

ABSTRACT BOOK

HEALTH SYSTEMS & QUALITY MANAGEMENT
STUDENT THESIS



BATCH 1 - BATCH 4
2009 - 2013

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LETTER FROM THE DEAN



PREFACE FROM THE CHAIRMAN



HEALTH SYSTEMS AND QUALITY MANAGEMENT

MASTER STUDENTS

BATCH 1

ABSTRACT



Thesis Title: ***“Systematic Review of Accreditation and an Assessment of the Saudi Accreditation Standards Against ISQua Principles for Healthcare Standards”***

Student: Abdullah Alkhenizan, MD

Supervisors: Prof. Charles Shaw, Dr. Vanja Berggren and Dr. Amir Hassan

Year: 2009

Abstract

Introduction:

Accreditation is usually a voluntary program, in which trained external peer reviewers evaluate health care organization's compliance with pre-established performance standards. Central board for Accreditation of Healthcare Institutions (CBAHI) in Saudi Arabia was established to formulate and implement quality standards in all health sectors all over the Kingdom of Saudi Arabia.

Aims & Objectives:

The aim of this study is to improve the quality and application of accreditation standards in the Saudi health systems. The objectives of this study is to review the literature of the attitude of health care professionals towards accreditation and the impact of accreditation on health care services and to assess the CBHAI standards against the International Society for Quality in Health Care (ISQua) principles.

Methods:

A qualitative appraisal and analysis of CBAHI standards using the published ISQua principles for accreditation standards and a systematic review of the literature of the attitude of health care professionals towards accreditation and the impact of accreditation. Several databases were systematically searched including Medline, Embase, Healthstar, and Cinhal.

Results:

Forty four studies were identified. Seventeen studies evaluated the attitude of health care professionals towards accreditation. In general health care professionals have a positive attitude toward accreditation. Hospitals' owners indicated that accreditation has the potential to be used as a marketing tool. Several studies showed health care professionals to view accreditation programs as bureaucratic and demanding. Health care professionals raised consistent concern about the cost of accreditation programs especially in developing countries. A few studies showed health care professionals to be skeptical about accreditation because of concerns about the impact of accreditation programs on the quality of health care services. Twenty six studies evaluated the impact of accreditation.



Majority of studies showed general accreditation and subspecialty accreditation programs to significantly improve the process of care of health care services as it improves the structure and organization of health care services. A few studies showed accreditation programs to significantly improve clinical outcomes. Accreditation programs were shown to improve the quality of the management of several clinical conditions including the management of AMI, trauma, ambulatory surgical care, infection control and pain management. CBAHI standards development was not well described without a clear process to revise the standards. There is significant repetition, ambiguity of the standards and it lacks measurable elements for each standard. Majority of CBAHI standards did not or partially met majority of ISQua principles.

Conclusions:

Generally the attitude of health care professionals toward accreditation is positive. There is overwhelming evidence that show accreditation programs to improve the process of care. Health care professionals raised significant concerns about the cost of accreditation programs. CBAHI standards need significant modifications to meet ISQua principles.



Thesis Title: ***“Identifying barriers of Implementing Continuous Quality Improvement in Riyadh Military Hospital and how overcome them”***

Student: Dr. Ahmed D. Al Awwad

Supervisors: Dr. Zillyham Rojas, Dr. Vanja Berggren, Dr. Jamal Mohammed & Dr. Amir Hassan

Year: 2009

Abstract

Introduction:

RMH is a tertiary hospital that opened in 1978 with a capacity of 385 beds. RMH is directed by the Medical Services Department (MSD). MSD is responsible to provide health services to Ministry of Defense and Aviation (MODA) employees and their dependents. MSD supervises more than 23 hospitals belong the MODA; RMH is one of these hospitals. Since 1978, RMH has been growing in the number of beds; as of 2008, its capacity was 1,192 beds. With 30 departments and 8,921 employees from different specialties and nationalities, RMH is one of the biggest hospitals, not just in Saudi Arabia, but in the entire Gulf region. RMH plays a unique role by serving both civilian and military patients and is, furthermore, managed by both military and civilian managers, which means that the hospital is governed by both civilian and military healthcare policy.

All hospitals in Riyadh suffer from a high volume of patients. Complaints increase every day, and are publicized through the media, about the shortage of beds and medications, long waiting times in clinics and for elective surgeries , and high rates of medical errors. To our knowledge, there are no local studies or public reporst about barriers to quality in hospitals. This raises many questions; one of these is: “What barriers or obstacles are preventing the implementation of Continuous Quality Improvement (CQI) or Total Quality Management (TQM).”

The dissertation is designed to identify the main barriers to implementing continuous quality improvement (CQI). It seems that identifying and understanding each of these barriers is necessary to improve health services in order to effective decreases in healthcare cost as well as increases in quality. Leaders and decision makers will then be aware about the barriers and use this knowledge to improve the quality of the care provided by their institutions. The concepts identified in this study can be applied in other hospitals or health sectors to identify their own particular barriers.

Aim:

To identify CQI barriers and explore how to overcome them in order to improve CQI in Riyadh Military Hospital.



Objectives:

To identify the barriers to implementing CQI in RMH from management and staff viewpoints and to identify special barriers to quality in this military setting, such as organizational design.

Method:

The study combined quantitative methods (triangulation) to gain more information about barriers to implementing quality. The framework was based on a conceptual model of factors that was heavily influenced by Total Quality Management (TQM), which was framed by Vieira et al. (2009) Fig. 1. TQM consists of six factors; the quality, physician involvement, quality structure, and technical support.

A new questionnaire was developed based on the framework of conceptual model of factors influencing Total Quality Management (TQM) implementation. Survey items were adapted from many existing questionnaires were used in researches. Each item was related to one of the main factors. Each questionnaire item was written first in English, and then followed by the Arabic translation. Five-point Likert scale were used. The scale used was Strongly Agree/Agree/I can't specify/Disagree/Strongly disagree. The pretest was conducted with ten health staff and two managers in two rounds.

Validity was determined by a conceptual frame work that is based on a literature review (Vieira et al., 2009). The reliability of the questionnaire (all scales) was tested after receiving the first 50 responses; it was 0.9 (35 items). The study population consisted of Riyadh Military Hospital employees (7,166 individuals). Sampling: Based on a total population size of 7,166, based confidence level of 95 percent, and a precision level of .05, a minimum sample size of 372 must be selected. A stratified sample based on the proportion of the healthcare setting was drawn from the population to ensure equal representation of all categories, including: Physicians, Nurses, Allied health professionals, Technicians and Office support/clerical Services. Self-administration questionnaire was sent to participants by internal hospital mail, reminder used by E-mail.

Quantitative analysis: A five-point Likert scale was paired with a three-point scale (3(5,4)=agree; 2(3)=I can't decide; 1(1,2)=disagree). The questions were reverse-scored according to the outcome of question (positive barriers in the agreement side, for example). SPSS version 14 was used for descriptive, frequency and association analysis. For individual items, the chi square test used to associate sub factors with independent variables and a P-value of <.05 was considered significant. Qualitative analysis: Manifest content analysis was chosen, and open question answers were interpreted by two separate reviewers. Each reviewer read all sub-sets of comments. The six factors, previously discussed, were used as a conceptual framework for categorizing the comments.



Result:

The overall response rate was 261 (70 percent) out of 372. The characteristics of the participants were, *Sex*: 57.9% male, 42.1% female, *Age*: 55.2% more than 40 years, 32.6% from 30 to 39 years old and 12.3% less than 30 years. *Nationality*: 59.4% were Saudi, 40.6% were non-Saudi, *Employment status*: 81.2% RHM, 10.3% military, 8.4% MSD-civilian, *Specialties*: 33% were Physicians, 21% were nurses, 11.9% were allied health professionals and 33.7% were others (office support, technicians and services).

Quantitative method result: Employees are not given proper education and training regarding how to handle the quality improvement. N=147 (56.3%). A majority of the participants were willing to take part in the quality improvement services that are planned by such teams in respective departments. N=182 (69.7%). These barriers in each factor were: ***Organizational Design***: Lack of planning N=196 (75.1%), Existence of bureaucracy N=180 (69.0%) and Authority is not clear N=171 (65.5%), ***Organizational Culture***: Lack of individual responsibility N=166 (63.6%) and Lack of reward system N=159 (60.9%). ***Leadership*** leader turnover has a negative effect on organization. N=169 (64.8%). ***Quality Structure***: Absence of active programs N=139 (53.3%) and Limited budget for quality improvement N=226 (86.6%). ***Technical Support***: Lack training and education N=147 (56.3%), ***Staff Involvement***: staff wishes to be, but are not, involved in quality N=182 (69.7%).

Quantitative method result: the barriers in each factor from the participant's open question analysis were: ***Organizational design factors***: *Overload of patients/long distances between buildings and departments, these include both structure and administration design (N=43, 5.8 percent), Existing of Bureaucracy (Red tape); total was (N=253, 4 percent) and Lack of planning: total was (N=25, 3.4 percent).* ***Organizational culture factors***: *Lack of understanding regarding quality (N=57, 7 percent), Lack of communication between levels and favoritism came second on the list (N=34, 4.6 percent), Existing of cliques/nepotism/overriding regulations (N=33, 4.6 percent),*

There is also lack of accountability and discipline among employees (N=33, 4.5 percent) and Lack of incentive reward system (N=30, 4.1 percent). ***Leadership Factors:***

The most highly and closely rated barriers were: Lack of supervision: N=29 (3.9 percent), Lack of support from higher management: N=28 (3.8 percent).

And Hiring or selection of non-qualified employees/staff/managers: N=26 (3.5 percent).

Quality structure factors: *There is no proper operation of the quality department regarding collection of data, (N=21, 2.8 percent).* ***Technical support factors:***

There is mainly a lack of training in quality improvement (N=31. 4.2 percent).



Staff involvement factors: *There is a lack of sharing and participation in decisions (N=11, 1.5 percent).* **Other barriers:** *Restrained financial and monetary resources for departments/units (N=34, 4.6 percent) and There is a lack of beds, staff, and space in the work environment (N=30, 4.6 percent).*

Conclusion:

The results reflect a poor state in approaches that have been adopted by the organization in ensuring effective organizational management. Research results on some of the organizational systems that are critical to formulation and implementation of policies and strategies points to the fact that they are lacking in objectivity. A poor internal system coupled by competency that is associated with healthcare provision most likely leads to an environment that makes generations of value a dream that cannot be easily attained.

Lack of planning and poor infrastructure scores highly among the areas that organizational employees feel have to be addressed. Infrastructure and planning is representative of two critical factors in generations of sustainable value within an organization; the platform and the process.

In Riyadh Military Hospital, immediate action must be taken before implementing CQI/TQM with such barriers. The actions can be in both long and short term plan that include: (1) improve management process in whole organization, (2) strategic plan must be written and implemented with sharing and understanding of hospital staff, (3) improve quality awareness among employees through training and education, (4) improve the organization reward/punishment system, (5) management training for all managers/middle managers, (6) involve employees in quality improvement projects, (7) involve hospital staff in management through their feedback and suggestions for improvement, (8) Some culture issues must be explored, studied and eliminated from organization for example nepotism/overriding regulations and lack of accountability and discipline among employees, (9) dissemination of the results of this research to all hospital staff.

Further research: Research on specific areas for instance leadership or organizational structure or even culture must be done within organization to determine systems that are lacking. The role of military management may play a role in barriers. Research needs to be conducted in local non-military health organization, to compare the findings. *Limitation:* Impact of military management and ranking need to be investigated more. The sensitive of military setting may become a barrier to get more deep information. The existence of employees from different nationalities, most of them from developing countries having less health services and resources than Saudi Arabia, that may lead to bias in judgment about quality.



Thesis Title: ***“Searching for key motivators for nursing staff in King Abdulaziz Medical City (KAMC) to improve their work”***

Student: Ms. Anoud Al-Enezi

Supervisors: Prof. Zillyham Rojas, Dr. Vanja Berggren, Prof. Mustafa Khojali & Dr. Amir Hassan

Year: 2009

Abstract

Job satisfaction among nurses is a major determinant of retention and quality of delivery of health care in general. Considering the amount of efforts nurses' have to provide, it is but fair that their needs are equally addressed and their work properly compensated. Furthermore, considering the current demand for nurses both here and abroad, it is of paramount importance that their level of job satisfaction be maintained to ensure proper functioning of health care institutions. Although there are many studies conducted in the Kingdom of Saudi Arabia that address job satisfaction among nurses, an internal study for each institute is of paramount importance since job satisfaction predictors of one hospital does not necessarily reflect others. This study aims to identify the factors that affect job satisfaction among inpatient and outpatient nurses in KAMC. Such a study has never been conducted in the institution. In order to reach the aim, at least 400 nurses were invited to participate in a cross-sectional survey design by a generalized questionnaire containing multiple-choice and open-ended questions about job satisfaction and related factors. Descriptive and correlation analysis were carried out to analyze the data. Out of the 400 surveys that were initially distributed, 295 participants responded (73.75% response rate). Majority of the respondents were Filipinos with a total of 166 respondents (56.3%). Other nationalities in order of decreasing frequency included Saudis, Malaysians, Egyptians, Lebanese, Jordanian, South African, Indian, British, Australian, Pakistani, Syrian and Sudanese. Female:Male ratio was 2:1. Over-all job satisfaction revealed that 22 respondents (7.5%) were very satisfied with their respective jobs, and another 142 (48.3%) claimed to be satisfied. Under the salary package, 43.8% of the respondents felt that their current salary is either good or excellent, while 43.1% thought theirs were just "average". With regards to social areas, 70.8 % of the respondents had either good to excellent social interaction with co-workers at KAMC even if the working environment is trans-cultural in nature. Receiving personal recognition fell short of the satisfaction level since majority of respondents (45.2%) were not taking either sides. Furthermore, this area had the highest prevalence of dissatisfied and very dissatisfied respondents (13.6% and



2.4% respectively) compare to the 3 other areas involved in this section, and the lowest prevalence of highly satisfied respondents (4.1%) compared to all variables measured in this study. Racial bias, too much work and lack of proper recognition were the three common themes that prevented respondents to be motivated to work. The last theme was evident in 61.2% who were not satisfied in receiving appropriate recognition. Fairness was the main theme when the respondents were asked to suggest key motivators on how they will improve their work. Simple correlation analysis using all the variables studied were entered and revealed that among all the significant factors identified in table 3, KAMC's ability to care for its employees tops the list ($R = 0.51$; $p < 0.001$) followed by personal accomplishment ($R = .50$; $p < 0.001$) and recognition ($R = 0.488$; $p < 0.001$). Worthy to note was that "benefits" were also significantly associated with job satisfaction ($R = 0.28$; $p = 0.007$) but this association was weak and was not as significant as the other factors. Stepwise linear regression analysis using job satisfaction as dependent variable and all the other parameters as independent showed that care for employees, personal accomplishment, receiving appropriate recognition and over-all job security predicts 65.3% of the variance perceived in job satisfaction ($p < 0.001$). KAMC's ability to care for its employees; fair recognition; over-all job security; the ability to make a difference; relationship with supervisor; teamwork and benefits are the major motivators that enhance the work of KAMC nurses. Any of these factors once altered can significantly shift the nurses' level of satisfaction, and therefore all programs, policies and procedures that need improvement or maintenance should be geared towards the core areas that affect the nurses' level of contentment. Based from the finding of this dissertation, further studies are recommended, one using a qualitative approach to further understand the factors identified that prevent nurses from working efficiently. Also, the same survey should be conducted to other members of the medical community to determine if the same factors motivate other professionals. Lastly, hospital administrators should be notified on how to give appropriate recognition to the nurses and at the same time enhancing the training of new recruits in terms of working, adapting and surviving in a multi-cultural hospital.



Thesis Title: ***“Enhancing Patient Safety through Medical Error Reporting”***

Student: Dr. Elman Omar Mohammed Alsafi

Supervisors: Prof. Zillyham Rojas, Dr. Vanja Berggren, Dr. Charles Shaw & Dr. Amir Hassan

Year: 2009

Abstract

This is a dissertation done in Al-Iman General Hospital, a secondary government hospital located in Riyadh, Kingdom of Saudi Arabia. This study aimed to assess the medical error reporting behaviors of the doctors at Al-Iman General Hospital and sought to discover the aspects that hinder and encourage doctors to report medical errors. Upon determining such information, suggestions and recommendations were laid with the hope that it will promote professional error sectional survey was uses ad the main design of the study. During the study proper, there were 161 doctors employed at Al-Iman General Hospital. All these doctors regardless of their rank and specialty were invited to participate upon securing approval from the hospital administration. All the doctors were explained about why the study was being conducted, and they were also assured of confidentiality of their identification. Doctors were given an anonymous survey questionnaire which contained 6 parts. The first part contained demographic questions such as age; gender; nationality (Saudi or Non-Saudi); years of experience in specialty training; hours of work per week; and their respective specialty. Parts 2-5 were graded based on a 5-point Likert scales; identifying the respondents' agreement from strongly agree to strongly disagree. The second part contained questions about their attitudes and elicited their agreement on the possible responses if a colleague commits an error; causes of medical errors; factors the encourage them to disclose errors; and role of administration in promoting error disclosure. The third part contained practice questions and determines their level of agreement on how their environment, particularly the hospital policies, their colleagues and their supervisors, influence their ability to disclose medical errors. The fourth part questioned their knowledge and level of agreement on various statements about the prevalence of medical error disclosure and the frequency of reporting error; other possible causes of medical errors not mentioned in the second part and attitudes of the medical administration in terms of medical error disclosure. The fifth part contains statements on how frequent medical errors are reported based on the error's potential harm to the patient involved. Lastly, the 6th part asked the respondents on how frequent they have reported medical errors in the past year. Upon completion of the questionnaire, all the variables mentioned were encoded and analyzed using the Statistical Package for Social



Sciences version 11.5. A total of 107 doctors compliantly returned the questionnaire (Response rate = 66.5%). Respondents were between 25-59 years old with a mean age of 39.8 +/- 9.0 years old. Demographics revealed that most of the respondents were non-Saudis and were currently residents. Furthermore, 1 out of 5 respondents were from the emergency department and almost half of them had a working load of 40-59 hours per week. Majority of the respondents disagreed with regards to the reasons for not disclosing a colleague's error which included fear of reporting one's error in return, losing relationship and because "it's not their responsibility". Furthermore, they also disagreed to the other causes identified which were: no incentives, avoiding punishment, avoiding damage to reputation and error not being discovered. The facts that reporting is an ethical issue; that it alleviates feeling of guilt; prevents further damage to the patient; treated with confidentiality; solved within the department and adequate protection from the administration gained majority of the respondents' affirmations that these factors encouraged them to report medical errors. Under reporting and lack of experience were perceived by the respondents as major causes of medical errors. On patient involvement, most respondents will always report medical errors if it causes harm to the patient, and will prefer to do it less frequently if the error was rectified early or it is less damaging. It is concluded that the respondents' ability to disclose errors are based on the severity of damage to the patient, and as such medical errors remain underreported. The response of the medical administration played a powerful force of whether or not errors are disclosed. From these major finding it is suggested that a voluntary reporting system be implemented that is designed to promote medical error disclosure. This can be achieved by creating an environment where disclosed medical errors are beneficial to the one reporting, the patient involved, and the medical community as a whole. By acknowledging the importance of medical error disclosure to the over-all quality of health delivery, reporting of errors will be perceived as a constructive and professional strategy to promote accountability and transparency without inflicting damage to any medical staff's reputation and more importantly, without causing damage to the patient's health.



Thesis Title: ***“Multidisciplinary Systems Approach for Chemotherapy Safety in KAMC in Riyadh”***

Student: Faisal Aqeel Sehli

Supervisors: Dr. Zillyham Rojas, Dr. Vanja Berggren, Dr. Jamal Mohammed & Dr. Amir Hassan

Year: 2009

Abstract

This study is about multidisciplinary systems approach to chemotherapy safety in King Abdulaziz Medical City (KAMC). As a main approach it was conducted survey assessing development policies, procedures and preventive measure related to quality of chemotherapy services among Oncology physicians, nurses, pharmacists, support services staff, environment control staff and quality management staff. The general objective of this study is to assess developmental policies, procedures and preventive measure in increasing the quality of chemotherapy services in KAMC. The specific objectives are to identify gaps in policies and procedures related to chemotherapy administration and to outline accurate and unambiguous chemotherapy policies and procedures; to prepare protective measurements of all staff dealing with hazardous chemotherapy and to give recommendations to create safety and reduction of errors among chemotherapy personnel.

In this research, a total of six articles were reviewed and good information relevant to our topic of interest was studied.

The survey was based on a questionnaires specially design according to staff. For instance, questionnaires of a total of 23 questions were given to oncology nurses containing specific questions about chemotherapy administration, chemotherapy staff safety and chemotherapy documentation. Another questionnaire of 30 questions were given to oncologists regarding the chemotherapy order form, investigational protocols in the hospital and chemotherapy orders. Other questionnaires of a total of 40 questions were given to pharmacists about chemotherapy orders, chemotherapy staff safety, investigational protocols and chemotherapy delivery. Finally a fourth questionnaire of a total of 17 questions were given to environmental control/quality management/support services staff about waste management, pharmacy policies and personnel protection.

A total of 15 oncology nurses 5 oncologists, 5 pharmacists, two respondents from Quality Management, 2 from Environmental Control and 1 from support services staff participated



in this study. All of the nurses obtained scores belonging to the bracket of 20-29, rated as Good. The mean score was 27.75 (Good). 60% of the oncologists were rated fair (score 10-19) and 40% were rated good (score of 20-29). The mean score was 20.56 (Good). All the respondent-pharmacists were rated as Good (score 20-29). The mean score was 21.7 (Good). Those belonging to the Quality management and support services staff scored fair (score 10-19). The mean score was 19.5 (fair).

In this research analysis of the results and recommendations are closely connected!

KAMC needs to improve on a lot of aspects regarding safety of personnel handling chemotherapy and toxic waste, proper documentation of drug delivery and side effects, resource materials and training on waste management.



Thesis Title: *“An explorative study of Emergency Medical Services (EMS) in Riyadh, Saudi Arabia”*

Student: Dr. Hassan Nasser Moafa

Supervisors: Dr. Zillyham Rojas, Dr. Vanja Berggren & Dr. Amir Hassan

Year: 2009

Abstract

BACKGROUND: The Kingdom of Saudi Arabia is a fast developing country in the Middle East. Part of being modernized is to ensure that quality healthcare is accessible to its citizens at any given point in time. The emergency medical services (EMS) in the kingdom as provided free by the Saudi Arabian Red Crescent Society (SARCS) has played a critical role in assuring the local public that medical aid is readily available and just a phone call away regardless of the distance and conditions. To date, there has been limited data available as to the cases handled by EMSA in the kingdom. It is important as epidemiological evidence is needed to determine how endemic some emergency cases are in certain areas. **OBJECTIVES:** In this study, a snapshot of the current status of EMS delivery is determined. Specifically this study aims to determine the most prevalent cases in selected urban and rural EMS stations and in doing so be able to identify areas that need improvement and purpose strategies to improve current standing. **METHODS:** In order to achieve this, a retrospective audit was conducted covering all recorded EMS cases from the Gregorian months of January to December 2008 in 7 randomly selected EMS stations: 5 urban (Rabwa, Nassim, Uraija, Shifa, Massif) and 2 rural (Alkharj and Mezamyah). The following information was collected: the nature of call which included trauma (e.g. road traffic accidents, pedestrian accidents, falls, etc...), response time, and medical center where the patient was taken.

RESULTS: For the year 2008, a total of 37,521 cases were recorded coming from the whole Ar Riyadh Region. A total of 77 hospitals have received EMS patients, and Al-Iman General Hospital (a primary hospital) received 1 in every 5 of them (7659 or an average of 21 cases received daily). Trauma cases reported in urban areas comprise 87.6% of the total trauma cases and Rabwa registered the most, comprising 27.0% (1476 cases). Trauma secondary to road traffic accidents was the overwhelming cause of all trauma cases recorded with 70.25% (3837 cases). A total of 7587 cases categorized as non-trauma or medical emergencies were documented for the 7 stations, of which 92.5% (7266 cases) came from urban areas, Uraija being the highest (26.3% of cases). Among the known medical cases,



neurologic emergencies were the most common with 21.73% of cases, but unknown cases labeled as “others” was higher at 27.27%. From these findings there is a necessity for proper documentation of cases to fully decipher if these “others” really fell under the category of “emergency” to determine whether resources are allocated properly, or there is a need to enhance the knowledge of EMS staff in categorizing calls. Moving on to response time, the urban areas (Massif, Rabwa, Nassim, Shifa and Uraija) had a total of 3520 cases for the months of September-October 2008, and the response time was calculated as the mean response time of all cases for that particular month only. The average response time for urban areas was 12 +/- 1.2 minutes. Stratifying it further, 50% (1758 cases) of all the calls had a response time of less than 10 minutes and another 42% (1485 cases) had response times well within 11 to 20 minutes. Only 8% (277 cases) of the response time were more than 20 minutes. Al-Kharj and Mezamyah had 949 cases reported for the months of January-November 2008. Rural areas were faster with an average response time of 9.0 +/- 0.54 minutes. Major limitations in this study include the cross-sectional approach and non-inclusion of important parameters such as rescue times and the interventions given to severe cases. In conclusion, the finding of this dissertation supports existing evidence in terms of prevalence of trauma and medical emergencies. Response time in urban areas was well within the acceptable range of current benchmarks, while the outstanding response time of rural stations needs to be confirmed.

CONCLUSION: In conclusion, this explorative study in the EMS system in Riyadh has provided superficial yet substantial and first-hand information on its current status. Road traffic accidents and neurologic cases were the most common emergency cases, yet and a big portion of emergency cases remain unidentified. The finding reflect more of the need to enhance public awareness especially in areas where the concentration of such cases are high, and also highlight the need to significantly improve the accuracy of documentation in both cases and response times. Additional studies are thus mandatory to better understand the very nature and quality of MES patient delivery and these include studies involving the people providing the healthcare (EMS staff) and the stakeholders (patients).



Thesis Title: ***“Accuracy of Intravenous Compounding Improvement through the Application of Advance Quality Management Tool; the Case of Riyadh Military Hospital Pharmacy”***

Student: Manal AL Hawawi

Supervisors: Prof. Zillyham Rojas, Dr. Vanja Berggren, Dr. Jamal Mohammed, Prof. Mustafa Khogali & Dr. Amir Hassan

Year: 2009

Abstract

The aim of this research dissertation conducted at Riyadh Military Hospital (RMH), was to improved quality of care for pediatric ICU Patients on intravenous admixtures by minimizing compounding errors. This research had four relevant objectives:

- ❖ To identify intravenous compounding errors
- ❖ To explore techniques to reduce variability and defects in intravenous preparations
- ❖ To propose strategies to improve intravenous compounding process performance and reduce cycle time to meet international standards
- ❖ To provide recommendation for implementing a safe compounding process

The research is based on various facts found in literature reviews:

- a. Contrary to the belief that hospitals are the safest place on earth, medication errors could be the unobserved enemy of humanity.
- b. Unfortunately, medication errors are not a new problem in any context. Many studies and safety reports have shocked the world by disclosing how the problem has expanded and the risks involved in all steps of medication use processes.
- c. Intravenous medication use is associated with the most serious adverse events. In the United Kingdom over a period of 18 months, National Reporting and Learning System (NRLS) received about 14,000 incidents reports all relating to injectable medicines, representing about 245 of the total number of medication incidents. During this period about 25 of these incidents ended with death and 28 with serious harm.
- d. Preparation errors represent 18% of the errors.
- e. Medication errors are common and costly, but the system is the cause of errors that can be prevented by building a safe system. This is the major conclusion of many remarkable international reports, starting with that by the Institute of Medicine (IOM) nine years ago.



Intravenous compounding, like many healthcare processes, is characterized by complexity and involves multiple steps by people in conjunction with machines, which increase the chances and variations and medication errors. The processes should be changed and edited to become safer, effective, patient centered, timely, efficient, and equitable.

This tragedy draws the attention of hospitals to the urgent need for safe procedures and methods of intravenous therapy by centralizing intravenous compounding in pharmacies and minimizing compounding by nurses in the ward. The Institute of Medicine (IOM), which is supported by the American Society of Health-System Pharmacists and the Institute for Safe Medication Practices, has advised hospitals to follow these recommendations, which is also taken into account in this study.

Hospitals have begun to emphasize available solutions to improve the quality of care and reduce healthcare costs without affecting quality. One successful method is adopting of Six Sigma, a companywide quality improvement approach that aims to improve the process while reducing defects or variations and keeping the costs in view. Achieving Six Sigma means that processes are delivering no more than 3.4 defects per million opportunities (DPMO), which mean 99.999% efficiency. Six Sigma applications appear extremely powerful for identifying, quantifying, and controlling complex hospital systems and they can play a significant role in improving the intravenous compounding process as well.

As part of this research, a study framework was designed adopting some Six Sigma principles using a mix of quantitative and qualitative observational study. The study was conducted in the main inpatient pharmacy of RMH. The study included intravenous admixtures of the hospital pediatric intensive care unit (15 beds). This framework was used to understand intravenous compounding process dimensions. The qualitative research used active observation techniques and focus group discussions. Active observation used participant observation of intravenous process mapping and tested it in real life, in addition to collecting compounding error cases using well-trained observers. Qualitative findings were supported by a cross-sectional double-blind analytical chemistry analysis of 23 intravenous preparations that provided evidence of incidents of compounding errors and their significance.

Among the results of this research, significant variation and defects in the samples of 23 doses were found. The results from focus group discussion and active observation about types of intravenous compounding errors were clear and relevant. Errors in compounding techniques, overlapping of orders, wrong diluents, and labeling system errors were the major findings. Sources of compounding included medical errors related to practical and technical issues, work-related stressors, material management, lack of double checking in preparation, and negative attitudes toward compliance with present guidelines and rules.



Process mapping discovered many sources of errors in the process, especially an ineffective reporting system.

A major conclusion of this research was that the accuracy of intravenous compounding process can be improved and compounding errors minimized by application of Six Sigma. The study demonstrates that there is room for improvement in which the quality of care for pediatric intensive care unit patients on intravenous admixtures will be improved by minimizing compounding errors by following the proposed process of this research.

The dissertation is organized into six chapters: Introduction, Literature Review, Study Design and Methods, Results, Discussion, and Conclusion and Recommendations. It is expected that the RMH will implement the process and will also share its experience with other hospitals in order to improve service for all patients in Saudi Arabia.



Thesis Title: ***“Improve and Standardize the Quality of Care in the Neonatal Intensive Care Unit at KAMC: An operational study on Developing and Implementing Standard Concentrations of Continuous Infusion Medication”***

Student: Nissreen A. Abed-Althaqafi

Supervisors: Dr. Dave Haran, Dr. Vanja Berggren & Dr. Amir Hassan

Year: 2009

Abstract

Medical errors, which occur at every stage of the healthcare process, result in up to 98,000 deaths per year and that medication related errors alone account for up to 7000 annual deaths. Research has shown that all phases of the medication process (prescribing, dispensing, distribution, and administration) are prone to errors and error rates vary for each phase of the medication process. During the prescribing phase, errors have been reported to occur at a rate of 5.29 per 100 admissions. The error rates ranged from 3.56 per 1,000 medication orders for surgery care to 5.93 per 1,000 orders for pediatric patients care. Errors made during the administration phase comprise 34 to 38 percent of the total errors. When pharmacy detection of prescribing error is coupled with review of all medications dispensed and administered, as many as 32 errors per 1,000 medication orders have been detected.

Types of medication errors have been found to vary by patient population. For example, computation errors are more likely to occur with greater frequency in pediatric care. One explanation of this finding is that not only are pediatric doses related to the disease-state but also to weight, age, and gestation. Clinicians must have knowledge of the medications as well as possess mathematical computational skills and exercise clinical judgment when prescribing, dispensing and administering pediatric doses.

Neonates historically have significantly higher rates of medication errors. A report from United States Pharmacopeia (USP) MEDMARX states that nearly 50% of reported medication errors in the neonatal intensive care unit (NICU) and pediatric intensive care unit (PICU) are due to prescribing and transcribing errors.

Aim

The aim of this study was to describe changes in the medication use process to comply with National Patient Safety Goals of Joint Commission on Accreditation of Healthcare Organizations (JCAHO NPSG-3b) by the development and implementation of standard



concentrations of continuous infusion within King Abdul-Aziz Medical City Neonatal Intensive Care Unit (KAMC NICU). The implementation of standard concentrations of continuous infusion medication will improve the quality of care for the patients required to use that medications.

Objective

1. To reduce the time needed for prescribing, preparing and delivering the medication.
2. To reduce physician's prescribing error.
3. To reduce the cost of drug wastage by minimizing the variations in the preparations.
4. To elucidate the prevalence of compounding errors.
5. To assist the nurses how to use, recognize and be fully aware the smart infusion pump features.

Method

This research study focused on King Abdul-Aziz Medical of National Guard (KAMC) which is tertiary care center in Riyadh, Saudi Arabia. The research was done in five phases. The first phase started with the evaluation of the current situation as the starting step of the project. The NICU record was first retrieved and reviewed from the informatics system department for three consecutive months to find the range of the concentrations of the mostly used drips and frequency of change. Second; the medication clarification records (MCR) was evaluated which is used usually from pharmacy department to document any change from the physician order. Third; the researcher reviewed the analysis Occurrence, Variance and Accident reports (OVA) available in Quality Management department and from Pharmacy Quality reports. Lastly, the researcher reviewed pharmacy wastage report for the number of wasted syringes and the cost. Second phase "pre-implementation phase" is the most critical to success and the most time consuming. Creation of standard concentration chart and its appropriateness for neonatal patient was done through stepwise approach. Education phase is the third phase planned to ensure all stakeholders are aware of impending change and the rationale behind implementing of the standard infusion concentration "Go live". Analysis and evaluation is last phase.

Results

After the retrieval and review of the record from NICU, the researcher created standards and tested whether they were appropriate for use in our population. The factors that have been taken into account to select the proper concentrations included: (1) Which drugs to include; (2) What is the minimum dose ordered (weaning parameters); (3) What is the minimum pump rate (4) What concentrations could be used for the majority of the patients; (5) Where to put weight breaks between concentrations. First, the researcher tested the concentrations on a 500-g patient (our smallest patient) and a 5 kg patient (our largest patient). Second, the researcher looked at the dose ranges for each of the medications. Third, the researcher calculated the infusion rates (milliliter per hour) for



each solutions using the dose ranges and patient weights. Lastly, the researcher looked at how the resulting infusion rates would affect fluid requirements in patients of various weights. To verify that standard infusion concentrations were appropriate in the NICU, we looked at the range of concentrations prepared by the “Rule of Six” over a 3 months period and then matched the standard concentrations to that range. In order to ensure the smallest patient and fluid restricted would receive a minimal volume and reasonable infusion rates, we created standard concentrations by (1) taking the recommended starting dose or lowest dose for the medication and (2) calculating the concentration needed to deliver the minimum infusion rate then match it with the drug maximum concentration. With stepwise approach we ended with two concentrations standard and maximum. Pocket cards were printed and distributed for all stakeholders (physicians, pharmacist and nurses) and in each bedside in NICU. Smart pump was programmed to add the selected drug concentrations by biomed department then they will train nurses how to select the newly added drug concentration. After these processes were completed successfully, the researcher has developed an in-service education plan that includes communication plan to ensure all stakeholders are aware of impending change and the rationale behind implementing standardized concentrations. In the last stage of the project, the results and feedback from all stakeholders was analyzed. Occurrence, Variance and accident reports, Medication Clarification Records and pharmacy wastage report was counted and analyzed to be comparing with pre-implementation period.

Conclusion

This study aimed at reviewing, examining and evaluating the current NICU situation and the transition to standardized drug concentrations to comply with JACHO NPSG-3b requirement. In order to examine the medication errors phases: the first phase examined the medication errors through new orders and refills which have demonstrated an alarming quantity of error being done at all levels. In discussion chapter, the result of this study has been discussed in the context of the review of the literature.

This study has reported and analyzed medication errors in the first phase and also created standard concentration in the second phase. Further, this project implemented awareness and training program in which consisted of series in-service meetings with the stakeholders to ensure that all of them were aware of impending change and the rationale behind implementing standardized clarifying some current malpractice such as illegible order and improper understanding of replacement of intravenous administration sets and intravenous medication. These steps toward standardization of the quality of care in the Neonatal Intensive Care are very valuable for further research and expected to produce positive results if implemented fully.



Thesis Title: ***“Knowledge and Attitude towards Medical Errors and Patient Safety among Last Year Medical Students and Interns”***

Student: Dr. Ola Mahmoud Babelli

Supervisors: Dr. Zillyham Rojas

Year: 2011

Abstract

In response to the rising problem of medical errors and increasing media attention and public pressure in Saudi Arabia, health organizations have been actively pursuing efforts to improve quality and safety of healthcare services. Several initiatives have been implemented to improve safety, mainly through establishing standards and initiating accreditation schemes. However it is still unknown how the medical training and education have contributed, or would contribute to patient safety.

The aim of this study is to demonstrate whether the topic of patient safety and medical errors was given enough attention in undergraduate teaching or not. The specific objective of this study are to evaluate the knowledge and attitude of the last year medical students and recent graduate medical interns on medical errors and patient safety, and to determine whether the undergraduate curriculum considered teaching patient safety a key topic.

This research is a descriptive, quantitative, cross-sectional survey about knowledge and attitude towards patient safety and medical errors. This study took place in King Saudi University Medical School and King Khalid University Hospital. The study populations were last year medical students and interns who work in King Khalid University Hospital. The random sample size is estimated to be about 270 medical students and interns. Data was collected using a questionnaire validated by a pilot study. The questionnaire contained thirty one items which addressed students and interns' knowledge and attitude about patient safety and medical errors. It also included questions about the content concerning patient safety in the current curriculum. There was also a question on whether students and interns witnessed medical errors. Additionally, students were requested to say if they had reported the error or not. The data was analyzed by using descriptive statistic and Chi-Square.

Amongst the main result it was found that the great majority (57.2% of the participants) were aware that errors can happen and that they are inevitable. However, almost one third (32.7% of them) thought that competent physicians do not make medical errors. Only



22.7% of total students agreed that physicians cannot do anything to prevent errors. The majority (65.1%) disapproved of the practice of non-disclosure to the error. Another interesting finding was that 62.5% of them will address the near miss events. When asked about the reporting system, around one third (32%) thought that the reporting system would help to reduce future errors. Interestingly, almost all (90%) have misconceptions about the constructive way to deal with error when or after it happens. Likewise, almost 90% of the participants were willing to spend a part of their professional time to improve patient care. They believe that learning how to improve patient safety is an appropriate use of time in medical school. And while more than half (59.1%) think that they are partially informed about patient safety, their knowledge did not prove that according to this study. A great number of them (68.4%) did not know if adverse events are reported regularly to the National Health Institute or not. However, 74.7% did not know how to report an error, while very few (only 7.1%) knew how to fill an incident report. More than half the sample (58%) did not receive any formal course about patient safety in undergraduate curriculum.

Participants were found to have a positive attitude towards patient safety, but with a lack of perception on the causes of medical errors and human factors and system factors. They supported the idea of teaching patient safety in the undergraduate, and they were willing to spend part of their time to improve the quality of patient care and to decrease medical errors.

It was also found that they did not know how to deal with errors when they happen, and only a few who had witnessed a medical error reported it. Just as well, they had a knowledge gap in patient safety and medical errors. This gap was not filled by the effort that the teaching staff was doing individually, with a lack of formal course about patient safety in the curriculum.

The main conclusion of this study was demonstrating that the need to integrate patient safety education in the undergraduate curriculum is an urgent need in order to build a safety culture for patients. The country should look towards patient safety from many perspectives. Perhaps, the most important is to raise the future physicians' awareness, knowledge and attitude about patient safety and to help them play a major role to decrease medical errors.



Thesis Title: ***“Dentist Knowledge, Attitudes and Practice towards the Use of Clinical Practice Guidelines in Dentistry”***

Student: Dr. Omar Yousif Abduldaiem

Supervisors: Dr. Zillyham Rojas, Dr. Gamal Moamed, Dr. Vanja Berggren and Dr. Amir Hassan

Year: 2009

Abstract

This study explores the knowledge, attitude and practice among dentist towards clinical practice guidelines in dentistry and present recommendations for improvements on the use of clinical practice guidelines. To aid in subsequent planning for successful implementation and usage of the clinical practice guideline in the dental field

There is considerable variation between the dentist from different specialty, and within the same specialty regarding the clinical decision making, and the treatment plan for same clinical situations such as during selection of superlative materials for cavity restoration or type of coronal restoration after root canal therapy, and other clinical situations which have different treatment options needs clinical decision, this Variations in clinical practice, and decision making raise Exponential increase of information raise the demand for dental clinical Guidelines to assist clinicians in making decisions about proper management of a particular situation also to enhance the quality of service to the patients, and quality of clinical training to the residents.

There is no denying the critical importance of decisions made by doctors in the course of treating their patients. Their decisions – which can be either right or wrong – would save their patients or would worsen their ill conditions. With each decision made, doctors would want to put down in writer records every piece of development that has occurred from the beginning of each medical case. Such written accounts serve to document how the condition of a patient has improved or has deteriorated as a result of the procedures undertaken to save him.

Aim: The main purpose of this study is to explore the Knowledge, Attitude and Practice (KAP) of the dentists in relation to the clinical dental guidelines that have been set for practitioners of dentistry.



Objectives:

1. To determine knowledge, attitude and practice of PAADI dental staff and resident dentists about clinical practice guidelines
2. To identify and analyze, if any, the barriers face by residents and practitioners in their endeavor to use the clinical practice guidelines;
3. To establish ways to encourage knowledge of and compliance with the clinical practice guidelines; and,
4. To present recommendations for improvements for the dental society on the use of clinical practice guidelines.

Method:

A cross-sectional descriptive study design was employed, wherein dependent and independent variables were assessed at the same point in time. A convenience sample was recruited consisting of all dentists working at Prince Abdulrahman Bin Abdulaziz Advanced Dental Institute (PAADI) during the time of the study. It consisted of 49 residents and 22 dental staff; the fields of investigation are the knowledge, attitude and practices of the dentist, with special consideration to the employment of clinical dental guidelines.

Result:

One of the main findings of this study was that the majority of the respondents have a positive attitude towards clinical dental guidelines in general. Another main finding was a statistically significant (<0.05) relation between the attitude score and the level of education, as well as the residency level. It was noticed that the scores were higher among respondents with postgraduate degrees. There was also shown an increasing trend with the increasing residency level. The result also revealed a statistically significant relation between respondents' knowledge score and their experience years (<0.05), implying higher score among respondents with 6-10 years of experience and lowest among those with less experience years.

It was also found that 40.6% of the respondents rarely referred to clinical dental guidelines and 9.9% never did. At the other extreme, only 12.7% of them reported referring to guidelines once a week or more frequently. Participant's perception of the most important clinical dental guidelines shows that the Infection Control in Dental Health Care Settings and Antibiotic Prophylaxis for Dental Patients at Risk for Infection had the highest scores, and ranked at the top of the list according to respondents opinions. Conversely, management of un-erupted and impacted third molar teeth and Dental Erosion Guideline came at the bottom of the list, and had the least scores.

The respondents practice related to use of internet resources. 75% of the respondents used 3 internet resources sites or less. With a median of two, the most commonly used internet resources for clinical dental guidelines were one international and one local guideline. On the other hand, none of the respondents mentioned using the National Guideline



clearinghouse as a resource. Concerning barriers the main findings showed, inability to access guidelines and their poor format were the most commonly mentioned barriers that hinder their use. Meanwhile, about one-fourth of the respondents mentioned that clinical dental guidelines constrained their autonomy. And the lack of clinical resources was the main barrier to implementation of clinical dental guideline, and was mentioned by more than half of the respondents.

Conclusion:

Participant Attitude

The attitude of the study participants regarding the employment of clinical dental guidelines was generally positive, with a mean score of 78.9% (Table 3). A positive correlation has been established between the attitude and the level of education of a dentist (Table 4). In addition, the relationship has been observed to be statistically significant. The results of the questionnaires indicate that a dentist at a higher level of residency training shows a more positive attitude towards the concept of using the clinical dental guidelines in treating patients.

Participants Knowledge

The survey generated information on the self-perception of the study population with regards to their knowledge of the field of clinical dental guidelines. Almost half of the study population perceived themselves to have a least average knowledge of the field, as reflected from the median. Most of the study participants consider the clinical dental guidelines as a very useful instrument in their field of practice. The survey questionnaire also determined the knowledge of the study population with regards to resources on clinical dental guidelines (Table 6).

The results show a promising indication that majority of the study participants are aware of at least four resources on the clinical dental guidelines. In addition, half of the study population indicated their knowledge of at least three resource sites of the clinical dental guidelines. The survey also showed around half of the study population was aware and used a least three clinical dental guidelines in their dental practice. (Figure 1) It is unfortunate to see that approximately 9.9% of the study population had no knowledge regarding any clinical dental guidelines. In terms of sources of information of clinical dental guidelines, the survey showed that majority of the study population gained awareness of the guidelines from their professional colleagues (Figure 2). The study participants also indicated in the survey questionnaire that journals, orientations and training sessions were less likely sources of information regarding clinical dental guidelines.

Participant Practice

About two-thirds of the respondents had the opinion that clinical dental guidelines were of considerably useful. At the other end, few of them reported they were of little usefulness, the participants perception of the most important clinical dental guidelines, show that the infection control in dental health care settings and antibiotic prophylaxis for dental



patients at risk for infection had the highest scores, and ranked at the top of the list according to respondents' opinions. Conversely, management of un-erupted and impacted third molar teeth and dental erosion guideline came at the bottom of the list, and had the least scores.

The most commonly used internet resources for clinical dental guidelines were the American dental association and Prince Abdularahman advanced dental institute, which were mentioned by 3 out of 5 and 1 out of 3 of the respondents. On the other hand, none of the respondents mentioned using the national guideline clearinghouse as a resource. This 1 out of 3 of the respondents who mentioned they use internet resources of PADDI to look for clinical dental guidelines and 1 out of 5 how mentioned MSD internet resources indicate presence of bias on their answers because PADDI and MSD they don't have clinical dental guidelines in their web-site.

Participants Barriers

The reasons for not using clinical dental guidelines included the inability to access guidelines, as well as their poor format. Meanwhile, about one-fourth of the respondents mentioned that clinical dental guidelines constrained their autonomy. Barriers of implementation of clinical dental guidelines, the lack of clinical resources was the main barrier to implementation of clinical dental guidelines, and was mentioned by more than half of the respondents. The least mentioned barrier was logistic difficulties, which was mentioned by about one-third of the respondents.

Participants Suggestions for Improvement

Preferred format of clinical dental guidelines about three-fourth of the respondents preferred the electronic format, and about half of them preferred short summaries. On the other hand, the least preferred format was a detailed manual, which was mentioned. Preferred layout of clinical dental guidelines, the highest percentage of the respondents preferred a single-page checklist as the preferred layout of the clinical practice guideline. At the other extreme, the least preferred layout was a flowchart of algorithm. Suggestions for encouraging use of clinical dental guidelines support and encouragement by senior staff was the most important in encouragement of use of the clinical practice guideline, followed by the administrative directives. Support from peers was the least mentioned.



Thesis Title: **“A Pilot Study on Dental health: Through Knowledge, Attitudes and Practices of Schoolchildren and their Parents. With Particular Reference to the Mobile Dental Clinics Ongoing Oral health Program in National Guard Housing, Riyadh ”**

Student: Dr. Salman Naif Al-Nemer

Supervisors: Dr. Zillyham Rojas, Dr. Dave Haran, Dr. Vanja Berggren and Dr. Amir Hassan

Year: 2009

Abstract

Background: It was children from primary schools are considerably deprived of proper oral health care, hence increasing their risk of developing serious dental problems that, if left untreated it could persist to adulthood. The high prevalence of dental caries among the Saudi youth specifically in rural regions reflected the seriousness of the situation that needed immediate action. The establishment of mobile dental clinics roaming around schools has somehow reversed this dilemma. Fortunately here in Kingdom of Saudi Arabia, just like its Western counterparts, mobile dental clinics exist and are deemed to be of great privilege to public. The “Operational Plan for Mobile Dental Units of School Dental Health Program (SDHP)” was established to provide dental health care to primary school children of the National Guard Housing in Riyadh City. The community health programs are being provided with dental services in the central region and the mission statements are all related to it.

Aim and objectives: In this dissertation, the knowledge attitudes and practices of both parents and children towards an on-going mobile dental health program are identified. Furthermore, this dissertation explored levels of oral health awareness among the parents of the target children who participated in the Oral Health Program by the applications made by Mobile Dental Clinics inside National Guard (NG) Housing.

Methods: to achieve these objectives, a questionnaire-based survey was implemented, involving parents and children of those involved and not involved in the program. The questionnaire consisted of questions related to knowledge, attitudes and practices about oral health care that modified and customized to both parents and school children. A total of 368 respondents participated, 132 parents, 113 children involved in the dental program and 114 non-involved school children.



Results: demographics revealed that most of the parents, regardless of involvement or not in the program, had either elementary or intermediate level as the highest level of education attained, which also explained why most of them were within the SR 5000-10,000 salary/month bracket. Among the involved parents, 40.4% had 4-6 children; the non-involved parents however were 36.1% within that category. Around 2 in every 5 non-involved parents had 7-9 children, and 37.8% among the involved patients had the same. Regarding the scale of comparison between the involved & non-involved parents in the program, it was clear that involved-parents had more knowledge and attitude about oral health and hygiene. There was a difference between knowledge, practice and attitudes between students involved in the program compared to those who were not. Girls were more acquainted about oral health and hygiene and are in fact more influenced by the Mobile Dental Clinic Program compared to boys. In terms of practice, girls seem to be more sincere and are more appropriate in the following the practices taught by the Mobile Dental Clinic Program they have better understating with regards to the importance of maintaining the oral health and hygiene than the boys. In the attitude however, the boys are having more hold over positive attitude regarding Mobile Dental Clinic Program than girls.

Discussion and Conclusion: This dissertation revealed the beneficial aspects of the oral health program in terms of knowledge, attitudes and practices regarding oral health. Considering that both parents had a difference in terms of awareness, the mobile dental program definitely made the distinction in educating the school children involved about the importance of achieving optimum dental care. It is recommended that this program be continued with emphasis on making instructions more understandable considering that the participants belong to the lower-middle class. Furthermore, support from local authorities and government associations is very much needed and thus this should be obtained beforehand.



Thesis Title: ***“Upgrade Quality of Dental Care at King Abdulaziz Dental Centre by Improving the Quality of Communication between Dental Practitioner and Dental Laboratory Technician”***

Student: Dr. Ziyad A. Al Soliea

Supervisors: Dr. Zillyham Rojas, Dr. Vanja Berggren and Dr. Amir Hassan

Year: 2009

Abstract

The purpose of this research is to make a wider discussion over the proceedings that can be adopted for the establishment of proper oral health cared provisions. The research is keen over the upgraded quality of dental care that has been accepted through an improved quality of Communication between Dental Practitioner and Dental Laboratory Technician. The research makes a special reference to King Abdulaziz Dental Centre (KAMDC). The concept that has been explored in this paper is related to the concerns related to the development of dentistry department by the communication between the dental practitioner and the laboratory technician.

The paper makes a vivid and exclusive inspection over the psychology and the educational procedures that can well support the development of communication between these professionals. It is very necessary to understand the core matters related from the basics to the highly upgraded and mechanically very sophisticated devices. It is also very necessary that these professionals get combined trainings and their interactions needs to be very transparent. The dental practitioners should be patient enough to clarify the obligations and the doubts that are there in the mind of the technician. This research brings in all kinds of investigatory analysis for a well-constructed and strong futuristic approach for the determination of an improved scenario of dentistry. There is also an investigatory speculation over Dental Practitioner’s Input and the Laboratory Technician’s Input. These are the aspects that have been dealt after making all kinds of inspection over the strategic application over the profession.

The roles played between the dental practitioners and the dental laboratory technician during earlier phases has been compared to the modernistic approach. The acceptability among the dental professionals is very sharp and that hampers the technicians to follow. Technological support and predetermined speculation over the strategical persuasion for a well structure communication brings in the need for appropriate education system and the scope to pursue it. An assessment has been maintained in order to discover and to bring in



the modern perspectives for the appropriate persuasion. It also makes a wide ranged speculation over the issues that were basically dealt by KADC.

The paper makes few very clear about the analytical surveys undertaken by ADA and KADC. These are all related to the various guidelines and training programs for the development of communication between the dental practitioners and the dental laboratory technicians. There are all kinds of support forwarded to gain an appropriate result oriented research. The empirical data and literary evidences are the basic things that make the research more strong in its approach. The study framework had been designed for this research utilizing the process map analysis, authorization from analysis, number of repeated cases at KADC & workshop validate to redesign the current communication tool between the professions. Personal interviews were done with some of the participants to evaluate the current status of communication level. Repeated prosthodontics cases were counted (2007-2008) which indicate 9.5% of the total cases performed at KADC, PFM (Porcelain Fused to Metal) crowns were the highest repeated restorations (49%). Gross estimation of the total cost due to the errors in communication manner was calculated by using the Unit-cost technique. The KADC is the base of the whole research and the participation of various professionals through Voting done by the participant about the new proposed communication tool (Dental Lab management Software), made the paper more speculative. The exclusive interactions are distributions of methodological approaches are very much appropriate to this research. Creation of stronger team links that the computer generated electronic communication has become very significant for better oral healthcare unit. It has been well realized that in order to achieve an upgraded quality of dental care it is very necessary that the communication between the dental practitioners and the dental laboratory technicians are upgraded. As for the case study the premises of KADC is more as I am well aware of all its proceedings and a part of it.



HEALTH SYSTEMS AND QUALITY MANAGEMENT

MASTER STUDENTS

BATCH 2

ABSTRACT



Thesis Title: *“Clinicians motives to quit clinical duties in favor of administration duties: A study amongst male clinician in Ministry of Health Hospitals in Assir region, KSA”*

Student: Abdallah Alsmari

Supervisors: Dr. Maye Abu Omar

Year: 2011

Abstract

Background: Saudi Arabia is experiencing unprecedented social and economic development, and profound progress has been observed in various sections, including education, environment, housing, and especially health. Healthcare and the provision of services are often associated with a country’s development. Developed countries have a higher degree of healthcare than developing countries. Thus, higher development is believed to be linked to both economic and socio-political developments (Nuruzzaman 2007). An essential component of building any healthcare infrastructure is human resources. Unfortunately, the ongoing instability among Saudi Arabian health professionals in the Assir region raises questions about Saudi male health clinicians who leave their profession to work in administrative or managerial positions in the Assir region of the Kingdom of Saudi Arabia. The Assir region in the Kingdom of Saudi Arabia is experiencing unprecedented changes in its health resources. The Assir region covers an area of 81.6 thousand square meters from the Red Sea coast to the west. The area includes more than 20 government hospitals and 244 health centers serving more than 11 administrative provinces and 65 administrative centers that provide health services for more than six million people (Ministry of Health 2006). The region employs a number of Saudi male employees (see Table 1).

Aim of the Study: To study the reasons behind the migration of health clinicians from clinical jobs to administrative jobs in the hospitals of the Assir region in order to propose strategies for dealing with the problem of staff migration.

Objectives: To investigate the reasons that encourages clinicians to work in management positions instead of clinical work. To analyze the consequences of the clinicians leaving clinical jobs on patient-staff in the Assir region. To provide recommendations for dealing with the identified problems in order to address of clinicians leaving clinical duties.

Method: The present study uses the survey as the data-gathering method. Surveys are efficient and effective means of gathering information from a large sample size easily and less expensively (Long et al. 2006). Surveys are also useful in studies that aim to measure attitudes and perceptions, especially when the object of the research is naturally occurring



or is a social phenomenon that exists as a function of social processes, innovations, or cultural traditions. Surveys can only happen with the use of a valid and reliable questionnaire (Long et al. 2006). The research was conducted in a group of six administrations of Assir region in Saudi Arabia: 1) General Directorate of Assir Health Affairs, 2) Assir Medical Supply, 3) Abha primary healthcare sectors, 4) Assir Nursing Administration, 5) Assir Central Hospital, and 6) Assir Region Health Quality Management. Healthcare professionals are a special interest group as they work in a crucial field responsible for the maintenance of the health of the country's citizens. The study was conducted among healthcare management administrators primarily responsible for the management of healthcare providers and services.

Result: Initially, the data gathered for general information are presented using graphs. As shown in Figure 1, regarding age, 42 percent of respondents fell in the 30-39 years old age group, followed by the 20-29 and 40-49 years old age groups, which accounted for 26 and 24 percent, respectively. The other group comprised 8 percent of the overall respondents. Have an educational background in nursing, followed by other professions mentioned in this study as a metaphor for any health professional not named in the questionnaire. Pharmacists and Physicians accounted for the fewest respondents. In terms of qualifications, Figure 3 demonstrates that most respondents (84 percent) have both clinical and management certificates. Meanwhile, in terms of educational level, Figure 4 shows that most respondents (75 percent) have completed diploma courses, followed by bachelor's degree courses (19 percent) and master's degree courses (5 percent). Only 1 percent of the respondents had a doctoral degree. In terms of experience, Figure 5 indicates that 42 percent of respondents have more than 15 years or experience in their field of work, followed by respondents with 5-9 years of experience (26 percent).

Conclusion: this research study gathered some interesting points pertaining to clinical staff's migration to administrative jobs. The study unraveled the reasons for such migration. As such, the results could help deal with staff shortages in clinical positions and provide better quality services to the hospitals of the Assir region. With the help of the distributed questionnaire, the researchers determined that the main reason for this shift was hospitals' mismanagement of their clinical stages and failure to address employees' immediate concerns. Evidence of this conclusion was provided by the main factors identified, which include management undervaluation, lack of incentives, and long work hours. Management undervaluation itself pertains to the lack of attention that the organization provides to employees, which could greatly affect the disposition of an employee whose efforts are not appreciated by the organization he is serving. This study also revealed that even small things such as failing to provide rewards for employees can be a great cause of employees' resignation, which could have a direct impact in the organization. Not giving employees their due could affect organizational operations in the long run.



Thesis Title: ***“Health care providers’ knowledge, attitude and practice toward electronic medical record implementation”***

Student: Fahad Saudi Al-Shammari

Supervisors: Prof. Zillyham Rojas

Year: 2011

Abstract

Introduction: Worldwide, health information systems are considered essential to promote quality of health care in hospital. However, electronic medical record (EMR) implementation is become a necessity for replacement of paper based records in Saudi Arabia health organizations. King Khalid Hospital in Hail City is one of the biggest secondary level care settings belong to the Ministry of Health that recently invested and adopted new hospital information system. Health care providers especially, physicians and nurses are key users for this beneficial technology. Therefore, this study intended to assess the new electronic medical record usability among health care providers (physicians and nurses). Finally yet importantly, early detection of shortfalls between health care providers and the newly system would attempt to limit the challenges and shift the implementation to the optimum level.

Aim and objectives: The study purpose is to maintain a sustainable and successful electronic medical record implementation by health care providers in the hospital. Besides, describing health care providers’ knowledge, attitude and practice is helpful in defining the size of problem importantly. Analyzing the extent to which the factors influence health care provider understating, attitude and use or EMR by reviewing published evidence will provide clear form of the issue. Recommendations such as, ongoing training, leadership communication and technical and maintenance support will make health care providers able to aware and use EMR smoothly.

Methods: Quantitative method was used to achieve the research aim and objectives. A total of 141 respondents answered the questionnaire to describe their Knowledge, Attitudes and Practices (known as KAP questionnaire) and the proposed influencing factors in King Khalid Hospital. The survey conducted in February 16 of 2011 to March 15, 2011 with a response rate of 99.2 percent. Data were entered to SPSS package and crosschecked accurately. Reliability and validity were done and overall the questionnaire sought to be valid and reliable. One-way analysis of variance was used to find relationships between the intended variables.



Results: Around the half of 141 participants were under 30 years old, which means a quite young staff. Approximately, three quarter of participants were female (72.3 percent) and nursing profession comprises the majority. Most of health care providers held university degree and their computer literacy ranged between average and proficient level (83.7 percent). More than the half of health care provider drew general agreement about the quality of information produced from EMR. A considerable majority of participants wa demonstrated high satisfaction level and comprises of 73.5 percent. Mean compute anxiety score (38.07) were low among majority of health care providers which disclose good expectation of computer interactions. Regarding knowledge, participants revealed high familiarity with different potential function of EMR. Attitudinal questions showed positive attitude in general. Similarly, practice questions illustrated good use of EMR of many of participants. Interestingly, computer skill level found high statically significant with knowledge, attitude and practice. Regarding quality of information, significant associations were found with knowledge, attitude and practice as well. On level of satisfaction, impact was found to health care providers' attitude only. Last but not least, computer anxiety was strong predictor factor for health care providers practice.

Discussion: According to results, the common idea of KAP sought to be accepted in regard to EMR implementation in the hospital. However, part of this study results were found consistent and confirming some other studies results. Although this cross-sectional quantitative study has limitations, the finding became useful in identifying the influencing factors that might help in improving applications of EMR. The main purpose of this study was revolving around how to create successful situation in EMR implementation. Further future research sought to be important to discover different health care providers face-to-face opinions. Involving different health settings also could provide strong outcome rather than surveying one hospital.

Conclusion and Recommendations: To maintain electronic medical record working smoothly, ongoing training should be performed to ensure new staff involvement and readiness for updated software. Leadership should communicate with their staff effectively which will lead to a friendly work environment and create satisfaction and positivism toward the system implementation. Technical and maintenance support will make health care providers to do valuable more usability of the system. Finally, according to the previous discussion of the main findings of this study, aim and objectives were achieved.



Thesis Title: *“The Knowledge, Attitude and Practice of Physicians and Nurses toward adverse event reporting system in primary health care setting”*

Student: Ibrahim Mommed Almughim

Supervisors: Dr. Zillyham Rojas

Year: 2011

Abstract

Introduction: In the modern health care system, patient safety has become a popular subject and concern for many academics. An important element for achieving patient safety is reducing medical errors because the health care setting is where people seek to recover from their illness, not the other way around. Thus, adverse events reporting system provides an essential tool for gaining health accreditation in quality services. The National Guard Health Affairs (NGHA) in Saudi Arabia is continuing to invest significant efforts into improving health care quality. A set of international standards have been imported and modified to fit the culture of Saudi Arabia to maintain patient safety and an effective working climate. NGHA has a voluntary reporting system called Occurrence, Variance of Accident (OVA) reporting system that has been used for many years. The main goal of OVA is to reduce harms in order to improve patient safety and reduce health costs.

Aim of the study: To study the influence of physicians and nurses’ knowledge, attitude and practice (KAP) on OVA reporting system usage in order to improve it and to contribute to patient safety.

Objective of the study:

1. To describe the KAP of Physicians and Nurses at Primary Health Care in NGHA regarding OVA reporting system.
2. To define associate characteristics of physicians and nurses that affects their KAP regarding OVA reporting system.
3. To make recommendation on how to improve the usage of reporting system (OVA) at NGHA PHC.

Methods: This study used a quantitative research methodology with a descriptive design. The sample of this study was primary health care physicians and nurses working at NGHA, Saudi Arabia. A hard copy of the survey was distributed to them in two centers: Yarmook and Khashim ala’an. Those who agreed to participate in the survey were asked to complete the survey questionnaire and return it within 7 to 10 working days. The knowledge,



attitude and practice (KAP) questionnaire, containing 17 questions and demographics, was developed to assess OVA use among physicians and nurses. A pilot study was conducted prior to the study phase in order to test the validity and reliability of the questions, and to make the needed adjustments to the questionnaire.

Result: ultimately, 66.2% (112) of the 180 survey questionnaires distributed to physicians and nurses of the selected primary health care centers were completed and returned. Of these, 25% (28) were physicians and 75% (84) were nurses. Most of the physicians and nurses had a good knowledge of OVA use (89.5%), although nurses were more likely than physicians to have good knowledge (94% vs. 53.6%) and to have a better practice level of the OVA system (82.1% vs. 52.4%) while physicians were more likely to have negative attitude toward the OVA system than nurses (71.4% vs. 42.9%). Significant differences emerged between physician' and nurses' KAP toward the OVA reporting system and nationality, language and working site.

Discussion and Conclusions: This is the first survey to assess nurses' and physicians' KAP toward the use of the OVA reporting system at the primary health care level in Saudi Arabia. Patient safety is a priority in the health care settings; it involves using the proactive implementation of error management techniques. Practicing good knowledge and utilizing proper attitude are key factors to circumvent health care incidents to improve the quality and safety of the patient care. Approximately 6% of the participants were not aware of the existing OVA reporting system. The findings of the survey demonstrated that nurses had better knowledge and practice and a less negative attitude of the system use. Almost 50% of them had not received the information about the system from the orientation program, but rather from colleagues or their supervisor. This is an opportunity for NGHHA human resources to improve system use.

Recommendation: Given that medical errors can harm the patient during treatment and care, an important goal of the reporting system is to investigate the information collected through errors and find ways to overcome them; thus, it does not focus on data gathering. The finding of this study can be transferred to practical use in the form of training and education, report coordinator, extra ways of reporting, friendly design, blame-free culture and recruitment.



Thesis Title: ***“Human Resources Management Decision Making Process in King Saudi Medical City, How Informed is it?”***

Student: Dr. Ahmed D. Al Awwad

Supervisors:

Year: 2012

Executive Summary

This research study examines the human resources management decision making process in addressing the present and future needs of King Saud Medical City. The main purpose of the study is to investigate the readiness of healthcare managers in meeting present and future challenges faced by the human resources decision making process in healthcare organizations. King Saudi medical City was selected as a model healthcare organization to gain understanding of the HR decision making process for this study. This research adopts grounded theory methodology in establishing tactical decisions being made by health managers. Grounded theory is an appropriate qualitative tool for this purpose because it emphasized on systematic procedures in understanding critical HR factors impacting decision making and description of the phenomenon as grounded within study participant expressions. The participants in this study comprises of 12 managers from King Saudi Medical City with experience in healthcare management. A semi-structured interview method was used for the collection of the data. Constant comparative approach was used in the analysis of the interview transcripts by coding and analyzing participant’s expressions in order to identify categories and themes related to human resource decision making in healthcare organizations. Results from the study reveal four core obstacles managers in KSMC face in making decisions regarding human resources. These barriers include organizational culture and structure which was considered as a core determinant hindering decision making, lack of authority was ranked second from participants’ perspective views, third was lack of self-confidence in decision making, and lack of adequate knowledge and skills among managers. The highly centralized approach for HR decision making was found to be the core reason for these obstacles. Understanding the overall phenomenon “highly centralized” healthcare system, and removal of identified barriers in the way of managers significantly alleviates the present situation by offering managers necessary authority, encouraging self-confidence, and effectively making decisions that would enhance quality and address human resources issues.



Thesis Title: ***“Identifying Barriers for Implementing Internal Supply Chain Management Practices in Riyadh Military Hospital”***

Student: Mohammed Saeed Alanazi

Supervisors: Dr. Zillyham Rojas

Year: 2011

Abstract

Introduction

Supply chain management (SCM) in the healthcare sector combines practices such as demand forecasting, purchasing, planning and scheduling, inventory control, stores, distribution, and delivery to the end customer in order to enhance clinical outcome while controlling costs. Inefficient and ineffective SCM in hospitals result in many consequences that may affect the quality of health services that are provided to patients. Such consequences may include shortages of some items, a high percentage of waste and an excess amount of unnecessary inventories. With the recent increase in material and supply costs in addition to the fact that SCM practices consumed 40 percent of the typical hospital budget, supply chain managers face the challenging task of providing hospitals budget, supply chain managers face the challenging task of providing hospitals with resources in a more cost-efficient manner without affecting the quality of services presented to patients. Although of the well documented evidence of the advantages and cost reduction that can be achieved by adopting of efficient and effective SCM practices in other industries, the healthcare industry is slow in the adoption of these practices. Riyadh Military Hospital (RMH) is no exception, as it faces a number of the challenges that previously mentioned, which can be attributed to the existence of strong implementation barriers for SCM practices. These barriers must be overcome for change to succeed.

This research seeks to identify the barriers that preventing the effective implementation of internal SCM practices in RMH. The identification of these barriers and overcome them may lead to the improvement of the SCM practices which will result in cost reduction and quality improvement of the health services.

Aim and Objectives

The aim of this study is to improve SCM practices at RMH. The objectives are (1) to identify implementation barriers for internal SCM practices in RMH from the viewpoints of employees who are involved in the practices, (2) to discuss factors that contribute to the existence of these barriers, and (3) to explore ways and approaches to overcome these barriers.



Method

The study used cross-sectional survey research to gather information and achieve the study objectives. A survey questionnaire was adapted from a valid questionnaire used in a similar study conducted by Calendar (2007); it was used with the permission of the author. A five-point Likert-scale, ranging from strongly agree to strongly disagree, was used to measure the responses. Two open-ended questions were also added to the survey in order to explore any hidden barriers to the implementation of SCM practices that may exist but may not be captured by closed-ended questions. In addition, the open-ended questions allowed participants to suggest solutions for existing barriers from their point of views. Due to the purpose of the study and the small size of the target population (186), no sampling technique was used; instead, the entire target population was used, with an accepted response rate of at least 50 percent.

Results

The response rate was 104 (55.9%) out of 186. All of the 104 responses were found to be usable. The majority of the respondents were from medical background that included pharmacists, nurses and other allied health personal. The majority of the participants in this survey were from male, Saudis and from the supply department. Only 7.7 percent from the participants had a formal training in SCM.

Result of closed-ended questions

Results from this part of the questionnaire identified several barriers to implementing SCM practices in RMH, including the lack of a performance measurement system for SCM (8.8%), the limited use of logistical information technology applications (80.8%), limited information sharing (75%), conflicting views regarding inventory quantity (72.1%), an inadequate logistical information system (71.2%), the lack of a cooperative organizational culture (64.1%), a lack of standardized nomenclature and/or coding for products (61.5%), and employees' lack of skills and knowledge about SCM practices (54.8%). The most favorable result of this study was the existence of top management's support for SCM efforts.

Result of open ended questions

Analysis for this part of the questionnaire showed the following barriers in each factor from the closed ended questions: Regarding top management support, barriers include lack of qualified employees in SCM (30.14%), lack of a proper reward system (20.55%), and limited staff number (12.33%). Regarding skills and knowledge about SCM, barriers include lack of employee training in SCM (16.44%). Regarding limited information sharing, barriers include lack of communication (24.66%). Regarding organizational culture, barriers include lack of collaboration (13.7%). Finally, regarding other barriers, barriers include lack of proper warehouses (19.2%).



Result of this part also indicated numbers of the solutions were suggested by the participants to overcome the existed barriers. These solutions were hiring qualified staff (20.4%), effective reward system (19.2%), increase staff number (9.5%), employees training (31.5%), communication improvement (20.55%), new logistic information system (19.2%) and finally, building new warehouses (24.66%)

Conclusion & Recommendation

The main purpose for this study was to identify implementation barriers for internal SCM practices in RMH. The study has achieved this purpose. The results of the study revealed that the implementation of internal SCM practices has been still hindered by the existence of number of barriers. For example, lack of performance measurement system for SCM and the Limited use of logistic information technology. Furthermore, the study revealed that those barriers which identified by literature are also existed in RMH. In order to overcome these barriers immediate actions are recommended such as formal training on SCM practices to improve the skills and knowledge of the employees who are involved in the practice, establishing of an appropriate performance measurement system to assess the performance of the SCM in the hospital. It is highly recommended to provide the hospital with moderate logistics technologies and with proper training to the staff on the use these technologies. Finally is recommended to provide the hospital with a basic logistic information system that will fit the needs for all supply processes.



Thesis Title: ***“Factors Affecting the Retention of Nurses at Riyadh Military Hospital”***

Student: Dr. Noufa Al Afri Alonazi

Supervisors: Dr. Mayeh Omar, Dr. Jamal Mohammed & Dr. Amir Hassan

Year: 2011

Abstract

The global demand for nurses in the developing world is expected to continue for the next coming decades, most of it will be filled by foreign nurses coming from less developed nations. The Kingdom of Saudi Arabia (KSA) is one of those nations where the demand for nursing staff remains high. It is important therefore to consider factors that affect retention of hired foreign nurses to maintain balance in providing quality health care to the indigenous population. The aims of this study are to identify and explore the factors that mostly influence female nurse turnover and retention in the Pediatrics Department at Riyadh Military Hospital (RMH), Saudi Arabia, using Survival Analysis statistics to estimate the length of employment and to investigate any relationship between the identified factors and the length of employment. This study is intended to aid the Human Resource Department at RMH to review and refine their retention strategies and to, hopefully, decrease the nurses' turnover in the hospital. The conducted literature review identifies that there are several independent variables that may have an influence on the employee's turnover and staff retention. These factors can be employee-related, job-related, or non-job-related.

The study sample included a total of 254 female nurses from the Pediatric Department at Riyadh Military Hospital, Riyadh, Saudi Arabia. 126 nurses were recruited by reviewing their Exit Questionnaires, which were completed by the nurses who joined and left the hospital during the period between January 2006 and October 2010. Another 128 nurses, who joined the hospital at different dates, between 2006 and still working at the hospital up to 10 October 2010. These nurses were asked to complete the same Exit Questionnaire.



The nurses who left the job will be considered as *Events* and nurses who are still working will be considered as *Censored*. The Survival Analysis was used to estimate the length of employment for the nurses and its relationship to the independent variables.

The SPSS® software was also used to determine the strength of independent variables: Nationality, length of employment (LOE-Cat), age of the employees, level of education, unit where the employee worked, position held by the nurses, overall job satisfaction, and accommodation satisfaction.

There was a significant relationship between the independent variables and the nurse's length of employment (turnover). Most of the staff leaves the hospital for socio-demographic reasons, such as, nationality, age, job satisfaction, and workload. No significant differences were found with regard to qualifications and accommodation satisfaction. The results showed that, on average, the majority of nurses (75%) stayed in their jobs for 2.2 years; the median length of employment was 7 years. 25% of the nurses stayed for a maximum of 20.2 years.

Socio-demographic factors play an important role in staff retention. The findings of this research can be used in the development of appropriate strategies to reduce the level of nurses' turnover at RMH.



HEALTH SYSTEMS AND QUALITY MANAGEMENT
MASTER STUDENTS
BATCH 3 ABSTRACT



Thesis Title: *“Servant Leadership Perception and Job Satisfaction among Saudi Food and Drug Authority Employees; A correlational Study”*

Student: Ph. Baleegh A. AL-Yousef

Supervisor: Dr. Khaled Al-Surimi

Year: 2012

Abstract

Background: Leadership is a process of influence between leaders and subordinates where a leader attempt to influence the behavior of subordinates to achieve the organizational goals. Success in achieving the organizational goals and objectives depends on the leaders styles; leaders can affect employees’ job satisfaction.

Servant leadership seeks to identify centric, generative approach to leadership. Recently, the servant leadership style has gained more credibility and support by virtue of the scholars of Greenleaf, the founder of servant leadership theory.

Although there are numerous studies and researches conducted on servant leadership studies, which support the positive influences of servant leadership on individuals’ job satisfaction in a variety of organizations, servant leadership and its relation to job satisfaction has not been addressed for different types of organizations in Saudi Arabia context, particularly in the case of the non-for-profit organizations such as the Saudi Food and Drug Authority (SFDA).

This study is the first of its kind to test the construct validity of the OLA questionnaire in Saudi Arabia context.

Aims: The main purpose of this research study is to assess the perception of servant leadership and determine the extent to which job satisfaction is correlated with perception of the servant leadership principle among Saudi Food and Drug Authority (SFDA) employees.

Methodology: By using multilevel employee ratings from the Organizational Leadership Assessment (OLA), as developed by Laub (38), a sample of 268 employees working in SFDA in different positions voluntarily participated and completed the OLA survey.

Results: The results of this study, through using a Pearson correlation test, found a statistically significant, positive and substantial relationship between the perception of



servant leadership and job satisfaction among the SFDA employees; these results resemble those of all previous studies conducted in the aspect.

Data analysis revealed that SFDA employees perceived well the servant leadership principles and all constructs of servant leadership mean scores were within the average score of OLA standard scores. Further data analysis showed strong correlation between the level of job satisfaction of SFDA employees and all of the six constructs of servant leadership of **0.817**. Additionally, the result from the simple linear regression model for the Servant Leadership and Job Satisfaction by ANOVA was $r=.817$ and $r^2=.668$, $F=535.820$, $p<.001$. The significance value of P at 0.000 was derived from the model, indicating the significance between the two variables.

For the perception of servant leadership and the level of job satisfaction in regards to SFDA employees' positional level, data analysis showed that the level of job satisfaction of Top management was strongly correlated to all six constructs of servant leadership. Top Management had a correlation of .904; Middle Management had a correlation of .790, while the Front-Line employees produced a correlation of .807, and the data by ANOVA yielded a result of $r=.821$ and $r^2=.674$, $F=274.194$, $p>.001$. The significance value of P at 0.000 was derived from the model, indicating the significance between variables.

Conclusion: Finally, the study results revealed that SFDA represented in this study was at level 4 (Positively Paternalistic Organization). This level is referred to as Moderate Health Organization.

The empirical data collected during the present study indicated a strong positive relationship and could be used to develop leadership training programmes based on servant leadership principles and remove the barriers that impede the practice of servant leadership style. Additionally the data support the idea that the practice of servant leadership principles can increase the health of an organization.



Thesis Title: ***“Factors Jeopardizing the Development of Strategic Plan at King Khaled Eye Specialist Hospital (KKESH) in Saudi Arabia”***

Student: Basil Al-Abbasi, MHHA, MBA

Supervisors: Dr. Vicki Doyle and Dr. Mohamed Wally

Year: 2012

Abstract

Strategic planning is very important to guide future accomplishment of any health care services including public and free-for-service hospitals. In Saudi Arabia strategic planning application within the health sector are very limited and considered as a reference document that been subjectively written for documentation purposes and to match an accreditation mandatory requirement has been the case for King Khaled Eye Specialist Hospital. Two strategic plans produced since 2004 and none of which has been a reflection to the hospital needs and development.

This study will aim be to identify factors hindering KKESH from developing a proper value added strategic plan as well as the provision of evidence-based of factors contributing to strategic planning success in leading objective accomplishment and managing future uncertainty and ambiguity. Hence the study will evaluate all factors contributing to the strategic planning process from initiation through execution with an emphasis of jeopardizing factors holding progress to strategic plans.

KAP survey was prepared to evaluate strategic planning application and limitation at KKESH. Factors tasted were based on the conceptual framework of 7 components category of different classification of hindering or jeopardizing factors impacting the strategic planning. This to be completed by senior management of a selected 25 (42%) department of the hospital whereby a total of 17 (68%) department chosen from medical/paramedical/nursing functioning areas thus to focus on the view of directly involved service providers.

Findings are expected to reflect surprising factors associated to the core investigation of limiting the deployment and use of strategic planning to achieve the hospital future goals and objectives and to bridge the gap between strategic planning future intentions and isolated/individually based decision making practices within KKESH.



Thesis Title: ***“Barriers to the Implementation of CBAHI Standards in ACH”***

Student: Eid Mohammed Alqahtani

Supervisors: Dr. Vicki Doyle

Year: 2012

Abstract

Introduction – Health system currently, operates within an environment of rapid social, economic and technical changes. Hence, care is often delivered in a pressurized and fast-moving environment, involving a huge range of technology as well as, daily individual decisions and judgments by healthcare professionals (1). In such circumstances, things might and do go wrong. Sometimes unintentional harm comes to a patient during a clinical procedure or as a result of a clinical decision. Therefore, health care industry is faced with numerous challenges including poor state of hospitals, deteriorating health care services and an increase in medical errors. Consequently, significant efforts are underway to improve the quality of healthcare services including the noticed increase in the quality initiatives and accrediting organizations such as JCI, ARHQ and CBAHI. However, several countries and health care organizations seeking different approaches to improve the quality of its health services. Saudi Arabia is one of those countries where the demand for improving the quality of health services remains high and concerns for the government and Ministry of Health (MOH). It used hospital accreditation as a quality approach to improve hospitals performance and services. It established an accrediting organization called Central Board for Accreditation of Health Institutions (CBAHI), to accredit its health facilities. However, in practice, the implementation of CBAHI standards faced certain barriers and challenges. These barriers have to be identified to facilitate and improve the implementation process and thus to be benefit from the accreditation.

Study Aim – This study aims to improve the implementation of CBAHI standards through the identifying of the key barriers faced the successful implementation of these standards in Aseer Central Hospital.

Design & Methodology – This study will be a quantitative exploratory study. It will employ across sectional design to identify the key barriers face the implementation of CBAHI quality standards in ACH. The target population of this research will include all employees working in ACH. Subjects will be undertaken an inclusion and exclusion criteria. Stratified random sample technique will be used to select participants. The sample size was calculated by a statistician i.e. 385. The study will use a questionnaire format with 5-points



Likert scale ranging from (strongly disagree = 1) to (strongly agree = 5), as an instrument to collect data and responses. There will be three parts of the instrument, demographic section, forty four close ended questions for the second section and two open ended questions for the last section. A self-administered method via two means personally handles and by email will be used. However, there will be multiple methods to return the questionnaire or response including survey box, hand to hand, email and post mail. Data will be analyzed using appropriate programs, statistical procedures and tests. Microsoft Office Excel Spread Sheet version 2007 and Statistical Package of Social Science (SPSS) version 17 will be used for data storing and analyzing. The analysis will include descriptive statistics, association (cross-tabulation), and correlation (comparing).

Results – Since the researchers have not collected data yet, result will not presented. However, common barriers and factors that affects the implementation of quality in hospitals being categorized on six main factors. These include leadership and management commitment, quality culture, structure for quality, staff involvement, technical support and functions, and quality design. Moreover, pre=test (pilot study) was done on eight health care providers to assess and evaluate the validity and reliability of the study instrument. The respondents identified some ambiguity and changes. In addition, re-test being done on the same staff after correction being made. Those respondents will not be a part of this study.

Research Limitations/Implications – Although, this study will be conducted in a MOH public hospital, it is expected that the results of the study would not be generalized to other hospitals. This is a result of a single study setting as well as the design and method which will be used by this study. It can use qualitative research approach using in-depth interview and focus group discussion rather than across sectional survey. However, the results of this study could assist the health care managers in ACH to develop a plan that will address the barriers and challenges which will be identified. In addition, only certain aspects (six factors) will be taken into consideration. Thus, further research will be needed to identify other factors.



Thesis Title: ***“Performance Appraisal Perception at KSU Hospitals Pharmacy Department”***

Student: Pha. Haifa Ibraheem Thalmi

Supervisors: Dr. Wesley M Rohrer and Dr. Gamal Mohammed

Year: 2012

Abstract

The primary purpose of this study is to determine the perceptions of employees of the pharmacy department regarding the effectiveness of the Performance Appraisal System (PAS) used. Effectiveness of the PAS is determined by four factors including (1) Objectivity of ratings, (2) PAS process, including feedback to the employee, (3) actual uses of results, (4) Participating in setting goal. Identifying the influence of PAS on motivation, training need, improve job performance and enhances career growth is necessary to insure long-term effectiveness of the PAS.

This paper presents a Proposal for a research project using for a descriptive analytic approach adopted for the study. Data will be collected by means of a questionnaire. T-tests analyses will be used to analyze the gathered data.

The paper finally may support and recommends that an internal audit be implemented of the Performance Appraisals System apart from the ongoing appraisals conducted by the personnel department for the sole purpose of correcting performance deviations.

This study will provide feedback received from the performance evaluation process helped to identify strengths and weaknesses of employee’s performance, (2) the extent to which performance appraisal was used for setting goals for future performance, (3) the employee’s participation in goal setting, and (4) whether the performance appraisal was used for determining training needs.

This study will identify the actual practices in use for performance appraisal system; identify attitudes of HR employees and other administrator toward the use of current PAS. This study is prospective, cross-sectional study using a predesigned and tested survey questionnaire for staff and semi-structured interview questions for heads of pharmacy departments and Human Resources managers.



Non Probability sampling technique will be used for 233 non managerial staff, 12 participants for the interview will be selected, and 10 participants will be selected for pilot study.

The researcher will use survey instrument to collect primary data and secondary data from Pharmacy department profile and form reviewing literatures, text books and website. The researcher will take approximately three months to complete the study successfully.

Response rate will be calculated. The outcome measure for this study will be staff perception in term of satisfaction. Analytically the response rate, frequencies and percentages for all demographic variables will be calculated and 95% confidence intervals (CIs). (MANOVA) will be used to identify the differences in perceptions of the PAS based on demographic characteristics.

Finally the researcher will present all results in graphical form. Thus, statistical display techniques like tabulation and bar diagrams will be used to present information clearly.



Thesis Title: ***“How to Improve Compliance to Surgical Safety Checklist? Barriers and Challenges”***

Student: Khaled Albedah

Supervisors: Dr. Vicki Doyle

Year: 2012

Abstract

Background

Our patients expect safe, high quality care provided to them, the surgical safety checklist is one tool used to help ensure a positive patient care experience in the operating room. A surgical safety checklist is a patient safety communication tool that is used by the operating room professionals (surgeons, anesthesiologists, nurses) to discuss important details about each surgical case. In many ways, the surgical checklist is similar to an airline pilot's checklist used just before take-off. It is a final check prior to surgery used to make sure everyone knows the important medical information they need to know about the patient, all equipment is available and in working order, and everyone is ready to proceed.

The impact surgical safety checklists on patient outcomes is likely to vary with the effectiveness of each hospital's implementation process, a major component of effective implementation is compliance of the professionals to this tool due to lack of information about this process, an attempt to study the factors which influence compliance from organizational level down to individual attitude, constitute the core of which this work in all about.

The concept of compliance studied through a questionnaire that includes all different contributing elements to it, categorized into safety culture, leadership structure, information sharing and those related to human performance such as teamwork, work values and confidence.

Each category will be analyzed by questions directed to understand the extent of fulfilling all dimensions of compliance at the same time identify barriers and obstacle to effective compliance.

Setting: King Abdulaziz Medical City, a tertiary care center with total bed capacity of 870, serving the National Guard community, the main operating room has fourteen operating rooms and two other operating rooms are situated within labor and delivery, in addition to five operating rooms designated for hepatobiliary and cardiac surgeries.

Design:

The study is based on a survey by questionnaire to operating room staff (surgeons, anesthesiologists, nurses) attempt to study the different aspects of compliance from both organizational and human sides with particular attention to degree of implementation



technique used to introduce surgical safety checklist in terms of teamwork attitude and communication.

Aim:

To evaluate non-compliance of the operating staff to the surgical safety checklist and identify barriers to its effective implementation and use.

One of the reasons behind successful implementation of any new activity is compliance of the professionals involved, without it change process may face a lot of barriers and obstacles.

Compliance the state of being in accordance with the relevant legal requirement, it also contributes to personal side of accountability in health care safety compliance to safe practice and adherence to guidelines that promote performance has been linked to knowledge and attitude, in addition to responsive culture of safety.

To study the compliance one would consider different aspects of staff knowledge about safety practice and attitude towards communication and teamwork, in addition to existing concept of safety attitude towards documenting and reporting adverse events.

This work evolves around materializing this concept into a tool to assess different organizational and human factors that contribute to this subject.

Objectives:

Implementation of a surgical checklist depends on many organizational factors and on sociocultural patterns. The objectives of this study are to:

- 1- Assess use, compliance and completeness rate of surgical safety checklist
- 2- To develop strategy to increase compliance and analyze attitude of the operating staff to surgical checklist
- 3- To identify, compare different barriers to effective use of surgical safety checklist
- 4- Create; drive the change necessary to comply with surgical safety checklist.

Conclusion:

From the literature review, it was obvious that common challenges face on implemtnaing surgical safety checklist include:

- Tendency to view the checklist as a tick box exercise rather than a tool to improve communication
- Lack of clinical engagement
- Not seeing the checklist as a priority
- Not having enough time
- Lack of understanding of improvement methods
- Lack of leadership support/managerial attitudes
- Lack of partnership between clinical and non-clinical managers
- Focus on reporting back

And barriers to effective implementation were classified to:

- 1- Knowledge: lack of awareness, familiarity
- 2- Attitude: lack of motivation, agreement, outcome expectancy
- 3- Behavior: include environmental and guidelines adherence.

This proposal will find that if these are true for our institution.



Thesis Title: ***“Improving the Quality of Patients Prescriptions”***

Student: Dr. Lamia Abdul Mohsen Al-Ibrahim

Supervisors: Dr. Vicki Doyle

Year: 2012

Abstract

Patients' safety is global concern where service quality measures are needs to perform to ensure that patients receive the proper treatment.

Medication errors can affect patient safety and are one of the most preventable causes of patient maltreatment. The majority of medication errors occur as a result of poor prescribing. Prohibited abbreviations and illegible handwriting are the most common causes of prescribing medication errors emphasizing the need to improve the prescribing skills. This project focuses on prescribing errors.

Despite the fact, the problem seem to be uncomplicated that can be prevented by a memo from higher authorities; there is no legislation to enforce the improvement of prescriptions writing. Further it is not easy to change staff behavior without steps of interventions.

The quality accreditation organizations formulated policies to prevent the use of prohibited abbreviations in patient's documentation including prescriptions in order to ensure patients safety. The MOH/PHC clinics required an intervention action plan to achieve these standards and ensure patients safety.

This project focuses to reduce the use of prohibited (forbidden) abbreviations in primary health care patient's prescriptions by at least 30% within 6-months. This interventional project consists of:

- Planning through assessing the current situation
- Staff education and training programme to increase the awareness of patient safety on how to prevent the medication errors through avoiding the use of prohibited abbreviations
- The plan implementation
- Monthly monitoring of prescribing errors reduction
- Evaluation where the baseline statue and final measure will compare
- Ensure patients safety and improving therapeutic outcomes
- Decrease the time wasted in order to clarify the prescriptions aim to maximize the utilization of time and resources for patients care
- Decrease the delay related to abbreviations and barriers in communication
- Protect physicians and pharmacists from consequences related to misinterpretation of patient's prescriptions
- Improve physicians prescribing behavior in order to improve communication and to reduce the malpractice related to misinterpretation of medical prescription
- Meet the required standards towards achieving the standard accreditation

The limitations of this project expected due to staff enforcement, staff number, policy, procedures and system limitations.



Thesis Title: *“A Study of Financial and Non-Financial Incentives for Improving Radiological Technologist Satisfaction at Riyadh Military Hospital”*

Student: Mahmoud Rajab Alzahrani

Supervisors: Dr. Wesley Rohrer

Year: 2012

Abstract

Introduction

The growing gap between the supply of health care professionals and demand for health care services and providers is a critical issue worldwide facing public health officials, health care managers, professionals and provider organizations seeking to improve the health of their dependent populations. Many factors contribute to these ongoing work force shortages globally including; inadequate health system resources, unsatisfactory working conditions and poor human resources management.

In Saudi Arabia, shortage of health workers especially among nurses is of major concern to both health organizations and government bodies. Studies suggest this shortage of staff is due to job dissatisfaction. (40)

During recent years, Riyadh military hospital has face difficulties due to an increasing numbers of patients and a reducing number of technologists employed in the hospital. As a result, the quality of service provided by radiology technologists has also decreased due to increased absenteeism, turnover and professional burnout. (1)

One strategy adopted by managers and policy makers has been to use incentives and rewards to improve the recruitment, motivation, job satisfaction and employment retention of health care workers. It is well known that incentives can serve organizations by attracting, retaining, motivating and improving the performance of the staff. Incentives are common in both public and private sectors and can be applied to individuals, groups of workers, teams or organizations and may vary according to the type of employer and conditions of contract. Incentives can be positive or negative, financial or non-financial, tangible or intangible. (27)

Objectives:

This paper will provide an overview of the use of incentives for health professionals and describe some of different approaches used. It will also present characteristics shared by effective incentives and conclude with recommendations for their successful implementation.

Aim:

The aim of the study is to identify a range of incentives which can be applied to radiological technologist job satisfaction and performance in Riyadh Military Hospital.



Methods:

A questionnaire has been developed to assess how radio technologists perceive and rate the importance of different incentives and how these affects job satisfaction. The study group consists of 145 male and female technologists within the radiology department. The questionnaire contains 42 items to which the technologists will be asked to respond, on a 5-point Likert scale.

Descriptive statistics will be used to characterize all qualitative variables. Associations between categorical variables will be measured by appropriate statistical tests.

A total score of the 34 items in the questionnaire will indicate which incentives the respondent recognizes as relevant. A comparison of the total scores will suggest which incentives are most attractive from the radiological technologist's perspective.

Result:

The findings of this research can be used in the development of an appropriate financial and/or non-financial incentives system to improve the level of job satisfaction of radiology technologists as well as their performance.



Thesis Title: ***“The Effectiveness of a Telephone Reminder System to Reduce no Show Rates in Daily Operation Room Bookings”***

Student: Nada Al-Habib

Supervisors: Dr. Vicki Doyle and Dr. Mohamed Gamal

Year: 2012

Abstract

Background: Patients who neglect to appear on their scheduled day of surgery causes an incurring of cost and waste. This expense usually consists of a fixed budget for consumables, operating theatre space, time reserved for performance of surgery and the many staff members needed to assist in the surgical procedures as well as set up, maintenance etc. Additionally, these cancellations incur lost income for not performing operations.

Research has established some reasons why patients failed to attend their scheduled surgeries and to gauge to what proportion of these failed attendances were potentially preventable. One cross-sectional study done in Hong Kong in a 12-month period revealed that out of 6234 cases, 476 were canceled, which yield a prevalence of 7.6%. They also found that the highest number of cancellations occurred in patients who were due to have major surgery. The main reasons reported for this was due to facility, followed by work-up, patients then surgeon, no available operating rooms, no time. Other data gathered from patient’s revealed perceptive reasons that stem from the emotional perception. Many patients feel disrespected and shown lack of compassion along with not understanding the scheduling system. Nonetheless, the majority of cancellations that we found from our research were due to reasons other than patients’ medical or emotional conditions a large percentage was due to forgetfulness. We believe that better management could have avoided most of these cancellations.

Scheduled surgeries in which patients do not appear (no-show) result in loss of provider time and revenue. A large amount of studies has done in hospital and clinical facilities around the world have shown the effectiveness of a reminders system. Postal, telephone and SMS reminder system have shown a decrease in elective surgical cancellation; however, it has been shown that the telephone reminder system can be a little more effective when conducted strategically. Several studies showed that reminding patients by telephone one to two days before their appointment yielded a decreased in cancelations. It is our perspective that a seven-day pre-surgical reminder can be more beneficial and save more time, more money, more surplus staff utilization and shorten the waiting list. Also, a telephone reminder can be more personal than an SMS. The main characteristic of this



retrospective study is to investigate the possibility of using a telephone reminder system (TRS) to reduce elective surgical cancellation due to patient 'no show'.

Null Hypothesis:

There is no difference in percentage of patient 'no show' on the day of an elective surgery by implementing the telephone reminder system to change the current procedure in surgical bookings.

The Alternative Hypothesis:

There is a different of percentage of 'no show' before and after implementing the telephone reminder system.

Patients and Methods: The current OR appointment booking system will be analyzed using all patients who have bookings for surgery over a period of 3 months at King Khaled University Hospital in Riyadh.

We will exclude any emergency and standby surgery cases. The particular analogy will take place at the office of the secretary of OR and admission. Once the procedure has been analyzed a telephone reminder system will be developed to follow-up on scheduled elective surgery seven days in advanced. The system will be evaluated for its effectiveness in eliminating or minimalizing OR 'no shows'. Within this process of evaluation, recommendation policies for improvement in the booking system will be developed and the results will be communicated to key stakeholders.

Conclusion: From our research into reminder systems in hospitals and clinics throughout the world, telephone reminder systems seem to be the most effective way of preventing a waste of resources both human and in facilities due to 'no show'. However, the telephone reminder systems are not without pitfalls. First, they can be very costly and individuals should be trained on the proper process in using the system. It also depends on having up-to-date phone numbers for the patients. In some of the studies we researched, it was revealed that nearly half the patients had either an incorrect phone number or no phone number at all on record. The deficiency in the system was mainly due to the hospital's lack of a proficient electronic patient database with accurate information.



HEALTH SYSTEMS AND QUALITY MANAGEMENT
MASTER STUDENTS
BATCH 4 ABSTRACT



Thesis Title: ***“The Impact of Central Board of Accreditation of Healthcare Institutions (CBAHI) Accreditation Program on Patient Safety Culture at King Fahad Hospital in Hufuf, Eastern Province, Al-Hasa”***

Student: Abdulrazak Eissa AlQuidaihi

Supervisors: Dr. Khaled Alsurimi

Year: 2013

Abstract

BACKGROUND AND OBJECTIVES

The impact of accreditation programs on quality and patient safety is quite challenging and still not clear. Literature showed few researches had been done to assess the relationship between accreditation program and patient safety culture. This study aimed to assess the impact of the Central Board for Accreditation of Healthcare Institutions (CBAHI) on patient safety culture at King Fahad Hospital in Hufuf, eastern region, the Kingdom of Saudi Arabia and opens more questions and further studies about other international accreditation programs and, the relationship to quality and patient safety.

STUDY DESIGN AND METHODS

This is a quasi-experimental of pre-post evaluation design study, using well-known and validated questionnaire survey called Hospital Survey on Patient Safety Culture (HSOPSC) that's used to measure the Impact of (CBAHI) accreditation program on patient safety culture. The study population included recruiting a randomly selected sample according to a multistage stratification that aiming to collect a total of 100 self-administered, covering the Medical services staff, nursing services staff and Technical services staff.

RESULTS

There was a statistically significant difference among the items-level results, showing the impact of CBAHI accreditation program on patient safety culture. The areas of difference were: 'Teamwork within units', 'Organizational Learning—Continuous Improvement' and 'Supervisor/Manager Expectations & Actions Promoting Patient Safety'. The potential areas for improvement were included, but not limited to 'Frequency of Events Reported', 'Staffing, Handoffs & Transitions' and 'Non-punitive Response to Error'.

CONCLUSION

There is a noticeable impact on the CBAHI accreditation program in 4 of 12 dimensions at composite levels with statistically significant, while at the items level the majority were statistically significant on patient safety culture. The overall patient safety culture scores had improved by 13% after CBAHI accreditation and the number of event reporting had improved by 20%.



Thesis Title: *“Nurses’ Perception of the Impact of Accreditation on Quality Improvement in a Ministry of Health Hospital in Dammam, Saudi Arabia – A cross sectional survey”*

Student: Aminah Al-Habeeb

Supervisors: Dr. Riyadh Alshamsan

Year: 2013

Abstract

Background: In all over the world, the decision makers in healthcare are seeking objective data to enhance a systematic response in an evaluation of healthcare services. Accreditation is the tool, which has been introduced to encourage continuous quality improvements. In Saudi Arabia, the Ministry of Health trying its best to obtain accreditation in all its facilities, but still there are limited studies regarding its impact on the quality of healthcare services.

Objective: To assess the perceived impact of accreditation on quality of care through nurses’ perception. This paper also investigates the perceived contributing factors that can explain change in quality of care.

Methods: A cross-sectional survey design distributed among nurses in a Maternity and Children Hospital, in Dammam, that successfully passed CBAHI accreditation. A total of 285 nurses were sampled. The survey tool, assessing quality of care and contributing factors, includes seven scales rated on five-point Likert scale.

Results: The high score for the variable ‘Quality Results’ indicates that nurses perceived an improvement in quality in accredited hospital. Predictors of better Quality Results in terms of the Benefits of Accreditation, the mean score of (54.5) indicates that nurses perceived improved team work and productivity in hospitals as an outcome of accreditation. Followed by Leadership, Commitment and Support with mean score of (34.3), while the lowest was the Human Resources Utilization got the lowest score with mean of (17.7). The regression analysis showed that the adjusted R² of the model was 0. =.616, which indicated that about 61% of the variance in the model could be explained by the independent variables.

Conclusion: According to nurse’s perception about CBAHI accreditation, hospital accreditation is a good tool for improving quality of care. Study findings will be very useful to Saudi Arabia, hence, there are limited studies related to the impact of accreditation. It will facilitate the implementation of the accreditation programs in all over the country and it will help the policy makers in their reevaluation of the exciting CBAHI policy.



Thesis Title: ***“PATIENT SAFETY CULTURE STATUS WITHIN HOSPITALS IN DIFFERENT ARAB COUNTRIES: SYSTEMATIC REVIEW”***

Student: Badriah Al-Harhi

Supervisors: Dr. Riyadh Alshamsan

Year: 2013

Abstract

More than Ten years now after “to err is human “report which made attention of health care leaders to the necessity of building a safety system in order to protect patient from medical errors, building up and promoting a patient safety culture was one of the recommendations to improve patient safety.

In Arab region, Confusion persisting over the status and the tool used to assess patient safety culture; this systematic review will contribute greatly in clarifying the issue. This review examines whether there is empirical evidence to support that there are efforts to assess, promote and improve safety culture in the health care organization in the Arab world.

Objective: This study systematically assesses the status of patient safety culture within hospitals in different Arab countries.

Method: A systematic review of studies from Arab countries that assessed patient safety culture/climate was performed. Studies were identified through: Medline, Google scholar and other sources. These articles could be in English, French or Arabic and published between 2004 -2013.

Results: A total of 7 studies met the final inclusion criteria.3 from K.S.A, and one from Lebanon, Qatar, Egypt and Palestine.98 hospitals and 11,681 respondents assessed, and majority of respondents were nurses. Results from Saudi Arabia and Lebanon suggested more positive patient safety culture in Saudi Arabia and Lebanon hospitals than Egypt, Qatar and Palestine hospitals. All studies showed need for improvement in a non-punitive approach to adverse event reporting and analysis, open communication founded on trust teamwork across unit, and shared belief in the importance of safety.

Conclusion: decision about patient safety culture status is not easy and feasible with limited information and studies about patient safety culture in the Arab countries.

Overall, results suggest evidence to support initiatives that promote patient safety culture in the Arab countries hospitals are very limited and patient safety culture needs more attention. Countries in the region should support and encourage assessing patient safety culture in their healthcare organizations and Patient safety should be a top strategic priority for policy makers, managers, leaders and all health care providers.



Thesis Title: ***“Assessment of Safety Perception among Students of Public and Private Dental Colleges, Riyadh City”***

Student: Haya Al-Ayadi

Supervisors: Dr. Khaled Alsurimi

Year: 2013

Abstract

Background:

Patient safety is considered as an integral part of healthcare quality improvement system. Research evidence showed that in developed countries there are a least 10% of patients injured due to unsafe medical practice. Additionally, addressing the organization’s culture issue to improve patient safety on the organizational level was one of the highly recommended strategies to educate health care professionals on the principles and concepts of patient safety. It’s worth mentioning that assessing students’ perception about principles of patient safety is important. However, although there was increased evidence on the importance of patient safety, few dental schools had incorporated patient safety subjects in their curricula. Therefore, this research study was directed primarily to measure perception of patient safety among dental and dental hygiene students among Saudi dental schools including public and private dental college in Riyadh.

Overall Aim:

To assess the patient safety culture and attitude among dental students at King Saud Univesrity’s Dental college and Private Riyadh dental college in Riyadh City.

Specific Objectives:

- 1- To assesses the level of knowledge and attitude of dental students about patient safety at King Saudi University’s Dental College and private Riyadh Dental College.
- 2- To study the association between level of knowledge and attitude of patient safety in relation to general characteristics of dentistry students and dental hygiene students.
- 3- To compare the level of knowledge and attitude of patient safety among dentistry students with dental hygiene students.
- 4- To compare the level of students’ knowledge and attitude about patient safety between public and private dental colleges.

Methodology

This is a cross sectional study survey, using a well-validated self-administered questionnaire (SAQ). To assesses and describes the level of attitude and culture of patient safety among dental students in King Saud University also Riyadh Dental College in Riyadh, Kingdom of Saudi Arabia; these two institutions represent a private and a public dental schools.



Result and Conclusion:

Out of the 312 questionnaires distributed, 221 completed questionnaires have returned back, which represented 71% response rate. Study revealed an unsatisfying perception of safety among dental students in Riyadh City Dental Colleges, with overall positive perception of 55%. Additionally, perception was better in private dental college students than public (62%, 52% respectively). Also perception among different specialties in dentistry, dentistry students had better perception than dental hygiene students (63.54%, 43.22% respectively).



Thesis Title: ***“Do patients with varying demographic and regional characteristics equally miss appointments in the various dental specialties? Evidence from King Faisal Specialist Hospital & Research Center (KFSH&RC)”***

Student: Hind Al-Baloushi

Supervisors: Omar B. Da’ar, PH.D.

Year: 2013

Abstract

This study aimed to examine whether patients with varying demographic and regional characteristics equally miss all dental appointments in the various specialties. The analysis focuses on the dentistry department at King Faisal Specialist Hospital & Research Center in the Kingdom of Saudi Arabia, Riyadh and relies on 3185 sample of “*No show*” missed dental appointments in 2012. We used Chi-square test for statistical analysis because of the categorical nature of the data, especially the variables of interest.

The study established association that patients with varying demographic profiles, having appointments at different seasons and with varying registration types, do not equally miss all the dental appointments in the various specialties at KFSH&RC.

The findings of this study is expected to inform KFSH&RC and the wider Kingdom to institute guidelines to address “*No shows*” to both improve the rate of “*honored appointments*” and minimize the many unused visit hours that would otherwise save costs.



Thesis Title: ***“Quality use of medicines and Patient Safety: Challenges faced by patients in Prince Sultan Military Medical City on interpreting the patient package insert”***

Student: Jameel Al-Mutairi

Supervisors: Dr. Mohamud Sheikh

Year: 2013

Abstract

Introduction

Patient package inserts (PPIs) is one of the most important written drug information, but to what extent it is readable, understandable, and helps patients adhere to their treatment remains an important question that requires answers.

Objective

This study aims to evaluate the attitudes and the knowledge of patients after reading the Patients Package Insert.

Method

This study was a cross-sectional survey using simple random sampling technique. A self-administered structured questionnaire with nineteen questions covering two sections; patient's *attitudes* and *knowledge* toward PPIs were distributed to participants. The questionnaire was developed, tested and administered to patients attending the Prince Sultan Military Medical City (PSMMC) out-patient pharmacy, Riyadh, Saudi Arabia.

Results

The survey showed that 79% of respondents read the PPIs, but up to 34% agreed that the PPI was difficult to read. A third of the participants felt that the PPI has contradictory information as compared to the oral information given by the physicians. Almost half of the participants agreed that reading the PPI increases their fear and anxiety. 31% admitted that they considered stopping the use of the medication after reading the PPI, and 55% of respondents doubted that the PPI help them adhere to their treatment. Almost half of the participants disagreed with the font size used in the PPI was acceptable.

Conclusions

Despite the high readership level for the PPIs, the PPI is still not well understood by the general population. Fear and anxiety comes with the ambiguity of medical terminologies used in the PPIs, and the detailed risk messages. Lack of coordination between physicians, pharmacists, and written drug information create some sort of confusion to the patients. The content of the current PPIs does not help the patient's adherence to treatment. Bilingual and multilingual PPIs is the reason behind the small font size, and large number of participants expresses their frustration about the small font size used in the PPIs.



Thesis Title: ***“Evidence based management and decision making factors in health care management. An exploratory study in Saudi Arabia”***

Student: Nouf Mohammed Al-Saleem

Supervisors: Dr. Wesley Rohrer and Dr Khaled Al-Surimi

Year: 2013

Abstract

Background: Optimum Health care services provision cannot be fully achieved by what clinicians provide to individual patients. A well-designed and audited healthcare management system is crucial to ensure comprehensiveness of healthcare provision and the best possible outcome for patients. Managers in healthcare settings make decisions on a daily basis and it is important that such decisions are based on scientific evidence. Evidence Based Management (EBMgt) is essential for following Evidence Based Medicine (EBM) in health care; both ensure a constant provision of health care service to patients in order to improve the quality of service and patient safety. This study was conducted to understand factors affecting decision making among healthcare managers in Saudi healthcare organizations. In addition, the study aimed at understanding the level of use of evidence based management as a recommended approach for decision making.

Method: An exploratory descriptive study was conducted as a cross-sectional survey using a partially open-ended questionnaire to survey 31 managers in high-level decision-making departments in two health care organizations in Saudi Arabia: King Saud Medical City (Ministry of Health) and King Abdulaziz Medical City (National Guard).

Result: A total of 31 managers were surveyed. Of whom, 38.7% reported using their previous experience as a first priority in making their decisions, while only 6.5% uses scientific evidence as their first priority. Approximately 61% of managers reported being familiar with EBMgt, but only 38.7% of them gave a correct definition of EBMgt. The study also found that only 37.9% of the surveyed managers are applying EBMgt while the rest (62.1%) do not apply it at all as a managerial approach.

Conclusion: EBMgt awareness and application in Saudi Arabia is low. Similar to healthcare managers in developing countries, Saudi managers (in both the National guards for health affairs and ministry of health) rarely use scientific evidence in their managerial decisions. Teaching courses and scientific meetings as needed to improve awareness and develop skills related to the use of evidence in healthcare managerial decisions.



Thesis Title: *“Acute care nurses' perceptions of manager's leadership style, empowerment and organizational commitment at NGHHA”*

Student: Samira Asiri

Supervisors: Dr. Wesley Rohrer, Dr. Anwar Ahmed Omar Da'ar and Dr Khaled Al-Surimi

Year: 2013

Abstract

Acute care environments are in a state of a continuous and rapid change. Persistent organizational changes to meet new health care challenges and pressures to provide high quality care while cost reduction measures are implemented to do more with less. Nurse Managers who have an important role in the hospital which includes facilitating care and ensuring the quality of work life of nurses, providing support in order to be able to help staff by means of any change processes may also be required to be able to empower them to perform their obligation with the best way achievable and also to preserve the staff nurses commitment with work environments and maintains a high level of quality.

The main purpose of this study is to measure the effect of perceived Leadership style and employee empowerment on nurses' organizational commitment in an Acute Care Unit in NGHHA, Riyadh, Saudi Arabia.

The utilized theoretical models of leadership, empowerment and organizational commitment to test the effect of leadership styles using inferential statistics of ANOVA. Data was obtained from a sample of (200) staff nurses. Three instruments were used to obtain the data (1); MLQ, formulated by Bass and Avolio's (1997). (2) The Psychological Empowerment Scale developed by Spreitzer (1995). And (3) three-Component Model of employee commitment developed by Meyer and Allen's (1997). The results showed that some nurses perceived their immediate nurse managers as not displaying the ideal levels of transformational leadership behaviors while some perceived themselves as exhibiting moderate levels of overall psychological empowerment and organizational commitments. Gender and nationality had significant effects on perception of transformational and transactional style but not on -"laissez-faire"- leadership style. Additionally, the results showed that the nationality of nurses' had significant effects on their perceptions of empowerment. Finally, the results showed; a positive association between transformational leadership, and transactional leadership and organizational commitment but not on laissez-faire leadership style. Overall, findings from this study suggest that leadership style does play an important role in determining levels of empowerment and organizational commitment of nurses in the NGHHA, Kingdom of Saudi Arabia.



Thesis Title: ***“Detection of Pre-analytical Laboratory Testing Errors Using A Literature Review Guided Protocol”***

Student: Wafa Abdullah Al-Zahrani

Supervisors: Dr. Mohamud Sheikh

Year: 2013

Abstract

Background: A Few years later, after the publication of Institute of Medicine Report (IOM) To Err is Human: building a Safer Health System, patient safety became the major concern of the medical services and public. The clinical laboratory is not completely empty of errors as it is traditionally assumed to be, similar to any other diagnostic areas, errors do occur. Errors in the clinical laboratory can lead to inaccurate results and diagnosis which may affect the patient’s health and the health care service. In the past, laboratory professionals focused their attention on the analytical phase only and they measured errors frequency and its sources. All the available data demonstrates that a large percentage of laboratory mistakes occur in the pre-analytical and post-analytical phases but few mistakes in the analytical phase. Based on reliable data, the pre-analytical errors accounted for 70%-80% of all laboratory errors occurring in clinical laboratory most of which arise from problems in sample collection, transportation, preparation for analysis and storage.

Materials and Methods: Several scientific databases MEDLINE, EMBASE and Google Scholar were searched for studies published over twenty three years: from January 1990 to March 2013 which reported the frequency of pre-analytical errors among total testing process. In addition, data on the frequency of hemolysis and misidentification specimens in the clinical errors were collected. The hemolysis specimen is the most frequent reason for rejection while the patient misidentification is the major concern of the patient safety. Many search terms were used to search for the articles such as: pre-analytical errors, pre-analytical mistakes, hemolysis, identification errors and much more. Seventy one articles excluded from the research due to their failure to meet the inclusion criteria while ten studies were selected to extract data.

Results: Based on the finding from the studies, error rates for pre-analytical and post-analytical activities were higher than for analytical activities. The pre-analytical errors accounted for 68-81% of all laboratory errors occurring in clinical laboratory. The representative studies showed that the hemolysis was the most frequent pre-analytical errors with 53%-60% of the total laboratory errors reported while patient’s misidentification specimen accounted for 3%-9%of the pre-analytical errors. Another finding indicates that the specimens collected from inpatient had more errors than outpatient and the specimen collected by laboratory staff showed significantly lower rejection rate than specimen collected by non-laboratory staff.



Discussion: Evidence from these studies demonstrated that a large percentage of laboratory errors occur in the pre-analytical phase. The most significant findings by the researchers were that the laboratories that have established ongoing quality monitoring system have presented low percentage of pre-analytical laboratory errors. Another evidence that most errors and high rejection rate occur for sample collected by non-laboratory staff due to their unawareness of all aspects of specimen collection.

Conclusion: The conventional view must shift from focusing only on the quality control of the analytical phase to the pre-analytical and post-analytical phases. The findings indicate that a large percentage of laboratory errors occur in the pre-analytical phase which needs more attention and intensive monitoring of its activities. Traditionally, the quality of laboratory can be maintained only by direct inspection, quality control and accreditation. Using these approaches alone could not address and solve the problems of laboratory errors. It is obvious that most laboratory errors are attributed to ineffective systems and less attributed to the individual malpractice or negligence and the laboratory quality improvement programs should focus on the system not the individual. Our findings indicate that a large percentage of laboratory errors occur outside the laboratory and mainly by non-laboratory personnel as compared to qualified laboratory personnel. This encourages efforts to assign skilled phlebotomists with laboratory background to collect and handle specimens. The clinical laboratory should track and identify the pre-analytical errors by implementing mandatory stat based error reporting system to collect data, analyze and gives a feedback for service and quality improvement.

