Automatic measurement of patient dependency - Use of secondary data from SNL

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Summary

Patient dependency can be measured as secondary data from coded nursing documentation. In the EHR of emergency care the JDT-classification was tested utilizing the coded nursing documentation (SNL) to generate the patient´s dependency level. Patients` dependency level and required resources are displayed automatically and in real time in EHR.

Abstract

The aging of the population and the complexity of patients' illnesses require more nursing care in the emergency department, which increases the amount of nursing work. Due to the unpredictability of the number of patients in the emergency department, the human resources for nursing and the correct allocation of skills are challenging.

In the emergency care units of Turku University Hospital has been developed, together with the system supplier, the patient care dependency data that is automatically generated from the coded patients´ nursing documentation data. The emergency units use in nursing documentation the Finnish Care Classification (FinCC) and it was coordinated (cross mapped) with the Jones Dependency Tool (JDT), which has been found to be valid for emergency care work. Based on the care data, the system calculates the required resource needs using the Best (Baseline Emergency Staffing Tool) developed in England. Testing was carried out in autumn 2019 and the use of a method began in production in early 2020. The developed method is called the RESS (Realtine Staffing System) model.

The research of the piloting was carried out in spring 2020. The purpose of the study was to find out and describe with which accuracy the patient nursing activities data structurally recorded in the patient record system in emergency units automatically provides nursing and staff resource information describing the complexity of patient care and patients`dependency.

The total material contained a total of 6074 lines. 190 treatment reports from 17 different treatment units were selected for the sample, in which 1038 treatment implementation entries were recorded. Quantitative data were analyzed with SAS 9.4 software. The associations of categorical variables were examined by Fisher's exact test. The reference framework for the results of the study was the nursing reference model developed by Goossen et al.

The results of the study showed that the indicators of the intensity of nursing work were obtained correctly from the patient record system. The calculation formulas and weighting factors included in the RESS model correctly differentiated patient dependency data (dependency level, resource requirement) according to modeling despite the small number of documentation. The method as a whole (data aggregation, calculation formulas and weighting factors) works correctly no matter how much was recorded. The reliability of determining the patient dependency level and the nursing resources needed increases when all patient care interventions are accurately recorded.

The study provided new information of the patient's dependency and the need for nursing resources,. The results can be utilized in the development of the quality of nursing documentation, and in the planning, training and correct allocation of documentation. The results can also be used in RESS model`s education, and as part of emergency care planning. In the future, it will be useful to study the functionality of the RESS model in different healthcare environments. The RESS model is also suitable for use in other international nursing classifications, such as the Nursing Intervention Classifications (NIC), which could be one new area of research.