Designing, Implementing and Evaluating an In-service Training Program about Electronic Nursing Notes

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ABSTRACT

Background: Electronic or written nursing notes aimed to assess proper nursing care to discover and correct malpractice. **Aims:** Designing, implementing, and evaluating an in-service training program about electronic nursing notes. **Study design:** Quasi-experimental designs with pre-post assessment were used**. Study subjects**: All ICU available nurses working at Al-Rajhy Liver Hospital (n=30). **Study tools:** I- Pre, post and follow up test was used to assess study participants information and skills about electronic nursing notes, including two parts; the 1st part regarding to personal and occupational data, the 2nd part consists of (53) items regarding to (importance, objectives, good criteria, ethical consideration of narrative description) of electronic nursing notes, II- Second tool: opinionnaire sheet about program evaluation sheet. **Results:** Improved nurses' knowledge and practice about electronic nursing notes immediately after program implementation and retained through follow up. There were a highly statistical significant relations between the program phases (P=0.000). **Conclusion:** Electronic nursing notes provides a clear and accurate patient data for all healthcare team, nurses should follow legal and ethical guidelines when recording their notes to ensure that the action was reasonable and prudent. **Recommendation**: Apply the developed structured program (nursing notes) as updated handout data source at Al-Rajhy Liver Hospital and for all other Assiut University Hospitals

Keywords: Electronic nursing notes, ICU nursing staff, In-service training program.

Introduction:

Electronic documentation are designed to meet nursing care requirements to optimally coordinate and document patient care activities, implement essentials to meet increasing healthcare demands and the associated diagnostic examinations (Lee S., & Mcelmurry B., 2010) & (Tiffany F., et.al 2011).. Additionally, electronic documentation through recording and reporting support better patient care planning and clinical or administrative decision making, safe real-time access, exchange and receipt of clinical data, reduced duplication of care services, supported better decision making related to patient care, and decreased medication errors (Tiina M., et al., 2011) and Birger H., et al., 2013).Menachemi, et al., (2011) and Patricia A., and Duclos M., (2011) defined Nursing notes record as s a health record at a unit done by a nurse that provide an accurate reflection of nursing assessments, changes in patient conditions, care given and related information to support the clinical team to provide high quality care (Blair W., & Smith B., 2012). The information included in nurse notes typically follows the nursing process, providing a framework for clinical reasoning and a systemic guide to patient-centered care with five steps: assessment, diagnosis, planning, implementation, and evaluation. Furthermore, Robey, T. (2021) added that nursing notes document the nurse's decision-making process to assess the patient; systematically collect, analyze, and organize clinical data; implement a treatment plan using evidence-based practice (EBP); and evaluate the effectiveness of interventions and treatments. The objective of the plan of care is to personalize and tailor the treatment plan based on the patient's individual specific physical, emotional, spiritual, and cultural needs to achieve optimal outcomes. For this , New patients will provide your practice with the required demographic information upon registration and check-in, including: Full name, Date of birth, Address, Phone number, E-mail address, Social security number, Emergency contact, Married status, Caregiver's full name and, contact information (if applicable), Preferred language, and

other documentation required by your practice. In addition to Sue S. & Dianne, P. (2011) stated that, nursing notes should consider: interventions initiated and the patient response when documenting an acute abnormality found during assessment, elaborate when documenting a body system abnormality with each assessment technique, as visual, audible, and or tactile, reconcile mismatched objective and subjective assessment findings, document the patient's mentality status, assess the patient at the time of discharge or transfer, use quantifiable data with descriptions, and finally should signed. Additionally Jennifer, T. (2018) mentioned that, nursing notes provide a healthcare team with a complete and accurate timeline of a patient's health status and care, and consider the key to determine a diagnosis and further care through; completing enough nursing notes to move a nurse's memory if any details are not clear or incorrect, safe for a lawsuit, clear and accurate nursing notes serve to ensure the details of nursing care, the Lawyers, Judge: Clear, comprehensive nursing notes ensure if our judicial and disciplinary system can

determine if a patient's nursing care was reasonable and prudent. Also, toney, etal., (2021) clarified that, nursing notes aimed to assess medical care properly, validate reimbursements from insurance companies, ensure compliance with regulations from federal governmental agencies, such as Medicare and Medicaid, as well as state and institutional regulations, Ensuring compliance with agencies that perform accreditation and establish healthcare delivery standards, such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), the National Committee for Quality Assurance (NCQA), and the Accreditation Association for Ambulatory HealthCare (AAAHC).6anf finally; Protect against malpractice or negligence allegations.

Significance of the study:

Al-Rajhy is a new hospital for liver diseases working by Electronic Health Recording System, purposing to hospital quality care improvement. When conduct a previous study to analyse job performance to propose a job description for nurses who recording patient clinical information and documenting nursing

activities electronically. **Mohamed H. et al., (2017)** Modifying a Computerized based- Patient Recording System at Assiut Al-Rajhy Liver Hospital, and **Mohamed S.K et al., (2020)**: Evaluation of effectiveness for using of Electronic Health Information System At Al-Rajhy Assiut University Hospital for Liver. As the researcher found that the system having a defect when entering nursing notes report with information's on which resulting in medical and nursing team miscommunication and continuity of patient quality care, furthermore, legal accountability risks. Therefore, the researcher decided to conduct the present study.

Aims of the study:

- Designing, implementing, and evaluating an in-service training program about nursing notes.

Specific objectives:

1. - Assess the study participants knowledge and practice about nursing notes.

2. Plan and develop a training program about nursing notes; purposes, Accurate writing with legal and ethical considerations.

3. Implement a training program to develop nurses practical skills about nursing notes

4. Evaluate the effectiveness of the training program on nurses practical skills about nursing notes

Research questions:

- To what extent the study participants knowledge and practice about nursing notes?

- Is the training program has an effect for gaining knowledge and practice about nursing notes?

Subject and methods:

Study design: Quasi-experimental designs with pre-post assessment were used.

Setting of the study: The study was conducted at Al-Rajhy Liver Hospital, Assiut University. This hospital was started to work in 2013 with electronic heath Recording system, providing medical services to all Upper Egypt hepatic ill patients with total hospital bed capacity (n= 200) beds but actually worked by (n= 60) beds.

- **Study subject:** included all available ICU nursing staff at Al-Rajhy Liver

Hospital (n=30) were worked at the time of data collection.

- **Planning and developing the training program:**

The program was planned and designed based on the needs assessment of the participants.

- *Formulating program objectives and hand booklet:*

A) General objective: to develop participants' from Al-Rajhy Liver Hospital-Assuit University their Knowledge and practice of when recording nursing notes.

B) Specific objectives: by the end of this program, participant will be able to:

- Define nursing notes.
- Enumerate the importance of good nursing notes.
- Enumerate the objectives of nursing notes
- Mention characteristics of good nursing notes.
- List different types for recording nursing notes.
- Mention the ethical and legal considerations when recording nursing notes.

- **2nd stage: Implementation of the program:**

The program was implemented by the researcher on all nurses (n=30) from ICU. The researcher implement the program on duty hour when getting to record their nursing notes. Program content was implemented in a bout ten days at evening shift because ICU is more stable and calm eventually. The total time of the program was 3 hours, two sessions per day, every session 1.5 hours for 2-3 nurses daily. Teaching strategies these used: lecture, small group discussion, brain storming, and case study. Used teaching aids as: handout was provided to all participants, power point, applied actually on the hospital present system. After ended of the training program give nurses an attendance and active participation certificates with a pen and hand notes.

3rd stage: Evaluation of the program:

The researcher used questions to evaluate the following:

- Outcome of the program: It was used to evaluate cognitive skills of program content through pre, post, and follow up

tests after three months to evaluate the retention of knowledge and practice.

▪ A structured opinionnaire that asks the participants about effectiveness of the program participation and attendance of participants in training sessions.

▪ This phase and follow up took about two months from August to October 2018.

Study Tool: A tool was used:

1- Pre, post and follow up observation checklist test about nursing notes adopted by Abdel-Aal, (2016): It consisted of two parts:

First part: Personal and occupational data sheet which included age, gender, job title, educational qualification, and years of experience**.**

Second part: about recording nurses notes consists of (53) items classified as: importance of nurse's notes (3) items, nurse's notes objectives items (4) items, criteria of good nurses notes (11) items, nurses notes narrative description (35) items.

Scoring system: items rating from (1) for done and from (0) for not done. The scores of the items were summed-up and divided by the number of items, giving the mean score. These scores were converted into a percent score. Then the mean and standard deviations of the scores were computed. If the mean scores percent of responses were ≥ 60 % means high level but if $\leq 60\%$ means low level.

2- Opinionnaire Sheet:

Developed by the researcher in order to evaluate the content and outcomes of the program from study participants' point of view. It covers (10 questions). Responses were scored based on 5 points likert scale ranging from (5) excellent, (4) very good, (3) good, (2) pass and (1) poor.

*Pilot study

Pilot study was carried out on a group of 10% of the study subjects (n=30) before embarking on the field work to find out the difficulties present in questions in order to modify or clarify them, or to omit or add certain questions, and to estimate time needed to fill the forms, and detect constraints that may arise and how to deal with them. There is no modifications were done. The study tool internal consistency and reliability was assessed by Cronbach's alpha coefficients (0.97), content validity (Jury) was done to the scale by five

experts of nursing administration department, Assiut University.

II. Administrative design:

- Official permission obtained to collect data from Dean of Nursing Faculty -Assiut University, Medical Director and Nursing Director of Al-Rajhy Hospital Liver diseases, General Director of Nursing, Oral and written consent was obtained.

Ethical considerations:

The Ethical Committee at the Faculty of Nursing in Assiut University approved the research proposal. There is no risk to study participants during the implementation of the research. The study follows common ethical principles in clinical research. Oral agreement was taken from the participants in the present study. The participants have the right to refuse or to participate and/or withdraw from the study without any rationale at any time. Confidentiality and anonymity was also be assured. The participants' privacy was considered during the collection of data.

III. Statistical design

Collected data were verified prior to computerized data entry and analysis by using statistical software package for social sciences (SPSS) v.g 20.program. Data were presented using descriptive statistics in the form of percentages also mean and standard deviations were calculated. For relation between variables (chi - square, statistical significant was considered at P- value ≤ 0.05.

Results

Table (1) shows that the highest percentage of them were female, their age ranged from 20 to less than 25 years old, having work experience ranged from 5to 10 years, and have secondary technical Institute of Nursing, (**86.7%**, 76.7%, **90.1%**, **73.4%**,**86.7%**) respectively. Also, all of them had attended training courses about infection control only.

Table (2) explains the nurses' knowledge regarding to nurses notes content about pre, post and follow up of the training program illustrated that all nurses' knowledge have improved in all variables immediately after the program implementation and follow up with highest mean score as regards to issues and principles when documenting nurses notes and nurses notes narrative

description criteria was (9.34 ± 1.27) & (**8.33 ± 1.65**) respectively.

Table (3) illustrates the legal and ethical consideration for electronic nurses notes content as perceived by study participants about pre, post and follow up of the training There were highest statistical significant differences between paticipated nurses' knowledge were in pre, post and follows up as regard Always assess the patient at the time of admission ,discharge or transfer especially vital signs and reconcile mismatched objective and subjective assessment findings (P= 0.000) with the highest mean score (9.33 ± 1.27 and 8.33 ± 1.27) respectively.

Table (4) clarifies that the highest percentages of them had an excellent opinions' as regard to program goals are realistic, appropriateness of the study topics with the timetable, Study topics are suitable to the program's objectives., the program goals are measurable, and program content are clear, balancing between theoretical and practical goals, and updated program content (**93,4**%, **93,4%, 93,4**%,86.6%, 83.3%, 80%, 80% and 80%) respectively. Additionally, the majority of them had an excellent opinions' as regards to the time of session implementation items, date of program implementation, appropriate use of teaching methods, and appropriate use of A-V aids (80%,73.3%, 70%, and 70%) respectively.

Results:

Table (1): Personal and occupational characteristics of the study participants

Items	Nurses No. (n= 30)	
	No.	%
Sex		
Male	3	13.3
Female	27	**86.7**
Age: (years)		
20 - < 30 years	25	**76.7**
30 - < 40 years	5	17.7
Level of education:		
Secondary Technical Institute of Nursing.	22	**73.4**
Baccalurate degree in Nursing Science.	6	20.0
Master Degree	2	6.6
Job title		
Technical Nurse	26	**86.7**
Head Nurse	4	13.3
Years of experience:		
< 5 years	3	9.9
5 - < 10 years	27	**90.1**
Workshops or training program Previously attended:		
Yes	30	100.0
No	---------	--------
If answered (yes) list them: - - Infection control	30	**100.0**

Table (2): Nurses' knowledge regarding to electronic nursing notes content in pre, post and follow up of the training program.

Variables	Pre	Post	Follow-up 3m	P-value[1]	P-value[2]
	Mean ± SD				
Concept of nurses notes	0.27 ± 0.45	1.97 ± 0.18	1.43 ± 0.57	**0.000***	**0.000***
Importance of nurses notes	0.37 ± 0.85	4.90 ± 0.31	4.63 ± 0.67	**0.000***	**0.000***
Objectives of nurses notes	0.57 ± 0.97	3.67 ± 0.88	3.43 ± 1.07	**0.000***	**0.000***
Criteria of good nurses notes	0.47 ± 1.01	**8.33 ± 1.27**	6.73 ± 0.98	**0.000***	**0.000***
nurses notes narrative description	1.00 ± 0.98	4.33 ± 0.55	4.27 ± 0.64	**0.000***	**0.000***

(*) Statistically significant.

P1: means the relation between pre and posttest.
P2: means the relation between pre and follow – up 3months.

Table (3): Legal and ethical consideration for recording electronic nursing notes content as perceived by study participants in pre, post and follow up of the training program.

Legal and ethical consideration for recording electronic nurses notes	Pre	Post	Follow-up	P-value[1]	P-value[2]
	Mean ± SD				
During assessment: should include interventions initiated and patient progress when documenting an acute abnormality found	0.27 ± 0.45	1.97 ± 0.18	1.43 ± 0.57	**0.000***	**0.000***
Document any body system abnormality with each assessment	0.37 ± 0.85	4.90 ± 0.31	4.63 ± 0.67	**0.000***	**0.000***
Should include if an assessment through visual, audible, and/or tactile	0.57 ± 0.97	3.67 ± 0.88	3.43 ± 1.07	**0.000***	**0.000***
Reconcile mismatched objective and subjective assessment findings	0.47 ± 1.01	**8.33 ± 1.27**	6.73 ± 0.98	**0.000***	**0.000***
Document the patient's mentality status.	1.00 ± 0.98	4.33 ± 0.55	4.27 ± 0.64	**0.000***	**0.000***
Assess the patient at the time of admission ,discharge or transfer especially vital signs.	0.37 ± 0.85	**9.33 ± 1.27**	**9.33 ± 1.27**	**0.000***	**0.000***
Use quantifiable data with descriptions.	0.57 ± 0.97	3.67 ± 0.88	3.43 ± 1.07	**0.000***	**0.000***

(*) Statistically significant.

P1: means the relation between pre and posttest.
P2: means the relation between pre and follow – up 3months.

Table (4): **Participated nurses' opinions regarding the training program content (n=30).**

Items	Opinion									
	Poor		Pass		Good		Very good		Excellent	
	No.	%	No.	%	No.	%	No	%	No.	%
1. The program objectives are realistic.	0	0.0	0	0.0	0	0.0	0	0.0	30	**100**
2. The program goals were able to measur.	0	0.0	0	0.0	0	0.0	5	16.7	25	**83.3**
3. Balancing between theoretical and practical goals.	0	0.0	0	0.0	2	6.7	4	13.3	24	**80**
4. Appropriateness of the study topics with the timetable.	0	0.0	0	0.0	0	0.0	6	20	24	**80**
5. Study topics are suitable to the program's objectives.	0	0.0	0	0.0	2	6.7	5	16.7	23	76.6
6. Suitable topics regarding to trainees levels.	0	0.0	0	0.0	0	0.0	7	23.3	23	76.7
7. Updated program content .	0	0.0	0	0.0	2	6.7	3	13.3	24	**80**
8. Compatibility of program activities with the study topics.	0	0.0	0	0.0	0	0.0	10	33.3	20	66.7
9. Clear program content.	0	0.0	0	0.0	0	0.0	5	16.7	25	**83.3**
10. The scientific program content was attractable.	0	0.0	0	0.0	0	0.0	19	63.3	21	70

Discussion:

Nursing notes used by nursing team to support the patient care with a complete and accurate data, to determine nursing diagnosis and further care. Furthermore; help a nurse's to remember and observe and clarify unclear details, additionally a nurse must testify for a lawsuit, to adequate accountability **(Burke A. 2021)**. For the first time, nursing documentation patterns have been linked to patients' mortality. Findings were consistent with the hypothesis that some features of nursing documentation within electronic health records can be used to predict mortality. Based on the findings of the present study as regard to personal characteristics of nurses, the present study was carried out on all nurses, the highest percentage of nurses were females, their ages ranged from 20 to 25 years old. Also, the majority of them was qualified with technical institute of nursing, having experience ranged from five to ten 5 years at Al-Rajhy Liver Hospital, and hadn't attended any in-service training courses related to the present program content. This may be attributed to the hospital worked recently and all of them recently hired and graduated with technical institute of nursing because they had computer course among their graduated curriculum. After implementation of the training program, nurses had higher mean score than pre implementation of the program as regards to knowledge about nurse's notes. These hypotheses were supported by the present study results, which showed higher mean score of knowledge and positive statistically significant relations in all mentioned scores immediately after implementation of the program compared to before implementation of the program. The present study cleared that a highly statistical significant relations between nurses' knowledge about all items of nursing notes content as regards to (nursing notes purposes, its narrative content and ethical and legal considerations to follow) in pre, post and follow-up of the training program. There were highly percentages of them had improved their knowledge immediately after implementation of the program (posttest). These findings were

consistent with **(Collins, S. et al., 2013**) who discussed that This findings were highlights the importance of considering documentation requirements when analyzing EHR data, this finding highlights the importance of considering documentation requirements when analyzing EHR data some features of nursing documentation within electronic nursing notes can be used to predict mortality. With future work, these associations could be used in real time to establish a threshold of concern indicating a risk for deterioration in a patient's condition. Additionally, these finding are congruent with **(Burke A. 2021)** who stated that, through good EHR software and EHR systems, nurses became accurately alert to any misses, incomplete nursing notes. An EHR also guarantees all of a patient's data lost and stored in from lost or damaged one easy to access location. Professionals can make sure they have all the information to provide the best care possible. Nevertheless, according to the present study findings, statistically significant relations decreases about nurse's knowledge scores where noticed in the follow up. However, the scores were still

higher than the pre-test scores. This contributed to that nurses continue to document nurses notes correctly or read the handouts which they received during implementation of the program.The findings were consistent with **Feng & Wilson (2011)** clarified that, most forgetting occurs because information in short term memory was never transferred to long term memory. However, forgetting can also occur due to difficult recalling abilities in long memory. Concerning with the contents of the program, the highest percentages of them had an excellent opinions' as regard to program goals are realistic, balancing between theoretical and practical goals, and the scientific program content was attractable .This may be attributed to the participants motivation to learn. Moreover, content of the program is much related to their work environment, and they got a lot of benefits as new knowledge and incentives from the hospital where they worked. These finding is congruent with **Elizabeth (2011) &Mohamed (2017),** who mentioned that, training programs about documentation management (reporting and recording) have a positive impact

and resolution for improving knowledge of supervisors and nurse managers. Also, **Abo Gad, & El-Demerdash, (2014)** demonstrated that the effectiveness of training program for nursing staff was enhancing their information and skills after implementation of the program.

Conclusion: Electronic nurses notes should provide a clear and accurate patient data for all healthcare team, nurses should follow broad guidelines when recording their notes to ensure that the action was reasonable and prudent. Also, Study subjects improved knowledge and documenting practice through post and follow up phase of the program

Recommendation: Maintain and demonstrate the present study program about (nurses notes) as updated data source at Al-Rajhy Liver Hospital and for all other Assiut University Hospitals.

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