Assess' Nurse Knowledge Regarding Electronic Medical Rerecords At National Cancer Institute

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ABSTRACT

Background: Proper Nursing documentation covers all aspects of health care. Electronic medical records systems were needed to transform the health care system from a traditional paper-based mechanism to automated online systems. **Aim of the study**: Assess' nurse knowledge regarding electronic medical records. **Design**: An exploratory descriptive design was used to conduct this study. **Setting:** The study was conducted in Intensive Care Units (ICU) at National Cancer Institute (NCI), and all nurses in intensive care units were included in the study. **Tools:** data were collected using nurse's knowledge questionnaire sheet. **Results:** 44% of nurses knew the important, function and the effect of electronic medical records, 36% of nurses knew uses of electronic medicals records and 4% of nurses considered electronic medical records a personal document. **Conclusion:** More than two thirds of the studied sample had unsatisfactory knowledge regarding electronic medical records. **Recommendations:** Health care professional schools and organizations should enhance educational programs for students and practitioners in the use of computers and Periodical training is crucial to acquire nurses with different modules that need to be learned such as scanning, charting data entry, electronic prescriptions, lab results and EMR dictation training.

Keywords: Electronic Medical Records, knowledge, Documentation.

INTRODUCTION

All nurses maintaining clear and understandable documentation so that everyone can read and understand patients' status and progress, the team needs to have coherence and clear understanding of communication channels where they need to ensure full clear communication of patients' progress and needs. Proper Nursing documentation covers all aspects of health care such as assessment standards, proper diagnosis, and identification of problems, planning and implementation of interventions, evaluation of outcomes and collaboration among different units and health care settings (Alhur, 2023).

Nurses are also needed to have an important role in knowing the use of technology in health care; the nurses have important role in informatics to record the temperature, respiration, and blood pressure and pulse rate and can be formed as a set of data (Riaz, , Nazir, Zia, Shoukat, & Latif., 2023). Electronic medical record (EMR) systems are a need of time. It will enormously help to transform the health care system from a traditional paper-based mechanism to an automated online. It will help utilize clinical information in delivering higher quality in terms of accuracy, time, efficiency, and care to the patients as well as medical care staff (He, Cai, Huang, Ma, & Zhou,. 2021). Electronic medical and nursing record has benefits like it improves communication structure among different healthcare personals involved professionals to ensure the progress of care needed by the individual patients. EMR systems have a high probability to reduce the possibilities for errors which are very evident in typical manual operations (Krick, Huter, Seibert, Domhoff, & Wolf- Ostermann. 2020).

New digital technologies are constantly being developed, all with the potential to support clinical practice by bringing many advantages into the healthcare sector. EMRs have long been considered a key factor for improving healthcare quality and safety, reducing adverse events for patients, decreasing costs, optimizing processes, improving clinical research, and obtaining the best clinical performance. It leads to better adherence to clinical guidelines, fewer medication errors, and fewer adverse drug reactions but has no significant effect on mortality (Emanuele, Luca, & Cristina, 2022). Nurses who utilize medical records regarding examination of a patient's problems, control of medical information, access to other required information, and provision of sufficient information from the system have an impact on patient care. (He, et al., 2021).

Nurses preferred electronic medical records to paper charts and were comfortable with technology. Enhanced nursing work through increased information access, improved organization, and efficiency, helpful alert screens, reduces workload, improves quality of documentation, and improves safety and patient care (Dabliz, , Poon, Ritchie, Burke, & Penm,. 2021). Electronic medical records (EMR) systems have a high probability to reduce the possibilities for errors which are very evident in typical manual operations. It promotes a human-friendly environment which improves communication of information in medical-related activities. Electronic medical records systems subsequently assist organizations and society as a whole (Krick et al., 2020).

Electronic medical records (EMR) systems have been widely used as a means of improving clinical records, in addition to supporting the development of a computerized nursing process because they allow for their integration into a logical data, information and knowledge structure and support the decision-making processes in nursing care. EMR have been the potential to transform the work environment, the status and the quality of the care rendered, allowing procedures to be more accurate and efficient and promoting the reduction of human error risks (Janett, & Yeracaris,, 2020). EMRs allow mining of real-time clinical data, enabling detection of problems and intervention before harm occurs, as opposed to retrospective data sources such as claims files. EMR data is thus potentially richer, more actionable, and more accurate than billing or claims related data for patient improvement (Borycki, Joseph, & Kushniruk, 2020).

Significance of the study

Electronic Medical Records (EMR) as a health information technology innovation, has been perceived to improve efficiency and increase the effectiveness of health care delivery.

The database gives nurses detailed medical record information about their patients, and prescription and transcription errors are reduced. There is less need to replicate and hunt down the written version of a chart, reducing the risk of developing care plans without all relevant information.

AIM OF THE STUDY

Assess' nurse knowledge regarding electronic medical records in in Intensive Care Units (ICU) at National Cancer Institute Cairo University.

SUBJECTS AND METHOD

A. Technical Design

Research design

An exploratory descriptive design was used to conduct this study

Research setting

This study was conducted in Intensive Care Units (ICU) at National Cancer Institute **(**NCI), Cairo University.

Research subject

All available nurses' working in intensive care units at National Cancer Institute was included in the study. The Inclusion criteria was nurses who attended training about Electronic Medical Record (N =50).

Tools of data collection

Tool I: Nurse's knowledge Questionnaire Sheet:

Self-administration was used to assess nurses' knowledge regarding electronic medical records. It was developed by researcher guided by Schopf et al, Donna et al. & American Health Information Management Association

Part 1: Personal data for nurses including age, gender, level of education, position and work experience.

Part II: It included multiple choice questions developed by the researcher based on literature included definition, purpose, benefit, advantage and disadvantage and uses of electronic medical records. It included (12) items. It was written in a simple Arabic

language to assess nurses' knowledge regarding electronic medical records. This tool was used for pre - post, and follow up phases.

Scoring system: The score for each item ranges from incorrect was (1) and correct was (2).

The final score was classified: Scores (60% and above) was satisfactory. Scores (Less than 60%) was unsatisfactory.

B. Operational Design

Tools' reliability

The revision of study tools was done by a group of experts from different nursing specialized to get their suggestion about content validity and applicability of the tool. The experts were five, from Cairo University Faculty of Nursing; one professor and one assistance professor from nursing administration department. From Ain Shams University, Faculty of Nursing; one professor and one assistance professor from nursing administration and one expert in design of electronic medicals records.

Tools' validity

The content validity of the study procedure tools was measured to evaluate the individual items as well as the entire instrument as being relevant and appropriate to test what they wanted to measure.

About 90.65% of all items in the tool's content validity index (CVI) were assessed as 3 or 4 by experts. A CVI score of 0.80 or above is often regarded as having solid content with good validity.

Content and Face Validity and Reliability

Tool	No of item	Content validity index	Face validity index	Internal consistence reliability	Test retest reliability
Knowledge questionnaire sheet	12	95.2%	96%	0.95	**0.987**

Pilot study

It was conducted at the beginning of the study. On (5) staff nurses (10% of total sample) to investigate the applicability, clarity of language, test the feasibility and suitability of tools, estimate the time needed to complete the questionnaires by each staff nurses and identifying potential obstacles and problem that may encountered during the period of data collection

Field work

The sample classified to five groups; each group divided into 1 and 2. one day every week. Attended 5 nurses who were selected and determined by the director according to unit workload and their work schedule. Data collection began from March 2018 to the end of June 2019.

Ethical considerations

The research approval was obtained from National Cancer Institute Cairo University ethical committee before starting the study (23 January 2019). The researcher assured maintaining anonymity and confidentiality of the subject's data. Staff nurse was informed that they were allowed to choose to participate in the study and that they have the right withdraw from the study at any time. Study subject's ethics values, cultures and behavior were informed about respect purpose.

C. Administrative Design

A letter from the researcher`s faculty of nursing was sent to selected hospital director of National Cancer Institute. Cairo University to obtain their approval to conduct the study in their facility. The researcher then met the hospital director and the nurse director and explain the purpose and methods of data collection for the study

D. Statistical Design

Data collected from the studied sample was revised, coded and entered using. P C. Computerized data entry and statistical analysis were fulfilled using the statistical package for social sciences (SPSS) version (20). Data were presented using descriptive statistics in the form of frequencies, percentage. Chi-square test (x2) was used for

comparison between qualitative variables. Correlation between variables was evaluated using t-test. P values of < 0.05 were considered statistically significant

RESULTS

Table (1) shows that more than half 54% of the study subject their age was less than 30 years old and only 14% of them their age more than 40 years old with mean age 28.58±0 .702. Regarding to gender the result reported that 58% of them were female. While regarding level of educational 64% of them were Technical Institute in Nursing and 32%of them were diploma nurse. Denoted that job title, 88 %of them were staff nurses. As regard to years of experience in the current unit 60% of them were less than fifteen work years' experiences in the same unit with mean 14.40 ± .495.

Table (2) it was noted from table that about 12% of nurses knew the definition of electronic medical records. As regard uses of electronic medical records about 36% of nurses knew it. Related to communication of electronic medical records only 34%of nurses knew it.

As regards to advantage of electronic medical records only 12% of nurses knew it. While electronic medical records developed only 16% of nurses knew it.

Meanwhile regarding benefits of electronic medical records about 40% of nurses knew it. Related to functions of electronic medical records only 44% of nurses knew it. In addition, the importance of electronic medical records only 44% of nurses knew it.

On the other hand, only 4% of nurses considered electronic medical records a personal document. Finally, 44% of nurse knew the effect of electronic medical records.

Table (3) shows that no significant relation between total score of nurses' knowledge with gender and years of work experience. While showed significant relation between nurses' knowledge with age and level of education.

Table (1): Personal data of study sample (N =50)

Items		No	%
Age	>30	27	**54 %**
	30-40	16	**32 %**
	<40	7	**14 %**
Mean ± SD		**28.58 ±0 .702**	
Gender	Male	21	**42 %**
	Female	29	**58 %**
Level of nursing education			
Diploma in nursing		16	**32 %**
Technical Institute of Nursing		32	**64 %**
Bachelor degree in nursing		2	**4 %**
Job title			
Staff nurse		44	**88 %**
Head nurse		6	**12 %**
Years' work experience in currently unit			
	> 15	30	**60 %**
	≤ 15	20	**40 %**
Mean ± SD		**14.40 ±**	**495**

Table (2): Nurses' knowledge about electronic medical records (N=50).

Nurses' knowledge	Correct	
	N	%
1-Definition of electronic medical records	6	12
2-Uses of electronic medical records	18	36
3-Communication used of electronic medical records	17	34
4-Advantages of electronic medical records	6	12
5-Electronic medical records developed	8	16
6-Benefits of electronic medical records	20	40
7-Functions of electronic medical records	22	44
8-The importance of electronic medical records	22	44
9-Content of electronic medical records	20	40
10-Electronic medical records are non-personal document in case	20	40
11-Electronic medical records are considered a personal document	2	4
12-Effect of electronic medical Records	22	44

Table (3): Correlation between total score of nurses' knowledge with their personal data (N=50).

Nurses' knowledge / Personal data	R	P
Gender	**.737****	0.706
Age	**.302****	0.000
Level of education	**.033****	0.001
Years of work experience	**.281****	0.366

**** Highly statistically significant at p<0.001**

DISCUSSION

This electronic medical record is improving patient care was stated as the main factors driving the need for EMR, mainly addressed to increase efficiency, accuracy and accessibility, that EMR will bring to the healthcare organizations (Melnick et al., 2020).

Regarding the nurse's personal data, the results of the present study revealed that more than half of the study sample their age less than 30 years old and only (14%) their age more than 40 years old, these results consistent with study findings of by Jedwab, Chalmers, Dobroff, and Redley, (2022) who identified age as a risk factor for nurses, with younger nurses exhibiting higher levels of burnout when compared with their older colleagues. This result is inconsistent with study conducted by Shaluni et al., (2021) who mentioned that some older nurses may experience greater difficulty than their younger counterparts in adapting to the changes associated with using a new EMR in their workplace. From the researcher’s point of view greater anxiety than their young counterparts towards EMRs and show more resistance to newer technologies than the

Meanwhile level of education in nursing more than two third of study sample were Technical Institute in Nursing and (32%) were secondary technical nursing school graduate, this result is in agreement with study conducted Barter and Cooper (2021) and Rajaram, Hickey, Patel, Newbigging, and Wolform, (2022) who emphasized that

educated nurses with computer knowledge have more positive views towards the usage of EMR than another nurse. From the researcher's point of view, the educated nurses have a positive deal with electronic medical records related to their educated computer's program and have a basic to deal with computers which easily allow them to deal with any system.

As regards to nurse` years of experience the present study revealed that about two third of the study sample their years of work experience less than 15yerars and about (40%) of them more than 30 years. This result is in agreement with study conducted by Abdekhoda, Dehnad, and Zarei (2022) that identified nurse` years of experience has a significant relationship with the perception of EMR. Who added that EMR is designed for patient care, nurses with less than one year of experience had a difference in opinion with the group with more than 10-15 years of experience, could be because they do not gain enough institutional knowledge in a short period of time to assess the real impact of (EMR) and its functioning . This result was inconsistent with study conducted by Janett and Yeracaris (2020) who found that the years of experience had no statistically significant association with healthcare workers' performance. From the researcher's point of view someone who has been working for a long time will tend to reach stable point and his sense of life has been guaranteed with habits that have been done before, so it is not easy to accept new things, such as electronic medical records.

Regarding nurses' knowledge about electronic medical record, the present study found more than three quarters of study sample were satisfied with uses of electronic medical records (EMR) use in keeping information related to the condition of the patient in an integrated and harmonious), this result consistent with study findings of Brown, Pope, Bosco, Mason and Morgan (2020) who clarified that the information provided by EMR system makes nurses work easier as they have access to the information where and when they need it, they can find all the constantly updated information they need, and agree regarding the reliability of the documented data. Further where did they considering that the data they register are essential for the care of the patients? This result showed that the system tends to be more useful to their work. From the researcher's point of view use of EMR facilitates nurses' work, implementing orders, retrieving data, and accessing necessary information. These results were inconsistent with study conducted by Barter and Cooper (2021) who mentioned that healthcare providers reported that there was an increase in the input of patient data as compared to the use of paper, they did agree that overall, there was a reduction in the time spent in the management of patients.

As regards to advantages of EMR, the present study found more than two third of study sample were satisfied with advantages of electronic medical records (store for the medical results, therapeutic diagnoses and treatment plan for the patient), this result was in agreement with study findings of Kuek and Hakkennes, (2020) who emphasized that EMR's are easier in seeking out specific information from patient records, reviewing patients' problems, obtaining results from laboratory analyses and imaging, reviewing current medications, and entering daily notes . These results were inconsistent with study conducted by Gizela, (2021) who described that nurses fined a new technology difficult to use, and they may experience a decrease in work satisfaction because the new technology acts as an additional stressor in their everyday work. From the researcher's point of view nurses decrease in work satisfaction because they are not able to use the new technology as a single point of access for patient information, and the EMR may act as another stressor in their work.

The present study found more than three quarters of study sample were satisfied with benefits of electronic medical records (Raise the efficiency of health services), this result is in agreement with study conducted by Jedwab et al., (2022) who found that the healthcare workers agreed that the EMR system has a positive influence on the quality of care, improves productivity, and enhances the ability of healthcare workers to finish their work considerably faster than before.

These results were inconsistent with conducted study by Yehualashet, Seboka, Tesfa, Demeke, and Amede (2021) who stated that nurses found difficulty in opening patient file in the EMR system. From the researcher's point of view it was necessary to provide adequate time to train staff and outline the benefits of adoption.

As regards to the function of the EMR, the present study found that more than three quarters of study sample were satisfied with preserving and protecting medical files this result is in agreement with study conducted by Dabliz et al., (2021) who identified that nurses` felt EMR system improved the record keeping and improved the efficiency the quality of health care delivery. Similar finding was reported by Emanuele et al., (2022) who showed that EMRs improve the quality of patient care visit documentation and data, helping free up facility storage space, improving efficiency by eliminating time searching for lost charts, for example and provides immediate, access to patient records. These results were inconsistent with study conducted by William, Johnson, Gee and

Richard (2021) who found that nurse is forced to spend more time on the computer completing her mandated electronic charting than interacting with the patient face to face. From the researcher's point of view provide nurses with adequate computerized electronic healthcare system training, the implementation of EMR systems could be effective for nurses in providing quality health care.

Almost more than three quarters of study sample were satisfied with important of electronic medical records (patient-specific reports, educational model and administrative reports), this result is supported by study findings of Krick et al., (2020) who noted that perioperative nurses considered the EMR system to be beneficial, improved nursing documentation did not add to the nursing workload or eliminate any nursing jobs. In parallel with study conducted by Li et al., (2018) who show that EMRs have the potential to decrease medical errors by providing and improved access to necessary information, better communication, integration of care between different providers and visits, and more efficient documentation, monitoring, and to decrease prescribing errors by providing real time clinical decision support.

These results were inconsistent with study conducted by William et al., (2021) who clarified that EMRs requires nurses to switch between different tabs searching for items, which is time-consuming to avoid inadvertent omissions, and nurses must rely on handwritten records to aid memory during record-keeping. From the researcher's point of view nurses should be aware of the EMR system before implementing it so that they have a good attitude and develop their readiness for better adaptation of the system.

CONCLUSION

More than two thirds of the studied sample had unsatisfactory knowledge regarding electronic medical records.

RECOMMENDATION

Periodical training is crucial to acquire nurses with different modules that need to be learned such as scanning, charting data entry, electronic prescriptions, lab results and EMR dictation training. Design, implement and evaluate training program to fulfil staff nurses` training needs**.**

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تقييم معرفة الممرضات فيما يتعلق بالسجلات الطبية الإلكترونية في المعهد القومى للأورام

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الخلاصة

تغطي وثائق التمريض المناسبة جميع جوانب الرعاية الصحية. كانت أنظمة السجلات الطبية الإلكترونية ضرورية لتحويل نظام الرعاية الصحية من آلية ورقية تقليدية إلى أنظمة آلية عبر الإنترنت. **الهدف من الدراسة:** تقييم معرفة الممرضات فيما يتعلق بالسجلات الطبية الإلكترونية. **التصميم:** تم استخدام التصميم الوصفي الاستكشافي لإجراء هذه الدراسة. **الإعداد:** أجريت الدراسة فى المعهد القومى للاورام بوحدات العناية المركزة وتم تضمين جميع الممرضات فى وحدات العناية المركزة فى الدراسة. **الأدوات:** تم جمع البيانات باستخدام ورقة استبيان المعرفة للممرضة. **النتائج:** ٤٤% من الممرضات يعرفن أهمية ووظيفة وتأثير السجلات الطبية الإلكترونية، ٣٦% من الممرضات يعرفن استخدامات السجلات الطبية الإلكترونية و٤% من الممرضات يعتبرن السجلات الطبية الإلكترونية وثيقة شخصية. **الاستنتاجات:** أكثر من ثلثي أفراد العينة المدروسة لديهم معرفة مرضية فيما يتعلق بالسجلات الطبية الإلكترونية. **التوصيات:** يجب على المدارس والمنظمات المهنية للرعاية الصحية تعزيز البرامج التعليمية للطلاب والممارسين في استخدام أجهزة الكمبيوتر، ويعد التدريب الدوري أمرًا بالغ الأهمية للحصول على ممرضات بوحدات مختلفة يجب تعلمها مثل المسح الضوئي، ورسم إدخال البيانات، والوصفات الطبية الإلكترونية، ونتائج المختبر. والتدريب على إملاء السجلات الطبية الإلكترونية.

الكلمات المرشدة: السجلات الطبية الإلكترونية، المعرفة، التوثيق