

## Administering Medication As a Part of Nursing Care at an ICU

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### ABSTRACT

**Background:** Nursing care in patients with a decreased level of consciousness involves various activities. Some of them may be linked to the administration of certain topical medications with a local effect. The traditional concept of the nursing role in administering medication is tied in with the prior medical doctor's order. Although, real practice seems to differ significantly, this phenomenon has not yet been fully analysed.

**Aim:** The aim of this study was to describe the real practice of administering topical medication in the provision of basic nursing care at intensive care units.

**Methods:** A sample of 25 nurses participated in the qualitative study. The participants were intentionally selected based on their qualifications and working experience in intensive care. In-depth interviews were conducted to collect data.

**Results:** Data analysis identified 5 main categories describing this practice: 1) indication, 2) choosing medication, 3) frequency of use, 4) specifics of use and administration, 5) documentation. The main areas of nursing care within the framework of administering topical medications with a local effect included eye care, oral care, and skin care. The topical medication used during nursing care was not always based on medical doctor's order. Factors influencing the choice of the particular medication by the nurse in real practice were considerably diverse. The knowledge and experience of the nurse influenced the frequency of the medication used and also modified the mode of administering the medication.

**Conclusion:** The extent of this practice, as well as its link to the quality of provided health care, will require further research.

### KEY WORDS

Eye Care, Oral Care, Skin Care, Nursing Care, Intensive Care Nursing, Medical Device, Medicines

### INTRODUCTION

Nursing care, in accordance with the currently applicable Decree, is defined as “a set of activities aimed at maintaining, supporting and restoring health and meeting the biological, psychological and social needs altered or created in connection with a disorder” (1). In conditions of intensive care units, where patients may experience vital functions failure, this activity is referred to as highly specialised nursing care. This care is provided by a nurse, either after obtaining a specialised qualification, without professional supervision and doctor's indication, or under the specialist supervision of a nurse specialist if the nurse has not yet acquired any specialised competence.

Supporting and satisfying the biological needs of a patient with a decreased level of consciousness may include, for example, providing comprehensive hygienic care, airway care, positioning, etc. Many of these activities are currently associated with the use of certain medical devices or medicines. Examples include, some solutions used to mouth care, eye drops and eye ointments used for eye care, but also ointments, antiseptic solutions or extemporaneous preparations used in skin care.

Although the use of such products may be in accordance with professional guidelines (2, 3, 4), the products administered by the nurse in the Czech Republic are traditionally tied in with the prior medical

doctor's order (5, 6, 7, 8). However, current legislation on the treatment of medicinal products (9), as well as medical devices (10), explicitly lays down only that a physician has to prescribe these products directly to patients. The practice of indicating the use of these products in a health care facility is not very clear (11). Healthcare facilities have this area covered by internal policies, and a medical doctor or dentist is usually the one who can indicate or prescribe any medication. The use of any medicinal products, even with a local effect only, and in the course of providing nursing care, should therefore be carried out on the basis of a doctor's order in the medical record.

However, actual practice may vary significantly (12). Although it is generally known that certain medicines are also administered without any prior indication or based on an incomplete indication of the physician, this condition has not yet been completely analysed. The aim of our study was to describe the variety of real practice in administering medicinal products with a local effect during the provision of nursing care in intensive care settings.

## METHODOLOGY

A total of 25 nurses (21 females and 4 males) participated in a qualitative study. This was a purposeful sample, with the selection criterion being the qualification as a General Nurse and at least one year of practice at the intensive care unit. Workplaces involving high dependency units only were not included in the study to ensure the homogeneity of the sample. All participants were informed of the study objectives and the possibility of withdrawing from the research without giving any reason. All participants also agreed to make an audio record for the subsequent transcription of the interview (13).

Data collection was part of the in-depth (16) semi-structured interviews (13), during which participants

were asked to describe the practice of administering medicinal products in relation to nursing care primarily for the eyes, mouth, nose, skin and mucous membranes at their workplace. The codes identified during the thematic analysis of the transcripts (15) were arranged in a pre-prepared template of our own design, the form of which was continuously updated during sorting, coding and category creation. Data analysis took place in several successive steps:

1. preparation of the transcript,
2. creation of codes according to the pre-prepared template,
3. sorting and open coding,
4. sorting and axial coding,
5. regrouping and creating categories.

Where possible, the outputs of the survey were compared at the same time during the analysis, for example, with the available guidelines for healthcare facilities, as well as the testimony of another nurse working in the same unit. Data collection was terminated upon theoretical saturation (14).

## RESULTS

The participating nurses (Table 1) had 1.5 to 34 years (13 years on average) professional experience in nursing and 1 year to 34 years (on average 11 years) experience in intensive care nursing. 16 nurses had completed specialised education, 5 have started specialised education. 9 nurses completed their bachelor education, 10 nurses achieved a master's degree and or higher education, 4 nurses had experience as a charge nurse. Work experience of participating nurses included 17 different workplaces in 10 healthcare facilities.

Practice in the use of topical medicines appears to be very diverse. As a major area of nursing care within the framework of these medicines: eye care, oral care, and skin care have been reported. In all cases, relatively a lot of attention is paid to these areas at intensive

**Table 1** Research sample

Proband	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
Education	M	M	B	M	M	B	HS	B	B	HS	M	M	B	B	M	B	HS	B	B	M	HS	M	B	HS	M
Specialisation	Y	Y	Y	Y	Y	N	S	N	N	N	Y	Y	Y	Y	Y	S	Y	S	S	S	Y	Y	Y	Y	Y
Professional experience	20	13	16	5	12	7	6	1.5	1.5	4	5	17	14	22	34	2.5	25	7	19.5	12	12	5	31	10	24
IC practice	20	13	10	3	7	5	2	1.5	1.5	1	4	15	5	22	34	2.5	22	7	19.5	9	4	5	30	10	19
Workplace type	S	S, G	S, G	G	G	G	S	S	S	S	S	G	G	G	G	S	S, G	G	G	S	G	S, G	S	S	S, G

### Legend:

Education: highest education achieved, HS – nursing high school; B – Bachelor's degree; M – minimum of Master's degree

Specialisation: finished with specialised education Y – yes; N – no; S – started studies

Professional experience, IC experience (in an ICU): data in years

Type of workplace: focus of workplace, S – specialized ICU, G – general ICU

care unit environment. Data analysis identified five main categories describing this practice:

1. the indication of the products,
2. the selection of the products,
3. the interval of use,
4. the specifics of the use and handling of the preparations, and
5. the healthcare records.

## INDICATION OF THE PRODUCTS

The practice of indicating the means of external use seems to be quite diverse. The difference lies not only in who indicates it, but also within the scope of this indication (Table 2). Some of these resources are indicated by the attending physician (*...we have it listed in those records...*). In this case, it may be a relatively detailed order (*...clearly written how many drops into which eye...*) of a particular medicine usually for therapeutic or preventive reasons (*... with regard to some special procedure, f.e. from dermatology unit, so it has been prescribed...*). Administering of such products is also undertaken at the recommendation of a specialist doctor (*... the eye is red, sore... the ophthalmologist has been called and the ophthalmologist has prescribed...*).

However, this is not always the usual formal prescription of a particular medicinal product. In some cases, there is an indication to provide nursing care in general (*...standard intensive care of the patient is written in the papers...*) or an indication of nursing care for a particular area, such as eye care (*... and it is not on records, only the care for the eyes is there, it means it is up to us what to do...*). In this case, that indication is rather a formal measure, not a factual practice defining the way of care or the application of a particular medicinal product (*... I think it is there... it is summarised...*).

Even if a particular prescription is not available (*... this is normal care without a doctor's order...*), the physician may be aware about the use of specific medicine (*... he just knows what we are using...*) or the medicine is used in accordance with general indication (*... then we have stomatology patients, where doctors want to use Corsodyl, it's their wish, so we use Corsodyl...*), which may not always be formally listed in the medical records of a particular patient (*... they would like it, but do not write it to medical records...*). Most of the topical agents are then used without a doctor's prescription (*... it's up to my decision...*).

Missing orders (*... this can not be found in the doctor's order...*) has been mentioned, for example,

in connection with preventive measures such as eye care to prevent corneal desiccation development, etc. (*... if there is no problem, it is not prescribed at all...*) the existence of a formal doctor's prescription was repeatedly mentioned in case of therapeutic use of medicine (*...secretion of some puss, so we wiped it off, sent for lab tests and after agreement with the doctor we already gave those antibiotic ointments, drops, so they have to prescribe these...*). However, this is not a general rule, as the existence of formal prescription for products used for preventive purposes was stated as the usual practice in other workplace (*...and they write Borov water but do not write Recugel*), and in another unit the “non-existence” of prescription or “existence” only at the discretion of the doctor (*... so it is such that someone will prescribe what should be used, and most of them not...*).

If the prescription is missing (*... we do not have it in the doctor's order...*), the indication of particular product may be based on the policy of the healthcare facility (*...it is in hospital policy what to use for eye care...*), and these rules may not only concern nursing care, an example can be the infection control policy in case of patients colonised by resistant strains (*... it is written...an infection control plan... so that they write everything there...*). However, it is not always the case that this must be the “source” on the basis of which the care is actually indicated (*... I think this is also in hospital policy...*). An indication of the use of certain medicinal products is also given by some traditional rules of the workplace (*... we use Vidisic eye drops or O-Azulene...*), which may be a way of care set by middle nursing management, e.g., the ward sister (*...it is set up, how I set it up...*), or the originator of the indication may not be quite obvious (*...it is set up somehow...*).

The use of specific products may also be indicated by a particular staff nurse (*... our nurses deal with it...*), although her/his possibilities are narrowed down to a selection of resources available at the workplace (*...we usually have those...*). Indication of some means may also be performed by a nurse specialist. This practice has been reported, for example, in relation to care for intact skin (*... and this is in cooperation with a tissue viability nurse...*).

In some cases, the resources used are formally ordered on the basis of a certain consultation with the physician, when the factual indication has been made by someone else (*...when she care for wounds... she observes...and she goes to doctors and they will then prescribe it...*) or there is a certain form of collaboration where the nurse identifies the problem and then consults it with the doctor (*... if the patient*

has a problem and a healing ointment like Pityol and so needs to be used, I will tell the doctor that the patient has a problem and he prescribes it...). However, it can also be a form of cooperation with other health workers, such as pharmacists (...we will address the pharmacy, “what would they be willing to prepare...”

doctors do not interfere so much...) or other workplaces (...or we call other unit, what they use...). In some cases, the formal prescription is only solved afterwards (...if I notice that, I go and give Heparoid, then I will report it to the doctor, it's not like I would wait for it to be written...).

**Table 2** Method of indicating the means used by the participating nurses

Source of the indication
a) Medical doctor's prescription ( <i>proband 1, 3, 4, 5, 7, 9, 11, 12, 13, 14, 15, 19, 20, 23, 25</i> )
b) Specialist doctor's recommendation ( <i>proband 3, 4, 13, 15, 17, 21, 25</i> )
c) Hospital policy ( <i>proband 1, 5, 10</i> )
d) Workplace habits ( <i>proband 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 21, 22, 25</i> )
e) Staff nurse ( <i>proband 1, 2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 15, 17, 18, 22, 23, 24, 25</i> )
f) Specialist nurse ( <i>proband 1, 3, 4, 5, 6, 7, 13, 15, 17, 24, 25</i> )
g) Interdisciplinary cooperation ( <i>proband 1, 4, 5, 6, 17, 19, 20, 21, 24, 25</i> )
Extent of the indication
a) Written prescription of particular product ( <i>proband 3, 4, 5, 6, 10, 11, 13, 19, 23, 24, 25</i> )
b) Written prescription of type of care ( <i>proband 1, 5, 9, 10, 11, 12, 14, 15, 18, 20, 21, 25</i> )
c) Oral order of particular product ( <i>proband 4, 5, 6, 7, 14, 17, 19</i> )
d) Indication not given ( <i>proband 1, 3, 4, 5, 6, 7, 9, 11, 12, 13, 14, 16, 17, 18, 21, 22, 23, 25</i> )

## SELECTION OF THE PRODUCTS

The range of products used in the individual workplaces was very broad (Table 3). The examples of products mentioned by nurses were relatively commonly used for the eye, mouth or skin care. They may be classified as proprietary medicinal products (...*Arufil drops*...), extemporaneous preparations (...*Borov water in the eyes*...), but also as medical devices (...*now Recugel*...)

or for example cosmetic preparations, mouthwashes, etc. (...*Menalind series*...). It does not seem, however, that the choice of the types of products is bound to specific circumstances or differs in the way of indication (...*O-Azulen was used before, but now our ward sister is ordering Borov water and Recugel*...).

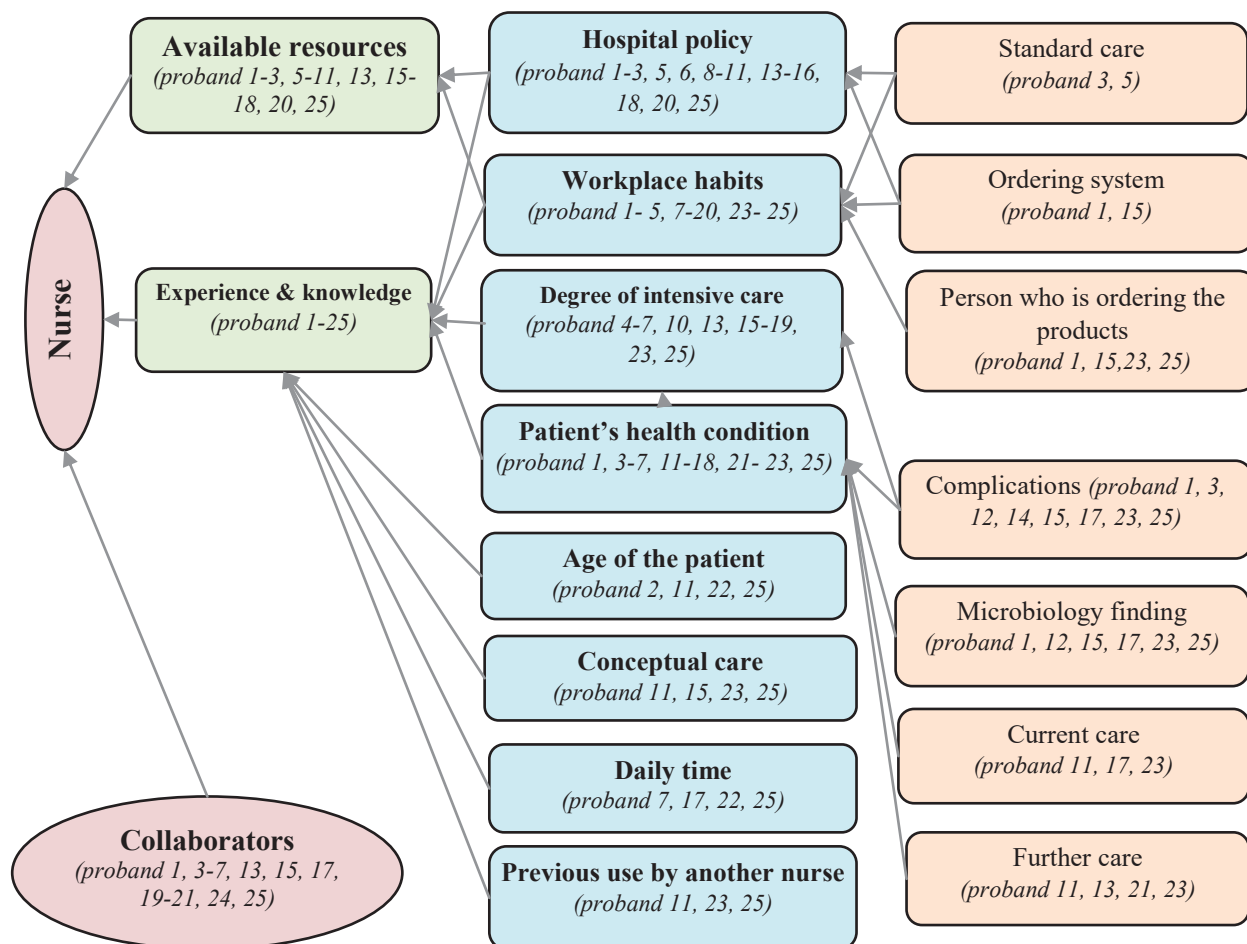
**Table 3** Type of resource used

	Proprietary medicinal products		Extemporaneous preparations	Medical devices (risk)	Other
	prescription based	over the counter			
Eye care	Tobrex Solcoseryl	O-Septonex O-Azulen Vidisic Arufil	Borová voda	Recugel (III) Lacrisyn (IIb) Hypromelóza P (IIb)	
Oral cavity care		Tantum Verde Corsodyl Stopangin	Sol. Chlorhexidin 2%		Paradontax Prontoral Octenidol Skinsept Mucosa
Skin care	Braunovidon	Excipial U Heparoid Dermazulen Pityol Octenisept Betadine	Ambiderman Ung. Leniens Children ointment	Cutozink spray (I)	Menalind pasta Skinsept Mucosa Sudocrem Cavilon spray Linovera Prontoderm

There are also different rules on the basis of which specific products are indicated in case the prescription is not provided by the doctor (*...but I would say that it has a lot to do with the habits of the workplace, if I can compare...*). When deciding which specific product

to use, the nurse considers 1) the availability of these products at the unit, 2) own knowledge and experience, 3) the recommendations of other colleagues in the workplace (Diagram 1).

**Diagram 1** Factors influencing the selection of the means used by the nurses participating in the study



The availability of a variety of products at a particular workplace (*...it is used what is actually available there...*) can be influenced by certain hospital policy as well as the traditional habits of the workplace itself. Health care facilities developed internal policies covering a wide range of provided nursing care. However, these may contain details at a different level. In some cases, these directives contain list of specific products that a nurse can use during nursing care (*...it is guideline in hygiene, what drops and ointment to use for the eyes...*), sometimes it is only a framework, but the policy does not specify exact products or it contains an example or the list of the resources available in the hospital (*...there are a lot of choices what can be used, and everybody evaluates it differently so that each patient will get something else...*).

The availability of these resources is also influenced by the system of ordering these products in the hospital (*...what is in stock and what exactly the hospital orders...*) but also the registration and availability of a specific product at the national level (*...now most often we use artificial tears, because Lacrisyn is not available very often...*). At the level of individual units, accessibility can also be affected by who supplies them. Management of stock at the level of the particular unit is different, but it involves usually some kind of middle management cooperation (*...it depended on me as a ward sister that I chose...*), but the consultant has to confirm the request for dispensing the products from the hospital pharmacy (*...when I write a pharmacy request through a computer, the request goes to the head who approves it and sends it to*



*the pharmacy...).* An essential factor is the unwritten rule of using certain products at particular unit, but these “usual” products can vary considerably between workplaces (*...we do not use...disinfecting but rather... humidifying...; ...so give O-Septonex drops and Vidisic gel...).* The habit of using certain products has influence on the supply of these resources at the workplace (*...it is ordered, what we say we are running out of, but they sometimes send something else...).* The availability of specific medicines and their range can be a crucial factor that affects their indication (*...I cannot influence because we have only Ophthalm-Azulen...).* At the same time, it can influence a certain continuity of care in terms of the frequency of “variation” of these products (*...we use whatever appears there...).*

In the case of a wider range of available products (*... usually two types of drops, three types of ointments...),* the knowledge and experience of the nurse is applied (*...so it is about what the nurse is accustomed to and how she provides the care and how she is thinking about it...),* but except the knowledge of the hospital policies and the workplace rules, there is huge amount of the factors involved in the decision-making in a particular situation. One of them is the severity of the health condition and the degree of necessary intensive care. A typical example seems to be the need and the degree of patient's dependence on mechanical ventilation, which fundamentally affects the need for specialised nursing care (*...the next day I wake him up and I start using drops because people when they start to open their eyes and have an ointment there, see blurred and do not see what they need...).*

The health condition of a particular patient can also greatly influence the choice of the mentioned products (*...and what we try to prevent, wet napkins ... because they are fine, but they are terribly aggressive ...and when they are still on antibiotics or anti-fungal agents, the skin becomes irritated...).* The presence or risk of complications is considered as well (*... when there is suspicion of conjunctivitis, O-Septonex is used...)* including the condition of the skin (*...we have the Excipial hydro, Excipial lipo but it depends... or we have oils there, but it depends on what the nurse uses, even depending on the condition of the skin if she sees that the skin is dry or cracked, she is using something oily... sometimes the skin cannot be lubricated at all...),* the risk of developing pressure sores (*...it is wiped with a Menalind cream...)* or known allergies (*...may not be allergic...).* The results of microbiology tests of a particular patient was also reported, which may bring the need for decolonisation and the use of agents effective in resistant microbial strains (*... we have clearly used disinfectant soaps and products*

*to prevent MRSA spreading...).* As an essential factor seems to be the need for and frequency of further care, including the monitoring of vital signs and the regular observation of the health condition (*...on the other hand, the gels are fine, but they can blind their eyes... I have to check the pupils after an hour or two, but I do not get there as the eye is stuck with the gel, so it has to be wiped with gauze but I can make the eye even more scratched and injured...).* Similarly, the products used in the previous period were mentioned (*...when a child has a problem with the skin as such when it is atopic, so we adapt to what was used, the family knows what does and does not work well, so do not go into it ... with some of your own initiatives...).*

Other factors considered include the day time when the product is used (*...in the morning I wash the eyes, through the day I use drops... and give them some cream for the night...),* the age of the patient (*...on the other hand it is not suitable for children younger 1 year...)* or earlier experience with the use of products (*...I learned to use classic zinc ointment again, I think it is quite a good thing...).* At the same time, some concepts used in providing nursing care were mentioned, e.g., basal stimulation (*...within the basal care...so we use...).*

Last but not least, other colleagues and the overall working climate of the workplace seem to have an influence on the choice of particular products used during nursing care (*...or if it has some mycoses, so we need to consult this with the ward sister, because Clotrimazol is needed...).*

## INTERVAL OF USE

The interval of repeated provision of a certain type of care also appears to be considerably variable and the use of the product (Table 4) is associated with it. Frequency of use or a specific time may be determined by a physician's prescription (*...and then there are times when to do it, so I only tick...),* although it may be perceived more as a formality and the frequency of repetition is, for example, governed by some unwritten rules of the unit (*...now I'm not sure if it's written in records, but it's probably, but this is standard care for a nurse...).*

Some of the established rules of the particular units were mentioned repeatedly by the participating nurses (*...we do it this way...).* They can also include the cumulating of a certain types of care for the same time (*... sort of given rule... when we positioned them, we check the eyes...).* At the same time, however, there was a certain need for an assessment of the “need for care” (*... but it is more or less up on each nurse...).* The decision of the nurse can be influenced, as in case of se-

lecting the product, by her/his knowledge and experience (...so I clean it after 4 hours, but it is rarely done by someone else... usually just suctioning the nose, mouth and the lower respiratory tract...), but her/his organisational skills are used as well (...each hour... because I have to... measure vital signs, drain and record the urine, so I put a drop into the eye every hour...). At the same time, the required level of intensive care (... in the unconscious patient, then every 2 hours we clean the oral cavity with Corsodylem or Tantum Verde...), the current health condition (...who has fluid restriction, the mouth needs to be moisturised a lot...) as well as the need to provide some extra care (...so we know that if we look at it more often, then we have to care for that more often...) can influence decision.

**Table 4** Factors affecting the reuse interval indicated by the participating nurses

- |   |
|---|
| <ul style="list-style-type: none"> <li>a) Doctor's prescription (proband 3, 4, 5, 7, 11, 24, 25)</li> <li>b) Workplace rules (proband 1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, 23, 24, 25)</li> <li>c) Knowledge, experience, and organisational abilities of the nurse (proband 3, 6, 8, 9, 11, 12, 12, 14, 15, 17, 18, 20, 21, 22, 24, 25)</li> <li>d) Patient consent (proband 17)</li> </ul> |
|---|

## SPECIFICS OF USE AND HANDLING

To some extent, the method of administering a particular product may also be modified (Table 5). It may be influenced by a doctor's prescription, for example, if the condition of a patient requires doctor's presence during some procedure performed while nursing care is provided (...if the mouthwash is prescribed after some surgery, then there is also a physician present...), the use of the product can be based not only on written, but also on his/her oral order (...than he will say right away that he wants to do suctioning and check...), similarly it can be a specialist doctor's order (... surgeons come, so they have their own solutions, do not want to use ours...). Other formal recommendations for use of the particular product may also be applied (...so we dilute it according to the package leaflet...).

A big role is then played by the workplace's rules. To some extent, the specific procedure at different workplaces was described by nurses for eye care (... we put drops into eyes and after that, in 5 minutes or so, we wipe them and put a cream...), mouth care (... we do not dilute it, we have those foam sponge, soak them, put it in the patient's mouth and actually ... we turn on the suction... and do suctioning at the same time...) as well as for the skin care (... if they are free of infections, we use only foam for washing, then rinse it with water and dry it with a towel ...). The usual way of administration can also be modified because of the use of specific

The consent of the patient also comes into play (... in people who are conscious, they also use eye drops in their eyes, but of course it also depends on their consent, patients who do not want it...). The specific intervals in which certain care is provided, including the use of the product, may vary considerably (...it is up to us whether it is once a day, twice a day, 4 times a day...). Time ranges from one hour (...every hour we add drops in the eyes...), to a few hours (...basically in the morning it is hygienic care ... and then it's basically two, three hours with positioning...) or also only once during the shift (...the oral cavity is sometimes done twice a day...) or once a day (...the oral cavity is cleaned after the morning hygiene...).

concepts of care, typically basal stimulation (... those brushes... they were fine ... that they even cleaned the plaque ... they can do the orofacial stimulation too...) but also within the interdisciplinary cooperation, etc. (...or we clean them while providing physiotherapy ...).

Then again, the knowledge and experience of the nurse is applied (... somehow as I dilute it if I want to gargle...), while the other important factors are also taken into account, including the degree of intensive care provided, the patient's health condition as well as the need of the other care. An example may be the need for mechanical ventilation and maintaining the airway (...after the balloon is inflated, one nurse does rinsing and the other suctioning... to clean the mouth...).

There is also a specific feature of how to store and handle these medicines. For example, the medicinal products for external use are kept apart from those for systemic administration (...we have it separated...). If a particular product is used for the patient, its storage is also influenced by the principles of providing barrier nursing care, but also by the need to administer this product in short intervals (... by the patient on the trolley...; ...you will bring it... and it stays there...), possibly also by infection control rules of the workplace (...when the patient is discharged, it is discarded completely...).

**Table 5** Factors affecting the use of the used products by the participating nurses

- a) Medical doctor's prescription (*proband 11*)
- b) Specialist doctor's recommendation (*proband 5, 12, 13, 15, 17, 21*)
- c) Formal guidelines (*proband 1, 5, 10, 11, 23, 25*)
- d) Workplace rules (*proband 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 20, 21, 22, 23, 24, 25*)
- e) Nursing concepts (*proband 11, 15*)
- f) Interdisciplinary cooperation (*proband 1, 2, 5, 6, 14, 17*)
- g) Nurses knowledge and experience (*proband 2, 6, 7, 8, 11, 13, 14, 15, 17, 18, 21, 22, 23, 24, 25*)

## HEALTHCARE RECORDS

The way of keeping records about the use of this products seems to be different, which, like other medical records, may be printed (*...we write there...*) or in electronic form (*...we write the report electronically...*).

The record keeping can be done directly in prescription chart (*...so it is marked, when it was given...*) or it is recorded in the so-called nursing records (*...we have it in our nursing records...*), eventually several notes in different parts of the healthcare records can be done as well (*...we write it both, we have note in the daily chart... and then we write the report at the end of the shift...*). In some units, the care and medical product is not recorded at all (*...we do not record it...*), although it can be passed orally during nursing hand over (*...and then it is passed orally... I gave it in the eyes...*). It seems to be quite complicated to ensure continuity of care when the use is not fully recorded (*...it goes on, but it is not always respected ... that someone wants to use Dermazulen or so...*).

If the care and use of medicinal products is recorded, the record can differ in detail. In some workplaces, specific products are recorded, and this may be part of a prescription chart, the nurse then marks administration similarly to any other medicinal products (*... tick and label what I have done...*), although this does not automatically mean that everything what is used is also recorded (*...and it can happen that it is part of doctor's prescription... e.g. mouth care, so I would write it down... but if it is used only to prevent... I do not record it there...*). The medical records may contain a list of the most commonly used products, and the nurse chooses from this list (*...we have predefined list, we have preset this ...*) or the nurse writes which product has been used (*...I write eye care, and O-Azulene into brackets...*). In other cases, only those products that are not considered as "normal" care are recorded (*... and if it is only Tantum Verde or a mouthwash, we do not record it, but sometimes when we use ... or something a little more specific, then we write this down...*). Sometimes, the reason for choosing a particular product may be recorded too (*...we would write for exam-*

*ple "left eye corneal ulcer" to get the other shift to watch it and check it out several times... but we would not write every day..." everything is fine", not that...).*

In some cases, however, it is only a general record that a certain type of nursing care was performed (*... eye care, nose care or something similar...*), or the record may only be done "sometimes" (*...somebody writes it...*) or it can be a very general note that a hygiene care was made (*...for example, I will write morning hygiene...*), and within its framework for example skin care or eye care was undertaken. It may also be at the discretion of the nurses and their time options, how much care provided will be recorded (*...but it depends on the details of that record... someone writes eye care, mouth care... and someone writes there... when there is more time, the papers have more details... but usually only the eye care and mouth care is written and then it is passed orally...*).

Practices at different units also differ in whether and how the frequency and the use of these medicines is recorded. A specific time when either a particular product was used or some nursing care was provided can be recorded (*... and hours are also there, so we always... tick it...*). However, there is not unusual that the type of care including the use of specific product is recorded but data on the frequency of its use are missing. It is only a record that the care was taken, not how many times a day, or at what time (*...we actually have this in nursing records... I just tick I did mouth care, not the number of times I actually did it...*).

## DISCUSSION

The area of nursing care related to the care of the eyes, the oral cavity and the skin is very diverse. It may involve the use of a variety of preparations and products that can be classified as proprietary medicinal products, Extemporaneous preparations, as well as medical devices, but also, for example, cosmetic products, etc. Although a physician is traditionally perceived as the one who indicates the use of medicines, it appears that the real practice of applying products for external use may be quite different. There seem to be



many possible causes. The basic source governing the use of medicinal products is Act No. 378/2007 Coll. on pharmaceuticals, as amended, clearly defining the prescription of medicinal products directly to the patient. However, it does not clearly define the way in which they should be indicated and prescribed in the health facility. A similar situation concerns the use of medical devices, the use of which is covered by Act No. 268/2014 Coll. on Medical Devices, as amended. In this case, the prescription is the doctor's competence, but there is no clear recommendation who can indicate the use of these products in the environment of the health facility. The terms of prescribing and indicating are not entirely identical (11), so it can not be clearly assumed that all medicinal products and medical devices must, in all circumstances, be indicated by the physician. Except for a healthcare facility, this practice applies to over-the-counter medicines where their indication is not needed by a physician. In the healthcare facilities, it may not be entirely clear who should indicate over-the-counter medicines or medical devices. Although it is the duty of healthcare institutions to treat the procedure for the handling of medicinal products and medical devices by an internal policy (16), the results of this study do not prove too much about the unambiguousness and successful implementation of such rules into real practice.

Another possible cause of the variety of methods used in practice may also be due to some ambiguity in whether a product is registered as a medicine or a medical device or not. An example can be the active substance chlorhexidine gluconate, which is used for mouth care to prevent the development of nosocomial pneumonia in patients requiring mechanical ventilation. This active substance is contained in the commercially available over-the-counter medicine Corsodyl, in an extemporaneous preparation from pharmacy usually at a concentration of 2%, or in solution Skinsept mucosa, which is registered as a biocide. This is not a medicinal product or a medical device, although the proportion of the active substance in this case is the highest. Likewise, the active substance povidone iodine used as an antiseptic for the skin is contained in Braunovidon and Betadine. In both cases, it is a medicinal product, the first one is linked to a prescription, the other is sold over the counter. A similar diversity applies also in other products used in similar indications.

The situation may be somewhat complicated by the fact that many textbooks of nursing link exclusively administering medicines to physician's prescription (5, 6, 7) or do not clearly state the way of indication, even if it is a relatively recent edition (8). The provision

of medicinal products in connection with the provision of nursing care, for example for the eyes, mouth or skin, is not dealt with in detail in these textbooks (17). The situation is slightly better in the case of nursing textbooks directly involved in intensive care. Although some of the earlier editions of such textbooks have already found recommendations e.g. what products should be used for decolonisation in case of resistant strains, the problem has not been dealt with in a comprehensive way. For example, a brand name, not a generic name, was mentioned, only an example, not a list of available resources was published, recommendations for their choice were missing (18). Issues addressed by this type of publication are also devoted to specialised areas such as mouth care in patients with secured airway. Products used for usual nursing care, such as eye care or skin care, are usually not addressed (18), even in later versions of such literature (19), although for example mouth care in intubated patients is discussed in much more details, including the products used for this type of care (20).

However, the basic recommendations for their indication are not mentioned even in complex monographs dealing with areas of intensive care, which are not primarily devoted to nursing, but are intended for the wider professional public, especially for those who are supposed to have indicated these products, in other words, to medical doctors (19). A similar situation also applies, for example, to antiseptic solutions used in the care of intact skin, which are dealt with in more detail by specialised monographs intended primarily for those who are already engaged in wound healing, not to nursing students (21).

Traditionally, therefore, the nurse is not supposed to have the knowledge necessary to properly indicate and subsequently use certain specific medicinal products or medical devices in certain situations. However, the results of this study suggest that a nurse may need this knowledge in real practice. In addition, they can also influence the time of administration or the use of these products and modify the way of administration. Another important concept is also the fact that although the minimum requirements for the proportion of nurses specialised in intensive care nursing within the multidisciplinary team differ, even where the highest level of intensive care is provided, the requirement does not exceed 50% (22). Therefore, it can be deduced that this knowledge may also be essential for newly qualified nurses or nurses new to intensive care, and not only for nurses specialised in intensive care.

Certainly, guidelines of professional societies or research results are available, but these are, in most cases,

published in English, and are not usually recommended as study literature. Therefore, it can not be fully assumed that they will be a common learning resource used during the qualifying nursing programme. On the other hand, however, it seems that at least some evidence-based recommendations are actually used in nursing practice in this area, as they were cited by the participating nurses during the interview. An example may be the use of chlorhexidine solution for mouth care (2), the decolonisation of patients with resistant microbial strains (3), as well as the use of damp chambers in eye care (23). However, it is not clear how effectively are evidence-based recommendations actually used in real nursing practice, although there is a reason to believe that it should be the base for the creation of hospital policies and care guidelines but participating nurses also mentioned practices that are not in accordance with evidence-based practice. An example could be the routine use of antiseptic eye drops in eye care (23).

In addition to the provision of basic nursing care (25), other authors, for example in their theses, deal with the issue of the administering medicines in intensive care units (24), but only a certain aspect of this activity is usually investigated. In Todor survey (24), which focuses on the medication management at intensive care in general, approximately 40% of respondents admit that they have sometimes given medicine without a doctor's prescription. One third of the respondents reported the work environment as a source of their knowledge in the field of pharmacology. Both outputs correspond to a certain extent to the results of this study where nurses describe the administration of certain products without prior indication of a physician as part of routine practice. Similarly, knowledge of the rules of the particular workplace is one of the factors influencing the choice of the products used or the way of administering them. Kabátová (25), which focuses on hygienic care, as well as this study, mentions the result of microbial tests as a factor influencing the choice of products used for the hygienic care and decolonisation.

A more complex analysis of real practice in the administration of medicinal products during the provision of basic nursing care in the Czech Republic is currently not available. The extent to which the practice described in this study is common is still not clear as well as the relationship of such practice to the quality of provided care. Unclear remains as well how far is the quality of care influenced by other factors, such as the nursing education in medication management, etc. More research is needed to quantify factors identified by this study.

## CONCLUSION

The practice of providing nursing care for the eyes, the mouth and the skin in intensive care is very diverse, and may also involve the use of medicinal products or medical devices. Contrary to traditional concepts of the role of a nurse in the administration of medicinal products, it appears it is not only always based on doctor's prescription. In some cases, a medicine or medical device is indicated by a nurse or, where appropriate, a nurse is involved in the decision-making. However, it is not clear how this practice is common or whether and how it affects the quality of the health-care provided. The nurses' knowledge and experience, according to the results of this survey, influence not only the selection of a particular product but also its frequency of use, and dose. At the same time, it can modify the way of administration. The extent of this practice, as well as its relationship to the quality of care provided, will, therefore, need to be further verified.

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