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# EDUCATION MATERIAL FOR ENGLISH-SPEAKING PATIENTS UNDERGOING GENERAL ANESTHESIA

– Project for Terveysnetti



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## EDUCATION MATERIAL FOR ENGLISH-SPEAKING PATIENTS UNDERGOING GENERAL ANESTHESIA – PROJECT FOR TERVEYSNETTI

The purpose of this thesis was to create reading material for English-speaking people about general anesthesia and how to act before and during the operation day. The result of the project will be published in Terveysnetti. This thesis has been written using research articles and works that has been published between years 2005-2016.

This thesis was executed as a project. The process is as logic as possible and pursues to follow the given guidelines. Researches were sought with terms “general anesthesia” and “anxiety” using internet databases that supports nursing: CINAHL complete, PubMed, Medline (OVID), EBSCOhost and Cochrane library. In the searching process there were only few research works that fit and supported this thesis. Rest of the searching were done by using GOOGLE and books with same limiters.

This thesis includes a short literature review about general anesthesia and the occurring fears before the operation day. The result of few different surveys is that almost a half of the patients undergoing a surgery are scared of general anesthesia or are nervous about the operation. The researches point out that women are more nervous than men. Nervousness and fears can be reduced utilizing different methods either medically or listening to music, talking with the nurse, doctor or with a close person.

It can be concluded from this thesis that the patients who are undergoing a surgery with general anesthesia for the very first time: they do not have enough information about what that day will include. Many of the patient may post-pone undergoing to the operation because of nervousness and anxiety. In the future the output of this thesis could be used to reduce nervousness and anxiety towards general anesthesia and surgeries. This project tells accurately about the operation day to patients that have been in a surgery and those who are going for the first time. When the patients know more about the operation and the procedures of that day the easier it is for them to relax.

### KEYWORDS:

anesthesia, general anesthesia, anxiety

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## OPPIMISMATERIAALIA ENGLANNINKIELISILLE POTILAILLE YLEISANESTESIASTA – PROJEKTI TERVEYSNETTIIN

Tämän opinnäytetyön tarkoituksena oli luoda englanninkielistä luettavaa materiaalia yleisanestesiasta ja siitä, miten pitäisi toimia ennen leikkauspäivää ja leikkauspäivänä. Projektin tuotos tullaan julkaisemaan Terveysnetissä. Opinnäytetyö on tehty käyttäen tutkimustöitä, jotka ovat julkaistu vuosina 2005-2016.

Opinnäytetyö toteutettiin projektina. Prosessi on mahdollisimman looginen ja pyrkii seuraamaan ohjeistuksia. Tutkimuksia etsittiin sanoilla ”general anesthesia” ja ”anxiety” käyttäen internet-tietokantoja, jotka tukevat sairaanhoitoa: CINAHL complete, PubMed, Medline (OVID), EBSCOhost ja Cochrane library. Hakuprosessista löytyi vain muutama tutkimustyö, jotka sopivat tukemaan tätä opinnäytetyötä. Muu haku tapahtui käyttämällä GOOGLE:a ja kirjojen avulla samoja rajoituksia käyttäen.

Opinnäytetyö sisältää lyhyen kirjallisuuskatsauksen yleisanestesiasta ja leikkauspäivää tai hetkeä edeltävistä peloista. Muutaman eri kyselyn tuloksena selviää, että lähes puolet leikkaukseen menevistä potilaista pelkää nukutusta tai on hermostunut kyseisestä operaatiosta. Tutkimustyöt osoittavat myös, että naiset ovat enemmän hermostuneita kuin miehet. Näitä pelkoja tai hermostuneisuutta pystytään lieventämään erilaisilla tavoilla joko lääketieteellisesti tai kuuntelemalla musiikkia, puhumalla hoitajan, lääkärin tai läheisen ihmisen kanssa.

Tästä opinnäytetyöstä voidaan päätellä, että potilailla, jotka menevät ensimmäistä kertaa leikkaukseen, jossa nukutetaan, ei heillä ole riittävästi tietoa, mitä kyseinen päivä tulee pitämään sisällään. Monet saattavat pitkittää leikkaukseen menemistä jännityksen ja ahdistuneisuuden vuoksi. Tulevaisuuden kannalta tämän opinnäytetyön tuotosta voitaisiin käyttää lieventämään jännitystä ja ahdistuneisuutta nukuttamista ja leikkauksia kohtaan. Tämä projekti kertoo tarkasti leikkauspäivän tapahtumista potilaille, jotka ovat jo olleet operaatioissa ja niille, jotka menevät leikkaukseen ensimmäistä kertaa. Kun potilaat tietävät enemmän operaatiosta ja tulevista tapahtumista leikkauspäivänä, sitä helpompi heidän on rentoutua.

ASIASANAT:

nukutus, anestesia, yleisanestesia, ahdistus

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## **LIST OF ABBREVIATIONS (OR) SYMBOLS**

APAIS	The Amsterdam Preoperative Anxiety and Information Scale
CINAHL	Cumulative Index to Nursing and Allied Health Literature
STAI	The Spielberger State-Trait Anxiety Inventory
TYKS	Turun Yliopistollinen Keskussairaala

# 1 INTRODUCTION

Most of the patients undergoing surgeries are anxious about the waiting, type of anesthesia and the outcome of the operation. This thesis gives more detailed information to the patients about anesthesia, how to prepare for the surgery, what to take in consideration when showing up on the operation day. How to relieve anxiety over waiting and possible side-effects of the anesthesia administered. There is existing material for Finnish-speaking patients to take with from the hospital, but this upcoming material is for English-speaking people.

This project's idea is to create teaching and educating material to Terveystieto website for English-speaking people to read, relieve anxiety and to comprehend the most that is going to happen under general anesthesia. This thesis will explain how general anesthesia affects human brain and the body. The purpose is to come up with easily understandable teaching material so there will be no misunderstandings or questions that might give second thoughts about undergoing to the surgery. The guide is supposed to be self-learning and informative. General anesthesia is mostly introduced in the project, yet other types of anesthetics are mentioned. The theoretical base of the thesis is about general anesthesia. The thesis also discusses the differences between females' and males' anxiety over surgeries and anesthesia. Only elective surgeries are considered in the thesis.

The task of this project is to create easily understandable teaching material to read for English-speaking people undergoing general anesthesia. The aim is to give information about general anesthesia, how to prepare for the operation and the perioperative process in general and to educate how to relieve anxiety. The project is for Turku University of Applied Sciences.



## 2 LITERATURE REVIEW

### 2.1 Methods of data search

In this project the literature search was done using databases that supports nursing such as CINAHL complete, EBSCOhost, Cochrane, Medline (Ovid) and PubMed. These databases did not successfully provide all the material that was needed to execute this project. More searching was done by using internet database Google and books. The search was limited to works that were published between years 2005-2016 and were free texts, using words “general anesthesia” and “anxiety”. English and Finnish language was used for searching. Inclusion criteria for selecting these articles was by reading all the articles through and assessing their relevance by comparing similar information on other web sites. Exclusion criteria for not selecting specific articles was that some of the information in the text was not clearly explained or the information was not relevant for the project. See table 1 for the list of data searches used for this project.

Table 1: Data search

Database	Search terms and limiters	Result	Selected by the title	Selected by the abstract	Selected by the whole text
CINAHL	“General anesthesia” AND Nurs* Limiters: 2005-2016, Free full text	93	7	2	1
Medline	“General anesthesia” AND Nurs* Limiters: 2005-2016, Free full text	46	1	1	0

Cochrane	"General anesthesia" AND Nurs* Limiters: 2005-2016	12	2	2	0
Terveysportti, Duodecim	General Anesthesia	22	1	1	0
PubMed	("general anesthesia") AND Nurs* Limiters: 2005-2016, Free full text	6	0	0	2
Google	General anesthesia Anxiety Limiters: 2005-2016, full free text				22
Books	Anesthesia Limiters 2005-2016				1

## 2.2 General anesthesia

For many, general anesthesia is considered as an unconscious state of mind and body. General anesthesia is defined as complete unresponsiveness, even to pain. The patient is put to sleep which is very deep. General anesthesia is mostly used for patient undergoing surgeries that often lasts a long time. (Orebaugh 2013.)

Eventhough general anesthesia is used approximately for 21 million patients per year in the U.S, the molecular and cellular mechanisms by which anesthetics produce loss of waking consciousness are understood poorly. There is a complex between consciousness and clinical signs that are used to evaluate the depth of anesthesia, that limits the study of consciousness. The original presumption that neural networks that evolved to generate sleep are preferentially modulated by anesthetic substances has been supported by

multiple lines of evidence. The data demonstrate that sleep neurobiology can contribute to understanding the mechanisms by which anesthetics cause loss of consciousness. (Mashour 2010.)

It was thought that the anesthetics mainly targeted the lipidic membranes of the cell wall and therefor prevented mobility of nerve impulses on the surface of the nerve cell. Multiple studies show that the anesthetics affect the function of the nerve cells on the reseptors which are located on the surface of the cells. The most important preventative neurotransmitter is aminobutyric acid (GABA). It is still a long way for complete understanding the affection of the anesthetics and the cause of unconsciousness in the neural system. (Maksimov ym. 2008.)

### 2.3 Preoperative care

Preoperative care means the procedures the patient receives before the upcoming surgery. It includes an comprehensive history and physical examinations of the patient. (Loh-Trivedi 2015.) The goal of the assessment is that the patient understands the plan of the operation, feel secure about the form of anesthesia, surgery and postoperative care including self-care. (Eskola 2014). The physical condition and the illnesses the patient might have are taken into consideration and treated as well as possible before the operation in the case of possible complications. (Eskola 2014.)

Elective patients usually attend a pre-admission clinic, which is often nurse led. The appointment will involve a medical history, a nursing assessment, the provision of written or verbal information and tests based upon National Institute for Health and Clinical Excellence (2003) guidance. For patients with a learning disability or mental health problems, it is advisable that a relative or carer is present so consent, capacity and reasonable adjustments can be discussed. A ward visit for these patients may make the ward less daunting on the day of surgery. (Liddle 2012.)

Physical examination should address not only areas affected by the surgical procedure but also the cardiopulmonary system as well as a search for any signs of ongoing infection (eg, upper respiratory tract, skin). When spinal anesthesia is likely to be used, patients should be evaluated for scoliosis and other anatomic abnormalities that may complicate lumbar puncture. Any cognitive dysfunction, especially in elderly patients who will be given a general anesthetic, should be noted. Preexisting dysfunction may become more apparent postoperatively and, if undetected beforehand, may be misinterpreted as a surgical complication. (Mohabir & Gurney 2015.)

Table 2: Possible complications in different anesthesia forms (Tennant ym. 2012.)

**Table V – Complications versus Anesthetic Technique**

Complication	Anesthetic Technique				p-value
	GA	RA	NB	Combined	
Headaches	38	16	-	-	< 0.001*
Sore throat	211	7	2	2	< 0.001*
Myalgia	56	10	1	-	0.825
Nausea	128	22	1	-	0.490
Vomiting	98	23	1	-	0.573
Oral trauma	93	4	-	-	< 0.001*
Teeth trauma	4	-	-	-	-
Thrombophlebitis	85	12	2	-	0.065
Memory loss	6	1	-	-	0.405
Micturition problems	36	10	-	-	0.952
Nightmares	9	-	-	-	-
Back pain	68	17	-	-	0.925
Motor deficit	12	2	1	-	0.163
Paresthesia	31	12	1	1	0.029*

GA: General anesthesia; RA: Regional anesthesia; NB: Nerve block.

The medical history and the physical examination are the best strategies to identify pre-operative problems. The time devoted to the pre-anaesthesia assessment may be optimized through the use of questionnaires. These are not meant to replace the assessment by the anaesthetist but rather to facilitate

identification of important points, and to document patient responses. (Rincón-Valenzuela, David, Escobar, Bibiana 2015)

Table 3: Questionnaire for patients (Rincón-Valenzuela, David, Escobar, Bibiana 2015.)

**Table 4 – Recommended questionnaire for patients.**

Have you had surgery before?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you had any reaction to anaesthesia?	No <input type="checkbox"/>	Which? _____
Are you allergic to any medication?	No <input type="checkbox"/>	Which? _____
Are you allergic to anything else (tape, iodine, food)?	No <input type="checkbox"/>	Which? _____
Do you use any drugs (cannabis, cocaine, opioids or others)?	No <input type="checkbox"/>	Which? _____
Do you drink alcoholic beverages regularly?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you or have you had high blood pressure?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you have a heart problem? (arrhythmia, angina, pacemaker, defibrillator)	No <input type="checkbox"/>	Which? _____ Yes <input type="checkbox"/>
Have you had thrombosis/phlebitis/thrombophlebitis?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you need more than one pillow to sleep?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you run out of breath or feel chest pain when you climb stairs?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you smoked over the past year?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you have any lung disease?	No <input type="checkbox"/>	Which? _____
Do you have sleep apnea?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you use CPAP?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you had any kidney disease?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you had any liver disease or hepatitis?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you been diagnosed with Hepatitis B, C or HIV?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you have diabetes?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you use insulin?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you had seizures fainting spells, embolism or stroke?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you bleed easily (gums, nose or wounds)?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you had anaemia?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you object to blood transfusion in any way?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you take aspirin or any other anticoagulant medication?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Have you been hospitalized in the past?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you have any loose teeth?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you wear dentures?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you wear contact lenses?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you have piercings?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you use hair extensions?	No <input type="checkbox"/>	Yes <input type="checkbox"/>
Do you have any other medical problem?	No <input type="checkbox"/>	Which? _____

Source: Adapted from Card et al.<sup>7</sup>

## 2.4 Starting of general anesthesia

When patient has arrived to the operating room, the anesthesiologist or the anesthesia nurse will go through patient safety protocols; allergies, nausea or previous complications during last operations. The patient will be monitored carefully through the operation. There will be ECG, blood pressure, oxygen saturation, entropy, muscle relaxation and breathing monitored. An IV cannula is mostly inserted to the brachial vein for administering anesthetics, sedatives, opioids and possible medicines that might be needed before, during and after the operation. An anesthesiologist is the one to put the patient in to sleep and sets the right configuration to the respirator. (VSSH 2015.)

Putting patient under general anesthesia is not as simple as it sounds. After administering the anesthetics etc. follows endotracheal intubation. Because of the anesthetics and opioids, the patients spontaneous breathing collapses. That is why a mechanical ventilator is required during general anesthesia. To connect the patient to the mechanical ventilator which does the breathing for the patient, an endotracheal intubation is compulsory. Endotracheal intubation maintains an open airway and prevents suffocation. A flexible tube is placed into the trachea or windpipe, through the mouth or nose to support breathing. There can be difficulties to breath when trachea is blocked due to anesthetics and opioids, that is why the endotracheal tube is necessary. Other reasons why the tube is placed is because it provides an open airway for other anesthetics, medication and oxygen. The tube also protect lungs. (Underwood 2015.)

## 2.5 Monitoring

ECG is a surface recording of the electrical activity of the myocardium. It is recorded by connecting five to twelve electrodes on the skin through which electrical potentials are measured. ECG gives the essential information on heart rate, rhythm and some indication of myocardial ischaemia. It does not tell any indication about the circulation. (Mendonca 2006.)

Pulse oximetry is a test used to measure the oxygen level (oxygen saturation) of the blood. It is an easy, painless measure of how well oxygen is being sent to parts of your body furthest from your heart, such as the arms and legs. (John Hopkins Medicine 2015.) There must be an correct size probe attached to finger tip, toe or ear lobe to get as accurate measurement as possible. Skin periphery should be warm and dry to get accurate results. (WHO 2011.) According to (Drummond & Lafferty 2010), it is considered that the possibility of decreased oxygen saturation is because of the effects of opioids on respiratory muscle action. In anaesthetized patients breathing spontaneously, opioids increase abdominal muscle action and reduces lung volume. This can cause problems in gas exchange which can lead to hypoxaemia, despite apparently satisfactory alveolar oxygen.

An entropy monitor, by displaying values indicating adequate level of anaesthesia, can guide anaesthetic medicine administration, without increasing chances of awakening during surgery. Further, it can facilitate faster awakening at the end of surgery, reduce costs and decrease chances of death. (Chhabra ym. 2016.)

Neuromuscular therapy is a way of monitoring neuromuscular blockade. Muscle relaxants are often used in a surgery before endotracheal intubation to ease the procedure itself and reduce airway injuries. Neuromuscular monitoring is essential in diagnosis of residual paralysis. A sensor is set between thumb and index finger, there are two electrodes attached to the wrist on the palm side along the course of the ulnar nerve. An electrical shocks are given to test the reflex of the muscle. The patient is always under general anesthesia before electrical shocks are given. Most often there is a twitch when the testing starts and it is visible for the eyes. On the monitor there are numbers to show the resistance of neuromuscular activity, 0 is no activity at all when shocked. (López 2012.)

During most surgeries, the patient is made unconscious and paralyzed to protect him from pain and damage from involuntary movement. As a result of

this paralysis, machines called ventilators must take over the work of breathing for the patient. A tube called an endotracheal tube is typically inserted into the airway to provide oxygen, remove carbon dioxide and protect the lungs from gastrointestinal fluids. (Doss 2015.) The ventilator has various modes that supports the patient during general anesthesia throughout the surgery. Depending on the surgery, its length and the type of general anesthesia, careful monitoring of breathing is required. An anesthesiologist will set the most suitable mode and values on the ventilator. Without proper ventilatory management it can cause serious pulmonary and extrapulmonary damage that may not be immediately apparent. (Amitai 2016.)

## 2.6 Anxiety

Anxiety is a state of mind everyone experiences. Coming out of comfort zone and doing something radical that an individual is not used to; speaking or presenting something to a large audience, driving in heavy traffic. Being anxious keep people alert and cautious to avoid accidents. When anxiety takes over to prevent people to overcome everyday matters, it can be diagnosed as a disorder. (National Alliance on Mental Illness 2015.)

There are various types of stress that can occur. Haemodynamic stress responses such as increased heart rate and arterial pressure are triggered by endocrine regulatory mechanisms and the autonomic nervous system involving corticotropin- releasing hormone, adrenocorticotrophic hormone, cortisol, epinephrine, norepinephrine, dopamine, prolactin, cyto-kines. In surgical patients stress can appear as sweaty hands, tremor, tachycardia, hypertension etc. (Wetsch ym. 2009.)

Results of various surveys made in Austria show that there is a slight difference in levels of anxiety between women and men. Anxiety was assessed in 135 patients on the day of surgery. The Spielberger State-Trait Anxiety Inventory (STAI), is questionnaire that evaluates the state of anxiety. It has 20 questions to state anxiety and 20 questions to trait anxiety using four-point scale. The

Amsterdam Preoperative Anxiety and Information Scale (APAIS), is a questionnaire to assess anxiety status when patient feeling all alone with personal worries before operation. It has six questions using a five-point Likert scale. The results show that women suffer slightly more anxiety than men. (Wetsch ym. 2009.)

It is common for people to be afraid of hospitals, medicine and surgeries. The fear can be common anxiety or a phobia. Mostly traumas intend to develop anxiety to phobias. Nosocomophobia is a phobia towards hospitals. Tomophobia is a phobia towards surgeries or surgical operations. Pharmacophobia is a phobia towards medicine. (Aman 2013.)

## 2.7 Relieve anxiety

There are various ways to ease up the anxiety before the surgery. To stay calm and relaxed can be difficult when waiting for the transfer to the operating room. It has been proven that deep breathing and clearing mind from negative thoughts is helpful method to reduce anxiety levels. Fill mind with positive thoughts, envision that the hospital or the operating room is a living room in home. If not certain about some procedure, ask for clarification on the subject that concerns. Listening to relaxing music can be a great factor to relieve anxiety. If possible, have a family member, close relative or a friend beside you before the operation. Some people are fine without any of the previous but might want to have some kind of anti-anxiety medication right before the operation to calm down. (Revelant 2014.)

### **3 PURPOSE OF THE PROJECT**

The task of this project is to create easily understandable teaching material to read for English-speaking people undergoing general anesthesia. The aim is to give information about general anesthesia, how to prepare for the operation and the perioperative process in general and to educate how to relieve anxiety. The project is for Turku University of Applied Sciences and it will be published in Terveystietä as well.

## 4 EMPIRICAL IMPLICATION

For this project, I made a leaflet as a power point presentation for Turku University of Applied Sciences. I sent this project (see appendix 3) to the operating department nurse manager of TYKS Salo hospital to read through and comment on the project.

At first the purpose was to create material to Terveystietä but it was changed later. The project was not yet commented by the operating department nurse manager so it was decided that the project will be published in Terveystietä after all.

The reason for creating material for English-speaking patients is because there is not much information in English language. TYKS Salo hospital does not have this kind of material to give to their foreign patients that are not able to speak or understand Finnish language.

The leaflet will be published in December 2016. The project will be presented at the bachelor thesis conference on 12<sup>th</sup> of December 2016. At the bachelor thesis conference, a poster presentation will be printed out and a computer will show the power point slideshow through the conference. The project will be free access to all. The final material will be ready on 5<sup>th</sup> of January 2017.

## 5 DISCUSSION

General anesthesia is still somewhat mystery in the area of medicine. Physicians are continuously studying anesthetics and human anatomy to improve quality and safety of patients undergoing general anesthesia. General anesthesia has been around over many decades and still sometimes something unwanted occurs and there is no explanation for it.

Databases used to find relevant material to support proceeding in this project were not that supporting. Most of the studies found using these databases handled various cases which had general anesthesia mentioned as a method of anesthesia used in that specific surgery but nothing how the procedure of anesthetization was executed. Limiters of publishing years between 2005-2016 and full free texts excluded out many of relevant studies that might have been useful in this project.

Another limiter for this project is that all the surgeries were elective. Emergency operations are excluded from this project. Using Google for searching relevant material can be biased. Studies and research articles were only used that had an author/authors, publisher and a publishing year. Being able to find in English and Finnish language provided more information about the wanted subjects.

In my opinion the different parts of the project that explains all the essential issues of undergoing general anesthesia are well executed and told in an understandable way. This project would be good for hospitals to provide to their patients. This project could contribute to do more research about anxiety relieving on the operation day. Next project could tell more specifically about types of anxiety and targeted care for every type anxiety suffered.

Working alone caused some struggle and motivation problems. Working with a pair helps one another to triumph on their cause.

## 6 CONCLUSION

This project was finished a little late due to lack of motivation. Finding information using certain databases was a struggle because of relevant material was difficult to find or it did not exist for free. The project includes information about general anesthesia, anxiety and relieving anxiety.

The purpose was to create material that is very easy to read and comprehend and I believe it was successful. The project was sent to TYKS Salo hospital for overview. The project was created in English language. A leaflet was produced as the result of the project. The leaflet explains how to prepare for general anesthesia and surgeries. The leaflet includes useful information about pre-, intra- and postoperative care.

This leaflet can be utilized by nurses as a tool to guide English-speaking patients and their relatives, family members or close people. It can also be used a teaching material for other staff members.

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## Appendix 1: Literature review table

The researches, the place and the year of publication	The purpose of the study	The sample and data collection methods	The main findings
Mitchell, M. Malden, Massachusetts 2012	To investigate the possible influence of gender and anaesthesia type on anxiety prior to day surgery	Questionnaire was distributed to 1606 patients undergoing day surgery, with anaesthesia, answers were returned by mail. 674 were returned. Data were collected over a 2-year period (2005-2007)	Of the total patients 82.4% experienced anxiety on the day of surgery with the wait, anaesthesia and possible pain. . General anaesthesia patients were statistically significantly more anxious than local anaesthesia Female patients were statistically significantly more anxious
Bischoff, P; Rundshagen, I; Schneider, G. 2011 PudMed	Analyzing reasons for waking up during general anesthesia.		There are different methods to prevent the patient to wake up during general anesthesia such as putting headphones over the ears and play music to block

			unwanted noises in the operating room
Hudetz, A.G. 2012. PubMed	Review of the function of anesthetics in human brain		Anesthetics affect the thalamic nuclei. It reduces connectivity in the primary sensory areas in the brain.

## Appendix 2: Comission form



**TURUN AMMATTIKORKEAKOULU**  
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**THESIS COMMISSION AGREEMENT** 1

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Degree programme Nursing

**THESIS**

Topic / working title Education material for English-speaking people undergoing general anesthesia

Due date 25.5.2016

**EMPLOYER**

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## THESIS COMMISSION AGREEMENT

2

### TERMS OF AGREEMENT FOR A COMMISSIONED THESIS

#### SUPERVISION AND RESPONSIBILITIES

The student is responsible for the completion and the results of the thesis. Turku University of Applied Sciences is responsible for the supervision of the thesis process. The employer agrees to supply the student with all the information and material needed in the thesis work, and to advise the student from the point of view of the employer organization.

Copies of the written report shall be delivered to the employer and submitted to the collections of the library, or published in an electronic form in the electronic library.

#### RIGHTS

The copyright of the thesis remains with the author, that is, the student. In addition to copyright, valid legislation concerning other immaterial rights shall be obeyed.

The thesis report to be published must be prepared so that it contains no professional or business secrets or other information deemed confidential in the Finnish Act on the Openness of Government Activities (621/1999); instead, they shall be left as the background material for the thesis. In the assessment of the thesis, both the published and the confidential part shall be considered.

#### EMPLOYMENT RELATIONSHIP AND EXPENSES

The employer and the thesis worker shall agree separately on the possible employment relationship, compensation paid for the work and reimbursement of expenses possibly caused by the thesis process.

The employer and the student agree not to disclose to a third party any confidential information or documents revealed during the thesis process, or in negotiations held before or after the process. A representative of the employer organization shall be given a possibility to read the thesis report not later than fourteen (14) days prior to its intended publishing date. The employer shall, prior to the publishing date mentioned above, state which confidential sections should not be published.

#### PUBLICIZING THE RESULTS AND CONFIDENTIALITY

A written report on the thesis process shall be prepared in accordance with the instructions of Turku University of Applied Sciences.

Which confidential professional or business materials will not be published?

### WE HAVE MUTUALLY AGREED ON THE COMPLETION OF THE THESIS PROCESS AS DESCRIBED ABOVE

11.3.2016  
17.5.2016

Juhani Lammi Juhani Lammi  
Student  
[Signature]  
Employer

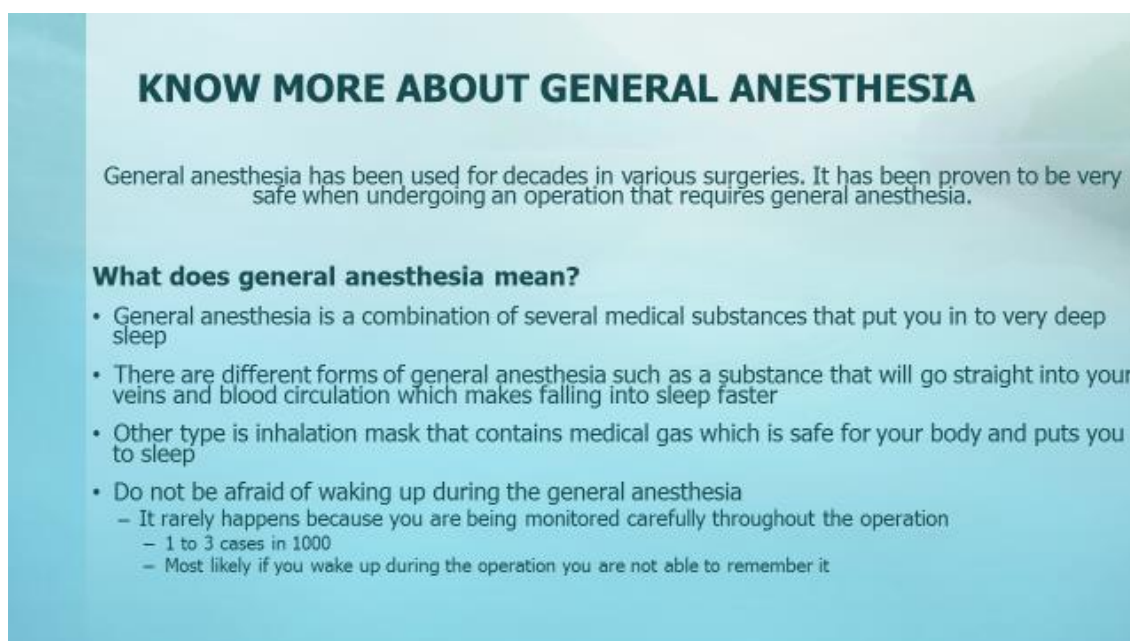
APPENDIX: THESIS PLAN



Print

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## Appendix 3: The leaflet



## Properties of Intravenous Anesthetic Agents

Drug	Induction and Recovery	Main Unwanted Effects	Notes
<b>thiopental</b>	Fast onset (accumulation occurs, giving slow recovery) Hangover	Cardiovascular and respiratory depression	Used as induction agent declining. ↓ CBF and O <sub>2</sub> consumption Injection pain
<b>etomidate</b>	Fast onset, fairly fast recovery	Excitatory effects during induction <b>Adrenocortical suppression</b>	Less cvs and resp depression than with thiopental, Injection site pain
<b>propofol</b>	Fast onset, very fast recovery	cvs and resp depression Pain at injection site.	Most common induction agent. Rapidly metabolized; possible to use as continuous infusion. Injection pain. Antiemetic
<b>ketamine</b>	Slow onset, after-effects common during recovery	<b>Psychotomimetic effects</b> following recovery, Postop nausea, vomiting, salivation	Produces good <b>analgesia</b> and amnesia. No injection site pain
<b>midazolam</b>	Slower onset than other agents	Minimal CV and resp effects.	Little resp or cvs depression No pain. Good amnesia.

Picture (Saeed 2013)

CBF = Cerebral blood flow  
O<sub>2</sub> = Oxygen  
CV = Cardiovascular  
CVS = Cardiovascular system  
Adrenocortical suppression = Lack of adrenalin  
Antiemetic = Nausea preventative drug  
Psychotomimetic effect = Mental indifference  
Amnesia = Loss of memory

## Inhalation anesthetics

- Inhaled anesthetics decrease the information to rise from the spinal cord to the brain
  - Depresses cerebral blood flow and glucose metabolism
- Causes loss of pain, hypnosis and amnesia
- Most common inhalation anesthetics:
  - Halothane, isoflurane, sevoflurane and desflurane
- The anesthetic mixes with your blood circulation
- Right amount of the anesthetic agent flowing puts you to sleep and keeps you in deep sleep
  - This is called surgical level of anesthesia
- Risks are even smaller than with intravenous anesthetics

### What do you need to know before going to the surgery?

- If you are having questions what to do before the surgery, talk to your nurse or doctor for more information
- You will be guided thoroughly through the procedure
- You will be handed a checklist what to do before going to the hospital
- Usually you should **NOT** eat after 10 pm on the day before operation
  - In the morning you can drink a little water
  - If you have your own medications, ask the doctor about them before intake
- Remove your jewelry and leave them home
- You should shower at home before coming to the hospital
  - Brush your teeth, remove fingernail polish and wash fingernails and genital area
- Do **NOT** put any cologne or parfyme on
- Keep the skin of the surgical area in good condition
- Bring your KELA or health insurance card with you
- If you are a smoker, try to stop or at least reduce smoking weeks before the surgery
  - Add exercise to improve your lungs and general condition

### On the operation day

- Check in to the hospital
- You will receive hospital clothing for the operation
- Bringing a close relative or a friend with you may ease up if you are nervous
- Listening to relaxing music is good way to get mind off of the operation
- Your premedication may be a pain medication and/or a sedative that makes you sleepy and reduces anxiety
- Before the operation you are supposed to empty your bladder
  - If the operation is long, the nurse will insert a catheter into your urinary bladder that will be attached through the operation
  - A nurse will remove the tube when you are able to walk to the toilet
  - The tube is called urinary catheter
- If there is body hair on the surgical area, a nurse will remove it before the surgery
  - You can do this on your own at home if you want but try to be careful and do not get wounds
- The surgical team is very professional and have made many of these kind of operations

### **What happens in the operating room?**

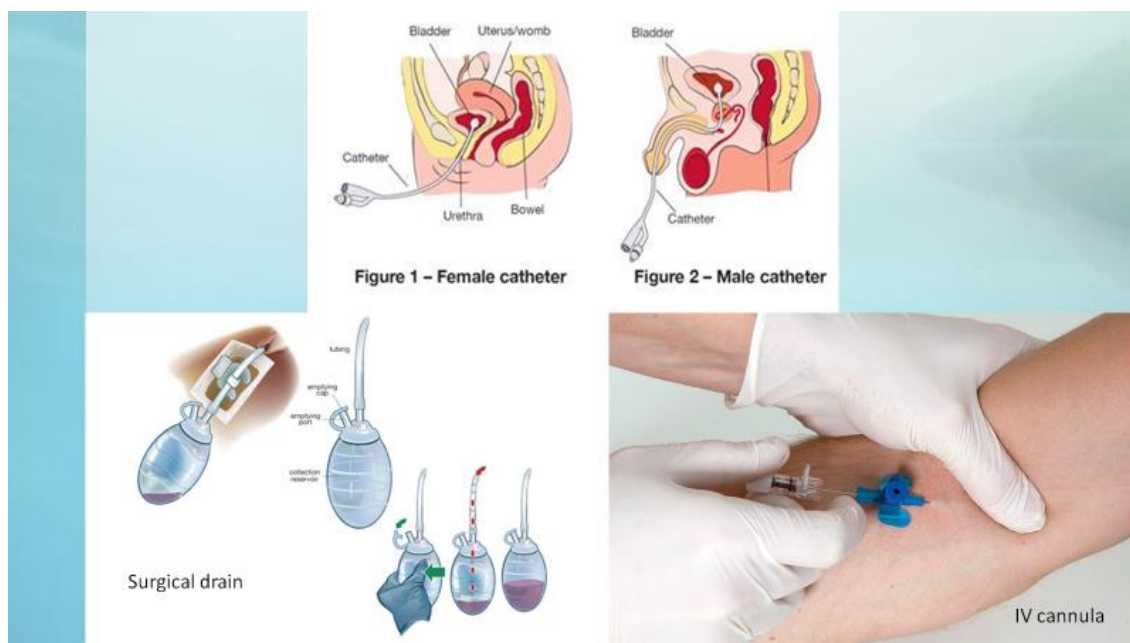
- You are transferred from waiting area to the operating room
- First you are being identified and the operation is ensured to be correct
- The anesthesiologist is the specialized doctor who puts you to sleep
- The anesthesiologist might ask you few questions like:

#### **Questions:**

1. When is the last time you ate?
2. Have you have previous general anesthetics, if yes did you have any complications?
3. Do you have any allergies towards medical substances

### **Procedures in the operating room**

- The anesthesiologist or a nurse will insert an IV cannula which is a little plastic device that will open an access to your vein for medical substances, this might sting just a little bit
- You will receive several medical substances which makes you sleepy very quickly
- You are being anesthetized before inserting drain or urinary catheter so you will not feel any discomfort
- If there is bleeding in the surgical area, a doctor will insert a tube to the spot where the bleeding occurs and it will gather the blood from the surgical wound. A nurse or a doctor will remove the tube when the bleeding has stopped
  - This tube is called drain
- If the operation is long, the nurse will insert a catheter into your urinary bladder that will be attached through the operation
  - A nurse will remove the catheter when you are able to walk to the toilet
- The next thing you know the operation is over and you are waking up in the recovery room



### After the operation

- You are now in the recovery room waking up
- There will be a nurse all the time taking care of you
- The anesthesiologist will come and check on you when you are awake
- There might be some pain after the operation but you will receive painkillers so you do not need to suffer from pain
- You might feel some dizzy for a while but it goes away in few hours
- There are some monitoring devices attached to you
  - ECG: Heart monitoring leads that informs your heart rate and rhythm
  - Pulse oximeter: Monitoring device on your finger tip that informs your oxygen saturation which means how well are getting oxygen into your lungs
  - Blood pressure cuff around your arm to monitor your blood pressure
- If you wake with a plastic tube in your throat, do not be afraid
  - It is there to help you breath and keep your airways open until you wake up
  - If you are feeling nauseus you can ask medication for it, usually all the patients are given a preventative medication for nausea right after the operation
  - You might have a sore throat because of the tube
- More information about risks and possible complications:
  - <http://www.surgeryencyclopedia.com/A-Ce/Anesthesia-General.html>

### Recovering from general anesthesia

- While you are still in hospital
  - Try to maintain good hand hygiene
  - You can not shower right away after the operation
  - If the doctors want to have you in the hospital for more monitoring try to be compliant
  - Nurses will help you with everyday actions until you are able to do them on your own
  - Have visitors to see you if you are transferred in to a ward for recovery and further monitoring
  - Usually your stay at hospital is from few hours to few days depending on your operation and condition
  - It is recommended to take the prescribed pain medication regularly
- If you are discharged at the hospital on the same day
  - Have a family member or a close friend with you over night
  - Let yourself be pampered
  - Wear loose clothing for at least few days
  - Have healthy food and drinks
  - Follow the given guidelines from the doctor or nurse to recover
  - Do not try to strain yourself and the surgical area for few days
  - Rest and relax



Do not be afraid  
You are with professionals  
Relax  
Enjoy your nap



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### Pictures:

Saeed, H.K. Published 2013. 2014 General anesthetics. Slide 46.  
<http://www.slideshare.net/Pharmacologist/2014-general-anesthetics>

### Urinary catheter

[http://healthywa.wa.gov.au/Articles/U\\_Z/Your-indwelling-urinary-catheter](http://healthywa.wa.gov.au/Articles/U_Z/Your-indwelling-urinary-catheter)

### IV cannula

<http://www.osceskills.com/e-learning/subjects/intravenous-cannulation/>

### Surgical drain

<http://scotdir.com/home/sciences-3/overview-of-surgical-drains>

### Youtube Video:

IV cannulation procedure – OSCE Exam demonstration. Accessed on 8.12.2016. Available at:  
<https://www.youtube.com/watch?v=0csywpTvHFM>