UNIVERSITATEA LUCIAN BLAGA DIN SIBIU

Doctoral School of Medicine

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DOCTORAL THESIS ABSTRACT

INCREASING PATIENT SAFETY BY IMPROVINGTHE NURSING PROCESS

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THE CURRENT STATE OF KNOWLEDGE

CHAPTER I

1. Introduction to patient safety

Patient safety is an area of concern and research that has emerged and grown as health care systems have developed and become more complex. As the issue of safety has become apparent and increasingly important, due to both healthcare providers and policy makers emphasizing its importance, requirements and standards imposed by legislation have also been established.

2. A brief history of the field of patient safety

In order to appreciate the current progress made in patient safety it is important to know and understand the history of patient safety, the origin of the concept, what models have been developed over time and what aspects are the most important. Creating a safe environment in today's complex healthcare system requires a major culture change.

3. Factors influencing patient safety

Communication

The use of effective communication between patients and healthcare professionals is considered essential to achieving optimal outcomes in patient care. The use of effective communication, both verbal and non-verbal, and the use of appropriate communication technologies can help prevent adverse events from occurring, whereas inadequate or less effective communication contributes to adverse events. (1) (2) (3) (4).

Organizational safety culture

In healthcare, as in other areas, when an undesirable event occurs, the immediate reaction is to look for someone to lay the blame on. In a culture of patient safety, the causes of the error are to be looked for instead of the person to blame. (5). Often, several factors are involved in the occurrence of an adverse event, and effective change, that prevents another similar event from happening, can only be initiated when all contributing factors have been identified (6) (7).

Evidence-based medicine

Studies have shown that evidence-based medicine has integrated individual examination and diagnostic skills with the best evidence from medical research. Findings of clinical research, that are considered relevant from an accuracy of diagnostic testing, efficacy and safety of therapy standpoint are used to develop care plans. (8).

Shift planning

Research has shown that medication errors on the part of nurses are more likely to occur when shifts exceed 12 hours or when the work time exceeds 40 hours per week. Working overtime also has detrimental effects on the quality of patient care (9). The errors found by researchers were inattention to detail, errors of omission, compromised problem solving abilities due to fatigue (10).

Health education

Studies have shown that the lack of education is an important component of the safety issue. A lack of understanding ability regarding the medical information given to the patient can often lead to medication errors and adverse events (11). The patients in this category are at greater risk of hospitalization and are more likely to make errors regarding the medication they are prescribed. (12).

4. Causes of medical errors

- Human factors such as the presence of fatigue, depression, exhaustion, time pressure, increased work hours, anxiety, and stress (13) (14) (15) (16) (17) (18) (19) (20).
- Medical complexity on account of complicated modern technologies, prolonged hospitalization.
- Irregularities in the system: poor communication, lack of coordination, similarity of drug names, environmental factors (21).
- Inadequate circuits or absence of care protocols.

5. Patient safety at national and international levels

The World Health Organization's work on patient safety began in October 2004 with the establishment of the Global Patient Safety Alliance, which called on WHO and the Member States to prioritize this issue.

During the meeting of the 2009 Council of Europe, an EU-wide strategy to promote patient safety had been proposed. This recommendation increased the focus on patient safety and represented an important catalyst for implementation of measures at both EU and national level.

The Global Patient Safety Action Plan 2021-2030 provides a framework for all countries. Its aim is to develop national patient safety plans by improving safety-related clinical programs.

Medical errors are a global issue to be addressed.

Reporting medical errors

The World Health Organization and the European Union encourage reporting errors both from a didactic standpoint and in order to address safety concerns. In 2014 the European Commission published a report on reporting and learning systems. The way reporting is done varies from country to country, depending on the history of the health system and its development, the purpose of the reporting system and the accreditation requirements of the accreditation unit.

Reporting Barriers

Despite the existence of these recommendations from international organizations to encourage the reporting of adverse events, and the fact that most professionals in the field are aware of the importance of the issue and understand it, research shows that, in reality, there are still situations where adverse events are not reported, situations known as "barriers" in reporting. These barriers have been highlighted in various medical literature papers so that they are known, studied and their impact in affecting the reporting of adverse events occurring in the system mitigated.

Patient safety in surgery

Safe surgical care for patients is an important element in global healthcare.

The main effects of adverse events in hospitals have been classified by the percentage by which they may affect the patient:

- 27% surgical procedures,
- medication errors 18,3 %
- healthcare-associated infections affect 12.1 (22).

Table 1: Medical errors and possible effects adapted from WHO report 2019b (22)

Medical Errors	Causes	Consequences
Errors of judgment	Communication and coordination problems	No effect on patient health
Misdiagnosis or delayed diagnosis		Minor, temporary

Technical error		
Injection error	Lack of information	morbidity
Medication error (prescribing, dispensing, storage, preparation and administration, wrong dosage,wrong medication)	Lack of adequate protocols	Minor, permanent morbidity
Treatment given to another patient	Inadequate organizational culture	Major, temporary morbidity
Inaction	Staff shortages	Major, permanent morbidity
Excessive exposure to Radiation	Poorly organized or inadequately equipped healthcare facilities	
Medical process related errors		Death

Patient safety at national level

The National Health Strategy of 2014-2020 and the related action plan, set out strategic directions and measures to increase patient safety based on the recommendations of the European Commission for Patient Safety which include:

- evaluating care performance using protocols,

- implementation of the patient safety concept and of evidence-based and best practice tools and procedures, based on recommendations made by the World Health Organization and the European Union

- development and implementation of the national plan for improving patient safety

- development of patient safety research programs

CHAPTER II

1. Improving the quality of care and patient safety through the nursing process

The concept of quality

In all aspects of daily life and beyond, quality is increasingly being talked about. We want quality products and services; we are increasingly aware of needing it and act as if we pay for it. Apparently the concept of quality is general and subjective, with a multitude ofpossible definitions. It is applicable to various features or characteristics, in different fields, sectors of activity and

functions, being appreciated in relation to standards, norms and consumer requirements.

As early as the late 1920s, the first works addressing the subject of quality were published, and the concerns put forward by W. Edwards Deming, also considered the "father of quality", paved the way for future awareness and set the theoretical foundation of the term "quality". After the Second World War, a systemic approach to the concept of quality was developed and emerged, thus laying the foundations for what later became the discipline of "Quality Management".

Quality in healthcare

In healthcare we are talking about a different type of quality, a concept developed since the 1960s by the doctor and researcher Avedis Donabedian. He created a conceptual model of the healthcare system, which he proposed as suitable for the evaluation of real systems of healthcare.

Donabedian, considered the father of the modern concept of quality as related with the healthcare system, describes quality of healthcare as "that care that is expected to maximize patient well-being, taking into account the rapport between expected gains and losses that occur at all stages of the healthcare process." (23).

Over the years various approaches on the concept of quality as associated with the care systems have been defined, from the approaches of Womach and Jones (24) who proposed a model based on the "Lean" techniques developed by the Toyota Production System (TPS), to the global system approach of the World Health Organization specialists.

The literature talks about six dimensions of healthcare quality: **safety**, **effectiveness**, **patient-centeredness**, **care time** , **efficiency**, **equity** (25).

Organizational culture is defined as a set of common values and beliefs, shared by all the people involved, that is centered on the patient and his safety. This approach ensures quality of care and patient safety.

The nursing process and quality of care

The nursing process is an organized and systematic method of providing individualized care; it is an intellectual process composed of various logically ordered steps aimed at achieving a better condition of the patient. This process is the basic element of an organizational culture centered on patient safety. The nursing process is the main contributor of healthcare and patient safety.

Until 2016, in our country, there were no standards or guidelines regarding the structure of documents and the related data collection procedures followed during the nursing process. This situation involved potential risks that affected the quality of healthcare services.

At a national level, the implementation of the "nursing record" as a standard tool started in 2016 and 2017. Thus, the quality of healthcare services, will be an increasingly referred to standardized criterion, with the use of which a transformation of the healthcare system will be achieved. Thus, the efficiency of the system itself would also increase. This criterion will accurately reflect the degree of patient care, alongside with the progress of technology and in harmony with the organizational culture.

2. The role of the nurse in ensuring the quality of health care

In the process of care providing, the nurse comes into contact with different individuals, who may fit into standard behavioral patterns or experience significant deviations in behavior due to illness, their own perception of their health status, or the extent they value their health to. The nurse's ability to identify and understand these behaviors is essential. Verbal communication is important in nursing and it is used since the first contact with the patient up until the end of the care process. Thus, communication is a major contributor to ensuring patient safety.

The nurse interacts constantly with the patient, ensuring the patient's involvement during the process of care providing, encouraging them to trust the healthcare team and express their concerns, fears and expectations, thus making them feel important and supported (26).

The nurse obtains plenty of useful data by directly observing the patient's non-verbal cues. Through corroboration with other data, provided by other sources, the nurse is able to determine correctly care needs, degrees of dependency and realistic goals for nursing interventions (27).

PERSONAL CONTRIBUTION

CHAPTER III

STUDY 1 - Comparative analysis of three established international patient safety models - Swiss Chesse Model, SEIPS Model, Donabedian Model

1. Introduction

Patient safety in healthcare facilities is the most important priority for quality healthcare. During a patient's stay in hospital, a multitude of shortcomings can manifest themselves, which, even though not apparent, can lead to injury. The following specific terms are used in various models for patient safety:

Patient safety requires two elements to be ensured: the adoption of a well-structured, standardized, evidence-based treatment and the use of a safety system that focuses on reducing medical errors and the occurrence rate of adverse events.

In hospital surgical wards, improving patient safety is a priority because adverse events may lead to disastrous outcomes for both patients and healthcare providers alike (28) (29).

Adverse events

Adverse events are forms of harmful conduct towards the patient caused by medical interventions or lack thereof,and are not a consequence of the patient's underlying medical condition or health status.

Sentinel events can result in serious patient harm with long-term consequences and reflect serious deficiencies in the policies and procedures of the healthcare facility.

A healthcare-related **error** is the consequence of human error, because people are subject to error. Medical errors are latent consequences of pre-existing, factors that manifest with a specific delay but that could be identified before they occur (30).

A near miss is an incident or potential incident that was avoided and did not cause harm although it could have.

2. Aim of the study

The study aims to present and analyze three established models from the international literature, their evaluation, structures, usage, and outcomes for improving the safety of patient care

in healthcare. The analysis is comparative and aims to highlight the specifics of each model, comparing and contrasting them in terms of weaknesses and strengths.

3. Hypothesis/Objectives of the study

Main hypothesis: The possession of knowledge regarding international models with positive aspects contributes to the development of strategies and work models to increase patient safety.

The study has the following **objectives**:

- A description of internationally established patient safety models;
- The identification of components/characteristics of the models that may contribute to the reduction of future adverse events;
- The development of strategies and work methods, as prescribed by studied models regarding the avoidance and prevention of adverse events in hospital units based on international models.

4. Method and materials

Type of study: The study is descriptive

Research tools: In the research process, we used the analysis grid

Qualitative analysis: We have identified, with the help of the specialized literature, international strategic documents that include work models centered on the safety of patients in hospital environments, and whose priority is the prevention of adverse effects.

Selection criteria:	• The document is to be accepted by an international organization, that has the mission to support and monitor performance related to patient care and safety in hospital units: WHO, AHRQ (Federal Agency for Healthcare Research and Quality), European Commission, Council of the European Union
	• Period of effect: after 2000
	• The document should contain keywords such as: patient safety, medical errors, adverse events, barriers to protection, (the search was conducted in English)
	• The purpose or expected outcomes of the documents should include references to improved quality of patient safety and health care. They should promote necessary changes as related to the prevention of adverse events effects
	• Original language of publication should be English

Based on the above criteria we selected three international models, with established reputations and applicability: the Swiss Cheese Model, the SEIPS Model and the Donabedian Model. Both the theoretical and practical experience gained from the three models can be used to increase patient safety in hospitals.

5. Description of internationally established patient safety models

The Swiss Cheese model

It is the best known **systemic** model used for patient safety. It was developed by James Reason, Professor of Psychology at the University of Manchester and was initially published in the British Medical Journal in 1990 in the paper "Human Error". Reason laid the groundwork for a model to be used in
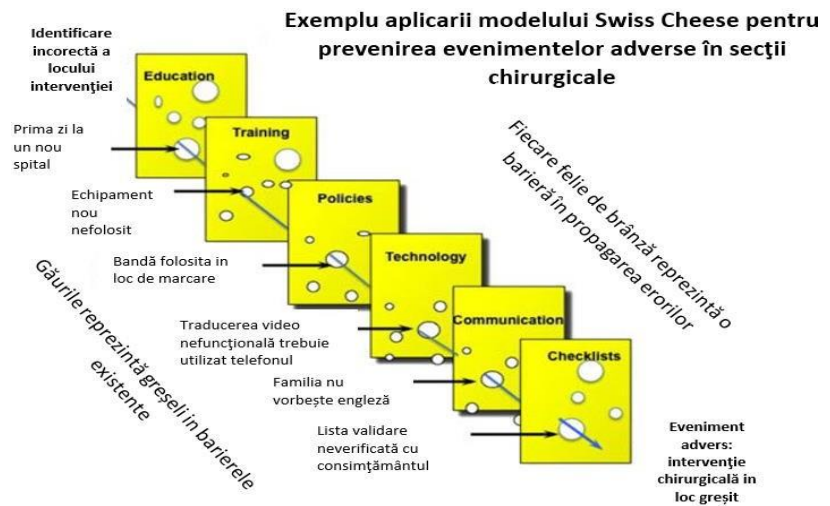
The Swiss Cheese model applied in a surgical ward

the prevention of aviation accidents. This model was called Swiss Cheese and has evolved into a mental model of systems safety. (31).

The model was designed to facilitate the understanding of the causes of organizational accidents, and has been used in determining and preventing healthcare-associated adverse events in recent years. The interpretation adopted for patient safety in healthcare organizations of the Reason - Swiss Cheese model is depicted in the figure below.

The SEIPS model
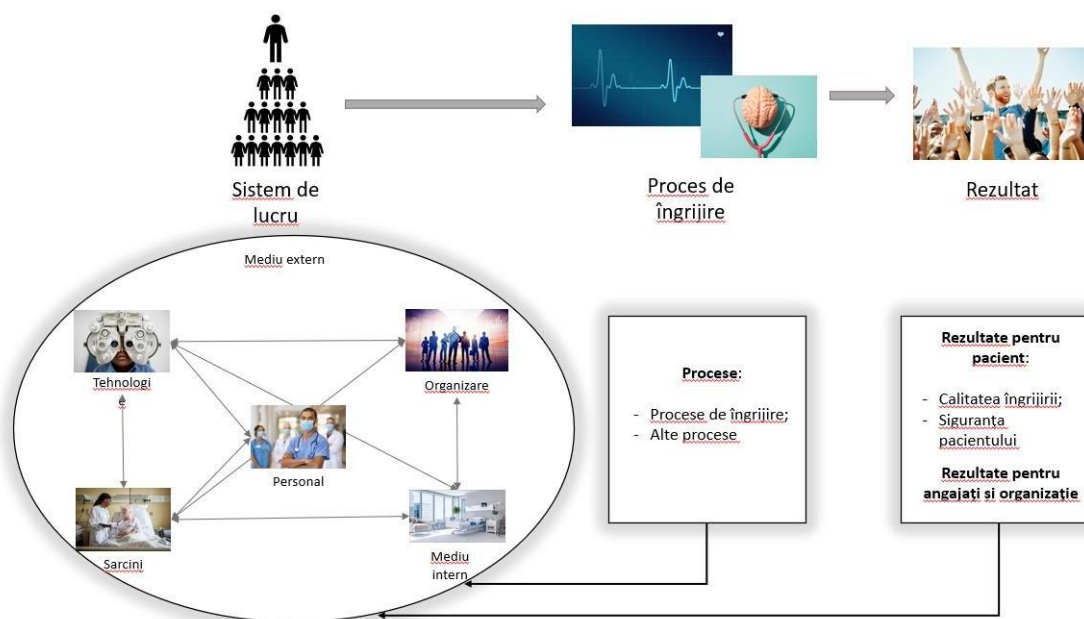
The SEIPS model - the system of work and patient safety model

The SEIPS (Systems Engineering Initiative for Patient Safety) model was developed by Carayon and Smith in 2006. It is also called model of the work system and it can be used to solve systemic problems in healthcare safety. The SEIPS model presents a framework for understanding structures, processes and outcomes in healthcare and the relationships between them (32) (33).

The SEIPS model specifies five system components that can contribute to both the causes and the control exercised over medical errors, incidents and adverse events. The components consist of: people, the organization, technologies and tools, activities, the work environment, all of which interact with one another, influence each other, and can lead to various outcomes through the internal processes as defined: performance, safety, health and quality of working life. (34). The structure of the organization, i.e. the work system affects the safety of care delivery. Changes to the work system affect, depending on the design of the change, negatively or positively, the work, clinical processes and subsequent patient, employee and organizational outcomes (35).

Donabedian Model (SPO)

It was developed by University of Michigan physician Avedis Donabedian in 1966 and continues to be used today to assess the quality of health care (36).
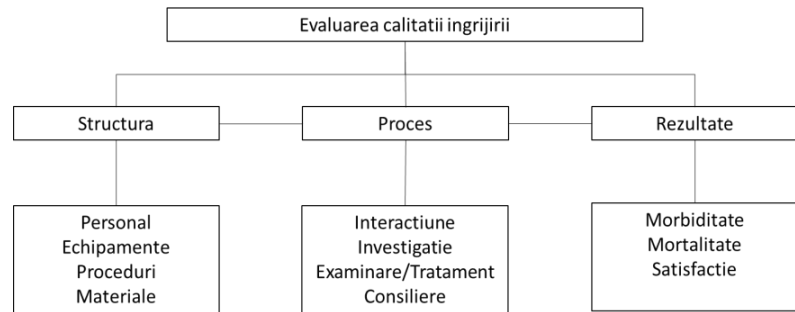
In analyzing the

Donabedian Care Assessment Model

quality of patient care, Donabedian uses a framework consisting of a structure, a process and the outcome. The structure includes the organizational structure, material resources and human resources. The process includes the diagnosis, the investigations, the treatment, the delivery of care the mutual dependence between patients and caregivers during care related procedures, organization and performance of tasks. The outcome includes the assessment of clinical outcomes, their impact and a patient satisfaction factor. Continuous improvement of structures and processes leads to good outcomes in patient care.

Donabedian applies prospective and retrospective measures to both ensure the quality of the systems and to investigate **adverse events** and **sentinel events**.

6. Results

6.1 Comparative analysis between models

Given the existence and development of these three models with applicability in increasing patient safety, the question has been asked, within the pages of specialized literature: which model is the most suitable to be applied on work methods to ensure patient safety?

Table 2: Strengths and weaknesses of SEIPS, Swiss Cheese, Donabedian models

Model	Strengths	Weaknesses
SEIPS model of work systems and patient safety	• Focus on system design and its impact on outcomes • Broad process view • Description of the system, its components, and the interactions	Descriptive model, with no specific notes on critical elements

	between components, • Impact on patient safety, employees and organizational outcomes	
Reason/ Vincent (Swiss Cheese) model of accidents and adverse events	• It focuses on: 1. etiology of accidents and adverse events 2. description of contributing factors	The notion of process does not appear in the definition No guidelines for redesigning the system and improving patient safety
Donabedian's quality model Structure-process-result SPO	• Describes relationships between structure, processes, and outcomes	Brief description of the "structure" Limited description of processes

7. Discussions

In this identification of strengths and weaknesses, some key operational features are observed in the three analysis models. In order to find the best ways to increase patient safety in the hospital we compared the three models using an **analysis grid** that targets the following characteristics: structure, processes, outcomes, the etiology of accidents, risk factors, impact on patient safety, outcomes on employees and organization and the relationships between structure, processes, outcomes.

8. Study conclusions

In this paper we presented the three most known models established in the international literature, developed after the 1990s that are designed to achieve the aim improving the safety of the system.

A first conclusion is that no model of analysis can be considered absolute and unique or the most suitable for the work of specialists in the field of increasing patient safety in the healthcare system.

All three analyzed models are conceptual models. Based on these existing models, through research and development, tools and methods are currently being developed, with the purpose of identifying risks and hazards that exist in the structure or processes, and which may directly or indirectly affect patient safety.

9. Proposal

The SEIPS model best describes the structure; it has the most defined elements and shows the relationship between them. I also consider the "personal" element to be central. At the same time, it highlights the importance of both the process of care and all other processes involved in the outcome. The outcome is defined in relation with both the patient and the health care organization.

Because of this the SEIPS model, with its additional developments, is, when applied, the most appropriate model to increase patient safety. This model allows holistic assessment of the ways outcomes are achieved in the care system. It is the best expression of the systemic approach; it allows the best data and information structuring, with a focus on key areas; it facilitates the identification of the root causes of errors and adverse events.

CHAPTER IV

STUDY 2 - Study of organizational culture on patient safety in hospitals

The study aims to assess the level of patient safety/safety in the hospital, and to identify weaknesses in the delivery of health care, respectively, elements and factors that may influence the professional conduct of health care providers and the issue itself.

The questionnaire used is a diagnostic tool for assessing the current state of patient safety culture.

1. Working assumptions /Objectives

Main hypothesis

Given the fact that, in the present study, there is no relevant history of adverse events in the hospital unit that would lead to a decreased patient safety, the main hypothesis is: the organizational culture of the hospital that centers on safety is adequate. Thus, the necessary conditions of the organizational culture, as mentioned in the literature, are met. In this regard, identifying, removing and decreasing the risk of medical errors, the basic organizational values, which directly influence and ensure patient safety and security, are present.

Alternative hypothesis

If there is an organizational culture for patient safety, we assume that the elements, which contribute most to patient safety and a proper management of the risks of adverse events, are known, monitored and addressed through specific procedures or protocols.

Study objectives

- Evaluation of teamwork in health care delivery ;
- Assessing open communication about patient safety ;
- Assessment of staff awareness and information provided on patient safety, at hospital level ;
- Evaluation of the continuous improvement efforts with regard to hospital patient safety;
- Evaluation of training and continuous professional development of medical and non-medical staff at the level of the care unit ;
- Support and expectations management for patient safety ;
- Feedback and communication about errors.

2. Methods and materials

To verify the hypotheses and achieve the desired objectives, we opted to use a questionnaire developed by the US Agency for Healthcare Research and Quality (AHRQ). (37). The present questionnaire was taken from the US agency's website and was developed specifically for usein hospital units for hospital staff, surveying all categories of staff on their perception of patient safety culture in the hospitals they work in. According to the developers of the questionnaire, it can be used to:

- Increase staff awareness of patient safety,
- Assessment of the current state of patient safety culture,
- Identification of strengths and areas of possible improvement on patient safety culture;
- Examining trends changing patterns on patient safety culture over time;
- Assessing the cultural impact of patient safety initiatives and interventions
- Making comparisons within and between organizations.

Presentation of the group of subjects

The research was carried out in a bed unit in Sibiu County. The staff chosen in the study was distributed by type of occupation into **medical staff**: doctors, pharmacists, biologists,

pharmacists, psychologists, nurses, and **non-medical staff**: part of the administration. This classification was mainly determined by direct or indirect interaction with patients.

Calculation and characteristics of the sample under study

In order to establish the representative sample for the application of the questionnaires, we took into account the structure of the hospital staff and the total number of employees (considered as the total population for which the study is applied). At the level of the hospital unit during the period of application of the study, 233 employees work, which, taking into account the established structural characteristics, are divided as follows: doctors - 60 (26%), nurses - 123 (53%), other clinical staff - 10 (4%) and administrative - 40 (17%).

For the characterization of this population, the representative sample size is calculated according to a generally accepted formula, in which a confidence level of 95% has been set with a sampling error of +/-5%. According to the calculations the representative sample thus calculated and corrected at hospital level is: $n_1 = 146$ respondents. In conclusion, 146 questionnaires were distributed for the study.

For the distribution of the questionnaires we also defined the following criteria for participation in the study:

Inclusion criteria:

- The quality of doctor, nurse or non-medical staff employed in the selected ward
- Employee's acceptance for research participation
- Data collection was realized in accordance with the principles of medical ethics

Exclusion criteria:

Employee's disagreement to participate in the study.

Data collection and analysis

Based on the agreement to participate in the research, respecting the inclusion criteria, the proportion resulting from the staff members, with the correction of the administrative staff, which was reduced to increase the relevance of the result, as the administrative staff had no direct interaction with the patient; we selected a number of 146 subjects and distributed the study questionnaire.

This study is descriptive and cross-sectional. The study aims to measure the organizational culture of patient safety in the hospital.

Data collection was carried out between 01.02.2021 - 21.02.2021 at a 195-bed unit in Sibiu County.

The research instrument used was the Questionnaire used by the U.S. Agency for Healthcare Research and Quality (AHRQ). Respondents in the study sample were asked to answer this questionnaire anonymously to ensure the honesty of the responses and the greatest possible accuracy of the responses in relation to the topic being studied.

Description of the questionnaire: The questionnaire is structured in 8 main sections :

- Section A : Assignment to the section, compartment or area in which the respondent works ;
- Section B : Direct interaction with hierarchical superiors;
- Section C : About communication ;
- Section D : Frequency of adverse events reported at hospital level ;
- Section E : Assessment of overall patient safety ;
- Section F : Information on the hospital in which they work ;
- Section G : Number of adverse events reported ;
- Section H : General information about the respondent for the classification of structure characteristics.

The questionnaire has 42 questions or statements that respondents are asked to answer by rating the answer or statement on an associated Likert scale. In addition to the 42 questions, an extra request (section E) regarding a general assessment of patient safety is required.

All 42 questions or statements in the questionnaire are grouped into 11 general indicators, which characterize the hospital's organizational culture regarding safety.

Table 3: Definition of composite indicators from the AHQR questionnaire

Indicator code	Name	Explanation
COMP1	Teamwork	Staff support each other, treat each other with respect and work together as a team. Hospital wards cooperate and coordinate each other's activities in order to provide the best care for patients.
COMP2	Expectations from those in higher-up positions on patient safety	The line manager considers staff proposals for improving patient safety, rewards and values their contribution.

COMP3	Organizational learning - continuous improvement	Patient safety mistakes have led to positive changes and changes are being evaluated for effectiveness.

COMP4	Support management for patient safety	Hospital management ensures a work climate that promotes patient safety and shows that patient safety is a top priority.
COMP5	General perceptions of patient safety	Procedures and systems are good at preventing errors and they prevent problems that cause risks to patient safety.
COMP6	Feedback and communication about errors	Staff are informed of errors that occur, feedback is given on changes implemented and ways to prevent errors are discussed.
COMP7	Open communication	Staff discuss openly if they notice anything that might negatively affect a patient.
COMP8	Frequency of reported adverse events	Errors of the following types are reported: (1) errors discovered and corrected before harming the patient, (2) errors with no potential to harm the patient, and (3) errors that could harm the patient but did not.
COMP9	About staff	There is enough staff to manage the workload and the working hours are adequate to provide the best patient care.

3. Results

The data collected from all 146 questionnaires distributed according to the structure presented were collected and analyzed in terms of their quality. A total of 129 questionnaires were received with respondents' answers.

Analysis of responses and distribution of valid responses by characteristics

A first analysis of the centralized data was made according to two criteria:

a) From the perspective of completeness of responses - it was aimed to have no non-responses to the distribution characteristics: function, ward or compartment and seniority in hospital or ward.

b) From the perspective of validity of the responses - it was ensured that there were no questionnaires with the same answer to all questions.

This analysis of the responses shows a high degree of interest among all staff in the topic under study, namely organizational culture on patient safety. Out of the total of 146 questionnaires distributed, 129 responses were received, representing a response rate of 88%.

In the second stage we analyzed the validity of the responses. Thus, out of a total of 129 responses received to the distributed questionnaires, we invalidated 3 responses on the basis of the criterion "missing completion of analysis characteristic". The rate of valid responses is 98%.

In the end, a 98% validated response rate is obtained, which respects the original sample structure as defined, meaning that the following results and analyses characterize the study population and are statistically relevant.

4. Discussions

Analysis of responses for composite indicators

The valid responses received are analyzed from two perspectives:

- An overall analysis on composite indicators in order to identify the average positive response rates ;
- Comparative and detailed analysis of the average rates of positive responses and the distribution by the four defined characteristics: type of staff, type of ward, length of time in the ward and length of time in the hospital.

These results are as follows:

Indicator	Percentage
Organizational learning	94%
Management support	88%
Expectations from superiors	84%
Team work	83%
Feedback and communication	83%
General perceptions	81%
Frequency of events	74%
Dissemination of information /...	67%
Open communication	66%
Non-punitive reaction to errors	60%
Staff related information	39%
Average of positive responses	75%
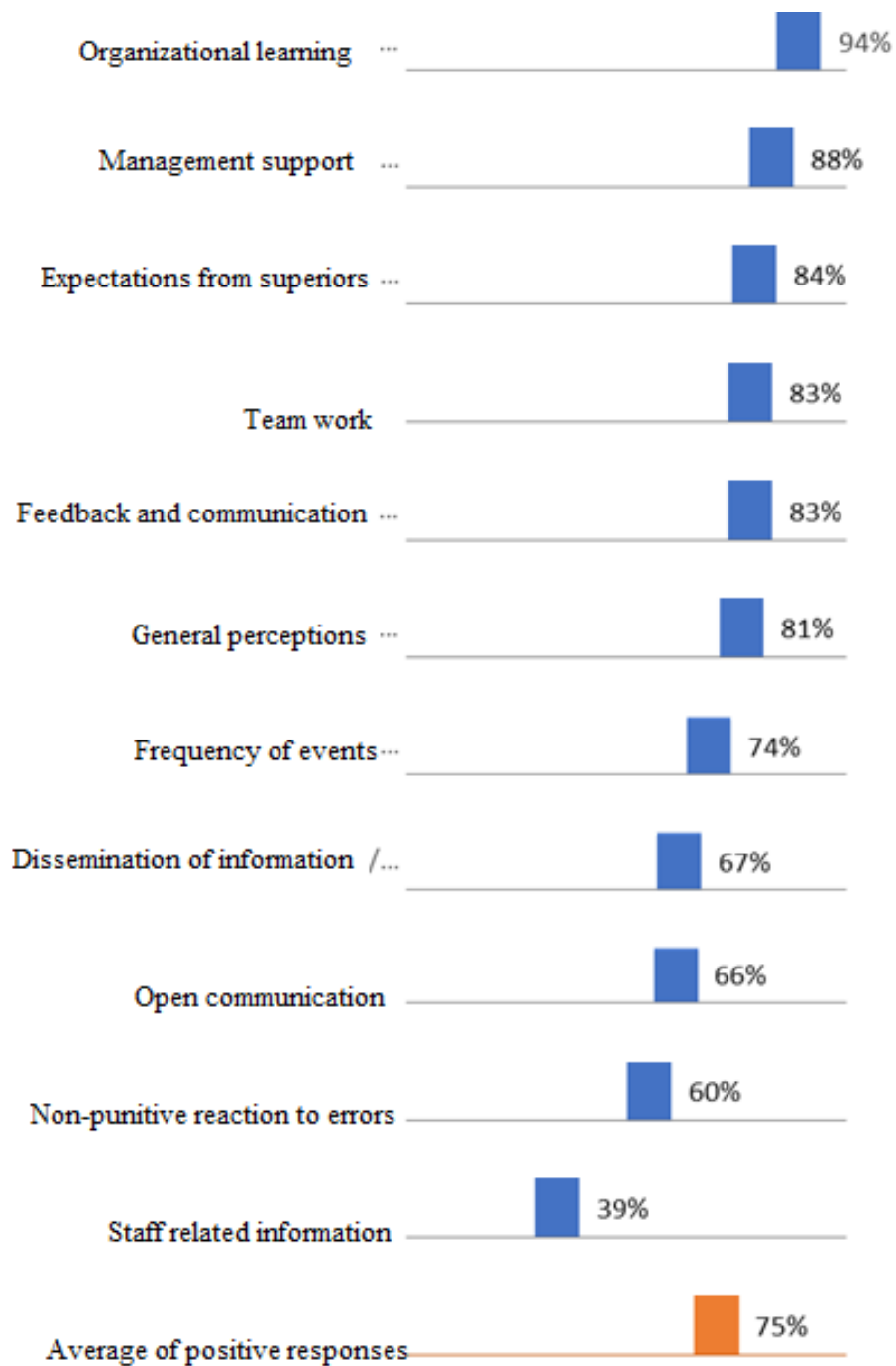
Visual representation of the average of positive responses on each indicator

5. Conclusions of the study

The study confirmed the main hypothesis that there is an organizational culture of patient safety in the hospital where the questionnaire was administered. Respondents and participants in the study, through their broad participation, showed, first of all, a high degree of interest in the topic.

Doctors and nurses have high rates of participation and response to the questionnaire, 100% and 87% respectively, compared to administrative staff, for example, who have a response participation rate of only 40%.

The overall average of positive responses to the questionnaire items is 75%. This is a good overall result, confirming the general hypothesis. Among the highest scores as a result of positive responses are: "Organizational learning - continuous improvement", "Management support for patient safety", "Teamwork" and "Feedback and communication about errors". These are all very important and powerful elements defining an organizational culture for patient safety.

There are three items that have low scores: "About staff", "Non-punitive response to errors" and "Open communication". We found that these items score poorly mainly due to understaffing, overwork and a lack of systematic communication procedures to inform the staff about efforts invested in the development of the organizational culture.

At the hospital level, internal communication regarding not only errors, but also new technologies, tools and working methods, will provide a potential increase in staff satisfaction, implicitly supporting the increase of patient safety, a major objective for the whole organization.

CHAPTER V

STUDY 3 - Improving patient safety in surgical wards through the nursing process

1. Introduction

Based on the data provided in the literature, we proposed a study on the implementation and use of care plans in hospitals as a strategy for continuous improvement of healthcare delivery and increase patient safety. The study is applied in a surgical ward.

2. Aim of the study

The study aims to assess patient safety in surgical wards through the use of nursing care plans.

3. Working hypothesis/Study objectives

Working hypothesis: The elements that contribute mostly to patient safety and the proper management of the risk of adverse events are monitored through a care plan.

The study has the following **objectives:**

- Analysis of the preparation and implementation of care plans based on NAQHM accreditation standards;
- Application of the nursing process in the surgical ward ;
- Analysis of the effectiveness of using care plans as a measure to increase patient safety.

Inclusion criteria

All the observation sheets from January-March 2022 in the general surgery department were taken in the study.

4. Method and materials

Type of study: Descriptive by direct observation

Research tools: Care plan, General clinical observation sheets

Data collection: It was completed in compliance with the principles of medical ethics

5. Qualitative analysis

We have identified documents in the literature that include data on the implementation and use of care plans in the nursing process. Based on recommendations from national and international standards, the documents used are in line with specific legislation and international evidence-based best practice guidelines

Analysis of the use and implementation of the care plan.

Starting from the legislative provisions and orders of the National Authority for Quality Management in Health Care (NAQHM) in this section of the paper, I will complete a review and an analysis of what needs to be implemented at the hospital level to ensure the quality of health

services i.e. to ensure patient safety. The basic tool of analysis is the care plan: it's contents and structure, its uses and importance in ensuring patient safety.

Application of the nursing process in the surgical ward

Surgery is needed to diagnose or cure a disease. Although it is generally planned, various situations may arise that require emergency interventions. In order to achieve the desired results, in drawing up the surgical care plan, the nurse must take into account pain management, wound care, prevention and management of scars, management of removals. Nurses must provide preoperative, intra-operative, and postoperative patient care. If preoperative preparation is not performed properly, the need for postoperative support may increase. (38)

Analysis of the effectiveness of the implementation of the care plan

The research was conducted by evaluating the care plans of patients in the general surgery ward during the period January-March 2022. We chose this period after the effects of the pandemic had subsided.

The aim

In order to analyze the effectiveness of care plan implementation, to identify vulnerabilities and dysfunctions in the way it is used, and to identify ways to improve its application, we analyzed the implementation of the care plan in the general surgery ward.

Working hypothesis/objectives

Working hypothesis: In hospitals, the care plan is implemented and used, and elements that contribute to patient safety are monitored

Study objectives:

- Assess patient and staff satisfaction as a result of the implementation of the care plan;
- Assessment of the patient's current health/ sickness status followingthe implementation of the care plan;
- Identifying the particular reactions of the cared-for patient;
- Competence of the medical team in managing the care plan;
- Identify activities that do not converge towards the tasks in the care plan;
- Establish the effectiveness of the implementation of the care plan and its continued use.

We assessed existing practices from the surgical ward against national standards and existing hospital protocols and procedures that set out appropriate measures to control the risks highlighted in care plans. We considered the risks of falls, scarring and phlebitis, which appear in the care plans and for which there are rating scales. In order to assess the effectiveness of the care plans on how to manage these identified risks, we will do the following:

- Fall risk prevention analysis;
- Scarring prevention analysis;
- Analysis of phlebitis risk prevention in patients with peripheral venous catheter.

Methods and materials

Type of study: This study is descriptive, direct observation

Research tool: The analysis grid and a care plan were used

Data collection: This stage consisted of collecting data and information from care plans drawn up during the period of the study and directly observing the actions taken to prevent risks. It was carried out in compliance with the rules of medical ethics.

For the period January-March 2022 we had 571 care plans registered in the general surgery ward. The assessment of deficiencies in the implementation of the care plan or lack of action taken to manage defined risks was carried out using a grid analysis. The analysis grid comprises four criteria, selected in accordance with the existing protocol at the hospital level and recorded in the risk prevention scale existing in the care plan. From the analysis of the results for each criterion and each grid associated with each risk we have results that we have analyzed and discussed.

Results

Fall risk assessment

Table 4: Analysis grid for fall risk

Criterion	Code
1. The assessment of the risk of falling on admission was recorded in the care plan	CC1
2. The patient has the possibility of alerting/alert button for the medical staff at the end of the bed	CC2
3. Fall risk assessment is performed and recorded after surgery	CC3

4. Training on how to use assistive devices is recorded	CC4
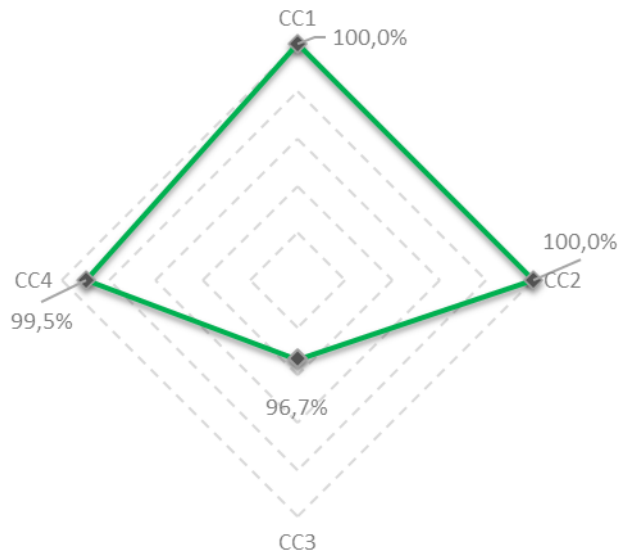
Compliance rate for fall risk criteria

Scarring risk assessment

For the analysis of this risk we have developed the pressure ulcer risk analysis grid, which is reproduced below with the four assessment criteria:

Table 5: Criteria defined for pressure ulcer risk

| Criterion	Code
1. The initial risk assessment for pressure ulcer is recorded	EC1
2. Daily inspection of the integument in low risk patients is recorded	EC2
3. It is recorded that the condition of the skin is inspected according to the care plan	EC3
4. Anti-scarring mattresses are available for high and very high risk patients	EC4

From the centralization of the data we observe a result of 100% effectiveness in treating the risk of bed scarring.

Phlebitis risk assessment

For the analysis of this risk we have developed the pressure ulcer risk analysis grid, which is reproduced below with the four assessment criteria**:**

Table 6: Criteria defined for phlebitis risk

Criterion	Code
1. The risk assessment for phlebitis is recorded	CF1
2. Disinfection of the tegument at the puncture site is performed	CF2
3. Signs of infection are recorded: pain, erythema, edema	CF3
4. If two out of three signs of phlebitis occur, if the peripheral venous catheter has been removed	CF4

Conformity ratio for phlebitis related risks
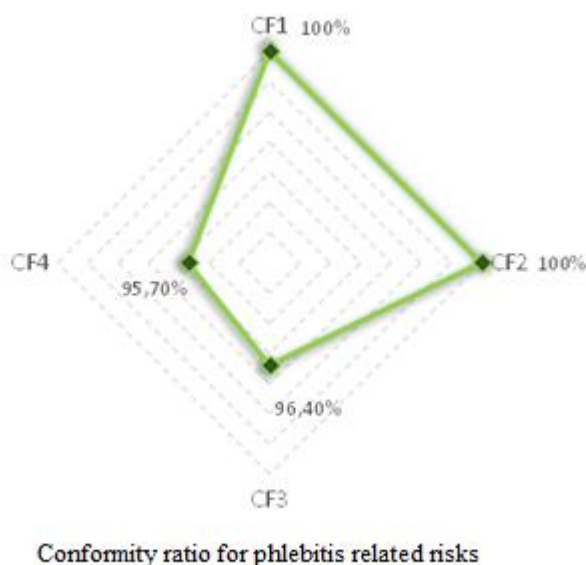
Discussions

Overall results for all analyzed risks

The results obtained by applying the analysis grids for each of the risks considered in the section where I work, allow highlighting of the non-conformities so that corrective or elimination measures can be applied.

From the analysis of the results we identified possible causes of the non-conformities:

- Professional: due to lack of knowledge ;
- Lack of coordination in patient management due to lack of time, lack of proper organization ormisuse of instruments.

Conclusions

Applying the nursing process and critical thinking to facilitate early identification of concerns about the patient's condition are very important.

Incorporating the nursing process into care supports a comprehensive approach and can mitigate delayed interventions, treatment and possible related negative effects(**adverse events**).

Nurses play an important role in developing policies and procedures in health care. Their contribution supports policy implementing and it aligns with the systematic and comprehensive approach recognized in the nursing process.

Proactive approach to care and use of the care process can ensure early identification of complications.

For experienced nurses the stages of the care process can go smoothly and a sense of repetition in pre- and post-operative follow-ups can be noticed, however each patient is unique in how they respond to a surgical procedure.

Applying the care plan supports high-quality patient care and helps nurses avoid falling into the trap of a **reactive**, task-centered approach to care.

The implementation of the care plan should be carried out in time to maximize the patient's independence and the interventions applied should be the least aggressive, invasive, cost- effective and of high quality.

CHAPTER VI

GENERAL CONCLUSIONS.

This paper focuses on the area of patient safety in healthcare systems, from a healthcare perspective. Patient safety is, if not the most important topic in healthcare, certainly among the top priorities in the field.

The field of prevention of adverse events and medical errors, which may occur during healthcare providing procedures, has a direct impact on patient safety. Relatively new, having emerged from the concern of health specialists only a few decades before it has greatly increased in importance as healthcare systems have become increasingly complex. Increased complexity is linked with the environments in which medical professionals operate, to advanced technology, and to the increasing importance of social accountability.

Patient safety is generally a term that expresses an overarching framework of organized activities in health systems that create organizational cultures, processes, procedures, behaviors, technologies, and environments in healthcare that consistently and continuously contribute to the management and mitigation of risk factors to reduce the occurrence of errors and adverse events, and their harmful effect, when they occur.

The importance of the subject in recent years is internationally recognized. International organizations, such as the World Health Organization, or public institutions, such as the Commission and the European Union have intense concerns in legislating, regulating or introducing standards and requirements to increase patient safety in healthcare, at both political and legislative level. The same trend can be found in our country. In recent years, the national authority in this field has regulated and imposed requirements and standards that must be met and complied with, so that patient safety in Romania is a priority and a primary concern in all components of the national health system.

The structure of the paper was designed to cover the widest possible scope. The general objective was to outline the evolution of the subject in its development in the last decades, to highlight the main past contributions behind the universally accepted models developed by current systems and last but not least to highlight the national evolution of the field.

The nursing process is a key contributor to ensuring patient safety.

ORIGINAL CONTRIBUTIONS

The original contributions in this paper are:

- The way I structured and defined distribution characteristics that facilitated the analysis of significant details relating to the organizational culture, in the study on organizational culture on patient safety in a local hospital.
- For the same study I developed a specific database alongside mathematical models for all the data analysis collected from the responses to the distributed questionnaires, finally developing improvement proposals where we had the poorest results on specific indicators.
- In the study on improving patient safety in the surgical ward, I defined the analysis grids for each of the three risks that were incorporated into the analysis. The method of calculation chosen, based on the data collected from the acre plans and reporting the evaluation against the standard level is my personal contribution. It allowed me

to express the efficacy of health care plans implementation in the surgery ward.

- In the same study we assessed the main risks existing in the patients of the surgical ward, so we structured the information in the scheme: risk factors, nursing diagnosis, care goals and nursing actions and interventions. This schematic structuring of the information is a very good basis for improving the current care plans. The expected result is increased safety for our patients.

FUTURE RESEARCH DIRECTIONS

Based on the information structures of the main risk factors, with defined nursing diagnoses, given the objectives and proposed actions, I will extend the research carried out to define proposals to modify the care plans to cover more risks with the purpose of covering a greater area of possible risks and adverse events. With this approach I want to contribute directly to increase the safety of our patients.

DISSEMINATION OF RESULTS

Dissemination of the results of this work has been achieved:

- Through three articles published in peer-reviewed journals ;
- The realization of report papers and the elaboration of scientific research reports withinthe training program of the doctoral school;
- Completion of Doctorate thesis.

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