

Management System for Accreditation of Radiology Departments in Healthcare Organizations

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Abstract:

Hospital accreditation becomes a trend to be trustable for healthcare providing. In particular, laboratories/radiology departments should be in concern because they are the base line of diseases diagnosis. However, accreditation of such departments is rarely considered in the literature. This study was conducted to regard radiology departments. The aim was to develop a self- assessment tool that guides radiology departments in hospitals seeking for accreditation. A management system was designed to identify systematic differences in medical planning and clinical solutions between accredited departments and non- accredited ones. The Joint Commission International (JCI) has been adopted as a benchmark standard. In implementation, an evaluation matrix has been established using the main processes of radiology departments versus a set of JCI standards. In addition, a questionnaire comprised of 86 questions has been developed to measure these standards. Further, by using Likert scale to answer the questions, a score index was generated for each process individually as well as for the overall performance. Based on the calculated scores, the department is classified into one of four groups. The system has proved its consistency; correctly separated JCI- accredited departments from non-accredited departments. Furthermore, a minimum level of JCI accreditation has been assigned. The system highlights the points of strength and the points of weakness that sustain accreditation. Also, it is a self-guide tool that can eliminate the need of external consultant. Moreover, other departments within hospitals can take the same approach towards accreditation fulfillment.

Keywords: accreditation; hospital; radiology department; questionnaire; quality management.

1. Introduction:

Hospital accreditation has been widely used to promote accountability for patient safety and quality in healthcare delivery systems. It has been defined as: "A self-assessment and external peer assessment process used by healthcare organizations to accurately assess their level of performance in relation to established standards and to implement ways to continuously improve" [1]. Indeed, one of

the most important worldwide healthcare accreditation authorities is the Joint Commission International (JCI).

In any hospital, radiology department (RD) is the key diagnostic tool for many diseases and has an important role in monitoring treatment and predicting outcome. It has a number of imaging modalities which have differing physical principles of varying complexity. There are various staffs in a department with their respective responsibilities. For a fact-based management, performance is regularly measured and assessed [2]. One form of assessment process is the accreditation, thus accreditation of this department like other departments in hospitals reflects the department performance, effectiveness, and competitive position.

In literature, different modalities were presented. In Braithwaite et al. study [3] a comparison between the health service accreditation programs in low- and middle-income countries (LMICs) with those in higher income countries (HIC) was introduced. The authors classified the strategies used to facilitate effective accreditation programs in LMICs into external and internal factors. Moreover, a questionnaire survey has been conducted to compare between the accreditation programs in LMIC and HIC and identify similarities and dissimilarities between both programs. The questionnaire comprised 10 categories covering the following: policy settings; program governance; development; funding; training and facilitation; report management; scope of services; and activities in hospital and primary care.

In 2015, one forum was conducted by Kusum and Silva in Thailand [4] to accredit national laboratories. In this study, national quality standards for health laboratories related to Ministry of Public Health (MOPH) were developed. A user-friendly 100-point check list of national standards has used for standards implementation and self- evaluation. The proposed manual contained 10 clauses that should be verified. The standards were organization and management, personnel, laboratory instruments and equipment, procurements and external services, process control, document control, control of nonconformities, internal audits, continual quality improvement, and client management.

Another relevant approach was presented by Saleh et al. [5]. Performance of Clinical Engineering Departments (CED) was measured against the Joint Commission International (JCI) standards. The purpose was to assess tendency for CED. Another relevant approach was presented by Saleh et al. [5]. Performance of Clinical Engineering Departments (CED) was measured against the Joint Commission International (JCI) standards. The purpose was to assess tendency for CED accreditation. An automated evaluation system has been developed relied on cloud computing to measure the minimum requirements for accreditation. A correlation matrix that maps the role of CED against a set of TJC standards has been established.

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Through a questionnaire manual, a score index has assigned for targeted departments to measure and differentiate their performance. In addition, by using the results of this system, the departments were classified into four categories.

As discussed in literature review, the elements that lead to accreditation of RD as a separate department is rarely considered. In general, the accreditation process is implemented through three stages; documentation, feedback, and performance verification [1]. By practice, the most difficult stage is the first stage because it requires all documents and archives be completed and updated.

The aim of this study is to develop self-assessment evaluation system that measures radiology department's qualification to be JCI accredited. In addition to investigate, describe, and prioritize the measurements and requirements demanded to achieve a minimum accepted level that qualifies non accredited ones to be JCI accredited departments.

Rest of the article is organized as follows. Section 2 presents system development includes roles and standards selection, and the score index. The results and discussion of system implementation is introduced in section 3. Finally we conclude this project in section 4.

II. MATERIALS AND METHODS:

The purpose of this study is to introduce a self-assessment tool for RD accreditation that measures the performance against a set of JCI standards. Thus, first we need to develop a system that maps the main roles of the department to their pertinent JCI standards. Second, a questionnaire was developed to measure the JCI standards. Third, a score index was created to judge the department qualification. Finally, a classification was carried out based on the resultant score index. The overall steps are summarized and depicted in Fig.1.

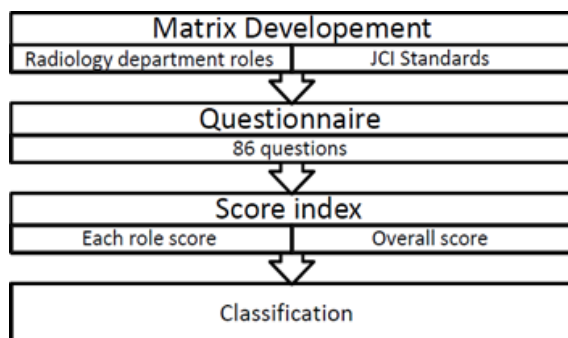


Fig.1. A general block diagram of the proposed management system for radiology departments.

System Development

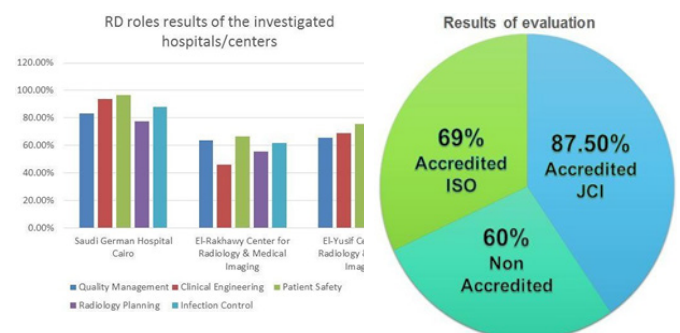
According to literature [6], [7] a bundle of duties and functions of RD are considered to be measured. The major roles (categories) including but not limited to quality management (QM), clinical engineering (CE), patient safety (PS), radiology planning (RP), and infection control (IC). On the other side, a set of JCI standards relevant to radiology department responsibilities are selected [6]. In essence, the area of focus comprises the following standards:

- 1) The Accreditation Participation Requirements (APR)
- 2) International Patient Safety Goals (IPSG)
- 3) Patient and Family Rights (PFR)
- 4) Assessment of Patient (AOP)
- 5) Care of Patient (COP)
- 6) Quality Improvement and Patient Safety (QPS)
- 7) Prevention and Control of Infection (PCI)
- 8) Governance, Leadership, and Direction (GLD)
- 9) Facility Management and Safety (FMS)
- 10) Staff Qualification and Education (SQE)
- 11) Management of Information (MOI)
- 12) Planning and design (PAD)

In application, the relationships between RD roles and relevant JCI standards require a comprehensive grasp. Therefore, brainstorming sessions were held to find out the appropriate relationships. In addition, the authors referred to chapter divisions of the selected JCI standards to interpret those fuzzy standards as discussed in [7]. Thus, by integrating the roles and the selected standards together, a core matrix that maps RD roles with their relevant JCI standards was developed.

RESULTS:

The system verification is carried out using a data set of 3 Egyptian healthcare facilities including one private hospital and 2 private radiology centers which cover various types of health care facilities. In implementation, every RD interfaces for data collection through the questionnaire. Subsequently, the scores of roles were calculated separately for each hospital center. After that, the final score of each department/center was calculated using (2) to determine the accreditation status. As a result, the accreditation status has been identified relied on the proposed classification scale. In context, the private hospital (Saudi German hospital) has got a total percentage of 87% which qualifies it to be JCI accredited. Taking into consideration, the hospital is already JCI accredited, which implies verification of the proposed approach. The results of other radiology centers; El-yusif center is 69% means it is qualified for ISO accreditation, and El-rakhawy center is 60% which implies no qualification for accreditation as summarized



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CONCLUSIONS

In this study, management system for the accreditation of radiology department/center was developed. Along this system the user can understand the similarities, dissimilarities and factors that sustain accreditation within different hospitals. In addition, a core matrix that maps the roles of the RD against a set of JCI standards was established. Through this map, a scoring index was developed to give a score for every role, as well as the overall performance of the department. Moreover, one aspect of quality management is introduced by classification of the RD according to the overall performance. In deduction, the system is developed as a self-assessment tool that concludes the points of weakness and strength of the RD performance. The system highlights the roles of RD that must be considered for JCI accreditation. Among the five roles; patient safety and radiology planning are highlighted by the quality team of the departments. In addition, the system is characterized by simplicity of implementation. Consequently, the hospital/center can use it without need of external agency to assist in the consultancy works.

It is worth to be mentioned that, RD department is one department of all departments within a hospital, i.e. a piece of a mosaic that demonstrates the overall picture of performance. Thus, if the other departments take the same approach towards the accreditation, gates of accreditation become more reachable, and the way to achieve the JCI standards which leads to the road of accreditation becomes clearer.

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