Pain – a Quality Indicator

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Abstract

Introduction: The quality and safety of healthcare is currently in the spotlight of experts and non-professionals. The need to implement them into healthcare is related to the supply of healthcare services, the general public pressure on standardizing processes and effectiveness, competition, prestige and last but not least, an effort to avoid patient complaints.

Objective: To conduct a pilot study focused on pain observation as a quality indicator; to observe pain management in postoperative patients; to conduct a content analysis of medical records of these patients and to create a checklist for a subsequent in-depth empirical study.

Method: A content analysis of medical records focused on compliance and non-compliance with existing policies in the following domains: 1) Records of patients' pain; 2) Records of medication orders and administration in three phases: I) Patient admission; II) Return to unit; III) First to fourth postoperative day, charting of physicians and nurses.

Results: Non-compliance with directives was determined in all observed domains. The most frequent non-compliance was in neglecting pain assessment intervals by nurses. The most dangerous discrepancy was observed between medication orders and their administration.

Conclusion: Content analysis of medical records of postoperative patients was conducted and the checklist for subsequent documentation audits was edited. The conclusion of this pilot study will be consulted with the patient care managers and an in-depth empirical study will be conducted based on the results of the present pilot study.

Keywords: analysis of medical records, pain management, quality, safety

Introduction

The phenomena of quality and safety of healthcare are currently in the spotlight of both professionals and lay public. They often trigger discussions, exalted disputations and resentful attitudes. The need to introduce them into healthcare is related to the broader supply of healthcare services, society's pressure on standardizing processes, effectiveness, competitive pressure, prestige and, last but not least, the effort to prevent patients' complaints. Healthcare is generally a rather risky area both for its actual content and because it is only rarely provided by an individual person. High-quality and safe healthcare cannot be supported only by an individual person's knowledge, skills and behaviours, however indispensable they are, but like a high-grade building it must have a solid foundation, a firm bond, good wiring and even a better roof.

The introduction of quality management systems into healthcare is based on the recommendations of the Council of Europe dating back to 1997. The legislative supports related to assessment of quality and safety of healthcare services in the Czech Republic (CR) are summarized in Table 1.

Tab. 1 **Legislative supports**

Definition of assessment of quality and safety of healthcare services.	1. Act No. 372/2011 Coll., Act on Healthcare Services and Conditions of Their Provision (Czech Republic). 2. Decree No. 102/2012 Coll., on Assessing the Quality and Safety of Inpatient Care (Czech Republic).
The minimum requirements for the implementation of quality management systems.	3. Journal of Ministry of Healthcare no. 12/2015, chapter 12: "Methodological instruction of Ministry of Healthcare for the supervision of authorized persons towards the assessment of quality and safety of health care." 4. Journal of Ministry of Healthcare No. 16/2015, chapter 1: "The minimum requirements for the implementation of internal quality assessment system and safety of provided health service."

Expert literature works with various definitions of "quality and safety of provided healthcare services". Quality may be observed from the point of view of the care recipient, manager or even the relevant facility's managing authority. According to WHO (1966), the quality of healthcare is: *"the aggregate of results achieved in prevention, diagnosing and treatment, determined by the needs of the population based on medical science and practice"* (Gladkij, 2003, p. 292; Madar, 2004, p. 33). Another definition of the quality of provided healthcare by WHO comes from 1982 and is referred to e.g. by Gladkij (2003, p. 292) as a: *"degree of perfection of the provided healthcare in regards to the contemporary level of knowledge and technical development"*. According to WHO documents from 2006, a quality healthcare is defined as effective, efficient, attainable, patient-focused, fair and safe care.

The Czech Ministry of Healthcare (2009) understands quality of healthcare services provided as *"an aggregate of those healthcare properties"* that can be subject to practical investigation and evaluation, *"have a delimited relationship to a clinical category"* and at the same time are *"related to a standard of care"*. The concept of the Czech Ministry of Healthcare was used as one of the starting points of our work – the objectives of our research start from the needs of the clinical practice at a specific healthcare facility and are related to specific standards of care.

Objective

Our objective was to execute a pilot study focused on pain monitoring as a quality indicator, to monitor pain management in postoperative patients, to execute a content analysis of medical records for such patients and to create a checklist for a subsequent in-depth empirical study.

Methodology

The survey took place in a hospital with nearly 400 beds with approximately 17,000 patients hospitalized and 5,000 surgical interventions executed in 2015 (to maintain anonymity, we are not mentioning specific figures and source of information). The survey took place in October and November 2016 and was preceded by a meeting with Nursing Care Deputy and her Quality Officer. This meeting indicated specific areas of difficulty, pain management-related needs in the given facility, and objectives and conditions for implementing the research study were determined.

Content analysis of postoperative patients' medical records, focusing on pain as a quality indicator, was selected as the pilot survey method. The findings were recorded in a checklist

made ready for the purpose of this study. Its various items were based on the following Directives in force in the hospital:

1 *Ordering, storage, prescription and administering of medication;*

2 *Care for patient with pain;*

3 *Ordering, recording and rules – use of habit forming substances.*

Conformities and non-conformities were specifically monitored in two areas:

- Recording patients' pain in medical records (Directive No. 2);
- Recording of medication orders and administration (Directive No. 1 and 3).

In both areas, doctors' and nurses' records were monitored in 3 periods: 1: at patient's admittance, 2: situation after return to unit after operation until 06:00 am the following day; and 3: on the first to fourth postoperative day. One case record was evaluated only at two points - patient's admission and day of return from operating theatre because the patient was released the following morning.

Two surgery-type wards and one internal medicine-type ward, where minor surgical interventions are carried out, were included in the study (to maintain anonymity, we call them A, B, C). Table 2 shows wards, where medical records analysis took place and the number of documentation under consideration (13 case records). Documentation was selected according to the following criteria: 1: type of ward (where operations take place or where postoperative patients are hospitalized), 2: patient's records after surgical intervention, 3: closed documentation. Type of operative intervention was not decisive.

Tab. 2 **Research sample**

Ward	Piece count of records
A	7
B	4
C	2

n = 13; A, B – surgery-type ward, C – internal medicine-type ward

For the purpose of the present study, pain management as quality indicator is determined by the following areas: conformities and non-conformities in medical records with the existing standards and Directives, risks of unwanted occurrences, non-pharmacological pain attenuation, patient satisfaction with pain attenuation, personnel's satisfaction with the set-up of care for patients with pain. Assessment of application of medication from pharmacotherapeutic perspective **is not** included in the scope.

Terminological comments: the terms *patient*, *physician* and *nurse* are used regardless of their gender for both males and females. For simplification, the term *nurse* stands for general nurses, health care assistants and midwives.

Results

The obtained information was subdivided into the following groups: **1:** admission of patients into hospitalization, **2:** situation upon return to the unit from the operating theatre or postoperative room until 06:00 am on the following day **3:** situation on the following 1 to 4 days (in cases of longer hospitalizations, the situation was the same and no new information was obtained or patient did not report pain), **4.** further findings.

1 Admission of patients for hospitalization

Evaluation of patient's pain records at admission for hospitalization was based on Directive No. 2:

"Admission pain evaluation – physician: *...usually includes a description of the character of pain, localization, duration of pain, factors affecting the course of pain influence of pain on patient's activity and mood.* ***Admission pain evaluation – non-medical healthcare personnel:*** *...includes evaluation of intensity according to VAS (visual analogous pain scale – the author's note), localization, duration of pain (acute vs. chronic pain), character of pain, factors affecting the course of pain, influence of pain on patient's activity and mood".*

1a. Physicians, documentation of pain: on ward A, pain was recorded in general terms (present vs. absent), not describing pain according to the Directive. On ward B, only records concerning abdominal pain were found even if the patient had been admitted due to complaints concerning another body part. On ward C, patients had no pain when admitted.

1b. Nurses, documentation of pain: the patients' pain was determined within personal history on admission; obtained information was not recorded entirely in compliance with Directive No. 2. In one case, pain evaluation was completely missing (ward A). In one case, the nurse recorded the patient's pain but did not state the nursing problem (ward A).

2 Situation upon return to the unit

The period from return from operating room or from postoperative room to the ward until 06:00 am of the following day, i.e. postoperative day zero, was monitored.

2a. Physicians, documentation of orders and administration of medication: orders on wards B and C by doctors were compliant with Directive No. 1. Records with a possible risk of medication errors were found on ward A. Detailed results are presented in Table 3.

Tab. 3 **Identified non-conformities with the Directive involving orders of medication by doctors**

Orders of medication	**Reasons of non-conformity**	**Citations from Directives**
Order of medication „*p. p.*" (as necessary)	no need specified	*Directive 1: "If doctor expects e.g. patient's fever above 38.5°C or pain etc., he may order medication and* ***specify need****, i.e. for instance "in case of pain", "in case of fever"...".*
"*in case of VAS < 5*" or "*VAS < 3*"	wrong symbols	
"1 ampoule of Morphine"	no grammage specified	*Directive 1: "When ordering medication, the doctor shall always specify: unshortened, legible medication title incl. information on concentration of active substance,* ***grammage****, dosage, time and method of administration... Directive 3: Doctor's order shall always include: date, time of application, name of habit former,* ***strength****, quantity, method of application...".*
"*1 amp max. 4 hours*"	no interval specified	*Directive 1: "If doctor expects ... he may order medication and specify need,... and further specify the maximum dosage and* ***minimum interval****...*".

2b. Nurses, documentation of pain: this problem area is regulated by Directive No. 2: *"Non-medical healthcare personnel shall start monitoring patient's pain always after each intervention involving expected pain ... or upon doctor's order. ... always immediately after patient's admission into further postoperative care from the post-*

anaesthetic care unit to a standard ward or intensive care unit". In nine cases, the nursing problem was specified in the care plan (ward A, B.) In four cases, nurses did not specify the nursing problem, but actually implemented the approach (ward B and C). In the period under consideration, nurses asked about pain and recorded it in *"Pain Evaluation Record"* form or in nursing documentation on Ward B, but did not proceed pursuant to Directive No. 2. Time intervals for pain evaluation were not adhered to. According to records in documentation, nurses monitored pain less frequently than they were supposed to. The number of conformities and non-conformities with Directive No. 2 are specified in Table 4.

2c. Nurses, record of ordering and administration of medication: records of drug administration were completed according to Directive No. 1 or 3.

3 Situation on the following days of hospitalization

3a. Physicians, pain documentation: the physicians assessed patients' pain pursuant to Directive No. 1.

3b. Physicians, documentation of orders and administration of medication: drugs were ordered pursuant to Directive No. 2 in most of the cases (8). In two cases, drugs were not ordered at all as patient reported no pain (Ward C). In two cases, the same non-conformities (Table 3) as on the day of return from postoperative room recurred - again on the same ward (Ward A).

3c Nurses, pain documentation: Nurses evaluated patients' pain and determined the nursing problem in compliance with Directive No. 2 only in four cases. In other cases, records were incomplete or missing completely. Again, the time interval for pain evaluation was not adhered to. The number of conformities and non-conformities in this period of time is specified in Table 4.

Tab. 4 **Conformities/Non-conformities with Directive No. 2, situation upon return to the unit and on following days of hospitalization**

Text in Directive No. 2	situation upon return to the unit		situation on the following days of hospitalization	
	confor-mity	**non-confor-mity**	**confor-mity**	**non-confor-mity**
"Non-medical healthcare personnel shall evaluate the presence of pain in every hospitalized patient at least once in 12 hours incl. entering into medical records. For patients reporting no pain, non-medical healthcare personnel shall enter: No pain reported, etc.".	12	1	2	10
"Acute pain monitoring takes place: ▪ *at VAS 1 – 2 or NIPS 0 – 2 in time interval at least once in 12 hours;(NIPS =Neonatal/Infant Pain Scale – author's remark)* ▪ *at VAS 3 – 4 in time interval after 8 hours or in shorter interval, according to doctor's order and current condition;* ▪ *at VAS 5 – 6 or NIPS 3 – 4 in time interval after 2 hours or according to doctor's order;* ▪ *at VAS 7 – 10 or NIPS >4 in time interval of 1 hour or in shorter time, according to current condition".*	1	12	2	10
„Non-medical healthcare personnel shall apply analgesics according to doctor's order. After application of analgesics, non-medical healthcare personnel shall re-assess pain at least in the following time intervals: *- 30 minutes after parenteral administration of analgesics;* *- 1 hour after oral administration of analgesics;*	13	0	12	0
A number of checked medical records at the given time	a total of 13		a total of 12	

3d Nurses, documentation of orders and administration of medication: in eight cases, nurses recorded fulfilment of orders pursuant to Directive No. 1 or 3. Non-compliances were found in four case records at Ward A and are presented in Table 5.

Tab. 5 **Non-compliance with Directive No. 1, situation on following days of hospitalization**

Doctor's order	Non-compliance with Directive	Citation of Directive No. 1
"Indometacin supp 500 mg at VAS > 3, every 12 hrs"	Nurse added a handwritten note below the record: 0 – 0 – 1 and crossed the 1 off. This case was a so-called conditional ordering; but the time of administration and the person who administered the drug are unclear.	*"…in cases of specific need, competent non-medical healthcare personnel shall administer the drug and* ***record the time and drug administration*** *by crossing it off directly in the prescription".*
"Aulin tbl p. p. max. twice a day."	On two days in a row, the nurse crossed this ordering off. The crossing-off does not clearly indicate if the drug was administered (time, reason).	*"In cases of no specific need, competent non-medical healthcare personnel shall not administer the drug and* ***shall not cross it off****".*
"Ibalgin 400 mg tbl in case of pain, max. every 12 hrs"	The nurse crossed off administration. The crossing-off does not clearly indicate if the drug was administered (time, reason).	*"In cases of no specific need, competent non-medical healthcare personnel shall not administer the drug and* ***shall not cross it off****".*
"Indometacin supp 100 mg 1 – 1 – 1"	Ordering was not conditional, nurses were supposed to administer the drug but proceeded as in cases of conditional medication. Nurses changed Indometacin grammage by handwriting to a weaker dose (50 mg). These errors recurred in two patient cases.	*"Drugs and medical preparations are* ***always ordered by the physician … changes in the order*** *are carried out by the physician… competent non-medical personnel shall cross it off and confirm by signature the completion of the physician's order …"*

4 Other findings

While analysing the documentation in patients' records, we learned that application of non-pharmacological methods of pain attenuation was recorded neither by the physicians nor by the nurses. Only in one case, the following documentation was made by a physician on the day of intervention: *"Limb elevation and cooling*".

The documentation on Ward B revealed a duplicity in pain assessment – recording of pain assessment including the use of VAS was on one side of the sheet and verbal assessment was on the other side.

Discussion

From its very beginning, the present survey was conceived as a pilot study focusing on one specific healthcare facility. It had to be clarified what would be analysed in the medical records in the future and what would be the conditions of pursuing more extensive surveys.

Acute pain is a consequence of every surgical intervention. Its attenuation is a part of perioperative care provided by physicians and nurses. At present, there are sufficient means available for attenuating postoperative pain. The question is their sufficient and mainly safe utilization. Pain management but also the quality of the provided care must be conceived in a complex manner, as reported for instance by Škrla and Škrlová (2003). That means not only from the perspective of an executed operation, but also from the perspective of the environment in which it takes place, the operating team or patients receiving the care. These perspectives may differ, but in a high-quality organization they must come together.

Our survey was conducted from the perspective of quality managers. Conformities and nonconformities with the Directives were monitored. However, quality also depends on factors such as employees' values, behaviours and attitudes (Škrla & Škrlová, 2003).

The perspective of the personnel and the patient's satisfaction with pain attenuation will be subject to further expected studies.

Our study revealed non-conformities with Directives No. 1 and No. 3. These cases involved matters of safe care. Studies published as early as at the beginning of this century revealed cases of harm caused to patients in the course of care provision. One of the causes referred to is *"misinterpretation of medical orders or instructions*". This is one of the reasons why medical facilities introduce systems of quality and safe care that are subjects to accreditation programs. Similar mistakes are also mentioned by Podstatová (2014). In this context, we arrive at the same question as Škrla and Škrlová (2003, p. 66): *"What factors support the creation of a safe environment and how do errors and mistakes occur, what role does the human factor play, to what extent is the management system accountable for them and what is the nurse's role in the entire process?"*

The documentation analysis revealed that the form in use does not allow nurses to record all the required information to be in compliance with Directive No. 2. It provides no room for items: *"factors influencing the course or pain, impact of pain on the patient's activity and mood"*. The importance of quality documentation also became obvious when comparing the results on Wards A, B and C. The documentation on Ward B was fully compliant with the Directive, unlike the documentation on Wards A and C. The reason might be the form and structure of nursing documentation that is very clear (one single record sheet) on Ward B but is unclear on Wards A and C because nurses must enter pain assessment, the nursing problem and their problem-solving into two or three different sheets. Incomplete documentation may also indicate incomplete care or non-conformity with organizational Directives, as reported by Podstatová (2014). Duplicity of pain assessment was revealed in the documentation on Ward B. Duplicity in documentation means extra work and less time for nurses. According to Samuels (2012), non-uniform documentation is a threat for successful pain management.

The most frequent non-conformity with the Directive was failure to keep the pain assessment intervals on postoperative day 0 and on the following days. The question is if it is feasible to precisely keep these intervals in real life. For instance, in cases of VAS = 5–6, the nurse is supposed to assess the patient's pain every two hours, in cases of VAS = 7-10, every hour. If analgesics are administered, another pain assessment should follow half an hour or one hour after administration (see Table 4). Since the nurse takes care of several patients and has other duties as part of her work, meeting the intervals exactly is not realistic. The nurses assessed patients' pain in longer intervals or whenever the patient informed the nurse about pain. In this context, the wording in the Directive or conditions for providing interventions required by the Directive should be subject to a review.

A separate topic was a question concerning how the hospital personnel records the application of non-pharmacological pain attenuation. Directive No. 2 merely permits but does not order non-pharmacological pain attenuation and specifies no method of recording. "*...altering patient's position, local application of heat or cold, breath exercises, rehabilitation positioning aids may be used for attenuating the patient's pain…*". An analysis of the documentation gives no answer as to whether the personnel apply such pain attenuation methods. The results imply that these methods are not ordered by the physicians. Even if the nurses decided by themselves and within their scope of practice to apply such methods, the application was not documented anywhere. An unanswered question concerns the necessity and possibly the method of recording such interventions.

Conclusion

This pilot survey focused on pain monitoring as a quality indicator and on pain management in postoperative patients. The content analysis of medical records showed conformities and non-conformities with Directives pertaining to pain management and to quality and safety of the provided care. The most frequent non-conformities were encountered in terms of respecting the time intervals of pain assessment by nurses; the most risky non-conformities were identified in the area of drug orders and records of their administration. Problem areas were identified both in Directive No. 2 and in nursing documentation forms.

The results of pilot study will be consulted with the Nursing Care Deputy in the hospital where the survey took place. In collaboration with her, the final version of the assessment form will be developed and the methodology of an in-depth empirical study will be defined. Most facts that could not be precised by studying the documentation will be clarified by expected subsequent interviews with physicians, nurses and the hospital management team.

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