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Priority interventions from the NIC and expected results from the NOC in patients with a nursing diagnosis of *Ineffective breathing pattern*

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ABSTRACT

The aim of the study was to validate the priority interventions from the Nursing Interventions Classification (NIC) and the expected results from the Nursing Outcomes Classification (NOC) in patients hospitalized in an intensive care unit, with a nursing diagnosis of *ineffective breathing pattern*.

Twenty experts helped with the verification of the priority interventions and expected results. They assigned scores to individual interventions and results, using a Likert scale. During testing, the experts had to indicate with the help of the Likert scale how they perform the various activities in the selected NIC and how they evaluate different indicators in the selected NOC. They could select from the following scale: 1 = not at all, 2 = seldom, 3 = sometimes, 4 = many times, 5 = always. The data were consequently analysed by assigning a value to each of the responses (1 = 0; 2 = 0.25; 3 = 0.5; 4 = 0.75; 5 = 1). The maximum value that could be achieved in the evaluated field was 1, and the minimum was 0. Activities (for NIC) and indicators (for NOC) which were assigned a value of ≥0.8, were identified as priority use, and when they were assigned a value of ≤0.5, they were excluded on the grounds that the nurses performed them minimally or not at all. Others were taken as commonly used.

Based on an analysis of the related NIC (specifically: *respiratory monitoring* 3350, *ventilation assistance* 3390, *chest physiotherapy* 3230, *airways suctioning* 3160 and *airways management* 3140), we concluded that only 62 activities from a total number of 158 were used by nurses. In the NOC, from a total number of 83, 50 indicators were assessed and 32 can be considered typically rated. On the basis of the results, our experts considered most of the NIC interventions unusable. On the other hand, more than half of the NOC indicators were rated as useful.

The results of the study point to the fact that the introduction of the classification systems NIC and NOC would require further testing in clinical practice in the Czech Republic in order for them to be used effectively.

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Introduction

Currently, the most well-known classification system used in the Czech Republic is that of the nursing diagnosis system of the North American Nursing Diagnosis Association (NANDA), which is managed by NANDA-International (NANDA-I). However, this system is not fully used and despite several years' use, nurses have not identified with it. The classification systems NIC (Nursing Interventions Classification) and NOC (Nursing Outcomes Classification) complete the system of nursing diagnoses for standardized interventions and expected results, but these systems are not yet so widespread that all nurses know and use them. They form a dynamic project of the University of Iowa and involve exploration and validation of nursing activity.

The project was carried out in conditions foreign to the Czech Republic, and cannot be applied to conditions here without modification. Therefore, they must be tested and modified in such a way that allows Czech nurses to discover the advantages they provide. Although experts in the Czech and the Slovak Republics have been working with these systems for several years, they have failed so far to argue that such classification systems and standardized terminology have become part of professional nursing in the Czech Republic. This is also reflected in *The Conception of Czech Nursing* [1] which refers to the classification systems as an area to which nursing research should be directed. The classification systems also are very much a part of nursing studies, especially at the postgraduate level.

The aim of the study is to validate the priority interventions from the NIC (Nursing Interventions Classifications) and expected results from the NOC (Nursing Outcomes Classification) in patients hospitalized in an Intensive Care Unit, with a nursing diagnosis of *an ineffective breathing pattern*.

Materials and methods

The research sample was chosen by experts selected according to criteria established by Fehring, but, as stated by the authors, it was not possible to meet the required conditions in the Czech Republic, so they were modified for use in the Czech and Slovak Republics [2]. The main criterion was experience in urgent nursing care, e.g. intensive care units (the level of intensive care was not important). In total, there were 20 experts who met the condition by scoring a minimum of four points according to the criteria. They were experts from the intensive care units of traumatology wards, inpatient care of anaesthesiology and resuscitation, apallic intensive care units and intensive care units on internal wards. All these wards can be found in the České Budějovice Hospital, a joint-stock company.

In order to verify the applicability of the nursing classification systems NIC and NOC in acute nursing care, nurses were required to complete a form NNN (NANDA-International, NIC, NOC) which had been compiled with reference to the nursing diagnosis 00032 *Ineffective breathing pattern* and the related NIC and NOC [3]. The nurses were first required to assess the nursing diagnosis according to NANDA-I, then the results according to NOC which are appropriate to the particular patient's situation. Finally the nurse was required to select the NIC interventions which are appropriate to achievement of the desired result [3]. In selecting diagnosis 00032 *Ineffective breathing pattern* we were influenced by Thoroddsen et al. [4] who state that this diagnosis is one of the most determined. The following NIC interventions were assigned to this diagnosis: *Ventilation assistance* 3390, *Respiratory monitoring* 3350, *Airways management* 3140, *Airways suctioning* 3160, *Chest physiotherapy* 3230, *Withdrawal from mechanical ventilator* 3310, and *Management of mechanical ventilation: invasive* 3300. These NOC outcomes were also associated: *Breathing* 0415, *Clearness of airways* 0410, *Ventilation* 0403, *Gas exchange* 0402, *Vital functions* 0802. The two last interventions (*Withdrawal from mechanical ventilation* 3310 *and Management of mechanical ventilation: invasive* 3300) were excluded from direct testing as most ICUs do not dispose of ventilators. The experts were trained in the use of the classification systems NIC and NOC with which they were to work. In order to determine the nursing diagnosis an algorithm was used, in which at least one determining characteristic was necessary for validation [5].

During testing the experts were required to indicate on the Likert scale how they perform different activities in the selected NIC and how they evaluate different indicators in selected NOC [6]. They could choose on the following scale: 1 = not at all; 2 = seldom; 3 = sometimes; 4 = many times; 5 = always. The data were analysed by assigning a value to each response (1 = 0; 2 = 0.25; 3 = 0.5; 4 = 0.75; 5 = 1). The maximum value that could be achieved in the evaluated field was 1; the minimum value was 0. Activities (for NIC) and indicators (for NOC), which were assigned a value of ≥0.8, were identified as 'priority use'. If they achieved a value of ≤0.5, they were excluded for the reason that they are carried out by the nurses minimally or not at all. Others were taken as commonly used.

Results

The experts were required to assign a score to different NIC activities and NOC indicators on the Likert scale of how they perform different activities and how they evaluate the indicators. This part of the research brought more detailed analysis of whether activities for NIC and indicators for NOC are in accordance with the competences of nurses, and also whether nurses perform these activities within the care of the patient with diagnosis *Ineffective breathing pattern*. Based on the analyses relating to NIC (specifically *Respiratory breathing* 3350, *Ventilation assistance* 3390, *Chest physiotherapy* 3230, and *Airways suctioning* 3140) we concluded that from the total number of 158 activities only 62 were used by nurses. Therefore more than half of related activities had to be excluded.

From the exclusion of the NIC activity *Ventilation assistance* 3390 (Table 1), we can assume that experts either do not dispose of needed equipment, e.g. motivation spirometer, or leave some activities to other health care professionals.

Some activities that involve physical examination of the patient were excluded for NIC *Respiratory breathing* 3350