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The Use of Nursing Terminology in Electronic Documentation

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Abstract. The purpose of this study is to describe the use of nursing terminology in nursing documentation in the neurological care setting. The use of standardized terminology in nursing documentation allows the visualization of nursing practice and makes it quantifiable. Once collected, data can also be reused for administrative purposes. In Finland the Nursing Minimum Data Set (NMDS) is part of the core data set of patient electronic health records. The Nursing Minimum Data Set has been complied using the Finnish Classification of Nursing Interventions (FiCNI) and Finnish Classification of Nursing Diagnoses (FiCND), both based on the Clinical Care Classification. Standardized terminology was introduced in nursing documentation in 2004. The data form part of a wider set of electronic health record data (2003-2006). The data consist of 40 neurological nursing care plans. The data were analysed using statistical methods and content analysis. Nursing terminology had been widely used in nursing documentation. However, there remains a clear need for both training in and further validation of the terminology currently used.

Keywords: nursing documentation, terminology, classification, medical records, computerized, evaluation

1. Introduction

The primary purpose of the information contained in an electronic health record (EHR) is to support decision making not only in patient care but also in health management and for health policy purposes [1,2]. Nursing documentation can not be separated from medical documentation and both should be integrated in a multidisciplinary EHR, e.g. [3,4]. The need for research on electronic nursing documentation has been shown in earlier studies [4,5]. Standardized classifications of nursing diagnoses and nursing interventions for documentation purposes have been shown to make the contribution of nursing visible and quantifiable [6,7,8,9,10,11,12,13]. Previously, inclusion of nursing diagnoses has been shown to improve the quality of patients' needs assessment documentation, and the quality of nursing interventions and the outcomes of nursing interventions [14]. However recent investigations of nursing terminologies reveal the need for studies of the relationships between nursing diagnoses, nursing interventions and nursing outcomes [11,14]. This paper reports on the use of a standardized nursing terminology in the electronic nursing documentation of patient care.

2. Background

A core data set of EHRs has been defined as a part of the national EHR project in Finland. The Nursing Minimum Data Set (NMDS) is a part of the EHR core data set. The NMDS contains information on the nursing diagnoses, nursing interventions, nursing outcomes, intensity of care and summary on discharge [15]. The NMDS has been compiled using the Finnish Classification of Nursing Interventions (FiCNI) and the Finnish Classification of Nursing Diagnoses (FiCND), both of which are based on the Clinical Care Classification [16]. The cultural development work has been done over a period of many years and the need for further validation has been recognised

[17]. The use of the FiCNI for documenting purposes has previously been studied in specialized care [18,19,20,21]. These studies have shown that all the Care Components of the FiCNI has been used in nursing documentation [18,19,20]. In a recent study nursing documentation was shown to be based on the nursing process. All phases of the nursing process were used, although the use of the nursing process varied between patients. Furthermore, lack of notes relating to needs assessment, the identification of nursing problems and nursing care aims, and the nursing interventions planned were noticed in the documentation. The standardized terminology was used in the documentation but inconsistencies emerged in the use of the different classifications [22].

3. Objectives

The purpose of this study was to describe nursing documentation in the neurological care setting. More specially, the aim was to describe how nursing care is documented and how the nursing classifications have been used in EHRs. The research questions were: 1. To what extent do nursing diagnoses, aims of care, nursing interventions and nursing outcomes appear in electronic nursing care plans? 2. How have the nursing classifications been used?

4. Materials and Methods

Anonymous patient data were collected from August 2003 to January 2006 by the hospital's information management personnel. The data belonged to a wider set of randomly chosen EHR data drawn from surgical and neurological care settings including care episodes in different wards in the North Karelian Hospital District (N=9098). In this paper the study sample consists of 40 neurological patient nursing care plans. The electronic nursing care plan was introduced in 2004 and consists of four phases of the nursing process.

The Finnish Classification of Nursing Interventions (FiCNI 1.1) and the Finnish Classification of Nursing Diagnosis (FiCND 1.0) have been utilised in an EHR system that is used for the planning of nursing care and the making of daily notes. The FiCNI has been used since February 2003, and FiCND since March 2004. Nurses have participated in theoretical training on the subject of terminologies and the nursing process. The inclusion criteria for the selection of the nursing care plans were that both FiCND and FiCNI were in use. The director of the North Karelian Hospital District approved the study. The patient data were anonymous; a unique patient identifier was assigned for each record at the study site.

The data were analysed using statistical software SPSS® 14.0 (Statistical Package for the Social Sciences; SPSS Inc., Chicago, IL, USA) and descriptive methods were used. Narrative text in the nursing care plans was analysed using content analysis.

5. Results

5.1. Frequency of the documentation of nursing diagnoses, nursing care aims, nursing interventions (planned/performed) and nursing outcomes

In the documentation of nursing diagnoses, the aims of care, nursing interventions and nursing outcomes, the FiCND or FiCNI had been used (see Table 1). Nursing diagnoses and the aims of care had mainly been documented using the major categories or subcategories of the FiCDN. 44 nursing diagnoses had been documented using the Care Component of the FiCDN and two nursing diagnoses using narrative text. Nursing

interventions, planned or performed, had mainly been documented using the major categories or subcategories of the FiCNI. 141 performed nursing interventions had been documented using the Care Component and only 11 using narrative text. Planned interventions had been documented either together with the aims of care or independently using the FiCNI. Table 1 shows those of the planned interventions which had been documented independently. Nursing outcomes had mainly been documented using the Care Component level of the FiCND. Only 49 nursing outcomes had been documented using narrative text.

Table 1 -The use of a standardized terminology in nursing documentation in the neurological care setting

Component	**Nursing diagnosis**	**Aims of care**	**Nursing interventions, planned**	**Nursing interventions, performed**	**Nursing outcome**
	n (%)	n (%)	n (%)	n (%)	n (%)
Activity	56 (15)	45 (17)	6 (15)	2978 (26)	2739 (25)
Elimination	38 (10)	28 (11)	1 (2)	2247 (20)	2007 (19)
Coping	14 (4)	12 (5)	1 (2)	297 (3)	233 (2)
Fluid volume	5 (1)	4 (2)	0 (0)	172 (2)	204 (2)
Health behavior	7 (2)	5 (2)	1 (2)	8 (0)	10 (0)
Health services	0 (0)	0 (0)	0 (0)	12 (0)	4 (0)
Medication	4 (1)	5 (2)	4 (10)	366 (3)	352 (3)
Nutrition	11 (3)	10 (4)	1 (2)	353 (3)	437 (4)
Physical regulation	34 (9)	23 (9)	5 (13)	825 (7)	705 (7)
Respiration	4 (1)	4 (2)	1 (2)	328 (3)	369 (3)
Role relationship	21 (5)	15 (5)	3 (8)	438 (4)	637 (6)
Safety	4 (1)	5 (2)	1 (2)	6 (0)	14 (0)
Self care	114 (30)	38 (15)	4 (10)	1514 (13)	1048 (10)
Psychological regulation	23 (6)	28 (11)	7 (17)	1127 (10)	1339 (12)
Sensory	14 (4)	9 (3)	2 (5)	57 (1)	62 (1)
Skin integrity	18 (5)	16 (6)	2 (5)	477 (4)	517 (5)
Summary of care	13 (3)	10 (4)	2 (5)	67 (1)	100 (1)
Total	380 (100)	257 (100)	41 (100)	11272 (100)	10777 (100)

5.2. Accuracy of recorded nursing diagnoses, nursing care aims, nursing interventions and nursing outcomes

Some nursing diagnoses (n=6) were recorded under an inappropriate Care Component, e.g. smoking was recorded under the Care Component Physical regulation, or medication under the Care Component Respiration. The documentation of nursing interventions (n=11272) also included the documentation of nursing outcomes. However, only 178 nursing interventions also included nursing outcomes. Thus medication had been

documented under other Care Components than Medication, e.g Elimination (n=5), Health behavior (n=2), Physical regulation (n=12), Respiration (n=12) and Skin integrity (n=24).
The documentation of nursing outcomes (n=10777) also included the documentation of nursing interventions. The number of nursing interventions which had been documented together with nursing outcomes was 970. The different Care Components which had been used in documenting the interventions performed were: Medication 267, Physical regulation 299, Skin integrity 174, Fluid volume 108 and Health services 3.
In nursing outcomes various nursing items had been documented under an inappropriate Care Component of the FiCND. The number of uses of inappropriate Care Components were: Activity 58, Elimination 20, Coping 203, Fluid Volume 2, Health Behavior 2, Nutrition 146, Physical regulation 85, Respiration 46, Role relationship 8, Safety 0, Self care 1, Psychological regulation 135 ,Sensority 1, Skin integrity 159 and Summary of Care 5.
Medication information had also been documented using other Care Components than Medication, e.g. Activity (n=16), Elimination (n=12), Physical regulation (n=67), Respiration (n=21), Role relationship (n=2), Self Care (n=1), Psychological regulation (n=1) and Skin integrity (n=159).
Under the Care Component of Coping the following nursing items had been documented: activity (n=23), self care (n=107), role relationship (n=65), psychological regulation (n=7), respiration (n=2) and skin integrity (n=2).
The use of the Care Component Nutrition was inappropriately used. Nursing items concerning self care (n=120), fluid volume (n=23) and medication (n=3) had been documented under nutrition.

6. Discussion

The aim of the study was to describe how nursing care had been documented and how nursing classifications had been used in the EHRs. The results indicate that the standardised nursing terminology had been widely used in nursing documentation in the neurological care setting. There was, however, little documentation of nursing diagnoses, the aims of care and planned nursing interventions. Nursing interventions were the most frequently documented category. This can be due to the fact that the FiCNI has been in use longer than the FiCND and the nurses were more familiar with it. It is noteworthy that the documentation of nursing interventions included nursing outcomes and vice versa. The number of interventions involving medication and physical regulation which had been documented along with nursing outcomes was huge. In educating nurses in the use of standardised nursing documentation attention must be paid to how the nursing process model is to be followed. The documentation of medication needs attention. The needs assessment of medication was not documented despite the documentation of nursing interventions and outcomes. Furthermore outcomes documentation also included medication interventions. Medication was also documented under various Care Components. In particular, medication administered should be located in the same place in order to avoid medication errors. The results of this study suggest that the content of the Coping and Nutrition Care Components need clarification. Nursing items relating to self care had been documented using the Coping Care Component. The use of the Care Component of Nutrition also varied. Nursing items concerning fluid volume and self care had been documented under the Care Component of Nutrition.

7. Conclusions

The use of nursing classifications is not yet consistent, and therefore training and continuous support are needed. The use of standardised terminology can be seen as an innovation and its implementation needs to be monitored and evaluated.

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