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Checklists for Nursing Students at a Surgical Ward

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Abstract:

Patient safety is a central issue in nursing. Safety checklists have proven to be a useful and efficient tool in high-risk workplaces, including the medical field. The type of this study is product development, and the aim was to produce two safety checklists (one preoperational and one post-operational) that aid students' learning processes. This thesis was commissioned by Ward 2 at the Surgical Hospital, Helsinki, Finland. This ward specializes in the pre- and post-operational care of patients undergoing mouth or jaw surgery. The theoretical framework is Patricia Benner's five-stage system describing the development of nurses from the novice stage to the expert. Nursing students, being at the novice stage, still rely heavily on rules and guidelines. A literature review was done to see the efficacy of checklists, and a short survey was sent to nurses on Ward 2 to make the most comprehensive checklists based on their own real-life work processes, and to provide background information on their checklist use and teaching. The limitation of the product is that these two lists are specific to Ward 2. These checklists don't substitute teaching as such, they only serve as tools. The results of this study are the products themselves, as well as the finding that more experienced nurses don't necessarily find using such lists useful. As a recommendation however, it is worth mentioning that when complex tasks become a routine, human error is more likely to happen, therefore even experts might profit from taking safety checklists into use. The ready checklists are to be sent to Ward 2 in December 2014, in three languages: Finnish, Swedish and English.

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FOREWORD

This thesis work began well before it was time to put it into writing. In my second year at the Nursing program at Arcada, I had the good luck of choosing Patricia Benner's theoretical work as the topic of the presentation required at the Nursing Theory course. Thinking about the process of becoming a nurse while going through the process myself, several small revelations helped the development process along, arriving at a rather simple idea in the end, which I hope will prove useful for many nurses-to-be training at Osasto 2, Kirurginen Sairaala.

I would like to thank Minna Feth, substitute head nurse at that ward, along with all the nurses, first for the wonderful training experience, and later for their help with this thesis.

I would like to express my sincere gratitude to my supervisor Pamela Gray, whose expertise and kind spirit was an inspiration, and without whose wise guidance and flexibility I wouldn't have been able to finish the work on time. A million thanks!

1   INTRODUCTION

The time nurses have with each patient is ever-shortening. Many nurses experience stress because of the shortage of time, and studies have explored its possible causes and consequences. The idea for this thesis came from my interest in what nurses' own practical solutions are to make sure that the patient *is* safe, and that the patient *feels* safe despite the nurses' limited time.

This thought instantly connected with the situation of nursing students, and more specifically, when they do their required practical training at a surgical ward. Do we feel safe performing the required tasks? How could students be helped to feel safe themselves taking care of patients before and after surgery for the first time?

Surely, one can help patients feel safe if they themselves feel safe in the situation.

It must also be taken into account that scheduled daytime surgery, while nowadays considered rather safe, and in this particular case, in mouth- and jaw surgery, mostly a relatively short procedure, it is still, and will forever remain an invasive solution to a health problem. The body suffers a shock, even when it's the smallest of cuts.
Experienced nurses develop a routine they follow. In other words, they have a mental list in their head that they follow to prepare patients as best as possible for surgery.

But what about nursing students? They also build their own mental list about the tasks at hand. So why not help them (us) with a written list that is easy to memorize and check again and again if necessary?

A written checklist is to serve as a different way of transferring the experienced nurses' knowledge and information to the next nursing generations, and to complement, but not to replace the spoken, more personal guidance in the teaching-learning situation.

Ward 2 at the Surgical Hospital (*Kirurginen Sairaala*) has commissioned this thesis work. It is the surgical ward where the author has done the compulsory surgical practical training in Spring 2013, and it is located in the center of Helsinki, Finland.

2 BACKGROUND

In order to construct a valid and functioning checklist, it is important to understand concepts covering the basics of mouth and jaw surgery and pre- and postoperative care. It is also important to define checklists and their relevance in medical situations.

The commissioner, Ward 2 at the Surgical Hospital (Kirurginen Sairaala) is specialized in Mouth and Jaw Surgery (*Suu- ja leukakirurgia*), and is responsible for all elective surgeries. In general, this medical field includes diseases that affect the jaw, the mouth, the teeth and the neck area. The Hospital District of Helsinki and Uusimaa (HUS) website describes this field as follows:

> Oral and maxillofacial surgery is a specialty of medicine and dental medicine, which focuses on the diagnostics, surgical care and other forms of treatment of diseases, injuries and defects of the mouth jaws and the face and related tissues. In addition to facial injuries and facial bone fractures, developmental disorders in the oral area and jaws, diseases of the mandibular joints, severe chronic facial pain and diseases of the oral mucosa are assessed and treated. Examples of common oral and maxillofacial surgeries include the surgical treatment of head and neck tumours. […] Groups requiring highly demanding medical care include patients with oral or maxillofacial cancer (head and neck cancer) or other tumors, patients with severe facial injuries, and patients requiring reconstructive facial, or mandibular joint surgery. (HUS)

Two of the most common surgical procedures are the removal of several teeth under general anesthesia and mouth cancer surgeries.

2.1 Preoperative care

As *Cambridge Dictionaries Online* state, the word "preoperative" means: "relating to the period of time immediately before a medical operation". A textbook describes it as follows: "Preoperative phase: period of time from when the decision for surgical intervention is made to when the patient is transferred to the operating room table". (Smeltzer et al. 2010 p. 424)

In the specific case of mouth and jaw surgery, in broad terms, it covers the time from the moment the patient arrives at the ward to the moment the patient arrives at the operating theatre and their care is taken over by the anesthetic-surgical team.

Preoperative care then means all the care given during the above specified time. In practical terms, this means getting the patient ready for the surgery both physically and emotionally. Giving information about the surgical procedure, providing an approximate timeline, and answering any questions are also important parts of preoperative care. (Liddle 2012)

For a more detailed description of the tasks, please read the checklists (Appendices 3 and 4), which are the product of this thesis work.

2.2 Post-operative care

As *Cambridge Dictionaries Online* state, the word "post-operative" means: "relating to the period of time that immediately follows a medical operation". According to a textbook: "Postoperative phase: period of time that begins with the admission of the patient to the postanesthesia care unit and ends after follow-up evaluation in the clinical setting or home". (Smeltzer et al. 2010 p. 424)

Please note that in this study, only the time the patient spends on the surgical ward after the surgery is covered. In other words, the events at the recovery room immediately after surgery and the time after the patient leaves the surgical ward are not in the scope of this thesis work.

In the specific case of mouth- and jaw surgery, in broad terms, post-operative care covers the time from the moment the patient is transported from the recovery room to the moment the patient leaves the surgical ward (therefore, the hospital).

Post-operative care then means all the care given during the above specified time. In practical terms, this means aiding the patient in their recovery after the operation both physically and emotionally, and ensuring that any possible post-operative complications are avoided, or if they happen, they are attended to. Giving information about what the patient is supposed to do or not do regarding their post-operative state at home after the operation, and providing them with guidance regarding in what case and how to contact the ward after they leave, is also an important part of post-operative care. (Liddle 2013) For a more detailed description of the tasks, please read the checklists (Appendices 3 and 4), which are the product of this thesis work.

2.3 Checklists

Checklists have many uses, from the everyday to the scientific. In the teaching-learning situation, such as the one that occurs in hospitals when nurses take nursing students, checklists can be tools that function as teaching-learning aids. However, it is important to note that they are not meant to replace the professional and subjective guidance of an experienced nurse.

It is fairly easy to define what checklists are, but the way they are used may show some differences. According to Thomassen, "[…] the most common understanding is that a checklist is a cognitive tool that can help us to remember and perform tasks or operations. These can vary from as simple as not forgetting to buy milk at the grocery, to commanding an aircraft carrier." (Thomassen 2012 p. 17)

Indeed, checklists first have been found useful in the aviation context. The systematic use of a checklist was first introduced by the U.S. Army Air Corps in 1935, to make tests flights safe for pilots. (Gawande 2009 p. 32-34)

Thomassen states that checklists can be used in different ways: "Some checklists are performed as background checks when planning an activity, other checks are performed immediately before a procedure is about to start, e.g. the pilot's before-take-off checklist. The latter checks allow errors occurring at an earlier stage in the 'causation chain' to be detected. Such checklists are commonly called safety checks." (Thomassen 2012 p.17)

There are two main ways to use a safety checklist: the "do list", where the checklist is used to lead the operation step-by-step, and the "challenge-response list", where the checklist is used to verify or check each item as they are performed or checked. This latter method is the one most commonly used in medicine. (Thomassen 2012 p.18)

2.3.1 Checklists in the medical context

The routine of recording vital signs (body temperature, pulse, blood pressure, and respiratory rate) didn't become common in Western hospitals until the 1960s, when nurses in the United States embraced the idea. They designed charts and forms, in other words, checklists, simply by recording the systematic measurement taking they had already been practicing. (Gawande 2009 p.36)

However, the realization that safety checklists may be very useful and even life-saving tools in the medical context, and that in some areas their systematic use is clearly necessary, is still an ongoing process. Thomassen shows in his dissertation that the sheer number of studies has gone up dramatically, especially since 2008. (Thomassen 2012 p.19)

Repeating Thomassen's simple search on PubMed (search words: [checklist AND safety]) shows that last year, in 2013 altogether 213 studies were published, making it the most productive year so far, and this year, until April 10, 2014 (the time of writing this thesis) an impressive number of 59 papers has already been published.

Studies have shown that checklists improve safety, especially in surgeries. Starting in 2007, The World Health Organization conducted their own study, and launched their initiative called Safe Surgery Saves Lives. In 2008, they also published their first Surgical Safety Checklist, whose 2009 edition is now available for download on the WHO website in six languages.

Figure 1. Surgical Safety Checklist. World Health Organization, 2009

The WHO's Surgical Safety Checklist, pictured above, covers the time when the patient is in the operating theater. However, practitioner-researchers have begun to realize that patient safety is significantly increased if safety procedures, especially checklists are implemented through the entire perioperative process, or what they call "the surgical pathway".

As de Vries states in her dissertation: "As the majority of surgical errors occur outside of the operating room, it seems likely that a checklist covering the entire surgical pathway will have a larger impact on patient safety than an intervention to be used in the operating room alone". (de Vries 2010, p. 14-15)

As already mentioned at the beginning of this chapter, it may well be that it was nurses who first introduced the systematic use of a practical checklist by recording the vital

signs of patients and making it the regular standard to check vitals. (Gawande 2009 p. 36)

A 2012 study shows that the use of an electronic checklist by nurses at the admission to hospital has decreased the number of medication errors significantly compared to the handwritten records:

> This research demonstrates that with a diligent approach to the way in which nurses obtain medication histories, improvement in outcomes may be delivered through the reduction of medication errors. An electronic medication checklist can decrease medication transcription errors when it is used by professional nurses at the time of hospital admission. (Wang and Biederman 2012)

Using checklists in education in general, and in nursing education in particular, is not uncommon, however, the result of searching for literature on the checklist as a method is scarce. It may be that, as a rather traditional and well-accepted method, it is not the topic of a lot of current research. However, a simple search for "checklist" on Google turns up approximately 34 million results.

There was a study published this year (2014), with the aim "to evaluate the efficacy of a checklist as part of a physical medicine clerkship to teach medical students physical examination maneuvers". (Altschuler et al. 2014 p. 82)

The results of that study showed a dramatic result: there was a growth from approx. 35% to 82% of physical examinations being performed correctly among 121 4th-year medical students who participated in the study. Their conclusion reads as follows:

> Considering the high prevalence of musculoskeletal disorders and the anticipated rise in the future, the authors strongly recommend teaching musculoskeletal physical examination maneuvers in medical school, which can be accomplished via a mandatory physical medicine and rehabilitation rotation. The authors conclude that checklists as part of this rotation can effectively help in teaching physical examination skills to medical students. (Altschuler et al. 2014 p. 82)

Going back to the World Health Organization (WHO), the already mentioned Surgical Safety Checklist is not the only one they have been working on. In response to the high number of maternal deaths, stillbirths and newborn deaths in low-resource settings, WHO has created a program called the Pilot Edition of the Safe Childbirth Checklist.

> The WHO Safe Childbirth Checklist contains 29 items addressing the major causes of maternal death (namely, haemorrhage, infection, obstructed labour and hypertensive disorders), intrapartum-related stillbirths (namely, inadequate intrapartum care), and neonatal deaths (namely birth asphyxia, infection and complications related to prematurity) in low-income countries. (WHO, Safe Childbirth Checklist)

The project is in the testing phase that is designed to show whether using the list improves the health outcomes in low-income countries. The study is planned to be concluded in 2015.

The background document on the Safe Childbirth Checklist refers back to the success of the WHO Surgical Safety Checklist, mentioned previously:

> The initiative builds on the success of the WHO Surgical Safety Checklist, where a two-minute safety check has resulted in significant reductions in surgical complications and a near-halving of death rates, and has become now a WHO-recommended best practice for all surgical facilities. (WHO Safe Childbirth Checklist Programme)

It seems that the use of checklists in different medical areas and situations is unquestionably useful and important in ensuring patient safety:

> **The purpose of a checklist is to detect a potential error before it leads to harm**. Human error in the complex world of modern medicine is inevitable. Harm to patients as the result of these errors is not. Checklists allow complex pathways of care to function with high reliability by giving users the opportunity to pause and take stock of their actions before proceeding to the next step. The WHO Surgical Safety checklist and others have improved reliability and helped to standardize care for thousands of individuals globally. (WHO, Patient Safety Checklists)

Additionally to the above mentioned two checklists, the Surgical Safety Checklist and the Safe Childbirth Checklist, WHO created a checklist in 2009 for the H1N1 (new influenza) pandemic, and, according to their website, another one is currently under development for trauma care. (WHO, Patient Safety Checklists)

In their 2013 book *Patient Safety and Managing Risk in Nursing*, authors Melanie Scott and Margaret Fisher of Northumbria University, Newcastle, UK, devote a passage to "The value of checklists in healthcare". They write, "[…] one way of approaching care in a more standard and uniform way is through the use of checklists." (Fisher 2013 p. 26)

They also state,

> The safety checklist concept or effect has been an integral part of many industries that face highly complex and potentially life-limiting tasks such as aviation and engineering. It has been recognized that this checklist approach has the same potential to save lives and prevent morbidity in medicine as it does in aviation, by ensuring that simple standards are applied for every patient, every time. (Fisher 2013 p. 26)

This suggests that over time, the consensus has formed in scientific research that the use of checklists in medicine is highly beneficial and recommended. There appears to be growing evidence in favor of using checklists in various medical fields, and especially at surgical wards.

2.4 Theoretical framework

The theoretical background comes from Patricia Benner's ideas of how nursing students' professional development takes place, as described in her book *From Novice to Expert* (Benner 1984).

In her research, Benner came across the work of philosopher Hubert Dreyfus and his brother, mathematician and systems analyst Stuart Dreyfus. They devised a skill acquisition model in 1980, which then Benner adapted to the nursing context. Benner consistently refers to the original model as the "Dreyfus Model of Skill Acquisition." After conducting a large study with nurses, Benner was able to describe five levels of skill acquisition: novice, advanced beginner, competent, proficient and expert. (Gray 2011 p. 578)

For the purposes of this study, the first two levels are discussed in detail below.

Benner writes of the novice stage:

> Nursing students enter a new clinical area as novices; they have little understanding of the contextual meaning of the recently learned textbook terms. But students are not the only novices; any nurse entering a clinical setting where she or he has no experience with the patient population may be limited to the novice level of performance if the goals and tools of patient care are unfamiliar. (Benner 21)

Benner also states, "The rule-governed behavior typical of the novice is extremely limited and inflexible. The heart of the difficulty lies in the fact that since novices have no experience of the situation they face, they must be given rules to guide their performance." (Benner 1984 p.21)

Benner emphasizes that this skill acquisition model is not a trait or talent model, but instead it is a situational model. This means that the description concerns the nursing student's situation, rather than their abilities. (Benner 1984 p.22) In other words, the cate-

gories don't aim to judge any personal skills, but rather to describe the progress of becoming an expert nurse.

Novice nurses clearly rely a lot on theory, guidelines, and tasks, since they have a lack of experience that leads to context-based judgment and skills. (Benner 1984 p.21)

However, this thesis work intends to point out and emphasize that nursing students do need the theoretical basis, rules, tasks and task lists (alas, checklists) in the beginning exactly because of their lack of experience.

2.5 Aim and limitations

The aim of this thesis work is very practical, rather than theoretical: it is to develop two checklists for nursing students: one for the pre-operative tasks, and another one for postoperative tasks. The hope is to produce a very useful, easy-to-handle tool (in two parts) that aids nursing students at a specific surgical ward in learning the tasks they need to perform when getting patients ready for a surgical procedure, and also after surgery. (Nurses who change directions and work on a surgical ward for the first time may also benefit from using such a list.)

Keeping in mind the extent of the nursing student's involvement, this thesis does not extend to the care given before the patient arrives at the ward, when the patient is in the operating room, and after the patient leaves the ward. Therefore it is presupposed that the decision was made to do the surgery, the patient was informed and agrees, and all necessary preliminary checkups regarding the patient's physical condition and eligibility for surgery had been done. The scope of this thesis only includes the time spent in the care given at this specific mouth and jaw surgery ward.

The theoretical aim of producing this checklist is to help nursing students' professional development by providing them with a simple tool that they can use during their training as they learn the specific caring process and as they, hopefully, gain confidence.

Surgical wards are nowadays fairly specialized, concentrating on different body parts, which makes the specifics of care vary greatly from ward to ward.

This checklist as a tool is not aimed for use on any other ward than the one it is designed for. The scope of this thesis is limited to this one specific list (in two parts), as any further development would require more research and organization.

However, there is a possibility of developing it into a more general checklist for all and any surgical wards, and with the further possibility to make the general checklist specific again for specific wards. The development of a general checklist may be a logical next step and a possible topic for a Master's-level thesis in the future.

3   METHODOLOGY

This thesis work, though not at all unprecedented, is still not common in type in the nursing field, because it falls under the category of product development. The result of this product development is a nursing checklist (in two parts), to be used by nursing students and nurses new to the field (and, occasionally, perhaps even by seasoned nurses).

The nursing checklists have been developed by reviewing literature and by sending out a questionnaire (Appendix 1) and a cover letter (Appendix 2) to nurses in the field to collect the material for the product (the checklists themselves, see Appendix 3) and to gather background material for their actual use. Finally, the answers were analyzed and conclusions were drawn.

3.1 Data collection

The review of literature was mainly done in the spring of 2014, while the questionnaire was sent out and answers were collected during 20-31 October, 2014. Ethical guidelines have been carefully followed.

3.1.1 Literature review

The focus of the literature review was to find literature that informs of benefits and drawbacks of using checklists. Checklists are believed to help avoid and/or minimize mistakes and aid the learning process of nursing students.

All data was collected using the following:

- Arcada Library's Nelli Meta Search, specifying the relevant databases by choosing the category Health Care, Occupational Therapy, Physiotherapy, Sport. The results came from a combination of many databases, including for example CINAHL, EBSCO, MEDLINE, PubMed, SAGE Journals Online etc.
- Google Scholar
- Google

Keywords used were "checklist", "checklists", AND "efficacy", "efficiency", AND "nursing".

Each search produced tens of thousands of results few of which proved actually relevant. The search was then limited by year, and the related articles suggestions were carefully combed through. All articles were chosen according to their relevance.

Most of the books have been found at Arcada's library, some by conscious search (e.g. Patricia Benner's), others by sheer luck (Fisher and Scott's). Atul Gawande's book on

checklists has been given to the author by her supervisor during the compulsory psychiatric practical training in February 2014.

3.1.2 The Questionnaire

The questionnaire consisted of four questions in total, and respondents were asked to answer in free form:

1. During all your experience of working as a nurse (including your training as a student), have you ever used checklists?
   If you answered "yes" to this question, did you find using a checklist useful?
   Why was it useful?

2. Take the case of a patient arriving for surgery to your ward. It is a planned day surgery and, according to plan, the patient will be able to leave the hospital the same day. Please list the nurse's tasks before the patient goes to surgery.

3. Take the case of a patient arriving for surgery to your ward. It is a planned day surgery and, according to plan, the patient will be able to leave the hospital the same day. Please list the nurse's tasks after the patient has had the surgery.

4. When you have a nursing student, what do you consider the most important things to teach them?

The questionnaire (above, and also Appendix 1) and the cover letter (Appendix 2) was given to the ward (Surgical Hospital Ward 2) on 17th October, delivered on a flash drive to the substitute head nurse. The agreement with the substitute head nurse was that she would send out the two files electronically to all nurses on the ward on Monday 20th Oc-

tober, 2014, and the nurses would have approximately two weeks to send back their responses, the last day of data collection being 31st October, 2014, a Friday.

The first few days after the questionnaire was sent out, it yielded no answers at all, however, a personal visit on the 23rd October, 2014, to "advertise" the cause among nurses, had its positive effects.

The questionnaire and the cover letter to nurses on the ward were collected personally from the ward on 31st October, 2014. The nurses sent their answers to the substitute head nurse via email, who then printed each of them out without names. Thus, although not using the latest methods offered by technology, the anonymity of the respondents was protected.

After all answers have been carefully studied and analyzed, two preliminary lists were assembled. These lists have been submitted for review to the substitute head nurse and discussed in person on 5th November, 2014. Thus the final version of the checklists has been developed.

Taking into account the actual language situation at the ward, the language of both the questionnaire and the cover letter was Finnish, and the respondents also answered in Finnish. For the purposes of this thesis, all answers have been translated back into English by the author.

3.2 Data analysis

In this thesis work, after the data was collected, first it was read carefully several times. To be able to handle the material more easily, respondents were numbered one to nine (1-9). The order of numbering was random. The number of responses in absolute terms was low, so the amount of data was relatively easy to handle.

There were two parts of analyzing the answers, since the four questions fell into two categories. One category consisted of the two questions (Questions 2 and 3, see Appendix 1) that were aiming to collect the task lists from which the final product, the two checklists were created. The processing of the data was done by simply assembling all answers and editing the lists to a length that contains all the important tasks, is easy to handle, and which would not contain any repetition of elements.

The second category of data analysis was used to process responses from the two other questions, Questions 1 and 4 of the questionnaire (see Appendix 1). The method of data analysis used is content analysis. "This is the main process of bringing order to the material, organizing it into patterns, categories and descriptive units." (Abbott and Sapsford 1998 p. 135) The purpose of content analysis is to describe the characteristics of content by examining who says what, to whom, and with what effect (Vaismoradi, 2013 p. 400).

The approach in analyzing Questions 1 and 4 was inductive. This approach moves from the specific to the general, so that particular instances are observed and then combined into a larger whole or general statement (Elo and Kyngäs 2007 p.109).

First the answers that were the same or very similar in meaning were listed, and then conclusions drawn from their meaning. Two approaches, identified in responses to Question 4 inquiring about what the respondent found important to teach to nursing students, were "nurse-focused" and "patient-focused". Conclusions were drawn from the occurrence and co-occurrence of these two approaches.

When these answers were juxtaposed with answers to Question 1 (Appendix 1) asking respondents about their own experiences in using checklists at work, in addition to manifest content, some latent content has also emerged regarding the nurses' approach to care as compared with the length of their work experience (please see chapters 4 and 5,

the Results and Discussion respectively, for details). An explanation of the terms manifest and latent content is given by Graneheim and Lundman as follows:

> Analysis of what the text says deals with the content aspect and describes the visible, obvious components, referred to as the *manifest content*. In contrast, analysis of what the text talks about deals with the relationship aspect and involves an interpretation of the underlying meaning of the text, referred to as the *latent content*. Both manifest and latent content deal with interpretation but the interpretations vary in depth and level of abstraction. (Graneheim and Lundman 2004 p. 106)

3.3 Ethical considerations

This research has been approved by Arcada's ethical committee, and is in accordance with the rules outlined in the Arcada document "Good Scientific Practice in Studies" and the "Responsible conduct of research and procedures for handling allegations of misconduct in Finland" guidelines issued by TENK (Tutkimuseettinen Neuvottelukunta, in English: Finnish Advisory Board on Research Integrity). (TENK, 2012)

The questionnaire used to collect data was filled out anonymously, and any data collected from the research has been used without attaching it to any person or identity. The Questionnaire (Appendix 1) was distributed to all nurses on the commissioning Ward 2 by the substitute head nurse (*apulaisosastonhoitaja*). Respondents sent their answers back to the substitute head nurse, who then printed out all responses on paper, without attaching it to any person or identity. This paper version was then handed to the author of this thesis work.

4 RESULTS

As stated before, the aim of this thesis work is to draw up two lists (Appendix 3 and 4) for the use of nursing students, which in research terms is called a product development. Two of the questions in the questionnaire were aimed at practically making lists, while the others were exploring the respondents' experience with checklist use, and their teaching experience, respectively.

Out of 21 nurses employed on the ward, 9 (43%, $n = 21$) responded to the questionnaire. All 9 respondents (100%, $n = 9$) have answered all questions.

4.1 Question number 1 – checklist use at work

Question number one (1) aimed at gathering information about the nurses' experience in using checklists at the workplace.

The question actually consisted of three parts, asking first if the respondent, during their career as a nurse (and including student years), has used checklists, then asking if they found them useful, and finally asking them to explain the reasons.

Two respondents (22%, $n=9$) have given a negative answer to this question. One respondent simply responded "No" (meaning that they haven't used checklists), another one explained that they did not find using checklists necessary for themselves, but noted that they give them to the nursing students.

Therefore the majority of respondents (78%, $n=9$) have used checklists of some type at least at some point during their career, and have also found it useful.

Among the reasons for using checklists, respondents mentioned "patient safety", "lowering of stress level", and checklists are useful "because there are always new things to remember with each patient", and "because then nothing is forgotten".

4.2 Questions number 2 and 3 – gathering the checklists

Out of the total of four questions included in the questionnaire, number 2 and 3 concerned the lists themselves that would become the product of this thesis work. See the ready checklists in Appendices 3 and 4.

The respondents were asked to gather two lists based on their daily work practices. The first list concerns the tasks nurses have before the patient is taken to the operating theatre, while the second list concerns the nurses' tasks after the patient returns from the recovery room, after the operation.

All respondents organized their lists in a chronological order. The lists showed slight differences in length, which reflects different working styles and approach to the act of writing lists; some respondents gave more meticulously detailed accounts of the activities, therefore their lists were longer, others preferred to use more general and compact terms, so their lists were shorter.

4.3 Question number 4 – teaching students

Question number four (4) was aiming to find out what nurses think is the most important thing to teach to their students, and thus get some background concerning their teaching attitudes.

The nine (9) respondents have given twenty (20) different answers to this question. Many of them were either the same, or very similar to each other in meaning.

The most prominent things that came up were the following:

- Treating patients as if they were family/respectfully/the way we ourselves would like to be treated (4 mentions)
- Interaction between nurses/in general (3 mentions)
- Basic nursing tasks specific to the ward (2 mentions)
- Respecting the patient (2 mentions)
- Patient safety (2 mentions)
- Treating patients individually (2 mentions)

The respondents have given both patient- and nurse-focused answers. To give an example, from the list above, "Treating patients respectfully" is a learning point that focuses on the patient, while "Basic nursing tasks" focuses on the nurse as caregiver.

A quick summary shows that out of 20 different answers, in 12 answers the focus was on the patient, and in 8 answers, the focus was on the nurse. 7 out of the 9 responses mentioned either only patient-focused, or both patient and nurse-focused learning points. Consequently, the remaining 2 respondents mentioned only nurse-focused learning points.

It is perhaps interesting to note that five (5) respondents have answered this question in a list format, while four (4) of them have answered in a text format.

5 DISCUSSION

As stated previously, the aim of this paper is to present a product development process, and its result: two nursing checklists meant for use by nursing students.

This aim has been achieved, two compact lists for nursing students have been assembled. The real practical value of this thesis work thus will come from the list being taken into use.

The results of the empirical part of this work, and more specifically, the answers of the two background questions of the questionnaire provide an interesting insight into possible implications of using checklists in a real-life work situation at present.

Question number 1 aimed to explore the nurses' background and experience in regard to using checklists.

Most of the respondents (78%, $n=9$) answered positively, while two nurses (22%, $n=9$) said they did not use checklists in their work at all. Even though it was not the aim of this study to find out the reasons for this, in their free-form answer, one of them gave an explanation: "Checklists came into use when I was already working on this ward for many years, and I haven't found them necessary for myself. As far as I remember, I haven't used checklists elsewhere either." (Respondent 3) This answer suggests that the use of checklists depends on one's subjective preferences, which is understandable, given that people have different learning styles: "As a result of our hereditary equipment, our particular past life experience, and the demands of our present environment, most of us develop learning styles that emphasize some learning abilities over others." (Kolb, 1981. p. 237)

However, in the words quoted above, the respondent also refers to having had many years of experience. The other respondent that said they were not using lists also wrote:

"I have already graduated 30 years ago… I don't remember that I would have used checklists." (Respondent 4)

So both respondents, although age or length of work experience has not been among the research questions or conditions, revealed that they have a long experience working at a surgical ward. This suggests that age or the length of experience might have something to do with the willingness to use checklists. If we connect this assumption to the answers given to question 4 about the most important things to teach nursing students, the respective answers reveal something further: "The staff is there at the hospital for the patients" and "If [the nursing student] doesn't know something, it's best to ask, there are no stupid questions." (Respondent 3). The answer of Respondent 4 to the same question was "Basic issues regarding the caring for surgical before and after the operation" and "[…] [the nursing student] must ask if doesn't know."

In summary, the answers of these two respondents are more nurse-focused and practical.

To contrast these answers to the other nurses' answers to question 4, all of whom answered positively to question 1 regarding their own checklist using experience, here are a few examples:

- "Patient safety."
- "Respecting the patient. We should treat patients the same as we would treat family."
- "All patients are to be treated individually, equally and respectfully."

(Respondents 2, 5 and 6 in no particular order)

While there is no information about the age of these or any of the respondents, their answers reveal that they keep in mind socio-cultural issues, which may be, for example, the care of patients whose nationality, religious affiliations and/or the languages they speak may be different from the usual. Taking these into account in nursing education is a more progressive, modern development. A quick search on Google Scholar, using the terms "socio-cultural" and "nursing", brings up the following results:

1980 – 1990	~ 1690 articles
1990 – 2000	~ 4370 articles
2000 – 2010	~ 17,600 articles
Year 2014	~ 3,280 articles

It seems that this year (2014) alone close to twice as many articles have contained references to socio-cultural issues in the nursing context than they did in a whole decade (the 80's) in the last century.

These results show a growing preoccupation with socio-cultural issues, and point towards a more holistic view being accepted in the progress of the nursing field.

But to turn back to the idea of using checklists, let's explore how these same nurses (Respondents 2, 5 and 6) have answered question 1 of the questionnaire, which asked about their experience using checklists. For the sake of increased anonymity, the three answers are quoted below randomly:

- "I have used checklists at the hospital. In my opinion they increase patient safety."
- "Yes, they are useful because new issues keep coming up and there is a lot to remember both as a student, and as a supervisor."

- "Yes. Mainly at work. Checklists in my opinion are exceptionally useful. Especially in the beginning, when it's impossible to remember everything by heart. Checklist use decreases stress, because one can always check from there if everything is done. Furthermore, it improves patient safety, when things don't only depend on the nurse's memory. Some of the checklists I've used have been provided by the ward, some I've written myself based on the practices on the ward."

As these responses show, regardless of their age, the same nurses who took a perhaps more holistic and more patient-focused approach, also considering the importance of patient safety when answering question 4, have also been more open to using checklists. This may suggest that nursing education has been changing in these directions.

Additionally to these empirical findings, as shown in chapter 2.4.1 Checklists in the medical field, of this thesis work, the general tendency appears to point in the same direction: the use of patient safety checklists is on the rise, and the World Health Organization has not only discovered and approved their use, but has also acted and actively took part in creating and implementing several lists as safety measures to tackle global health care issues.

The benefits of taking a standardized checklist into use at each ward would be important for the whole of the caring process already in place:

> The shared knowledge of the content of a checklist allows those delivering care to support one another by cross-checking what is being done and in what order. Checklists may be implemented as a stand-alone intervention, but more often than not they are part of several other components that go together to improve the quality and safety of care. (Fisher and Scott 2013 p. 28)

Patient safety checklists could be a welcome and beneficial addition, which does not mean that the whole care structure need be changed.

6   CONCLUSION AND RECOMMENDATION

As shown in the chapter Theoretical framework (chapter 2.4), nurses at Stage 1 (Novice nurses) in Patricia Benner's categorization of proficiency levels, still rely on rules and guidance. The checklists that are the outcome of this product development work have been meant to be used first and foremost by nursing students at Benner's Stage 1 doing their practical training at this surgical ward.

Another, somewhat similar case is when nurses change workplaces and after becoming experienced in another medical field. This level in Benner's categorization is Stage 2 (Advanced Beginner). Nurses on this level of proficiency still need guidelines because they are learning to act in a new field of specialization. It may well be that they also find patient safety checklists useful. This group is only mentioned here because nowadays it happens often that nurses change wards and fields of specialization, and because it bears a resemblance to the situation of a nursing student. The example of a nurse having years of experience in psychiatry, moving to a surgical ward is perhaps not common, but explains the mention of this category.

A third group, and of special interest in the light of the findings of this thesis work, is that of the Expert, which corresponds to Stage 5 in Benner's categorization of proficiency. Benner's definition says: "The expert performer no longer relies on an analytic principle (rule, guideline, maxim) to connect her or his understanding of the situation to an appropriate action". (Benner 1984 p. 31)

It appears that the empirical finding corroborates Benner's definition: two of the respondents answered "no" to Question 1, when asked if they have used checklists in their work, and added as a reason that they have many years of experience.

The author does not wish to dispute the value of these nurses' experience or expertise. Nurses with a certain level of routine and a long experience, surely living through de-

velopments of medicine and changes of guidelines, often make as excellent guides for the nursing student as nurses with a more up-to-date educational background.

However, it is perhaps good to point out that once sequential tasks become routine, and nurses feel safe in their expertise, error is more likely to happen. Atul Gawande writes in his book on checklists:

> In a complex environment, experts are up against two main difficulties. The first is the fallibility of human memory, especially when it comes to mundane, routine matters that are easily overlooked under the strain of more pressing events. (When you've got a patient throwing up and an upset family member asking you what's going on, it can be easy to forget that you have not checked her pulse.) A faulty memory and distraction are a particular danger […] if you just miss one key thing, you might as well not have made the effort at all.
>
> A further difficulty, just as insidious, is that people can lull themselves into skipping steps even when they remember them. In complex processes, after all, certain steps don't *always* matter. […]
>
> Checklists seem to provide protection against such failures. (Gawande 2009 pp. 35-36)

And, as mentioned by one of the nurses who answered the Questionnaire in this thesis work, it may also be that even nurses with years of experience behind them, may also benefit from taking a list into use. It is, after all, about patient safety: trying to minimize human error by striving to work as well as possible, using tools that help us achieve our best.

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APPENDICES

Appendix 1. THE QUESTIONNAIRE

1. During all your experience of working as a nurse (including your training as a student), have you ever used checklists?

   If you answered "yes" to this question, did you find using a checklist useful?

   Why was it useful?

   Koko hoitajanurasi aikana (mukaan lukien harjoittelusi opiskelijana), oletko käyttänyt muistilistoja?

   Jos vastasit kyllä, oletko pitänyt muistilistan käyttöä hyödyllisenä?

   Miksi se oli hyödyllistä?

2. Take the case of a patient arriving for surgery to your ward. It is a planned day surgery and, according to plan, the patient will be able to leave the hospital the same day. Please list the nurse's tasks before the patient goes to surgery.

   Potilas saapuu osastollenne leikkausta varten. Leikkaus on suunniteltu päiväkirurgiseksi, potilas kotiutumaan samana päivänä. Voisitko luetella hoitajan tehtävät ennen leikkausta?

3. Take the case of a patient arriving for surgery to your ward. It is a planned day surgery and, according to plan, the patient will be able to leave the hospital the same day. Please list the nurse's tasks after the patient has had the surgery.

   Potilas saapuu osastollenne leikkausta varten. Leikkaus on suunniteltu päiväkirurgiseksi, potilas kotiutumaan samana päivänä. Voisitko luetella hoitajan tehtävät leikkauksen jälkeen?

4. When you have a nursing student, what do you consider the most important things to teach them?

   Kun opastat hoitajaopiskelijaa, mitä pidät tärkeimpänä heille opetettavaa asiaa?

Appendix 2. THE COVER LETTER

Dear Nurse,

This is a short questionnaire and part of my thesis work. My name is Krisztina Maher-Zsitvay. I am a third-year nursing student at Arcada University of Applied Sciences, Helsinki.

I had my surgical training at Ward 2 of the Surgical Hospital, Helsinki in April-June 2013.

From this experience came the idea to develop a pre- and post-operational checklist that, when my thesis work is completed, will hopefully be taken into use by students (and possibly, by newly employed nurses) at your ward.

To be able to do this, I would like to ask for your help in listing the nurse's tasks and by giving some background information on using checklists and drawing on your experience as a nurse who trains students.

This questionnaire is anonymous, and any data collected from this research will be used without attaching it to any person or identity. It has been approved by Arcada's ethical committee, and is in accordance with the rules outlined in the Arcada document "Good Scientific Practice in Studies" and the "Responsible conduct of research and procedures for handling allegations of misconduct in Finland" guidelines issued by TENK (Tutkimuseettinen Neuvottelukunta, in English: Finnish Advisory Board on Research Integrity).

Thank you in advance for your help!

Kind regards,

Krisztina Maher-Zsitvay

Email: (provided)

Helsinki, June 2014

Appendix 2. 1 THE COVER LETTER IN FINNISH

Hyvä hoitaja,

Tämä pieni kysely on osa tutkintotyötäni. Nimeni on Krisztina Maher-Zsitvay. Olen kolmannen vuoden sairaanhoitajaopiskelija Ammattikorkeakoulu Arcadasta, Helsingistä. Suoritin kirurgisen harjoitteluni huhti-kesäkuussa 2013 Kirurgisen sairaalan osasto 2:lla.

Tästä kokemuksesta sai alkunsa ajatukseni kehittää leikkausta edeltävä ja seuraava muistilista, jonka tutkintotyöni valmistuttua opiskelijat (ja mahdollisesti työnsä aloittavat hoitajat) toivottavasti ottavat käyttöönsä osastollanne. Onnistuakseni tässä, haluaisin pyytää apuanne hoitajan tehtävien luettelemisessa ja kertomaan hieman taustatietoa muistilistojen käytöstä perustuen kokemukseenne opiskelijoita kouluttavana hoitajana.

Kysely on anonyymi ja kerättyjä tietoja ei liitetä henkilötietoihin. Arcadan eettinen komitea on hyväksynyt kyselyn ja se noudattaa Arcadan ”Hyvä tieteellinen tapa opinnoissa” sekä TENK:in (Tutkimuseettinen Neuvottelukunta) ”Vastuullinen tutkimustapa ja väärinkäytössyytösten käsittely” –julkaisujen ohjeita.

Kiitos jo etukäteen avustasi!

Ystävällisin terveisin,

Krisztina Maher-Zsitvay
Sähköposti: (annettu)

Helsinki, kesäkuussa 2014

Appendix 3. THE PREOPERATIVE CHECKLIST

When the patient arrives

- Welcome and identify the patient (name, social security number, surgery)
- Check if patient has been without food
- Guide patient to lab

When the patient returns from the laboratory

- Show the ward (bed, locker, WCs)
- Explain the schedule of the day
- Check medication list and what medication the patient has taken that morning
- Check preliminary information form together with the patient
- Check vitals (blood pressure, pulse, saturation)
- Check body temperature and/or blood sugar if needed
- Place the name tags on patient's both hands
- Check if someone is picking up the patient after the operation/staying with them the following night
- Consult doctor if anything different in e.g. blood pressure or lab results
- Tell patient to change into operation clothes

When the operating room calls

- Give Paroex mouth rinse to the patient and explain how to use it
- Give preliminary medication to patient
- Take patient to OR (operating room)
- Give oral report to OR staff
- Document everything in computer

Appendix 3.1 THE PREOPERATIVE CHECKLIST IN FINNISH

Kun potilas saapuu osastolle

- Potilaan vastaanottaminen ja tunnistaminen (nimi, henkilötunnus, leikkaus)
- Ravinnotta olon tarkastaminen
- Ohjaaminen labraan

Kun potilas palaa laboratoriosta

- Osaston esittely (sänky, kaappi, WC:t)
- Päivän kulusta kertominen
- Lääkelistan tarkistus, mitä lääkkeitä potilas on ottanut samana aamuna
- Esitietokaavakkeen tarkistus potilaan kanssa
- Vitaalien tarkastus (RR, pulssi, SpO2)
- Lämmön ja/tai verensokerin tarkistus tarvittaessa
- Tunnistusrannekkeiden laitto molempiin käsiin
- Varmistus että potilaalla on saattaja kotimatkaan ja yön yli
- Lääkärin konsultointi, jos voinnissa poikkeavaa esim. Verenpaineessa tai laboratoriovastauksissa
- Leikkausvaatteiden vaihto

Kun soitto tulee leikkaussalista

- Paroex purskuttelun antaminen ja ohjaaminen
- Esilääkitseminen
- Saliin vieminen
- Raportin antaminen leikkaussalihenkilökunnalle
- Kirjaamiset koneelle

Appendix 4. THE POST-OPERATIVE CHECKLIST

- Get the report in the recovery room
- Take back patient to the ward
- Place the call button at the patient's convenience
- Check vitals (blood pressure, pulse, saturation)
- Check body temperature and/or blood sugar if needed
- Check the site of surgery (discharge, swelling, loss of feeling etc.)
- Check pain level, nausea and discharge from wound, take care of them
- Check if patient has been able to urinate after the surgery
- Check the follow-up care with the doctor
- Reserve check-up times from the secretary, if needed
- Update the medication list, plan the follow-up medication
- Give oral and written home care instructions to patient
- Give necessary documents to patient, e.g. home care guidelines, ward's contact information, travel allowance certificate, prescriptions
- Check that the discharge criteria are fulfilled (urination, eating, pain, surgery site condition, patient's condition, person to pick patient up)
- Document everything in computer

Appendix 4. 1 THE POST-OPERATIVE CHECKLIST IN FINNISH

- Raportin vastaanottaminen heräämössä
- Potilaan tuonti osastolle
- Soittokellon paikalleen asentaminen
- Vitaalien tarkastus (RR, pulssi, SpO2)
- Lämmön ja/tai verensokerin tarkistus tarvittaessa
- Leikkausalueen tarkistaminen (vuoto, turvotus, tunnottomuus jne)
- Kivun, pahoinvoinnin ja vuodon seuranta ja hoito
- Postoperatiivinen virtsaamisen seuranta
- Jatkohoidon selvittäminen lääkäriltä, suunnittelu
- Tarvittavien kontrollien varaus sihteeriltä
- Lääkelistan päivitys, lääkehoidon sunnittelu
- Suulliset ja kirjaalliset kotihoito-ohjeet potilaalle
- Tarvittavien dokumenttien anto potilaalle (kotihoito ohjeet, osaston yhteistiedot, matkakorvaustodistus, reseptit, ym.
- Potilaan kotiutuskriteerien täyttymisen varmistus (virtsaaminen, syöminen, kivut, leikkausalueen kunto, potilaan vointi, hakija)
- Kirjaamiset koneelle