3	4.0	3.3	2.3	**3.3**
% Δ*	14.0%	-4.0%	20.0%	34.0%	-14.0%	46.0%	**16.0%**
(4) Info. Transfer							
Cycle 1	2.3	3.0	1.7	2.7	4.0	2.0	**2.6**
Cycle 2	3.7	3.3	3.7	4.0	4.0	3.0	**3.6**
% Δ*	28.0%	6.0%	40.0%	26.0%	0.0%	20.0%	**1.0**
(5) Aggregating Info.							
Cycle 1	2.5	1.0	0.5	3.5	4.0	2.0	**2.3**
Cycle 2	2.0	3.0	3.5	4.0	4.0	2.0	**3.1**
% Δ*	-10.0%	40.0%	60.0%	10.0%	0.0%	0.0%	**16.7%**
(6) Analytics							
Cycle 1	3.0	2.0	1.0	3.0	4.0	0.0	**2.2**
Cycle 2	1.0	4.0	4.0	4.0	4.0	3.0	**3.3**
% Δ*	-40.0%	40.0%	60.0%	20.0%	0.0%	60.0%	**23.3%**
(7) Info. Exchange							
Cycle 1	4.0	4.0	3.0	3.0	4.0	3.0	**3.5**
Cycle 2	4.0	4.0	4.0	4.0	4.0	3.0	**3.8**
% Δ*	0.0%	0.0%	20.0%	20.0%	0.0%	0.0%	**6.7%**
(8) Internet Access							
Cycle 1	2	0.5	0	0	4	0	**1.1**
Cycle 2	2.5	2.5	2.5	3.5	4	2	**2.8**
% Δ*	10.0%	40.0%	50.0%	70.0%	0.0%	40.0%	**35.0%**
(9) Quality Indicators							
Cycle 1	3	0	0	3	4	2	**2.0**
Cycle 2	3	3.5	4	3.5	4	2.5	**3.4**
% Δ*	0.0%	70.0%	80.0%	10.0%	0.0%	10.0%	**28.3%**

* The delta reflects the change between the evaluation cycles based on a 5-point scale.

Accreditation Standards for Hospitals in Kuwait

INFORMATION MANAGEMENT

Version 5

PRINCIPLE FUNCTIONS OF SERVICE

1.0 Management develops and implements an information management plan to meet the information needs of all hospital services.

1.1 Management works with department heads to identify all the necessary data that will be used for decision-making on a regular basis.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

1.2 The information management plan includes:

- a definition of data, information, security, confidentiality and integrity
- a categorization of data available, both manual and electronic
- a description of how confidentiality, security and integrity of the data and information will be maintained
- a description of the various kinds of reports, the frequency of the reports and who will receive them
- a description of the technology and other resources required to implement the plan
- a record and investigation of any adverse event related to information management
- process and procedure for retaining and destroying records and files

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

1.3 There is an education/training schedule for decision-makers and other appropriate staff on the principles of data management.

Criteria
Organization's Rating
Surveyor's Rating
0 1 2 3 4 NA

Ratings (PSRA)

0	No Compliance	3	Fully Implemented
1	Developed	4	Monitored
2	Partially Implemented	NA	Not Applicable

Ratings (Criteria)

0	No Compliance	3	Partial Compliance (51-75%)
1	Partial Compliance (1-25%)	4	Substantial Compliance (≥76%)
2	Partial Compliance (26-50%)	NA	Not Applicable

1.4 There is a description of the roles and responsibilities of management in relation to implementation and evaluation.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

1.5 There is a process for reviewing and revising the information management plan

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

1.6 There are structures and mechanisms to facilitate communication and problem solving related to information management.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

DELIVERY OF SERVICE

2.0 Appropriate clinical, managerial and information technology staff participate on behalf of the hospital in selecting, integrating and using information management technology.

2.1 Criteria are established for the selection of information technology.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

2.2 Integration of information technology with other services is assessed.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

Ratings (PSRA)

0 No Compliance
1 Developed
2 Partially Implemented
3 Fully Implemented
4 Monitored
NA Not Applicable

Ratings (Criteria)

0 No Compliance
1 Partial Compliance (1-25%)
2 Partial Compliance (26-50%)
3 Partial Compliance (51-75%)
4 Substantial Compliance (≥76%)
NA Not Applicable

2.3 There is training on how to use information management technology.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

INFORMATION SYSTEMS

3.0 There are processes to ensure security and confidentiality of data and information.

3.1 Security will prevent:

- unauthorized access to data and/or information
- loss of data and/or information
- manipulation of data and/or information
- misuse of equipment
- physical damage of record systems

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

3.2 Access to data and information is restricted to authorized staff.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

3.3 The hospital works with the Ministry of Health to ensure it has a planned, documented recovery system in case of computer malfunction.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

Ratings (PSRA)

0 No Compliance
1 Developed
2 Partially Implemented
3 Fully Implemented
4 Monitored
NA Not Applicable

Ratings (Criteria)

0 No Compliance
1 Partial Compliance (1-25%)
2 Partial Compliance (26-50%)
3 Partial Compliance (51-75%)
4 Substantial Compliance (≥76%)
NA Not Applicable

4.0 There are processes for effectively and efficiently transmitting data.

4.1 Transmission of data and information will allow for:

- timeliness (data is available on time)
- ease of access (data is easy to obtain)
- accuracy and reliability (when data is received, it is accurate and reliable)
- appropriateness of data and information (data is relevant to what is needed)
- confidentiality and security (data is accessible only to those who require it and those who should have it)

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

4.2 When keeping data, the hospital must determine whether the data is kept in print or electronic format.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

4.3 Data and information are integrated through:

- acquisition (as data is obtained, it is combined with other necessary data)
- organization (data is arranged to support information needs of the service and other departments)
- retrieval (data is abstracted from larger data bases when required)
- analysis (data from a service can be abstracted from larger data bases and/or compared with data from other services to arrive at conclusions)
- education & reporting (data can be abstracted for training and reporting purposes)

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

Ratings (PSRA)

0	No Compliance	3	Fully Implemented
1	Developed	4	Monitored
2	Partially Implemented	NA	Not Applicable

Ratings (Criteria)

0	No Compliance	3	Partial Compliance (51-75%)
1	Partial Compliance (1-25%)	4	Substantial Compliance (≥76%)
2	Partial Compliance (26-50%)	NA	Not Applicable

5.0 There are processes for aggregating clinical and administrative data.

5.1 Aggregated data supports patient care, administrative decision making and quality improvement.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

5.2 Integrated data is available for comparing and benchmarking against best practices.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

QUALITY AND SAFETY

6.0 Management uses information to make decisions, strategically plan, and identify and prioritize quality improvement initiatives.

6.1 Management analyzes the information with the assistance of the quality management (assurance) director or leader.

Organization's Rating
2
Surveyor's Rating
0 1 2 3 4 NA

Ratings (PSRA)

0 No Compliance
1 Developed
2 Partially Implemented
3 Fully Implemented
4 Monitored
NA Not Applicable

Ratings (Criteria)

0 No Compliance
1 Partial Compliance (1-25%)
2 Partial Compliance (26-50%)
3 Partial Compliance (51-75%)
4 Substantial Compliance (≥76%)
NA Not Applicable

7.0 The hospital contributes to external data bases in accordance with laws or regulations.

7.1 The hospital provides data for various statistical reports produced by the Ministry of Health.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

Guidelines:

The hospital may provide data for casualty; outpatient department; admissions, discharges and transfers; mortality; surgical; bed utilization; and inpatient discharge summary statistical reports. The hospital may also provide data to the Communicable Disease Control Unit on infectious diseases, and to the Medical Laboratories Administration on number of specimens and tests in each unit.

8.0 There is internet access for staff to obtain information which supports safe patient care.

8.1 There are guidelines that identify appropriate sources of data and information.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

8.2 There is a policy on acceptable-use policy of data and information sources and compliance with the policy is monitored.

Criteria
Organization's Rating
Surveyor's Rating
0 1 2 3 4 NA

Ratings (PSRA)

0	No Compliance	3	Fully Implemented
1	Developed	4	Monitored
2	Partially Implemented	NA	Not Applicable

Ratings (Criteria)

0	No Compliance	3	Partial Compliance (51-75%)
1	Partial Compliance (1-25%)	4	Substantial Compliance (≥76%)
2	Partial Compliance (26-50%)	NA	Not Applicable

9.0 Indicators of performance for quality are identified for Information Management and are monitored as part of quality improvement activities.

9.1 Indicators of performance are selected and monitored for both hospital-wide and service-based information management activities.

Guidelines:

The set of performance indicators may include number of information security breaches reported. There are different types of security breaches such as confidentiality, integrity, and availability of information.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

9.2 The data to be collected for indicators and methods to be used to collect these data are established.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

10.0 Indicators of performance for safety are identified for Information Management and are monitored as part of safety activities.

10.1 Indicators of performance are selected and monitored for both hospital-wide and service-based information management activities.

Criteria
Organization's Rating
0 1 2 3 4 NA
Surveyor's Rating
0 1 2 3 4 NA

10.2 The data to be collected for indicators and methods to be used to collect these data are established.

Criteria
Organization's Rating
Surveyor's Rating
0 1 2 3 4 NA

Ratings (PSRA)

0 No Compliance
1 Developed
2 Partially Implemented
3 Fully Implemented
4 Monitored
NA Not Applicable

Ratings (Criteria)

0 No Compliance
1 Partial Compliance (1-25%)
2 Partial Compliance (26-50%)
3 Partial Compliance (51-75%)
4 Substantial Compliance (≥76%)
NA Not Applicable