

Risk Management in the Area of Urinary Tract Infections Related to Healthcare

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Original Article

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Abstract:

Introduction: Urinary tract infections associated with bladder catheterization (Catheter-Associated Urinary Tract Infection - CAUTI) are the most common type of infection related to providing healthcare, accounting for more than a third of these infections.

Research aim and objectives: The objective was to map risk management in the provision of nursing care in the context of prevention of urinary tract infections associated with healthcare, which at the same time, is related to the improvement of nursing care in this area.

Methods: The quantitative research had the design of an ob-

servational descriptive cross-sectional study, the method of this research phase utilized a non-standardized questionnaire. The respondents of the quantitative part of the research were non-medical health workers in managerial positions (station, executive, head nurses and deputy assistants in nursing care). Data analysis was performed using SASD 1.5.8 (Statistical data analysis) and SPSS (Statistical Package for the Social Sciences) programmes.

Results: In the context of the prevention of urinary tract infections associated with catheterization of the bladder, the following dimensions that corresponded were assessed in the quantitative research areas of prevention: “Risk management”, “Education”. Results of the conducted research showed that in clinical practice, the recommendation to monitor quality indicator results is not widely accepted, the number of CAUTIs is monitored according to 33.3% of respondents, the number of cases of secondary infections of the bloodstream with a source in the urinary tract is monitored according to 31.7% of respondents, and the number of catheter days (in %) is recorded according to a quarter (24.7%) of the interviewed. This was confirmed during interviews with quality managers. Research included assessment of further education of nurses in the areas of CAUTI prevention. 49.5% of respondents confirmed the implementation of further education in the field of correct catheterization procedures, urinary catheter care, and CAUTI prevention, and 86.2% of respondents attend at least one educational event per year.

Conclusion: Based on the results of the research, the monitoring of result indicators of the quality of care, and possibly also the introduction of an electronic form of medical documentation, both for the needs of record keeping and for the possibility of ongoing monitoring of quality indicators, can be mentioned as recommendations. It would also be recommended to hold periodic training events for the education of general nurses for the transfer of theoretical information. For knowledge testing there is a possibility of using IT technologies - educational programmes in the form of e-learning.

Introduction

Šupšáková (1) defines a risk management model, namely risk determination, risk analysis/assessment, investigation, risk resolution and risk integration into related activities. In contrast, Višňovcová (2021) mentions the ten procedures for the implementation and management of risks: “systematic identification of processes and assessment of the risk rates, identification of resources for risk management processes, detection of process changes associated with risks, early detection of risks and risk factors, determination of the direction of the management process risks,

creation of teams ready to enforce and implement risk management, creation of variants of possible management steps and communication about them, selection of risk management steps with a focus on gradual results, management of results and their use for further risk management and the display of the display of results within the terms of risk management (2).”

Risk management in healthcare

Healthcare is a very specific environment. It differs significantly from non-healthcare organizations - especially in terms of organizational

structure, complexity of operations, high specialization of the profession and the number of workers providing the health and safety care of patients (3). Currently, an important task of the management of medical facilities is risk management, an area strongly supported by the Ministry of Health of the Slovak Republic. Based on the Luxembourg Declaration on Patient Safety, it defines risk management as one of the priority tasks of the medical facility management. Škrļa and Škrlová (4) denote that risk management in healthcare is a process where the person in charge of risk management tries to prevent damage to the patient's health, property and the reputation of the organization. The risk areas are known to the care provider, and the moral obligation of health professionals is to ensure high-quality and safe care.

Furthermore, the authors Škrļa and Škrlová (4) state that risk management must be introduced as a standard procedure in the entire healthcare sector and that it is a very fundamental part of the management of the quality of care provided and one of the important management skills of a healthcare manager (5). The identification, elimination and prevention of risk factors in the provision of healthcare is a global trend, and the aforementioned steps lead to a reduction in the costs of healthcare and an increase in trust in the healthcare facility and with patient satisfaction with the care provided (6,7). Barkasi and Leczová (2019) add to this that medical personnel belong in the category of helping professions, which are characterized by close and regular contact with people and also helping other people. This work is called a mission because their primary goal is to help others (8).

Smejkal and Rais (9) define risk as the probability or possibility of loss or failure or as the uncertainty of achieved results. Risk is also often understood as the danger of loss and damage. In the context of healthcare, the term "risk" can be defined as an event that can negatively affect the healthcare facility (6) and the health and safety of patients. Healthcare facilities are putting risk management into practice, which, together with the implementation of process management focused on the effectiveness of individual processes, Process management appears to be ment optimal is closely in the risk linked manage-with ment process.

Process management is closely linked with

quality management, especially in the area of introducing standards, subsequently also within control activities and when conducting audits. Process management includes the identification, visualization, measurement, evaluation and continuous improvement of processes using methods and procedures based on the process procedure (6). Keclíková (10) adds that in the analysis and assessment of risks, their representation on a risk map is of great importance. This document is then a source of information in the field of risk management and helps the management of the facility to focus on priorities depending on the seriousness of the risk. It is also a tool for introducing risk management in the organization, and, it is also a part of prevention (11). Fundamental risks in healthcare are mainly physical, chemical and biological, but there are also combined risks (6).

Facilities using process management have established information systems that are not only a repository of controlled medical documentation, but also support process management, risk management itself, and quality management, as reported by Prokešová et al. (6) and Prokešová (6). The emergence of risks is explained by many models and theories. For the health sector, the most commonly accepted is the so-called "Swiss Cheese Model", the essence of which is the assumption that the created risk can cross "layers" or even "barriers".

Risk management and monitoring of quality indicators as part of the prevention of healthcare-associated urinary tract infections

To monitor the risk of CAUTI, outcome and process indicators are monitored (12). This fact is already mentioned in section 1.2.3. The Guideline for the Prevention of Catheter-Associated Urinary Tract Infections in the context of quality management and care safety recommends monitoring the number of CAUTIs per 1,000 catheter days, the number of secondary bloodstream infections originating in the urinary tract per 1,000 catheter days and the number of catheter days of care as quality indicators (expressed as a percentage) (13). Jindrák et al. (12) state that surveillance is recommended to be carried out in the departments of the healthcare provider and in patients where bladder catheterization is often indicated. Here there is a high risk of complications. Process indicators are then according to Jindrák

et al. (12), especially the results of audits of nursing care and documentation (especially records of catheterization and indication for catheterization) and the proportion of competent persons for bladder catheterization (12). Carter et al. (14) performed a comparison of quality indicators issued by AHRQ (Agency for Healthcare Research and Quality), the NQF (the National Quality Forum) and the ANA (the American Nurses Association). Recommendations regarding CAUTI are given by the NQF, namely monitoring the prevalence of CAUTI and the number of CAUTIs in relation to bladder catheterization. A review processed by Burston et al. (14) presented an overview of quality indicators monitored in nursing care, data were processed from 40 studies and 43 verified quality indicators of nursing care were determined. According to the review, the most frequently used indicators are patient falls, pressure ulcers, medication errors and mortality. Thirteen studies reported the number of urinary tract infections as a quality indicator. At the end of the review, Burston et al. (15) mention that in the case of indicators of the quality of care, it is necessary to choose sensitive indicators, continuously monitor them and evaluate the results. The steps to eliminate and minimize the risks of urinary tract infections must be comprehensive. Based on the above, it is therefore possible to define specific areas of CAUTI prevention.

Research goal

The aim of the work was to map the risk management in the provision of nursing care in the context of the prevention of urinary tract infections associated with healthcare, which are simultaneously related to the improvement of the quality of nursing care in this area.

Specified hypotheses

H1: The process of implementing risk management in the area of healthcare-related urinary tract infections depends on the type of hospital.

H2: Education in the issue of catheterization, care of a patient with a urinary catheter, and prevention of urinary tract infections related to healthcare depends on the type of workplace.

Collection and methodology

The research focused on a specific area of nursing care, the selection of respondents was chosen so that the reason for the research was

fulfilled. The respondents were nurses in a management position, or deputy for nursing care (nursing care manager, head nurse, deputy for non-medical health workers), senior, station and executive nurses working in hospitals providing inpatient care in Slovakia the selection of acute healthcare providers was total. When distributing the questionnaires, a criterion-referenced selection of the research group was chosen - respondents had to be employed by a provider of acute inpatient care in Slovakia and had to meet the criterion of practicing the profession of a nurse and having already performed the previously mentioned functional position. Due to the fact that the range of respondents was defined, the selection of respondents was deliberate. 34 hospitals agreed with the research. All three questionnaires were completely filled out and submitted by 186 respondents (n = 186). There were 26.9% of respondents from faculty hospitals, 19.4% from district hospitals and 18.8% from private type hospitals. Furthermore, 14.5% of respondents were from regional hospitals, 15.0% from city hospitals. Ten respondents, i.e. 5.4%, were from the type of hospitals "other". In the research, ten nursing assistants (5.4%) provided their answers, together with 32.8% that were senior nurses, 106 (57%) that were station nurses, and nine nurses (4.8%) that held the position of executive nurse. The quantitative research had the design of an observational descriptive cross-sectional study, the method of this phase of the research was questioning using questionnaires, or two non-standardized and one standardized questionnaire used in the implementation of the DUQuE (Deepening our Understanding of Quality Improvement in Europe) project. The respondents of the quantitative part of the research were non-medical health workers in the position of manager (station, executive, and senior nurses and nursing assistants). Data analysis was performed using SASD 1.5.8 (Statistical Data Analysis) and SPSS (Statistical Package for the Social Sciences) programmes.

Results

The results of the research are presented in tables, for the sake of clarity, the codes assigned to the statisticians are preserved within the individual table items. All results of statistical data processing are available from the authors of the

work, the explanation of the abbreviations used in the tables is as follows: χ^2 – chi square; p – independence test; df – degrees of freedom.

Evaluation of hypotheses

Hypothesis H1 was established to assess the “Risk Management” dimension. To evaluate this hypothesis, associated characteristics were monitored (Table 1) and the association between characteristics and type of hospital was assessed.

In this area, the conducted research showed a statistically significant connection between the type of hospital and the sign of the appointment of one or more managers/coordinators for quality and safety ($\chi^2 = 15.013$; $p < 0.05$). It has been shown that quality managers/coordinators are appointed to a significantly lesser extent in city-type hospitals. The association between the type of hospital and the presence of awards/incentives for quality improvement also proved to be statistically significant. Awards/incentives are introduced to a significantly greater extent in private and other type hospitals, to a significantly lesser extent in city-type hospitals ($\chi^2 = 21.295$; $p < 0.001$). The power of the tests was limited by the insufficient number of observations in one field of the contingency table, again the Yates correction was applied. Hypothesis 1 assumed an association between hospital type and implementation of healthcare-related urinary tract infection risk management. The connection was confirmed in the items of the provisions of one or more managers/coordinators for quality and safety and also the existence of awards/incentives for quality improvement. **The connection with other features of risk man-**

agement has not been confirmed by the conducted research.

H2: Education in the issue of catheterization, care of a patient with a urinary catheter, and prevention of urinary tract infections related to healthcare depends on the type of workplace. To verify Hypothesis 2, the features of education in the issue of catheterization, care of a patient with a urinary catheter, and prevention of CAUTI and their connection with the type of workplace were monitored. First, the relationships between the observed characteristics and workplaces of the internal (non-surgical) type were determined. During the data analysis, the category other non-surgical workplaces was combined into one item so that the scale contained 2 types of workplaces – internal department and other non-surgical departments – due to the insufficient number of observations. At the same time, the items “disagree” and “disagree at all” and the items “fully agree” and “agree” for questions 37.1 to 42.1 and for question 53.1 were merged, and the scale item “partially agree” was preserved so that the scale contained the three options mentioned above. The analysis of the data of the conducted research did not show a statistically significant connection between the workplace of the non-surgical type and the characteristics listed in Table 2.

Research has shown that the approach of individual non-surgical workplaces is homogeneous in these areas of care and does not differ statistically significantly.

Furthermore, the relationships between the observed characteristics determined to verify Hypothesis 3 (“Education in the issue of cath-

Table 1 Hospital type and safety quality

Hospital type and ...			
– a special internal budget is designated for quality improvement	4,045	5	0,543
one or more steering groups or quality committees have been established	10,098	5	0,073
– one or more quality and safety managers have been appointed	15,013	5	< 0,05
– there are awards/incentives for improving quality	21,295	5	< 0,001
– at least one educational event per year	2,767	1	0,100
– ... receive feedback on their patient care	4,738	5	0,449
– ... are encouraged to report accidents and adverse events	4,348	5	0,500

eterization, the care of a patient with a urinary catheter, and prevention of urinary tract infections related to healthcare depends on the type of workplace”) and the type of surgical workplace were investigated. Due to the insufficient number of observations, the other surgical-type workplaces were again combined into one item so that the scale contained two types of workplaces – surgical departments and other surgical-type departments. Furthermore, the items “disagree” and “fully disagree” and the items “strongly agree” and “agree” for questions 37.1 to 42.1 and for question 53.1 were merged and the scale item “partially agree” was kept. The scale contained the above mentioned response options. Even in the case of surgical-type workplaces, the conducted research did not demonstrate a connection between the surgical-type workplace and the characteristics intended to verify the hypothesis (Table 3).

The analysis of the data of the presented research did not show a statistically significant connection between the surgical workplace and

the characteristics established in the field of education in the field of catheterization, the care of a patient with a urinary catheter, and prevention.

Based on the results of the presented research, it can therefore be concluded that the approach of individual surgical-type workplaces is homogeneous in these areas of care and does not differ significantly in terms of statistics.

After the transformation of the data, as described previously, for the purpose of data analysis to verify the connections between the type of workplaces and characteristics related to the field of education in the field of catheterization, the care of a patient with a urinary catheter, and prevention of CAUTI, the non-surgical workplace was combined into one unit and the surgical workplace to the second one. Table 4 demonstrates the results of the mentioned comparison.

The presented research did not demonstrate a statistically significant connection between non-surgical and surgical types of workplaces and the characteristics listed in Table 4. Based

Table 2 Association of the non-surgical workplace with indicators of education in the issue of catheterization, care of a patient with a urinary catheter, and prevention

Non-surgical workplace and ...	value χ^2	df	P
– utilizing the employer’s offer of courses...	3,794	3,794	3,794
– utilizing the employer’s offer - workshop	0,177	2	0,915
– utilizing the e-learning offer	0,941	2	0,625
– education is supported by the executive	0,175	2	0,916
– education ... can be attended during working hours	1,061	2	0,588
– education ... can be attended repeatedly	0,374	2	0,829

Table 3 Correlation of the surgical workplace with indicators of education in the issue of catheterization, care of a patient with a urinary catheter, and prevention

Surgical workplace and ...	value χ^2	df	P
–utilizing the employer’s offer of courses...	0,468	2	0,792
– utilizing the employer’s offer - workshop	0,998	2	0,607
– utilizing the e-learning offer	0,421	2	0,810
– education is supported by the executive	2,449	2	0,294
– education ... can be attended during working hours	1,129	2	0,569
– education ... can be attended repeatedly	0,800	2	0,670

on the results of the conducted research, it can therefore be concluded that the approach of individual types of workplaces (non-surgical and surgical type) are homogeneous in these areas of care and do not differ significantly in terms of statistics.

The answers to the question “Is further training of non-physicians in the field of correct catheterization procedures, the care of a patient with a urinary catheter and prevention of healthcare-related infections carried out?” are shown in Table 4. The possibility of education in the mentioned areas was confirmed by 49.5% (n = 92) of the respondents, and on the contrary, was not confirmed by 50.5% (n = 94) of the respondents.

If respondents answered yes to question 19.1, “Is further training of non-physicians in the area of proper catheterization procedures, the care of patients with a urinary catheter and prevention of healthcare-related infections carried out?”, they were asked to answer the following questions: What categories of non-physicians in the abovementioned areas are educated?, What type of educational actions are implemented, in

which area of care mentioned in question 19.1 are they educated (Table 5).

When asked what categories of non-medical health workers are trained by the inpatient medical care provider, it was possible to mark multiple answers. The table presents the absolute number of responses for individual professions of non-physicians. The profession of nurses was chosen the most, followed by practical nurse and paramedics.

Furthermore, respondents who answered yes to question 19.1 responded to the question of what type of education they receive in this area. Respondents could choose more than one answer. Out of the total number of 121 (n = 121) responses, 21.5% (n = 26) were initial training, periodic training was chosen as an answer 43 times (35.5%), emergency training made up 17.4% of responses (n = 21), and in 25.6% (n = 31) of the answers the answer “other” was marked - here the answer was a certified course or a clinical seminar.

Overall, based on the results of the conducted research, it can be concluded that Hypothe-

Table 4 Correlation of workplace type with indicators of education in the issue of catheterization, care of a patient with a urinary catheter, and prevention of CAUTI

Non-surgical and surgical workplace type and ...	value χ^2	df	P
- further education in the field of catheterization	0,069	1	0,797
- the field of education	0,707	2	0,702
- method of education	2,631	3	0,452
- education is supported by the executive	2,400	2	0,301
- education ... can be attended during working hours	0,280	2	0,869
- education ... can be attended repeatedly	3,020	2	0,221
- the indication for catheterization is the patient's choice	0,788	2	67423

Table 5 Responses to the question: „If your answer to question 19.1 was YES, indicate which categories of non-physicians.“

Hospital type	nurse	practical nurse	paramedic	sanitation worker	Care-giver	physio-therapist	Occupational therapist	radiological technician
total/ absolute frequency of responses	89	62	30	25	34	2	15	1

sis 2 (“Education in the issue of catheterization, care of a patient with a urinary catheter, and prevention of urinary tract infections related to healthcare depends on the type of workplace”) was not confirmed. According to the results of the research, the possibilities of education in the issue of catheterization, care of a patient with a urinary catheter, and prevention of urinary tract infections related to healthcare do not depend on the type of workplace.

Discussion

In connection with the dimensions “Increasing the quality of care”, “Monitoring the quality of care” and “Risk management”, the conducted research attempted to establish the situation related to the introduction of standards associated with the performance of bladder catheterization, care of a patient with a urinary catheter, and prevention of CAUTI infections and control of their fulfillment, i.e. verification audits. The conducted research showed that the standard bladder catheterization procedure is implemented according to 86.8% of the respondents, the procedure for caring for a patient with a urinary catheter was confirmed by 89.2% of the respondents, and the introduction of the CAUTI prevention standard was confirmed by almost sixty-seven percent of respondents. The results of the analysis of research data from this area were again supplemented by interviews with quality managers and the statements of interview participants; the introduction of standard procedures at providers of acute inpatient care in the SR was confirmed, only in one case it was stated that there were no standard procedures implemented at the provider of acute inpatient care because graduates should be equipped with knowledge and skills from their studies. Furthermore, the verification of the fulfillment of standards by audits was also confirmed by the analysis of interviews. The presented research further demonstrated the connection between regular audits of CAUTI prevention procedures and the existence of a standard CAUTI prevention procedure – where a standard is in place, audits are performed significantly more often ($x^2 = 23.171$; $p < 0.001$). Carter et al. (16); Purvis et al. (17); Freeman-Jobson et al. (18); Johnson et al. (19) evaluate the introduction of standards of care for patients with a urinary catheter and regular ver-

ification of established standard care procedures by audits as effective CAUTI prevention measures. In a review study published by McNeill (20), it is stated that care of the urinary catheter and collection system begins at the moment of catheter insertion, patient care and acceptance of CAUTI preventive procedures, however, must be continuously monitored.

84.4% of respondents confirmed regular revisions of nursing care standards at acute inpatient care providers (according to the results of the presented research), statements about updating the established standards according to NOP were recorded in interviews with quality managers. However, after analyzing the results of the research, it was possible to conclude that the implementation of standards of nursing care, namely the performance of bladder catheterization, care of the patient with a urinary catheter and prevention of CAUTI, does not depend on the type of hospital. The results of the conducted research confirmed the homogenous approach of managers of individual types of hospitals to the implementation of standard procedures in practice.

The analysis of research data related to education in the issue of improving the quality of care belonging to the CAUTI prevention dimension “Education” also determined the connection between the character “education in the field of quality” and the type of workplace. The conducted research showed that more training is carried out within the quality of care in the field of bladder catheterization at surgical-type workplaces ($x^2 = 5.834$; $p < 0.05$) and at least one educational event per year is also more often implemented at surgical-type workplaces to enhance improvement of professional qualifications of nurses ($x^2 = 6.076$; $p < 0.05$).

Furthermore, the results of the presented research showed a more frequent implementation of education of health professionals in procedures ensuring patient safety in surgical workplaces ($x^2 = 5.672$; $p < 0.05$). In connection with these results, it is possible to state the opinion of Aufseeser-Weisse and Ondocka (19), namely that every general nurse, as well as every health professional, should have comprehensive knowledge in the field of quality of care, an overview of the current legislation is also important. The general nurse is obliged to monitor the quality of

nursing care, receives information from regular audits, nurses are members of teams whose activities focus on the issue of risk management in the department and in the hospital (21). Ravindra et al. (22) add that nurses are responsible for the quality of care provided, and continuous, lifelong education is one of the aspects guaranteeing safe and relevant nursing care performed according to valid standards of care.

In the presented research, 49.5% of respondents confirmed the implementation of further education for non-physicians to increase their qualifications in the field of proper catheterization procedures, the care of patients with urinary catheters and CAUTI prevention, 86.2% of respondents attend at least one educational event per year to improve their professional qualifications and, at acute inpatient care providers, 88.4% of research respondents confirmed that medical professionals are trained in patient safety procedures.

In the "Education" dimension, the conducted research then investigated the connections between the type of workplace and education in specific areas: bladder catheterization, care of a patient with a urinary catheter, and prevention of CAUTI. The analysis of the research data related to this dimension showed that 70.4% of respondents could use the employer's offer of courses/seminars, 41.6% of respondents said that they could use the employer's offer of a workshop, training or verification of bladder catheterization skills, 31.3% of respondents can take an e-learning course on urinary catheter care and CAUTI prevention at their employer. The support of education in the areas of care for patients with a urinary catheter, and prevention of CAUTI and bladder catheterization was confirmed by 57.2% of respondents in the presented research. In his study, Quinn (23) gave an example of an educational programme where lectures were organized continuously so that health workers could attend them according to their work shifts. The author also mentions that the diagnosis and therapy of CAUTI increase the financial costs of care, after the implementation of the educational programme, the number of CAUTI cases significantly decreased, the effectiveness of the educational programme, which was ongoing for two months, was thus verified. Quinn (24) described the continuous implementation of education so

that health professionals have the opportunity to participate in education according to the schedule of their shifts. According to the results of the presented research, 56.6% of respondents can take part in educational activities in the mentioned issue related to bladder catheterization and CAUTI prevention during working hours.

The data analysis of the research presented by the dissertation also showed a statistically significant relationship between the support of education by executives and the opportunity to participate in education within working hours ($\chi^2 = 105.237$; $p < 0.001$) - the results showed that where education is supported by executives, workers can participate in education during working hours. Jain et al. (25) emphasize that the education of healthcare professionals in the field of CAUTI prevention is a high priority and essential for reducing the number of CAUTI cases. Oman et al. (26) in connection with education as a step to prevent CAUTI, recommend the education of all health professionals who participate in a care for a patient with a urinary catheter - i.e. for nurses and other non-medical health workers, e.g. physiotherapists, caregivers, transport workers, radiological assistants. Viner (27) clarifies that as long as nurses are properly retrained, they can educate other health professionals who participate in care, e.g. physiotherapists, occupational therapists or speech therapists. The aforementioned author (27) also conducted a study aimed at evaluating the education of health professionals in long-term care departments, which is essential for verifying the quality of the educational programme.

The recommendation of the CDC (28) regarding education is clear, it is advisable to undertake periodic training of competent health professionals, which is comprehensive and contains information on the correct procedures for catheterization of the bladder, including the possibility of practicing performance, and the issue of prevention of CAUTI and other complications of catheterization should also be included in the education. In the context of this recommendation, the data analysis of the presented research showed that "participation in periodic training" was the most frequent answer to the question of what type of training the interviewees can receive. The conducted research also brought interesting results in the case of

a comparison of access to education by non-physicians according to the type of department. The analysis of the research data showed that in the field of correct procedures for bladder catheterization, care of a patient with a urinary catheter and prevention of CAUTI, 20.0% of nurses are trained in non-surgical workplaces as part of their initial training, and in surgical workplaces it was 23.1% of nurses. According to the results of the research, approximately 35.5% of nurses in both surgical and non-surgical workplaces regularly undergo periodic training. The results of the quantitative phase of the conducted research belonging to the "Education" dimension were verified by the qualitative part of the research. On the basis of the above, it can be concluded that, according to the presented research, education among providers of acute inpatient care is implemented in various forms - seminars, courses, certified courses and occasionally also e-learning. In just a single case, it was stated in the interviews that education is not implemented because graduates should be equipped with knowledge and skills from their studies.

Conclusion

Based on the results of the research, monitoring the result indicators of the quality of care, and if possible, the introduction of an electronic form of medical documentation, both for the needs of record keeping and for the possibility of ongoing monitoring of quality indicators, can be recommended. It is possible to recommend periodic training events for the education of general nurses and for the transfer of theoretical information. For possible knowledge testing, there is a possibility of using IT technologies - educational programmes in the form of e-learning.

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