Audit nursing reports in intubated neonates admitted in neonatal intensive care unit of Ayatollah Rouhani Hospital, Babol, Iran

Original Article

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Abstract:

Background: Accurate and complete documentation of nursing records is one of the preconditions of the evidence-based cares and is considered as one of the most important professional tasks in nursing. The aim of the present study was to audit the nursing reports in intubated neonates admitted in neonatal intensive care unit of Ayatollah Rouhani hospital, Babol.

Methods: In this cross-sectional study, 100 nursing reports were randomly selected from the neonatal intensive care unit. Data were collected by a researcher using a checklist which was developed in accordance with the standard and indicators of nursing documentation in national and international reliable sources and then compared after determining the content validity and reliability (observers' agreement coefficient). Data were analyzed using SPSS20, and statistical methods of Man-Whitney and Kruskal-Wallis were used at a significant level of p<0.05.

Results: The quality of 93%, 1% and 6% of nursing records was good, moderate and poor, respectively. Overall, the quality of nursing records was desirable in terms of content and structure and there was no significant difference in nursing documentation record in dimensions of structure and content according to overtime (P=0.92 and P=0.11), work experience (P=0.61 and P=0.16) and age group (P=0.09 and P=0.76).

Conclusions: The quality of nursing records in neonatal intensive care unit of Ayatollah Rouhani Hospital of Babol has been improved according to the Accreditation of Health Care Centers. In addition, the increase of nurses' knowledge about legal and professional issues has also been effective on improving the quality of the documentation.

Keywords: Newborn, Nursing records, Documentation, Intensive Care Units

Introduction:

Intensive care unit (ICU) as one of the important, units needs the fast and accurate performance and care of nurses [1]. Accurate and complete documentation of nursing records plays a significant role in providing the quality of nursing cares [2]. The documented record of nurses is only legal document that describes the measures taken by the nurses for patients and is the best defense against the complaints of patients about the negligence of nurses in providing nursing cares [3]. One of four neglected cares of nurses in patient care is related to the mistakes in documenting the nursing records [4].

Statistics shows that 74% of the healthcare team errors are reported to the judicial authorities in developing countries. In Iran, legal problems related to nursing were 3.1% in 2001-2005 so that the nurses were to blame in 51% of cases due to the false record of care [5].

Quality of nursing records leads to increase the effective relationship between carers, coherence, facilitation and individual care continuity [6].

The main tasks of nursing records include the transfer of patients' information to other members of health team, increasing the professional autonomy, critical thinking skills of nurses, development of professional knowledge and nursing training. The most important feature of nursing records is its legal aspect and is the best evidence for interventions in patients [5].

Documentation of complete, accurate and timely records is necessary to judge whether the patient receives needed cares or not. It also helps the carers for planning, coordination, coherence and continuity of care [7]. Recording plays important roles such as communication, training, research, auditing and evaluation in addition to legal, which indicates the value of a true and accurate record documented [8].

Nursing documentation which takes about 30% of the nurses' time is one of the most important performances of them and it is as a legal document [9].

The principles of nursing recording include both structure and content dimensions that the content dimension of recording was general condition, prescribed medications, prescriptions and acute changes, follow-up cases, paraclinical findings, vital signs and documentation of discharge planning. The structure dimension includes author characteristics, time and date of recording [2]. Nursing record takes about 38% of the nurses' time [4].

However, the results of a national study in 2011 suggested that 21.4%, 53.6% and 25% of nursing records had good, moderate and poor quality, respectively [2].

National Patient Safety Agency (NSPA) states that weakness in the nursing documentation is an important factor not to diagnose the acute clinical status of patients [10].

Cheevaka Semsook et al.'s represented that the quantity and quality of continuity and legal accuracy of nursing documentations were less than 50% and they stated that most of the nurses believed that the care documentation was a kind of paperwork, which only increased the heavy-duty nursing [11].

In many cases, the reasons for this problem were lack of knowledge about the issues that need to be documented, proper structure for recording, control, and reward and punishment system [12].

Other studies have illustrated that only a few of nursing records have been investigated to evaluate the quality of nursing cares, which is an indicative of weakness in nursing record documentation [13,14].

If the unit, where the nurses work, is more specialized, the nursing record should be more detailed. It means that the higher sensitivity needs the more information record in at shorter intervals. Continuous and frequent care is expected to be recorded at all stages including examining the neonates, interventions, monitoring, response to treatment and outcomes due to very high sensitivity of NICU [15].

NICU nurses must have the ability to document the best nursing record which indicates a complete and accurate care, and all standard and acceptable nursing intervention [16].

Proper and principal documentation of nursing record is one of the most important functions and responsibilities of professional nurses and continuous improvement of nurses is very important to progress the documentation quality of nursing records. On the other hand, due to the lack of study on investigating the nursing records in intubated infants, the aim of this study was to audit the documentation quality of nursing records in intubated neonates admitted in Babol Ayatollah Rouhani Hospital in order to reflect the effective factors in non-compliance with the documentation standards of nursing record and removing strategies of the deficiencies to the authorities after clarification of the possible problems.

Methods:

In this analytical descriptive study, 100 nursing records of three sifts (morning, evening and night) were randomly selected from the intubated patients admitted in NICU of Ayatollah Rouhani Hospital in 2015. (The number of nurses who were working in this unit was about 30 persons). The number of sample was calculated with the formula and this was 100 nursing records with 0.95% confidence coefficient of and power of 80% (p: q: 0.5).

A researcher-made checklist containing 29 items in two fields of content and structure was used to audit nursing record documentation of intubated neonates. Twenty-one items related to content included the

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record of fluid intake and output, vital signs, ventilation mode, neonatal oxygen saturation, medication orders associated with intubation process, awareness levels of infant before and after intubation, length of intubation (hours), the type and size of the endotracheal tube and intubator, documentation of endotracheal tube placement and its verified method, tolerance of the newborn to the intubation procedure, secretion suctioning process, tests and graphs, documenting the time of inhalation, maximum inspiratory pressure (MIP), fraction of inspired oxygen, newborn's position change, documentation of catheters in the newborn, how to feed the baby, documentation of ventilation complications.

Any item related to content consisted of three options of complete documentation (2 scores), incomplete documentation (1score) and no documentation (zero) and other 8 items related to structure were nurse's name, signature, time, date, type of shiftwork, draw a line at the end of the record, legibility and clearness of the record.

Study on texts, different domestic and foreign sources and survey of ten professors of nursing were performed to validate the checklist.

In order to determine the reliability, the equivalent reliability method of observers was used so that 10 nursing records were given to the three nursing instructors who were asked to evaluate the nursing records and scored them using checklist. Internal coefficient of the checklist was 0.94 based on Cronbach's alpha.

The scores of nurses' record in each section was calculated and then the total score of each content was calculated as a percentage and was divided into three categories unacceptable or poor (0-49%), relatively acceptable or moderate (50-74%) and acceptable or good (75-100%).

Data were analyzed using SPSS 20 and statistical methods of Mann-Whitney and Kruskal-Wallis at significant level of $p<0.05$. Research ethics including confidentiality of the information in file was regarded during the process.

Results:

In terms of content, 6%, 1% and 93% of nursing records had poor, moderate and good quality and had acceptable quality in structural dimension.

The highest frequency in the field of content was related to the documentation of vital signs, the type of the endotracheal tube, endotracheal tube placement and its verified method, medication orders, fluid intake and output, ventilation mode and neonatal oxygen saturation and the lowest frequency was belonged to the documentation of types of catheters in newborns, awareness levels of infant before and after intubation, how to feed the baby and secretion suctioning process.

There was no documentation of ventilation complications and several attempts for intubation of newborns (table 1).

Moreover, the lowest frequency was related to the illegibility and clearness in structure dimension, this was observed in 97% of records (table 2) [17].

The current study was conducted on two groups of nurses aged 28-33 and 33-38 and there was no significant difference in documenting of nursing record in content and structure dimensions between these two age groups (P=0.09 and P=0.76).

Also, no significant difference was found between two groups with work experience of 3-6 and 6-9 years in these two fields (structure and content). Two overtime with the mean of 50-75 and 75-100 hours indicated no difference in nursing record documentation (P=0.92 and P=0.11), while the mean of complete documentation of nursing records was decreased with the increase of overtime especially in age group of 28-33 years and this difference was not significant.

Nursing record documentation had no significant difference in three-shift work but evening shift had better quality in documenting the content of nursing records and this difference was not significant, too.

In fact, the present study showed that the nursing record documentation was the same in different age groups, work experience and shiftwork.

Table 1: Relative frequency distribution of documenting the content of nurses' record in NICU of Babol Ayatollah Rouhani Hospital (N: 100)

Content	Type of documentation	No doc Number (%)	Incomplete doc Number (%)	Complete doc Number (%)
Awareness levels of infant before and after intubation		1 (1)	52 (52)	47 (47)
Time of intubation		3 (3)	0 (0)	97 (97)
Who is the intubator?		4 (4)	2 (2)	94 (94)
The number of attempts for intubation of newborns		100 (100)	0 (0)	0 (0)
The size of the endotracheal tube		1 (1)	0 (0)	99 (99)

(Continuation of Table 1:)

Content \ Type of documentation	No doc Number (%)	Incomplete doc Number (%)	Complete doc Number (%)
The type of the endotracheal tube (oral or nasal)	0 (0)	0 (0)	100 (100)
Endotracheal tube placement	1 (1)	0 (0)	99 (99)
Verified methods of the correct placement of an endotracheal tube	3 (3)	0 (0)	97 (97)
Tolerance of the newborn to the intubation procedure	0 (0)	1 (1)	99 (99)
Secretion suctioning process, type of secretion and odor	24 (24)	20 (20)	56 (56)
Vital sign	0 (0)	0 (0)	100 (100)
Medication orders associated with intubation process	1 (1)	0 (0)	99 (99)
Neonatal oxygen saturation	3 (3)	0 (0)	97 (97)
Ventilation mode	3 (3)	0 (0)	97 (97)
Time of inhalation, maximum inspiratory pressure (MIP), Maximum expiratory pressure, fraction of inspired oxygen	4 (4)	0 (0)	96 (96)
Procedures such as position change	10 (10)	1 (1)	89 (89)
Tests and graphs such as arterial blood gas and its results	3 (3)	0 (0)	97 (97)
Types of catheters in the newborn including umbilical catheters, chest tubes, etc.	13 (13)	41 (41)	46 (46)
How to feed the baby	49 (49)	0 (0)	51 (51)
Ventilation complications and appearance of new symptoms such as labial and gingival damage, organ swelling, hypoxia, pneumothorax, etc.	100 (100)	0 (0)	0 (0)
Fluid intake and output	1 (1)	0 (0)	99 (99)

Table 2: Relative frequency distribution of filling out the structure of nurses' record in NICU of Babol Ayatollah Rouhani Hospital

Structure	Number (%)
Nurse's name	100 (100)
Signature	100 (100)
Time	100 (100)
Date	100 (100)
Shiftwork	100 (100)
Draw line at the end of record	100 (100)
Eligibility and readability	97 (97)

Discussion:

In the current study, 6%, 1% and 93% of nursing records were poor, moderate and good in terms of content, respectively. In addition, the quality was acceptable in structural dimension because of almost proper ratio of nurses to patients in ICU, moderate overtime and nursing staff awareness of the importance and effect of documentation on care quality through continuous training of recording in this unit. In support of above findings, Rozitalab et al.'s suggested that 80%, 18% and 2% of nurses' documentation were complete, incomplete and with no documentation, respectively [9]. Mohajjel et al.'s reported that 70.6% and 29.4% of nursing documentation had moderate and good quality, respectively. Overall, findings illustrated that the documentation quality of nurses in internal and surgical units of educational centers in Tabriz University of Medical Sciences was at an acceptable level, which is consistent with the present study [5].

Unlike the current research, a study in Kashan (2012) stated that the quality of 21.4%, 53.6% and 25% records was good, moderate and poor, respectively. Quality of nursing records was low in terms of content and acceptable in terms of structure [2]. The results of Ghazanfari et al.'s showed that the performance of 85% of nurses was undesirable in the field of recording [4]. Semsook et al.'s analyzed 50 nursing records and found that 41% of them had poor quality [11] which is similar to the current study.

A study conducted by Farzi et al.'s (2015) represented that the mean of total score of nursing record documentation in the ICUs of Isfahan Hospitals was 82.8±11.9 and the highest and lowest mean scores were related to the medication record and documentation of taken measures with 94.9±12.03 and 53.8±24.3, respectively [17].

In this study, the highest frequency in the field of content was related to the documentation of vital signs, the type of the endotracheal tube, endotracheal tube placement and its verified method, medication orders, fluid intake and output, ventilation mode and neonatal oxygen saturation and the lowest frequency was

belonged to the documentation of types of catheters in newborns, awareness levels of infant before and after intubation, how to feed the baby and secretion suctioning process. There was no record of ventilation complications and several attempts for intubation of newborns, which corresponds with the study of Farzi et al.'s who reported that the highest mean was associated with the documentation of medications and the lowest one was belonged to the documentation of taken measures [17].

In the research of Khoddam et al.'s incomplete documentation of intake and output status was remarkable as well as the most important point in the structure of records was the lack of signatures and line at the end of records [18], while in the present study, the legibility and clearness of nursing records were in the field of structure.

Ahmadi's study on the quality of nursing records represented that most documented records of nurses were incomplete in terms of content, which shows the weakness of the knowledge and training of nurses in this field and it is inconsistent with the present study [19]. In the present study, no significant difference was observed between the documentation score, marital status, work experience and shiftwork that these findings are the same as Farzi et al.'s results [17].

Nursing record documentation had no significant difference in three-shift work but evening shift had better quality in documenting the content of nursing records and this difference was not significant in the present study. However, night-shift personnel had higher quality of documentation in the study of Ghasaby et al.'s who also reported that the quality of documentation was higher in ICUs than internal and surgical units [2].

The results suggested that the documentation quality of nursing records in the ICU was desirable. In recent years, given that the assessment of health care centers has been done based on the standards of accreditation and achieving high grade for centers is very important so the managers of health care centers have extensively planned to improve nursing documentation.In addition, nurses' knowledge of professional responsibility and legal consequences of incomplete and inaccurate documentation result in the increase of their accuracy in documentation. Therefore, the need of planning by the authorities is recommended to provide continuous training to maintain the quality of nursing records at an optimal level.

Limitations of the present study:

Personnel's age similarity, equal work experience and overtime in NICU were the limitations of the current study. If the personnel did not have different age, experience and overtime, the results may be various. Thus, the further studies are recommended in this field.

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